Norfolk Gliding Club Ltd

Tibenham Airfield, Diss, Norfolk, NR16 1NT
www.norfolkglidingclub.com
admin@norfolkglidingclub.com
T:01379 677207

Norwich to Tilbury EN020027

Written Representation

Relevant Representation Reference Number [redacted]

Summary

This representation to the Examining Authority is submitted by Mr A Griffiths on behalf of the Norfolk Gliding Club, the owners and operators of Tibenham Airfield to address the aviation safety risks and other adverse impacts to their airfield that would result from the proximity of the proposed pylon line

The representation only considers the 11km section of the proposed pylon line that traverses the airfields 5km safeguarding zone and examines the aviation safety risks and adverse impacts that would affect both the safe operation of the airfield and its longer-term financial viability.

Reference is also made to the adjoining airfield of Priory Farm where there are deconfliction agreements in place to minimise the collision risk and increase aviation safety. These agreements themselves would be at risk with the proximity of the proposed pylon line being only 700m west of the Priory Farm runway in direct conflict with their current circuit patterns

The airfield's location, a brief history and current activities are detailed together with the development plans for the future to cater for requests from other pilots based in East Anglia who are facing the closure of their own airfield or its constant unavailability due to inclement weather conditions

The development of NGC's safeguarding plan in 2022 is explained together with the reasons behind the use of a safeguarding zone compared to the Obstacle Limitation Surface (OLS) approach used by NG's consultants throughout their assessment. Whilst the OLS approach provides a good start point to airfields with perhaps only one or two runways, in a mixed power and gliding environment it is totally impractical since the gliders can land in any direction, from any height on either the asphalt runways or the surrounding grass areas

The recorded activity levels at Tibenham for the period 2009 to 2025 are shown together with a review of the safety risks and their consequences. Whilst accident statistics are not as well documented as we would like, some analysis of those from the Air Accidents Investigation Branch (AAIB) are reviewed and some data local to Tibenham is compared to the activity levels.

The ability to simulate emergency landings and a reference to the Australian study on power reduction rather than power loss being a major factor in their accident analysis also helps to support the National Energy System Operators review that undergrounding is the lower cost option whilst concluding that if there is a safer option, should we not be using it?

The nature of the aviation safety risks are considered with reference to normal power flying, aerotow launches, engine failure scenarios and gliders returning from cross country flights. Each is examined in terms of the height of the proposed pylon route and the practicality of any potential mitigation that could be considered

A summary of the advice and guidance from Government, planning and aviation bodies such as the CAA, the BGA and others is reviewed to support NGC's overall objection to the proposal

The decision by NG to withhold pertinent information from the joint August 2025 consultation that would have enabled both airfields to review and complete their Statement of Common Ground and Airfield Impact Assessment (AIA) is identified together with the advice of the Examining Authority's team at the Open Floor Hearing of February 12 to produce our own version which appears in appendix M followed by the AIA in appendix N

The representation concludes with NGC, as the operator and according to the CAA, the holder of expert opinion on safeguarding the airfield with respect to potential aviation safety risks posed by new obstacles, stating that they do not agree to the proposal as presented by NG

1. Introduction

1.1. This representation is submitted by Mr A Griffiths, as an Interested Party, on behalf of Norfolk Gliding Club (NGC) who would be adversely impacted by the Norwich to Tilbury National Grid Scheme and its proximity to their airfield as promoted in the submitted DCO Application

1.2. This representation only addresses that part of the detailed route alignment where it adversely affects aviation safety and operations at NGC as it crosses their safeguarding zone

1.3. NGC fully support the objections raised by the operators of Priory Farm Airfield which is orientated in a North/South direction only 1 km from the threshold of their East/West runway

1.4. This representation also responds to document EN020027-000388-6.15A2 Environmental Statement Appendix 15.2 – Review of Aviation Impact and certain paragraphs of document EN020027–000237–7.21 2024 Design Development Report as referenced by the report paragraph numbers

2. Tibenham Airfield

2.1. Tibenham airfield is located about 21km SSW of Norwich and 10km NNE of Diss

2.2. The airfield is owned and operated by Norfolk Gliding Club (NGC) and is primarily a training airfield for those wishing to learn to fly gliders or powered aircraft

2.3. The relative locations of Tibenham Airfield, Priory Farm Airfield, the proposed route alignment and the Tibenham 5km safeguarding zone are shown in Appendix A

3. Tibenham Airfield – A brief history

3.1. The airfield was built during 1941/2 with one runway of 2,000 yards and two of 1,400 yards each. It was occupied in the war years by the 445th Bomb Group of the 2nd Air division United States 8th Airforce who arrived with 4 squadrons of B24 Liberator bombers in 1943 eventually departing in May 1945 having flown 280 missions, lost 108 aircraft in action as well as 554 aircrew.

3.2. Of these 280 missions the Kassell raid of September 27th 1944 is remembered for the losses sustained by the 445th. A total of 39 aircraft that took off that morning, 4 aborted due to technical issues leaving 35 to complete the mission – only 4 returned to Tibenham. That level of loss still stands today as the highest for any one base in the history of the USAAF

3.3. The airfield is visited regularly by US veterans and the families of those who were based at Station 124 (Tibenham) during the war

3.4. Modifications to the airfield were made in the 50's during the height of the cold war but the Ministry of Defence finally closed the airbase in 1959. NGC was founded at the airfield in early 1959 and continues to operate to this day

3.5. Part of the airfield was purchased by NGC in 1987 with the balance being taken over in 1990.

4. Tibenham Airfield – Our activities

4.1. Operating under the auspices of the British Gliding Association (BGA) and with our team of qualified instructors we

- Provide flying training to anyone from youngsters still at school through to senior citizens
- Provide a heavily discounted cadet scheme which allows youngsters to become involved with aviation at an early age and in many cases continue that interest into their adult life with employment in all aspects of flying
- Provide flying training for the disabled using a modified glider
- Provide a training ground to enable suitable pilots to become instructors
- Are a Junior Gliding accredited club for pilots (under 25) to learn and improve their flying skills
- Hold regular Scout camps throughout the season in support of their curriculum
- Are a Women in Gliding accredited club with support to increase female participation in flying and hold regular 'trial lesson' days for the local Women's Institutes

- Are a location for gliding competitions ranging from interclub through to National level
- Are a location for international gliding rallies
- Can be accessed by the community through our Community Amateur Sports Club (CASC) status
- Provide a unique location to serve this part of the UK as recognised by Sport England's allocation of National Significant Areas for Sport (SASP) status

4.2. We also provide

- A café which is open to the public and attracts a regular stream of visitors to the airfield
- A supply of Jet A1 fuel to support the military and emergency services (Air Ambulance and Police)
- Support to the British Young Pilots association
- A partnership with local schools' outreach projects with Saxon Air (Norwich) STEM projects in the region
- A home for the Jet Modellers Association based in East Anglia

4.3. A combination of the closure of some airfields in East Anglia and the unavailability of others due to their wet conditions during the winter months has led to many requests to re-locate to Tibenham. NGC plans to be able to embark on a programme of development to cater for these requests but the proximity of the proposed pylons raises doubts as to the longer-term viability given the restrictions they will impose on our operations.

4.4. We have for some years provided and continue to provide a training location for both Norfolk and Suffolk police, the Army Apache helicopters and are one of the largest privately owned airfields listed in the UK Strategic Aerodrome Network

5. Safeguarding

5.1. Following advice from the BGA, the General Aviation Awareness Council (GAAC), the Combined Aerodrome Safeguarding Team (CAST) and the Civil Aviation Authority (CAA) in 2022, the club developed a safeguarding plan with the help of the Airfield Advisory Team (AAT) of the CAA

5.2. Because of the number of runways at Tibenham (six asphalt and seven grass) we chose to adopt the CAA AAT's advice and create a circular safeguarding zone which is of 5km radius centred on the airfield rather than the multiplicity of Obstacle Limitation Surfaces (OLS) that would be produced using CAA CAP 168

5.3. The OLS approach is recognised and accepted by the CAA AAT as providing a 'one size fits all' starting point and is useful in situations where the airfield has only one

or two runways. However, in a mixed power and gliding airfield where gliders can approach and land from any height in any direction onto either the asphalt runways or surrounding grass areas it is totally impractical. Having said that we note that NG's consultants refuse to accept the safeguarding zone and base all their aviation assessment on the OLS method contrary to the advice and guidance from the CAA AAT.

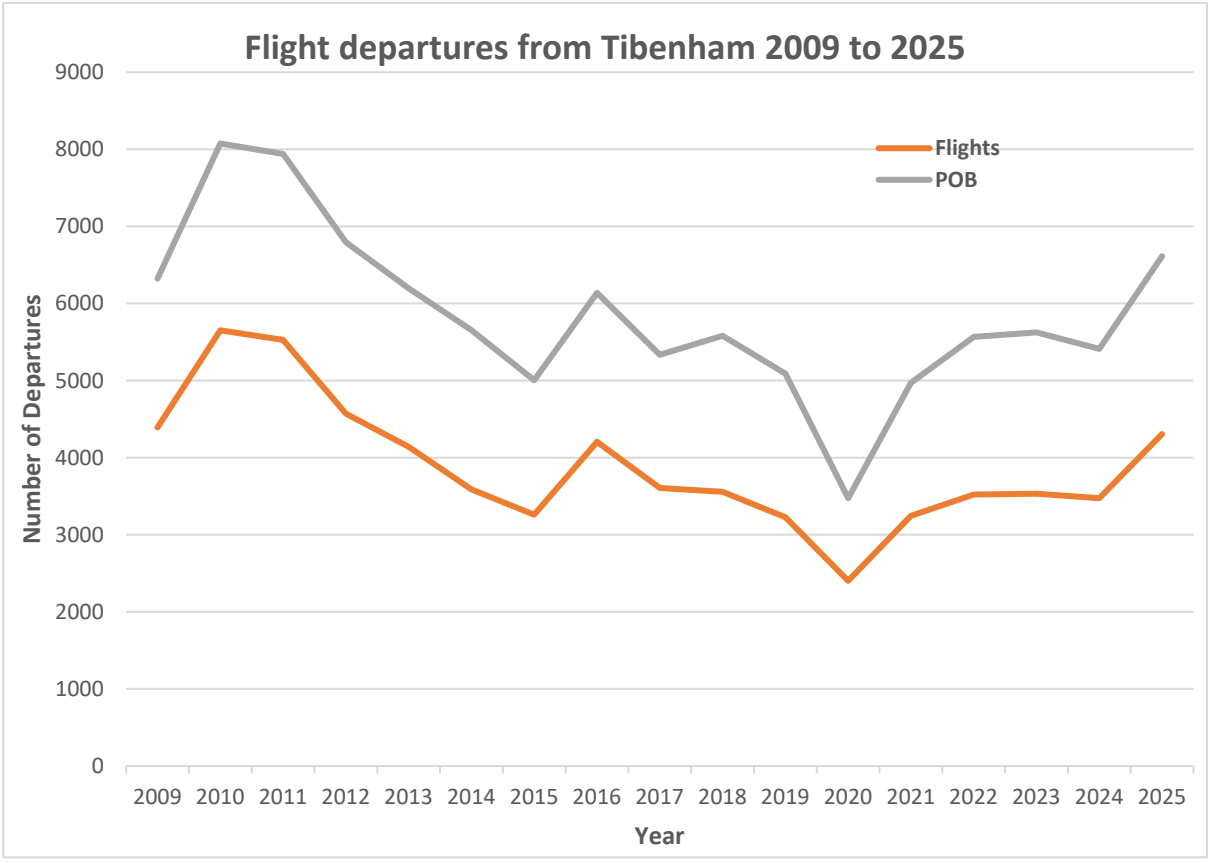
5.4. This plan has been lodged with and is in use by Norfolk County Council, South Norfolk Council and Breckland Council

5.5. In addition, the presence of the proposed pylon route, which would effectively result in an 11km 200ft high electrified wall through this zone, would make representations on other renewable energy and other planning applications difficult to defend and their combined effect would negate the whole purpose of safeguarding. In the longer term this would have a significant adverse effect on aviation safety at Tibenham together with the financial viability of the club

6. Tibenham Airfield – Activity levels

6.1. The chart below shows the total numbers of flight departures from Tibenham since 2009 together with the numbers of Persons On Board (POB)

6.2. For every departure there will have been a corresponding arrival so the total number of aircraft movements will be double the number of departures



7. Tibenham Airfield - The Aviation Safety Risks and Potential Consequences

7.1. As with all activities there is always a risk, and in that respect, aviation in its various forms is no different.

7.2. In all walks of life from the Government down we strive to review the things that go wrong, determine the root cause and initiate change that is aimed at reducing that risk

7.3. But the proposed pylons are taking us in the wrong direction and even NG's consultants admit that the proximity of the route to the airfield will result in an increase in safety risk, the question is one of degree – How significant is that increased risk and what would be the consequence if things were to go wrong?

7.4. Over the period shown in the chart above there were a total of some 66,000 departures together with, of course, 66,000 arrivals making a total of 132,000 aircraft movements in 16 years at Tibenham

7.5. The reporting mechanisms through the Air Accidents Investigation Branch (AAIB) is not as thorough as we might like and from my own experience, I am aware of accidents, some fatal, that do not appear on their database

7.6. About 25 years ago the AAIB improved their reports database which currently allows for analysis of some 11,000 accidents. A search of those reports looking for the term 'engine failure' as the probable cause identified 174 records. Of these

- 75 occurred during take-off
- 34 occurred during approach and landing
- Of the 75 take-off incidents, 56 of the reports indicated the height at which the problem occurred
- 35 (62%) of these were at 300ft agl or lower

7.7. From the chart above we have an average of say 8,250 aircraft movements per year over those 16 years

7.8. Local knowledge and discussions with club members identified 11 Engine Failure On Take-Off (EFATO) type incidents at Tibenham in the period 1985 to 2025 which resulted in

- 4 aircraft being destroyed
- 6 aircraft requiring major repairs
- 1 aircraft without damage
- 6 people with no injuries
- 6 people with minor injuries
- 1 person with serious injuries
- 3 fatalities

7.9. By definition these figures only cover powered aircraft since gliders do not have engines but the possibility of a glider having to make an emergency off airfield landing due to an aborted aerotow is still real – see Appendix H

7.10. Virtually all glider pilots have, at some time in their flying career, been faced with the need to land in a field having attempted to fly cross country and failed to get back to the airfield as the 'lift' decays.

7.11. At Tibenham, currently, our team of instructors are able to simulate this 'emergency' to prepare pilots at various levels of experience on how to achieve a safe landing. The proximity of the proposed pylon route will restrict this level of training

7.12. A safe emergency landing from an aborted aerotow adds another level of complication in that there will be two aircraft (the tug and the glider) both trying to land in the same field

7.13. If we were to combine the two sets of data then over the 40 years covered by the EFATO incidents we might expect in the region of 330,000 aircraft movements and in that time have 10 aircraft either destroyed or needing major repair, 7 people with injuries and 3 fatalities

7.14. Which brings us back to NG's consultants and their agreement that the proximity of the pylons will increase the safety risk.

7.15. Luckily the incidence of aircraft colliding with cables in the UK is relatively rare but when it does happen the results are usually fatal. I have only witnessed one such accident in 50 years of flying when a Piper PA28 hit a cable. Of the three people on board, two were killed outright and the third, a young girl, spent the rest of her life in a wheelchair.

7.16. In their general aviation handbook, the CAA quote 800 sites, 20,000 registered aircraft and 29,000 general aviation pilots which, given the number of flights that must have taken place over the last 20 years, does support the ASA view that the risk is small however a fatality is just that and we should not be complacent in terms of looking for improvement rather than taking a retrograde step when a safer alternative is available

7.17. This level of analysis is also supported by the Civil Aviation Safety Authority (CASA) in Australia who have carried out a study of EFATO incidents. Their data shows that during and after take-off, a partial power loss is three times more likely in today's light single engine aircraft than complete engine failure. Furthermore, there have been nine fatal accidents in the years from 2000 to 2010 as a result of a response to a partial power loss compared with no fatal accidents where the engine failed completely

7.18. Appendix G shows that a study carried out by the National Energy Systems Operator (NESO), commissioned by a number of MPs identified that the cost of undergrounding is less than that of pylons but even if that were not the case and the proposed pylons resulted in only one fatality isn't that one too many when it could so easily be avoided?

8. Tibenham Airfield - The nature of the aviation safety risks

8.1. The fundamental problem is the close proximity of the proposed pylons to the airfield and in particular how that would affect the use of runways 26 and 33

8.2. The problem is compounded by the presence of Priory Farm airfield which is situated to the west of Runway 26 and just over half way between the Tibenham boundary and the proposed pylons

8.3. As part of the agreed deconfliction between our two airfields, Priory Farm circuits are flown to the west and wherever possible ours are to the east of our respective airfields

8.4. In the case of normal powered aircraft take-offs

- As a general rule all powered aircraft should be able to depart from runway 26 or 33 and either turn to avoid overflying Priory Farm or cross the pylon route with a sufficient safety margin

8.5. In the case of aerotow flights

- The rate of climb of an aerotow combination is much lower than that of normal powered aircraft which is confirmed in the CAA AAT guidance in appendices J and K
- Despite this guidance from the CAA AAT, NG's consultants in their Airfield Impact Assessment, have chosen to ignore it and quote an achievable clearance of 236ft over the pylon meaning the combination would be at around 436ft agl based on the nominal maximum pylon heights
- Flight tests held in September 2025 showed that whilst some were able to cross the proposed pylon line with sufficient safety margin others did not with one combination not even reaching 200ft agl
- National Grid's consultants have suggested that the combination should initiate a turn to avoid the line but BGA guidelines advise that no turn should be made lower than 300ft agl
- Even if such a turn were attempted the radius of the circle would be in the order of 500m and it would put the combination directly overhead and in conflict with Priory Farm and their circuit

8.6. In the case of Engine Failure After Take Off (EFATO) or other similar emergency such as a low level aborted aerotow

- CAA guidelines can be found in CAP 793, chapter 5, paragraph 8 which state that wing bank angles should be limited to 30^0 or less and heading changes to less than 30^0 either side of the aircrafts nose
- A tug/glider combination is about 200ft long with limited manoeuvrability and a reduced climb rate when compared to that of the non-towing aircraft performance. Any low-level emergency (say below 300ft) would require both aircraft to land straight ahead

- With the proposed pylons being so close to the end of runway 26, an aborted aerotow could mean that neither tug aircraft nor glider would be likely to clear the obstacle with potentially fatal results
- At one of the consultations, NG's consultant, ASA claimed that since there is no documentary proof that any such incident has ever occurred, they cannot be considered. However, there is no requirement to document them and in the many years of being a tug pilot and glider instructor with some 7,000 launches I have at some time encountered every one

8.7. In the case of returning cross country gliders

- Gliding competitions are an integral component of the sport for many glider pilots where speed and efficiency are crucial to performance and success
- Success in regional competitions gives the pilot a rating which allows them to compete in national events where success leads to the possible selection to the British Team and their participation in international competitions – see appendix C
- Due to the location of Tibenham within East Anglia virtually all cross-country flights made by our pilots either for competition or their own interest and practice involve returning to the airfield from the south or west
- Glider performance is usually expressed in terms of a glide ratio. This is defined as the ratio of the distance travelled to the height lost and can vary significantly from aircraft to aircraft.
- Appendix L shows the typical extent of the area covered during a competition event
- In such a competition pilots will be set a task (course to fly), subject to the weather, which can be of several hundred miles, before approaching straight into the airfield, landing ahead without the necessary height or speed to carry out a conventional circuit.
- Success or failure in the competition is based on the time taken to complete the course and taking time to gain the additional height will affect the overall speed.
- Modern gliders used for these competitions are capable of achieving glide ratios of 1 in 60 which in terms of the proximity of the pylons would mean that a glider planning to land straight in on runway 08/26 would cross the pylon line at just over 100ft agl, half their proposed height
- As explained by the BGA in appendix C, the presence of the proposed pylons would inevitably reduce the number of such events

9. **A Summary of Government and other Guidelines**

9.1. The Department for Transport's (DfT) Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) direction 2002 states, under 'Other Civil Aerodromes', that

Operators of unlicensed aerodromes and sites of other aviation activities (for example gliding or parachuting) should take steps to protect their locations from the effects of possible adverse development

NGC have taken those steps by creating a safeguarding plan and believe this proposal is an example of adverse development in that the close proximity of the pylon route to the airfield will endanger aircraft and create an unnecessary safety risk to aircraft using our East/West runway

9.2 The National Planning Policy Framework (NPPF) states (paragraph 193) that

Planning polices and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as sports clubs)

NGC believe the close proximity of the proposed pylon route is such that it cannot be integrated effectively and safely with our airfield operations

and

Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established…..the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed

NGC believe that this proposal will place unreasonable restrictions on our aviation activities and endanger aircraft using the East/West runway. As the 'agent of change' it is for NG to provide mitigation

9.3 The National Policy Statement for Energy (EN1) in section 5.5 explicitly states that

It is essential that the safety of all UK aerodromes, aircraft and airspace is NOT adversely affected by new energy infrastructure

NGC believe that this proposal is contrary to EN1 in that aviation operations will be adversely affected by this new energy infrastructure and in the National Grid's Environmental Statement, Review of Aviation Impact, their consultants state that there will be an increase to aviation safety risk.

9.4 Within the Civil Aviation Publication (CAP) 738, Executive summary paragraphs 1 and 5, the stated intention of the CAA -

Is to provide advice and guidance to all those involved in the process of 'aerodrome safeguarding'. Primarily these are certified and licensed aerodromes but non-licensed aerodromes will find the information of assistance

To ensure, as far as practicable, that the aerodrome and its surrounding airspace is not adversely impacted by the proposal, thus ensuring the continued safety of aircraft operating at the location

As with the DfT directive, NGC has created a safeguarding plan and believe this proposal will adversely impact the continued safety of aircraft using Tibenham, in particular it will endanger aircraft using our East/West runway

9.5 In addition, a number of other bodies involved in aviation have expressed their concern that guidelines are being ignored and dismissed with the expression 'have been considered' without any further explanation

- The BGA in their responses to the overall project and the AIA as shown in appendices C and D
- The General Aviation Awareness Council in its written representation
- The Airfield Operators Group in its objection to the proposed alignment

10. The Statement of Common Ground

10.1. Throughout their limited engagement, along with other airfield operators, NGC has found a reluctance on behalf of NG to explain their process in detail with expressions similar to 'have been considered' being used without any attempt at an objective evaluation

10.2. In particular, the dismissal of guidance from the CAA and their team of aviation professionals gave NGC concern as to how seriously NG were addressing the matter and in particular the question of aviation safety

10.3. The draft Statement of Common Ground (SoCG) was received from Mr Simon Pepper, Project Director in June 2025 followed shortly later by a request from their consultants LSTC for a fourth consultation

10.4. NGC considered their proposed agenda did not meet the objectives of the consultation which was to work towards an agreed SoCG and Airfield Impact Assessment (AIA)

10.5. Following an exchange of emails with LSTC an agenda was agreed as is shown in the email to LSTC dated August 4th 2025 - see appendix F

10.6. At the consultation (August 7th 2025) NG announced that they never had any intention of providing the agreed information and after a general discussion on various topics the meeting was adjourned to allow NG to reconsider their position

10.7. Since then, we have made a number of requests to LSTC for the withheld information and have offered Tibenham as a venue in order that we can meet, resume the adjourned consultation and reach agreement on the SoCG, the AIA and produce an agreed set of minutes

10.8. To date LSTC have not taken up our offer, have emailed to say that the matter has been reverted to NG and that they (NG) consider the information has been supplied which is of course untrue

10.9. Following the Open Floor Hearing (OFH) in Norwich on February 12th in a brief discussion with members of the ExA it was suggested that NGC produce their own version of the SoCG and include it with the Written Representation. The NGC version of the SoCG is in appendix M

11. Conclusion

11.1. Listening to many of the speakers in the three OFH's one comment appeared to be raised time after time – that NG did not engage in a meaningful way and did not address the concerns but appeared to just dismiss them

11.2. In that respect the experience of NGC was no different

11.3. During the summer of 2022 NG held a series of 'Road Shows' under the guise of being non-statutory consultations. NGC, along with other airfields, were not invited and as was subsequently discovered, the proposed pylon route had been designed without reference to any of those active airfields

11.4. The decision to involve airfields in the 2023 round of non-statutory consultations raised significant concerns from aviation safety risks through to airfield viability but despite their 'agent of change' role the response to those concerns from NG amounted to only minor changes

11.5. It is perhaps indicative of that attitude when in late 2025/early 2026 NG suggested that my comment in the chronology section of the draft SoCG with respect to NGC not being involved in any 2022 consultation be moved to a section 'items under discussion' rather than 'items of fact' as though they were attempting to hide something

11.6. Throughout the previous 3 years the aviation consultants employed by NG have continued to assert that there is only a small safety risk to aviation from the proposed pylons but fail to advise that any accident involving a light aircraft colliding with pylons and overhead lines is likely to result in one or more fatalities

11.7. In the absence of the withheld information, we can only assume that the decision to use the pylon and overhead line approach rather than undergrounding is based on cost but that in itself presents a conundrum. There are a number of offshore wind farms under various stages of development off the Norfolk Coast and all,

without exception, are designed to bring the power ashore with underground cables running to sub stations at Necton or Norwich.

11.8. The guidelines and objections to the project on the grounds of aviation safety other than those from NGC are many and varied and include

- DfT, protection against adverse development
- NPPF, ensure new development can be integrated
- NPS EN1, essential that safety of airfields not affected
- EN-1 para 5.5.50, the Secretary of State should be satisfied that the proposal minimises adverse impacts on operation and safety of aerodromes
- CAA CAP738, safeguarding guidance, ensure the aerodrome is not adversely impacted by the proposal
- BGA, objections on the grounds of safety, operational constraints and longer-term financial viability
- GAAC, planning and safety issues
- South Norfolk Council, long-term financial viability

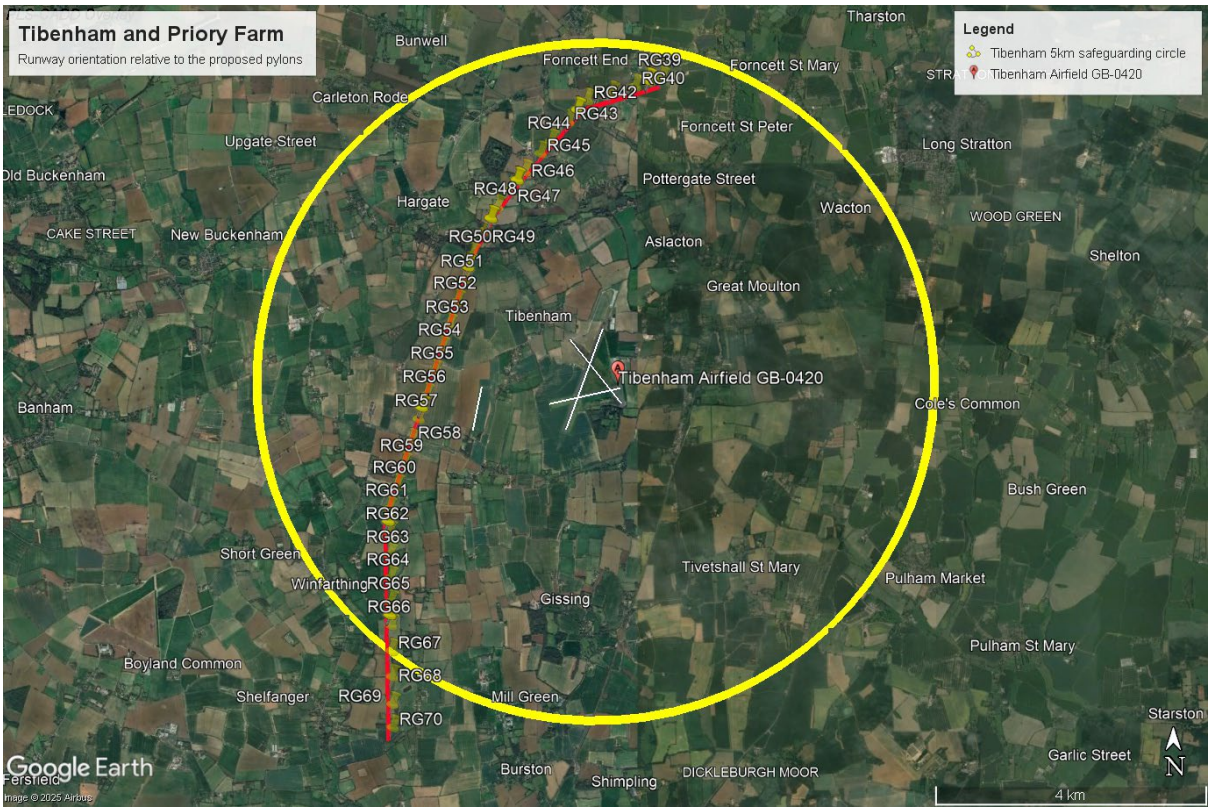
11.9. In terms of the aviation safety risks associated with any airfield, it is the responsibility of the operator to respond to those risks and take the appropriate action (CAA CAP738). Since NGC consider the proximity of the proposed pylon line to be an unacceptable risk to aerotows and power flights from both runways 26 and 33 they could have no alternative but to close them contrary to all the advice and guidance on new developments and aviation safety

11.10. In comparison a similar scheme in the North East, which is in the early stages of the project, is being approached in an entirely different way with the potentially impacted airfields being consulted, listened to and have their concerns and mitigation being seriously considered. It almost appears as though dual standards were being employed when compared to the 'steam roller' approach of this project

11.11. Therefore, as the operator and according to the CAA, the holder of expert opinion on safeguarding the airfield with respect to potential aviation safety risks posed by new obstacles, NGC do not agree to the proposal as presented by NG

Appendix A

The relative locations of Tibenham and Priory Farm Airfields
The proposed route alignment and the Tibenham safeguarding zone



Note

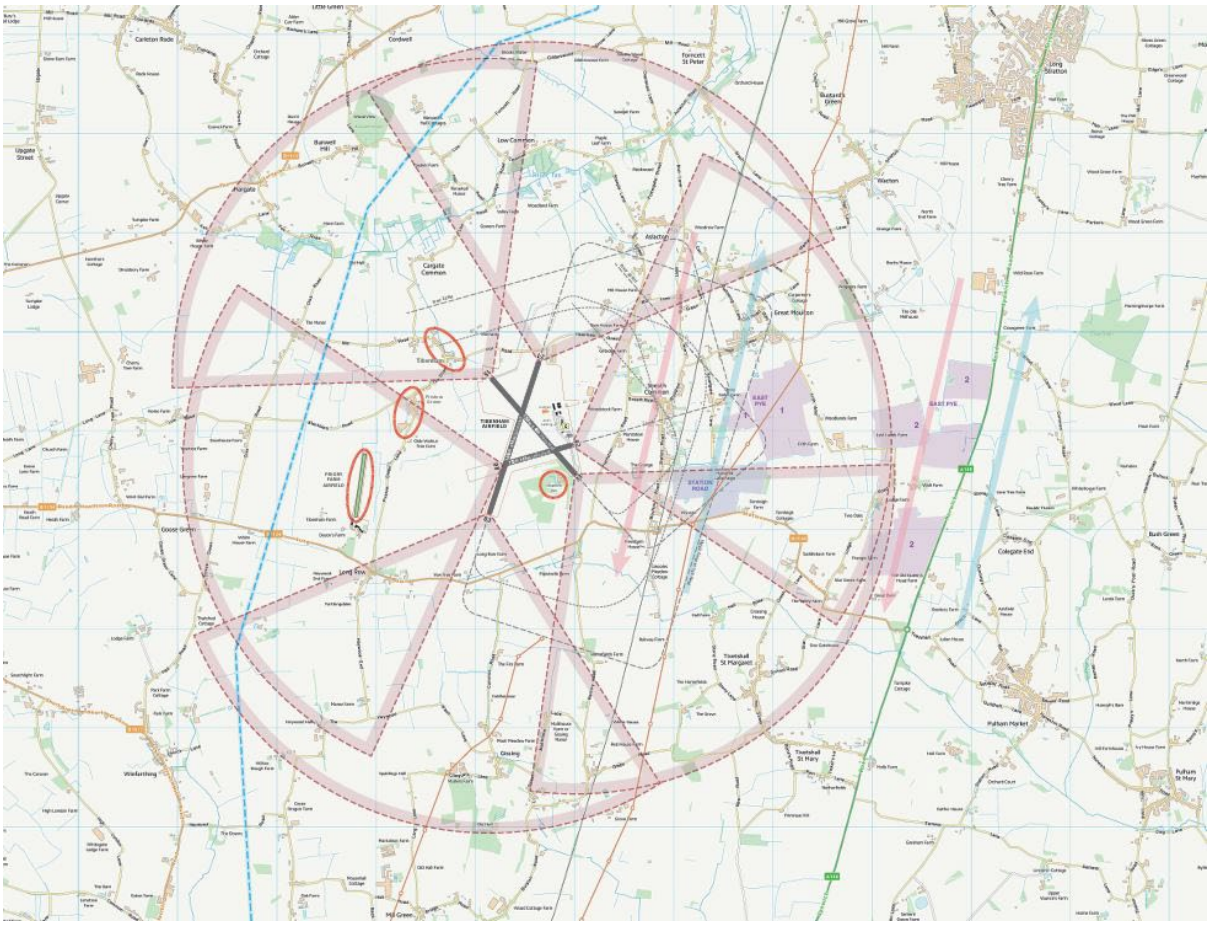
Tibenham airfield with its three runways each capable of being used in either direction subject to the wind conditions is in the centre of the yellow circle which marks the extent of the 5km safeguarding zone

Priory Farm Airfield is shown by the white line to the left of Tibenham airfield and is about 1 km from its nearest point

The proposed route is shown by the red line together with pylon identification numbers and passes Priory Farm on the left only 700m from its nearest point

Appendix B

Tibenham airfield overlaid with EFATO splays
Splay extends 3km from the end of the runway



Note

Tibenham airfield is shown in dark grey in the centre of the picture

To the left the three ellipses identify the locations of Priory Farm Airfield and two villages

Further left again is a blue line representing the proposed alignment of the pylons

Under normal circumstances the emergency landing area (splay) from an EFATO type incident is described as 30^0 either side of the extended centreline for 3km from the end of the runway

However, where an airfield is being used for flight training such as Tibenham, CAP 793 advises that a greater allowance should be made. This map demonstrates the area covered by a 50^0 splay extending 3km from the end of the runway

Appendix C –

Email from the British Gliding Association to National Grid dated 26th July 2024

8 Merus Court
Meridian Business Park
Leicester
LE19 1RJ

00 44 116 289 2956
www.gliding.co.uk
office@gliding.co.uk

National Grid Electricity Transmission plc

By email only

26th July 2024

Norwich to Tilbury Electricity Transmission Reinforcement Project Consultation 2024

The British Gliding Association (BGA) has examined the proposed Norwich to Tilbury Transmission Project and consulted with the Norfolk Gliding Club who are members of the BGA.

Potential Impact

The proposed routing of 55m high pylons 1.77 km to the west of Tibenham Airfield would impact Norfolk Gliding Clubs ability to operate safely.

This in turn will impact:

- launching in certain weather conditions, reducing capacity and financial resilience – a threat to the long-term survival of the club
- their ability to provide training for both new pilots and elite pilots.
- their ability to host gliding competitions
- Tibenham's status as a National Significant Site for Sport (SASP) as designated by the BGA and Sport England.

This impact could be mitigated by changing the route of the proposed pylons or by burying a section of the transmission line.

Background

The BGA is the National governing body responsible for the conduct and safety of the sport of gliding in the UK. UK gliding clubs, who are members of the BGA, operate from 76 sites and have around 6,000 flying members owning, between them, some 2100 gliders. The BGA is committed to sustainable, low emission air sport. As the Chair of the BGA's Development Committee, I have delegated authority from the BGA Executive Board to submit these comments.

All British gliding clubs are volunteer run, not-for-profit, community sports clubs. Critical factors in their success and sustainability are:

- Flying activities (generating income)
- Volunteer activity (generating time to run all aspects of club activities)

Common to all sports, membership recruitment and retention are a perennial challenge for gliding clubs and require constant attention and vigilance: loss of members will result in loss of sustainability. Happy glider pilots tend to volunteer more of their time and the best way of keeping a glider pilot happy is to get them into the air with as little fuss or frustration as possible. It is the BGA's experience that a high launch rate (indicating high levels of flying activity) is one of the key factors for a robust club. Anything which threatens the launch rate will threaten the club's survival.

Tibenham Aerodrome, its Status and Significance

Tibenham is the home site of the Norfolk Gliding Club (Norfolk GC), where it has operated successfully since 1959. The club is a Community Amateur Sports Club (CASC) and as such is open to all. It enjoys a good relationship with the local community. The club recently took part in the BGA's National Women Go Gliding Weekend and provides regular flying for local Scout groups.

Tibenham is classified as an aerodrome in accordance with the guidance provided in the General Permitted Development Order 2015 since Tibenham is specifically mentioned in CAP481 April 1986. As such there are no permitted agricultural developments rights for structures that exceed 3 m height within 3km of the airfield boundary.

Tibenham is also classified as an aerodrome with reference to the Air Navigation Order ANO 2009 Article 255 legal definition of an aerodrome is: *Aerodrome'– means any area of land or water designed, equipped, set apart or commonly used for affording facilities for the landing and departure of aircraft; and includes any area or space, whether on the ground, on the roof of a building or elsewhere, which is designed, equipped or set apart for affording facilities for the landing and departure of aircraft capable of descending or climbing vertically; but*

> *does not include any area the use of which for affording facilities for the landing and departure of aircraft has been abandoned and has not been resumed.*

THE BGA's attention has been drawn to comments by National Grid's advisors that un-licensed airfields attract less planning protection that a licensed airfield. However, these comments do not align with CAP793 Safe Operating Practices for Unlicensed Airfields (July 2010) which states:

> "*where flying training is taking place additional safety margins (and risk assessment) should be considered"*
>
> *The fact that an aerodrome is unlicensed does not preclude compliance with the ANO or the Rules of the Air Regulations (RoAR).*

The NPPF has several references to aviation. Paragraph 110 (f) recognises,

'the importance of maintaining a national network of general aviation airfields (defined as licenced or unlicensed aerodromes with hard or grass runways, often with extensive areas of open land related to aviation activity) and their need to adapt and change over time, taking into account their economic value in serving business, leisure, training and emergency service needs and the Government's General Aviation Strategy.'

The General Aviation Strategy (March 2015) specifically refers to gliding as being a significant part of the general aviation community and notes the economic benefits that can be generated from this sporting activity. In the strategy the British Gliding Association notes the social benefits as a recreational activity, providing physical and mental health benefits to participants (page 18).

In this case, policy and guidance can also be related to the recreational and economic benefits of the Gliding Club who operate from Tibenham Airfield. Paragraph 97 (c) of the NPPF requires planning decisions to guard against the unnecessary loss of valued facilities and services and paragraph 102 states that access to opportunities for sport and physical activity is important for the health and well-being of communities.

Tibenham Airfield is recognised as a national Significant Areas for Sport (SASP)

In conjunction with the governing bodies of gliding, parachuting, water-skiing, and canoeing Sport England has designated a number of sites across the country as SASPs. You can find out more about SASPs at the following location on the Sport England website:
https://www.sportengland.org/how-we-can-help/facilities-and-planning/planning-forsport/significant-areas-for-sport

The designation of SASPs can be applied to all sports. It is however recognised as being more appropriate for sports that rely on natural environment locations due to their uniqueness and scarcity. SASPs do not carry a statutory status. They do carry the weight of being identified by the national governing bodies of sport as the most important sites for their sports, while also being acknowledged and supported by Sport England. Additional weight should be afforded to the site's protection if it becomes under threat. Reasons being are that SASPs rely on features and locations which are by their very nature scarce, and vulnerable. Inappropriate development around a SASP can lead to its loss, and where that development is of a type (such as pylons) which can be proposed in a variety of other locations in the area, then we advise further consideration is given towards the protection of the SASP.

Listing SASPs and detailing why they're important, ensures that the effects of development upon SASPs are taken into account with the knowledge and understanding of their importance and significance to sport. Tibenham Airfield is

recognised as a national SASP. It achieved this status because of the following reasons:

Attribute	Score	Comment
Competitions and Events	Very high	This is a large airfield where they regularly hold national competitions
Training	High	Instructor (coach) training takes place. Occasional elite training
Scarcity	Medium	Good access to uncontrolled airspace
Heritage	Very high	There has been gliding on this site since 1959
Number of users	High	The club is in the large category used by the BGA (100 – 200 members)
Facilities Strategy	Very high	The only site within the area particularly to the North East of the airfield[1]
Physical characteristics	Very high	Hard runways not susceptible to flooding. Good hangar, briefing room and clubhouse. On site catering and accommodation available.

Impact of Proposed Pylons

Gliders do not have engines and in flight are always gliding gently towards earth. To prolong flights (i.e. to 'soar' rather than just 'glide'), the pilot needs to find 'lift', air that is rising more quickly than they are falling. In order to get airborne, gliders need to be launched by something. This is usually by one of two methods: winch and aerotow. The aerotow requires a tow plane trailing a long rope with metal rings on the end. Gliders are towed to a specific height before they release. Launching this way generally gives longer flights, but is more expensive. Norfolk GC launch approximately 1/3 of its flights using aerotow. Aerotow is used exclusively for competition launches. This is a requirement of the BGA Competition Rules (https://members.gliding.co.uk/library/competitions/bga-competition-rules/).

It is not safe to initiate a launch of a glider if there is anything in front of it that could be struck during the launch or a launch failure. There are a number of potential launch failures modes that can dramatically reduce or indeed stop the tow plane and glider combination's ability to climb. They include engine faults, accidental opening of the gliders airbrakes and rope breaks. CAP793 (July 2010) Safe Operating Practises for Unlicensed Airfields states

> "*Aerodrome operators and pilots should consider options available following an engine failure soon after take-off. They should remember that in such a situation wing bank angles must be limited to 30° or less and heading changes to less than 30° either side of the aircraft's nose.*"

[1] This is an important factor in meeting one of the BGA Strategic objectives that gliding should be available to all within a one hour drive.

Note that as the airfield operators, Norfolk GC are the experts in determining what is and is not safe in respect of its operations. The Norfolk Gliding Club has explained its concerns in its letter to the National Grid, authored by Anthony Griffiths.

In addition to the Clubs comments the BGA adds:

Launch Failures
Partial power loss in a single engine aircraft is soon to be added to the training syllabus in the UK. An Australian study (https://www.atsb.gov.au/publications/2010/avoidable-3-ar-2010-055) found that:

> *"The data, however, shows that during and after take-off, a partial power loss is three times more likely in today's light single-engine aircraft than a complete engine failure. Furthermore, there have been nine fatal accidents from 2000 to 2010 as a result of a response to a partial power loss compared with no fatal accidents where the engine failed completely."*

The currently proposed pylon route is just 1.77 km from Runway 26. The pylons would seriously increase the risk for any pilot experiencing partial power failure whilst departing from this runway.

Competitions
Tibenham is an important gliding site for both basic flight training and cross country flying. It has National SASP status partially because of its use as a site for regional and national cross country (distance) racing competitions. During competitions, pilots fly courses, often of several hundred miles, before approaching straight into the airfield, landing ahead without the necessary height or speed to carry out a conventional circuit. This is an important aspect of racing as taking time to gain the additional height will affect the overall speed over the course. Pilots train to build their skills and use on board flight computers to help them to do this safely.

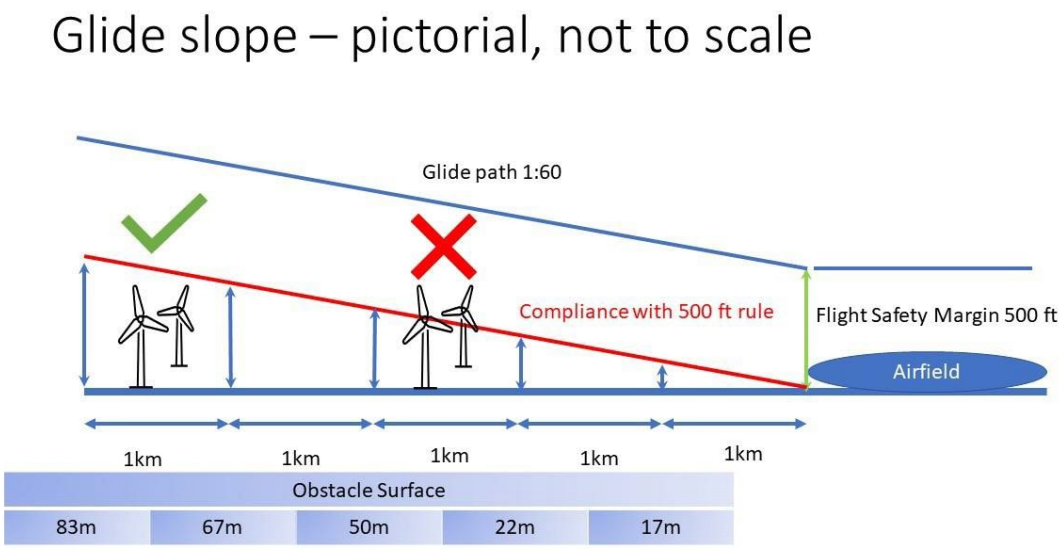
When returning on such competitions pilots are expected to obey the rules of the air. The BGA has Competition Rules https://members.gliding.co.uk/library/competitions/bga-competition-rules/ of which, paragraph is 5.9.4 states:

> "*Competitors shall be reminded in the local rules that all pilots must be aware of and fly within the requirements the law, namely the UK implementation of SERA (Standardised European Rules of the Air) and its associated UK exceptions regarding low-flying."*

The 500-foot rule from SERA
https://www.legislation.gov.uk/uksi/2007/734/schedule/1/crossheading/low-flyingrule/made/data.xht?view=snippet&wrap=true

In order to comply with these rules pylons of the plan height would need to be at least 3 km from the airfield boundary (see picture). Whilst an exemption exists for

landing and taking off, at 3km out a glider is not yet in the landing phase of their flight, and a pilot will be concentrating on the remaining flight back to the airfield.



Additionally, as previously stated, Tibenham is a National SASP because of its value to British gliding as a competition site. BGA rated gliding competitions are always launched by aerotow. Loss of an entire launch direction would result in loss of the competition facility because not being able to launch the competitors on a good racing day would be an unacceptable sporting situation.

All gliding competitors are amateurs. People simply won't sign up for competitions (regional or national) if their valuable annual leave is likely to be wasted by having to sit on the ground when the weather is good.

The BGA has two sorts of rated competitions: regional and national. Pilots achieve their National rating (their qualification for flying in National competitions) by flying in Regionals. Pilots ranking highly in Nationals will be considered for the British Team. Tibenham is the only site in the east of England to currently host National competitions. It is also one of the few sites in the east of England that owns its own site. This is an important factor in meeting one of the BGA Strategic objectives that gliding should be available to all within a one hour drive.

The international pilots rely on their placings in the nationals to qualify for their inclusion in the British Team.

In addition to the value as a competition site for British gliding, Norfolk GC relies on income from running BGA rated competitions. Loss of this income would affect the long-term economic viability of the club.

The effect of actual and perceived risk on pilot capacity & utility

Chapter 1, paragraph 1.12 of ***CAP 764*** Issue 5 *'CAA Policy and Guidelines on Wind Turbines* v3' May 2013 http://publicapps.caa.co.uk/docs/33/CAP%20764%20Issue%205%20CAA%20Policy%20and%20guidelines%20on%20Wind%20Turbines%20v3%20(ISBN%20added).pdf states:

> *In all cases, regardless of the status of the aerodrome, any development that causes pilots to experience – or simply perceive – an increase in difficulty when using an aerodrome may lead to a loss of utility.*

Flying near to pylons results in pilots both perceiving and experiencing an increase in difficulty – especially for pilots undergoing training. Moreover, by any perceived or actual increase in difficulty immediately before the pilot attempts to land (no engine, no second chances) increases the pilot's workload and therefore has the potential to affect flight safety.

This type of risk is likely to act as a barrier to participation and result in reduced flying activity, making it harder for the club to retain and recruit members.

Both these factors will result in a reduction in flying activity and would, over time translate to a smaller gliding club. All gliding clubs operate with margins, which once eroded beyond economic viability will result in closure of the club. Closure of Norfolk Gliding Club would result in the loss of Tibenham as a site for gliding.

The effect on club activity & capacity

The planned pylon route could render runway 26 (the runway which points at the proposed development) unsafe for aerotow take-offs. Not being able to tow in this direction would reduce normal club flying activity levels. As mentioned previously this could impact the financial viability of this important community sport facility.

I do hope these arguments are clear and that National Grid can amend its plans to assure safe and viable ongoing gliding operations at Tibenham airfield.

Yours faithfully

Dave Latimer
Chair, BGA Development Committee
Copy: Pete Stratten, CEO, British Gliding Association
Clare Howe, Planning Manager, Sport England
Eric Ratcliffe, Chairman, Norfolk Gliding Club
Anthony Griffiths, Norfolk Gliding Club
James Head, Principal CAA Airfield Advisory Team
Matt Wilkins, Chair, General Aviation Awareness Council

Appendix D –

Email from the British Gliding Association to National Grid dated 25th November 2025

National Grid Electricity Transmission plc

Via NG Portal

25th November 2025

Norwich to Tilbury Electricity Transmission Reinforcement Project

The British Gliding Association (BGA) has examined the Airfield Impact Assessment (AIA)with respect to the Norwich to Tilbury Transmission Project and consulted with the Norfolk Gliding Club (NGC) who are members of the BGA.

The Impact Assessment does not adequately address the issues with proposed routing of 55m high pylons 1.77 km to the west of Tibenham Airfield home of the NGC ability to operate safely nor does it address the potential reduction in facility. Specifically:

1. The ASA Impact Assessment does not take into account degraded climb rates that could result from partial power loss or unlocked airbrakes. Both are well known risks that are included in the training process for both light aircraft and gliders.
2. The proposed pylon route significantly increases the risk in the case of Engine Failure After Take Off (EFATO) or aerotow rope failure. The pylons represent an continuous obstacle forcing pilots to turn away from the obstacle at low altitude which has inherent safety implications and is contrary to all EFATO teaching, which prescribes landing in an area within a narrow band either side of the nose up to approximately 30 degrees.
3. The AIA makes no attempt to address the impact of the pylons on a gliding competition. NGC is a National Significant Area for Sport as designated by the BGA and Sport England. Part of that status is because NGC hold national rated gliding competitions. The proposed pylons will make competitions finishes more complex and less attractive as some competitors will perceive there to be increased risk.

The lack assessment on this latter point highlights a further concern that here has not been open or meaningful consultation on this Project.

The BGA is the National governing body responsible for the conduct and safety of the sport of gliding in the UK. UK gliding clubs, who are members of the BGA, operate from 76 sites and have around 6,000 flying members owning, between them, some 2100 gliders.

The BGA is committed to sustainable, low emission air sport. As the Chair of the BGA's Development Committee, I have delegated authority from the BGA Executive Board to submit these comments.

Yours faithfully

Dave Latimer

Chair, BGA Development Committee

Copy: Pete Stratten, CEO, British Gliding Association

Alison Randle, Development Officer, British Gliding Association

Clare Howe, Planning Manager, Sport England

Steve Brownlow, Chairman, Norfolk Gliding Club

Anthony Griffiths, Norfolk Gliding Club

Ann Barteby, Head of Planning, General Aviation Awareness Council

Appendix E

Email to Simon Pepper, Project Director, National Grid dated February 13th 2026

Dear Mr Pepper

Following the Open Floor Hearing in Norwich yesterday morning I am writing on behalf of Norfolk Gliding Club to express our concern at the lack of engagement and due diligence by National Grid in respect of the Norwich to Tilbury project

If there is one fact that emerged from today's meeting and that held in Ipswich on Tuesday afternoon it is the repeated failure of National Grid to engage with the respective stakeholders and progress this project in a professional manner which as a shareholder, I find very disappointing

However, the project marches on and according to the timescale published by the Inspectorate, National Grid must submit the agreed and signed SoCGs for Tibenham and Priory Farm airfields by February 26th. I must advise you that unless there is a significant change to your team's approach and engagement with us that is not going to happen

In talking to the Inspectors at today's meeting about procedural issues I was given the impression that they would take a very dim view of this failure by National Grid especially since it is around 8 months since you sent us your initial draft

The consultation of August last year was intended to resolve many of the issues with National Grid having agreed prior to the meeting to an agenda that would present us with a number of written statements as follows

Item 1 – Route Development Rationale

National Grid to provide a documented statement (with copies to both Norfolk Gliding Club and Priory Farm Airfield) explaining why the expert guidance from the Civil Aviation Authority (CAA), British Gliding Association (BGA), General Aviation Awareness Council (GAAC), and others was disregarded in favour of the less experienced advice of ASA when developing the proposed pylon route near Tibenham.

Item 2 – Aviation Safety: EFATO and Aborted Aerotow Risk Mitigation

Engine failure after take-off (EFATO) and the danger of aborted aerotows represents the most serious aviation safety risk to our pilots given the proposed alignment's proximity to both airfields. As the airfields cannot be relocated, we require National Grid, as the 'Agent of Change', to present mitigation proposals to address this hazard. As stated previously, our position is that mitigation should take the form of:
- A re-alignment of the route to beyond the Tibenham 5 km safeguarding zone, or
- Undergrounding of the route within the safeguarding zone.

Item 3 – Cost Comparisons

We request that National Grid provide the following cost information for each of the route configurations:
- The cost of the current proposed route segment through the 5 km safeguarding zone.
- The cost of re-aligning the route outside the 5 km safeguarding zone.
- The cost of undergrounding the route as it passes through the 5 km safeguarding zone.
- The overall cost of the full Norwich to Tilbury project.

In the event, National Grid announced at the meeting that they never had any intention of supplying the agreed information

Since then, we have made a number of requests to LSTC for the withheld information and have offered Tibenham as a venue in order that we can meet, resume the adjourned consultation and reach agreement on the SoCGs, the Airfield Impact Assessments and produced an agreed set of minutes

The current version which has gone through a number iterations and contains some 230 changes is so convoluted that even changes have changes and needs to be rewritten from the start with the prior provision of the withheld documents as a prerequisite

Regards
Tony Griffiths
Safeguarding Officer
Norfolk Gliding Club

Appendix F – Sample of emails to LSTC

Email to Louise Brace, LSTC dated August 4th 2025

Recipient - Louise Brace, LSTC
Copies – Consultation attendees

Dear Ms Brace

I assume from your previous emails that you have returned from annual leave and have addressed this to you with a copy to Kevin Lussi

The following have confirmed that they will be joining us at the meeting

Ann Bartaby
David Brown
Colin Cownden
Stephen Faulkner
Graham Gunby
John Roche-Kelly
Bob Sage

Two others have expressed an interest but as yet have not been able to confirm their attendance

In his latest email, Kevin confirmed that he was happy to accept our full agenda which i have reproduced below.

He also indicated that you would like to discuss our comments on the assessment and draft SoCG. Since the assessment was produced by you using flawed methodology (according to the CAA) and your draft SoCG showed there is no common ground we believe it would be more appropriate for you to address these comments and respond in writing prior to a meeting. However in the interests of moving forward we will review your request during the item 4 adjournment

Meeting Agenda

Item 1 – Route Development Rationale

National Grid to provide a documented statement (with copies to both Norfolk Gliding Club and Priory Farm Airfield) explaining why the expert guidance from the Civil Aviation Authority (CAA), British Gliding Association (BGA), General Aviation Awareness Council (GAAC), and others was disregarded in favour of the less experienced advice of ASA when developing the proposed pylon route near Tibenham.

Item 2 – Aviation Safety: EFATO and Aborted Aerotow Risk Mitigation

Engine failure after take-off (EFATO) and the danger of aborted aerotows represents the most serious aviation safety risk to our pilots given the proposed alignment's proximity to both airfields. As the airfields cannot be relocated, we require National Grid, as the 'Agent of Change', to present mitigation proposals to address this hazard. As stated previously, our position is that mitigation should take the form of:
- A re-alignment of the route to beyond the Tibenham 5 km safeguarding zone, or

- Undergrounding of the route within the safeguarding zone.

Item 3 – Cost Comparisons

We request that National Grid provide the following cost information for each of the route configurations:
- The cost of the current proposed route segment through the 5 km safeguarding zone.
- The cost of re-aligning the route outside the 5 km safeguarding zone.
- The cost of undergrounding the route as it passes through the 5 km safeguarding zone.
- The overall cost of the full Norwich to Tilbury project.

Item 4 – Adjournment for Internal Discussion

A short adjournment (approximately 15 minutes) to allow Norfolk Gliding Club and Priory Farm Airfield to consider the information presented by National Grid.

Item 5 – Response and Path Forward

If the responses provided by National Grid are considered acceptable, both airfields will confirm their willingness to sign a revised Statement of Common Ground (SoCG) that reflects these agreements and close the consultation.

Item 6 – If Agreement Is Not Reached

If the responses are considered inadequate or unresolved, the consultation will be adjourned, and a follow-up meeting will be arranged no earlier than 4 weeks after National Grid has submitted revised proposals.

Please confirm whether National Grid agrees to this agenda in full. We believe this structure provides a fair and constructive basis for progressing the consultation in a way that addresses the longstanding and serious safety concerns that have been raised.

Kind regards,
Tony Griffiths
Safeguarding Officer
Norfolk Gliding Club

Email to Louise Brace, LSTC dated November 16th 2025

Recipient - Louise Brace, LSTC
Copies – Ann Bartaby (GAAC), David Brown (PFA)

Dear Ms Brace

We have spent some time reviewing your reply to my questions and noting the lack of response from yourselves with respect to the resumption of the consultation

As we have said, the clock is ticking and your failure to provide the documents promised by you for the meeting on August 7th 2025 prevent us from progressing further on the Statement of Common Ground and the errors and omissions which we still believe are contained within the Aerodrome Assessment Summary as produced by ASA.

For the avoidance of doubt let me reiterate yet again that as soon as you provide the missing documents we will be happy to meet at short notice to continue the engagement with respect to the SoCG and AAS

As a comment on some of your replies

> Ref my question 3 – As your aviation advisors are fully aware the use of a +/- 5^0 splay on the runways of a training aerodrome is totally inadequate so why continue to do so?
>
> Ref my question 5 – We have previously advised you that the aerodrome is used for larger aircraft and in its advice to LPAs the NPPF refers not only to current operations but also to potential future operations
>
> > *"Local authorities should avoid any development at or close to an airport or airfield which is incompatible with any existing or potential aviation operations"*
>
> Ref my question 7 – Why in the drawings you supplied do you quote the pylon heights to an accuracy of 10cm then indicate a Limit of Deviation of 6m
>
> Ref my question 8 – I would interpret my copies of emails from the CAA to NG differently showing that they have advised you about the use of specific aircraft types contrary to your claim
>
> Ref my question 10 – In recent test flights operating from runway 26 towing a variety of single and two seat gliders the combination crossed the proposed route as low as 180ft (54.8m). ie below the proposed pylon height without any technical problems with either the tow plane or glider

Within your answer to one of the questions a reference is made to the minutes of the August 7th meeting but since these have never been published how can we check?

We believe you have not adequately addressed the EFATO situation

We believe the general tone of your reply emphasises the need for you to provide the missing documents promised by you for the August 7th meeting in order that we can progress the SoCG and AAS.

In the meantime, we must prioritise the preparation of our submission to the Planning Inspectorate and will address these issues at a meeting at Tibenham once you have the missing documents

Regards

Email to Louise Brace, LSTC dated January 15th 2026

Recipient - Louise Brace, LSTC
Copies – Simon Pepper (NG), Ann Bartaby (GAAC), David Brown (PFA)

Dear Ms Brace
We have reviewed the documents you sent at the end of last year together with your email of Dec 19 and would make the following comments

Despite confirmation from both yourself and your colleague Mr Lussi prior to the August 7th consultation, the documents promised by you both for that consultation are still being withheld by you.

In one of your earlier emails when I questioned your role following receipt of the request by Simon Pepper to review the SoCG you indicated that all correspondence should be via yourselves as you represented National Grid in this matter yet you are now indicating the need to revert to National Grid

As you are no doubt fully aware, the Relevant Representations which you say are now being reviewed as a priority over supplying the withheld documents do not address all the issues and until we receive these documents, we will not be able fully respond to those issues

As we indicated at the August consultation prior to adjournment the failure of National Grid to conduct the engagement with both ourselves and Priory Farm in a transparent manner has been demonstrated by them since the non-statutory consultation in 2023. From your earlier comments I had hoped that matters were about to change but evidently not

I have repeatedly offered the use of Tibenham as a venue to enable us to work together and produce an SoCG for each airfield that all three parties can agree on but you seem reluctant to accept that offer

Without those documents we are unable to confirm acceptance of the August 7th minutes, agree the content of the Airfield Assessment or produce an agreed SoCG

Perhaps, as a matter of some urgency, you would contact National Grid and determine when they are likely to be available

Regards

Email to Louise Brace, LSTC dated February 9th 2026

Recipient - Louise Brace, LSTC
Copies – Ann Bartaby (GAAC), David Brown (PFA)

Dear Ms Brace

On initial reading of this version of the SoCG I see that you have crossed through many of my previous comments

I understand from a senior planner that you have no right to do this therefore how do you want me to proceed and what assurance do we have that whatever we add is not crossed out, deleted or redacted in the version submitted to the inspectorate

As an example, your note LB5 suggests moving my comment with regard to the absence of any consultation with NGC in 2022 to matters under discussion - This is totally wrong, there was no consultation and we do not agree that it is a matter for discussion, it is a matter of fact

This is the very reason we offered to meet at Tibenham, to develop this document jointly and avoid this sort of miss-representation.

If, as I read it, the rest of the document follows a similar vein then it is going to take some time to resolve these matters before the submission deadline

We are also still waiting for the withheld documents and until they have been delivered we will not be able to agree any form of this document, the aviation impact assessment or the minutes of the August meeting

Regards
Tony Griffiths
Safeguarding Officer
Norfolk Gliding Club

James Cartlidge MP Member of Parliament for South Suffolk

Fintan Slye – CEO
National Energy System Operator
Faraday House, Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA

Appendix G - Letter from James Cartlidge to NESO 18th October 2024

18th October 2024

CC: The Rt Hon Ed Miliband

Dear Fintan,

RE: CENTRALISED STRATEGIC NETWORK PLAN

We are writing to you as MPs from across the UK regarding your Centralised Strategic Network Plan (CSNP). As predominantly rural MPs, we are all profoundly concerned about the potential impact of the 'Pylon Presumption' on our communities, but want to find constructive ways to deliver the transmission infrastructure that we require.

We were delighted when ESO undertook a review of electricity transmission in East Anglia in 2023/4, including the consideration of offshore and fully undergrounded routes, resulting in the East Anglia Network Study. We know that you went about this in an entirely objective fashion, without prejudice to any particular option – and that's why we set all the more value on your evidence-based conclusions which found that underground HVDC (U-DC) alternative (Option 8) had a lower overall cost than pylons, assuming a 2034 baseline. We understand that the relative price competitiveness of the U-DC option arose from its lower 'constraint payments'.

You will be aware that hitherto there has been a 'presumption' in favour of pylons, not least based on a presumption of lower cost. Thus, with the revelation of your findings in relation to the potential cost competitiveness of U-DC, the previous Government confirmed – at the final Adjournment debate before dissolution – that it would urgently review the 'pylon presumption'. The then Minister for Energy Security & Net Zero Justin Tomlinson stated in the Adjournment debate 'National Grid Proposals: North-East Lincolnshire', 23rd May': "The ESO's own recent figures for the East Anglia study suggested that, when considering lifetime cost - not just the up-front cost but the potential for long-term lower constraint cost - and challenges around delivery speed, each variable raised important questions. We cannot answer with certainty whether those questions are valid, because the data simply does not exist." "That brings me back to the core point: the review gives us an opportunity to obtain up-to-date facts, recognising modern technology and the lessons that can be learned from Germany, and recognising the lifetime costs so that we can be confident that we are doing our best to deliver lower consumer bills, which are crucial not just to helping with the cost of living but to ensuring that we carry the public with us in respect of net zero."

Given the above and the subsequent change of Government, we would like to request that NESO - through your CSNP - includes in its forthcoming work over the next 12 months, a national strategic option for the onshore grid based as far as possible on U-DC. In other words, a nationwide version of your East Anglia Network Study but with HVDC underground cables as the default, with all the technological and cost considerations necessary to make this possible – a 'U-DC presumption, rather than a pylon one'. Naturally, we would be fully supportive of utilisation of offshore options as well, where justified, and entirely accept that you will be considering all the other options, and look forward to the evidence being set out in a comparable manner, as with the East Anglia study.

Thank you in advance for your consideration and we look forward to working together in the best interests of our constituents, so that we can find a sustainable way to both reinforce the grid at the scale we need, whilst protecting consumers and the countryside.

Yours sincerely,

[redacted]

James Cartlidge MP South Suffolk

James Cartlidge MP Member of Parliament for South Suffolk

Sir Bernard Jenkin MP Harwich and North Essex

Dame Priti Patel MP Witham

Alex Burghart MP Brentwood and Ongar

Adrian Ramsay MP Waveney Valley

Patrick Spencer MP Central Suffolk and North Ipswich

Dr Andrew Murrison MP South West Wiltshire

Andrew Bowie MP West Aberdeenshire and Kincardine

The Rt Hon. David Davis MP Goole and Pocklington

Sir John Hayes MP South Holland and The Deepings

George Freeman MP Mid Norfolk

Jerome Mayhew MP Broadland and Fakenham

The Rt Hon. Victoria Atkins MP Louth and Horncastle

James Wild MP North West Norfolk

The Rt Hon. Sir John Whittingdale MP Maldon

Mark Garnier MP Wyre Forest

Appendix H

Aviation Safety Risks associated with aerotows

There are numerous non-reportable incidents that have occurred over the years with tug/glider combinations and whilst not an 'engine failure' per se could also result in a forced landing of either aircraft.

Aborted Aerotow – Tug issues

Problem	**Likely height**	**Action to take**
Oil pressure failure	Any	Abort aerotow
Engine over heating	Any	Abort aerotow
Cockpit emergencies (ie fire)	Any	Abort aerotow
Engine failure	Any	Abort aerotow
Bird strike	Up to 200ft	Probable need to abort aerotow or reduced climb rate
Partial power loss	Any	Abort aerotow

Aborted Aerotow - Glider issues during aerotow

Problem	**Likely height**	**Action to take**
Cockpit security/loose items	Below 500ft	May need to abort aerotow
Control failures	Below 500ft	Abort aerotow
Dangerous loss of position	Any	Abort aerotow
Pilot error – increased drag	Any	May need to abort aerotow if not corrected

Aborted Aerotow - Tow rope issues

Problem	**Likely height**	**Action to take**
Excessive loop in rope	Any	Abort aerotow
Inadvertent release	Usually below 200ft	Glider to land wherever possible
Rope breaks	Any	Glider to land wherever possible

Climb rate performance – Maximum Take-Off Mass (MTOM) issues

Problem	**Likely Height**	**Action to take**
Glider water ballast exceeds the MTOM limits	All	Tug climb rate will be lower than expected

Climb rate performance – Speed issues

Problem	Likely Height	Action to take
Glider has a high minimum tow speed	Initial take-off	Tug will have a longer ground run and need to build up speed before climbing

Climb rate performance – Wind issues

Problem	Likely Height	Action to take
Lack of headwind	Below 500ft	Tug climb rate will be lower than expected
Degree of crosswind component	Below 500ft	Tug climb rate will be lower than expected
Turbulence and wind shear	All	Tug climb rate will be lower than expected

Climb rate performance - Meteorological issues

Problem	Likely Height	Action to take
High ambient temperature	Any	Tug will have a longer ground run and the climb rate will be lower than expected
High instability	Any	Likelihood of flying through sink therefore poor overall climb rate
Visibility	Any	Whilst in VFR the haze can significantly reduce overall visibility which may mean the aerotow must be aborted

Appendix I – Letter from CAA AAT to Simon Gill September 13th 2023

Wednesday 13th September 2023

Simon Gill National
Grid
[redacted]@nationalgrid.com
[redacted]

Dear Simon,

The Great Grid Upgrade: Norwich to Tilbury

The UK Civil Aviation Authority's Airfield Advisory Team have been set up to meet the DfT's objective of sustaining the UK network of general aviation (GA) airfields. We are a nonregulatory team who provide advice to Government, licensed and unlicensed GA airfields and local planning authorities on matters that are relevant to CAA functions, and formally commenced engagement with airfields in November 2020.

General Aviation (GA) and the protection of airfields are a priority for the Department for Transport (DfT), and their ambitions are set out in two strategy documents released by the Government: Aviation 2050 and GA Strategy 2015. MHCLG's National Planning Policy Framework refers to a national network that can be afforded protection by local authorities.

> *Planning policies should recognise the importance of maintaining a national network of GA airfields, and their need to adapt and change over time – taking into account their economic value in serving business, leisure, training and emergency service needs, and the government's General Aviation Strategy. [Paragraph 106f, National Planning Policy Framework, MHCLG]*

We understand that the 'Great Grid Upgrade: Norwich to Tilbury' project was launched in 2022 and was quickly followed by part 1 of the non-statutory public consultation. Concerned aviation stakeholders responded to this consultation, including the General Aviation Awareness Council (GAAC) who submitted a response in June 2022. Their response outlined concerns relating to Tibenham Airfield (Norfolk Gliding Club) and the safeguarding factors which ought to be considered given the site's proximity to the proposal. Their response also expressed concern that aviation impacts had not been properly considered by National Grid (NG). The GAAC sent a follow up letter in July 2023, as a response to part 2 of the non-statutory public consultation, detailing aerodromes along the pylon route they felt

needed consideration and referencing the Government's commitment to protecting the UK's network of GA airfields (see section A1).
The AAT were first alerted to this proposal as part of our engagement with UK GA airfields. Norfolk Gliding Club had concerns with the positioning of the line proposed between Norwich and Tilbury and reengaged with us to request our support. The AAT were subsequently invited to a meeting on the 24th of July 2023 held at Tibenham Airfield which included attendees from other concerned aerodrome authorities, National Grid and their commissioned consultants for aviation advice, Alan Stratford & Associates Ltd (ASA). Aerodrome authorities had a chance to present their concerns in this meeting. Following this, the AAT offered further support to NG and ASA.

In a meeting held on the 22nd August 2023, which included a detailed overview of the proposal by NG, it was suggested by NG that ASA and the AAT work together to provide subject matter expertise to identify potential impacts to established aviation operations as a result of the proposal. Concurrently, the AAT also provide this independent commentary.

The AAT has opted to assess a 'corridor' 5km either side of the 183km long power line infrastructure as a benchmark to locate aerodromes which may be affected. Some aerodromes listed in the table below are on the border of, or just outside 5km. We considered it prudent to include them in an assessment, due to the highly variable nature of operations that occur at GA aerodromes.

Table 1 below shows the list of aerodromes, varying from small privately owned sites to commercial operations. We acknowledge that this list may not be exhaustive.

Table 1: Aerodromes identified in 10km-wide corridor

Aerodrome	Location/approx. distance from proposal	Activity
Long Stratton	52.484N 1.229E / 3.3km	Business aviation (helicopters)
Priory Farm	52.454N 1.131E / 0.8km	Resident and visiting aircraft, refuelling
Tibenham	52.453N 1.147E / 2.3km	Gliding, resident and visiting aircraft, café and refuelling
Crowfield	52.101N 1.641E / 3.8km	Flight training, aircraft hire, refuelling, aircraft hangarage and parking
RAF Wattisham	52.133N 0.966E / 3.2km	Army base, Attack Helicopter Force
Elmsett	52.078N 0.982E / 5.1km	Resident and visiting aircraft, refuelling, aircraft maintenance
Nayland (Wiston Hill Farm)	51.974N 0.850E / 4.5km	Visiting aircraft, aircraft parking/hangarage
Laindon	51.593N 0.445E / 4.8km	Visiting aircraft, aircraft parking/hangarage
Thurrock	51.539N 0.373E / 1.4km	Visiting aircraft, aircraft parking/hangarage, refuelling
West Horndon (Barnards Farm)	51.335N / 0.212E / 1.8km	Visiting aircraft, aircraft parking
Broomfield Hospital	51.773N 0.465E / 1km	Hospital helipad
Brook Farm	52.345N 1.065E / 0.7km	Private site
Fir Grove	52.332N 1.102E / 2.6km	Private site
Wormingford	51.563N 0.473 E / 3km	Gliding, aircraft parking and hangarage

Napps Field (Brock Farm)	*51.657N 0.420E / 1.1km*	*Private site (possibly inactive)*
Bracon Ash (Mergate Hall)	*52.325 N 1.131 / 1.6km*	*Private site (possibly inactive)*
Garnons Farm	*51.962N 0.837E / 2.6km*	*Private site (possibly inactive)*
Chase Farm	*51.593N 0.396E / 0.6km*	*Private site (possibly inactive)*

Aviation activity can be sensitive to changes in the operating environment, and it is therefore important to consider the potential impacts of this significant scheme. The critical stages of flight that occur in the airspace around an aerodrome necessitates that these factors are fully considered, primarily to achieve the safest possible operating environment.

Infrastructure associated with the proposed scheme has the potential to create a change in the operating environment at aerodromes in proximity to the proposed power line route, which may influence aviation safety. A selection of these aerodromes are run as commercial enterprises, and the proposed infrastructure also has the potential to affect their viability.

Whilst many of the aerodromes in the corridor are unlicensed, the AAT suggests the following criteria for a pragmatic approach to assessing the potential impacts:

- Obstacles
- Electromagnetic interference
- Lighting
- Construction phase
- Wildlife and habitat management

The AAT remains willing and able to assist all relevant stakeholders throughout this proposal.

Airfield Advisory team

Civil Aviation Authority
Aviation House
Beehive Ring Road,
Crawley
West Sussex
RH6 0YR

cc. Peter Forbes

Appendix J – Consultation response from the CAA AAT to National Grid dated 26th July 2024

UK CAA AAT response to consultation

From: James Head (Airfield Advisory Team Principal)
Airfield Advisory Team (AAT) UK
Civil Aviation Authority
aat@caa.co.uk

To: National Grid

Location: Norwich Main (Norfolk) – Bramford (Suffolk) – Tilbury (Essex)

Proposal: The Great Grid Upgrade: Norwich to Tilbury. Reinforcing the high voltage power network in East Anglia between the existing substations at Norwich Main in Norfolk, Bramford in Suffolk, and Tilbury in Essex, as well as connect new offshore wind generation.

Following engagement with a range of stakeholders, the AAT submit the following report to the summer 2024 public consultation.

Signature: [redacted] **Date:** 26th July 2024

Name: James Head

Position: Airfield Advisory Team Principal

Address:
Airfield Advisory Team, Civil Aviation Authority Aviation House, Beehive Ring Road, Crawley, West Sussex, RH6 0YR

aat@caa.co.uk

1. Introduction

The UK Civil Aviation Authority's Airfield Advisory Team (AAT) has been set up to meet the DfT's objective of sustaining the UK network of airfields. It is a non-regulatory team providing advice to Government, licensed and unlicensed airfields and local planning authorities on matters that are relevant to CAA functions.

Throughout this 2024 statutory consultation period, the AAT have undertaken extensive consultation with a range of stakeholders to better understand the concerns of the local aerodromes relating to this scheme. Furthermore, we have been in communication with both National Grid (NG) and their aviation consultants, Alan Stratford and Associates Ltd (ASA). This provided a further understanding of the proposal, an introduction to the aviation assessment criteria used by ASA, and their identification of aerodromes which may be impacted by the scheme.

We submit this report to this consultation which consolidates our findings. The purpose of this document is to provide an independent summary of the ways in which this important national infrastructure project could impact aerodromes in its proximity, and to contribute towards early horizon scanning opportunities for National Grid and their partners.

2. Aviation context

2.1 General aviation

General Aviation (GA) is the domain for all civil aviation operations outside of public air transport. The GA sector provides essential services such as search and rescue and airborne emergency response – it is the test bed for aviation innovation, and the domain for sport/leisure flying and flight training. GA aerodromes serve as transport connectivity nodes across the country and are likely to be important strategic sites for future flight advancement. Government publications acknowledge the importance of General Aviation, citing strategic objectives for ***"the UK to be the best place in the world for General Aviation"*** in the General Aviation Roadmap[2].

GA aerodromes are largely split into two categories: licensed and unlicensed. CAA licensed aerodromes must adhere to standards set out in regulatory documentation (CAA Publication, 'CAP 168: Licensing of Aerodromes'[3]), and unlicensed sites are encouraged to use this framework as a basis for their own safety standards, as described in CAA publication, 'CAP 793: Safe Operating Practices at Unlicensed Aerodromes'[4].

[2] General Aviation Roadmap, DfT, 2021
[3] CAP 168 Licensing of Aerodromes (caa.co.uk)
[4] CAP 793 Safe Operating Practices at Unlicensed Aerodromes (caa.co.uk)

2.2 Aerodrome Safeguarding

Aerodrome safeguarding is the process by which aerodrome operators aim to ensure that their aerodrome and its surrounding airspace is not adversely affected by proposed development. Further to ensuring that buildings/structures do not cause a danger to aircraft,

safeguarding also considers the potential impact of other factors such as construction, wildlife, obstacles, and interference with navigational aids as described in CAA Publication, 'CAP 738: Safeguarding of Aerodromes'[5].

The CAA recommends that all aerodromes create and lodge a safeguarding arrangement with their LPA, describing the types of proposals which may affect their operation within a defined area surrounding the aerodrome; ***"operators of unlicensed aerodromes and sites for other aviation activities (for example gliding or parachuting) should take steps to protect their locations from the effects of possible adverse development".***

CAP 793 includes the following pertinent statements:

- ***"where flying training is taking place additional safety margins should be considered"***

- ***"The runway should, wherever possible, be designed such that trees, power lines, high ground or other obstacles do not obstruct its approach and take-off paths. It is recommended that there are no obstacles greater than 150 ft above the average runway elevation within 2,000 m of the runway mid-point"***

In addition to the above, we note the following relevant extracts from the National Policy Statement for Electricity Networks Infrastructure (EN-5)[6]:

- ***"where country is flat and sparsely planted, and unless specifically preferred otherwise by relevant stakeholders, keep the high voltage lines as far as possible independent of smaller lines, converging routes, distribution poles and other masts, wires and cables, so as to avoid a concentration of lines or 'wirescape'"***

- ***"in open landscape especially, high voltage line entries should be kept, as far as possible, visually separate from low voltage lines and other overhead lines so as to avoid a confusing appearance"***

For this national infrastructure project, extending over 180km in length, and traversing the landscape in the vicinity of multiple aerodromes, it is important to assess relevant safeguarding and operational factors for each aerodrome site.

---

[5] CAP 738: Safeguarding of Aerodromes (caa.co.uk)

[6] Electricity Networks National Policy Statement - EN-5 (publishing.service.gov.uk)

3. Assessment scope

As a baseline for assessment, the AAT has considered aerodromes within a 10km-wide corridor, centred on the proposed power line. The AAT has identified 17 aerodromes within this corridor along the length of this proposal. At this stage, we have focussed our points on the practicalities of how this scheme may impact these aerodromes and perhaps where further, more technical work could be required.

The aerodromes assessed represent the diversity of GA aerodrome sites across the network. They include large gliding sites, small commercially minded training operations, private sites and a hospital helipad.

For each aerodrome, the following has been considered as part of a desktop assessment:

Nature of aerodrome operation
The nature of an aerodrome site including traffic blend, aircraft types and movement numbers may be a key consideration for assessment.

Existing power lines
Existing power infrastructure in proximity to aerodrome sites may represent an important assessment vector. For example, do they demonstrate a level of impact at present, is this tolerable? Could additional infrastructure associated with the proposed scheme compound any existing challenges or create new ones?

Proximity of the aerodrome to the proposal
The proximity of an aerodrome site to the proposed scheme may have an important bearing on the extent of any impact to the aerodrome operation. Aerodromes located in close proximity to the proposed scheme may be impacted to a greater extent than those further away. The extent of any impact could also be influenced further by other factors.

Local topography
Consideration of aerodrome elevation and wider local topography may be relevant when establishing the extent of any potential impact. For example, where the proposed infrastructure is sited on terrain of higher elevation than that of an aerodrome, specific or compound impact may arise. This consideration should extend out to a suitable range, taking into account runway heading and associated flight tracks over the ground including circuit training where applicable, and the nuanced nature of glider launch and recovery where applicable.

Due to the number of aerodromes along the scheme's proposed route and the complexity of assessing multiple sites, each with their own nuanced operation, we have adopted a high level, 'say what we see' approach, accompanied by technical information as required. Our intention is to offer an objective and accessible summary of potential impacts to aerodromes along the route of the proposed scheme.

We recognise that more granular detail including further technicality and nuance that will likely be associated with the aerodromes, sits outside the intended scope of this document.

Furthermore, aerodrome operators and other associated stakeholders may identify additional challenges and detail not captured in this high-level assessment.

The aerodrome assessment is given in Section 4 which has been ordered according to their location along the proposed power line route alignment from north to south. Figure 1 below illustrates the proposed route in its entirety; each of the identified aerodromes denoted with a white pin.

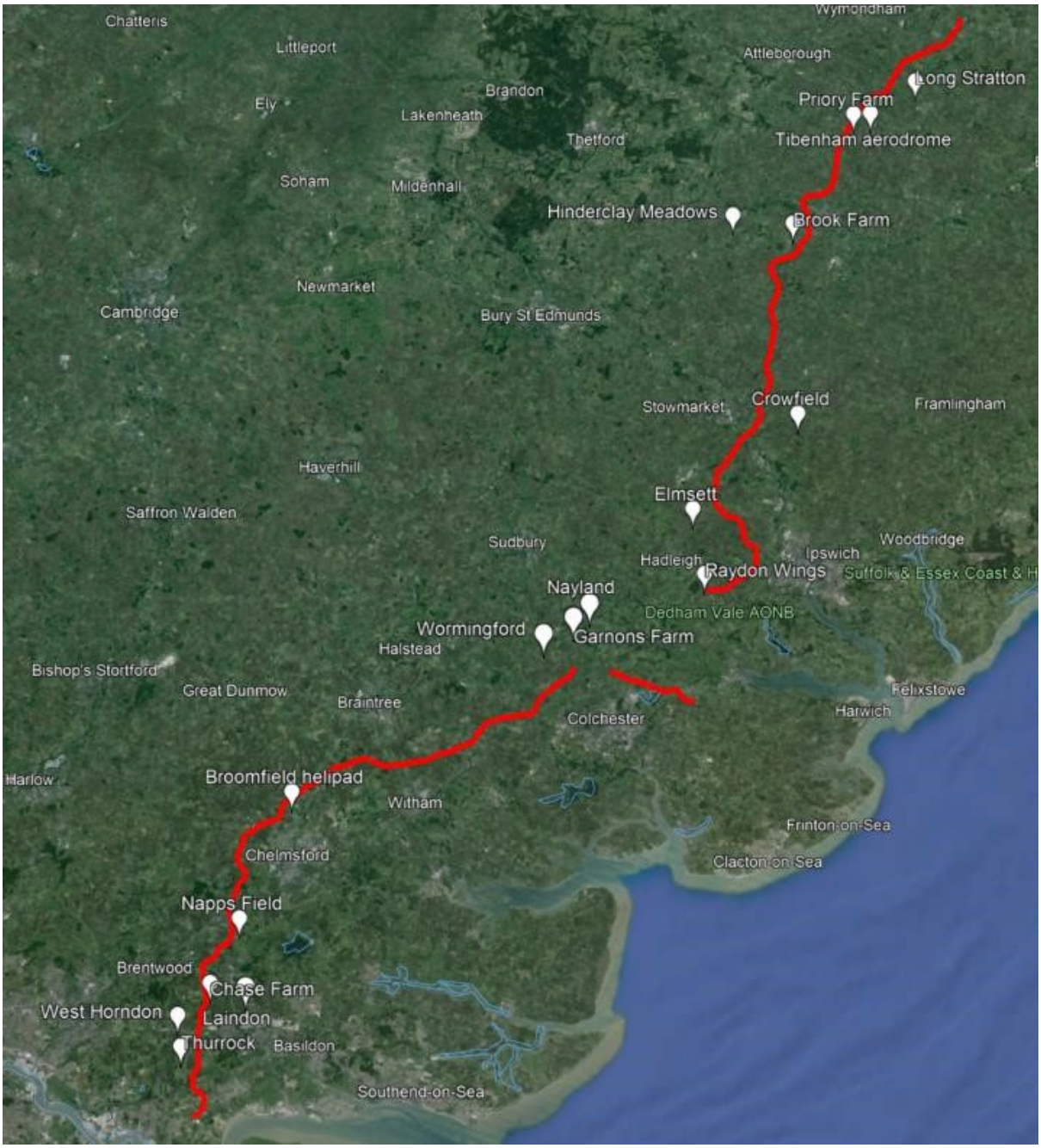


Figure 1: Proposed Norwich to Tilbury route alignment (in red) illustrating aerodromes in the 10km-wide corridor, 5km either side of the proposed power line route (white pins).

4. Extract of Assessment findings

4.2 Tibenham

Latitude/Longitude: 52.453N 1.147E
Aerodrome elevation (AMSL): 186ft
Runway(s): 15/33 (concrete) 1250m x 46m
08/26 (concrete) 700m x 46m
03/21 (concrete) 1600m x 46m
Nature of aerodrome: Large aerodrome site with three paved runways; owned and operated by Norfolk Gliding Club. The aerodrome holds gliding competitions and tasks throughout the year and is an important hub for British gliding, whilst also being recognised as a national 'Significant Area for Sport (SASP)'. The aerodrome welcomes powered aircraft, offers hangarage and parking, with refuelling facilities and a café on site.
Existing power lines: 2.4km from RWY 26 threshold on 08/26 extended centreline (E); 1.5km from the RWY 33 threshold on 15/33 extended centreline (SE)
Proximity to proposal: 2.4km from RWY 08 threshold on 08/26 extended centreline (W); 2km from the RWY 15 threshold on 15/33 extended centreline (NW)
Local topography: No observations

Figure 3: Proximity of existing (blue) / proposed (red) power line infrastructure to Tibenham aerodrome. Nearby Priory Farm aerodrome indicated by white pin.

Tibenham aerodrome facilitates both winch and aerotow glider launch and is located approximately 2km from the proposed power line (red) at its closest point. As shown in Figure 3, the proposed power line would create a north to south corridor around Tibenham, effectively sandwiching the aerodrome between the existing power line infrastructure (blue) to the east at a range of 1.3km at is closest point. Also note the proximity and position of Priory Farm aerodrome (located at just over 1km from the 08 threshold Tibenham), compounding effects from any impact on Priory Farm should be considered when assessing Tibenham.

Tibenham aerodrome is primarily a glider site. In general, glider aircraft launch using the following methods:

- Winch launching involves a high-powered tractor engine connected to a drum and cable which is attached to a glider at the opposite end of the runway. The cable is then spooled back on to the drum at high speed, driven by the tractor engine, pulling the glider along the runway until take off speed is achieved. The cable remains attached to the glider as it climbs until the desired disconnect height has been reached.

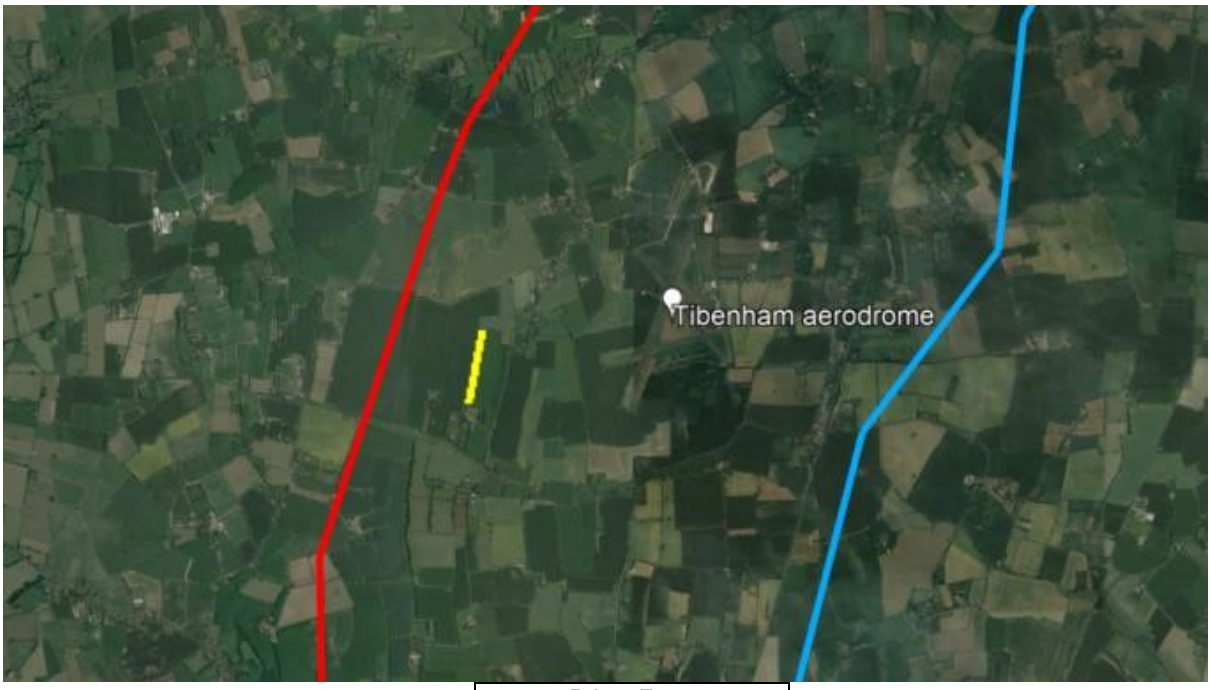
- Another method is aerotow. This involves a powered aircraft connecting to a glider via a detachable cable. The towing aircraft then departs with the glider in tow, remaining coupled up to a desired height at which point the two aircraft can separate from each other. Whilst this is a very well established and safe means of getting air bourn, there are performance limitations and some dynamic factors that are relevant to this assessment. The attached glider creates additional drag and mass for the tug aircraft to overcome. Aerotow requires a flatter rate of climb and limits the ability for both aircraft to turn whilst connected.

The proposed power line infrastructure will represent a new permanent obstruction, akin to a wall, in the vicinity of the aerodrome which could significantly change pilot consideration and risk assessment when operating to the west of the site. For example, should the aircraft experience an emergency in this location or another undesirable event such as a cable break, failed glider release or other scenario, the proximity of the proposed line will impact pilot decision making and outcomes.

Indeed, it could be that operations are forced to cease entirely on runway 08/26, resulting in flying activity being limited to the remaining alternative runways. This of course has other ramifications. Would such an outcome enable the same level of gliding to persist, taking in to account prevailing winds and other performance factors? What will the commercial social and sporting knock- on effects be to Tibenham based on such an outcome? The proposed scheme will force all departures and arrivals tracks of gliders and other aircraft to be contained within the aforementioned corridor running north to south between the existing and proposed power line infrastructure. The position of the proposed infrastructure will force gliders returning from the west to remain sufficiently high in order to clear the power lines. This will impact on competition flying and any other sortie whereby a lower, faster approach currently adopted may not be possible.

4.3 Priory Farm

Latitude/Longitude: 52.454N1.131E
Aerodrome elevation (AMSL): 186ft
Runway(s): 01/19 (grass) 620m x 30m
Nature of aerodrome: Single grass runway operation orientated north to south. The aerodrome is home to its own based members and has fuel provision, hangars, resident aircraft parking and welcomes visiting aviation traffic.
Existing power lines: 4km (E) of RWY 01/19 midpoint
Proximity to proposal: 0.8km (W) of RWY 01/19 midpoint; 2.7km from RWY 19 threshold on 01/19 extended centreline (NNE) **Local topography:** No observations



Priory Farm
RWY 01/19

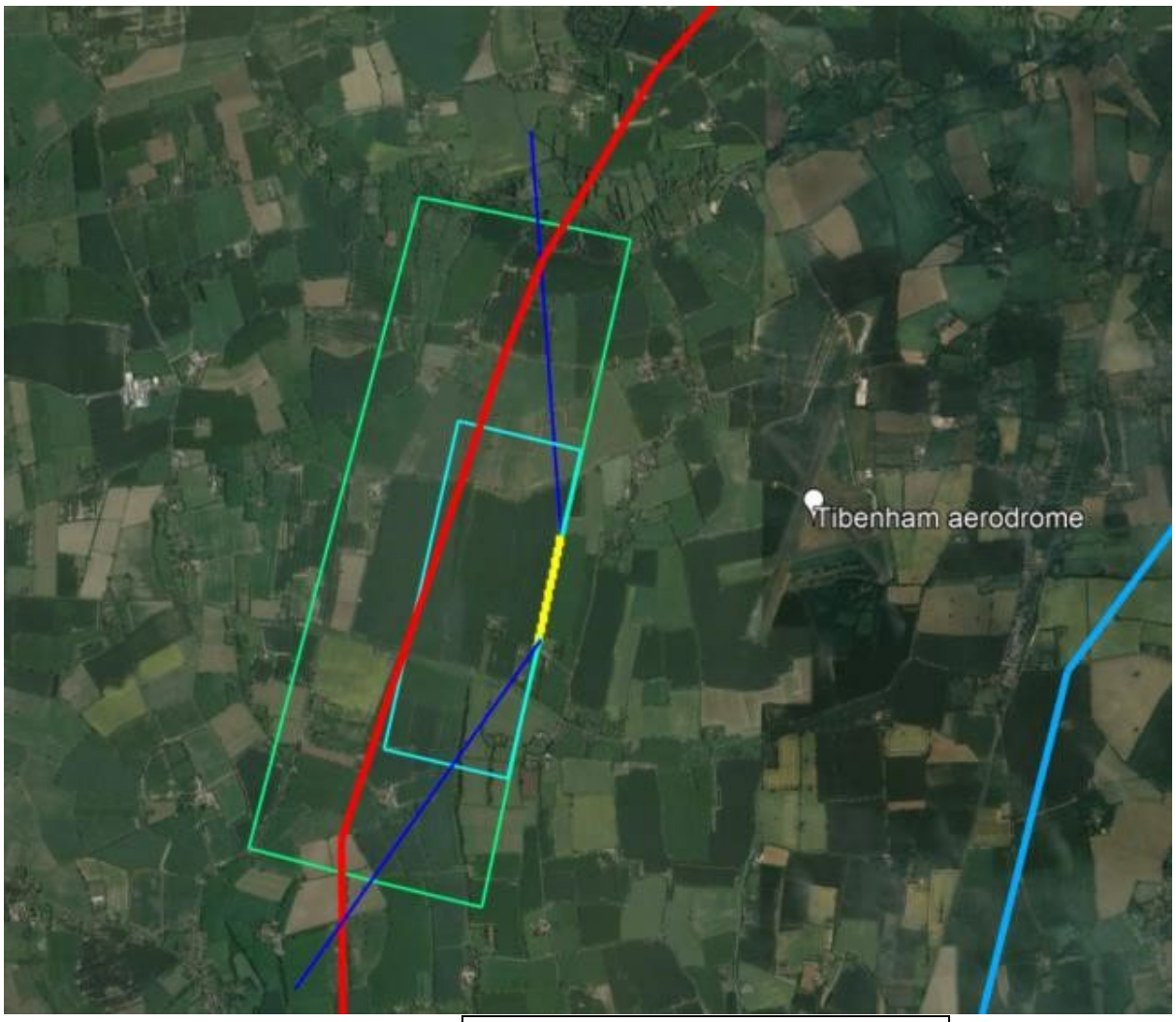
Figure 4: Proximity of existing (blue) / proposed (red) power line infrastructure to Priory Farm aerodrome. Nearby Tibenham aerodrome indicated by white pin.

Existing power line infrastructure (blue) runs north to south past the aerodrome, just under 4km distance to the east at its closest point to the runway. Tibenham aerodrome sits between the existing power line (blue) and Priory Farm. The centre of the runway at Priory Farm is located at just over 1km from the 08 threshold at Tibenham on the 08/26 extended runway centreline.

The proposed power line (red) would run parallel to the west of Priory Farm aerodrome at approximately 0.8km distance from the runway. We note that Priory Farm aerodrome publish circuit tracks so we have assessed these in relation to the proposed power line. Figure 4a

below shows the proximity of the proposed power line route with the two circuits[7] operated at Priory farm aerodrome, which are both orientated to the west of the site (easterly circuits are not possible, as they would conflict with Tibenham aerodrome traffic). The larger circuit (1000ft above aerodrome level) is illustrated in green, with a smaller circuit (500ft above

aerodrome level) in turquoise. The dark blue lines extending from each runway end denote aircraft departure tracks, which the aerodrome requests for noise abatement purposes.



Priory Farm
RWY 01/19

[7] Aerodromes may operate multiple circuits. Smaller circuits may be flown during inclement weather.

Figure 4a: Priory Farm aerodrome's larger circuit shown in green, the smaller in turquoise. Tracks for departing aircraft in dark blue from each runway end. Proposed power line infrastructure in red; existing in light blue. All circuit/departure

As shown in Figure 4a the proposed infrastructure would require aircraft to cross the power line at low level at multiple points in the circuit, and on the published departure tracks also. The proposed scheme represents a new hazard for aircraft experiencing an emergency in the vicinity of the aerodrome. The new vertical obstruction created by the power line may preclude stricken aircraft from recovering to the runway, forcing pilots to consider offaerodrome landing solutions.

5. Conclusion

The aim of our assessment and summary is to provide early horizon scanning to National Grid and ASA, and to assist with the understanding of the potential impact of the scheme on aerodromes.

Our assessment of this important national scheme has highlighted that there is potential for impact, in varying degrees on aerodromes in proximity to the proposed Norwich to Tilbury route alignment.

Each aerodrome has its own interests and focus. Each sit within its own unique environment. The topography, runway orientation, aviation operation and any existing obstructions influence how the scheme might impact upon them – combined of course with the proximity and alignment of the proposed power line route. Each aerodrome owner/operator will have nuanced concerns specific to their individual site. Where sites are in proximity to other aerodromes, impact may be more complex as one site may be forced to make changes that act upon the other aerodrome.

Of particular importance are the following non exhaustive list of considerations.

- A full understanding of the type of aviation activity at the aerodrome is required. For example, sites at which flying training takes place may require greater safety margins for their operation. Where gliding operations take place, consideration will need to be made for the associated activity of winch and aerotow launches, and the nature of non-powered aircraft including emergency conditions
- A full understanding of the proximity of the aerodrome and the orientation of the runway in relation to the proposal and how this might impact aviation safety will be required.
- Consideration of the local topography. For example, if the ground elevation at the pylon site is higher than that of the aerodrome, the impact of the obstruction may be increased.
- The proximity of existing obstructions, including the creation of 'wirescape' and confusing appearance for pilots (EN-5) operating in the vicinity of aerodromes needs careful consideration.
- In situations whereby proposed power line infrastructure will force changes to approach and departure procedures, careful change management and consideration of the full impact will need to be understood. Any changes may also have second order effects on nearby aerodromes and their published procedures.

- Special consideration will be required for aerodromes where proposed new power line infrastructure has considerable impact on height clearance for approach and departure and may preclude the aerodrome from operating at all.
- Secondary effects of the scheme should be understood. For example, could aircraft be forced into a smaller operating area between other power line infrastructure? Are potential changes to circuit height, orientation and track over the ground going to impact operations and/or safety at the site?
- Careful consideration is required where the proposed scheme has altered the environment to the extent that previously held emergency landing options are now changed or not viable.

We recommend that ASA share their aviation assessment criteria with the aerodromes at the earliest opportunity so that these stakeholders can make informed comments on the potential impact of the scheme. The aerodrome operator/owner is the local expert of their site, and their views should be received and understood by the relevant stakeholders associated with this important national infrastructure project.

Appendix K – Letter from CAA AAT to Simon Gill

Simon Gill

National Grid

Airfield Advisory Team
UK Civil Aviation Authority
Professional Services Group

Aviation House
Beehive Ring Road
Crawley
West Sussex RH6 0YR
United Kingdom

T +44 (0) 330 022 4401
F +44 (0) 1293 573992
E aat@caa.co.uk

20/03/2025

CAA, AAT Position statement: National Grid – Great Grid Update

Dear Simon,

As you know, the Airfield Advisory Team will be disbanded at the end of March after four and a half years of providing guidance and support to government, general aviation aerodromes, local planning authorities and other stakeholders on a wide range of matters.

It has certainly been a pleasure to have provided support and input to National grid in relation to the Great Grid Update, and how proposed new line routes could adversely impact established aviation systems.

Whilst this position statement, focusses predominantly on the Norwich to Tilbury aspect of the wider GGU scheme, the sentiment can be extrapolated for other proposed routes. The purpose of this position statement is to centralise our thoughts prior to disengagement at the end of March, when the AAT will cease to function.

From our earliest engagement, we have provided signal that when considering proposed power line routing, it is not the aircraft performance envelope that is the limiting factor. Therefore, any intimation that a specific type can manoeuvre to avoid such vertical obstructions should be disregarded.

Instead, we propose that many factors come in to play when considering the extent of impact that proposed new line routes could have on established aviation systems. On 26th July 2024, we sent you an independent assessment of potential impact to a number of aerodromes within a defined corridor along the Norwich to Tilbury Route.

See excerpt from the document which set out our assessment criteria[8]

"As a baseline for assessment, the AAT has considered aerodromes within a 10km-wide corridor, centred on the proposed power line. The AAT has identified 17 aerodromes within this corridor along the length of this proposal. At this stage, we have focussed our points on the practicalities of how this scheme may impact these aerodromes and perhaps where further, more technical work could be required.

The aerodromes assessed represent the diversity of GA aerodrome sites across the network. They include large gliding sites, small commercially minded training operations, private sites and a hospital helipad.

For each aerodrome, the following has been considered as part of a desktop assessment:

Nature of aerodrome operation

The nature of an aerodrome site including traffic blend, aircraft types and movement numbers may be a key consideration for assessment.

Existing power lines

Existing power infrastructure in proximity to aerodrome sites may represent an important assessment vector. For example, do they demonstrate a level of impact at present, is this tolerable? Could additional infrastructure associated with the proposed scheme compound any existing challenges or create new ones?

Proximity of the aerodrome to the proposal

The proximity of an aerodrome site to the proposed scheme may have an important bearing on the extent of any impact to the aerodrome operation. Aerodromes located in close proximity to the proposed scheme may be impacted to a greater extent than those further away. The extent of any impact could also be influenced further by other factors.

Local topography

Consideration of aerodrome elevation and wider local topography may be relevant when establishing the extent of any potential impact. For example, where the proposed infrastructure is sited on terrain of higher elevation than that of an aerodrome, specific or compound impact may arise. This consideration should extend out to a suitable range, taking into account runway heading and associated flight tracks over the ground including circuit training where applicable, and the nuanced nature of glider launch and recovery where applicable.

Due to the number of aerodromes along the scheme's proposed route and the complexity of assessing multiple sites, each with their own nuanced operation, we have

[8] UK CAA AAT Response to consultation -26th July 2024 – sent to National Grid

adopted a high level, 'say what we see' approach, accompanied by technical information as required. Our intention is to offer an objective and accessible summary of potential impacts to aerodromes along the route of the proposed scheme."

As stated in our conclusion in our July 2024 document, our intention was to provide early horizon scanning opportunities to National Grid and their consultants, Alan Stratford and Associates and to assist with the understanding of the potential impact of the scheme.

During a stakeholder meeting on 23rd January 2025, I was pleased to learn that since our discussions in 2024 and the submission of our assessment, some modifications to the proposed line route have been made. I also thought that the suggestion of working toward a statement of common ground was very beneficial.

As of today, it seems that a much clearer picture is emerging in relation to how the proposed Norwich to Tilbury line route is expected to impact aerodromes. Of the 17 aerodromes we assessed, the majority seem to be low impact. There are however 3 aerodrome sites which are likely to be impacted to such an extent that further consideration is required to avoid the expected level of detrimental impact to them. These were discussed in some detail during the stakeholder meeting of 23rd January 2025. They are Tibenham, Priory Farm and Raydon Wings. I understand that at a recent targeted consultation, National Grid advised both Tibenham and Priory Farm that National Grid would engage more directly for further discussions. It would be beneficial to know if this has occurred yet and what the outcomes are.

To some extent, the impacts to Tibenham and Priory farm are interlinked and complex, owing to their close proximity to each other. Tibenham is an important gliding site. I was concerned by suggestions that glider tow aircraft had the performance to climb clear of the proposed powerline infrastructure. Indeed, this suggestion harked back to an earlier time in these discussions when aircraft performance was cited as the cure to any perceived obstacle issue that was identified, as referred to earlier. The reality is that the performance of both glider tow aircraft and gliders, are variable and based on many factors including meteorological conditions such as wind vectors, air temperature and air pressure, gross weight of tow aircraft including pilot and of course the glider and pilot which is being towed. Furthermore, gliders returning to Tibenham will face challenges in clearing the proposed line for a variety of reasons. Energy management height, speed and range from Tibenham are of course variable and will be impacted by other factors as described above. This has the potential to stop competition flying at Tibenham completely.

Priory Farm located 1km to the west of Tibenham. The mid point of Priory Farm's runway is just 800m East of the proposed line route. As described in our July 2024 assessment, this will result in pilots including students directly overflying the lines at low height and airspeed at multiple points within their airborne circuit pattern. The circuit pattern cannot be flipped to easterly directions because of Tibenham's proximity.

Of Raydon wings, I understand that there has been some adjustment to the proposed line route in proximity to the aerodrome. At present, I understand that owners of the site face

an uncertain future because of the proposed line route. Raydon wings operate and accommodate vintage aircraft types such as Spitfires. This brings its own unique challenges. Pilots of such types fly a military style circuit pattern which is ovular in shape, rather than a conventional rectangular pattern. This is important for several reasons including the inherent reduced cockpit visibility of such types, energy management in the descent (height and speed). Additionally, such types tend to exhibit greater form drag (aerodynamic) tendency, making optimised approaches important. Part of this is flying the penultimate leg of the approach (base leg) into wind as they do today. At present, the aerodrome enables aerobatics and flight training and is looking to attract approved training organisations. The ability for the site to continue to operate as it does today, as well as to adapt and change over time, (a key requirement set out in the NPPF and General Aviation Strategy), is not assured. Part of the issue seems to be the close proximity of the sealing end compound of the proposed scheme, and related pylons to the aerodrome, just 300m. We understand that the terrain is slightly lower to the north of the old railway line. An alternative location for the sealing end compound might offer greater vertical clearances by moving infrastructure away from sensitive aviation factors. Further discussion with the aerodrome will be most valuable in finding a solution.

As this most important scheme progresses, it will be crucial that aerodrome safeguarding consideration is adequately understood by those considering final route alignment and those that provide aviation guidance. Both licensed and unlicensed general aviation aerodromes are encouraged to take steps to ensure that their sites are not impacted by adverse development. A misconception is that unlicensed sites do not require such consideration.

The fact is that the vast majority of general aviation aerodromes are unlicensed and are not officially safeguarded. This simply means they are not afforded a 'call in' opportunity in the event that a development they have raised concerns about, is permitted.

General aviation aerodromes may be licensed if they wish to accommodate certain movements. These might include some types of training or other level of service provision associated with their wider architecture, such as a higher number of more sophisticated / complex movements.

It should not be assumed that such aerodromes have not already achieved adequate levels of safeguarding. Or, that any changes to their environment caused by development, will not adversely impact their operation.

"The common aim of all safeguarding is to assess the implications of any development being proposed within the vicinity of an established aerodrome to ensure, as far as practicable, that the aerodrome and its surrounding airspace is not adversely impacted by the proposal, thus ensuring the continued safety of aircraft operating at the location."[9]

In summary, it seems that a great deal has been achieved in identifying aspects of the Norwich to Tilbury route which are both likely and less likely to impact established

[9] Safeguarding Scope – CAP 738 Safeguarding of Aerodromes

aerodromes. It will be necessary to work closely with aerodrome owners and operators to ensure that these concerns are well understood to enable cost effective mitigation measures to be identified swiftly. Now that a clearer picture is emerging of the expected impact to these aerodromes, I strongly recommend swift engagement, as stated in previous commentary.

Should you wish to discuss this further, please don't hesitate to contact me. Kind

Regards

James Head
Airfield Advisory Team Principal

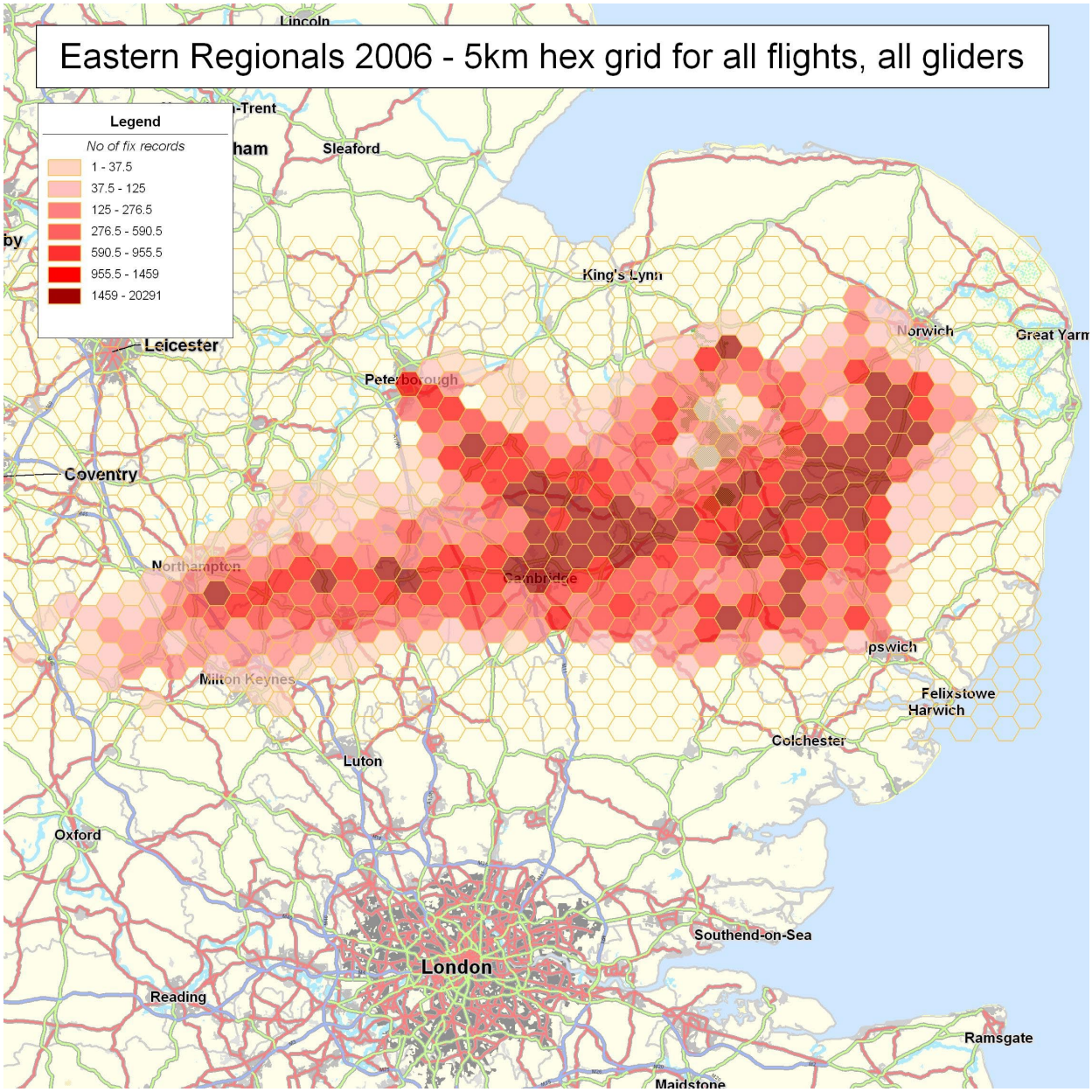
Civil Aviation Authority

Civil Aviation Authority
Aviation House
Gatwick Airport South
West Sussex RH6 0YR
United Kingdom

CC to the following recipients

Ann Bartaby – GAAC
Graham Gunby – Suffolk Council
Will Curtis – London Oxford Airport
Tony Curtis – Tibenham Aerodrome
John Gilder

Appendix L – Typical area covered by Tibenham based gliders during a competition



Note

Tibenham, although not identified on the map, is located south of Norwich on the right

The picture shows the analysis of all flights by all gliders during the 2006 regional competition

The data logger in each glider records their position every 4 seconds

Each hexagon is coloured according to the number of position records logged ranging from light pink (1 – 37 records) to dark red (1,459 to 20,291 records)

Appendix M

Statement of Common Ground

In the absence of a Statement of Common Ground (SoCG) and the apparent reluctance of National Grid (NG) to meet with Norfolk Gliding Club (NGC) as shown by the emails to Louise Brace of LSTC and Simon Pepper, Project Director of the Norwich to Tilbury project (see appendices E and F) this version has been prepared by NGC as the stakeholder

NGC would like to express its thanks to the Planning Inspectors of the Examining Authority at the Open Floor Hearing on Thursday February 12th 2025 who provided advice and guidance on the procedural aspects of this matter

The document is based on the original draft as sent to NGC by Mr Pepper in July 2025 together with many of the additions made by NG from then to December 2025. To this base NGC have added their own comments in addition to responding to some of the NG statements which are shown in red

Note
In paragraph 5.3.11 of the Design and Development Report (Doc no EN020027-000237-7.21) it states that NG does not rule out undergrounding if there are other or additional factors or new material considerations, just that the overhead line is their preferred option.

Given the multitude of aviation safety issues identified in this submission, if NG were to agree to undergrounding whilst within the 11km of our safeguarding zone, both Tibenham and I understand, Priory Farm, would be prepared to withdraw all objections and sign a Statement of Common Ground

Norwich to Tilbury Project

Statement of Common Ground with

Norfolk Gliding Club Ltd – Tibenham Aerodrome

1 Introduction

1.1 This Statement of Common Ground (SoCG) has been prepared to outline those areas of common ground between National Grid (NG) and Norfolk Gliding Club (NGC), owners and operators of Tibenham aerodrome regarding the aviation safety impacts in relation to the proposed Norwich to Tilbury Project.("the Proposed Development")

1.2 It is being submitted to the Examining Authority (ExA) as NGC's view of the current issues in respect of the Proposed Development with the aim of providing ExA with a clarification as to the understanding of any issues and facilitate an efficient resolution process.

1.3 This SoCG sets out wherever possible both the matters of agreement between NG and NGC and those matters where agreement has not been achieved

1.4 This document has not been submitted to NG for comment or agreement

2 The Project

2.1 The Project comprises reinforcement of the transmission network between the existing Norwich Main Substation in Norfolk and the Tilbury Substation in Essex, via Bramford Substation, the new East Anglia Connection Node (EACN) Substation and the new Tilbury North Substation.

2.2 The Project is identified by NG as critical to delivering a network which supports the clean power pathways for 2030.

3 Respective Interests

3.1 The overarching National Policy Statement for Energy (EN-1) has affect for the decisions by the Secretary of State on applications for energy developments that are nationally significant under the Planning Act 2008. Amongst other impacts, Section 5.5 recognises that all aerodromes can be affected by new energy development and the need, therefore, for NSIPs to be developed collaboratively alongside aerodromes so that safety, operations and capabilities are not adversely affected.

3.2 Reciprocally, EN-1 states that it is essential for aerodrome operators to work collaboratively with energy infrastructure developers essential for net zero, recognising the need for the important economic and social benefits of aerodromes to be balanced with the urgent need for new energy developments which bring about a wide range of social, economic and environmental benefits.

3.3 NG recognises that EN-1 which states

> *'It is essential that the safety of UK aerodromes, aircraft and airspace is NOT adversely affected by new energy infrastructure'*

places a requirement on them as the Applicant to consult with any aerodrome likely to be affected by the proposed development in preparing an assessment of the proposal on aviation interests.

3.4 Tibenham aerodrome was identified and included in the scope for assessment, with its runway being located within 2 km of the Project's proposed overhead line alignment and recognising the potential for the proximity of the infrastructure to impact aviation safety and aerodrome operations.

3.5 In accordance therefore with EN-1, the operator of Tibenham aerodrome (Norfolk Gliding Club) was identified as a priority stakeholder for engagement in relation to these aviation impact considerations.

4 National Grid's consultation approach, and engagement with Norfolk Gliding Club to date

4.1 - 2022

National Grid published information on how the project was evolving from the evaluation of strategic options to a preliminary preferred graduated swathe within which new infrastructure (pylons and underground cables) could be located as well as a proposed new substation site on the Tendring Peninsula, as described within the Corridor and Preliminary Routeing and Siting Study Report (April 2022)

4.1.1 April 21 – June 16 2022 National Grid held non-statutory presentations to the general public at various village halls and the like on the preferred route corridor which had been developed without reference to any of the aerodromes and there was no attempt to contact NGC or other airfields that would be affected by the project

4.2 - 2023

Development of the 2023 Preferred Draft Alignment, responding to feedback and other studies, as described within the Design Development Report (June 2023)

4.2.1 June 27 – August 21 2023 National Grid held non-statutory consultations on the 2023 Preferred Draft Alignment

4.2.2 July 24 2023 National Grid held the first consultation with Norfolk Gliding Club at Tibenham aerodrome involving Alan Stratford and Associates (ASA), Chair of the Norfolk Gliding Club (the Operator) and fellow committee members, together with representatives from the Civil Aviation Authority Airfield Advisory Team (CAA AAT) and neighbouring Priory Farm aerodrome.

4.2.3 Matters raised included:

- A presentation by NGC of the development and extent of their safeguarding zone as approved by the CAA
- Concern expressed by NGC over the proximity of the preferred route which would pass through their 5km safeguarding zone and was developed without consultation with NGC contrary to planning guidelines
- Concern expressed by NGC regarding the aviation safety issues that would result from the proposed development which were identified as aerotow take offs from runway 26, all approaches to land on

runway 08 and the effective removal of the emergency landing area to the west of runway 26

- Potential loss of income since the British Gliding Association (BGA) have stated that if the pylon route is not changed, they would not allow Tibenham to remain a viable National Competition site due to safety issues.
- Potential safety risk from circuit pattern changes made by aircraft using Priory Farm airfield
- Concerns expressed by NGC over the effect that the proposed route would have on electronic communication and conspicuity systems: Radio communication range, FLARM, ADSB, Transponders – NG agreed to investigate and report back
- Concerns expressed by both NGC and Priory Farm over the lack of accurate information – NG promised to supply a detailed map of the route and a list of all the airfields affected by the route. Note – The map did not arrive until July 2025 and the list of affected airfields has never been supplied

4.3 - 2024

Development of the 2024 Preferred Draft Alignment, considering feedback and other studies, as described within the Design Development Report (June 2024)

4.3.1 April 10 - July 26 National Grid held statutory consultations on the 2024 Preferred Draft Alignment

4.3.2 May 1 National Grid (with ASA) held a statutory consultation with NGC as the operator but limited their attendees to 3

4.3.3 Matters raised included

- Disbelief expressed by NGC that none of the NG attendees had knowledge of the previous consultation nor answers to any of the queries raised at that meeting
- A re-presentation by NGC of the development and extent of their safeguarding zone as approved by the CAA at the end of 2022
- A confirmation of the concern expressed by NGC regarding the aviation safety issues that would result from the proposed development which were identified as aerotow take offs from runway 26, all approaches to land on runway 08 and the effective removal of the emergency landing area to the west of runway 26
- A confirmation of the potential loss of income since the British Gliding Association (BGA) have stated that if the pylon route is not changed, they would not allow Tibenham to remain a viable National Competition site due to safety issues
- Discussion of potential mitigation, ranging from offshoring, undergrounding or relocating outside the 5km safeguarded zone or 3.5km west of the nearest runway end
- Discussion of potential mitigation involving the alteration of the design to incorporate low height pylons to which NGC commented

that low height pylons do not solve the need for emergency landings in the event of power/climb rate reductions during take-off

4.3.4 July 20 Written representation received from NGC objecting to the Project, matters identified included

- That the proposals are contrary to government, Civil Aviation Authority (CAA) and planning guidelines as well as the Air Navigation Order 2016
- That National Grid's appointed aviation consultants failed to fully understand gliding operations despite the consultation of the previous year
- That the CAA state that only the aerodrome operator can hold expert opinion on safety at their airfield with respect to potential obstacles
- Concerns regarding adverse impacts on the safety of operations, the consequential impacts on aerodrome status as a Community Amateur Sports Club (CASC) and National Significant Area for Sport (SASP) and the longer-term financial viability

4.4 - 2025

Development of the proposed Project Alignment prior to DCO submission, considering feedback and other studies.

4.4.1 National Grid publicised their plan to hold a series of on-line "Targeted Consultations" inviting interested stakeholders and members of the public to register

4.4.2 The targeted consultation was attended by NGC but it turned out to be a glorified presentation of how they had responded to the consultations with no involvement by the attendees. NG did acknowledge that the proximity of Tibenham and Priory Farm to the proposed route was a problem that needed to be addressed by a meeting with the stakeholders

4.4.3 February 12 Email from NGC to NG regarding the targeted consultations in the Norwich area and NG's acknowledgement that a meeting was required requesting a date for the meeting to discuss the aviation safety impacts - was not responded to by NG

4.4.4 April 29 Invitation from NG's appointed consultant (LSTC) to take part in a further consultation

4.4.5 May 2 Email from NGC requesting clarification of the purpose of meeting given no reaction to the issues raised in 2024

4.4.6 May to August 5 Various emails between LSTC and NGC in relation to meeting arrangements and the draft versions of the SoCG and Aerodrome Impact Assessment Summary

4.4.7 May to August 5 Draft SoCG and Aerodrome Impact Assessment Summary returned to LSTC annotated with comments, errors, queries and omissions

4.4.8 August 5 Email from LSTC confirming their acceptance of the proposed meeting agenda which would include written statements of the route development rationale (why the expertise of the CAA, BGA, GAAC and NGC was

ignored in favour of the opinion of ASA), NG's mitigation proposals (since we cannot move the airfield and the proximity represents a risk to life in an emergency) and the detail cost information (of the various options around Tibenham relative to the overall project cost)

4.4.9 August 7 meeting in-person between NG (with ASA) and representatives of Tibenham and Priory Farm aerodromes – see appendix F for the agreed agenda. Matters discussed included:

- NG advised that despite their previous emails they never had any intention of providing the written statements as agreed prior to the meeting
- A brief discussion on the route development rationale but no explanation of why the expert advice and guidance from the CAA, BGA, GAAC and NGC was ignored in favour of the opinion from ASA
- A claim by ASA that the risk of a fatal accident was small and did not justify mitigation on behalf of NG though no evidence could be produced to substantiate that claim
- A discussion of aviation safety risk assessments, including consideration of Engine Failure After Take Off (EFATO), but no acceptance by ASA that this increased the fatal accident risk in this scenario
- A brief discission of high level transmission technologies and general cost comparisons, including with reference to the NGC proposed aviation impact mitigation options
- In accordance with the agreed agenda, as NG had failed to provide a satisfactory response to the first three items, the meeting was adjourned to allow them to reconsider

4.4.10 October 23 Email to LSTC with regard to the missing documents advising that

- Their claim that LSTC/NG/ASA did not agree to provide the documents was incorrect
- Kevin Lussi's (LSTC) email of July 29 advised that the full agenda had been agreed which included the presentation of the documents
- Louise Brace's (LSTC) email of August 5 also stated "pleased that Kevin was able to confirm our acceptance of your proposed agenda"

4.4.11 October 27 Email from NGC to LSTC with regard to the Aerodrome Assessment Summary referring to

- AAS received last week seems to be identical to the one sent to LSTC at the beginning of July with no attempt at addressing the comments
- Requesting answers to specific questions relating to the queries and comments previously raised

4.4.12 Engagement next steps

- LSTC to produce the agreed minutes of the August meeting
- LSTC to coordinate with ASA and NGC to produce an agreed version of the Aerodrome Impact Assessment (AIA)
- LSTC to coordinate with NGC to produce an agreed version of the SoCG

4.5 - 2026

No meaningful engagement with NG, LSTC or ASA to resolve the outstanding matters – see appendices E and F

4.5.1 January 26 Email from LSTC confirming they were the 'principal point of contact representing the National Grid Project in engagement with yourselves' despite previous emails advising that our queries were being reverted to NG. No response was ever received from NG

4.5.2 February 6 Email from LSTC advising of the content of the ExA rule 6 letter and the need to agree the SoCG by February 26th but no response to the emails from NGC since the August 2025 consultation in which repeated offers were made to host an in person meeting in order that the SoCG, the AIA and the minutes of that meeting could be agreed

1. Matters Agreed

Issue	Agreement reached	Date agreed	Relevant documentation
All	No		

2. Matters currently under discussion

Issue	NGC position (including date)	National Grid response (including date)	Relevant documentation
Legislative, Regulatory, Policy and Guidance Context	The proposal is contrary to government policy on airfield safeguarding and aviation safety. The proposal is contrary to the Civil Aviation Authority's (CAA) policy and guidelines on aerodrome safeguarding and aviation safety. The proposal is contrary to the current planning guidelines as shown in the National Planning Policy Framework (NPPF) and the National Policy Statements where Nationally Significant Infrastructure Projects (NSIP) are in conflict with aviation safety. The proposal is contrary to the Air Navigation Order 2016 which is a statutory instrument. (July 2023,repeated July 2024 and 2025) 1 – EN1 paragraph 5.5.5 is quite specific stating that UK airspace is important and it is essential that the safety of UK aerodromes, aircraft and airspace is NOT adversely affected by new energy infrastructure.	As recognised within Section 4, the Overarching National Policy Statement for Energy (EN-1), together with the National Policy Statement for Electricity Networks Infrastructure (EN-5) are the primary determining policies for the Project. It is considered that the National Grid's approach is consistent with the instructions and guidance of EN-1(1) and EN-5, which has involved consulting with and considering the feedback (2) of Tibenham aerodrome as an aerodrome (3) likely to be affected by the Project, as well as relevant aviation stakeholders including the (4) CAA AAT and the British Gliding Association, in preparing and informing impact assessments. Furthermore, the proposal has been designed, where possible, to minimise adverse impacts on the operation and safety of aerodromes.(5) EN-1 recognises aviation safeguarding systems and refers to CAA regulations and guidance for licensed and unlicensed aerodromes, as well as the responsibilities of aerodrome operators therein; in accordance, we have ensured our approach appropriately considers aerodrome licensing and	DfT/OPDM circular 1/2003 CAP 168 Licensing of Aerodromes, January 2022 CAP 738 Safeguarding of Aerodromes, October 2020 CAP 793 Safe Operating Practices at Unlicensed Aerodromes, July 2010; NPS EN-1 Overarching National Policy Statement for Energy, November 2023 EN-5 Electricity Networks National Policy Statement, March 2023 National Planning Policy Framework, last updated February 2025

Issue	NGC position (including date)	National Grid response (including date)	Relevant documentation
	Even NG's consultants agree that there will be an increased risk to aviation safety with this proposal In '*considering the feedback'* there has been no change to the scheme and no collaboration. NG has not suggested any means of addressing the acknowledged safety risks or possible mitigation The proposed development clearly conflicts with the provisions of EN1. 2- At the statutory consultation stage NG representatives were totally unaware of any feedback from the previous consultation. There is no evidence of 'collaboration'. The initial report published by NG made reference to one aerodrome – Stow Maries for its historical value – not its current activity. No other aerodrome was referred to – so there has never been 'collaboration' and if, at an early stage, NG had engaged with Tibenham, minor route changes could have removed or significantly reduced the threat to aviation safety. 3 - There is no "likely" to be affected – Tibenham will be adversely affected both in safety terms and financial loss and the potential loss of a valuable sport, recreation and amenity asset. 4 - NG has completely ignored the CAA AAT input (which provides qualified, expert advice) in favour of the less expert and less independent ASA input.	safeguarding requirements and parameters, including as described within CAP 168 (Licensing of Aerodromes), CAP 738 (Safeguarding of Aerodromes) (6) and CAP 793 (Safe Operating Practices at Unlicensed Aerodromes). Whilst the National Policy Statements represent the primary planning policies for projects of this nature, it is acknowledged that account may be taken of the provisions of the National Planning Policy Framework (NPPF), including its recognition of the importance of maintaining a national network of General Aviation airfields, and their socio-economic value. It is recognised that the Air Navigation Order (ANO) 2016 (7) forms the legal basis for almost all areas of civil and general aviation that are regulated at national levels. It is not considered that the Project would breach this order. (March 2025) As referenced within Section 4 of the draft SoCG, National Grid recognises and agrees with the importance of collaboration as described within para, 5.5.5 of EN-1, noting this is qualified by the requirement to balance potential adverse impacts on aviation with the urgent need for nationally significant new energy infrastructure. (8) Further to National Grid's recognition of aerodrome operator responsibilities for safeguarding as per para. 5.5.16 of EN-1,	The Air Navigation Order 2016

Issue	NGC position (including date)	National Grid response (including date)	Relevant documentation
	5 – NGC totally refutes the assertion that the scheme was designed to minimise adverse impacts on aviation safety. The original route published in 2022 was designed without reference to the proximity of airfields There was nothing in the NG project documents at that time that mentioned aviation, let alone aviation safety. Since then, NG having been playing catch up trying to justify their initial failings. In addition, the CAA states in CAP 738 regulation 2018/1139 that only the aerodrome operator (NGC) is the authority to determine safety with respect to proposed obstacles near the aerodrome. Furthermore, Operator accountability does not mean the operator must accept new third-party hazards or carry the burden of mitigating them 6 – If as NG claims it considered the safeguarding requirements and parameters within CAP 738, why did it choose to ignore them. There is no evidence to support their appraisal or assessment in any NG documents nor has any been provided to NGC, just rhetoric 7 - If as stated, NG recognises that the ANO forms the legal basis for almost all areas of civil and general aviation why did ASA say at	National Grid recognises its responsibilities as an applicant to consult the aerodrome to inform its own assessment of aviation impacts. (9) National Grid notes that CAP 738 provides detailed guidance on matters including operator accountability for safeguarding, procedures for ensuring involvement in the planning consultation process, and the assessment of OLS infringement and other impacts. We would be grateful for clarification of which aspect of the guidance is considered to have been ignored. (10) (August 2025)	

Issue	NGC position (including date)	National Grid response (including date)	Relevant documentation
	the statutory consultation that this should be ignored? Where is the evidence on which NG relies in order to make this assertion? Furthermore NGC, as the expert on its site and operations, believes the Project would breach this order 8 – Despite consultation and emails, NG continue to fail to recognise that the potential adverse impact on aviation will be one or more fatalities and mitigation on their part (say undergrounding) will have no effect on the overall timescale of the project 9 – NG failed to engage with NGC and other airfields prior to publishing the pylon route in 2022 10 – Since the first non-statutory consultation of 2023 NGC have provided clarification of those aspects of the guidance that have been ignored. In agreeing to the agenda for the August 2025 consultation NG confirmed they would document those aspects and show why they have ignored them (June 2025 following receipt of this draft SoCG).		
Consultation to Date	NGC considers it should have been formally and specially engaged during the 2022 non-statutory consultation, prior to NG's development of the 2023 Preferred Draft	National Grid has noted the stakeholder's concerns regarding consultation and the lack of design changes implemented in response but considers its position to be justified by the	

Issue	NGC position (including date)	National Grid response (including date)	Relevant documentation
	Alignment, to avoid issues in relation to aviation impacts currently being discussed. NGC states that information sharing, including provision of route mapping and a list of other aerodromes potentially impacted by the Project has not been completed. The map was eventually received in July 2025 but the list of airfields is still outstanding (August 2025) 1 – In an email the CAA AAT advised NG that the Impact Assessment methodology was flawed and should not be used – why continue to ignore that advice and guidance? 2 - NGC has repeatedly asked why expert advice and guidance from aviation organisations such as the CAA, the GAAC, the BGA and others has been ignored in favour of the opinion of the consultants employed by NG. No evidence has been submitted to support this approach in any documentation, just comments in the form 'has been taken into consideration' yet the consequences of this failure to adequately address aviation safety are likely to be one or more fatalities. 3 – The approved minutes of that consultation show that the information should have been provided to NGC	impact assessment (see Impact Assessment Conclusions below).(1) It recognises that, as for Tibenham aerodrome, in locations where design changes have not been implemented, concerned parties might infer that their views have not been considered – this is not the case, as illustrated by the Design Development Report which refers to feedback received and consideration of effects on Tibenham aerodrome.(2) Route mapping and a list of potentially impacted aerodromes was shared with the CAA AAT as the agreed central repository for Project information for operators, and was used to inform their cross-project consideration of potential aerodrome impacts. Details of the Project alignments (including mapping) was provided at the various consultation stages.(3) (August 2025)	
Aviation Impact Assessment	Failure to appropriately consider the nature and complexity of operational aspects of a	National Grid's Aviation Impact Assessment methodology (1) has been developed to	CAA AAT 2024 Statutory Consultation Feedback and

Issue	NGC position (including date)	National Grid response (including date)	Relevant documentation
Methodology and Key Assumptions	gliding site within aviation impact assessments. (July 2024) According to an email from NG dated 31/1/25, *'The Civil Aviation Authority (CAA) has not directly advised the Norwich to Tilbury Project in relation to the aviation impact assessment methodology used. Paras 15.3.23 and 15.3.27 of the ES Appendix describe, however, how the methodology responds to the CAA's extant guidance including consideration of Obstacle Limitation Surfaces (OLS) infringement for obstacle assessment and treatment purposes, recognising OLS definition relates to manoeuvrability from obstructions'* yet under the column 'Relevant Documentation' they state otherwise As at June 2025, NGC are not aware of having received a document headed "Aviation Impact Assessment" and therefore find it difficult to understand how we may have responded in July 2024 as shown above by NG 1 – This sounds very good but the reality is that none of it appears to have been put into practice following the 2023 and 2024 consultations in developing the route as we understand it 2 – As far as NGC are aware there has been no realistic evaluation of take-off, landing or forced landing risks despite all the research data provided in 2024, just some text book	enable site-specific impact assessments for aerodromes potentially impacted by the Project. (2) Its primary aim is to evaluate risks of collision, predominantly during take-off and approaches and including forced landing risks, with the proposed overhead line alignment representing a new obstacle within proximity of aerodromes. Operational safety impacts arising from potential increases to risks of bird strike, wind turbulence and electromagnetic forces as a result of the Project are also considered. The methodology enables a bespoke appraisal, appropriate to each aerodrome, that considers a range of factors in addition to the height and location of the proposed overhead line alignment, including: runway length and orientation in relation to the overhead line; aircraft types, performance, flight paths and operational procedures (determined from published information,(3) as well as via consultation with operators and relevant aviation stakeholders); and the surrounding context in terms of topography, existing obstacles (including other overhead lines) and neighbouring aerodromes.(4) (5)The assessments consider whether the Project alignment infringes Obstacle Limitation Surfaces (OLS) as specified under the CAA's CAP 168 regulations for licensed aerodromes, recognising this to be a best practice standard for obstacle assessment and treatment, albeit not a regulatory requirement for unlicensed aerodromes. (6) If CAP168 standards are met, the proposed overhead line alignment is considered to	2025 Position Statement to be linked

Issue	NGC position (including date)	National Grid response (including date)	Relevant documentation
	values which bear little resemblance to what happens 3 – From what we have seen only text book information has been used contrary to the CAA recommendation – all the consultation information we provided in 2023 and 2024 has been ignored 4 – Which neighbouring aerodromes? We are still waiting for the list of aerodromes promised by NG in 2023 5 – Even the CAA do not consider the OLS approach to be a best practice standard. When we contacted them in 2022 whilst developing our own safeguarding plan they advised that the OLS approach was a one size fits all starting point and was not suitable for Tibenham hence the use of the concentric circle method. In the consultations of 2023 and 2024 we advised NG of this so why do they revert to the OLS approach contrary to the expert advice from the CAA? 6 – Since the experts from the CAA tell us that the CAP 168 OLS standards are not applicable, meeting them or not is irrelevant so why is NG applying them? We would also question the claim that they are being met 7 – ASA advised in the 2024 consultation that in their opinion there would be an increased safety risk which means probable collision with the OHL. Why do NG consider this to be	have an acceptable impact (7) on the aerodrome's operations and no further changes are considered likely to be necessary. With regards to gliding-specific considerations, feedback from the Operator and the British Gliding Association (BGA) has been considered, as well as account taken of current BGA guidance, including in relation to competition requirements. BGA engagement has also focused on the need for guidance on an objective or standardised means of assessing potential gliding impacts in relation to obstacles (especially during take-off and approaches, and for competitions). (8) (May 2025) National Grid considers its methodology to be aligned with the multifaceted approach described by the CAA AAT in relation to its own assessment in its July 2024 response to the Statutory Consultation and its Position Statement of March 2025. Furthermore, consideration of OLS infringement is suggested to accord with EN-1 and extant CAP 168 and CAP 738 guidance.(9) (August 2025) National Grid has submitted a Review of Aviation Impact as an appendix to the Environmental Statement accompanying the DCO application. This appendix describes National Grid's aviation assessment scope, approach and conclusions, as outlined in relation to Tibenham within this SoCG.	

Issue	NGC position (including date)	National Grid response (including date)	Relevant documentation
	acceptable? **We do not consider any increased safety risk acceptable** 8 – In short NG have decided to ignore the feedback from NGC and BGA. This paragraph does nothing to explain why the expert opinion of both has been ignored NGC raised concerns that details of impact assessments have not been shared with the operator or published. 9 – Does not agree with the NG email indicating that there has been no consultation with the CAA AAT in respect of the assessment methodology (August 2025)	Should the DCO application be accepted for examination, the appendix will be published by the Planning Inspectorate, and National Grid will share the document with operators. (September 2025)	
Impact Assessment Conclusions	The proposal will adversely impact the safety of aviation operations as a result of the presence of pylons endangering aircraft using the east/west runway. Specific concerns relate to forced landing risks and cable contact occurrences, aborted aerotow launches and aerotow launches with reduced climb rate, and cross country gliders returning from the west. (July 2024) 1 – CAP 168 used again which the CAA experts say is not appropriate at Tibenham 2 – Recent test flights have shown that an aerotow with a two seat glider sometimes has difficulty reaching 200ft by the time it crosses the proposed OHL route so current circuits cannot continue to be used	National Grid's Aviation Impact Assessment conclusions for Tibenham aerodrome include that, whilst the Project will represent a new obstacle in the vicinity, CAP168 OLS (1) standards are met, with the exception of a minor penetration of the Inner Horizontal Surface (IHS). Overhead line overflight clearance margins for straight ahead take-offs (including for aerotows) and glider or powered aircraft approaches are assessed as adequate (2). It is assessed that current circuits can continue to be used. It is anticipated that further consultation with the operator and the BGA will clarify implications for competition finishes. (3) (May 2025) In addition to the Operator concerns, National Grid recognises that the CAA AAT has	Aerodrome Assessment Summary; Drawings BGA March 2025 response to be linked

Issue	NGC position (including date)	National Grid response (including date)	Relevant documentation
	3 – The BGA have already advised NGC that if changes to the route are not made the Tibenham would not be allowed to hold national gliding competitions with the subsequent loss in income 4 – Risk acceptability is not determined by an operator supplying a preferred clearance value. The hazard arises from emergency and abnormal scenarios where clearance is not controllable. Design mitigation is therefore required of NG In the absence of the withheld documents, there has be no meaningful engagement since the August 2025 meeting	advised that the presence of the Project alignment could impact pilot decision making and outcomes, including in emergency scenarios, potentially impacting operations related to runway 08/26. Their March 2025 Position Statement advises that aircraft performance in relation to take-off clearances is variable based on multiple factors. Furthermore, we are aware of BGA concerns in relation to departures from runway 26 as raised within their March 2025 response to the targeted consultation, and their associated intention to seek expert opinion to quantify this risk. We would be grateful for Operator clarification of what would be an acceptable clearance, including for gliding and towing aircraft and noting your comments regarding recent test flights, to enable objective assessment.(4) The CAA AAT's July 2024 response to the Statutory Consultation stated that the proposed infrastructure would force gliders returning from the west to remain sufficiently high to clear the overhead line, impacting competition flying. The BGA's March 2025 response stated the presence of the alignment would present a real and perceived risk to glider pilots during competitions, which was stated may prevent competitions being held or reduce the number of competitors. We would be grateful for Operator clarification of acceptable clearances in relation to competition finishes. (August 2025)	

Issue	NGC position (including date)	National Grid response (including date)	Relevant documentation
Mitigation Measures	NGC position Procedural mitigation is not primary mitigation for EFATO/abnormal operations, only design change removes the hazard Had National Grid proposed: - An offshore solution; - An underground solution whilst the Project crossed the NGC 5km safeguarding area; - An overground solution outside the safeguarding area; There would be no cause to object. (July 2024) 1 – NG chose to withhold the detailed costs from our August 2025 consultation but the NESO report (see appendix XX) identifies undergrounding as a lower cost alternative 2 - Expert opinion on the adverse impacts of the proposed route is held by NGC, BGA and CAA who disagree totally with the NG conclusions In the event of an EFATO type incident past experience shows that the outcome of any collision by a light aircraft with overhead lines is likely to be fatal In addition, it is the operator of the airfield to whom the CAA delegates that expert opinion when deciding on the safety or otherwise of obstacles near the aerodrome, not NG That operator accountability does not mean the operator must accept new third-party	NG position – No design change or procedural changes EN-5 makes clear that the Government considers overhead lines to be the strong starting presumption for electricity network development. In considering the need for an alternative, National Grid must fulfil its statutory duties and obligations to balance this with the need to be economic, efficient and to keep costs down in the interests of bill-paying consumers.(1) In view of the assessment conclusions, changes to the Project design have not been implemented as are not considered to be appropriately justified by the minimal potential adverse impacts on the operation and safety of the aerodrome. (2) The operator's defined safeguarding area has been noted, albeit recognising its primary purpose is to ensure aerodrome consultation regarding potential impacts by prospective developers, already in train in the instance of the Project and addressed via the Impact Assessment. The operator may consider operational procedure changes, including to enhance pilot awareness of the overhead line as an obstacle, especially in relation to climb and descent progress. In relation to gliding competition finishes, it is suggested that an acceptable finish could be designed by the operator, taking account of	

Issue	NGC position (including date)	National Grid response (including date)	Relevant documentation
	hazards or carry the burden of mitigating them Norfolk Gliding Club believe the proposed pylon route to be a significant aviation safety risk in respect of aerotow take-offs from runway 26 under normal circumstances and a very significant risk in the event of any power reduction during the early stages of the flight 3 – Suggested by whom? Irrelevant in any case since the BGA have already made it public that construction of the proposed pylons means a ban on national competitions at Tibenham	the Project alignment and subject to clarification of BGA guidelines. (3) (May 2025) National Grid is keen to support operator consideration of mitigations, such as changes to operational procedures, as well as subsequent implementation of agreed mitigations, as appropriate. (August 2025)	
Other Impacts of the Project	The proposal will adversely impact Norfolk Gliding Club's ability to continue as a Community Amateur Sports Club (CASC) and as a national Significant Area for Sport (SASP), together with our overall financial viability (July 2024) 1 – The BGA have already stated that there will be a financial impact yet this continues to be ignored	In view of the current assessment conclusions, no effects are anticipated for Norfolk Gliding Club in terms of its business or status. (1) (May 2025)	

Appendix N – Airfield Impact Assessment

This response by NGC to the AIA has previously been submitted to NG and whilst some of the initial queries have been resolved there still remains the fundament issue that the CAA AAT advised NG that this approach was flawed and should not be adopted.

Had NG not decided to withhold route rationale, costings and mitigation proposals from the consultation in August 2025 there is no doubt that many of these queries could have been resolved

Aerodrome	Tibenham				
Runways					
Runway	TORA[1]	DER[1] Elevation (amsl)	OHL[1] in Splay	Dist DER to OHL[2]	CAP 168 Code[3]
26	1065	55	RG56-59(1)	1943(2)	2C
33	1250	53	RG48-50(1)	1909(2)	3C
OHL					
Drawing ref	01_220101_97 Rev A, 01_220101_91 Rev A(3)				
(4)	Ref Tower	Height (agl)	Elevation (amsl)	Overall height (amsl)	Relative height (ft)
26	RG57	54	60	114	61 (200)
33	RG50	52	40	92	39 (128)

Take-off Assessment (5)		
Runway	Slope from TOP[1] to OHL	CAP 168 Compliance?[4]
26	2.7%	Yes**
33	1.8%	Yes**

Runway 26				
(5)	Low Performance	High Performance	Microlight Performance	Aerotow Performance*
Height Margin at OHL m (ft)	109 (358)	145 (476)	152 (499)	72 (236)
Runway 33				
(5)	Low Performance	High Performance	Microlight Performance	Aerotow Performance*
Height Margin at OHL m (ft)	130 (430)	166 (545)	173 (568)	93 (305)

	(5) **Landing Assessment**	
Runway	Slope from OHL to TDP[1]	CAP 168 Compliance?[4]
08	2.9%	Yes**
15	1.9%	Yes**
	Runway 08	**Runway 15**
Margin at OHL 4° appch	84	103
Margin at OHL 5° appch	119	138

Recommendations:

1. (6) Reference glider (based on Stat Con feedback) descending at 2.5% (40:1) has no margin above the OHL on a straight glide to land on R08. However, 200ft height at 2km from the field would be considered inadvisable flying technique, so practically this is not likely to be a problem.
2. (6) Reference glider (based on Stat Con feedback) descending at 2.5% (40:1) has around 17m (57ft) margin above the OHL on a straight glide to land on R15. However, 200ft height at 2km from the field would be considered inadvisable flying technique, so practically this is not likely to be a problem.
3. (7) A 4.2% climb angle (260ft/min climb at a typical climb speed of 60kts) would clear the OHL with design margin from R26. This climb angle is likely to be lower than the performance achieved by gliders on aerotow and even with climb rates at this low performance level, an aerotow combination would have sufficient room to manoeuvre away from the OHL after take-off.
4. (8) R33 margins are adequate – CAP 168 code 3 OLS are intended for large aircraft and are not really relevant for small aircraft ops -
5. Consider offer of proving flights/ help with development of mitigations for the presence of a new obstacle in the vicinity.

*based on the highest weight, fastest tow speed quoted in the Eurofox POH.

**the line does not penetrate the OLS for take-off/ approach. Inner Horizontal penetrated by around 16m.(9)

Notes:

1. TORA = Take-off run available, DER = Departure end of runway, OHL = Overhead Line, TOP = Take-off point, TDP = Touchdown point
2. Distance is to the nearest part of the OHL that falls within the splay (10)
3. If the runway were licensed, this would be the runway code assigned for OLS type
4. Is the obstacle under the take-off and approach OLS (measured from DER) for a licensed runway of equivalent characteristics?
5. The aircraft may collide with the line in this height range (Exposure) and within these distances from the TOP (Critical Area)

At no point had ASA contacted NGC to discuss any of the content of this document prior to publication which we believe is contrary to planning guidelines

1 – Initially with the illegibility of the drawings accompanying this assessment and without the promised digital route map it was not possible to verify this. Subsequent drawings showed that ASA were using splay angles of 5^0 which is considerably less than the 30^0 recommended by the CAA. Overlaying this on the drawing shows that the RG45 to RG52 are within the splay for runway 33 and RG54 to RG65 are within that for runway 26. Using the additional margins as advised by the CAA for training airfields and shown in appendix B, RG42 through to RG65 are within the extended splay which is virtually the complete route through our 5km safeguarding zone

2 – Based on the digital map provided by NG our assessment is that the distance from the end of the runways to the closest point of the OHL is in the order of 1,760m for both runways, significantly less than the required 3km for EFATO purposes.

3 – As identified above, this drawing shows a splay of 5^0 and not the required 30^0 as advised by the CAA

4 – According to EN020027-000249 Works Plans section A the quoted heights are 53.8m and 51.7m respectively. However, that table with the heights listed also adds an 'upward extent of the vertical limit of deviation' with the values of minus 0m to plus 6m which means that they could be up to 60m and 58m high agl.

5 – In his responses of 2024 and 2025, James Head (CAA AAT) advised NG that

> '*From our earliest engagement, we have provided signal that when considering proposed power line routing, it is not the aircraft performance envelope that is the limiting factor. Therefore, any intimation that a specific type can manoeuvre to avoid such vertical obstructions should be disregarded'*
>
> Which has been totally ignored by ASA and as such makes all their recommendations irrelevant

However, in an attempt to assist NG in understanding the complexities of the operations at Tibenham the following comments have been added

6 – Recommendation 1 and 2. In the previous consultations ASA were advised of the safety risk the proposed route would present to our operations yet seem to have chosen to ignore that briefing. Modern competition gliders are achieving glide ratios of 60:1 and would be below OHL height (at about 100ft agl) when returning to land on runway 08. As mentioned in the SoCG, the BGA have already stated that if the pylon route is not changed, they would not allow Tibenham to remain a viable National Competition site due to those safety issues with a corresponding loss in income to the club and therefore contrary to ASA's view, practically it will be a major problem to the long-term viability of the club

7 - Recommendation 3. This completely ignores the recommendation of the CAA AAT. And BGA. In trials from Rwy26 over the past six months, there have been flights where the aerotow combination with a two-seater glider on tow crossed our understanding of the proposed OHL route at around 200ft agl making this recommendation not viable. In addition, the recommendation totally ignores EFATO type issues for aircraft departing on Rwy26 for which the proximity of the OHL would be a major problem

8 - Recommendation 4. Tibenham was built in the 1940's to take WWII bombers (B24 Liberator and B17 Fortress), used by the RAF after the war for Lancaster bombers and modified by them to take jets in the 50's. Today it is used primarily by light aircraft and gliders but we are visited from time to time by larger aircraft and when the B17, Sally B, displays at the annual Old Buckenham airshow, we are the designated divert airfield in the event of problems therefore this recommendation is not viable. Furthermore, planning guidelines advise that account must be taken of both current and potential future operations

9 – When developing our safeguarding plan in 2022, the CAA AAT advised that due to the nature of our operations and the six asphalt runways together with seven grass runways we should replace the "one size fits all" traditional OLS approach with a simple

5km circle. Both ASA and NG were advised of this during the previous consultations yet seem to have chosen to ignore that briefing.

The line does penetrate the 5km zone which the CAA AAT recommended we use in place of the OLS approach

10 – See the comments notes (1) and (2)

Appendix O

Response to EN020027-000388-6.15.A2

Environmental Statement Appendix 15.2 – Review of Aviation Impact

This response is based on the content of the above document and how it impacts the flying operations at Tibenham airfield which is owned and operated by Norfolk Gliding Club. For ease of cross reference, the paragraph numbers quoted are those from the original document

15.1 Introduction

15.1.2 CAA AAT has questioned the methodology used by ASA and indicated that it is flawed and recommended that it should not be used – see appendices I, J and K

15.1.4 As above, this risk-based assessment is flawed

15.1.5 One of the main points that emerged from the Open Floor Hearings was the number of speakers who stated that the consultation process didn't happen, concerns raised by stakeholders were dismissed without any meaningful examination

15.1.6 They have **not** been appropriately addressed the project. It was designed by National Grid before they even considered the proximity to active airfields and the resultant aviation safety issues

15.2 Planning Policy and Regulatory Context

15.2.3 No meaningful engagement has taken place and there has been no collaboration. Much of this paragraph is irrelevant since the choice between overground or underground does not affect the timescale to complete the project but does have a significant effect on aviation safety. In a Hansard report of a few yeas ago it was reported that undergrounding was cheaper and faster than pylons

15.2.6 According to an email from National Grid, see appendix F there has been no consultation with the CAA contrary to this paragraph

15.2.7 'The applicant should include appropriate mitigation measures as an integral part of the proposed development' – no such measures have been proposed and in the August meeting National Grid stated that they had no intention of doing so. See the agreed meeting agenda in appendix F

15.2.18 CAP 793 'No obstacles greater than 150ft above the average runway elevation within 2,000m of the runway mid-point. Whilst this criterion is just met at Tibenham with respect to runway 26 it is not met at Priory Farm

15.3 Scope of the assessment

15.3.2 By their own admission NG's consultants have very little expertise in gliding operations

15.3.4 See previous comments in 15.1.2 and the CAA AAT response

15.3.6 Why was the initial study area restricted to 2km based on the professional judgement of ASA when as professionals they know full well that the recommended EFATO splay is 3km from the end of the runway. See comments in 15.2.18 with regard to CAP 793 and Table 15.2.1 which identify Priory Farm airfield to be only 723m from the proposed alignment

15.3.8 In table A15.2.1 there are headings IR04, IR05 and DCO. Whilst DCO is shown to stand for Development Consent Order in the Abbreviations List, there is no mention of the other two. The GAAC has on our behalf written to NG on the advice of the ExA but has yet to receive a reply.

15.3.13 From the very first non-statutory consultation in 2023 NGC have maintained that there has been a lack of meaningful engagement and a failure to supply agreed information. This decision by NG to withhold information promised by them for the August 2025 consultation would have enabled the development of a SoCG and agreement of the Airfield Assessment

15.3.16 Whilst NG have consulted with the BGA, they have ignored the concerns expressed by them and have failed to address the aviation safety risks that were identified - see appendices C and D

15.3.17 As above, NG have engaged with the GAAC but ignored the feedback they were given. NGC have been given to understand that they (GAAC) subsequently assisted NG in the preparation of guidance notes to aid the assessment of the aviation risks with respect to pylon projects and that this guidance is being used successfully in the consultations on a project in the north east

15.3.23 NG again quote guidance from the CAA CAP 793 as part of their assessment methodology recommendation to avoid obstacles greater than 150ft above average runway elevation within a radius of 2km from the runway mid-point then in their table A15.2.1 show the adjacent Priory Farm airfield to be only 723m from the proposed alignment

15.3.23 The CAA AAT in their letter dated March 20th 2025 advised that the approach being used by ASA was unsafe yet it continues to be used – see appendix K

15.3.23 At the consultations of 2023, 2024 and 2025 NG were advised by NGC as the operator of the airfield that their assessment methodology was flawed and did not take account of their aviation safety concerns

15.3.28 ASA are fully aware that the CAA recommended splay for a training airfield to allow for the possibility of EFATO type incidents is +/- 30^0 either side of the extended centreline for a distance of 3km from the end of the runway. In terms of turns after climb out, they are also aware that the BGA guidelines state that turns should not be initiated until the combination has reached 300ft which on test flights in September 2025 meant that the combination was beyond the proposed route before being able to turn

15.3.33 Under normal conditions it is quite probably that single engine aircraft will be able to take off and overfly the line with a safe margin but as ASA know, it is the EFATO type incidents that are the issue

15.3.34 There is a significant difference between the safety margins an experienced pilot is prepared to accept and those used in training, for aerotows and EFATO incidents

- An experienced pilot may be prepared to accept a turn on departure or a curved approach
- Whilst under training as at Tibenham, student pilots are taught to fly straight until they reach 500ft agl before turning and to make their final turn at 500ft agl to line up with the runway for their approach and landing
- The BGA guidelines on aerotows are that no turn is initiated below 300ft agl
- The CAA guidelines on EFATO at a training airfield are for an area greater than the normal +/- 30^0 either side of the extended centreline for 3km from the end of the runway – see appendix B
- The acceptability of safety risk cannot be determined by NGC as the airfield operator supplying a set of clearance numbers. The hazard arises from emergency and abnormal scenarios where clearance is not controllable.
- Therefore, design mitigation is required

15.3.39 NGC accept that the statistics available to determine the likelihood of a forced landing are difficult to evaluate with limited accurate information. However, one fact that is not difficult to assess is that the outcome of a light aircraft colliding with cables is likely to be fatal. An analysis of aircraft departures at NGC and accidents is reviewed in sections 7 and 8 earlier in the submission

15.3.42 NG claim that the risk of a forced landing is accepted but make no effort to quantify that risk. In addition, they fail to mention that any forced landing involving collision with overhead lines is likely to be fatal

15.3.49 NG claim to have considered design changes in mitigation to minimise the adverse effects which shows that they accept there are adverse effects.

However, although initially agreed they chose to withhold the information from NGC and Priory Farm Airfield at the August 2025 consultation.

15.3.49 NG fail to mention the design change of undergrounding which according to a report produced by NESO at the request of various MPs is a cheaper option than that of pylons – see appendix G

15.3.51 The situation at NGC is somewhat unique as referred to by the CAA AAT in that the proximity of Priory Farm airfield to our west limits our ability to turn when using runway 26 as that turn would be at low level over Priory Farm Airfield causing a greater aviation safety risk – see appendix J

15.3.52 Since NG promised and then chose to withhold the information on route design rationale, costings and mitigation see appendix F, we have repeatedly requested a face-to-face meeting to resolve these matters but this has always been declined. We even wrote to their Project Director inviting him to step in and assist but as yet have had no response – see appendix E

15.4.1 Table A15.2.4 is a summary of Aerodrome Consultation and Assessment Conclusions in which for aerodrome 19, Tibenham NG states that engagement is ongoing and Para 4.2.20 refers. There would appear to be no reference as to where this Para 4.2.20 can be found and as mentioned above, engagement has stalled until NG provide the withheld documents and meet with us

15.4.23 NG continue to refer to the Tibenham safeguarding zone as 'proposed'. This is not the case as the zone was developed with and approved by the CAA AAT before the non-statutory consultation of 2023 as is reflected in the minutes of that meeting

15.4.24 NGC disagree totally with this conclusion (see the annotated assessment on appendix N)

- CAP 168 OLS standards are not met – see report from Dr Mark Eddowes of Eddowes Aviation sent under separate cover
- Overhead line clearance margins for aerotow take-offs are not adequate and in tests the combination failed to achieve 200ft agl on some flights which would likely have resulted in fatalities
- EFATO recommendations require +/- 30^0 either side of the extended centreline for 3km from the end of the runway with greater margins for training airfields such as Tibenham – see appendix B

15.4.25 In what way has any feedback been considered?

- The agreement to provide route rationale and costing detail for the August consultation which would have explained this was withheld
- Despite repeated invitations to provide the withheld information and meet with us to work through these issues NG have declined to accept.

- The CAA confirm that as operator of the airfield NGC are considered to hold expert opinion on the aviation safety risks posed by potential obstacles in the vicinity of the airfield

Response to EN020027-000237-7.21

Design and Development Report

This response is based on the content of the above document and how it impacts the flying operations at Tibenham airfield which is owned and operated by Norfolk Gliding Club. For ease of cross reference, the paragraph numbers quoted are those from the original document

5.4 Location Specific Feedback

5.4.10 In observing the Open Floor Hearings one of the recurring comments from the speakers was the continued absence of any meaningful engagement with National Grid. Tibenham has been no different with virtually no contact from the consultation of July 2024 through to the setting up of the consultation in August 2025

5.4.25 We do not agree. The proximity of the route as currently proposed will have an adverse effect on the aviation operations of Tibenham and the longer-term viability of the club

5.4.26 We do not agree. The proximity of the route to Priory Farm Airfield contravenes CAP 793 which requires any obstacle over 150ft high to be 2km from the runway centre point. In addition, as identified earlier in this submission, there are numerous aviation safety issues associated with flight training, aerotow take-offs and EFATO incidents which must be addressed by the applicant

5.4.29 Whilst we accept the decision not to realign the route with respect to pylons RG59 – RG61, our position is that they should not be there in any case since their proximity to both airfields compromises aviation safety as identified earlier in this submission

National Grid Norwich to Tilbury Power Lines: Safeguarding of Tibenham Airfield

P1265/R1/Issue 1

Report prepared on behalf of the Norfolk Gliding Club

February 2026

Eddowes Aviation Safety Ltd
Specialist Aviation Assessments

Authorisation Sheet

Report Title:	National Grid Norwich to Tilbury Power Lines: Safeguarding of Tibenham Airfield
Client:	Norfolk Gliding Club
Project Reference:	P1265
Report Number:	P1265/R1
Issue:	Issue 1
Distribution List:	

Issued by:	Mark Eddowes	[redacted]	24 February 2026
Checked by:	Kate Grant	[redacted]	24 February 2026
Approved by:	Mark Eddowes	[redacted]	24 February 2026

Summary

1. National Grid has made a DCO application to reinforce the high voltage power network in East Anglia. This involves an overhead line and associated pylons nominally at around 55 m above ground level (AGL) less than two kilometres from the operational area of Tibenham Airfield from where the Norfolk Gliding Club (NGC) operate. From the early stages of the route development and during the consultation phase, various parties expressed concerns over the anticipated impacts of the proposal on the safety and efficiency of operations at Tibenham Airfield and more widely on aviation interests along the route, including the NGC, the British Gliding Association (BGA), the General Aviation Awareness Council (GAAC) and the UK Civil Aviation Authority's Airfield Advisory Team (AAT).
2. In the absence of any effective response to those concerns and as the application moved towards examination, the NGC asked Eddowes Aviation Safety Limited, a specialist aerodrome safety and risk assessment consultancy with specific safeguarding expertise, to advise further on the likely impacts of the current National Grid proposals on operations at Tibenham Airfield. An initial review by EAS that considered the aviation impact assessment presented by National Grid as part of the Environmental Statement for the project, has found deficiencies in that assessment which was found not to comply with National Grid's own guidance. It confirms that the concerns raised by the NGC are legitimate, in accordance with the supporting statements made by the BGA and the AAT.
3. The following specific safeguarding concerns are identified from the assessment of the proposed pylon route's impacts on operations at Tibenham Airfield which, cumulatively, may be considered to have a significant adverse impact on its safety and operability:
    a. ***Normal take-off operations.*** The proposal will have an adverse impact on the operability of the current runway system for aerotow launches, precluding at least some Runway 26 operations and potentially some Runway 33 operations and hence precluding aerotow launches under some wind conditions when operations would otherwise have been possible. These impacts have implications for the viability of Tibenham for glider competition use. Based on aircraft performance analysis, light aircraft runway-aligned take-off operations will normally be expected to be able to clear the pylons and hence not be adversely affected by them. However, it cannot be guaranteed that the assumed performance will always be achieved in practice, for example in the event of partial power loss, leading to potential collision with the pylons.
    b. ***Initial approach operations.*** The 500 ft rule requires aircraft to maintain a minimum distance of 500 ft from all obstacles during en-route flight, including in the initial approach phase where they are accessing the airspace in the vicinity of an airfield prior to a final approach to land during which the 500 ft rule no longer applies. The proposed pylons would increase the minimum height for initial approach operations from the west from 500 ft by 200 ft, the pylon height. This is an additional operational restriction which represents a loss of amenity.
    c. ***Direct final approach from the west.*** There is currently an option for a long final approach from the west without a standard circuit join that involves flight directly over the pylon route at approximately 2 km from the airfield. Taking account of the shallow glides that gliders can achieve, the minimum aircraft height along the pylon route is currently below pylon height. Accordingly, these currently available approach operations would be precluded, representing a loss of amenity. These additional restrictions have implications for competition finishes, compromising currently available options, a specific concern raised in both the NGC and BGA objections.
    d. ***Circuit flying.*** Some defined circuits at Tibenham involve flight directly over the pylon route. Due to the 500 ft rule requirement the minimum height for these circuits

would need to be increased from the current value of 500 ft by 200 ft to provide the necessary clearance. In principle, this new operational restriction would represent a loss of amenity. However, to avoid conflict with the Priory Farm Airstrip, those circuits are normally not flown such that this concern will not apply in practice. The primary concern in respect of circuit flying is that the pylon route would preclude Priory Farm Airstrip operations to the west, forcing them to the east where they would conflict with other Tibenham operations.

e. ***Engine failure after take-off and safe forced landing requirements.*** The pylon route would lead to the loss of a substantial amount of land that currently is available for safe forced landing following engine failure after take-off or other fault scenarios, compromising aircraft safety. By reference to previous accident and incident data and to previous detailed risk assessments of this scenario, it is evident that the pylon route will compromise the safety of forced landing and increase the fatality risk from fault sequences during take-off. The treatment of this scenario in the National Grid aviation assessment is entirely superficial. Analysis undertaken during this assessment indicates that it should be considered potentially significant when compared with appropriate risk tolerability and acceptability criteria.

f. ***Collision risk.*** It is evident from the historical accident record that power lines in the vicinity of airfields can lead to a risk of collision that compromises the safety of light aircraft and glider operations, for example due to the lack of sufficient pilot awareness and pilot misjudgment. The treatment of collision risk in the National Grid aviation assessment is superficial and flawed, relying essentially on pilot avoidance. It does not adequately demonstrate that the threat to safety posed by the proposal would be acceptable. Whilst it is acknowledged here that pilots may generally be able to avoid the pylons, the recent historical accident record shows that there are circumstances when they may not, a point made in submissions by the CAA's AAT. Placing large structures close to flight paths in the vicinity of airfields where activity is concentrated therefore will increase the risk of collision and that increase is considered to be potentially significant.

g. ***Cumulative Energy Infrastructure Impacts.*** There is an existing transmission line to the east of Tibenham, within 1.3 km of the airfield which presents an existing constraint on operations, together with the Priory Farm airstrip to the west. The proposal would add to the operational constraints associated with the existing infrastructure. In addition, there are proposals for future solar farms to the east of Tibenham in areas close to the existing transmission line which represents an economically attractive corridor due to the proximity to the transmission network. These areas currently provide options for safe forced landing that would be lost if the proposed solar farm developments proceed, making the east side of the airfield a less safe and less attractive area for flights. The proposed new transmission line would open up another economically attractive corridor close to Tibenham for further solar farm development, potentially exacerbating the loss of safe forced landing options. Under the current proposals, it will either be necessary to forego those new opportunities for solar farm development or to further degrade the safety of the operational environment around Tibenham. It would clearly be wiser to place the new transmission line further from Tibenham and thereby reduce this future conflict. National Grid's assessment takes no account of these cumulative effects.

4. This submission focuses on the technical aspects of the adverse impacts of the proposal. These impacts should be viewed in the context of planning policy objectives under the NPPF which recognizes the importance of maintaining a national network of general aviation airfields, further noting that Tibenham Airfield is identified as one of Sport England's national Significant Areas for Sport (SASP). These are points made in other submissions to which this document refers and are not addressed in detail here.

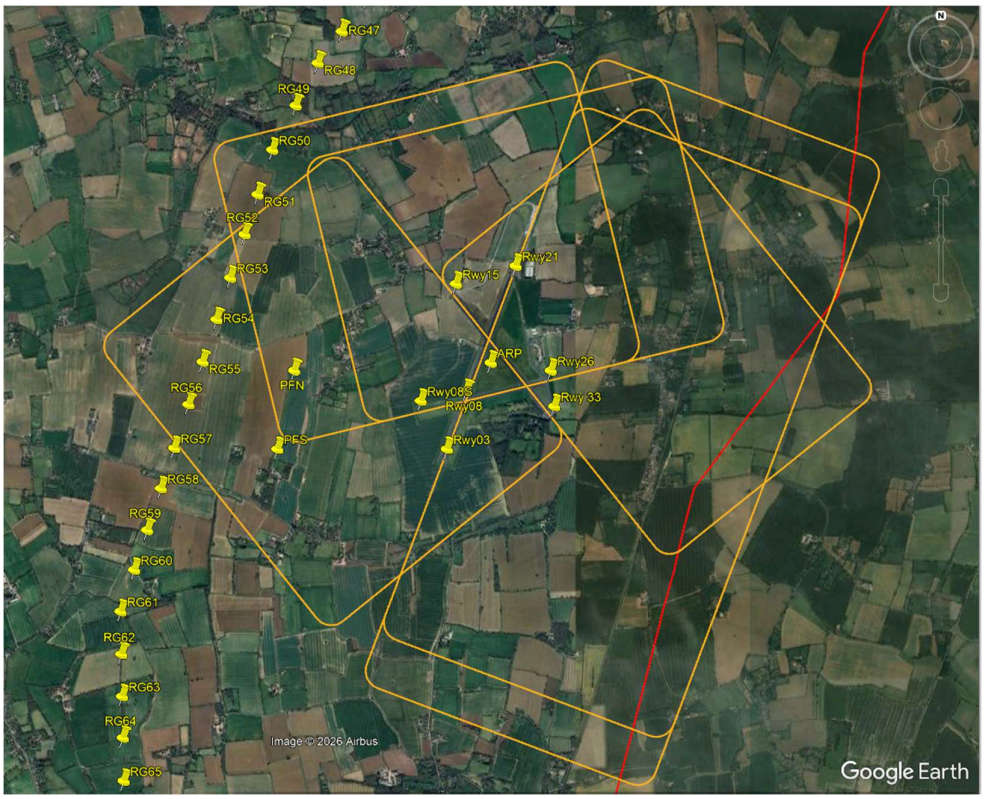
Contents

1 Background

1.1 National Grid announced a proposal to upgrade the Norwich to Tilbury transmission line in 2022, identifying a preferred route corridor. Non-statutory consultation was subsequently undertaken in 2022 and 2023, during which concerns relating to impacts on aviation interests were raised. The General Aviation Awareness Council (GAAC) initially raised concerns about the potential impacts on Tibenham Airfield in June 2022 (Appendix 1), further noting the apparent lack of consideration of aviation as a routing constraint. General concerns over impacts on aviation interests, including Tibenham Airfield, were also outlined in a letter from the UK Civil Aviation Authority's Airfield Advisory Team[1] (AAT) to National Grid in September 2023 (Appendix 2).

1.2 National Grid then identified a preferred alignment for its proposed upgrade in April 2024 [1], ahead of statutory consultation. The proposed routing of the pylons, nominally at 55 m agl[2], is 1.77 km to the west of the ground operational area of Tibenham Airfield and directly beneath flight paths employed by aircraft operating there. The pylon route (pylons RG47 to RG65) is shown in Figure 1 which identifies the thresholds of the runways at Tibenham (Rwy03-Rwy33) and at the nearby Priory Farm Airstrip (PFN/PFS). The orange lines depict the limits of the circuits identified for operations at Tibenham, defining the primary operational area in use there. The red line to the east shows an existing pylon route, understood to be at a height of around 50 m AGL.

Figure 1: Proposed pylon route relative to Tibenham Airfield



[1] The AAT was set up to meet the DfT's objective of sustaining the UK network of airfields. It was a non-regulatory team that provided advice to Government, licensed and unlicensed airfields and local planning authorities on aviation matters. It was disbanded in 2025 when funding was not renewed.
[2] Given variation in ground level along the route, the precise height of pylons above ground level and above mean sea level varies slightly. See Table A15.2.11 in reference 2 for further details.

1.3 The 2024 consultation included a meeting held between representatives of the NGC and other local airfield operators and National Grid, supported by their aviation advisors, Alan Stratford Associates (ASA). Internal NGC notes of the meeting report that ASA took the view that whilst the pylons do represent a risk, all the facts and figures show that the risk is very small. No detailed technical basis for that claim of a very small risk was reported. In July 2024, a letter of objection from the NGC was sent to National Grid (Appendix 3), outlining their concerns. A supporting letter of objection in respect of impacts on Tibenham Airfield was also sent by the British Gliding Association (BGA) (Appendix 4). The UK CAA's AAT also provided a consultation response, (Appendix 5), covering impacts on various aviation interests along the route and raising specific concerns over Tibenham.

1.4 No progress has been made since then on addressing these concerns. The NGC reiterated their concerns and confirmed their objection in a letter dated 2 March 2025, (Appendix 6). Later in March, the UK CAA's AAT issued a position statement (Appendix 7) that identified Tibenham as one of three aerodrome sites *"which are likely to be impacted to such an extent that further consideration is required to avoid the expected level of detrimental impact to them."* The position statement includes comments which raise serious questions about the reliability of the aviation impact assessment approach employed by ASA. It closes by strongly recommending swift engagement with impacted aerodromes to identify mitigation measures. A meeting was held between the NGC and National Grid in August 2025. Draft minutes of the meeting, which have not been agreed, indicate National Grid's position is that changes to the project alignment in the vicinity of Tibenham Airfield had not been made as they were not considered justified on the basis of evidence or assessment of aviation safety impacts.

1.5 Against that background, Eddowes Aviation Safety Limited (EAS), a specialist aerodrome safety and risk assessment consultancy with specific safeguarding expertise, as summarised in Appendix 8, has been asked by the NGC to advise further on the likely impacts of the current National Grid proposals on operations at Tibenham Airfield. An initial review by EAS of the aviation impact assessment [2] presented by National Grid as part of the Environmental Statement for the project has found deficiencies in that assessment and confirmed that the concerns raised by the NGC are legitimate, in accordance with the supporting statements made by the GAAC, the BGA and the AAT. To support the examination of the proposal, those review findings have been integrated with the observations made in the various documents identified above to provide a complete and coherent account of the proposal's adverse impacts on Tibenham Airfield. The account begins by considering the deficiencies of the aviation impact assessment presented on behalf of National Grid and then looks at the range of cumulative impacts of the proposal on operational safety and efficiency at Tibenham Airfield and its associated amenity value.

2 Assessment Methodology Deficiencies

2.1 National Grid issued Guidance on Consideration of Aerodromes for Overhead Line Development Projects [3] in July 2025, several years after the Norwich to Tilbury transmission line preferred route corridor had been identified. The guidance relies primarily on Civil Aviation Publication (CAP) 168 obstacle limitation surfaces, the inadequacies of which are considered further below. The guidance recognizes that gliding activities may require more specific operational assessment and provides options for outline approaches which may include risk assessment, the application of CAP 168 criteria or a hybrid approach. Referring to BGA advice on the 500ft rule, the guidance identifies 3 km as the minimum acceptable separation of a 50 m obstacle from the airfield to avoid conflict with glide approach operations. The guidance refers to possible emergency scenarios associated with aerotow launch operations and states the following:

"A proposed overhead line development shall demonstrate that due consideration has been given to Aerotow emergency landing situations, and that the proposal does not significantly increase the risk, by reducing the available landing areas significantly or by presenting an obstacle that cannot be manoeuvred away from safely, in the event that an immediate off-aerodrome landing is necessary."

Further consideration is given to these points below.

2.2 The 2024 Design Development Report [1 para 5.4.9] notes the appointment of *"an independent aviation consultancy to assist with the consideration of potential interactions with flying activities."* It goes on to say that *"following engagement, and in response to feedback and further assessment, changes have been made to the 2023 preferred draft alignment."* It then maintains that, with one exception, flight activities at all identified airstrips can continue under the 2024 preferred draft alignment. It falls short of claiming that there would be no adverse impacts on aviation interests. The position, as currently understood, is therefore that the initial preferred route corridor was identified without consideration of impacts on aviation interests, that some minor modifications were subsequently made in response to comments received during non-statutory consultation. None have been made to address the concerns raised over Tibenham either in non-statutory or statutory consultation.

2.3 National Grid's current position concerning aviation impacts of their proposal on Tibenham Airfield identified in the aviation impact assessment [2] presented as part of the Environmental Statement for the project is as follows:

"National Grid's impact assessment conclusions include that, whilst the Project will represent a new obstacle in the vicinity, CAP168 OLS standards are met, with the exception of a minor penetration of the Inner Horizontal Surface (IHS). Overhead line overflight clearance margins for straight ahead take-offs (including for aerotows) and glider or powered aircraft approaches are assessed as adequate. In the event of engine failure of a towing aircraft, it is assessed that there is sufficient distance between the runway and the overhead line for the pilot to manoeuvre and land safely. Furthermore, it is assessed that current circuits can continue to be used."

2.4 However, review of the methodology for assessing aviation impacts employed by consultants ASA demonstrates that it is fundamentally inadequate. There are three primary shortcomings which mean that the impacts on Tibenham Airfield are not appropriately identified. These main shortcomings are as follows:

i. As a starting point, the assessment methodology identifies (§15.3.23) a CAP 793 criterion, presented as follows: *"that obstacles over 150 ft should not be sited within a*

radius of 2,000 m of the aerodrome centre point." It seems to imply that the siting of new obstacles outside the defined 2,000 m radius might normally be considered quite acceptable. This statement is misleading and does not represent the true position outlined in CAP 793 which states the following: *"It is recommended that there are no obstacles greater than 150 ft above the average runway elevation within 2,000 m of the runway mid-point."* However, in the context of CAP 793, that criterion clearly relates to the siting of runways in an existing obstacle environment and not to the siting of new obstacles near existing runways. It is something that might be tolerated when establishing a new runway, taking account of the obstacle location relative to flightpaths, but it may be at some expense in terms of operational safety and efficiency. When considering the siting of new obstacles near existing runways, this criterion is irrelevant and is being mis-applied. The siting of new obstacles should be assessed on the basis of their impacts on operational safety and efficiency at existing aviation facilities and on the understanding that it will often be better from an aviation perspective to avoid new tall structures anywhere in their general vicinity to avoid compromising operations. The key issue here is the loss of amenity and the general degradation of safety arising from the proposal. It should be further noted that an obstacle of that height at that distance from the airfield does not comply with the National Grid glider criterion identified in paragraph 2.1 above that 3 km is the minimum acceptable separation of a 50 m obstacle from the airfield to avoid conflict with glide approach operations. Nor does it comply with the minimum possible safeguarding restrictions under CAP 168 OLS standards for a Code 1 runway since it constitutes an infringement of inner horizontal/conical surface.

ii. It is recognised in the report (para. 15.3.24) that the above CAP 793 criterion is not sufficient for assessing the aviation impacts of the proposal and the report goes on to identify the main basis of the technical assessment employed: "*whether there is sufficient distance available from the runway end on take-off and on approach either to overfly the overhead line with an appropriate clearance margin or to turn to avoid the overhead line."* The report then refers (para. 15.3.27) to CAP168 standards and states further the following: *"If calculated clearance margins and take-off/landing slopes meet CAP168 standards for obstacle treatment, the Project's proposed overhead line alignment is considered to have an acceptable impact on the aerodrome's operations and no further design changes to minimise impact are likely to be justified.*" It identifies aircraft performance characteristics and minimum safe clearance margin assumptions employed for those purposes (para 15.3.28). This limited approach is inadequate, as recognised in CAP 738 which states explicitly (paras. 1.1a & 1.10-1.13) that specific consideration must be given to defined flight procedures in use at civil aerodromes which are not necessarily adequately safeguarded by the CAP168 OLS. Whilst those particular CAP 738 requirements do not formally apply at Tibenham, it is nevertheless the case that the OLS cannot be relied upon to safeguard all standard flight operations there. In respect of the take-off and approach operations that are assessed, a major concern about this approach is that it is reliant on the use of appropriate assumptions. Those employed in the assessment presented in the report have not been validated as appropriate for assessing operations at Tibenham and do not adequately cover the range of take-off and approach operations undertaken there. The AAT Position Statement (Appendix 7, p1 para. 4 & p3 penultimate paragraph) makes this general point.

iii. Finally, the assessment approach identifies (paras. 15.3.39-15.3.42) forced landing risks as requiring consideration and provides some qualitative discussion which recognises a potential risk of collision with the overhead line before concluding that *"we regard these risks as acceptable within the standards of light aircraft operations"*. No indication has been provided as to what standards have been identified in this respect nor how it has formally been demonstrated that any additional risk would be acceptable. The key point is that where engine failure occurs and a forced landing is

required there will be scenarios in which serious consequences are avoided and those in which they are not, resulting in fatalities and/or serious injuries. In a broadly obstacle free environment, the historical incident record indicates that forced landings will usually be achieved safely, without serious consequences, but that the probability of success in that respect will be reduced by the presence of obstacles, which will be a more particular concern along take-off paths where the forced landings are most likely to occur. This adverse safety impact has previously been considered to be of sufficient concern that it was identified [4] as the sole reason for refusal by the local planning authority of a development along the take-off path at Rufforth Aerodrome, employed by the York Gliding Club. The justification for refusal was provided by a quantitative risk assessment [5] supported by empirical data derived from Air Accident Investigation Branch (AAIB) accident reports from which engine failure rates during take-off were derived. The assessment demonstrated that the increased risk to pilots associated with the proposal due to compromised forced landings would be significant when judged against risk tolerability criteria identified by the Health and Safety Executive. That decision was upheld at appeal [6]. The requirement for safeguarding restrictions (avoidance of new obstacles, including overhead power lines) for the purposes of aircraft safety in the event of forced landings is explicitly recognised in supplementary planning guidance [7] issued by one UK local planning authority. The blanket generic dismissal by National Grid of the risk posed by the proposed overhead line to safety in the event of a safe forced landing being required without any formal analysis is therefore contrary to historical planning precedent and does not provide a reliable picture of the true scale of this adverse impact.

2.5 As a starting point to this assessment, consideration was given to the more general requirements for safeguarding glider operations and safeguarding operations more specifically at Tibenham. A safeguarding model summarised in Appendix 9 was developed. This exercise highlighted the deficiencies of the standard CAP 168 physical safeguarding specifications for protecting those sorts of operations on which the National Grid aviation assessment relies. This assessment then moved on to consider individual normal operations and reasonably foreseeable fault scenarios, as set out in Section 3 below.

3 Pylon Route Impact Assessment

3.1 ASSESSMENT OUTLINE

3.1.1 Having regard to the safeguarding principles identified in Appendix 9 and the points raised by the NGC, BGA and AAT discussed above, the likely impacts of the pylon route have been assessed, paying specific attention to the following:

a. Normal take-off operations

b. Initial approach operations

c. Normal final approach operations

d. Direct final approach from the west

e. Circuit flying

f. Engine failure after take-off and safe forced landing requirements

g. Collision risk

h. Cumulative energy infrastructure impacts

3.2 TAKE-OFF OPERATIONS

3.2.1 Conflicts with some normal take-off operations are identified whilst some will be unaffected by the proposal.

3.2.2 Given the runway orientations, no conflict is expected between the pylons and Runway 03, 08, 15 and 21 take-off operations for light aircraft and aerotow combinations since these will not cross the line of the route. Runway 08 and 15 take-off operations involve flight away from the pylon route. For Runway 03 and 21 take-off operations, flight paths are essentially parallel to the pylon route and runway-aligned take-off flight paths will not cross it. Even allowing for substantial lateral drift, it is to be expected that aircraft would not cross the pylon route until they have attained sufficient height to pass over it with a safe vertical margin.

3.2.3 Runway-aligned Runway 26 and Runway 33 take-off operations involve flight directly over the pylon route. Based on aircraft performance analysis, runway-aligned light aircraft take-off operations from those runways will normally be expected to be able to clear the pylons by a safe vertical margin and hence not be adversely affected. However, as noted in the BGA objection, partial power loss after take-off is a significant regulatory concern [8] which would lead to a potential adverse safety impact from the proposed pylons. The AAT Position Statement also cautions against reliance on performance analysis, as considered further in the context of collision risk under Section 3.8 below. The possibility of a partial power loss leading to a scenario in which an aircraft was unable to clear the pylons is a real one that should be taken into account when assessing the impacts of the proposal.

3.2.4 The proposal will compromise aerotow launches from Runway 26. The runway-aligned take-off path from Runway 26 crosses the pylon route at approximately 2.4 km from the end of the paved surface. For the current purposes, the minimum safe vertical clearance margin for obstacle clearance during take-off has been identified [9] as 50 ft, though that may not necessarily be considered a sufficient margin for all operations. Climb rates of aerotow combinations will be substantially lower than those that can be assumed for light aircraft, as set out in the previous paragraph. Aerotow launch

experience at Tibenham Runway 26 using a Robin DR400 with a mix of single and two seat gliders indicates that whilst a clearance margin of 50 ft may be achieved in some instances, it cannot be reliably achieved. The aerotow assessment presented by National Grid [2] is based on an assumed climb rate of 4.9° for a Eurofox 141 HP which is a relatively powerful tug aircraft. No information is provided concerning the glider in the modelled aerotow combination or how the assumed climb rate was determined. That climb rate assumption is not representative of Tibenham aerotow operations in the absence of any fault conditions and it fails to take account of potentially degraded climb rates.

3.2.5 If the pylon route cannot be reliably crossed with a safe vertical margin, either take-off operations from Runway 26 would have to be discontinued or a turning departure would be required. If Runway 26 use were to be discontinued, aerotow launch operations would not be possible on some days when they otherwise would be due to unsuitable wind conditions for use of the other runways. A turning departure is considered impractical. A turn early in an aerotow launch is discouraged for safety reasons since it reduces the climb rate and delays the achievement of a safe altitude. A turn to the south would not only compromise the height gain, it would also bring the aerotow combination at a low height into potential conflict with Priory Farm Airstrip operations, further compromising operational safety. The alternative turn to the north would require a greater angle of turn with a tighter turn radius which would be possible in principle but would further compromise the climb rate.

3.2.6 The runway-aligned aligned take-off path from Runway 33 crosses the pylon route at around 2.0 km from the end of the paved surface. Given the paved runway length of approximately 1.25 km, it is expected that take-off operations will normally have become airborne well before the end of the paved surface. The distance available to climb before the pylon route is reached can therefore normally be expected to be somewhat greater than 2.0 km. However, when referenced against the start of the take-off operation, Runway 33 take-off operations are comparable with those from Runway 26. The proposed pylons along the Runway 33 runway-aligned take-off path are slightly lower than those along the Runway 26 runway-aligned take-off path which would improve the relative margin for Runway 33 operations. Nevertheless, doubts must be raised whether safe vertical margins can reliably be achieved for all reasonably foreseeable runway-aligned Runway 33 aerotow launch operations.

3.2.7 An initial turn to the north-east would be required to avoid crossing the pylon route during Runway 33 aerotow launches, with a continued more easterly turn after the initial turn. As noted earlier for Runway 26 operations, this would compromise the climb rate. At the very least, this impact represents some loss of the current amenity value of Tibenham Airfield, even if it were considered possible for Runway 33 aerotow launches to be continued.

3.2.8 The BGA objection (Appendix 4) raises a particular concern in respect of competitions. It points out that Tibenham is designated as one of Sport England's national Significant Areas for Sport (SASP) because of its value to British gliding as a competition site. BGA rated gliding competitions are always launched by aerotow. To ensure that launches are possible on a day chosen well in advance, it is essential to optimise the options for aerotow launch according to the wind conditions encountered on the day, taking account of the cross-wind limits on aerotow launch. Loss of an entire launch direction would result in loss of the competition facility because the risk of not being able to launch the competitors on a good racing day would be considered unacceptable.

3.2.9 In summary, the proposal will have an adverse impact on the operability of the current runway system for aerotow launches, precluding at least some Runway 26 operation and potentially some Runway 33 operations and hence precluding aerotow launches under some wind conditions when operations would otherwise have been possible.

3.3 INITIAL APPROACH OPERATIONS

3.3.1 The initial approach operation refers to the approach to the general vicinity of the airfield, before joining the circuit, in preparation for the final approach and landing. Due to the 500 ft rule requirement during the initial approach, in accordance with the principles set out clearly in the BGA letter of objection, reproduced at Appendix 4, the pylon route would be in conflict with current glider initial operations from the west at Tibenham. The 500 ft rule applies in the initial approach at least up to the point where aircraft reach the general vicinity of the airfield, join a circuit and prepare for the final approach. That general area can be considered to encompass the defined circuits, located in an area into which the pylon route encroaches. At present, gliders joining the circuit can do so at 500 ft above aerodrome elevation. However, the requirement for a 500 ft margin with respect to the pylons would raise that height by around 61 m, or 200 ft, based on the height of Pylon 57.

3.3.2 In summary, the pylons would place an additional constraint on minimum flight height during initial approach from the west, increasing that minimum height from around 500 ft to 700 ft. This would not preclude operations altogether, but it would represent a loss of amenity.

3.4 FINAL APPROACH FROM THE CIRCUIT

3.4.1 The normal final approach operation will typically be preceded by initial approach and joining a circuit and will commence after the final turn when the aircraft becomes runway aligned. Conflict with the initial approach was assessed in the previous section and conflict with circuit flying is assessed below. The runway aligned element only of the final approach is considered here. Final approach from a circuit does not involve flight directly over the pylon route for any of the six runways. It is concluded that final approach, as protected by the approach surface of the CAP 168 OLS would not be adversely affected by the proposal.

3.5 DIRECT FINAL APPROACH FROM THE WEST

3.5.1 At Runways 08 and 15 there is an option for a long final approach from the west without a standard circuit join that would involve flight directly over the pylon route at approximately 2.0 km and 2.45 km from the runway end. Assuming a standard 3° glide path and height of 35 ft at runway threshold, aircraft would pass over the pylon route at a height of 115 m in the case of Runway 15 and at a greater height in the case of Runway 08. This would provide a vertical clearance margin of 55 m or more which would normally be expected to be adequate.

3.5.2 However, gliders are capable of a considerably shallower descent angle in the glide than the standard 3° glide path. At present, with no substantial obstacles under the direct final approach path from the west, gliders can follow a lower direct approach to Runway 08 or Runway 15. Modern gliders have glide ratios up to around 1 in 50 or more, equivalent to 1.15°. Again, assuming a standard height of 35 ft at runway threshold which is at a distance of around 2 km from the pylons, gliders following a shallow glide angle of 1 in 50 would pass the pylon route at about 50 m above runway elevation, below the height of the pylons. Whilst it will still be possible to use the

airfield for most current approach operations with the pylons in place, this particular operation will be precluded, representing a loss of amenity.

3.5.3 These additional restrictions have implications for competition finishes, compromising currently available options, a specific concern raised in both the NGC and BGA objections (Appendices 3 & 4). Competitions would not be precluded in principle but there would be a requirement either for an increased height at the finish or re-routing via the south. There is a concern that those additional constraints introduced by the pylons would make the venue less attractive to competitors, adding to the concerns raised earlier at para 3.2.8 in relation to the loss of aerotow launch options. The National Grid aviation impact assessment acknowledges these concerns at para. 15.4.25 and the consideration of impacts on Tibenham closes with the following statement: *"It is anticipated that further engagement with the operator and the BGA will clarify implications for competition finishes in particular."* This closing statement would seem to give the false impression that the only matter to be resolved relates to competition finishes and that it can be resolved by further discussions. The concerns of the operator and the BGA go far beyond that single issue which itself is expected to remain unresolved, given the inevitable loss of amenity associated with it.

3.6 CIRCUIT FLYING

3.6.1 A conflict with circuit flying is immediately apparent from Figure 1 which shows that two of the circuits (Runway 08 and Runway 15) cross the pylon route whilst a third circuit (Runway 26) passes within about 320 m of the pylon route. Given the 500 ft rule requirement and the absence of any significant obstacles in the area at present, the pylon route would increase the minimum height of circuits from 500 ft by nearly 200 ft. It would therefore place a new restriction on operations, in particular bad weather circuit flying at 500 ft, and lead to a loss of amenity. However, to avoid conflict with the Priory Farm Airstrip, those circuits are normally not flown such that this concern will not apply in practice. The primary concern in respect of circuit flying is that the pylon route would preclude Priory Farm Airstrip operations to the west, forcing them to the east where they would conflict with other Tibenham operations.

3.7 ENGINE FAILURE AFTER TAKE-OFF

3.7.1 Aircraft engine failure is a recognized hazard to safe flight. For commercial civil air transport operations, the risk associated with engine failure is generally mitigated by the use of multi-engine aircraft with the ability to maintain safe flight after a single engine failure, further recognizing that failure of more than one engine is a rare event. For single-engine aircraft, mitigation is through successful implementation of a forced landing, a scenario for which pilots undertaking such operations prepare through training. In most cases, forced landings following engine failure are achieved successfully, avoiding serious injury or fatality. Engine failure shortly after take-off is potentially of more specific concern than engine failure en-route. Where limited height has been gained during take-off there will be less time to respond and select a safe landing area and fewer landing options available. Also, engine failure is relatively common per unit flight time during take-off since it is when the engine is at high power and under most strain. According to the circumstances, the risks to aircraft occupants from developments in more critical areas along flight paths near runway ends can therefore be significant. Since risks are concentrated in these areas, development control at them can provide substantial safety benefits.

3.7.2 National Grid's aviation assessment considers forced landing risks at paras. 15.3.39 to 15.3.42. It begins by stating that *"it should first be recognised that the incidence of a*

forced landing is comparatively low" but does not identify any comparator to support that suggestion. It goes on to identify engine failure rate statistics and then draw some conclusions, implying that any risk arising from the overhead line would be low, stating the following:

"The likelihood of an engine failure on a single-piston aircraft fitted with the most common engine types is between 1.21 per 10,000 hours i.e. 1.21 x 10^{-4} (with a Continental engine) and 1.27 per 10,000 hours i.e. 1.27 x 10^{-4} (with a Lycoming engine)[1]. The likelihood of a forced landing for any reason is very slightly higher, to take account of all other causes of emergency landing, although this increase is not materially significant. The risk of colliding with an overhead line after such a failure is smaller still, as the aircraft would have to be in a height band where it was too low to glide over the overhead line and too high to land before it, as well as being unable to manoeuvre sufficiently to avoid it."

Whilst appearing to be based on a statistic, this superficial, qualitative account is fundamentally flawed and presents a totally mis-leading picture.

3.7.3 In the first instance, the failure rate per flight hour is not put into any kind of context in terms of the number of hours flown per annum. A study around twenty years ago [10] estimated that there to be around a million hours flown by these sorts of general aviation aircraft per annum in the UK. On that basis, those failure rate statistics imply over a hundred UK incidents per annum. Next, the *"smaller still"* wording employed to describe the collision risk seems to imply that the precursor event has already been shown to be *"small"* without any objective basis for making such a judgement. Finally, there is no recognition that the height band conditions required to lower the collision risk with respect to the precursor engine failure event will not be satisfied for a substantial portion of the take-off operation.

3.7.4 Overall, the conclusion reached in respect of forced landings is that *"we regard these risks as acceptable within the standards of light aircraft operations."* No indication is given concerning what risk acceptability criteria have been employed and what standards are considered applicable. The UK CAA provide guidance on risk assessment and risk acceptability [11] which could assist in this respect. The superficial analysis presented in the National Grid aviation assessment does not comply with good practice as set out in that guidance. The process required to determine risk acceptability is first to identify an appropriate rate for the initiating event of engine failure or other cause leading to a forced landing during take-off towards the pylons, second to determine the likelihood that, due to the pylons, the forced landing would not be completed safely when otherwise it would, combine the likelihoods of the two events to determine the increased risk of fatality or serious injury and, finally, compare the estimated increased risk with an appropriate risk significance and acceptability criterion. The National Grid aviation assessment does not follow a rigorous process and does not adequately demonstrate that the pylons would not constitute an unacceptable risk to aerotow launch operations at Tibenham.

3.7.5 Brief reference has already been made in para. 2.4 to the precedent set at Rufforth Aerodrome from where the York Gliding Club operates. The risks to glider and aerotow operations were identified by the local planning authority as the sole reason for refusal [4] of a proposed chicken farm development along flight paths at Rufforth, based on a quantitative risk assessment [5], a decision that was upheld on appeal [6]. Referring to

[1] Aviation Research Statistics AR-2013-107 – Engine failures and malfunctions in light aeroplanes – The Australian Transport Safety Board - 9 March 2016

UK accident statistics derived from Air Accident Investigation Branch (AAIB) reports, the assessment identified an estimate [5] for the likelihood of forced landing shortly after of 4.4 per million movements. Whilst that number might at first appear small, it has to be remembered that tug aircraft pilots will typically undertake several aerotow launches a day on several days of the year. Accordingly, a tug aircraft pilot might undertake several hundred aerotow launches per annum and the annual forced landing rate for an individual pilot will therefore be non-trivial. The fraction of forced landings that would be adversely affected was then estimated and an overall estimate for the increased risk of fatality for tug aircraft pilots was made. That estimate was then compared with an accepted risk significance criterion, identified by the Health and Safety Executive [12], confirming that the increased risk was significant in the planning context and sufficient to justify refusal of the application.

3.7.6 By analogy with those arguments made previously in relation to the Rufforth development, it may be concluded that the proposed overhead line represents a potentially significant threat to the safety of take-off operations at Tibenham. In the Rufforth case, the development area was relatively small but close to the runway end which were factors affecting the estimated risk and the feasibility of providing applicable risk estimates. For the Tibenham case, the obstacle is further from the runway end but it is very considerably larger. The pylons may not represent a major threat following engine failure earlier in the take-off since aircraft may not be able to reach the line of the pylons under those circumstances. However, simple mechanistic considerations of tug aircraft take-off profiles based on climb rate and glide rate after engine failure indicate that aircraft will be at potential risk for a substantial portion of the take-off path, perhaps around a third, before passing over the pylons. For the glider under tow, the degradation in safety will be greater due to the glider's shallower glide angle which allows for the possibility of travelling a more substantial distance after the initiating problem has occurred. Accordingly, a larger area of currently available land potentially suitable for glider safe forced landings would be lost to the pylon route. The review of light aircraft accidents that supported the forced landing rate estimate presented earlier identified 31 single engine light aircraft engine failures on take-off and 65 en-route failures. In five of those events, the available accident reports indicate that the forced landings were compromised by power lines. It has to be expected that in the majority of cases when power lines were not identified as a factor, they will not have been present at all. It is therefore clear that the suggestion in the National Grid aviation assessment that this risk can be reliably mitigated by pilot avoidance is not valid.

3.7.7 In conclusion, the proposal represents a potentially significant threat to the successful achievement of a safe forced landing in the event of engine failure during Runway 26 and Runway 33 light aircraft take-off operations and aerotow launches. The treatment of this risk in the National Grid aviation assessment is superficial and inadequate. It does not provide the necessary assurance that the proposal would not lead to an unacceptable fatality risk.

3.8 COLLISION RISK

3.8.1 As noted earlier at para 3.7.6, 31 single engine light aircraft engine failures on take-off and 65 en-route failures have been identified from a recent review of light aircraft accidents between 2007 and 2012. In five of those events, the available accident reports indicate that the forced landings were compromised by power lines. A further 13 incidents were reported during that six-year period not involving engine failure in which power lines in the vicinity of airfields appeared to be implicated to some extent, including lack of awareness and misjudgment. On that basis, it is evident that power lines in the vicinity of airfields can compromise the safety of light aircraft and glider operations. It is clearly difficult to quantify the new collision risks that would result from

the proposed pylon route. However, it is evident that tall structures close to a concentration of activity in the vicinity of an airfield will introduce a proportionately greater risk than those located further from them. Development control in those areas will therefore provide a proportionately greater safety benefit and is therefore considered generally appropriate.

3.8.2 The National Grid aviation assessment refers at para. 15.3.37 to the examples of Peterborough Sibson and Thurrock aerodromes where there is an existing overhead line close by and states the following:

"The safety records at these sites indicate that there have been no aircraft performance-related or engine failure accidents, which resulted in collision with the overhead line. The accident data suggests that the risk of collision with the overhead line, including that due to pilot error, would be remote or extremely remote provided suitable mitigation measures are in place to promote awareness of the overhead line. In this context, it is noted that there has been just one accident at Peterborough Sibson and Thurrock over the past 15 years which occurred at Sibson when an aircraft on approach to the displaced threshold collided with the overhead line. The Air Accident Investigation Board (AAIB) report stated that the evidence suggested that the pilot made an approach to the runway end rather than the displaced threshold although unfamiliarity with the airfield, distraction due to a departing aircraft and inadequacies in the briefing material available may have been contributory factors (Air Accident Investigation Branch, 2014)."

3.8.3 That statement reveals some serious flaws in the assessment approach. First, it shows that mechanistic analysis informed by performance-related criteria alone does not provide an adequate basis for assessing the risks posed by the pylon route. Other factors contribute to collision risk. This point is made in the AAT Position Statement (Appendix 7) as follows: *"when considering proposed power line routing, it is not the aircraft performance envelope that is the limiting factor. Therefore, any intimation that a specific type can manoeuvre to avoid such vertical obstructions should be disregarded."* The Sibson example is a practical demonstration of the inadequacies of the performance envelope assessment approach. It is prudent to make allowances for other factors that may contribute to an accident and allow for more than the minimum margins, in particular in areas in close proximity to airfields.

3.8.4 Secondly, the significance of *"just one accident … over the past 15 years"* requires further consideration, referring to CAA risk standards, set out in CAP 760. That guidance provides a framework for assessing risk significance by reference to both event frequency and consequence where the more severe the consequence, the lower the frequency with which it might be tolerated, whilst accepting that all risks cannot be eliminated completely. It identifies a *"remote"* event frequency as *"Unlikely to occur during the total operational life of the system"* and identifies an approximate quantitative annual equivalent of *once in 10 years to once in 1000 years*. On that basis, the Sibson frequency is at the higher frequency end of the *"remote"* category and well above the *"extremely remote"* category. The CAP 760 risk matrix identifies an *"accident"* with a *"remote"* frequency as unacceptable. CAP 760 guidance is intended for Aerodrome Operators and Air Traffic Service Providers and it could be argued that the specific standards identified are not necessarily directly applicable to light aircraft operation at smaller aerodromes. However, it should be further noted that the *"remote/accident"* combination is a risk that lies very considerably above the level that might be considered acceptable. Even allowing for a substantial relaxation in the standards set out in CAP760 for general aviation, a risk of that magnitude would be considered significant.

3.8.5 In conclusion, the general collision risk associated with the introduction of the substantial obstacle presented by the proposal in the immediate vicinity of flight paths employed by aircraft operating at Tibenham remains a major concern. The superficial arguments presented in the National Grid aviation assessment do not adequately demonstrate that those additional risks can be considered acceptable.

3.9 CUMULATIVE ENERGY INFRASTRUCTURE IMPACTS

3.9.1 There is currently an existing transmission line to the east of Tibenham that represents a constraint on operations at Tibenham, understood to be approximately 50 m agl. In their consultation response (Appendix 5), the AAT drew attention to the need for potential cumulative impacts to be considered as part of a desktop assessment, making the following general comment about existing infrastructure:

"Existing power infrastructure in proximity to aerodrome sites may represent an important assessment vector. For example, do they demonstrate a level of impact at present, is this tolerable? Could additional infrastructure associated with the proposed scheme compound any existing challenges or create new ones?"

3.9.2 Specifically in relation to Tibenham, the AAT consultation response goes on to say the following:

"The proposed power line would create a north to south corridor around Tibenham, effectively sandwiching the aerodrome between the existing power line infrastructure (blue) to the east at a range of 1.3km at its closest point. Also note the proximity and position of Priory Farm aerodrome (located at just over 1km from the 08 threshold Tibenham), compounding effects from any impact on Priory Farm should be considered when assessing Tibenham."

(See Figure 1 for the location of the Priory Farm Airstrip relative to Tibenham Airfield and the pylon routes.) The National Grid aviation assessment fails to consider the cumulative nature of these impacts.

3.9.3 The AAT consultation response focus is primary on the cumulative impacts of the proposal against the background of the existing infrastructure. However, for Tibenham there is a major concern about the further cumulative impacts of other proposed infrastructure development, in particular solar farms. There are proposals for future solar farms to the east of Tibenham in areas close to the existing transmission line which represents an economically attractive corridor due to the proximity to the transmission network. These areas currently provide options for safe forced landing that would be lost if the proposed solar farm developments proceed, making the east side of the airfield a less safe and less attractive area for flights. The proposed new transmission line would open up another economically attractive corridor close to Tibenham for further solar farm development, exacerbating the loss of safe forced landing options. Under the current proposals, it will either be necessary to forego those new opportunities for solar farm development or to further degrade the safety of the operational environment around Tibenham. It would clearly be wiser to place the new transmission line further from Tibenham and thereby reduce this future conflict.

4 Conclusions

4.1 There appears to have been a lack of consideration of aviation as a routing constraint before National Grid announced the preferred route corridor for the proposal to upgrade the Norwich to Tilbury transmission line in 2022. The GAAC promptly raised concerns about the potential impacts of the proposal on Tibenham Airfield in June 2022 which have subsequently been repeated by the NGC, the BGA and the AAT.

4.2 The consultants subsequently engaged by National Grid to undertake an aviation impact assessment of the proposal have employed a flawed approach. Their assessment does not adequately describe the adverse impacts of the proposal which need to be considered during the examination of the proposal. The current National Grid position that no modification to the route in the vicinity of Tibenham Airfield is required because it was not considered justified on the basis of evidence or assessment of aviation safety impacts is not supported by a proper assessment of its impacts.

4.3 There are multiple adverse impacts which, cumulatively, amount to a substantial degradation of safety and operability of the airfield.

4.4 Perhaps the most serious impacts are safety-related, in particular the degradation of safety during a forced landing following engine failure or some other fault condition encountered during take-off. The more general increased collision risk associated with various scenarios is also of some concern.

4.5 Other significant impacts relate to new operational constraints, in particular the inability to undertake aerotow launches safely to the west from Runway 26 and potentially Runway 33 which may make the airfield unusable in some wind conditions when operations from other runways are not possible due to the wind conditions. The increased minimum heights that would be required to provide adequate clearance margins with respect to the pylons represent further losses of the amenity value of the airfield. These degradations in operability of the runway system at Tibenham are considered by the NGC and BGA to threaten the viability of Tibenham as a future competition venue.

References

1 The Great Grid Upgrade, Norwich to Tilbury, Design Development Report, National Grid April 2024
2 Document: 6.15.A2 Environmental Statement Appendix 15.2 - Review of Aviation Impact, National Grid, August 2025
3 Guidance on Consideration of Aerodromes for Overhead Line Development Projects V1.0, National Grid, July 2025
4 City of York Council 16/01813/FULM Erection of poultry farm comprising 3 no poultry sheds with ancillary buildings, access road and landscaped embankments (resubmission)
5 Proposed Poultry Farm at Rufforth (16/01813 FULM): Aviation Safeguarding Assessment EAS/P1135/R1/Issue 1 Report prepared for the City of York Council by Eddowes Aviation Safety Ltd, November 2017
6 Land to the west of Bradley Lane, Rufforth, York. Reference: APP/C2741/W/19/3223376 https://acp.planninginspectorate.gov.uk/ViewCase.aspx?caseid=3223376
7 Airfield Safeguarding, Supplementary Planning Guidance, Perth and Kinross Council March 2020 https://www.pkc.gov.uk/article/20965/Supplementary-Guidance-Airfield-Safeguarding
8 Avoidable Accidents No. 3 - Managing partial power loss after take-off in single-engine aircraft. Australian Transportation Safety Board, March 2013 https://www.atsb.gov.au/publications/2010/avoidable-3-ar-2010-055
9 Appendix 1 to JAR-FCL 1.125
10 General Aviation Small Aerodrome Research Study. An analysis of CAA data regarding the number of GA aircraft and hours flown for the years 1984 to 2001. T Lober, December 2005
11 CAP 760 Guidance on the Conduct of Hazard Identification, Risk Assessment and the Production of Safety Cases. UK CAA Safety Regulation Group, 10 December 2010
12 Reducing risks, protecting people, HSE's decision-making process, HSE 2001

Appendix 1: Letter from GAAC dated 13 June 2022

The General Aviation Awareness Council

President: The Lord Rotherwick

c/o LAA
Turweston Aerodrome
Biddlesden Road
Brackley
Northampton
NN13 5DY

e-mail: **info@gaac.org.uk**
Website: **www.gaac.org.uk**

Date 13 June 2022

East Anglia Green

Dear East Anglia Green

I write on behalf of the Directors of the Norfolk Gliding Club (NGC) the owner and operator of Tibenham Aerodrome.

The General Aviation Awareness Council (GAAC) was formed over twenty years ago to work for the protection of UK airfields from indiscriminate development. It represents the interests of over 30 Associations, including the Aeroplane Owners & Pilots (AOPA), the Light Aircraft Association (LAA), the Aerodrome Operators Group (AOG), British Business & GA (BBGA), the British Gliding Association(BGA), British Microlight Aircraft (BMAA) and ARPAS, the Association of Remotely Piloted Aircraft Systems and comprises 40,000+ members involved in fixed wing, helicopter, Microlight, Balloon, Drone and Aeromodeller activities.

Wherever possible, the GAAC works in conjunction with complimentary organisations such as Sport England, the RSPB and CPRE. In January 2018 the All Party Parliamentary Group for General Aviation formed four 'Working Groups' of specialists to advise on Airfields, Airspace, Tax & Regulation and Heritage. The GAAC provides half of the Airfields Group including the Chairman. It is intimately involved in both the GA industry and with Parliamentary process.

NGC has been in existence for over 60 years and is an extremely well established, highly regarded and busy Gliding Club based at an historic WWII USAAF base. It is a Community Amateur Sports Club.

The Club's current membership is 180 and it has over 35 powered aircraft and more than 40 gliders based on the site. The Club has a strong emphasis on encouraging young people to become involved with aviation (and all of the attendant STEM skills). It is the pre-eminent

gliding school in Norfolk. The club and supporting organisations, including the Local Planning Authority has raised large sums of money in the past, initially to keep part of the former USAAF base open for aviation and more recently for appropriate building and infrastructure upgrades.

Gliders are either launched by winch or by tug aircraft. Alongside gliding training and leisure activity, the three hard runways are available for fixed-wing light aircraft and some are based at the airfield. In addition, the site is used for community events and camping and caravanning, and has clubhouse with a café, and is licensed premises – an important community asset in this rural area.

The airfield is approximately 1100m, west of the existing overhead line at 30m high. The proposed new line would be approximately 1,500m to the west of the airfield **and would be 50 metres in height**. The corridor between these two lines, of 2.6km would be very narrow and could jeopardise the safety of operations on all six runways. The proposed new line would adversely impact the use of runway 26 – which is the runway predominantly used for take-offs and landings (due to the predominant south-westerly wind experienced for around 65% of the time). In the past there has been an aircraft crash involving the existing power lines, just on the eastern boundary of the airfield and the NGC is very keen to avoid any increase in the risk to aviation.

With a normal take-off or landing, subject to adequate marking of the power lines and pylons this distance would not normally constitute a major hazard. However, there are various situations in which the proximity and height of the power line could be hazardous to aviation safety:

a. If an aircraft experiences an engine failure or other problem on take-off, a pilot has a very short time in which to manage the emergency and seek a suitable area to hopefully achieve a safe forced landing. In such circumstances any structure directly in front of the aircraft would be a hazard.

b. Gliders are light aircraft and to land safely at an aerodrome must make best use of the available wind. This means they do not always line up with a runway but may approach the airfield from any direction to maximise their chance of a safe landing.

c. Trainees need to focus on their handling of the aircraft and the introduction of major new structures into the landscape could curtail use of runway 26 by some types of pilots in particular wind conditions.

d. Priory Farm airstrip is located between Tibenham and the proposed new power line. Inevitably its presence would cause some people accessing Priory Farm to move eastwards to keep distance between themselves and the power line. Conflict with Tibenham circuit will force Priory aircraft to overfly Tibenham Village at low altitude and the risk of collision with NGC aircraft is greatly enhanced.

e. During construction, with a large swathe of land affected and significant equipment, presumably also drones and helicopters involved. It will be impossible for them to operate without entering the Tibenham airspace.

All of the above would adversely affect operations at Tibenham.

We were therefore surprised to find no evaluation of aviation safety in the published East Anglia Green documents.

The Corridor and Preliminary Routeing and Siting Study contains no reference to aviation activity as a routeing constraint. It only contains two planning related routeing constraints, despite the National Planning Policy Framework (NPPF) at paragraph 106(f) containing specific protection for General Aviation Airfields, in accordance with the Government's Aviation Strategy. Furthermore, the NPPF specifically supports the retention of recreation facilities. Gliding and flying are classified as sport by Sport England and the NPPF places emphasis on the protection of sporting facilities in paragraphs 84(d) and 92(c).

The 'Option Appraisal Topics' in Table 3.3 of the CPRSS refers to aviation and defence as a socio-economic impact but this is not addressed elsewhere.

Paragraph 4.5.14 suggests that in relation to route Option NB2 that the proximity of Tibenham could limit '*the position of structures'*. But the appraisal should have considered the impact of the entire route Options on the safety and operations of Tibenham Airfield. This should be addressed in the next stage of appraisal.

We note that it is not only in connection with Tibenham Airfield that the appraisal is inadequate – the reference to Stow Maries at paragraph 7.5.14 only addresses it in terms of potential heritage impact. This is appropriate but aviation safety impact should also be addressed.

Tibenham Airfield would appreciate a meeting with East Anglia Green to explain its concerns in more detail and ensure, at the very least, that agreement can be reached on measures to make the overhead power line and pylons highly visible and that the implications of construction are fully addressed.

Would you please acknowledge receipt of this letter.

Yours sincerely

Ann Bartaby BSc(Hons), DipTP, MRTPI, FRGS, FRAeS

Director General Aviation Awareness Council

Cc: John Gilder, Vice-Chairman GAAC
Eric Ratcliffe, Chairman Norfolk Gliding Club
Dave Latimer, Chairman, Development Committee British Gliding Association

Appendix 2: The Great Grid Upgrade: Norwich to Tilbury

Letter dated 13 September 2023 from James Head, UK CAA Airfield Advisory Team to Simon Gill of National Grid.

Wednesday 13th September 2023

Simon Gill
National Grid
[redacted]@nationalgrid.com
[redacted]

Dear Simon,

The Great Grid Upgrade: Norwich to Tilbury

The UK Civil Aviation Authority's Airfield Advisory Team have been set up to meet the DfT's objective of sustaining the UK network of general aviation (GA) airfields. We are a non-regulatory team who provide advice to Government, licensed and unlicensed GA airfields and local planning authorities on matters that are relevant to CAA functions, and formally commenced engagement with airfields in November 2020.

General Aviation (GA) and the protection of airfields are a priority for the Department for Transport (DfT), and their ambitions are set out in two strategy documents released by the Government: Aviation 2050 and GA Strategy 2015. MHCLG's National Planning Policy Framework refers to a national network that can be afforded protection by local authorities.

> *Planning policies should recognise the importance of maintaining a national network of GA airfields, and their need to adapt and change over time – taking into account their economic value in serving business, leisure, training and emergency service needs, and the government's General Aviation Strategy. [Paragraph 106f, National Planning Policy Framework, MHCLG]*

We understand that the 'Great Grid Upgrade: Norwich to Tilbury' project was launched in 2022 and was quickly followed by part 1 of the non-statutory public consultation. Concerned aviation stakeholders responded to this consultation, including the General Aviation Awareness Council (GAAC) who submitted a response in June 2022. Their response outlined concerns relating to Tibenham Airfield (Norfolk Gliding Club) and the safeguarding factors which ought to be considered given the site's proximity to the proposal. Their response also expressed concern that aviation impacts had not been properly considered by National Grid (NG). The GAAC sent a follow up letter in July 2023, as a response to part 2 of the non-statutory public consultation, detailing aerodromes along the pylon route they felt needed consideration and referencing the Government's commitment to protecting the UK's network of GA airfields (see section A1).

The AAT were first alerted to this proposal as part of our engagement with UK GA airfields. Norfolk Gliding Club had concerns with the positioning of the line proposed between Norwich and Tilbury and reengaged with us to request our support. The AAT were subsequently invited to a meeting on the 24th of July 2023 held at Tibenham Airfield which included attendees from other concerned aerodrome authorities, National Grid and their commissioned consultants for aviation advice, Alan Stratford & Associates Ltd (ASA). Aerodrome authorities had a chance to present their concerns in this meeting. Following this, the AAT offered further support to NG and ASA.

In a meeting held on the 22nd August 2023, which included a detailed overview of the proposal by NG, it was suggested by NG that ASA and the AAT work together to provide subject matter expertise to identify potential impacts to established aviation operations as a result of the proposal. Concurrently, the AAT also provide this independent commentary.

The AAT has opted to assess a 'corridor' 5km either side of the 183km long power line infrastructure as a benchmark to locate aerodromes which may be affected. Some aerodromes listed in the table below are on the border of, or just outside 5km. We considered it prudent to include them in an assessment, due to the highly variable nature of operations that occur at GA aerodromes.

Table 1 below shows the list of aerodromes, varying from small privately owned sites to commercial operations. We acknowledge that this list may not be exhaustive.

Table 1: Aerodromes identified in 10km-wide corridor

Aerodrome	Location/approx. distance from proposal	Activity
Long Stratton	52.484N 1.229E / 3.3km	Business aviation (helicopters)
Priory Farm	52.454N 1.131E / 0.8km	Resident and visiting aircraft, refuelling
Tibenham	52.453N 1.147E / 2.3km	Gliding, resident and visiting aircraft, café and refuelling
Crowfield	52.101N 1.641E / 3.8km	Flight training, aircraft hire, refuelling, aircraft hangarage and parking
RAF Wattisham	52.133N 0.966E / 3.2km	Army base, Attack Helicopter Force
Elmsett	52.078N 0.982E / 5.1km	Resident and visiting aircraft, refuelling, aircraft maintenance
Nayland (Wiston Hill Farm)	51.974N 0.850E / 4.5km	Visiting aircraft, aircraft parking/hangarage
Laindon	51.593N 0.445E / 4.8km	Visiting aircraft, aircraft parking/hangarage
Thurrock	51.539N 0.373E / 1.4km	Visiting aircraft, aircraft parking/hangarage, refuelling
West Horndon (Barnards Farm)	51.335N / 0.212E / 1.8km	Visiting aircraft, aircraft parking
Broomfield Hospital	51.773N 0.465E / 1km	Hospital helipad
Brook Farm	52.345N 1.065E / 0.7km	Private site
Fir Grove	52.332N 1.102E / 2.6km	Private site
Wormingford	51.563N 0.473 E / 3km	Gliding, aircraft parking and hangarage
Napps Field (Brock Farm)	*51.657N 0.420E / 1.1km*	*Private site (possibly inactive)*

Bracon Ash (Mergate Hall)	*52.325 N 1.131 / 1.6km*	*Private site (possibly inactive)*
Garnons Farm	*51.962N 0.837E / 2.6km*	*Private site (possibly inactive)*
Chase Farm	*51.593N 0.396E / 0.6km*	*Private site (possibly inactive)*

Aviation activity can be sensitive to changes in the operating environment, and it is therefore important to consider the potential impacts of this significant scheme. The critical stages of flight that occur in the airspace around an aerodrome necessitates that these factors are fully considered, primarily to achieve the safest possible operating environment.

Infrastructure associated with the proposed scheme has the potential to create a change in the operating environment at aerodromes in proximity to the proposed power line route, which may influence aviation safety. A selection of these aerodromes are run as commercial enterprises, and the proposed infrastructure also has the potential to affect their viability.

Whilst many of the aerodromes in the corridor are unlicensed, the AAT suggests the following criteria for a pragmatic approach to assessing the potential impacts:

- Obstacles
- Electromagnetic interference
- Lighting
- Construction phase
- Wildlife and habitat management

The AAT remains willing and able to assist all relevant stakeholders throughout this proposal.

Airfield Advisory team

Civil Aviation Authority
Aviation House
Beehive Ring Road,
Crawley
West Sussex
RH6 0YR

cc. Peter Forbes

Appendix 3: Letter of Objection from the NGC

Letter sent by email to contact@n-t.nationalgrid.com

[redacted]

20th July 2024

Norwich to Tilbury Pylons
Proximity to Tibenham Airfield

Sir

Following the recent 'consultation' meeting with Norfolk Gliding Club (NGC) at Tibenham, on behalf of the club I would like to register our objection to the proposed Norwich to Tilbury pylon route based on the following

Our summary grounds for objection

The proposal is contrary to government guidelines on airfield safeguarding and aviation safety

The proposal is contrary to Civil Aviation Authorities (CAA) guidelines on airfield safeguarding and aviation safety

The proposal is contrary to the current planning guidelines as shown in the National Planning Policy Framework (NPPF) and the National Policy Statements where Nationally Significant Infrastructure Projects (NSIP) are in conflict with aviation safety

The proposal is contrary to the Air Navigation Order 2016 which is a statutory instrument

In advising National Grid (NG), Alan Stratford Associates (ASA) have failed to understand the operational aspects of a gliding site despite attending a non-statutory consultation meeting with us last year where they appear to have ignored the feedback they were given. They acknowledged their limited gliding experience and confirmed that their assessments of aircraft climb rates were based on manufacturer's specifications and bear no relation to the lower rates achieved by the same aircraft when towing gliders

Despite this ASA continue to believe that their assessment of the safety issues is correct whilst the CAA state that only the aerodrome operator can hold expert opinion on safety at their airfield with respect to potential obstacles

NGC is registered as a Community Amateur Sports Club (CASC) and recognised by Sport England as a National Significant Area for Sport (SASP). This proposal will adversely impact the safety of our operations, our ability to continue with CASC and SASP together with our overall financial viability

Norfolk Gliding Club, our history and activities

Tibenham airfield was built during 1941/2 with one runway of 2,000 yards and two of 1,400 yards each. In late 1943 the 445th Bomb Group of the 2nd Air division United States 8th Airforce arrived with 4 squadrons of B24 Liberator bombers eventually departing in May 1945 having flown 280 missions, lost 108 aircraft in action as well as 554 aircrew.

Modifications to the airfield were made in the 50's during the height of the cold war but the Ministry of Defence finally closed the airbase in 1959. NGC was founded at the airfield in early 1959 and continues to operate to this day

Part of the airfield was purchased by NGC in 1987 with the balance being taken over in 1990.

NGC operates under the auspices of the British Gliding Association (BGA) to provide

- Flying training to anyone from youngsters still at school through to senior citizens from our airfield in South Norfolk
- A training ground to enable suitable pilots to become instructors
- A centre for junior pilots (under 25) to improve their flying skills
- A location for gliding competitions ranging from interclub through to National level
- A location for international gliding rally's
- Access by the community through our CASC status
- A unique location to serve this part of the UK as recognised by Sport England's allocation of National SASP status

Over the last few years the activity in powered aircraft has increased with the building of new hangars and the influx of aircraft from all over East Anglia. This and the level of gliding activity is set to increase further as we have enquiries from aircraft owners resulting from the proposed closure of some smaller airfields in Norfolk and Suffolk.

For some time we have provided and continue to provide a training location for Norfolk and Suffolk police, the Army Apache helicopters and are one of the largest privately owned airfields listed in the Strategic Aerodrome Network

Following advice from the BGA, the General Aviation Awareness Council (GAAC), the Combined Aerodrome Safeguarding Team (CAST) and the Civil Aviation Authority (CAA) the club developed a safeguarding plan to help protect the airfield from developments that could pose a risk to our aviation activities. This plan has been lodged with and is in use by Norfolk County Council, South Norfolk Council and Breckland Council

The Government guidelines

The Department for Transport's (DfT) , '*The town and country planning (safeguarded aerodromes, technical sites and military explosives storage areas) direction 2002'* states, under 'Other Civil Aerodromes', that – '*Operators of unlicensed aerodromes and sites of other aviation activities (for example gliding or parachuting) should take steps to protect their locations from the effects of possible adverse development…'*

NGC have taken those steps by creating a safeguarding plan and believe this proposal is an example of adverse development in that the close proximity of the pylon route to the airfield will endanger aircraft using our East/West runway

Civil Aviation Authority guidelines

Within the Civil Aviation Publication (CAP) 738, Executive summary paragraphs 1 and 5, the stated intention of the CAA -

Is to provide advice and guidance to all those involved in the process of 'aerodrome safeguarding'. Primarily these are certified and licensed aerodromes but non-licensed aerodromes will find the information of assistance

To ensure, as far as practicable, that the aerodrome and its surrounding airspace is not adversely impacted by the proposal, thus ensuring the continued safety of aircraft operating at the location

As with the DfT directive, NGC has created a safeguarding plan and believe this proposal will adversely impact the continued safety of aircraft using Tibenham, in particular it will endanger aircraft using our East/West runway

Planning guidelines

Within the NPPF it states (paragraph 193) that –

Planning polices and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as sports clubs)

We believe the close proximity of the proposed pylon route is such that it cannot be integrated effectively and safely with our airfield operations

and

Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established…..the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed

We believe that this proposal will place unreasonable restrictions on the aviation activities of NGC and endanger aircraft using the East/West runway. As the 'agent of change' it is for NG to provide mitigation

Furthermore in section 5.5 of the National Policy Statement for Energy (EN1) explicitly states that –

> *It is essential that the safety of **all** UK aerodromes, aircraft and airspace is NOT adversely affected by new energy infrastructure* [my emphasis]

We believe that this proposal is contrary to EN1 in that NGC aviation operations will be adversely affected by this new energy infrastructure

Air Navigation Order 2016 (ANO)

In part 10 of the ANO (which is a statutory instrument) there is a regulation which states –

> *A person must not recklessly or negligently act in a manner likely to endanger an aircraft, or any person in an aircraft*

Some years ago NGC were successful through the police in prosecuting joy riders on the airfield based on the fact that they could endanger an aircraft. Evidently the law does not require proof that they did but that their presence could endanger aircraft

Whilst during the consultation ASA agreed that there is an increased risk to the safety of aviation activities with the proposed pylon route, they believe those increased risks are acceptable based on their analysis. We believe they are negligent in failing to properly consider the complexity of the gliding operations at NGC and advise NG that the pylon route could endanger aviation activities at Tibenham contrary to the ANO (2016).

What are the safety issues

As mentioned above, we believe that ASA have failed to recognise the full nature and complexity of the aviation activities at Tibenham and as a result are steering NG down a path that will mean that the pylons will endanger aircraft using our East/West runway contrary to the guidance given by the CAA, the DfT and the NPPF and in direct conflict with the ANO (2016)

The ASA presentation at the consultation concentrated on 'Engine Failure After Take Off', referred to as EFATO incidents, of which they believe there are very few, and those that do exist are poorly documented. Their argument was supported by an Australian report which identified the root cause of the engine failure which in itself has merit but we believe is totally inappropriate in this situation

From a viewpoint of improving reliability an analysis of the root cause and the development of better maintenance and inspection programmes has a significant benefit but engines still fail

Early in the 21st century the Air Accidents Investigation Branch (AAIB) improved their reports database which currently allows for analysis of some 11,000 accidents. A search of those reports looking for the term 'engine failure' produced 174 hits.

Of these 174 hits:

> 75 occurred during take-off and 34 during approach and landing.
> Of the 75 take-off incidents, 56 of the reports indicated the height at which the problem occurred
> And 35 (62%) of these 56 were at 300ft or lower.

A similar search for accidents (excluding drones) involving cables produced 46 hits of which about 1/3 resulted in serious or fatal injuries. Added to which I am aware of 3 similar accidents that occurred prior to the AAIB's computerised database that resulted in 3 fatalities and 2 serious injuries

> In 1969, a Tiger Moth towing a glider from Tibenham crashed into an electricity pylon during a forced landing attempt following an aborted aerotow – the pilot was fatally injured
>
> In the mid 70's a PA 28 attempting to land at North Weald came in contact with cables and crashed – two occupants were fatally injured and a third suffered serious injuries
>
> In the 90's a glider from Tibenham whilst attempting to recover from a failed winch launch came in contact with electricity cables and the pilot was seriously injured

In their general aviation handbook the CAA quote 800 sites, 20,000 registered aircraft and 29,000 general aviation pilots which, given the number of flights that must have taken place over the last 20 years does support the ASA view that the risk is small however a fatality is just that and we should not be complacent in terms of looking for improvement

Within gliding, our main areas of concern with the proposed pylon route are not only with EFATO and cable contact occurrences but with aerotow launches that must be aborted, aerotow launches with reduced climb rate (both of which are rarely recorded and there is no requirement to do so) and cross country gliders returning from the west

The tug/glider combination is about 200ft long with limited manoeuvrability and a reduced climb rate when compared to that of the non-towing aircraft performance. Any low level emergency (say below 300ft) would require either or both aircraft to land straight ahead.

> With the proposed pylons so close to the end of our west bound runway an aborted aerotow could mean that neither tug aircraft nor glider would be likely to clear the obstacle with potentially fatal results

There are many factors that can affect the take off and climb rate performance, all of which result in a reduced climb rate of the combination or the need to abort the aerotow

Aborted Aerotow – Tug issues

Problem	Likely height	Action to take
Oil pressure failure	Any	Abort aerotow
Engine over heating	Any	Abort aerotow
Cockpit emergencies (ie fire)	Any	Abort aerotow
Engine failure	Any	Abort aerotow
Bird strike	Up to 200ft	Probable need to abort aerotow or reduced climb rate

Aborted Aerotow - Glider issues during aerotow

Problem	Likely height	Action to take
Cockpit security/loose items	Below 500ft	May need to abort aerotow
Control failures	Below 500ft	Abort aerotow
Dangerous loss of position	Any	Abort aerotow
Pilot error – increased drag	Any	May need to abort aerotow if not corrected

Aborted Aerotow - Tow rope issues

Problem	Likely height	Action to take
Excessive loop in rope	Any	Abort aerotow
Inadvertent release	Usually below 200ft	Glider to land wherever possible
Rope breaks	Any	Glider to land wherever possible

Climb rate performance – Maximum Take-Off Mass (MTOM) issues

Problem	Likely Height	Action to take
Glider water ballast exceeds the MTOM limits	All	Tug climb rate will be lower than expected

Climb rate performance – Speed issues

Problem	Likely Height	Action to take
Glider has a high minimum tow speed	Initial take-off	Tug will have a longer ground run and need to build up speed before climbing

Climb rate performance – Wind issues

Problem	Likely Height	Action to take
Lack of headwind	Below 500ft	Tug climb rate will be lower than expected
Degree of crosswind component	Below 500ft	Tug climb rate will be lower than expected
Turbulence and wind shear	All	Tug climb rate will be lower than expected

Climb rate performance – Glider handling issues

Problem	Likely Height	Action to take
Glider being flown erratically and producing significant drag	All	Tug climb rate will be lower than expected

Climb rate performance - Meteorological issues

Problem	Likely Height	Action to take
High ambient temperature	Any	Tug will have a longer ground run and the climb rate will be lower than expected
High instability	Any	Likelihood of flying through sink therefore poor overall climb rate
Visibility	Any	Whilst in VFR the haze can significantly reduce overall visibility which may mean the aerotow must be aborted

In all cases where the action taken is to abort the aerotow, the tow rope is released and each aircraft has to attempt to land safely. We believe that the proximity of the proposed pylons could endanger either or both aircraft in those circumstances

In discussing these issues with ASA at the meeting, the immediate response was that as there is no documentary proof that any such incident has ever occurred they cannot be considered. In my years of being a tug pilot at NGC with nearly 4,000 tows completed or as a gliding instructor with nearly 3,000 launches I have been faced with every one of those problems at some time

Returning Cross Country Gliders

Glider performance is usually expressed in terms of a glide ratio. This is defined as the ratio of the distance travelled to the height lost and can vary significantly from aircraft to aircraft.

> As an example, a Cessna 172 is considered to have a glide ratio of 9 or 9:1 and a Boeing 747 is estimated at 18:1
> In comparison, modern gliders have glide ratios of 40:1, 50:1 and 60:1`

The majority of our gliders returning from a cross country flight do so from the west. If we consider the performance of the majority of these gliders as having a glide ratio of say 50:1 or 40:1 and the need to cross the pylons at about 300ft above ground level (200ft plus 100ft) to allow a degree of safety then based on these glide ratios to land at the start of runway 08 the pylons would need to be 4.6km or 3.7km respectively to the west of runway 08 threshold and not the 2km or thereabouts shown on the NG map.

The distance from our Aerodrome Reference Point (ARP) as shown in our safeguarding plan to the threshold of Runway 08 is about 0.7km which means that the pylon route would need to be beyond the 5km circle shown in that plan

The BGA have already stated that returning competition flights would not be able to follow BGA Competition Rules which state

> *Competitors shall be reminded in the local rules that all pilots must be aware of and fly within the requirements of the law, namely the UK implementation of the Standardised European Rules of the Air (SERA) and its associated UK exceptions regarding low-flying*

Since competition returns will largely be from the west, the construction of the pylons will prevent us from holding national competitions, jeopardise our status as a SASP and have a detrimental effect on the finances of the club

Potential mitigation

The media would have us believe that there are only three possible routes that could have been proposed by NG

> An underwater route down the coast
> An underground route similar to that being developed by the Sheringham Shoal project
> An over ground pylon route

In the absence of the digital version of the route promised by NG/ASA over 12 months ago the map shown below is a plot of what we believe to be the location of the proposed pylons as the route passes Tibenham.

Overlaid on to that are

The 5km radius safeguarding circle shown in yellow

The runways at Tibenham and Priory Farm which are shown in white

There are no typical flight paths for an aerotow since the purpose is usually either to

Tow the glider to a thermal whose locations are continually changing with the wind

Or to tow the glider in such a way to meet a specific training need as directed by the instructor in the glider

Therefore flight paths can cover any of the area defined by the safeguarding circle

The concern is with pylons RG045 to RG065 inclusive and their proximity to those flight paths

There is also some confusion concerning the map produced by the Sunday Times recently showing how the grid would look in 2030. It shows that for East Anglia there are two elements to the network, one following what seems to be the proposed onshore Norwich to Tilbury route and a second almost parallel offshore route.

Had NG proposed an offshore solution for the Norwich – Tilbury route, underground solution whilst it crossed the NGC 5km safeguarding circle or over ground but outside the safeguarding circle then from an aviation safety perspective at Tibenham, there would be no cause to object

Yours faithfully

A M Griffiths

Appendix 4: Letter of Objection from the BGA

8 Merus Court
Meridian Business Park
Leicester
LE19 1RJ

00 44 116 289 2956
www.gliding.co.uk
office@gliding.co.uk

National Grid Electricity Transmission plc

By email only

26th July 2024

Norwich to Tilbury Electricity Transmission Reinforcement Project Consultation 2024

The British Gliding Association (BGA) has examined the proposed Norwich to Tilbury Transmission Project and consulted with the Norfolk Gliding Club who are members of the BGA.

Potential Impact

The proposed routing of 55m high pylons 1.77 km to the west of Tibenham Airfield would impact Norfolk Gliding Clubs ability to operate safely.

This in turn will impact:

- launching in certain weather conditions, reducing capacity and financial resilience – a threat to the long-term survival of the club
- their ability to provide training for both new pilots and elite pilots.
- their ability to host gliding competitions
- Tibenham's status as a National Significant Site for Sport (SASP) as designated by the BGA and Sport England.

This impact could be mitigated by changing the route of the proposed pylons or by burying a section of the transmission line.

Background

The BGA is the National governing body responsible for the conduct and safety of the sport of gliding in the UK. UK gliding clubs, who are members of the BGA, operate from 76 sites and have around 6,000 flying members owning, between them, some 2100 gliders. The BGA is committed to sustainable, low emission air sport. As the Chair of the BGA's Development Committee, I have delegated authority from the BGA Executive Board to submit these comments.

All British gliding clubs are volunteer run, not-for-profit, community sports clubs. Critical factors in their success and sustainability are:

- Flying activities (generating income)
- Volunteer activity (generating time to run all aspects of club activities)

Common to all sports, membership recruitment and retention are a perennial challenge for gliding clubs and require constant attention and vigilance: loss of members will result in loss of sustainability. Happy glider pilots tend to volunteer more of their time and the best way of keeping a glider pilot happy is to get them into the air with as little fuss or frustration as possible. It is the BGA's experience that a high launch rate (indicating high levels of flying activity) is one of the key factors for a robust club. Anything which threatens the launch rate will threaten the club's survival.

Tibenham Aerodrome, its Status and Significance

Tibenham is the home site of the Norfolk Gliding Club (Norfolk GC), where it has operated successfully since 1959. The club is a Community Amateur Sports Club (CASC) and as such is open to all. It enjoys a good relationship with the local community. The club recently took part in the BGA's National Women Go Gliding Weekend and provides regular flying for local Scout groups.

Tibenham is classified as an aerodrome in accordance with the guidance provided in the General Permitted Development Order 2015 since Tibenham is specifically mentioned in CAP481 April 1986. As such there are no permitted agricultural developments rights for structures that exceed 3 m height within 3km of the airfield boundary.

Tibenham is also classified as an aerodrome with reference to the Air Navigation Order ANO 2009 Article 255 legal definition of an aerodrome is:

> *Aerodrome'–*
> *means any area of land or water designed, equipped, set apart or commonly used for affording facilities for the landing and departure of aircraft; and includes any area or space, whether on the ground, on the roof of a building or elsewhere, which is designed, equipped or set apart for affording facilities for the landing and departure of aircraft capable of descending or climbing vertically; but*
> *does not include any area the use of which for affording facilities for the landing and departure of aircraft has been abandoned and has not been resumed.*

THE BGA's attention has been drawn to comments by National Grid's advisors that un-licensed airfields attract less planning protection that a licensed airfield. However, these comments do not align with CAP793 Safe Operating Practices for Unlicensed Airfields (July 2010) which states:

> "*where flying training is taking place additional safety margins (and risk assessment) should be considered"*
> *The fact that an aerodrome is unlicensed does not preclude compliance with the ANO or the Rules of the Air Regulations (RoAR).*

The NPPF has several references to aviation. Paragraph 110 (f) recognises,

'the importance of maintaining a national network of general aviation airfields (defined as licenced or unlicensed aerodromes with hard or grass runways, often with extensive areas of open land related to aviation activity) and their need to adapt and change over time, taking into account their economic value in serving business, leisure, training and emergency service needs and the Government's General Aviation Strategy.'

The General Aviation Strategy (March 2015) specifically refers to gliding as being a significant part of the general aviation community and notes the economic benefits that can be generated from this sporting activity. In the strategy the British Gliding Association notes the social benefits as a recreational activity, providing physical and mental health benefits to participants (page 18).

In this case, policy and guidance can also be related to the recreational and economic benefits of the Gliding Club who operate from Tibenham Airfield. Paragraph 97 (c) of the NPPF requires planning decisions to guard against the unnecessary loss of valued facilities and services and paragraph 102 states that access to opportunities for sport and physical activity is important for the health and well-being of communities.

Tibenham Airfield is recognised as a national Significant Areas for Sport (SASP)

In conjunction with the governing bodies of gliding, parachuting, water-skiing, and canoeing Sport England has designated a number of sites across the country as SASPs. You can find out more about SASPs at the following location on the Sport England website:
https://www.sportengland.org/how-we-can-help/facilities-and-planning/planning-for-sport/significant-areas-for-sport

The designation of SASPs can be applied to all sports. It is however recognised as being more appropriate for sports that rely on natural environment locations due to their uniqueness and scarcity. SASPs do not carry a statutory status. They do carry the weight of being identified by the national governing bodies of sport as the most important sites for their sports, while also being acknowledged and supported by Sport England. Additional weight should be afforded to the site's protection if it becomes under threat. Reasons being are that SASPs rely on features and locations which are by their very nature scarce, and vulnerable. Inappropriate development around a SASP can lead to its loss, and where that development is of a type (such as pylons) which can be proposed in a variety of other locations in the area, then we advise further consideration is given towards the protection of the SASP.

Listing SASPs and detailing why they're important, ensures that the effects of development upon SASPs are taken into account with the knowledge and understanding of their importance and significance to sport. Tibenham Airfield is recognised as a national SASP. It achieved this status because of the following reasons:

Attribute	Score	Comment
Competitions and Events	Very high	This is a large airfield where they regularly hold national competitions
Training	High	Instructor (coach) training takes place. Occasional elite training
Scarcity	Medium	Good access to uncontrolled airspace
Heritage	Very high	There has been gliding on this site since 1959
Number of users	High	The club is in the large category used by the BGA (100 – 200 members)
Facilities Strategy	Very high	The only site within the area particularly to the North East of the airfield[1]
Physical characteristics	Very high	Hard runways not susceptible to flooding. Good hangar, briefing room and clubhouse. On site catering and accommodation available.

Impact of Proposed Pylons

Gliders do not have engines and in flight are always gliding gently towards earth. To prolong flights (i.e. to 'soar' rather than just 'glide'), the pilot needs to find 'lift', air that is rising more quickly than they are falling. In order to get airborne, gliders need to be launched by something. This is usually by one of two methods: winch and aerotow. The aerotow requires a tow plane trailing a long rope with metal rings on the end. Gliders are towed to a specific height before they release. Launching this way generally gives longer flights, but is more expensive. Norfolk GC launch approximately 1/3 of its flights using aerotow. Aerotow is used exclusively for competition launches. This is a requirement of the BGA Competition Rules (https://members.gliding.co.uk/library/competitions/bga-competition-rules/).

It is not safe to initiate a launch of a glider if there is anything in front of it that could be struck during the launch or a launch failure. There are a number of potential launch failures modes that can dramatically reduce or indeed stop the tow plane and glider combination's ability to climb. They include engine faults, accidental opening of the gliders airbrakes and rope breaks. CAP793 (July 2010) Safe Operating Practises for Unlicensed Airfields states

> "*Aerodrome operators and pilots should consider options available following an engine failure soon after take-off. They should remember that in such a*

[1] This is an important factor in meeting one of the BGA Strategic objectives that gliding should be available to all within a one hour drive.

situation wing bank angles must be limited to 30° or less and heading changes to less than 30° either side of the aircraft's nose."

Note that as the airfield operators, Norfolk GC are the experts in determining what is and is not safe in respect of its operations. The Norfolk Gliding Club has explained its concerns in its letter to the National Grid, authored by Anthony Griffiths.

In addition to the Clubs comments the BGA adds:

Launch Failures
Partial power loss in a single engine aircraft is soon to be added to the training syllabus in the UK. An Australian study (https://www.atsb.gov.au/publications/2010/avoidable-3-ar-2010-055) found that:

"The data, however, shows that during and after take-off, a partial power loss is three times more likely in today's light single-engine aircraft than a complete engine failure. Furthermore, there have been nine fatal accidents from 2000 to 2010 as a result of a response to a partial power loss compared with no fatal accidents where the engine failed completely."

The currently proposed pylon route is just 1.77 km from Runway 26. The pylons would seriously increase the risk for any pilot experiencing partial power failure whilst departing from this runway.

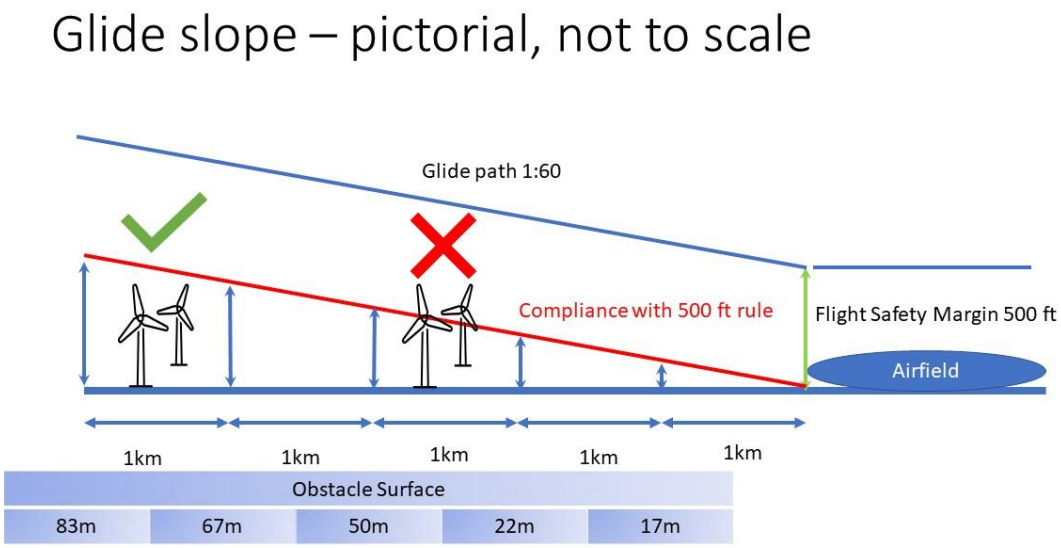
Competitions
Tibenham is an important gliding site for both basic flight training and cross country flying. It has National SASP status partially because of its use as a site for regional and national cross country (distance) racing competitions. During competitions, pilots fly courses, often of several hundred miles, before approaching straight into the airfield, landing ahead without the necessary height or speed to carry out a conventional circuit. This is an important aspect of racing as taking time to gain the additional height will affect the overall speed over the course. Pilots train to build their skills and use on board flight computers to help them to do this safely.

When returning on such competitions pilots are expected to obey the rules of the air. The BGA has Competition Rules
https://members.gliding.co.uk/library/competitions/bga-competition-rules/
of which, paragraph is 5.9.4 states:

"*Competitors shall be reminded in the local rules that all pilots must be aware of and fly within the requirements the law, namely the UK implementation of SERA (Standardised European Rules of the Air) and its associated UK exceptions regarding low-flying."*

The 500-foot rule from SERA
https://www.legislation.gov.uk/uksi/2007/734/schedule/1/crossheading/low-flying-rule/made/data.xht?view=snippet&wrap=true

In order to comply with these rules pylons of the plan height would need to be at least 3 km from the airfield boundary (see picture). Whilst an exemption exists for landing and taking off, at 3km out a glider is not yet in the landing phase of their flight, and a pilot will be concentrating on the remaining flight back to the airfield.



Additionally, as previously stated, Tibenham is a National SASP because of its value to British gliding as a competition site. BGA rated gliding competitions are always launched by aerotow. Loss of an entire launch direction would result in loss of the competition facility because not being able to launch the competitors on a good racing day would be an unacceptable sporting situation.

All gliding competitors are amateurs. People simply won't sign up for competitions (regional or national) if their valuable annual leave is likely to be wasted by having to sit on the ground when the weather is good.

The BGA has two sorts of rated competitions: regional and national. Pilots achieve their National rating (their qualification for flying in National competitions) by flying in Regionals. Pilots ranking highly in Nationals will be considered for the British Team. Tibenham is the only site in the east of England to currently host National competitions. It is also one of the few sites in the east of England that owns its own site. This is an important factor in meeting one of the BGA Strategic objectives that gliding should be available to all within a one hour drive.

The international pilots rely on their placings in the nationals to qualify for their inclusion in the British Team.

In addition to the value as a competition site for British gliding, Norfolk GC relies on income from running BGA rated competitions. Loss of this income would affect the long-term economic viability of the club.

The effect of actual and perceived risk on pilot capacity & utility

Chapter 1, paragraph 1.12 of ***CAP 764*** Issue 5 *'CAA Policy and Guidelines on Wind Turbines* v3' May 2013 http://publicapps.caa.co.uk/docs/33/CAP%20764%20Issue%205%20CAA%20Policy%20and%20guidelines%20on%20Wind%20Turbines%20v3%20(ISBN%20added).pdf states:

> *In all cases, regardless of the status of the aerodrome, any development that causes pilots to experience – or simply perceive – an increase in difficulty when using an aerodrome may lead to a loss of utility.*

Flying near to pylons results in pilots both perceiving and experiencing an increase in difficulty – especially for pilots undergoing training. Moreover, by any perceived or actual increase in difficulty immediately before the pilot attempts to land (no engine, no second chances) increases the pilot's workload and therefore has the potential to affect flight safety.

This type of risk is likely to act as a barrier to participation and result in reduced flying activity, making it harder for the club to retain and recruit members.

Both these factors will result in a reduction in flying activity and would, over time translate to a smaller gliding club. All gliding clubs operate with margins, which once eroded beyond economic viability will result in closure of the club. Closure of Norfolk Gliding Club would result in the loss of Tibenham as a site for gliding.

The effect on club activity & capacity

The planned pylon route could render runway 26 (the runway which points at the proposed development) unsafe for aerotow take-offs. Not being able to tow in this direction would reduce normal club flying activity levels. As mentioned previously this could impact the financial viability of this important community sport facility.

I do hope these arguments are clear and that National Grid can amend its plans to assure safe and viable ongoing gliding operations at Tibenham airfield.

Yours faithfully

Dave Latimer
Chair, BGA Development Committee
Copy: Pete Stratten, CEO, British Gliding Association
Clare Howe, Planning Manager, Sport England
Eric Ratcliffe, Chairman, Norfolk Gliding Club
Anthony Griffiths, Norfolk Gliding Club
James Head, Principal CAA Airfield Advisory Team
Matt Wilkins, Chair, General Aviation Awareness Council

Appendix 5: Consultation Response from the CAA's AAT

UK CAA AAT response to consultation

From: James Head (Airfield Advisory Team Principal)
Airfield Advisory Team (AAT)
UK Civil Aviation Authority
aat@caa.co.uk

To: National Grid

Location: Norwich Main (Norfolk) – Bramford (Suffolk) – Tilbury (Essex)

Proposal: The Great Grid Upgrade: Norwich to Tilbury. Reinforcing the high voltage power network in East Anglia between the existing substations at Norwich Main in Norfolk, Bramford in Suffolk, and Tilbury in Essex, as well as connect new offshore wind generation.

Following engagement with a range of stakeholders, the AAT submit the following report to the summer 2024 public consultation.

Signature: [redacted] **Date:** 26th July 2024

Name: James Head

Position: Airfield Advisory Team Principal

Address:
Airfield Advisory Team, Civil Aviation Authority Aviation House, Beehive Ring Road, Crawley, West Sussex, RH6 0YR

aat@caa.co.uk

1. Introduction

The UK Civil Aviation Authority's Airfield Advisory Team (AAT) has been set up to meet the DfT's objective of sustaining the UK network of airfields. It is a non-regulatory team providing advice to Government, licensed and unlicensed airfields and local planning authorities on matters that are relevant to CAA functions.

Throughout this 2024 statutory consultation period, the AAT have undertaken extensive consultation with a range of stakeholders to better understand the concerns of the local aerodromes relating to this scheme. Furthermore, we have been in communication with both National Grid (NG) and their aviation consultants, Alan Stratford and Associates Ltd (ASA). This provided a further understanding of the proposal, an introduction to the aviation assessment criteria used by ASA, and their identification of aerodromes which may be impacted by the scheme.

We submit this report to this consultation which consolidates our findings. The purpose of this document is to provide an independent summary of the ways in which this important national infrastructure project could impact aerodromes in its proximity, and to contribute towards early horizon scanning opportunities for National Grid and their partners.

2. Aviation context

2.1 General aviation

General Aviation (GA) is the domain for all civil aviation operations outside of public air transport. The GA sector provides essential services such as search and rescue and airborne emergency response – it is the test bed for aviation innovation, and the domain for sport/leisure flying and flight training. GA aerodromes serve as transport connectivity nodes across the country and are likely to be important strategic sites for future flight advancement. Government publications acknowledge the importance of General Aviation, citing strategic objectives for ***"the UK to be the best place in the world for General Aviation"*** in the General Aviation Roadmap[1].

GA aerodromes are largely split into two categories: licensed and unlicensed. CAA licensed aerodromes must adhere to standards set out in regulatory documentation (CAA Publication, 'CAP 168: Licensing of Aerodromes'[2]), and unlicensed sites are encouraged to use this framework as a basis for their own safety standards, as described in CAA publication, 'CAP 793: Safe Operating Practices at Unlicensed Aerodromes'[3].

2.2 Aerodrome Safeguarding

Aerodrome safeguarding is the process by which aerodrome operators aim to ensure that their aerodrome and its surrounding airspace is not adversely affected by proposed development. Further to ensuring that buildings/structures do not cause a danger to aircraft,

[1] General Aviation Roadmap, DfT, 2021
[2] CAP 168 Licensing of Aerodromes (caa.co.uk)
[3] CAP 793 Safe Operating Practices at Unlicensed Aerodromes (caa.co.uk)

safeguarding also considers the potential impact of other factors such as construction, wildlife, obstacles, and interference with navigational aids as described in CAA Publication, 'CAP 738: Safeguarding of Aerodromes'[4].

The CAA recommends that all aerodromes create and lodge a safeguarding arrangement with their LPA, describing the types of proposals which may affect their operation within a defined area surrounding the aerodrome; ***"operators of unlicensed aerodromes and sites for other aviation activities (for example gliding or parachuting) should take steps to protect their locations from the effects of possible adverse development".***

CAP 793 includes the following pertinent statements:

- ***"where flying training is taking place additional safety margins should be considered"***

- ***"The runway should, wherever possible, be designed such that trees, power lines, high ground or other obstacles do not obstruct its approach and take-off paths. It is recommended that there are no obstacles greater than 150 ft above the average runway elevation within 2,000 m of the runway mid-point"***

In addition to the above, we note the following relevant extracts from the National Policy Statement for Electricity Networks Infrastructure (EN-5)[5]:

- ***"where country is flat and sparsely planted, and unless specifically preferred otherwise by relevant stakeholders, keep the high voltage lines as far as possible independent of smaller lines, converging routes, distribution poles and other masts, wires and cables, so as to avoid a concentration of lines or 'wirescape'"***

- ***"in open landscape especially, high voltage line entries should be kept, as far as possible, visually separate from low voltage lines and other overhead lines so as to avoid a confusing appearance"***

For this national infrastructure project, extending over 180km in length, and traversing the landscape in the vicinity of multiple aerodromes, it is important to assess relevant safeguarding and operational factors for each aerodrome site.

3. Assessment scope

As a baseline for assessment, the AAT has considered aerodromes within a 10km-wide corridor, centred on the proposed power line. The AAT has identified 17 aerodromes within this corridor along the length of this proposal. At this stage, we have focussed our points on the practicalities of how this scheme may impact these aerodromes and perhaps where further, more technical work could be required.

[4] CAP 738: Safeguarding of Aerodromes (caa.co.uk)
[5] Electricity Networks National Policy Statement - EN-5 (publishing.service.gov.uk)

The aerodromes assessed represent the diversity of GA aerodrome sites across the network. They include large gliding sites, small commercially minded training operations, private sites and a hospital helipad.

For each aerodrome, the following has been considered as part of a desktop assessment:

Nature of aerodrome operation
The nature of an aerodrome site including traffic blend, aircraft types and movement numbers may be a key consideration for assessment.

Existing power lines
Existing power infrastructure in proximity to aerodrome sites may represent an important assessment vector. For example, do they demonstrate a level of impact at present, is this tolerable? Could additional infrastructure associated with the proposed scheme compound any existing challenges or create new ones?

Proximity of the aerodrome to the proposal
The proximity of an aerodrome site to the proposed scheme may have an important bearing on the extent of any impact to the aerodrome operation. Aerodromes located in close proximity to the proposed scheme may be impacted to a greater extent than those further away. The extent of any impact could also be influenced further by other factors.

Local topography
Consideration of aerodrome elevation and wider local topography may be relevant when establishing the extent of any potential impact. For example, where the proposed infrastructure is sited on terrain of higher elevation than that of an aerodrome, specific or compound impact may arise. This consideration should extend out to a suitable range, taking into account runway heading and associated flight tracks over the ground including circuit training where applicable, and the nuanced nature of glider launch and recovery where applicable.

Due to the number of aerodromes along the scheme's proposed route and the complexity of assessing multiple sites, each with their own nuanced operation, we have adopted a high level, 'say what we see' approach, accompanied by technical information as required. Our intention is to offer an objective and accessible summary of potential impacts to aerodromes along the route of the proposed scheme.

We recognise that more granular detail including further technicality and nuance that will likely be associated with the aerodromes, sits outside the intended scope of this document. Furthermore, aerodrome operators and other associated stakeholders may identify additional challenges and detail not captured in this high-level assessment.

The aerodrome assessment is given in Section 4 which has been ordered according to their location along the proposed power line route alignment from north to south. Figure 1 below illustrates the proposed route in its entirety; each of the identified aerodromes denoted with a white pin.

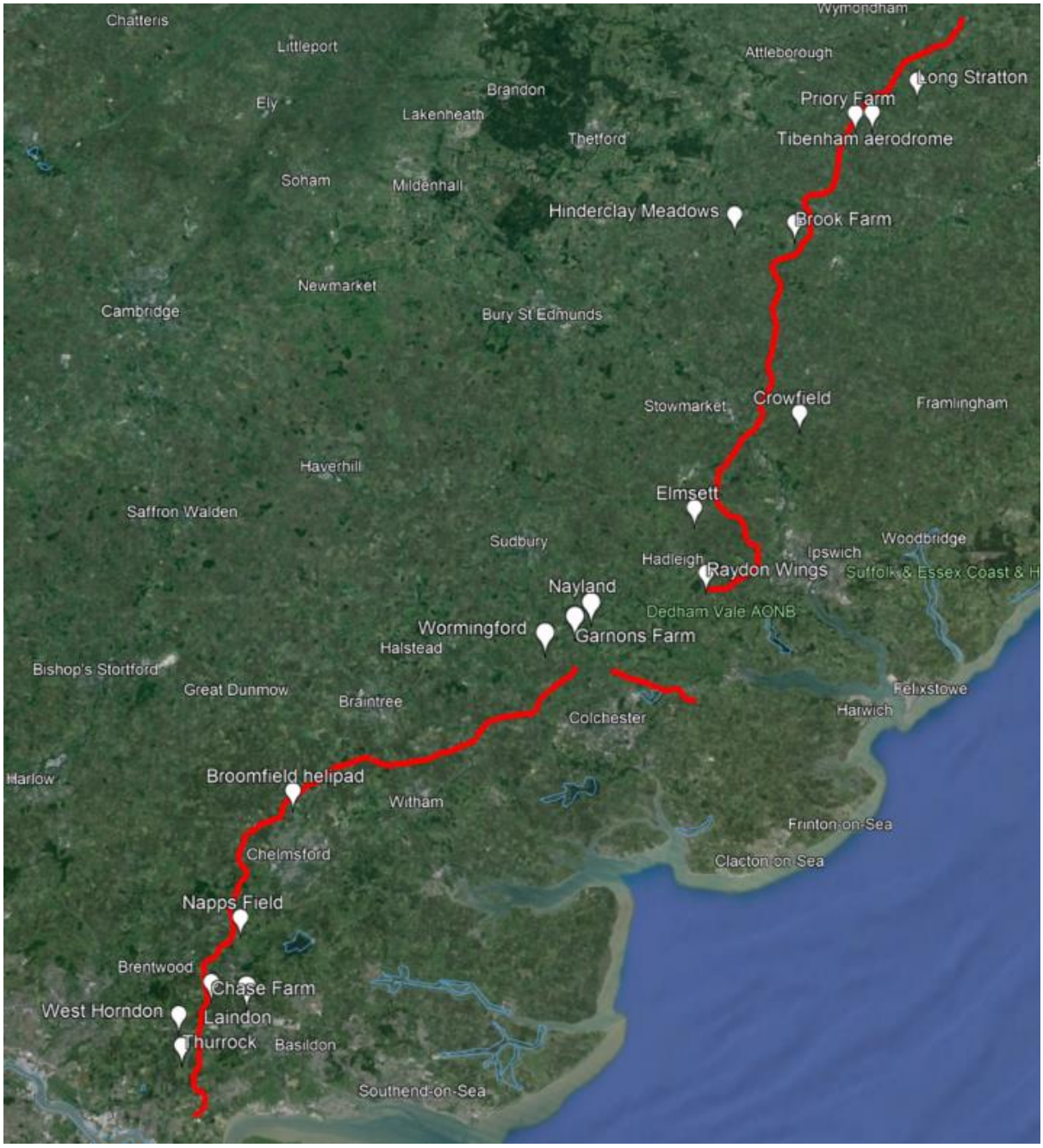


Figure 1: Proposed Norwich to Tilbury route alignment (in red) illustrating aerodromes in the 10km-wide corridor, 5km either side of the proposed power line route (white pins).

4. Assessment findings

4.1 Long Stratton

Latitude/Longitude: 52.484N 1.229E
Aerodrome elevation (AMSL): 172ft
Runway(s): 17/35 (grass) 800m x 20m
Nature of aerodrome: Single grass runway operation facilitating both fixed wing and rotary operations with refuelling facilities
Existing power lines: 0.7km from RWY 17/35 midpoint (W); 1.4km from RWY 17 threshold on 17/35 extended centreline (NW)
Proximity to proposal: 4.5km from RWY 17 threshold on 17/35 extended centreline (NW)
Local topography: No observations

Figure 2: Proximity of existing (blue) / proposed (red) power line infrastructure to Long Stratton aerodrome

An existing power line (blue) is situated to the west of the aerodrome at approximately 0.7km distance from the midpoint of runway 17/35. This existing power line infrastructure intersects with the extended runway centreline for 17/35 at approximately 1.4km distance from the runway 17 threshold.

The proposed new power line (red) intersects the extended centreline for 17/35 at approximately 4.5km to the north-west of the runway 17 threshold.

We note the aerodrome has current operational procedures in place for the existing power line obstruction, which is provided to pilots via a telephone PPR briefing. Furthermore, the aerodrome has existing noise abatement[6] procedures, to avoid overflying the local villages of Long Stratton and Wacton, to the east and south-west of the site respectively.

[6] 'Noise Abatement' are unofficial procedures put in place by the aerodrome to reduce noise impact to local residents

4.2 Tibenham

Latitude/Longitude: 52.453N 1.147E
Aerodrome elevation (AMSL): 186ft
Runway(s): 15/33 (concrete) 1250m x 46m
08/26 (concrete) 700m x 46m
03/21 (concrete) 1600m x 46m
Nature of aerodrome: Large aerodrome site with three paved runways; owned and operated by Norfolk Gliding Club. The aerodrome holds gliding competitions and tasks throughout the year and is an important hub for British gliding, whilst also being recognised as a national 'Significant Area for Sport (SASP)'. The aerodrome welcomes powered aircraft, offers hangarage and parking, with refuelling facilities and a café on site.
Existing power lines: 2.4km from RWY 26 threshold on 08/26 extended centreline (E); 1.5km from the RWY 33 threshold on 15/33 extended centreline (SE)
Proximity to proposal: 2.4km from RWY 08 threshold on 08/26 extended centreline (W); 2km from the RWY 15 threshold on 15/33 extended centreline (NW)
Local topography: No observations

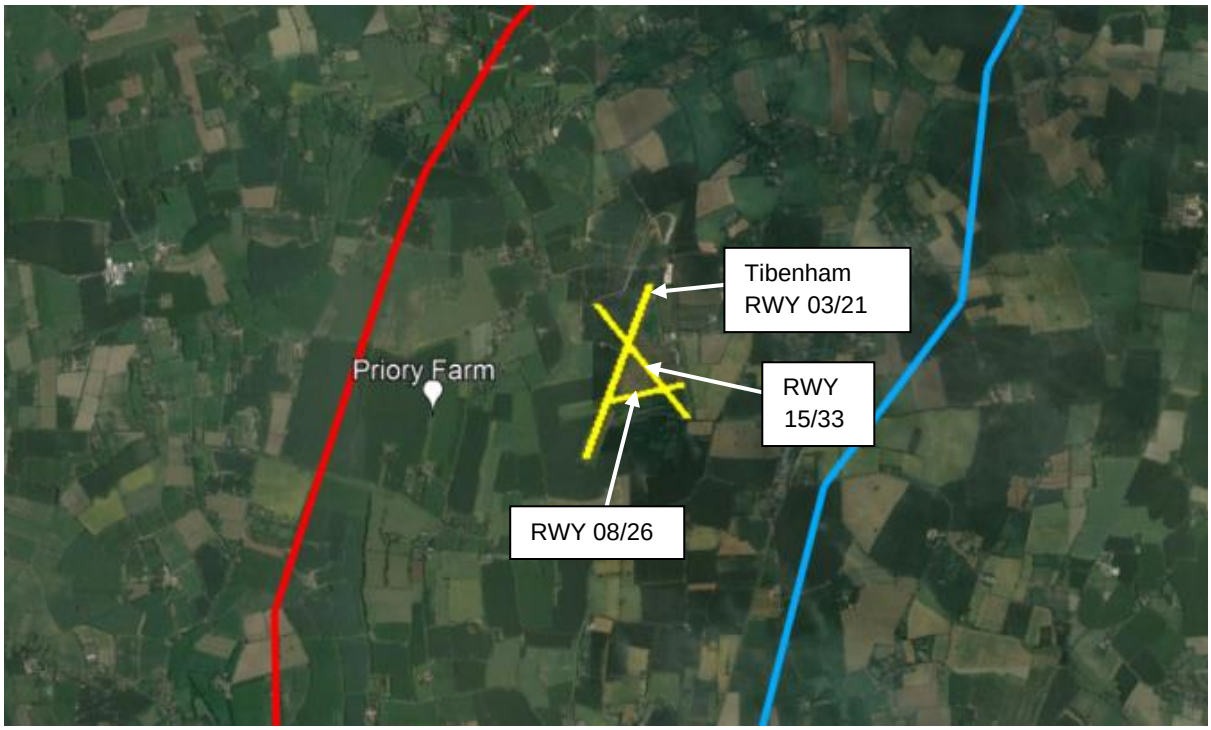


Figure 3: Proximity of existing (blue) / proposed (red) power line infrastructure to Tibenham aerodrome. Nearby Priory Farm aerodrome indicated by white pin.

Tibenham aerodrome facilitates both winch and aerotow glider launch and is located approximately 2km from the proposed power line (red) at its closest point. As shown in Figure 3, the proposed power line would create a north to south corridor around Tibenham, effectively sandwiching the aerodrome between the existing power line infrastructure (blue) to the east at a range of 1.3km at is closest point. Also note the proximity and position of Priory Farm aerodrome (located at just over 1km from the 08 threshold Tibenham), compounding effects from any impact on Priory Farm should be considered when assessing Tibenham.

Tibenham aerodrome is primarily a glider site. In general, glider aircraft launch using the following methods:

- Winch launching involves a high-powered tractor engine connected to a drum and cable which is attached to a glider at the opposite end of the runway. The cable is then spooled back on to the drum at high speed, driven by the tractor engine, pulling the glider along the runway until take off speed is achieved. The cable remains attached to the glider as it climbs until the desired disconnect height has been reached.

- Another method is aerotow. This involves a powered aircraft connecting to a glider via a detachable cable. The towing aircraft then departs with the glider in tow, remaining coupled up to a desired height at which point the two aircraft can separate from each other. Whilst this is a very well established and safe means of getting air bourn, there are performance limitations and some dynamic factors that are relevant to this assessment. The attached glider creates additional drag and mass for the tug aircraft to overcome. Aerotow requires a flatter rate of climb and limits the ability for both aircraft to turn whilst connected.

The proposed power line infrastructure will represent a new permanent obstruction, akin to a wall, in the vicinity of the aerodrome which could significantly change pilot consideration and risk assessment when operating to the west of the site. For example, should the aircraft experience an emergency in this location or another undesirable event such as a cable break, failed glider release or other scenario, the proximity of the proposed line will impact pilot decision making and outcomes.

Indeed, it could be that operations are forced to cease entirely on runway 08/26, resulting in flying activity being limited to the remaining alternative runways. This of course has other ramifications. Would such an outcome enable the same level of gliding to persist, taking in to account prevailing winds and other performance factors? What will the commercial social and sporting knock- on effects be to Tibenham based on such an outcome? The proposed scheme will force all departures and arrivals tracks of gliders and other aircraft to be contained within the aforementioned corridor running north to south between the existing and proposed power line infrastructure. The position of the proposed infrastructure will force gliders returning from the west to remain sufficiently high in order to clear the power lines. This will impact on competition flying and any other sortie whereby a lower, faster approach currently adopted may not be possible.

4.3 Priory Farm

Latitude/Longitude: 52.454N 1.131E
Aerodrome elevation (AMSL): 186ft
Runway(s): 01/19 (grass) 620m x 30m
Nature of aerodrome: Single grass runway operation orientated north to south. The aerodrome is home to its own based members and has fuel provision, hangars, resident aircraft parking and welcomes visiting aviation traffic.
Existing power lines: 4km (E) of RWY 01/19 midpoint
Proximity to proposal: 0.8km (W) of RWY 01/19 midpoint; 2.7km from RWY 19 threshold on 01/19 extended centreline (NNE)
Local topography: No observations

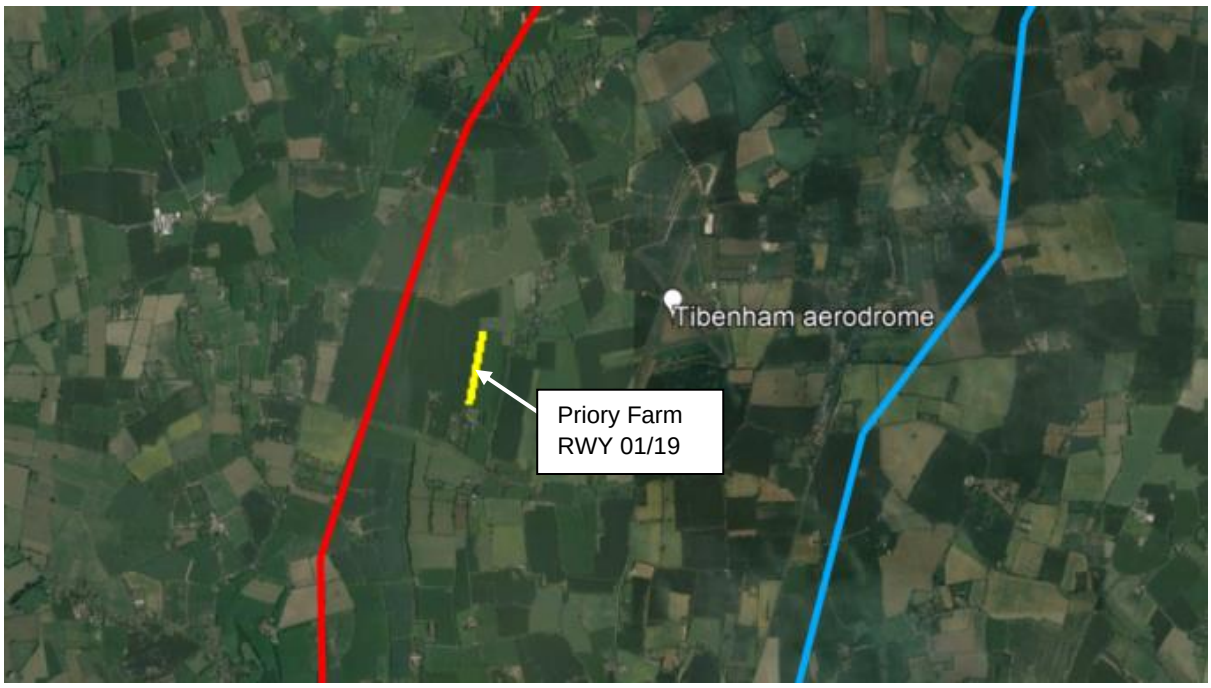


Figure 4: Proximity of existing (blue) / proposed (red) power line infrastructure to Priory Farm aerodrome. Nearby Tibenham aerodrome indicated by white pin.

Existing power line infrastructure (blue) runs north to south past the aerodrome, just under 4km distance to the east at its closest point to the runway. Tibenham aerodrome sits between the existing power line (blue) and Priory Farm. The centre of the runway at Priory Farm is located at just over 1km from the 08 threshold at Tibenham on the 08/26 extended runway centreline.

The proposed power line (red) would run parallel to the west of Priory Farm aerodrome at approximately 0.8km distance from the runway. We note that Priory Farm aerodrome publish circuit tracks so we have assessed these in relation to the proposed power line. Figure 4a below shows the proximity of the proposed power line route with the two circuits[7] operated at Priory farm aerodrome, which are both orientated to the west of the site (easterly circuits are not possible, as they would conflict with Tibenham aerodrome traffic). The larger circuit (1000ft above aerodrome level) is illustrated in green, with a smaller circuit (500ft above

[7] Aerodromes may operate multiple circuits. Smaller circuits may be flown during inclement weather.

aerodrome level) in turquoise. The dark blue lines extending from each runway end denote aircraft departure tracks, which the aerodrome requests for noise abatement purposes.

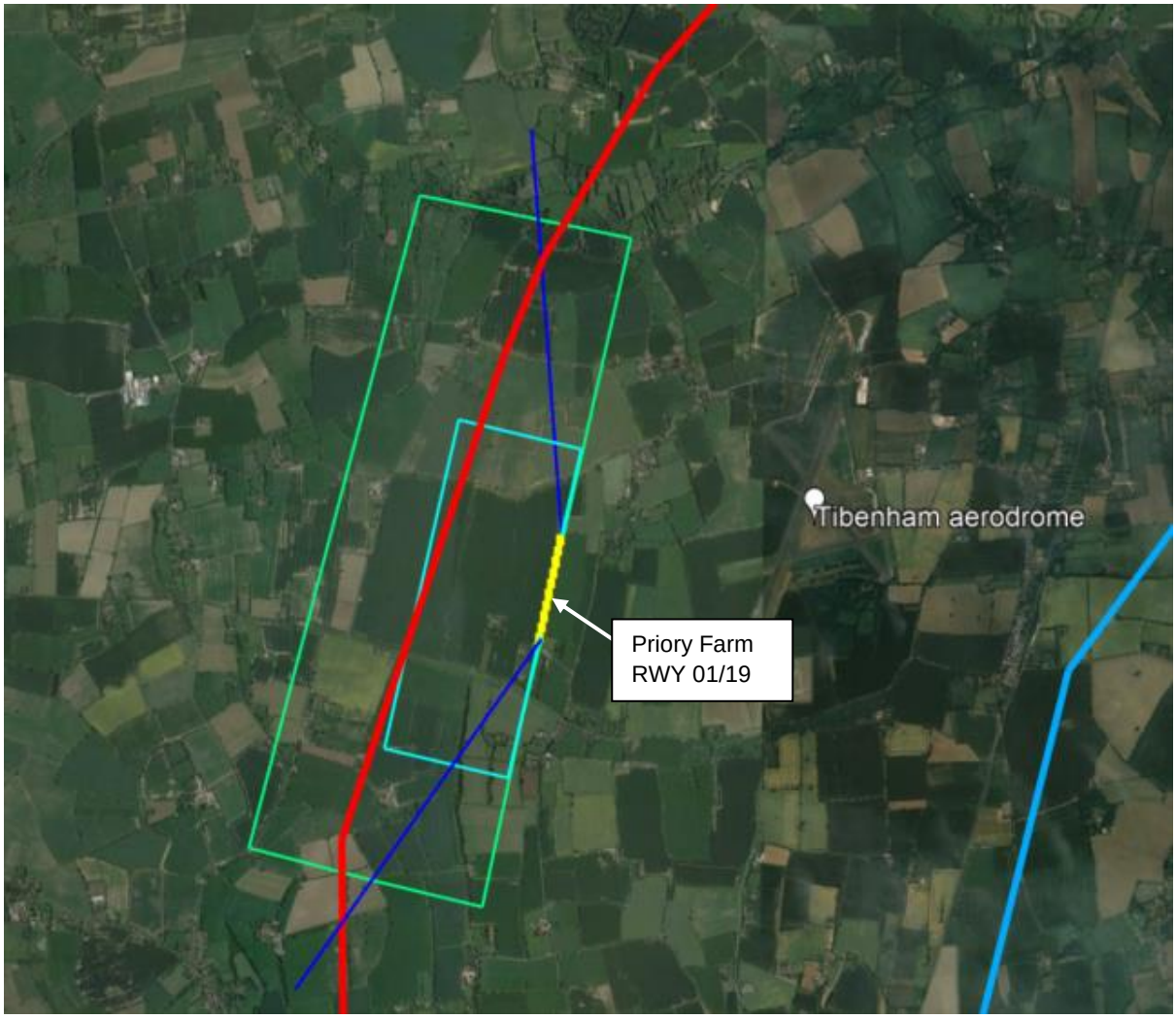


Figure 4a: Priory Farm aerodrome's larger circuit shown in green, the smaller in turquoise. Tracks for departing aircraft in dark blue from each runway end. Proposed power line infrastructure in red; existing in light blue. All circuit/departure illustrations are approximate.

As shown in Figure 4a the proposed infrastructure would require aircraft to cross the power line at low level at multiple points in the circuit, and on the published departure tracks also. The proposed scheme represents a new hazard for aircraft experiencing an emergency in the vicinity of the aerodrome. The new vertical obstruction created by the power line may preclude stricken aircraft from recovering to the runway, forcing pilots to consider off-aerodrome landing solutions.

4.4 Brook Farm

Latitude/Longitude: 52.345N 1.065E
Aerodrome elevation (AMSL): 160ft
Runway(s): 05/23 (grass) 400m (approximately)
Nature of aerodrome: We understand the operation to be single grass runway. There is limited information available as to the type and frequency of aviation activity.
Existing power lines: 2.8km from RWY 23 threshold on 05/23 extended centreline (NE)
Proximity to proposal: 1.6km from RWY 23 threshold on 05/23 extended centreline (NE)
Local topography: No observations

Figure 5: Proximity of existing (blue) / proposed (red) power line infrastructure to Brook Farm aerodrome.

An existing power line (blue) passes the aerodrome at a distance of 2.8km on the extended runway centreline for runway 05/23 to the north-east. The proposed power line (red) intersects with the extended runway centreline for runway 05/23 at a distance of approximately 1.6km to the north-east.

Approaches to runway 23 could require aircraft to either overfly the proposed power line or turn inside the line prior to commencing final approach. Furthermore, the proposed line will impact pilot decision making when approaching the aerodrome from the east and south-east, particularly at low height.

Similarly, departures from runway 05 would require new consideration - we estimate that pylon infrastructure could be as close as 600m to the aerodrome's eastern flank, which will present a new obstruction on departure from the aerodrome to the east, where aircraft will again be at a low height after take-off.

There appear to be dwellings to the north of the aerodrome and so it may be beneficial to understand any noise abatement practices currently employed by the aerodrome at present.

For example, if the aerodrome currently operates southerly circuits or procedures to avoid the dwellings to the north, the practicalities of continuing to do so with the proposed infrastructure should be understood.

4.5 Hinderclay Meadows

Latitude/Longitude: 52.3453N 0.9767E
Aerodrome elevation (AMSL): 80ft
Runway(s): 04/22 (grass) 800m x 30m
Nature of aerodrome: We understand it to be a single grass runway operation facilitating resident aircraft, a small hangar and visiting traffic
Existing power lines: 3.3km from RWY 04 threshold on 04/22 extended centreline (SW)
Proximity to proposal: 4.8km from RWY 04/22 midpoint (SE)
Local topography: No observations

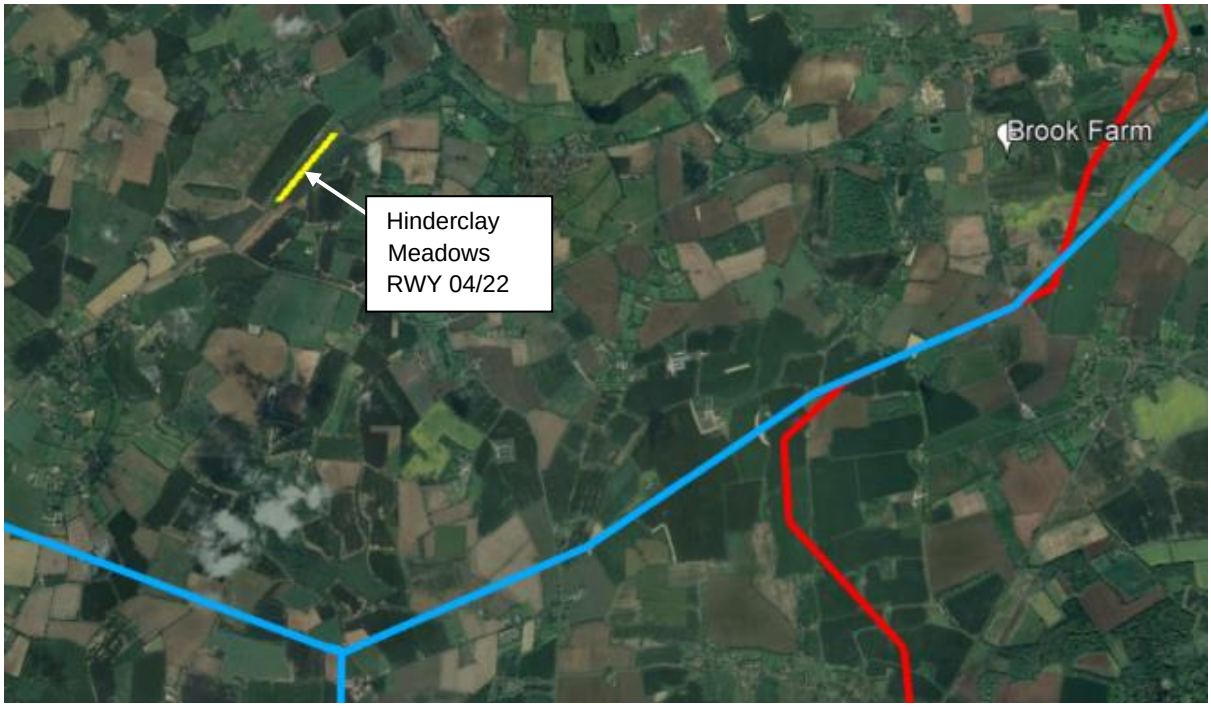


Figure 6: Proximity of existing (blue) / proposed (red) power line infrastructure to Hinderclay Meadows aerodrome. Nearby Brook Farm aerodrome indicated by white pin.

Existing power line infrastructure (blue) is located approximately 3.3km distance to the south-west from the 04 threshold on the extended centreline for runway 04/22.

In the current iteration, the proposed power line route (red) does not cross the extended centreline for either runway direction. We have no further observations relating to this site.

4.6 Crowfield

Latitude/Longitude: 52.174N 1.110E
Aerodrome elevation (AMSL): 201ft
Runway(s): 13/31 (grass) 740m x 36m
02/20 (grass) 540m x 33m
Nature of aerodrome: Dual grass runway operation, which facilitates flight training, aircraft hire and visiting aviation traffic. Fuel provision, hangarage and a clubhouse are also on site.
Existing power lines: 1.8km from RWY 13 threshold on 13/31 extended centreline (NW)
Proximity to proposal: 4.8km from RWY 13 threshold on 13/31 extended centreline (NW)
Local topography: No observations

Figure 7: Proximity of existing (blue) / proposed (red) power line infrastructure to Crowfield aerodrome.

Existing power lines (blue) are located on the runway 13/31 extended centreline to the west at approximately 1.8km distance from the runway 13 threshold.

The proposed power line (red) is located at approximately 4.8km distance from the runway 13 threshold on the extended centreline of runway 13/31, with a further existing power line (blue) beyond this at 5.9km. We have no further observations relating to this site.

4.7 Elmsett

Latitude/Longitude: 52.078N 0.982E
Aerodrome elevation (AMSL): 246ft
Runway(s): 05/23 (grass) 890m x 26m
Nature of aerodrome: Single grass runway operation with refuelling facilities, aircraft maintenance and parking/hangarage for resident and visiting aircraft. The aerodrome is located within Wattisham Military Aerodrome Traffic Zone (MATZ).
Existing power lines: 3.6km from RWY 23 threshold on 05/23 extended centreline (NE)
Proximity to proposal: 3km from RWY 23 threshold on 05/23 extended centreline (NE)
Local topography: No observations

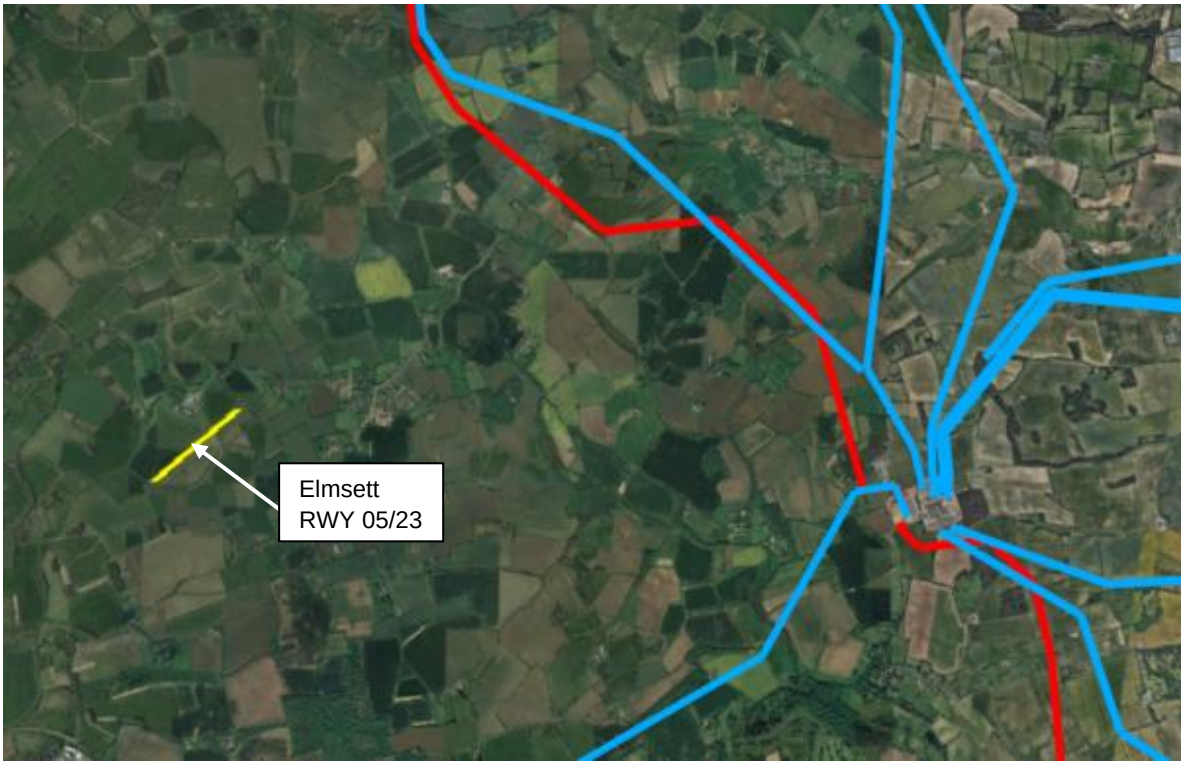


Figure 8: Proximity of existing (blue) / proposed (red) power line infrastructure to Elmsett aerodrome.

Existing power lines (blue) are located on the runway 05/23 extended centreline to the north-east, at approximately 3.6km distance from the runway 23 threshold.

The proposed power line (red) is situated closer to the runway 23 threshold at approximately 3km distance. The installation of the new power line could result in aircraft on approach to land on runway 23 and aircraft departing on runway 05, tracking closer to power line infrastructure than at present.

We note the current noise abatement procedures the aerodrome has adopted in Figure 8a below – illustrating the aerodrome's identified 'avoid' areas denoted in dark blue. The new infrastructure may force aircraft closer to areas that the aerodrome currently aims to avoid.

Figure 8a: Dark blue circle/shapes denote noise abatement areas at Elmsett aerodrome. Aircraft currently turn on to final approach to land on runway 23 at the green circle – an earlier turn may force aircraft to overfly the currently avoided areas

4.8 Raydon Wings

Latitude/Longitude: 52.018N 1.015E
Aerodrome elevation (AMSL): 185ft
Runway(s): 09/27 (grass) 820m x 28m
Nature of aerodrome: Single grass runway operation, accepting visiting aviation traffic and is home to resident aircraft. The operator of Raydon Wings also carries out practice aerobatic sorties in the surrounding airspace.
Existing power lines: 1.8km from RWY 09/27 midpoint (N); 3.5km from RWY 27 threshold on 09/27 extended centreline (E)
Proximity to proposal: 300m from RWY 09/27 midpoint (NE)
Local topography: No observations

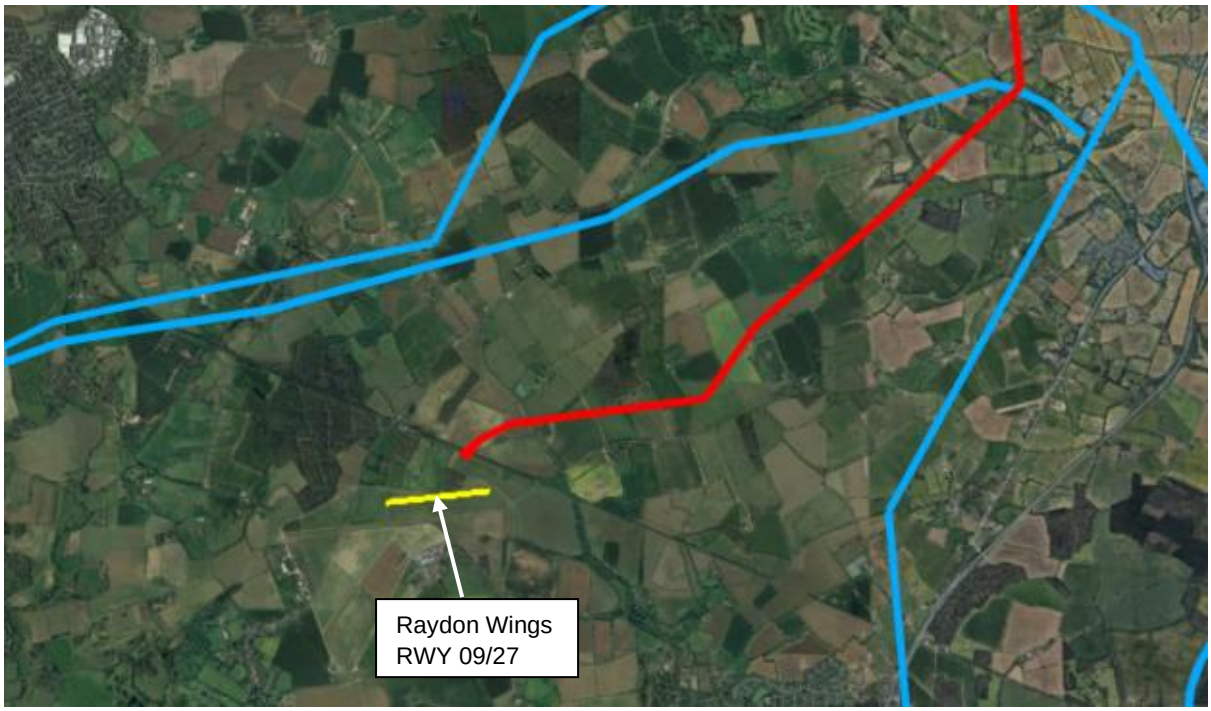


Figure 9: Proximity of existing (blue) / proposed (red) power line infrastructure to Raydon Wings aerodrome.

Existing power line infrastructure (blue) runs parallel to the runway at approximately 1.8km to the north. An additional existing power line runs past the aerodrome approximately 3.5km from the 27 threshold on the extended centreline of runway 09/27 to the east, running north to south.

It is clear that the proposed power line (red) will introduce a new vertical obstruction, at just 300m from the runway centre point, to the north of the aerodrome.

Early left turns from when departing runway 09 (easterly departure) may not be possible with the proposed infrastructure, and consideration for approach procedures (including emergencies) to land onto runway 27 will be required.

4.9 Nayland

Latitude/Longitude: 51.974N 0.850E
Aerodrome elevation (AMSL): 180ft
Runway(s): 14/32 (grass) 600m x 20m
Nature of aerodrome: Single grass runway operation which is home to Nayland Flying Group which allows visiting aviation traffic and offers parking/hangarage.
Existing power lines: 3.2km from RWY 14 threshold on the 14/32 extended centreline (NW)
Proximity to proposal: 4.1km from RWY 32 threshold (SW); 5.0km from RWY 32 threshold on 14/32 extended centreline (SE)
Local topography: No observations

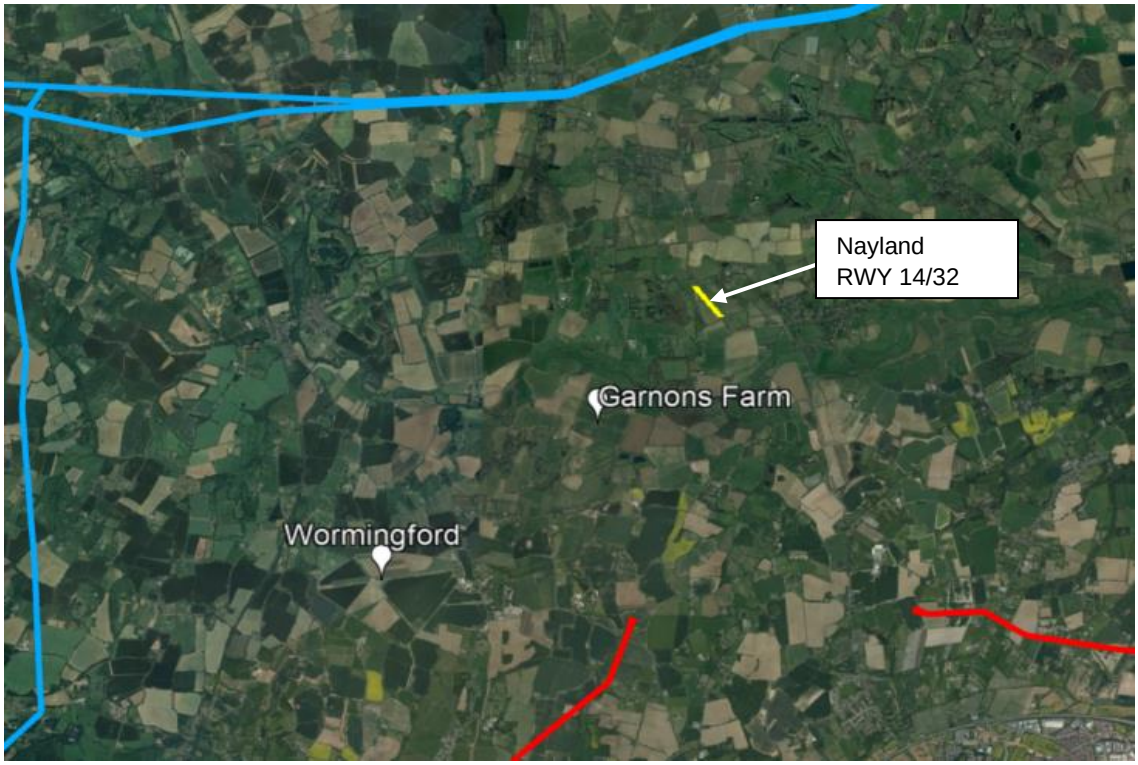


Figure 10: Proximity of existing (blue) / proposed (red) power line infrastructure to Nayland aerodrome. Nearby Wormingford and Garnons Farm aerodromes indicated by white pins.

Existing power line infrastructure (blue) runs east to west to the north of Nayland aerodrome and is located on the extended centreline for runway 14/32 approximately 3km from the runway 14 threshold. The proposed power line (red) is located approximately 4.1km from the runway 32 threshold to the south-west, and 5.0km from the runway 32 threshold on the 14/32 extended centreline to the south-east.

The AAT notes the proximity of two other aerodromes in the vicinity of Nayland; Wormingford and Garnons Farm. Due to this proximity, secondary effects from impact on the other two aerodromes may force changes to the operation at Nayland, particularly in terms of circuit tracks and procedures, and this will need to be fully understood.

There is a notable gap in the route where underground cabling is proposed to the south of the aerodrome. Any impact or benefit associated with this requires further discussion.

4.10 Garnons Farm

Latitude/Longitude: 51.962N 0.837E
Aerodrome elevation (AMSL): 65ft
Runway(s): 11/29 (grass) 600m (approximately)
Nature of aerodrome: We understand the operation to be single grass runway. There is limited information available as to the type and frequency of aviation activity.
Existing power lines: 4.4km from RWY 11/29 midpoint (N)
Proximity to proposal: 2.4km from RWY 25 threshold of 11/29 (S)
Local topography: No observations

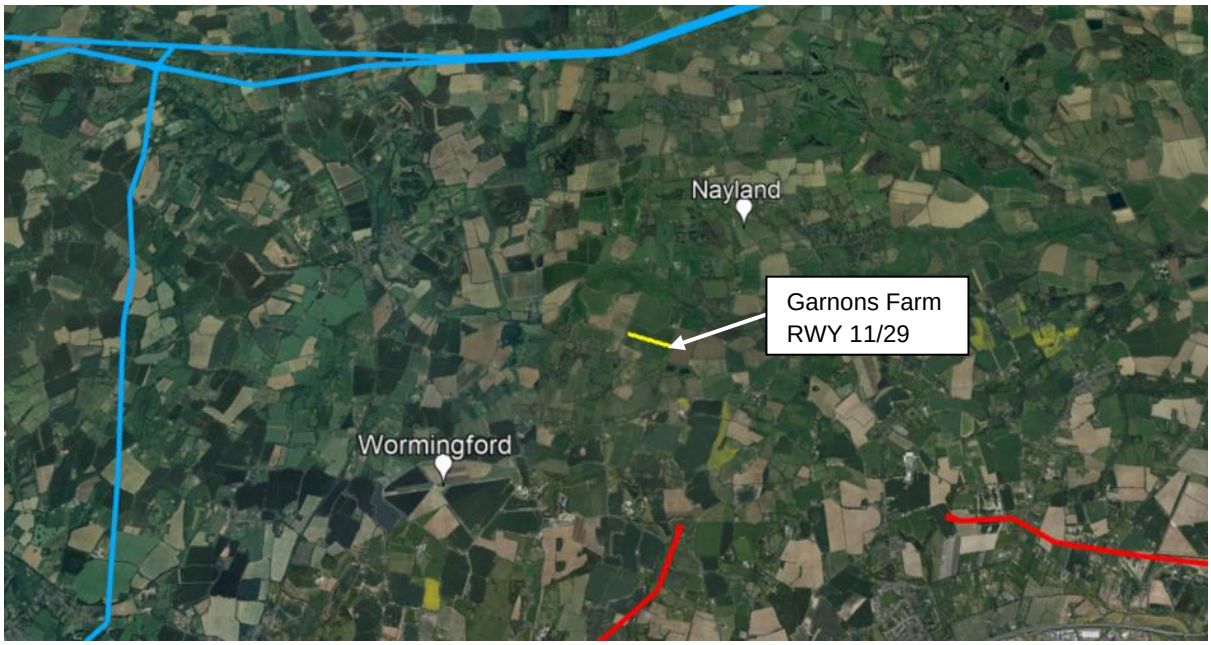


Figure 11: Proximity of existing (blue) / proposed (red) power line infrastructure to Garnons Farm aerodrome. Nearby Wormingford and Nayland aerodromes indicated by white pins.

The closest pylon for the proposed power line infrastructure (red) is located 2.4km south of the runway 29 threshold. In this location the terrain elevation is higher than that of the aerodrome. However, the proposed power line route does not run past the extended centreline for either runway heading.

The AAT notes the proximity of two other aerodromes in the vicinity of Garnons Farm; Wormingford and Nayland. Due to this proximity, secondary effects from impacts on the other two aerodromes may force changes to the operation at Garnons Farm, particularly in terms of circuit tracks and procedures and this will need to be fully understood.

There is a notable gap in the route where underground cabling is proposed to the south-east of the aerodrome. Any impact or benefit associated with this will require further discussion.

4.11 Wormingford

Latitude/Longitude: 51.941N 0.790E
Aerodrome elevation (AMSL): 236ft
Runway(s): 08/26 (grass) 1,105m x 41m
Nature of aerodrome: former RAF base, with the current operators using one of the site's multiple runways. It is home to Essex and Suffolk gliding club, providing ab initio (initial) glider pilot training, with aerotow and winch launch facilities. The site also has a club house and hangarage.
Existing power lines: 4.3km from RWY 08 threshold on 08/26 extended centreline (W)
Proximity to proposal: 2.7km from RWY 08/26 midpoint (SE)
Local topography: aerodrome elevation is greater than proposed power line elevation in locality

Figure 12: Proximity of existing (blue) / proposed (red) power line infrastructure to Wormingford aerodrome. Nearby Garnons Farm and Nayland aerodromes indicated by white pins.

The proposed power line route (red) is not located on the extended centreline for runway 08/26. The nearest pylon of the proposed scheme is located at approximately 155ft AMSL, 2.7km to the south-east of runway 26 threshold. Aerodrome elevation at runway 26 threshold is approximately 206ft AMSL.

The AAT notes the collocation of two other aerodromes in the vicinity of Wormingford; Nayland and Garnons Farm. Due to this proximity, secondary effects from impact on the other two aerodromes may force changes to the operation at Wormingford, particularly in terms of circuit tracks and procedures, and this will need to be understood.

There is a notable gap in the route where underground cabling is proposed to the east of the aerodrome. Any impact or benefit associated with this requires further discussion.

4.12 Broomfield

Latitude/Longitude: 51.773N 0.465E
Aerodrome elevation (AMSL): 177ft
Runway(s): Helipad
Nature of aerodrome: Hospital helipad
Existing power lines: 3.8km from helipad (E)
Proximity to proposal: 1km from helipad (W)
Local topography: No observations

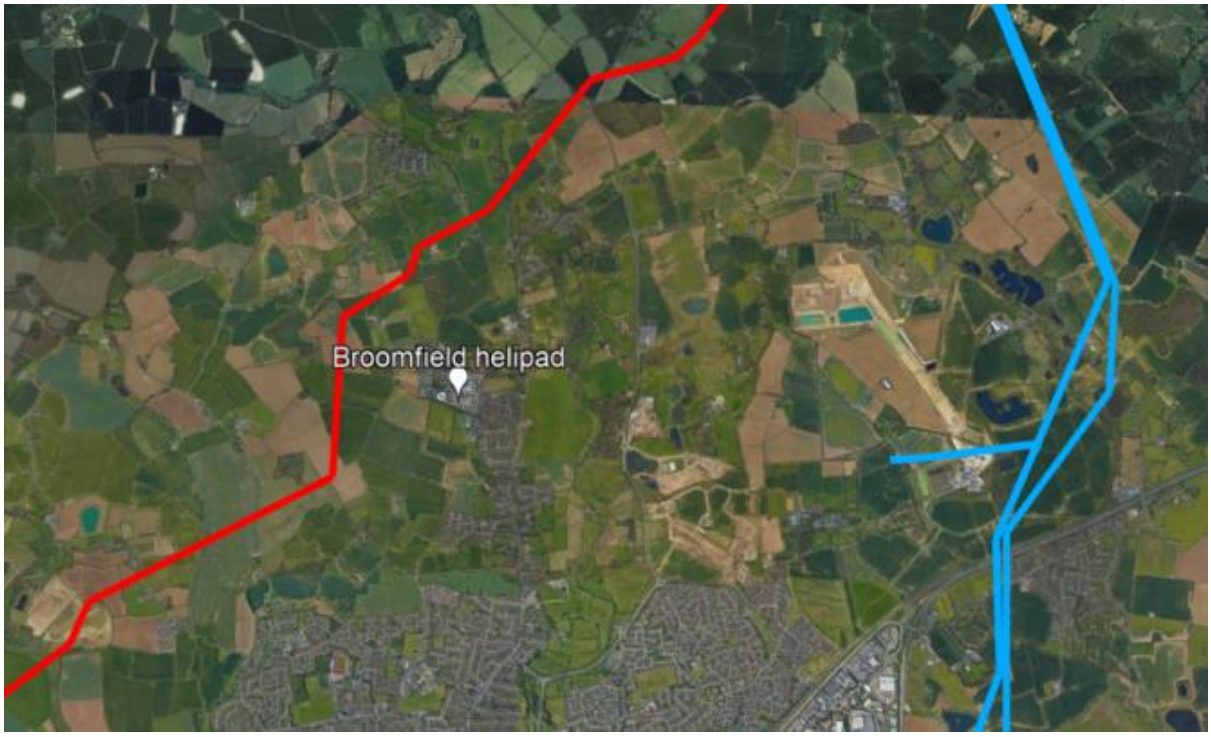


Figure 13: Proximity of existing (blue) / proposed (red) power line infrastructure to Broomfield helipad

At just 1km from the proposed power line infrastructure (red), operators of the helipad should ensure the new permanent obstacle created by the proposed power line is well mapped and understood, particularly considering operations in reduced visibility.

4.13 Napps Field

Latitude/Longitude: 51.657N 0.420E
Aerodrome elevation (AMSL): 190ft
Runway(s): 08/26 (grass) 450m (approximately)
Nature of aerodrome: we understand the operation to be single grass runway. There is limited information available as to the type and frequency of aviation activity.
Existing power lines: 4.2km from RWY 08/26 midpoint (SW)
Proximity to proposal: 0.7km from RWY 08 threshold on 08/26 extended centreline (W)
Local topography: terrain elevation at the power line increases as it tracks north past aerodrome

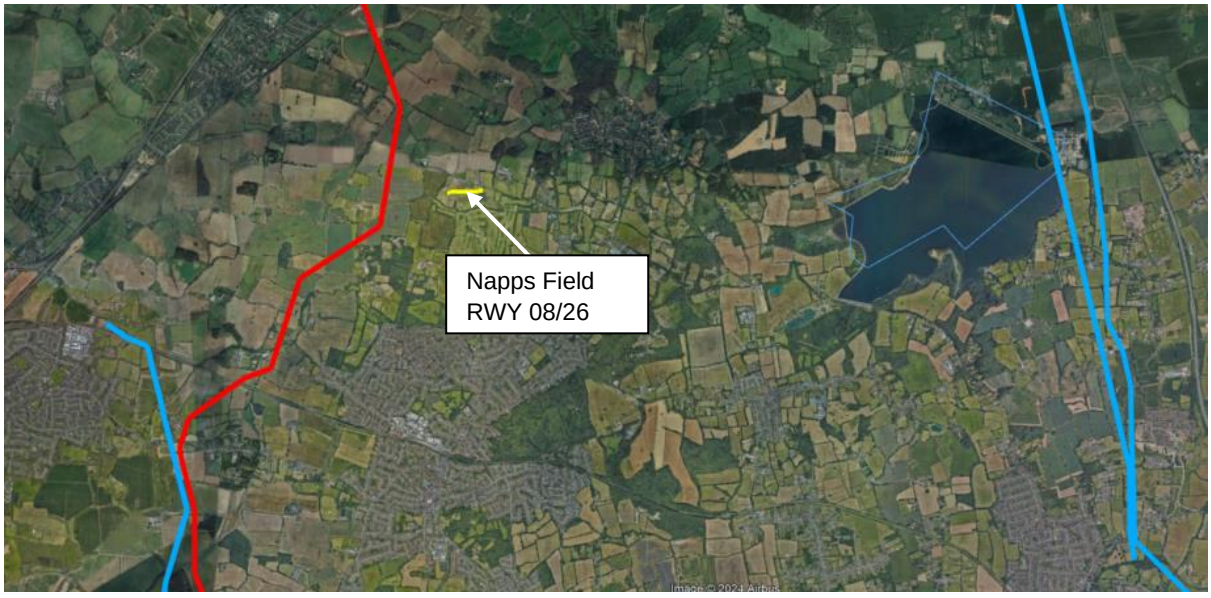


Figure 14: Proximity of existing (blue) / proposed (red) power line infrastructure to Napps Field aerodrome

The proposed power line (red) is located on the extended runway centreline at a distance of approximately 700m from the runway 08 threshold. This new obstruction may force an early turn for aircraft departing on runway 26 to the west to avoid overflying the line.

Aircraft arriving to land on runway 08 may also be required to adjust procedures to avoid overflying the line on final approach when approaching from the west. Aircraft would be required to overfly the infrastructure at low height when preparing to land or potentially adopt a track to the east of the lines making a low, late, oblique turn on to final approach. This could require further consideration as the short runway will limit a pilots' ability to bleed off speed if required to do so having retained hight to clear the infrastructure.

The terrain elevation of the power line route undulates as it tracks north past the aerodrome, changing between minimums of approximately 141ft AMSL and highs of approximately 194ft AMSL. This undulating nature may present additional challenges to pilots if required to pass over the infrastructure at low height. We discuss this point further in the conclusion.

4.14 Chase Farm

Latitude/Longitude: 51.593N 0.396E
Aerodrome elevation (AMSL): 170ft
Runway(s): 05/23 (grass) 300m x 20m (approximately)
Nature of aerodrome: understood to be a small single grass runway of just 300m in length with two hangars on site.
Existing power lines: 1.6km from RWY 05 threshold on 05/23 extended centreline (SW)
Proximity to proposal: 0.6km from RWY 05 threshold on 05/23 extended centreline (SW)
Local topography: proposed power line is at an increased terrain elevation (approximately 219ft AMSL) to that of the aerodrome (approximately 170ft AMSL)

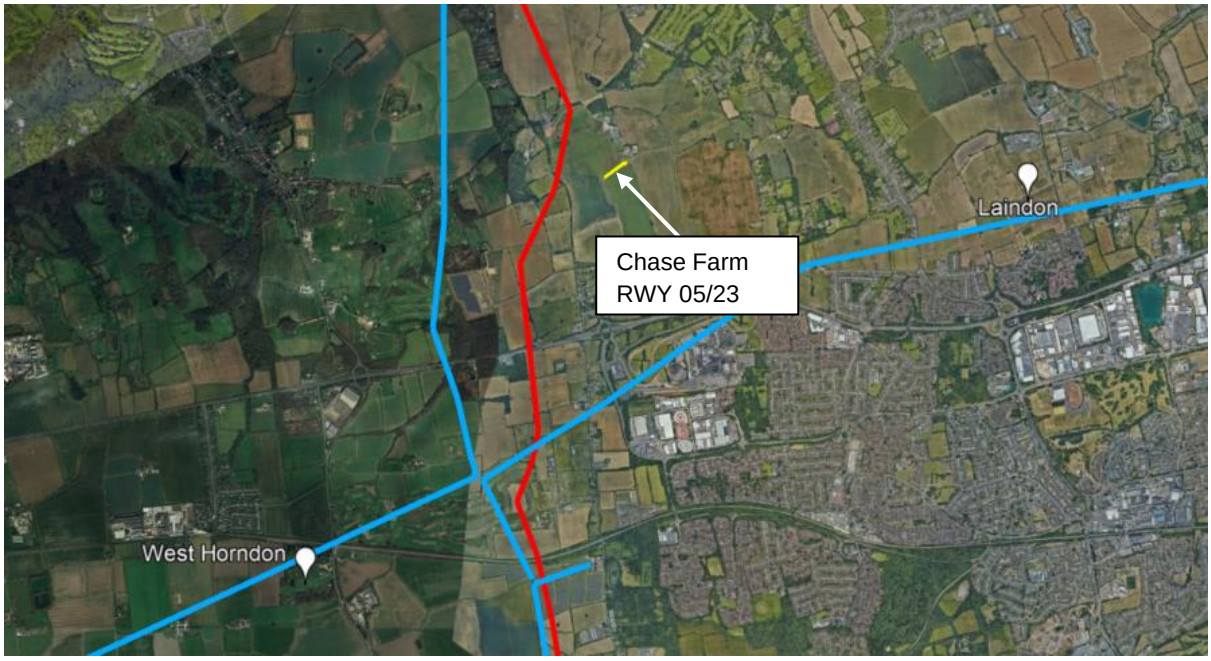


Figure 15: Proximity of existing (blue) / proposed (red) power line infrastructure to Chase Farm aerodrome. Nearby Laindon and West Horndon aerodromes indicated by white pin

The size of the aerodrome and crucially, the runway length will naturally limit the type of aircraft that utilise the aerodrome. An existing power line (blue) runs north-south, intersecting the extended runway centreline of 05/23, at a distance of 1.6km from the runway 05 threshold.

The proposed power line (red) is located at just 600m to the west of runway 05 threshold, and at an increased terrain elevation (approximately 219ft AMSL) to that of the aerodrome (approximately 170ft AMSL). This may force a change to current departure procedures from runway 23 as the new power line necessitates an early left turn to avoid overflying the lines at low level.

The new power line would also affect arrivals onto runway 05, as aircraft would be required to overfly the infrastructure at low height when preparing to land. This will require careful consideration as the short runway will limit a pilots' ability to bleed off speed if required to do so, having retained hight to clear the infrastructure. Alternatively, pilots may be forced to adopt a track to the east of the lines making a low, late, oblique turn on to final approach this will also require careful power and speed management at low height and airspeed.

The proposed power line and relative proximity of Laindon, Chase Farm and West Horndon aerodromes may create additional compound effect on each other. Perhaps because of the need to change circuit tracks over the ground for example. This could bring aircraft into closer proximity with each other than at present. This possibility should be carefully assessed.

4.15 Laindon

Latitude/Longitude: 51.593N 0.445E
Aerodrome elevation (AMSL): 90ft
Runway(s): 08/26 (grass) 475m x 18m
Nature of aerodrome: Single grass runway operation which we understand facilitates mainly microlight aircraft and has hangarage/parking provisions. Note the location of Chase Farm aerodrome to the west of the site.
Existing power lines: 150m south of RWY 08/26 midpoint; 1.3km from RWY 08 threshold on 08/26 extended centreline (WSW)
Proximity to proposal: 4km from RWY 08 threshold on 08/26 extended centreline (WSW)
Local topography: No observations

Figure 16: Proximity of existing (blue) / proposed (red) power line infrastructure to Laindon aerodrome. Nearby West Horndon and Chase Farm aerodromes indicated by white pins.

Existing power line infrastructure (blue) runs parallel with the runway to the south, at approximately 150m distance from the runway midpoint, tracking east-west. We understand that circuits are flown to the north of the aerodrome at Laindon, presumably due to the existing power line 150m to the south.

The proposed power line (red) intersects the extended centreline of runway 08/26, to the west of the aerodrome at approximately 4km distance from the 08 threshold.

The proposed power line and relative proximity of Laindon, Chase Farm and West Horndon aerodromes may create additional compound effect on each other. Perhaps as a result of the need to change circuit tracks over the ground for example. This could bring aircraft in to closer proximity with each other than at present. This possibility should be carefully assessed.

4.16 West Horndon (Barnards Farm)

Latitude/Longitude: 51.564N 0.354E
Aerodrome elevation (AMSL): 30ft
Runway(s): 06/24 (grass) 450m x 20m
Nature of aerodrome: understood to be a single grass runway operation. There is limited information available as to the type and frequency of aviation activity.
Existing power lines: 200m from RWY 06/24 midpoint (N); 1.6km from RWY 24 threshold on 06/24 extended centreline (ENE)
Proximity to proposal: 1.7km from RWY 24 threshold on 06/24 extended centreline (ENE)
Local topography: difference in terrain elevation between RWY 24 threshold (29ft AMSL) and proposed pylon line (118ft AMSL) as it intersects on the extended centreline for 06/24 to the east

Figure 17: Proximity of existing (blue) / proposed (red) power line infrastructure to West Horndon aerodrome. Nearby Chase Farm and Laindon aerodromes indicated by white pins.

The aerodrome is located with existing power lines (blue), running approximately east-west at 200m from runway midpoint to the north of the aerodrome, and north-south at approximately 1.6km from the threshold of runway 24 on the extended centreline of 06/24.

The proposed power line (red) is slightly further east of the aerodrome than the existing line at 1.7km from the threshold of runway 24 on the extended centreline of 06/24.

The terrain elevation at the westerly runway 24 threshold is 29ft AMSL. The existing power line infrastructure (blue) sits at 85ft AMSL on the extended centreline of 06/24 at a distance of 1.6km from the 24 threshold. The proposed power line (red) is located on higher terrain than this at 124ft AMSL on the extended centreline for 06/24 at a distance of 1.7km from the 24 threshold, presenting an increase in obstacle height for operators at the aerodrome. This difference in height between the runway threshold, and the power line infrastructure to the east of the site, may increase the impact to aircraft on approach to runway 24 as they will be required to overfly the lines on a straight in approach, maintaining adequate height to do so. This could result in speed management challenges to pilots later on approach.

Similarly, aircraft departing runway 06 to the east would have to overfly an additional line to the existing one.

The proposed power line and relative proximity of Laindon, Chase Farm and West Horndon aerodromes may create additional compound effect on each other. Perhaps because of the need to change circuit tracks over the ground for example. This could bring aircraft into closer proximity with each other than at present. This possibility should be carefully assessed.

4.17 Thurrock

Latitude/Longitude: 51.539N 0.373E
Aerodrome elevation (AMSL): 30ft
Runway(s): 07/25 (tarmac) 700m x 10m
07G/25G (grass) 650m x 30m
Nature of aerodrome: dual runway operation, with resident aircraft, maintenance facilities and fuel provision. Visiting aircraft are also welcomed.
Existing power lines: 0.8km from RWY 25 threshold on 07/25 extended centreline (ENE); 2.5km from RWY 07 threshold on 07/25 extended centreline (WSW)
Proximity to proposal: 1.2km from RWY 25 threshold on 07/25 extended centreline (ENE)
Local topography: difference in terrain elevation between the threshold of runway 25 (approximately 26ft AMSL) and the proposed power line (approximately 95ft AMSL) as its intersects the extended centreline on 07/25 to the east.

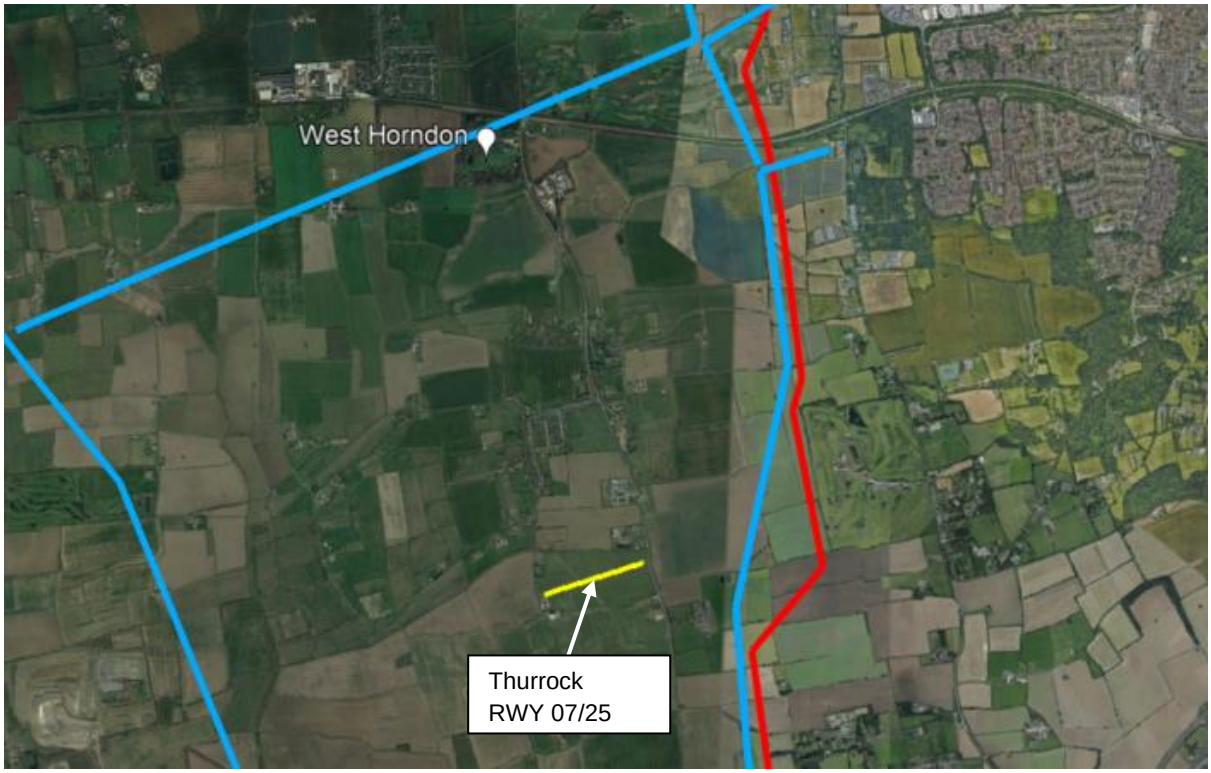


Figure 18: Proximity of existing (blue) / proposed (red) power line infrastructure to Thurrock aerodrome. Nearby West Horndon aerodrome indicated by white pins.

Multiple power line infrastructure already exist in proximity to Thurrock aerodrome – the closest (blue) is located to the east, 0.8km from the runway 25 threshold on the extended centreline of 07/25. To the west, on the extended centreline for 07/25, power line infrastructure runs north to south (blue) at 2.5km from the 27 threshold.

The proposed new power line (red) is located approximately 1.2km to the east of runway 25 threshold on the extended centreline for 07/25.

There is a difference in terrain elevation between the threshold of runway 25 (approximately 26ft AMSL) and the proposed power line (approximately 95ft AMSL) where it intersects with the extended centreline of 07/25 to the east. This may impact aircraft on approach to runway

25 as they will be required to overfly the lines on a straight in approach, whilst maintaining adequate height. This could result in speed management challenges for pilots on final approach to land. We note that there is existing power line infrastructure (blue) located closer to the runway 25 threshold at a terrain elevation of 69ft AMSL, slightly lower than that of the proposed new infrastructure.

Aircraft departing from runway 07 to the east will experience a similar height clearance challenge as they cross the existing and new power line infrastructure immediately after departure.

5. Conclusion

The aim of our assessment and summary is to provide early horizon scanning to National Grid and ASA, and to assist with the understanding of the potential impact of the scheme on aerodromes.

Our assessment of this important national scheme has highlighted that there is potential for impact, in varying degrees on aerodromes in proximity to the proposed Norwich to Tilbury route alignment.

Each aerodrome has its own interests and focus. Each sit within its own unique environment. The topography, runway orientation, aviation operation and any existing obstructions influence how the scheme might impact upon them – combined of course with the proximity and alignment of the proposed power line route. Each aerodrome owner/operator will have nuanced concerns specific to their individual site. Where sites are in proximity to other aerodromes, impact may be more complex as one site may be forced to make changes that act upon the other aerodrome.

Of particular importance are the following non exhaustive list of considerations.

- A full understanding of the type of aviation activity at the aerodrome is required. For example, sites at which flying training takes place may require greater safety margins for their operation. Where gliding operations take place, consideration will need to be made for the associated activity of winch and aerotow launches, and the nature of non-powered aircraft including emergency conditions
- A full understanding of the proximity of the aerodrome and the orientation of the runway in relation to the proposal and how this might impact aviation safety will be required.
- Consideration of the local topography. For example, if the ground elevation at the pylon site is higher than that of the aerodrome, the impact of the obstruction may be increased.
- The proximity of existing obstructions, including the creation of ‘wirescape’ and confusing appearance for pilots (EN-5) operating in the vicinity of aerodromes needs careful consideration.
- In situations whereby proposed power line infrastructure will force changes to approach and departure procedures, careful change management and consideration

of the full impact will need to be understood. Any changes may also have second order effects on nearby aerodromes and their published procedures.

- Special consideration will be required for aerodromes where proposed new power line infrastructure has considerable impact on height clearance for approach and departure and may preclude the aerodrome from operating at all.
- Secondary effects of the scheme should be understood. For example, could aircraft be forced into a smaller operating area between other power line infrastructure? Are potential changes to circuit height, orientation and track over the ground going to impact operations and/or safety at the site?
- Careful consideration is required where the proposed scheme has altered the environment to the extent that previously held emergency landing options are now changed or not viable.

We recommend that ASA share their aviation assessment criteria with the aerodromes at the earliest opportunity so that these stakeholders can make informed comments on the potential impact of the scheme. The aerodrome operator/owner is the local expert of their site, and their views should be received and understood by the relevant stakeholders associated with this important national infrastructure project.

Appendix 6: NGC Confirmation of Objection

Letter sent by email to contact@n-t.nationalgrid.com

[redacted]

2nd March 2025

Norwich to Tilbury Project
Targeted Consultation Response

Sir

I represent Norfolk Gliding Club based at Tibenham airfield and we confirm our objection to the decision by National Grid to route the new pylons across the end of one of our runways on the grounds of aviation safety and longer term viability of the club

The Civil Aviation Authority (CAA) state that Norfolk Gliding Club as the airfield operator holds authority on safety with regard to obstacles, yet National Grid opts for its external consultant's opinions over the more experienced and local expertise.

Furthermore, the CAA's Airfield Advisory Team have stated that in their view the proposed route represents an unacceptable increased safety risk to the operations at Tibenham airfield

Despite this advice from the CAA together with support from the General Aviation Awareness Council (GAAC), the British Gliding Association (BGA), Sport England and other national organizations highlighting the unnecessary risks to aviation safety, you appear to be moving forward with this dangerous route.

I have been given to understand that this particular issue has also been raised within the Airfields Working Group of the All-Party Parliamentary Group - Aviation

The targeted consultation showed that the route would be re-aligned to protect honey bees and ancient oaks, so why not protect the lives of pilots flying from Tibenham as well?

During this targeted consultation Simon Gill indicated that National Grid were going to meet with us but as yet there has been no indication as to when that might be.

Attached with this is a copy of the original objection submitted last July

Yours faithfully
A M Griffiths
Safeguarding Officer
Norfolk Gliding Club

Appendix 7: CAA's AAT Position Statement

Simon Gill
National Grid

Airfield Advisory Team
UK Civil Aviation Authority
Professional Services Group

Aviation House
Beehive Ring Road
Crawley
West Sussex RH6 0YR
United Kingdom

T +44 (0) 330 022 4401
F +44 (0) 1293 573992
E aat@caa.co.uk

20/03/2025

CAA, AAT Position statement: National Grid – Great Grid Update

Dear Simon,

As you know, the Airfield Advisory Team will be disbanded at the end of March after four and a half years of providing guidance and support to government, general aviation aerodromes, local planning authorities and other stakeholders on a wide range of matters.

It has certainly been a pleasure to have provided support and input to National grid in relation to the Great Grid Update, and how proposed new line routes could adversely impact established aviation systems.

Whilst this position statement, focusses predominantly on the Norwich to Tilbury aspect of the wider GGU scheme, the sentiment can be extrapolated for other proposed routes. The purpose of this position statement is to centralise our thoughts prior to disengagement at the end of March, when the AAT will cease to function.

From our earliest engagement, we have provided signal that when considering proposed power line routing, it is not the aircraft performance envelope that is the limiting factor. Therefore, any intimation that a specific type can manoeuvre to avoid such vertical obstructions should be disregarded.

Instead, we propose that many factors come in to play when considering the extent of impact that proposed new line routes could have on established aviation systems. On 26th July 2024, we sent you an independent assessment of potential impact to a number of aerodromes within a defined corridor along the Norwich to Tilbury Route.

See excerpt from the document which set out our assessment criteria[1]

"As a baseline for assessment, the AAT has considered aerodromes within a 10km-wide corridor, centred on the proposed power line. The AAT has identified 17 aerodromes within this corridor along the length of this proposal. At this stage, we have focussed our points on the practicalities of how this scheme may impact these aerodromes and perhaps where further, more technical work could be required.

The aerodromes assessed represent the diversity of GA aerodrome sites across the network. They include large gliding sites, small commercially minded training operations, private sites and a hospital helipad.

For each aerodrome, the following has been considered as part of a desktop assessment:

Nature of aerodrome operation

The nature of an aerodrome site including traffic blend, aircraft types and movement numbers may be a key consideration for assessment.

Existing power lines

Existing power infrastructure in proximity to aerodrome sites may represent an important assessment vector. For example, do they demonstrate a level of impact at present, is this tolerable? Could additional infrastructure associated with the proposed scheme compound any existing challenges or create new ones?

Proximity of the aerodrome to the proposal

The proximity of an aerodrome site to the proposed scheme may have an important bearing on the extent of any impact to the aerodrome operation. Aerodromes located in close proximity to the proposed scheme may be impacted to a greater extent than those further away. The extent of any impact could also be influenced further by other factors.

Local topography

Consideration of aerodrome elevation and wider local topography may be relevant when establishing the extent of any potential impact. For example, where the proposed infrastructure is sited on terrain of higher elevation than that of an aerodrome, specific or compound impact may arise. This consideration should extend out to a suitable range, taking into account runway heading and associated flight tracks over the ground including circuit training where applicable, and the nuanced nature of glider launch and recovery where applicable.

Due to the number of aerodromes along the scheme's proposed route and the complexity of assessing multiple sites, each with their own nuanced operation, we have

[1] UK CAA AAT Response to consultation -26th July 2024 – sent to National Grid

adopted a high level, 'say what we see' approach, accompanied by technical information as required. Our intention is to offer an objective and accessible summary of potential impacts to aerodromes along the route of the proposed scheme."

As stated in our conclusion in our July 2024 document, our intention was to provide early horizon scanning opportunities to National Grid and their consultants, Alan Stratford and Associates and to assist with the understanding of the potential impact of the scheme.

During a stakeholder meeting on 23rd January 2025, I was pleased to learn that since our discussions in 2024 and the submission of our assessment, some modifications to the proposed line route have been made. I also thought that the suggestion of working toward a statement of common ground was very beneficial.

As of today, it seems that a much clearer picture is emerging in relation to how the proposed Norwich to Tilbury line route is expected to impact aerodromes. Of the 17 aerodromes we assessed, the majority seem to be low impact. There are however 3 aerodrome sites which are likely to be impacted to such an extent that further consideration is required to avoid the expected level of detrimental impact to them. These were discussed in some detail during the stakeholder meeting of 23rd January 2025. They are Tibenham, Priory Farm and Raydon Wings. I understand that at a recent targeted consultation, National Grid advised both Tibenham and Priory Farm that National Grid would engage more directly for further discussions. It would be beneficial to know if this has occurred yet and what the outcomes are.

To some extent, the impacts to Tibenham and Priory farm are interlinked and complex, owing to their close proximity to each other. Tibenham is an important gliding site. I was concerned by suggestions that glider tow aircraft had the performance to climb clear of the proposed powerline infrastructure. Indeed, this suggestion harked back to an earlier time in these discussions when aircraft performance was cited as the cure to any perceived obstacle issue that was identified, as referred to earlier. The reality is that the performance of both glider tow aircraft and gliders, are variable and based on many factors including meteorological conditions such as wind vectors, air temperature and air pressure, gross weight of tow aircraft including pilot and of course the glider and pilot which is being towed. Furthermore, gliders returning to Tibenham will face challenges in clearing the proposed line for a variety of reasons. Energy management height, speed and range from Tibenham are of course variable and will be impacted by other factors as described above. This has the potential to stop competition flying at Tibenham completely.

Priory Farm located 1km to the west of Tibenham. The mid point of Priory Farm's runway is just 800m East of the proposed line route. As described in our July 2024 assessment, this will result in pilots including students directly overflying the lines at

low height and airspeed at multiple points within their airborne circuit pattern. The circuit pattern cannot be flipped to easterly directions because of Tibenham's proximity.

Of Raydon wings, I understand that there has been some adjustment to the proposed line route in proximity to the aerodrome. At present, I understand that owners of the site face an uncertain future because of the proposed line route. Raydon wings operate and accommodate vintage aircraft types such as Spitfires. This brings its own unique challenges. Pilots of such types fly a military style circuit pattern which is ovular in shape, rather than a conventional rectangular pattern. This is important for several reasons including the inherent reduced cockpit visibility of such types, energy management in the descent (height and speed). Additionally, such types tend to exhibit greater form drag (aerodynamic) tendency, making optimised approaches important. Part of this is flying the penultimate leg of the approach (base leg) into wind as they do today. At present, the aerodrome enables aerobatics and flight training and is looking to attract approved training organisations. The ability for the site to continue to operate as it does today, as well as to adapt and change over time, (a key requirement set out in the NPPF and General Aviation Strategy), is not assured. Part of the issue seems to be the close proximity of the sealing end compound of the proposed scheme, and related pylons to the aerodrome, just 300m. We understand that the terrain is slightly lower to the north of the old railway line. An alternative location for the sealing end compound might offer greater vertical clearances by moving infrastructure away from sensitive aviation factors. Further discussion with the aerodrome will be most valuable in finding a solution.

As this most important scheme progresses, it will be crucial that aerodrome safeguarding consideration is adequately understood by those considering final route alignment and those that provide aviation guidance. Both licensed and unlicensed general aviation aerodromes are encouraged to take steps to ensure that their sites are not impacted by adverse development. A misconception is that unlicensed sites do not require such consideration.

The fact is that the vast majority of general aviation aerodromes are unlicensed and are not officially safeguarded. This simply means they are not afforded a 'call in' opportunity in the event that a development they have raised concerns about, is permitted.

General aviation aerodromes may be licensed if they wish to accommodate certain movements. These might include some types of training or other level of service provision associated with their wider architecture, such as a higher number of more sophisticated / complex movements.

It should not be assumed that such aerodromes have not already achieved adequate levels of safeguarding. Or, that any changes to their environment caused by development, will not adversely impact their operation.

"The common aim of all safeguarding is to assess the implications of any development being proposed within the vicinity of an established aerodrome to ensure, as far as practicable, that the aerodrome and its surrounding airspace is not adversely impacted by the proposal, thus ensuring the continued safety of aircraft operating at the location."[2]

In summary, it seems that a great deal has been achieved in identifying aspects of the Norwich to Tilbury route which are both likely and less likely to impact established aerodromes. It will be necessary to work closely with aerodrome owners and operators to ensure that these concerns are well understood to enable cost effective mitigation measures to be identified swiftly. Now that a clearer picture is emerging of the expected impact to these aerodromes, I strongly recommend swift engagement, as stated in previous commentary.

Should you wish to discuss this further, please don't hesitate to contact me.

Kind Regards

James Head
Airfield Advisory Team Principal

Civil Aviation Authority

Civil Aviation Authority
Aviation House
Gatwick Airport South
West Sussex RH6 0YR
United Kingdom

CC to the following recipients

Ann Bartaby – GAAC
Graham Gunby – Suffolk Council
Will Curtis – London Oxford Airport
Tony Curtis – Tibenham Aerodrome
John Gilder

[2] Safeguarding Scope – CAP 738 Safeguarding of Aerodromes

Appendix 8: Eddowes Aviation Safety Limited Experience

Eddowes Aviation Safety Limited is a specialist aviation safety and risk assessment consultancy that was established in 2012 by Dr Mark Eddowes. Mark joined the safety and risk consultancy of AEA Technology in 1990, initially working in the field of nuclear and major industrial hazard safety analysis. He first became involved with aviation-related safety assessment in 1993, looking at aircraft crash risk in the vicinity of airports, a potentially important external hazard in industrial and nuclear safety analysis. Subsequently, at a time that the aviation sector was seeking to move away from regulation based on prescriptive standards to more objectives-based safety management, he began applying risk analysis techniques to aerodrome operational safety assessment. That work then led to his involvement in aerodrome safeguarding in 2002, supporting the development of a bespoke approach to safeguarding at London City Airport, taking account of the unique obstacle environment in which it is located. Subsequently he was responsible for the development of another bespoke safeguarding regime for Gibraltar Airport, again taking account of its unique obstacle environment.

He now has over thirty year's experience internationally of aviation-related safety assessment, covering three primary areas: crash risk assessment; airport operational safety assessment and safeguarding. That experience includes previous glider airfield safeguarding assessments.

Appendix 9: Development of a Glider Airfield Physical Safeguarding Model

A9.1: BACKGROUND TO AIRFIELD PHYSICAL SAFEGUARDING

Licensed aerodromes employed for commercial air transport operations are subject to safeguarding in accordance with the standards and recommendations of the International Civil Aviation Organisation (ICAO) [A9.1], adopted in the UK in accordance with Civil Aviation Publication (CAP) 168 [A9.2]. These standards identify the volume of airspace in the vicinity of aerodromes that should normally be kept free of obstructions to maintain the safety and efficiency of operations. The specifications vary according to the types of aircraft and operation concerned and primarily seek to preserve airspace required for take-off, landing and circling prior to landing. ICAO standards also make provision for operational safety for reasonably foreseeable non-standard operations and fault scenarios.

There are no equivalent specifications for glider airfields and adherence to them is not mandatory at unlicensed aerodromes more generally. Nevertheless, it is recognised that safeguarding of these facilities is appropriate. In the case of glider airfields, safeguarding should take account of the specific characteristics of glider operations and seek to maintain the amenity provided by them, as well as maintaining appropriate safety margins. The British Gliding Association encourages gliding clubs to safeguard their operations but the guidance they provide focuses on the outline process rather than the detail of technical specifications for protected airspace. A safeguarding plan for Tibenham has been developed comprising two circular zones, one of 5km radius and a second of 13km radius, generally consistent with BGA guidance. Engine failure after take-off during tow launches and the provision of safe forced landing areas and undershoot safety areas are important considerations. It is noted further that gliding clubs in the UK provide training for new glider pilots. This means that there will be instruction taking place, involving inexperienced “early solo” pilots operating in the vicinity of the gliding site. These pilots may be as young as 14 years old. Attention therefore needs to be given to providing a safe training environment, in accordance with CAP793 on safe operating practices at unlicensed aerodromes [A9.3]. In that context, CAP 793 states that aerodrome dimensions and operating practices should be appropriate and proportionate to the private activity taking place and goes on to state that where flying training is taking place additional safety
margins should be considered.

Stimulated by a proposal to reinforce the high voltage power network in East Anglia, involving an overhead line and associated pylons nominally at around 55 m above ground level (AGL)[A1.1] less than two kilometres from the operational area of Tibenham Airfield from where the Norfolk Gliding Club operate, this document seeks to develop a safeguarding model that takes account of the characteristics of mixed glider and powered aircraft airfield operations. In the first instance, drawing on the basic principles that underpin the safeguarding specifications for licensed aerodromes serving powered aircraft, a specification for safeguarding glider airfields that preserves safety and amenity is developed. Against that background, the impacts of the proposed electricity pylon route on operations at Tibenham Airfield are assessed. This review also makes reference to the National Grid Guidance on Consideration of Aerodromes for Overhead Line Development [A9.4], the Airport Development Advisory Fund review document on glider airfield safeguarding [A9.5] and the Environmental Statement Appendix 15.2 Review of Aviation Impact [A9.6] supporting the DCO Application.

A1.1 See Document: 6.15.A2 Environmental Statement Appendix 15.2 - Review of Aviation Impact para 15.3.26. Given variation in ground level along the route, the precise height of pylons above ground level and above mean sea level varies slightly. See Table A15.2.11.

A9.2: GLIDER AIRFIELD SAFEGUARDING MODEL

A9.2.1: Outline Approach

The general features of a safeguarding model appropriate for the protection of operations at glider airfields has been developed, referring first to the approach to safeguarding adopted more generally for safeguarding aerodromes and then considering more specifically the nature of operations at glider airfields, including Tibenham Airfield. It is noted that glider airfields are not necessarily limited to serving gliders only. Many glider airfields provide tow launch operations and some, including Tibenham Airfield, allow use by visiting pilots in light powered aircraft. Training in both gliding and powered aircraft currently takes place at Tibenham. The safeguarding model development therefore begins by defining the safeguarding requirements for these powered aircraft operations, referring to CAP 168 standards in the first instance as a basic minimum. That basic approach is then refined by reference to the characteristics of light aircraft operations at Tibenham and further developed by consideration of glider operations. Consideration is then given to non-standard and reasonably foreseeable fault conditions.

A9.2.2: Light Aircraft Operational Requirements

CAP 168 standards identify a series of obstacle limitation surfaces (OLS) for the preservation of airspace in the vicinity of airfields, the dimensions of which vary according to the type of operations involved. The specifications are based on a runway reference code system where the reference code reflects the runway length which is generally indicative of the size of aircraft that a runway can serve and where larger volumes of airspace are safeguarded for the operation of larger aircraft. Given the length of its longest runway of around 1,500 m, Tibenham Airfield is nominally a Code 3 aerodrome (1,200-1,800m). However, that classification may reflect historical rather than current operations which are expected typically to involve smaller aircraft that can operate at shorter runways, for example Code 1 runways with a length of up to 800m. As a starting point, the CAP 168 OLS specifications for a Code 1 non-instrument runway are therefore considered.

The limit of the safeguarded area for a Code 1 runway is defined by the outer edge of the conical surface, located beyond the limit of the inner horizontal surface. The inner horizontal surface extends to a radial distance of 2,000m from the aerodrome reference point (ARP) at 45 m above a defined reference elevation, normally the height of the lowest runway threshold, and the conical surface rises with a slope of 5% beyond there to a height of 35 m above the inner horizontal surface, reaching a radial distance of 2,700m. For a Code 3 runway, the radial limits of the inner horizontal and conical surfaces are 4,000m and 6,100m, respectively, and would accommodate circling by larger aircraft with greater turn radii. The Code 1 runway inner horizontal surface and conical surface limits for each of the three runways at Tibenham, in relation to the proposed pylon route, are shown in Figure A9.1. Pylons 49 to 57 are within this basic safeguarded area.

The basic OLS were established immediately after the Second World War, primarily with reference to operational experience up to that time. As noted earlier, the inner horizontal and conical surfaces were intended to provide for visual circling manoeuvring prior to landing, based on the rather simplistic notion of circling centred on a single runway. In practice, aircraft do not simply circle about the runway centres but fly defined circuits at airfields. The circuits defined for operations at Tibenham extend slightly beyond the limits of the OLS in some areas, as shown in Figure A9.1.

It should be noted further that flights must comply with the Standardised European Rules of the Air, including visual flight rules under SERA.5005 which requires that:

(f) Except when necessary for take-off or landing, or except by permission from the competent authority, a VFR flight shall not be flown:

(1) over the congested areas of cities, towns or settlements or over an open-air assembly of persons at a height less than 300 m (1000 ft) above the highest obstacle within a radius of 600 m from the aircraft;

(2) elsewhere than as specified in (1), at a height less than 150 m (500 ft) above the ground or water, or 150 m (500 ft) above the highest obstacle within a radius of 150 m (500 ft) from the aircraft.

Whilst circuits may be flown in support of take-off and landing, circuit flying is not exclusively restricted to take-off and landing manoeuvres but may be flown routinely for other reasons. Accordingly, to avoid conflict with circuit flying, safeguarding restrictions need to be applied out to a distance of at least 150 m beyond the defined circuits at an aerodrome, with perhaps an additional margin to allow for the accuracy with which circuits can be flown in practice. New structures within that area can be expected to lead to operational restriction in respect of the minimum height at which circuit flying can be undertaken and hence to some loss of amenity. The extent to which any loss of amenity would occur in practice will depend on the existing obstacle environment. Where there are existing obstacles that already place restrictions on the minimum circuit height, new obstacles of a similar height might be accommodated without imposing additional restrictions of operations.

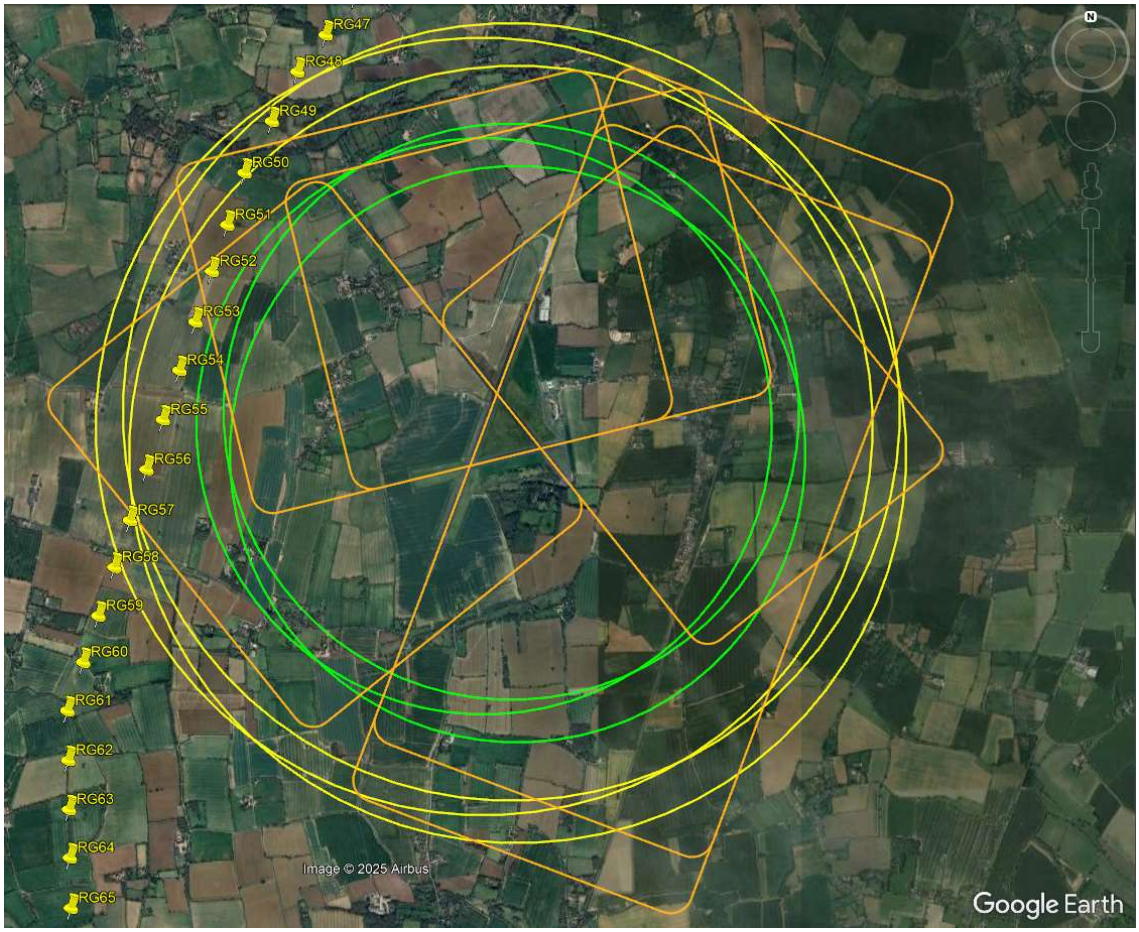
The CAP 168 OLS include a take-off climb surface and approach surface for the safeguarding of take-off and landing operations. These are funnel-shaped surfaces, located beyond the runway ends, spreading out laterally and rising upwards with increasing distance from the runway, as shown in Figure A9.2. Operational experience indicates that these specifications adequately protect normal take-off and landing operations of light aircraft: i.e. the funnel starting width and divergence encompasses the normal spread of flightpaths and the 5% slope provides safe vertical clearance. The standard minimum approach angle of 3° corresponds to a 5.24% slope, slightly in excess of the approach surface 5% slope. Given the vertical clearance margin provided at threshold, using an aiming point some distance beyond it, that slightly greater slope is understood to ensure an adequate vertical clearance throughout the approach.

The surface origins are 30 m beyond the end of take-off run and before the landing threshold for the take-off climb and approach surfaces, respectively. It is worth noting that the runway lengths at Tibenham and at some other airfields were intended to serve larger aircraft than they currently serve. Accordingly, the physical runway ends need not correspond to these operational reference points. Possible displacements of the practical operational ends of runways may therefore need to be taken into account when defining the locations of the take-off climb and approach surfaces. There may be some safety benefit from operating in a manner in which these reference points are displaced well inside the airfield boundary, provided that the required take-off distances and landing distances are maintained.

For take-off, the extent to which the 5% slope specification provides for a sufficient vertical clearance margin will depend on the climb performance of the aircraft that the runway serves. It is generally expected to be adequate for normal light aircraft operation but some further consideration of its adequacy for tow launch operations at glider airfields is required and is addressed later in this document. The 1,600 m length and 1 in 20 slope of the Code 1 runway surfaces mean that they terminate at a height of 80 m (262 ft) only which would seem somewhat premature. Beyond that limit some safeguarding of airspace would be provided by the inner horizontal surface under CAP 168 provisions, though the adequacy of those

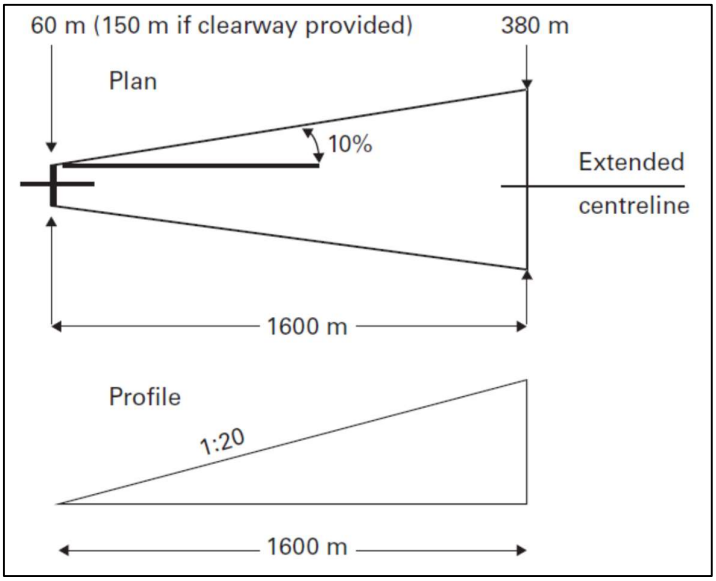
provisions in the context of the 500 ft rule and the transition between en-route operations where it applies and take-off and landing operations which are exempt may require further case-by-case consideration.

Figure A9.1: Code 1 Runway Inner Horizontal and Conical Surfaces and Defined Circuits for Tibenham Runways



Green lines: Radial limits of inner horizontal surfaces
Yellow lines: Radial limits of conical surfaces
Orange lines: Circuits

Figure A9.2 Code 1 runway take-off climb surface (CAP168 Figure 4.3)



The key findings concerning safeguarding requirements determined from the above review of CAP 168 OLS and light aircraft operations may be summarised as follows:

1. The adoption of CAP 168 Code 1 runway OLS provisions associated with the take-off climb and approach surfaces can normally be expected to provide adequate safeguarding of normal take-off and landing operations of light aircraft.
2. According to the circuit flying operations undertaken at an aerodrome, the CAP 168 Code 1 runway OLS provisions associated with the inner horizontal and conical surfaces may not provide effective protection of the airspace in use. Given the 500 ft rule requirements, safeguarding out to a wider radial distance from the airfield and to a lower level than provided by those CAP 168 OLS may be required to avoid conflict with circuit flying operations that might otherwise require an increase in minimum circuit height and an associated loss of amenity.
3. The defined circuits at Tibenham extend beyond the limits of the CAP 168 Code 1 runway OLS, across the line of the proposed pylons. The pylons are therefore a relevant safeguarding consideration.

A9.2.3: Glider Operational Requirements

Take-off operations at glider airfields, including Tibenham, comprise both winch and tow launches of unpowered gliders and self-launching powered glider take-off operations. Winch launches can be expected to involve a relatively steep climb at around 45° that will be adequately protected by the slope of the take-off climb surface identified in the previous section. One source [A9.7] indicates that around 90% of winch launches reach at least 2,000 ft whereas others indicate that lower heights are typically attained that are still in excess of 1,000 ft. It is understood that winch launches to 3,000 ft are available at Tibenham. On that basis, it may be concluded that winch launch operations will be adequately safeguarded by CAP 168 Code 1 runway OLS, whilst noting the caveat concerning the point at which the surface terminates identified in the previous section.

The climb performance of tow launches will be dependent upon the characteristics of the tug aircraft and the glider being launched which will vary between glider airfields and launches. Similar considerations apply to self-launching gliders due to climb performance differences. Climb performance will also be dependent upon weather conditions. Reliable climb rate data

for tow operations have not been identified as part of this assessment. Performance specifications for powered aircraft that are employed in tow operations can be found, for example for the Pawnee, but these relate to performance without a towed glider. For the Pawnee, best rate of climb speeds (kts or mph) and climb rates (ft/min) are available from which climb gradients in still air can be estimated. Values between 7% and 10% are derived for different versions of the aircraft. These optimum climb gradients are unlikely to be achieved in practice although climbs will typically be into a headwind wind which may compensate to some extent when considering climb gradients referenced against the ground. Nevertheless, climb rates for a Pawnee when towing gliders can be expected often to be lower than those identified above. Furthermore, the Pawnee is a relatively powerful and fuel hungry aircraft and less powerful and fuel-efficient aircraft may be preferred by some glider airfields which would lead to a requirement for lower safeguarding slopes for the take-off climb surface [A9.8]. The Norfolk Gliding Club use a Robin DR400 for aerotow launch operations. Aerotow launch tests of a mix of single and two seat gliders recently undertaken at Tibenham Runway 26 using a Robin DR400 on full power indicate that a safe vertical clearance margin with respect to the pylons would not be reliably achieved.

Whilst recognising some uncertainty in these estimates, it is concluded on that basis that the 5% slope of the CAP 168 code 1 runway take-off climb surface is unlikely to adequately safeguard all tow launch operations at Tibenham. Further airfield specific consideration of tug aircraft performance and the gliders to be launched is required to determine an appropriate surface slope to ensure adequate safeguarding of tow launch operations.

The width of the surface also requires some consideration, to determine if the 60 m take-off climb surface width at origin and 10% splay provide adequate safeguarding of the tow launch. Light aircraft of the type typically operating at code 1 runways will normally be code letter A with a wingspan up to 15 m. On that basis, the take-off climb surface provides a lateral margin of (60-15)/2 = 22.5 m either side of the runway at the surface origin which operational experience indicates provides adequate safeguarding, together with the 10% splay. Larger gliders have wingspan up to around 30 m, suggesting an increase in width at origin by (30-15) = 15 m may be required for the take-off climb surface to safeguard operations of these aircraft. In addition, it is reasonable to expect some lateral drift of the towed aircraft under cross wind conditions. Assuming a tow launch speed of around 70kts and a take-off cross wind limit of 8kts implies a vector of up to 11.4%. Further assuming tow rope and glider lengths of up to 60 m and 10 m respectively implies a glider lateral drift from the tow aircraft of 8 m, applicable either side of the runway extended centreline. On that basis, a required surface width at origin of around 90 m is identified. In addition, given the training activities that take place at Tibenham, there is a case for a wider splay than the standard 10%.

Turning finally to self-launching gliders, typical climb rates of 2 m/s or more at speeds of around 55kts are identified, giving a climb gradient of 7% which would be accommodated by the 5% slope of the Code 1 runway take-off climb surface. However, it is uncertain whether that slope would accommodate all motor gliders. For example, in the context of the proposal for a chicken farm at Rufforth Aerodrome which met that OLS requirement, the York Gliding Centre raised a safeguarding objection in that respect [A9.9], stating the following: *"Our club operates two motor gliders of its own and hosts a further eight owned by members. All of these have low climb rates and the probable outcome of this development would be an inability to safely use RWY23."* On the other hand, EASA sailplane rules [10] specify that *"for a powered sailplane the time for climb from leaving the ground up to 360 m above the field must not exceed four minutes."* That rate is equivalent to 295 ft/min, giving a climb gradient of 5.4%.

As noted earlier, the Code 1 runway take-off climb surface terminates at 80 m (262 ft), which would seem premature. Aerotow launches will typically continue up to 1,000 ft to 2,000 ft

which will require safeguarding. However, the provisions associated with the inner horizontal and conical surfaces would provide adequate safeguarding protection beyond that limit if CAP 168 OLS were to be adopted. Turns can be initiated during take-off which may provide scope for some obstacles in the nominally runway-aligned take-off area. However, BGA guidance on aerotows is that, for safety reasons, turns should not be initiated under 300 ft agl. Safeguarding by a runway-aligned surface up to the point that height is reached will be necessary and beyond that an unobstructed climb path will be required, though it need not necessarily be runway-aligned to the final height of the tow.

For approach, a glider can be expected to be able to make an approach to land at an angle above the 5% slope of the CAP 168 code 1 approach surface. As regards the surface width, attention is drawn to the relatively large wingspan of some gliders, compared with light aircraft typically operating at Code 1 runways. Accordingly, there may be some justification for adoption of a wider surface width than that for the Code 1 standard.

As noted earlier, it is important to recognise that gliders are also capable of much shallower descents during the approach to landing. In principle, gliders may make a final approach at a very shallow angle: some gliders can attain 1 in 60 glide slopes. In practice, however, gliders seeking to land at an airfield will normally not fly straight into a final approach from outside the airfield but will first reach it at a safe altitude, typically 500 ft, before joining a circuit and beginning the final approach. The initial approach to the airfield will be subject to the 500 ft rule and it is appropriate for that minimum clearance be maintained until aircraft are established at the airfield. This requirement is set out in the BGA letter of objection (Appendix 4 to the main report), and is included in the National Grid guidance document. Essentially, assuming that aircraft comply with the 500 ft rule until they reach the vicinity of the airfield and that the intermediate approach follows a 1 in 60 (1.67%) glide slope, safeguarding from the point where the 500 ft rule ceases to apply at that slope will be required to avoid conflict with useable airspace. If not, compliance with the 500 ft rule with respect to new obstacles above that limit will force aircraft to higher altitudes, representing a loss of amenity. It should be noted that the 1 in 60 glide slope applies in still air and that a shallower slope with respect to the ground will apply during downwind operations.

The key findings concerning safeguarding requirements determined from the above consideration of glider operations may be summarised as follows:

1. As a minimum, glider take-off and approach operations require safeguarding by take-off climb and approach surfaces with a slope no greater than 5%. According to the performance of aircraft operating at specific airfields, there may be a case for adopting a lower slope than the 5% slope of the Code 1 runway OLS.
2. There may be a case for adopting a wider funnel than identified for the Code 1 runway OLS, taking account of the relatively large wingspan of some gliders and the increased potential for lateral drift that may arise for glider operations.
3. The generic CAP 168 OLS provisions for safeguarding the wider operating environment around an aerodrome do not accommodate glider initial approach operations. Specific additional safeguarding measures that meet the requirements of the 500 ft rule are required to avoid operational restrictions and associated loss of amenity at glider airfields.

A9.3: NON-STANDARD OPERATIONS AND REASONABLY FORESEEABLE FAULT CONDITIONS

The potential threat to light aircraft and glider operations from non-standard operations and reasonably foreseeable faults, in particular engine failure after take-off and undershoot, is well established and has been considered in some detail during planning appeal inquires in recent years [A9.11, A9.12, A9.13]. Single-engine aircraft need space for a safe forced

landing in the event of engine failure which can occur at any time but is a particular concern during take-off. In the event of a tow plane engine failure there will be two aircraft seeking to land ahead, the tow plane and the glider, such that there will be a greater requirement of obstacle free space in that case. Any aircraft may undershoot a runway and hence development in the approach area before a runway threshold may compromise safety.

At Rufforth, the adverse impact on safety of a relatively small development close to the main take-off runway was identified [A9.11] as the sole reason for refusal by the local planning authority. The justification for refusal was provided by a quantitative risk assessment [A9.14] supported by empirical data derived from Air Accident Investigation Branch (AAIB) accident reports from which engine failure rates during take-off were derived. The assessment demonstrated that the increased risk to pilots associated with the proposal would be significant when judged against risk criteria identified by the Health and Safety Executive. Compromising landing undershoot was also found to contribute to an increase in risk. That decision was upheld at appeal [A9.12]. The key point in that case was that there is a relatively high probability of a forced landing or of a landing undershoot in the area along the flight path immediately beyond the runway end and hence the risk posed by obstructions in that area is similarly relatively high which provides justification for foregoing development. Further from the runway end and laterally from the flight path the risk is lower and the smaller safety benefit provided may not justify foregoing development.

Whilst UK safeguarding policy does not cover this important safety measure, it may be noted that Perth and Kinross Council provide supplementary planning guidance [A9.15] addressing this point as follows:

(b) Surface Obstructions

The options available to a pilot abandoning a take-off or landing are dependent in measure upon the unobstructed surface available to the aircraft. Surface obstructions such as fences, walls, ditches or buildings in areas close to airfields constitute real hazards and can dramatically undermine the safety of an airfield and its operations.

It will generally be most important that the area along the runway extended centreline relatively close to runway ends is kept free of obstacle to provide for safe forced landings in the event of engine failure during take-off. During the earlier stage of take-off there will be limited options for avoiding the need to land in that area. As the take-off continues and aircraft gain height, more options for forced landing will become available and it may be less critical that any specific area remains free of obstruction, provided there are other options. A potential problem may arise where there are already limited options more generally for safe forced landing and there is a proposal for development of a large area leading to a loss of a substantial proportion of the remaining obstacle free area. This was the case in respect of the motorway service area proposal at Warren Farm, located along circuit flight paths employed by aircraft operating at Denham Aerodrome. It was argued, again using a quantitative risk assessment approach [A9.16], that this proposal would have a significant impact on the safety of aircraft flying circuits at Denham Aerodrome, given the already congested land use in the area and the limited alternatives available for forced landing in the vicinity of the application site, an argument that was accepted by the inspector at the appeal inquiry.

Accordingly, wider consideration of safe forced landing area availability, beyond the immediate end of the runway may be appropriate. In the case of a tall structure such as the proposed overhead power line, the amount of land lost from potential use for safe forced landings will be substantial. When assessing the impact, it is necessary to consider the descent angle of the aircraft which for a light aircraft following engine failure is typically around 1 in 9 whilst, as indicated earlier, gliders have much shallower descent angles. Applying that simple mathematical rule [A9.17], a 60 m high overhead line would eliminate

land along its length up to a distance of up to 540 (60x9) m from it from potential use for safe forced landing, according to the aircraft starting height and direction with respect to the line. Some additional margin to allow for a pilot's preference to avoid potential conflict with the line will also be appropriate. This should be regarded as a potentially substantial impact on the safety of forced landings following engine failure.

From a review of light aircraft accidents between 2007 and 2012, 31 single engine light aircraft engine failures on take-off and 65 en-route failures have been identified. In five of those events, the available accident reports indicate that the forced landings were compromised by power lines. A further 13 incidents were reported during that six-year period not involving engine failure in which power lines in the vicinity of airfields appeared to be implicated to some extent, including lack of awareness and misjudgement. On that basis, it is evident that power lines in the vicinity of airfields can compromise the safety of light aircraft and glider operations.

Undershoot is another incident type for which obstacles along the approach path close to runway ends may have a potentially significant adverse impact on operational safety [A9.14] and for which some safeguarding provision may be appropriate. In some instances where space is available within an airfield, adequate provision may be provided by appropriate choice of landing threshold locations but, in other cases may need to extend outside the airfield boundary.

The extent to which any particular new obstacle may compromise the safety of light aircraft and glider operations will be dependent on local circumstances and will need to determined on a case-by-case basis.

A9.4: EXISTING OBSTACLES

Where there are existing obstacles in the vicinity of an airfield these are normally taken into account under ICAO Annex 14 and CAP 168 standards when considering safeguarding requirements. Existing obstacles that already preclude certain operations may allow new structures to be introduced without having any additional impact on future operations. For example, existing obstacles in the vicinity of circuits may already establish a minimum acceptable height for operations in order that the 500 ft rule is met. Under those circumstances, new structures of a comparable height to the existing obstacle may be acceptable. Similarly, where an existing obstacle along a take-off path has to be accommodated, for example by achievement of a minimum climb gradient to ensure a safe vertical clearance margin or by a turn to establish a safe lateral margin, new structures beyond that obstacle may be acceptable.

A9.5: SAFEGUARDING MODEL SUMMARY

The following features of the general safeguarding model are identified from the preceding operational review:

1. The adoption of CAP 168 Code 1 runway OLS provisions associated with the take-off climb and approach surfaces can normally be expected to provide adequate safeguarding of take-off and landing operations of light aircraft.
2. According to the circuit flying operations undertaken at an aerodrome, the CAP 168 Code 1 runway OLS provisions associated with the inner horizontal and conical surfaces may not provide effective protection of the airspace in use. Given the 500 ft rule requirements, safeguarding out to a wider radial distance from the airfield and to a lower level that provided by those CAP 168 OLS may be required to avoid conflict with

operations, potentially requiring an increase in minimum circuit height and an associated loss of amenity.

3. As a minimum, glider take-off and approach operations require safeguarding by take-off climb and approach surfaces with a slope no greater than 5%. According to the performance of aircraft operating at specific airfields, there may be a case for adopting a lower slope than the 5% slope of the Code 1 runway OLS.
4. There may be a case for adopting a wider funnel than identified for the Code 1 runway OLS, taking account of the relatively large wingspan of some gliders and the increased potential for lateral drift that may arise for glider operations though the current specification appears adequate for most light aircraft operations. Taking account of the training activities that take place at Tibenham, there is a potential case for adopting a wider splay in the funnel than the standard 10%.
5. The general CAP 168 OLS provisions for safeguarding the wider operating environment around an aerodrome do not accommodate glider initial approach operations. Specific additional safeguarding measures that meet the requirements of the 500 ft rule are required to avoid operational restrictions and associated loss of amenity at glider airfields.
6. Some provision for ensuring that open land is maintained for safe forced landing operations in the event of engine failure, in particular along take-off flight paths immediately beyond runway ends and beneath circuits. The requirements at individual airfields will need to be considered on a case-by-case basis.
7. Some safeguarding provision in respect of undershoot on landing will be appropriate which, in some instances but perhaps not all may be provided within the airfield boundary.
8. Where existing obstacles preclude certain operations it may be possible to introduce new structures that do not comply with the above principles, without having any additional impact on future operations.

REFERENCES

A8.1 Annex 14 to the Convention on International Civil Organisation: Aerodromes Volume 1, Aerodrome Design and Operations Ninth Edition, July 2022, International Civil Aviation Organisation

A8.2 CAP 168: Licensing of Aerodromes, UK Civil Aviation Authority (CAA) Safety Regulation Group, Edition 12, January 2022

A8.3 CAP 793: Safe Operating Practices at Unlicensed Aerodromes, UK Civil Aviation Authority (CAA) Safety Regulation Group, Edition 1, July 2010

A8.4 Guidance on Consideration of Aerodromes for Overhead Line Development Projects V1.0, National Grid, July 2025

A8.5 ADAF0302 Promoting Safeguarding at BGA Gliding Clubs Lessons Learnt and Suggested Approach Going Forward. Airport Development Advisory Fund

A8.6 Document: 6.15.A2 Environmental Statement Appendix 15.2 - Review of Aviation Impact Final Issue A August 2025.

A8.7 Flying over gliding sites: Overflight of active winch launch gliding sites puts lives at risk https://www.caa.co.uk/general-aviation/safety-topics/flying-over-gliding-sites/

A8.8 16_01813_FULM-YORK_GLIDING_CLUB-1805720.pdf Annex 1 para 11

A8.9 16_01813_FULM-YORK_GLIDING_CLUB-1805720.pdf Annex 1 para 12

A8.10 Easy Access Rules for Sailplanes, EASA eRules November 2022

A8.11 City of York Council 16/01813/FULM Erection of poultry farm comprising 3 no poultry sheds with ancillary buildings, access road and landscaped embankments (resubmission)

A8.12 Land to the west of Bradley Lane, Rufforth, York. Reference: APP/C2741/W/19/3223376
https://acp.planninginspectorate.gov.uk/ViewCase.aspx?caseid=3223376
A8.13 Land at Warren Farm Appeal by Extra MSA Group Reference: APP/X0415/W/21/3272171
A8.14 Proposed Poultry Farm at Rufforth (16/01813 FULM): Aviation Safeguarding Assessment EAS/P1135/R1/Issue 1 Report prepared for the City of York Council by Eddowes Aviation Safety Ltd, November 2017
A8.15 Airfield Safeguarding, Supplementary Planning Guidance, Perth and Kinross Council March 2020
A8.16 Land at Warren Farm Appeal by Extra MSA Group Reference: APP/X0415/W/21/3272171 Buckinghamshire Council Application PL/19/2260/OA Aviation Impacts Proof of Evidence, Mark Eddowes on behalf of Bickerton Aerodromes Limited, July 2021
A8.17 The calculation of aircraft crash risk in the UK. Health and Safety Executive Contract Research Report 150/1997 prepared by AEA Technology plc