York Aviation

**Wombleton Airfield and Planning Application 18/00580/MFUL**

## Introduction

York Aviation was asked by Ryedale District Council Local Planning Authority in April 2019 to provide technical advice relating to aviation safety in the context of a major planning application (18/00580/MFUL) for the construction of a number of static holiday cabins on land adjacent to an operational runway at Wombleton Airfield. We have been informed by the LPA that the plans for the application have been amended and resubmitted many times with recent changes as of April 11th 2019, which this technical note bases its assessment on.

The LPA has also confirmed to us that it considers the runway in question to have lawful use relating to planning permission granted in 1972. Our assessment has been carried out on that basis and considers only the technical guidance as set out by the CAA specifically in CAP793 'Safe Operating Practices at Unlicensed Aerodromes' and associated requirements in CAP168 'Licensing of Aerodromes' and CAP738 'Safeguarding of Aerodromes'. The aim therefore is to state the appropriate characteristics of the runway required for safe operation.

## Wombleton Airfield

Wombleton Airfield located in North Yorkshire is an ex RAF base dating back to WW2 and originally comprised three runways in a triangle formation. The land the airfield is on is now private and split between multiple owners. Currently we understand there to be two remaining aviation users on the site who operate separate unlicensed strips. To the south of the airfield, Runway 04/22 and Runway 10/28 (formerly a taxiway) are operated privately by Swift Aircraft Ltd. To the north, Runway 17/35 is owned by a separate private business, Petratek UK Ltd. The operational part of this runway is understood to be 420m in length. It is formed from the northernmost third of the original WW2 runway which was circa 1250m in length. The runway has been measured using Google Earth as just less than 23m wide and is formed as the western half of the original runway width (circa 46m). The eastern half of the original runway is owned by the applicant of the above referenced planning application. The owner of Runway 17/35 also maintains a hangar which has capacity for two light aircraft, connected by a short taxiway link to the runway.

As part of this assessment a site visit of the airfield was carried out on May 9th 2019. **Figure 1** below shows the view north to south down the runway on that date. As can be seen in this photograph, the runway has a concrete surface construction formed in five parallel strips of bays. The middle strip of bays is largely clean and clear although some grass and weed growth is developing either side. The land ownership boundary to the north east of the runway is seen marked by a row of large water containers running the length of the runway. These containers are understood to belong to the landowner of the other half of the runway. To the south and west of Runway 17/35 there is a field as seen in **Figure 1**. The other main and obvious physical item of note was the grassed earth bund running along the northern boundary of the runway end. This is shown in **Figure 2** planted on its crest with a line of willow

tree saplings which were estimated to be up to 2.5m at their highest. The bund itself was approximately 1m high making the overall obstacle approximately 3.5m in height.

During the site visit the runway length was walked from end to end with observations made about the immediate environs to all sides of the runway including the apron area and aircraft hangar. Additional photographs of the visit are contained in an appendix to this note.

*Figure 1 - Wombleton Runway 17/35*

*Figure 2 - Earth Bund*

Figure 3 below is an excerpt from Pooley's Flight Guide (2019) showing the entire airfield and indicating the three runways albeit with Runway 17/35 shown as effectively unusable due to the obstructions to the north and eastern edges of the runway. As Wombleton Airfield and all of its runways are unlicensed, they are not regulated to comply with any specific standards and are not required to have a published aerodrome chart. For this reason, Pooley's serves as probably the best and highly regarded source of information on aerodrome specifics for unlicensed airfields like Wombleton.

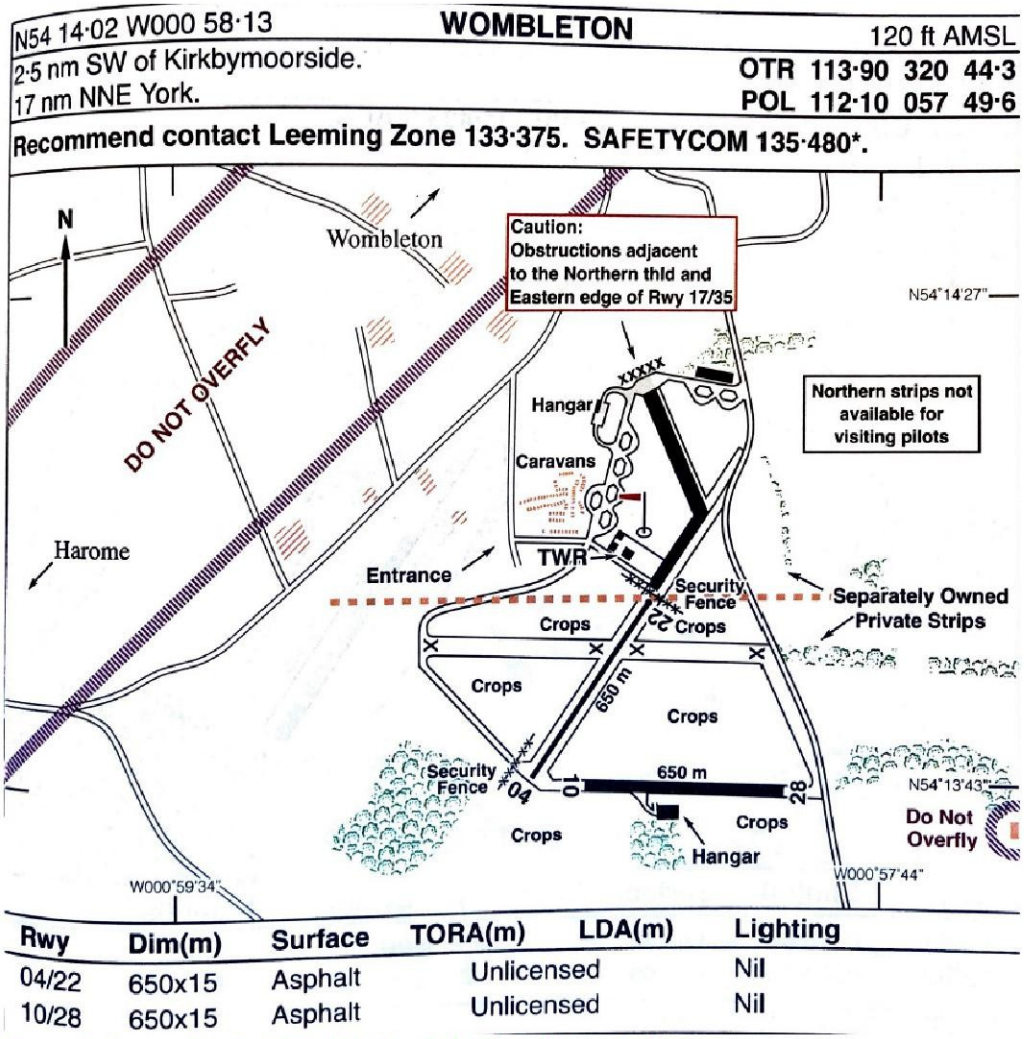


*Figure 3 – Source: Pooley's Flight Guide 2019 - Wombleton Airfield*

## Proposed Development

As stated at the outset, the purpose of this note is to assess the requirements of the runway's use for safe operation. Therefore, the details of the proposed application will only be discussed in this context. Figure 4 below shows the overall proposed development which is a holiday village comprising 50 static cabins. The eastern property boundary is shown in blue between Runway 17/35 and the adjacent land owned by the applicant. The eastern half of the original runway has been shown with no form of development and appears to indicate that the line of water containers has been removed. The land to the north of the runway end has been indicated as a wildflower meadow and the bund has been cut back from a 30° segment originating from the assumed take off point of Runway 35.
Along the eastern edge of the original runway i.e. just inside the red line, a 'native boundary hedge' is proposed which sits just to the west of the existing planted bund. It was noticed on the site visit that this bund does not currently run the full length of the runway. A section of approximate 80m in length located around the middle of the southern triangular area of the development is at grade with the runway.


*Figure 4 - Planning Application 18/00580/MFUL Site Plan: WA-HL 1.1 - Rev E*

**Runway Physical Characteristics**

The CAA provides guidance for the safe operation of unlicensed aerodromes in CAP793. To quote this document, *"The contents of this CAP are not mandatory, nor do they purport to be exhaustive. However, they do provide what can be considered as sound practice that has been developed in consultation with industry representative bodies.'* [1]

It is worth noting at this point that CAP793 recommends the criteria found in CAP168 be used as guidance for the assessment of safe operations of unlicensed aerodromes.
In this section we will explore the pertinent sections of these documents in the context of Runway 17/35.

Runway 17/35 is understood to be 420m long and just under 23m wide. Information obtained from the owner of the runway indicates that the largest aircraft operated has a wingspan just over 11m and Maximum Take Off Weight (MTOW) of 1690 kg.

With that in mind and in the context of a licensed aerodrome, those governed by the compliance standards of CAP168, this runway would be considered as a Code 1A runway, i.e. the smallest type. As stated in Appendix B Section 3 of CAP793, the runway ought to have a width of at least 18m. Therefore, the width would be considered suitable for the type of use.

The runway length to a larger extent is a function of the aircraft's performance criteria in relation to various site details such as runway elevation, slope and temperature. This obviously is a set feature at Wombleton and only of concern to the pilots who use the runway.

In CAP168 requirements are set out for the dimensions of the 'runway strip' which is effectively a safety envelope designed to be clear of obstacles for aircraft safety. The principle of this is followed through in CAP793 but is simply stated as a dimension of 25m either side of the runway centreline to be free of vertical obstacles. Assuming the applicant's half of the runway is also approximately 23m then the overall clearance provided from the runway centreline is around 34.5m. It is worth noting that in CAP168 a Code 1A runway would require a strip width 30m minimum rising to 32.4m owing to the larger than minimum width of the runway. In purely plan terms therefore it would appear the proposed strip to the side of the runway is adequate. This obviously means the water containers must be removed and nothing else vertical located along the strip over the full length of the runway.

CAP793 provides other advice to operators in relation to runway characteristics including the importance of the runway surface condition. To ensure safe operation the runway surface should be inspected before use and be smooth, well drained i.e. no large puddles and free of debris.

As seen in **Figure 1** the central section of the runway is relatively clear of debris and weed growth, but the outer strips are more degraded with considerable weed growth in some areas. It would be appropriate to say that in its observed state the runway condition is not fit for operation. In general terms the overall condition would be considered to be very poor indeed. However, in the context of the aircraft that use the strip it is not unreasonable to assume that with minor maintenance this could be rectified. From experience, some major commercial airports in the UK have been observed to have areas of the airfield (not runways) with similar levels of surface condition albeit allocated for light or low level use. It would be recommended that a sweeper vehicle is used to remove the loose debris and weed spraying is carried out to remove all of the worst weeded areas. Subject to this some light repairs may be appropriate to any large potholes or areas within the central strip that would be tracked by the

[1] See Civil Aviation Publication CAP793 'Safe Operating Practices at Unlicensed Aerodromes' Chapter 1 Section 2

aircraft wheel gear. With that said it is the responsibility of the operator and pilots to gauge what is safe for the specific aircraft that use the runway.

**Safeguarding**

Safeguarding, in the context of aerodromes, refers to a requirement for local authorities to consult with aerodromes when planning permission is being considered for something that may interfere with the operation of the airport. Some larger airports and aerodromes are 'officially' safeguarded and local planning authorities are required by law to consult with aerodrome operators whenever a planning application could affect the safeguarded areas[2].

The Government is proposing, through the consultation process associated with the Green Paper of December 2018, that operators of aerodromes that are not 'officially' safeguarded should nevertheless take steps to protect their locations from the effects of possible adverse development by establishing an agreed consultation procedure between themselves and the local planning authority, although mandatory official safeguarding is not being proposed[3].

Safeguarding can be thought of as two broad processes, physical safeguarding and technical safeguarding. The former refers to the assessment of physical objects that might infringe the area known as the Obstacle Limitation Surface (OLS). The OLS is a non-physical surface surrounding the runway, above which nothing should protrude (e.g. buildings). It is made up of a number of horizontal and sloped surfaces that effectively join together to make one complex surface. The surface emanates upwards and outwards from the clearance zone around the Runway known as the Runway Strip. CAP168 sets out the full dimensions of the OLS for licensed aerodromes which are highly complex. Guidance in CAP793 is only minimal in recommending that obstacles such as hedges at the runway ends are no higher than 2m. The proposals appear to have made adequate provision for this by removing the bund over a wide segment to take account of potential aborted landings and by designating the field behind for wildflower planting. This on balance is assumed to have been the situation experienced prior to the installation of the bund and is therefore of no detriment over when operations previously occurred and were deemed safe.

One other main element of the OLS should be considered for this proposal which is the transitional slope. In CAP168 this is defined as a side slope starting at the outer edge of the runway strip and continuing outwards and upwards at a gradient of 1 in 5 until it reaches a height of around 45m above the runway.

A high level assessment of the details provided in the application drawings WA-HL-1.1 – Rev E and WA-HL-1.9 Rev B, indicate that the 'native hedgerow' and 'native woodland mix' planting is likely to be well above the transitional slope of the OLS. The 'native hedgerow' sits approximately in the middle of the first 5m plan section of the transitional slope are gauged from the plans to be approximately 3.5m in height. This would mean that the hedge site around 3m above the surface. The 'native woodland mix' which appears to be made of larger trees is estimated of the site sections plan as being 10m high after 10 years of growth. This type of planting appears to be located about 10m from the edge of the assume runway strip and therefore means that at full height they would extend 8m above the OLS surface.

As stated above the OLS is defined in CAP168 as a compliance requirement for licensed aerodromes and as such is a matter of guidance only. However, to ensure safe flight and in particular landings in this

[2] See Civil Aviation Authority Publication CAP738 'Safeguarding of Aerodromes'.
[3] Aviation 2050: The Future of UK Aviation, December 2018, paragraphs 7.40 and 7.41

regard, we would consider the above elements of planting to not be viable. To function safely we would recommend the 'native hedgerow' is removed or possibly moved east to the other side of the bund. The 'native woodland mix' is completely at odds with maintaining a safe runway for landings and as such should be omitted in its currently proposed form and location. To develop a suitable planting plan we would recommend that the designer marks their plans with a contour map of the transitional surface starting at the edge of the runway strip (32.4m either side of the runway centreline). This triangular area (in section) will demonstrate that planting needs to start low at the boundary of the site with larger shrubs and trees being kept further east on the site.

Other Safeguarding Related Issues

Beyond the OLS assessment there are a number of other elements that should be considered in the context of adjacent developments. Firstly, there is the consideration of any impact on the airfield navigational aids and ground lighting. However, Wombleton Airfield has neither of these and as such this issue can be discounted.

Second is the subject of wildlife attraction, primarily bird life in the context of bird strike hazard. It will be an important factor for the consideration of the landscape designer to ensure they are not creating new habitats that would attract birds or other animals. This may affect tree species and plant choices but also affect the design of buildings where roofs in particular should be designed to avoid nesting or perching of birds. With Wombleton Airfield this is relevant not just for Runway 17/35 but also to the users of the southern runways, 04/22 in particular as the site sits just off the end of that runway.

Finally, it will be particularly important, due to the proximity of the proposed development to the airfield, that construction practices are controlled with safe operation of the aerodrome in mind. This will include the consideration of issues such as dust creation, control of waste and construction materials such as sheeting or wrapping that could be lifted by the wind, or the use of cranes. Close liaison with the aerodrome owners and aircraft operators is of significant importance if cranes are used at any stage of the construction to ensure that relevant notices can be issued to make pilots aware of obstacles.

## Conclusions

- Provided the area immediately to the east of Runway 17/35 as shown on drawing WA-HL-1.1 Rev E is kept completely clear of obstacles including any form of ownership boundary fence it will serve as a suitable width of Runway Strip.
- Provisions on drawing WA-HL-1.1 Rev E at the runway end for removal of the bund and wildflower planting in the adjacent field are considered adequate for allowing safe landings and take-offs. This assumes again that no form of fence or vertical obstacles are placed along the red line boundary running around end of Runway 17/35 i.e. the 30° segment either side of the runway centreline.
- Consideration of the landscaping and planting of shrubs and trees on the site is required in the context of the transitional slope of the Obstacle Limitation Surface. The developer must demonstrate that major hedgerow and tree planting will not now or in the future create obstacles that pose a significant threat to landing aircraft.
- Further landscaping consideration should be given to wildlife attraction that could pose a similar threat to aircraft landing or taking off where for example the planting provides a new habitat for large or flocking birds closer to the runways at Wombleton than is currently the case.
- We would lastly note that while it is acknowledged that building dwellings within approximately 50m of a runway is for many reasons not advisable, in this case it does not conflict with any CAA

guidance of compliance requirements of CAP793 or CAP168. Any potential issues relating to noise or safety in this regard are beyond the scope of this report and would require significant further assessment.

*Matt Jones – 28/05/2019*

# Appendix – Site Visit Photographs

Runway 17/35 looking south

Runway 17/35 looking south

Opposite side to Runway 17/35 looking south (bund)

Runway 17/35 end bund

Runway 17/35 looking north (17 end)

Runway 17/35 looking south (35 end)

Runway 17/35 looking north

Runway 17/35 looking north

Runway 17/35 end bund  looking towards potato store

Runway 17/35 end bund  looking towards potato store

Aircraft hangars

View towards Runway 04/22 from 35 end

View down Runway 10/28 (28 end)

Wombleton Control Tower