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Airspace Change Proposal by Haverfordwest Aerodrome

Consultation Document

In partnership with:

HELIOS an egis company

AOPA

Foreword

We are very proud of our relationship with the local community and stakeholders, and are committed to being a responsible neighbour. The purpose of this document is to ensure you have an opportunity to participate in this important consultation about the introduction of new instrument approach procedures at Haverfordwest Aerodrome. These procedures will provide satellite guidance to approaches to runway 03 and 21 considerably increasing safety in reduced visibility weather conditions but will also have a small effect on the path that aircraft on the proposed approach will follow compared with aircraft using the current visual procedures.

Based on 2016 data, 6% of aircraft, approximately 220 flights per year, are expected to be able to use these satellite guided approach procedures, if required, rather than the visual approach. The estimated usage of instrument approaches includes a small margin for growth of training and business flights that will benefit the economy of the region.

The proposed procedures will not influence the number of aircraft that will continue to operate visually into the aerodrome.

The implementation of these procedures is part of a global programme that aims to improve aviation safety. In July 2016, Haverfordwest Aerodrome received a 60% grant as part of a European project funded by the European GNSS Agency. The project will facilitate the design, development and implementation of satellite based instrument approach procedures, at three small aerodromes in the UK. The project is being co-ordinated in the UK by the Aircraft Owners and Pilots Association (AOPA) and aviation consultancy Helios in partnership with Haverfordwest Aerodrome.

We have explained in detail what this document is about and what we are consulting on further on in this document. Your opinions regarding the proposals set out within this document and your general feedback are very important to us, and we encourage you to respond, whether you have positive or negative views on the proposal.

Pembrokeshire County Council have an obligation under Standard 44 and Standard 52 of the Welsh Language Standard Regulations 2016 to produce a bilingual version of this consultation document for the public.

The stakeholder consultation runs from 20th November 2017 to 26th February 2018 and details of how to respond have been outlined in section 7.4.

Steven Jones

Airport Accountable Manager/Licensee and Director,

Pembrokeshire County Council

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Executive summary

Objective of this document

Haverfordwest Aerodrome wishes to introduce a more accurate, safer and predictable approach procedure for aircraft approaching runway 03 and 21. The procedures are formally known as Area Navigation (RNAV) Global Navigation Satellite System (GNSS) instrument approaches. Within this document they are referred to as instrument approaches.

The proposal is to implement instrument approaches to runway 03 and 21 (opposite ends of a single strip) at Haverfordwest for general aviation and small commercial aircraft and helicopters. If successful, the implementation of the instrument approaches will maintain the aerodromes viability to existing and future customers through safer and more efficient operations with minimal impact to the general public due to the small nature of the change.

This document describes in detail the expected changes to be introduced and invites you, the stakeholders, to review and provide feedback on our proposal. We look forward to understanding your views and greatly value your opinion.

Purpose of the change

The main purpose of the instrument approach procedures is to allow safer approaches to the aerodrome when the weather is poor (e.g. low cloud base). Today, aircraft intending to land at the aerodrome will abort their approach and divert to another aerodrome if they are unable to see the runway. In the case of Haverfordwest Aerodrome, this involves diverting to Cardiff or Bristol. This means that during the winter, commercial flights in particular, as well as some private flights are often cancelled because they would be unable to safely return to the aerodrome.

The introduction of the instrument approaches at Haverfordwest Aerodrome is also aligned with international and UK safety objectives related to performance-based navigation and the UK Future Airspace Strategy.

Why is the aerodrome consulting?

The CAA requires an Airspace Change Proposal (ACP) to be carried out wherever there is a change to the airspace status, or change to procedures. This process is described in the UK CAA Publication (CAP) 725.

The change sponsor, in this case is Pembrokeshire County Council and is responsible for consultations with airspace and airport users and other organisations who may be affected directly or indirectly by the change. This document has been written to enable consultation and engagement with all consultees affected by the change. The results of this consultation will be used to finalise the proposed procedure design and all consultation responses and comments will be part of the submission to the CAA.

A certain amount of technical detail about the proposed instrument approaches has been included in this consultation document as it is important for stakeholders to have the necessary facts to form an opinion. This has been placed in appendices to this document to aid readability; for the main body of this document we have used a mixture of mapping software images to demonstrate the flight paths.

Scope of the consultation

The scope of the consultation is to address the impacts associated with changes from the implementation of the **instrument approach procedures** at Haverfordwest Aerodrome. This includes comments on the new procedures that relate to the following:

- Increased safety of the aerodrome by providing satellite-guided approaches to runway 03 and 21. In particular, the approach to runway 21 over the Preseli Hills.
- Improved transport links to Pembrokeshire.
- Improved viability of the airport by ensuring access for business aviation aircraft.
- Improved operational efficiency at the aerodrome by allowing the recovery of base operators aircraft in deteriorating weather conditions.
- Enabling instrument flight training at the airport.
- The routing or height of the new instrument approach procedures.
- Increase in aircraft movements caused by the new instrument approach procedures.

The consultation is specifically not addressing any of the following as these are unrelated to the introduction of the new procedures:

- The routing or height of departing aircraft;
- The routing or height of existing visual approaches;
- Aerodrome operating hours or the Aerodrome Traffic Zone;
- Aircraft approaches to runway 09 and 27;
- Existing number of aircraft movements;
- Type of aircraft operating at the aerodrome;
- Changes to any existing noise abatement procedures;
- Changes to any airspace around the aerodrome;
- Noise related to existing visual arrivals or departures.

Engagement of the UK Civil Aviation Authority

The decision to approve the proposal will be taken by the Civil Aviation Authority (CAA), the civil aviation regulator. Haverfordwest Aerodrome will be required to justify the proposal sufficiently to the CAA to gain permission to implement the new procedures, following the completion of this consultation and a review of the procedure designs.

On 12th April 2017, Haverfordwest Aerodrome engaged with the CAA to discuss the viability of the proposal and formally commenced the Airspace Change Proposal with a Framework Briefing at CAA London. Haverfordwest Aerodrome and the CAA have agreed, the consultation period will be 14 weeks, commencing on 20th November 2017.

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1 Introduction

Haverfordwest Aerodrome plans to enhance current levels of safety by implementing a new satellite-based instrument approach for aircraft landing at the aerodrome that will allow aircraft to land in weather conditions not currently supported by the existing procedures. As required by UK CAA Publication (CAP) 725, this then requires an Airspace Change Proposal (ACP) to be carried out. Pembrokeshire County Council, as the Change Sponsor, is responsible for conducting the consultation process for the proposal. The consultation document will be made available through a number of channels (discussed in section 7.4) and can be viewed on the Pembrokeshire County Council website.

The aerodrome has received a grant from the European GNSS Agency to support the implementation and has engaged with AOPA and aviation consultancy Helios to facilitate and manage this airspace change proposal on their behalf. In developing the proposal, a number of consultation options were considered by the aerodrome. However, in order to meet the aerodrome's safety related requirements and objectives the preferred option is to implement satellite-based instrument approaches to runway 03 and 21.

This consultation document aims to engage the views of interested stakeholders that may be impacted by the implementation of this proposal. Appendix E contains a list of identified consultees which should not be assumed to be exhaustive. All consultees[1] are encouraged to review this document and submit a response by post or email to the Pembrokeshire County Council, as detailed in section 7.4.

Organisation of the document

Chapter 2	provides a brief overview to the current day operations at Haverfordwest Aerodrome.
Chapter 3	explains the key objectives for change at Haverfordwest Aerodrome.
Chapter 4	evaluates three options which can fulfil the Aerodrome's objectives to introduce instrument approaches.
Chapter 5	discusses the potential environmental impacts to Haverfordwest Aerodrome and the surrounding airspace.
Chapter 6	discusses the impact of the proposal to residents living nearby the proposed instrument approach route.
Chapter 7	discusses the consultation process including the planned timeframes and how to respond to this consultation along with next steps.
Chapter 8	provides a template for the consultation feedback form.
Appendix A	provides a glossary listing key technical terms and definitions used in this document.
Appendix B	provides a picture of the Haverfordwest Aerodrome ATZ.
Appendix C	provides pictures of aircraft expected to be capable flying the proposed approach procedure.

[1] Please note that in the context of this document a consultee is taken to be anyone that could be affected positively or negatively by the proposals contained herein.

Appendix D provides the draft technical charts used by pilots (instrument approach plates) flying the proposed approach procedure.

Appendix E provides a list of aviation and non-aviation stakeholder consultees to whom this document is of relevance.

2 About Haverfordwest Operations

The purpose of this section is to provide background to key aspects of the current operations at Haverfordwest Aerodrome. This also includes an overview of the current traffic levels and existing flight paths flown using visual approaches.

2.1 Context

Haverfordwest Aerodrome is a small general aviation aerodrome located north of Haverfordwest, the county town of Pembrokeshire. The licensed aerodrome is owned and operated by **Pembrokeshire County Council.**

Haverfordwest Aerodrome is located within uncontrolled airspace and therefore pilots may fly when and where they like, subject to a set of simple rules. In this airspace, pilots are responsible for their separation from terrain and other aircraft.

The aerodrome is surrounded by a volume of airspace of 2 Nautical Miles (NM) in radius and to a height of 2000' above the aerodrome, known as the Aerodrome Traffic Zone (ATZ). The purpose of the ATZ is to protect traffic on and in the immediate vicinity of the aerodrome. The location of the ATZ is shown in Appendix B.

The aerodrome does not provide an Air Traffic Service within the ATZ although an Air/Ground Radio operator is able to pass advisory information to pilots regarding the situation local to the aerodrome, although the operator is unable to provide a control instruction.

All aircraft currently arriving into Haverfordwest Aerodrome do so visually, under Visual Flight Rules (VFR). These are commonly referred to as **visual approaches**. This means a pilot operates an aircraft in weather conditions generally clear enough to allow the pilot to see where the aircraft is going with visual reference to the ground (e.g. landmarks), and by visually avoiding obstructions and other aircraft. However, it is only possible to fly VFR when these outside references can be clearly seen from a sufficient distance; when flying through or above clouds, or in fog, rain, smoke or similar conditions, these references can be obscured. Thus, cloud ceiling and flight visibility are important for safe operations during all phases of flight.

When operation of an aircraft under VFR is not possible because the visual cues outside the aircraft are obscured by poor weather (low-cloud base) Instrument Flight Rules (IFR) must be used instead. Under IFR, aircraft are flown using instruments on-board to aid navigation, using radio beacons or satellite signals as reference, thereby supporting the safe operations of the aircraft. These are commonly referred to as **instrument approaches**[2]. To fly these approaches, pilots must have the required license and operate a suitably instrument equipped aircraft. This proposal is consulting to implement instrument approaches to Haverfordwest Aerodrome.

[2] If you would like further information on instrument approaches please visit: www.caa.co.uk/cap773.

2.2 Runway configuration

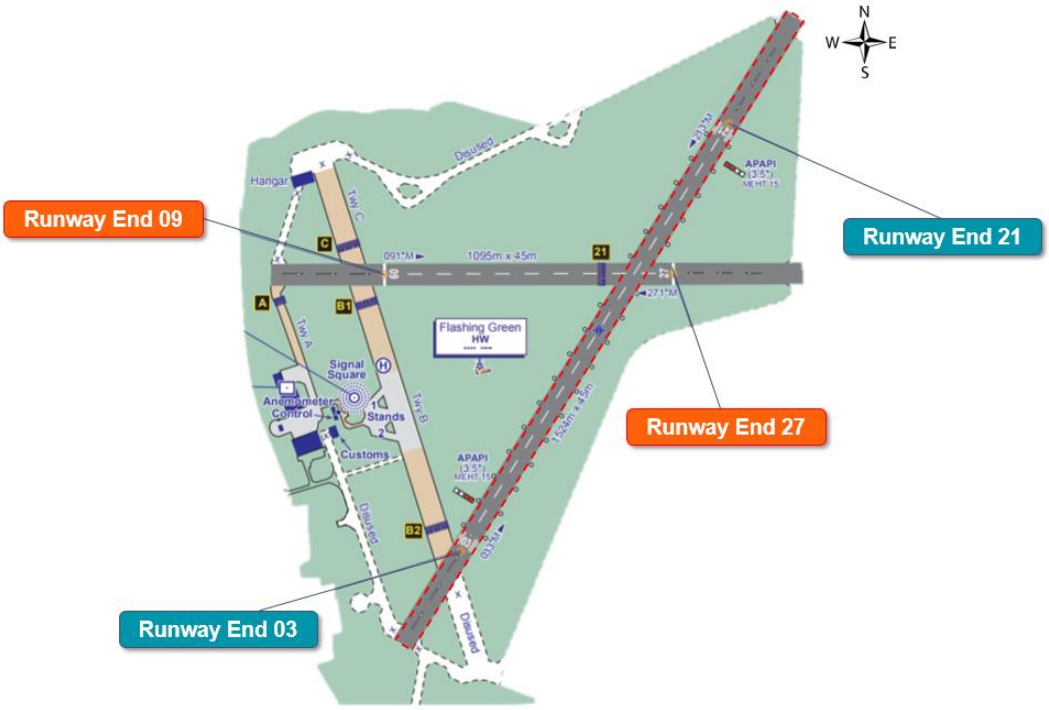


Figure 1 Haverfordwest Aerodrome runway configuration

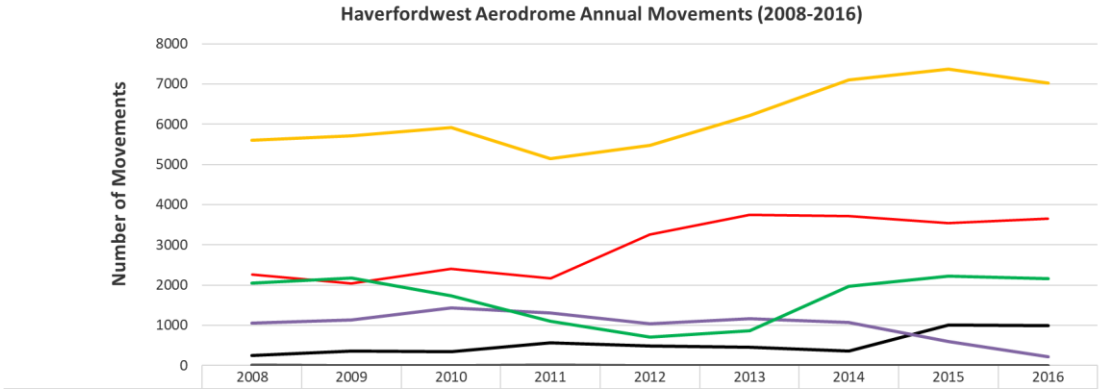
Haverfordwest Aerodrome has 2 asphalt runways as shown in Figure 1. Runway 03 and 21 (1524 m long) is orientated approximately north-south and the smaller cross runway 09 and 27 (1095 m) is orientated east-west. **Note, the focus of this consultation is instrument approaches to runway 03 and 21 only.**

The runway in use is determined by wind direction as aircraft have to take off and land into wind. At Haverfordwest, the prevailing winds are from the south west, allowing small aircraft to use either runway 21 or 27 for visual approaches depending on the precise wind direction.

The instrument approaches are being implemented to runways 03 and 21 as these runways are longer and are equipped with runway lighting. Between 2016 and 2017, runway 03 and 21 were recorded as being in use for 40% of the time.

2.3 Haverfordwest Aerodrome operations

Haverfordwest Aerodrome is classed as a general aviation aerodrome as it does not have any scheduled commercial services. However, it is used by a variety of aircraft operators. Broadly, these are; Commercial, General Aviation (recreational), Executive, Helicopter and Training. Note, all movements reported in the charts below are VFR only and one movement is counted as an arrival or departure.



	2008	2009	2010	2011	2012	2013	2014	2015	2016
Commercial	245	364	343	563	478	447	364	1009	992
General	2256	2048	2409	2166	3257	3742	3711	3547	3651
Executive	7	2	2	6	0	0	0	0	0
Helicopter	1055	1124	1428	1306	1039	1167	1062	600	221
Training	2043	2168	1736	1107	706	861	1969	2217	2154
Total Annual Movements	5606	5706	5918	5148	5480	6217	7106	7373	7018

Figure 2 Haverfordwest Aerodrome annual movements (2008-2016)

Figure 2 describes the change in the number of annual traffic movements between 2008 and 2016 for the five common types of operations. Overall, annual traffic at the aerodrome has increased by 3% per year however in 2011 and 2016 annual traffic decreased when compared to the previous year.

The aerodrome is primarily used for recreational flying by general aviation (around 51% of annual traffic) and has slowly grown and stabilised over recent years. The remaining significant attributors to movements are associated to training flights (31%) which have recovered back to similar levels activity experienced in 2008 and commercial flights (14%) which have experienced recent growth since 2015.

General aviation and training operations are expected to remain the primary operations at the aerodrome, both supporting the economic viability and sustainability of the aerodrome remaining operational.

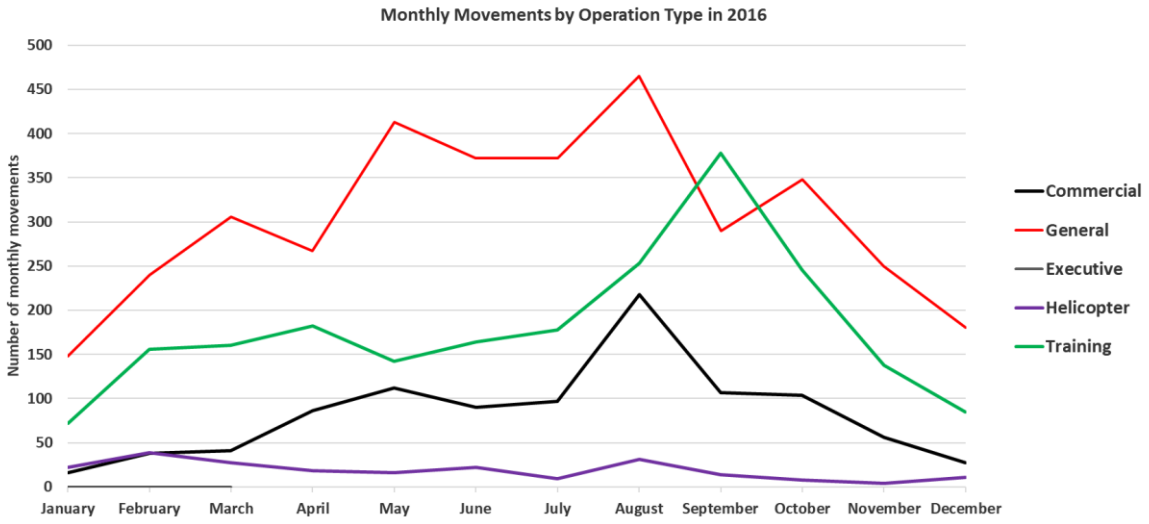


Figure 3 Monthly movements by operation in 2016

Haverfordwest Aerodrome handled a total of 7,018 movements in 2016. This equates to an approximate daily average of 20 movements a day.

Based on 2016 data and factoring in growth related to IFR traffic, it is estimated the proposed approach will make up 220 of the annual **arrival movements** (3,509) to runway 03 and 21. This is approximately equivalent to less than 1 per day. In other words, every 1 in 16 approach movements are expected to be capable of flying the proposed instrument approach. In practice, the volume of visual and instrument approaches will not be evenly spread throughout the year as their use will vary depending on prevailing weather conditions and visual traffic density, as shown in Figure 3.

Summary

To conclude, 6% of arriving flights to Haverfordwest **are expected to be able to use** the proposed instrument approaches to runway 03 and 21, with the remainder using the conventional visual approaches. However, it is acknowledged by Haverfordwest Aerodrome that having these more accurate procedures in place may encourage aircraft operators to land at Haverfordwest Aerodrome rather than looking further afield when planning their flights. The availability of the instrument approaches (if the proposal is accepted) are not expected to increase VFR movements but a small increase of less than 1 flight per day is anticipated from IFR traffic.

2.4 Existing flight paths

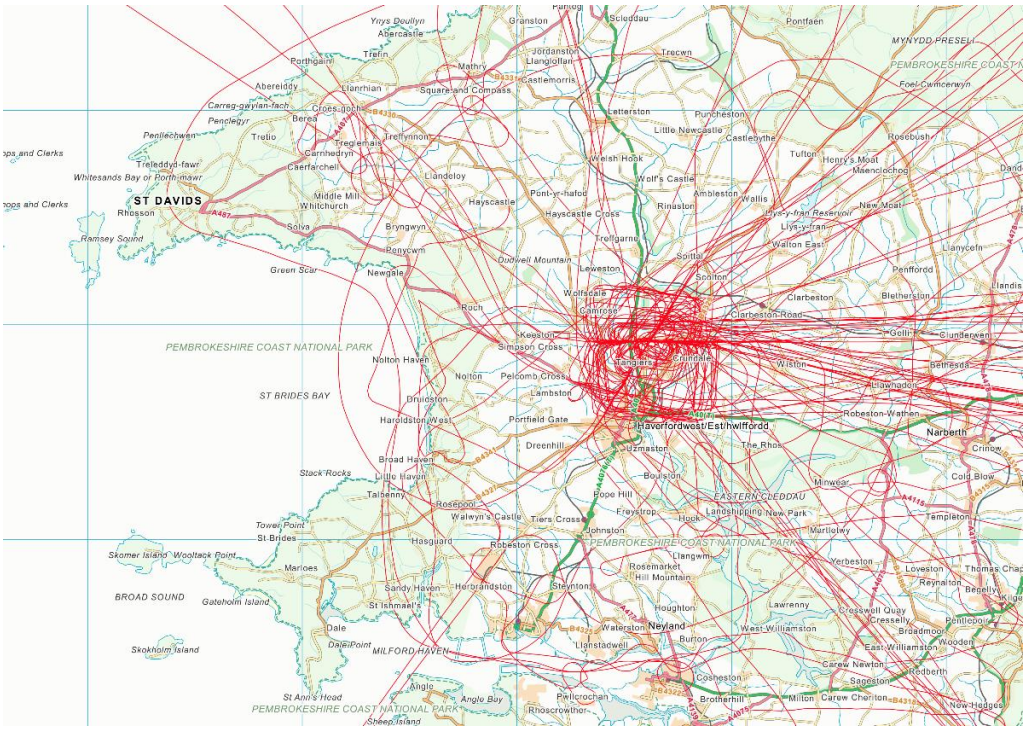


Figure 4 Sample of aircraft arriving to Haverfordwest Aerodrome between 2016/2017

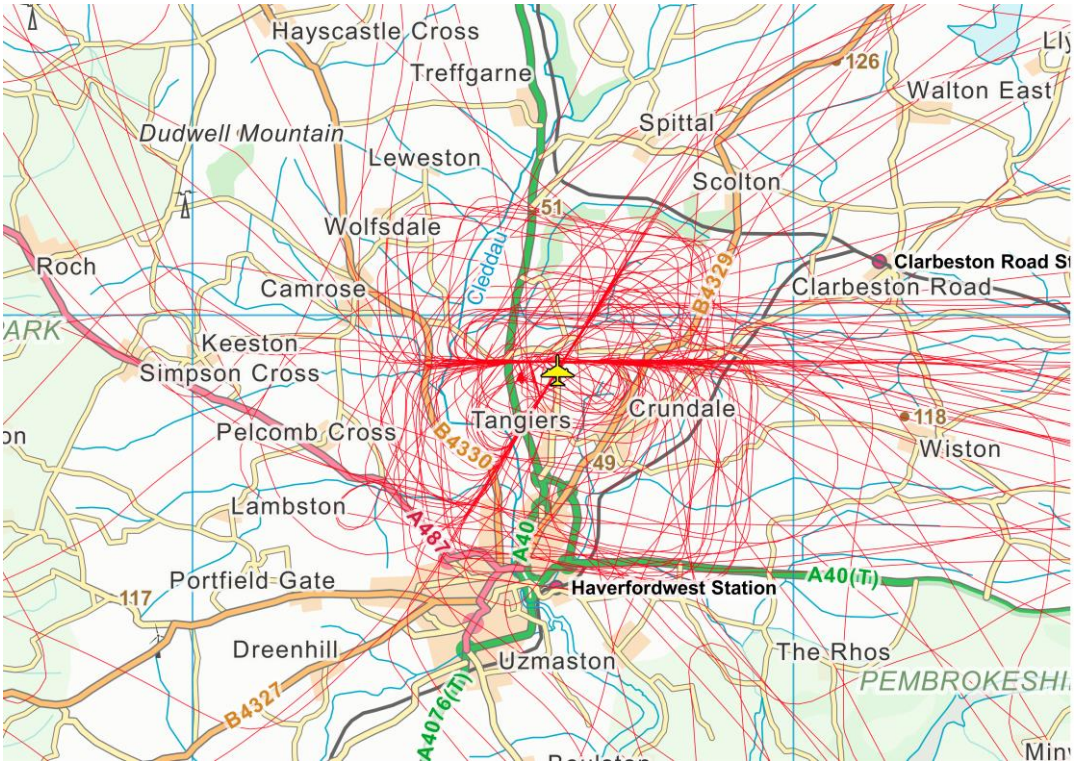


Figure 5 Zoomed sample of aircraft arriving to Haverfordwest Aerodrome between 2016/2017

As all approaches to the aerodrome are currently flown visually in Class G (uncontrolled airspace) aircraft can operate without restriction and therefore, in the absence of predefined prescribed tracks, traffic patterns tend to be random. **Figure 4** shows a sample of visual approaches to the aerodrome with the resulting traffic pattern being random when flying outside the ATZ. This is because the visual tracks are interpreted by the pilot rather than navigation aids, such as satellites, and therefore there is a random spread in the flight tracks.

Visual approaches by airspace users are currently the only type of approaches into Haverfordwest Aerodrome. It is in the aerodromes interest to ensure visual approaches continue to be the main operation with the proposed instrument approaches being managed to an acceptable level whilst minimising impact on visual operations. As noted earlier, 94% of aircraft movements at the aerodrome are visual operations – including the vast majority of training flights. Any introduction of an increase in instrument approaches being undertaken that negatively impacts the economic viability of the airport would need to be limited.

3 Why the aerodrome is proposing a change

The objective of this section is to understand why Haverfordwest Aerodrome wishes to introduce instrument approaches. A number of key objectives and drivers are discussed to justify the introduction of instrument approaches.

3.1 Objectives of this proposal

The prime objectives for implementing the **instrument approach procedures** at Haverfordwest Aerodrome are the following:

- To improve the viability of the airport by ensuring access in lower visibility or deteriorating weather conditions for business aviation aircraft.
- To increase the safety of the aerodrome in lower visibility operations by providing satellite-guided approaches to runway 03 and 21. In particular to the approach to runway 21 over the Preseli Hills.
- To improve operational efficiency at the aerodrome by allowing the recovery of aircraft based at the aerodrome in deteriorating weather conditions.
- Improve transport links to Pembrokeshire.
- To allow instrument flight training at the airport.

3.2 Drivers for change

Safety of Operations

Enhancing the safety of the current aerodrome operation in lower visibility conditions, is the primary reason why the aerodrome is proposing to implement instrument approaches.

An instrument approach is designed to ensure that an aircraft flying the approach maintains a safe clearance from obstacles such as terrain, radio masts, buildings, street lighting and vehicles on roads, all of which are features of the instrument approaches.

An instrument approach with vertical guidance allows a pilot to fly the aircraft along a path that is aligned with the runway and is descending at the correct rate, without having visual contact with the runway. This is known as a stabilised approach.

An instrument approach may be flown to a minimum height known as the Decision Height by which point the pilot must decide if the runway is in view and a safe landing is possible. If the runway cannot be seen, the approach is terminated and the missed approach procedure is executed.

At the decision height, the instrument approach will have correctly positioned the aircraft on the visual guidance provided by the aerodrome lighting and only minor adjustments to aircraft position are required in the final phase of the approach.

Approaches with vertical guidance are less workload for the pilot as he/she is not continuously monitoring the descent rate and trying to ensure that the aircraft is at a particular altitude at a certain range. As it is easier to fly an approach there is less likelihood of having to change engine settings to maintain the glidepath reducing fuel burn and emissions.

Improved Operating Minima

An instrument approach is designed to take account of obstacles and as the aircraft is precisely positioned on the approach path, the decision height will be much lower than for a visual approach. The instrument approach therefore allows operations to continue in lower visibility conditions.

Cost benefit

Haverfordwest Aerodrome is taking advantage of the part funding provided by the European GNSS Agency by positioning itself to future-proof its business by implementing instrument approaches and therefore enabling future cost saving opportunities.

The introduction of satellite-based instrument approach procedures can be implemented with no financial outlay required on ground-based equipment and there are no associated on-going operations and maintenance costs to the aerodrome. By implementing the instrument approaches, Haverfordwest Aerodrome is optimising the operation for its current and future customers by providing a safe and reliable procedure which can be used in poor weather conditions rather than diverting to alternate aerodromes.

Finally, the instrument approach strengthens the case for the aerodrome to prosper under the control of Pembrokeshire County Council through a net reduction in the financial contribution to the operation of the aerodrome.

Benefits to commercial and training operations

Fly Wales is a major operator based at Haverfordwest and has commercial and training operations (representing 45% of annual movements). The commercial operation involves transporting human organs for transplant and medical staff between hospitals. These operations are unpredictable and are sometimes conducted outside of normal aerodrome hours e.g. at night. The introduction of instruments approaches will enable Fly Wales to operate into the aerodrome in lower visibility conditions.

The training delivered at the aerodrome today does not include training to fly instrument approaches. The new procedures may therefore also be used during good weather for training pilots to fly instrument approaches, when traffic permits, from training organisations locally or coming from elsewhere. The volume of these good weather training approaches will vary depending on the intensity of other traffic and has been included in the figure of 220 aircraft that expected to use the instrument approaches.

The overall use of the proposed procedure will therefore not be evenly spread throughout the year with less approaches likely during periods of good weather. This is because when the visual traffic pattern is busy with pilots flying visual approaches, Haverfordwest Aerodrome will restrict the use of the instrument approach procedure.

Modernisation

Satellite-based approach procedures are being adopted worldwide due to requirements by the International Civil Aviation Organization (ICAO) -Resolution A37-11. [3] The UK intends to meet the aims of this requirement through its Future Airspace Strategy (FAS).[4] One of the key aims of FAS is to make airspace more efficient by improving the accuracy of

[3] https://www.icao.int/Meetings/AMC/Assembly37/Documents/ProvisionalEdition/a37_res_prov_en.pdf
[4] https://www.caa.co.uk/Commercial-industry/Airspace/Future-airspace-strategy/Future-airspace-strategy/

where aircraft fly by using satellite-based navigation instead of ground-based navigation aids.

Environmental Positives

The proposed instrument approach procedures offer the opportunity for;

- More efficient flights.
- Fuels savings generated from diversions and missed approaches in marginal visual conditions and therefore a reduction in CO_2 emissions and reduced noise as aircraft stay higher for longer.
- Highly repeatable, more accurate and more predictable approach flight paths. This is further discussed in detail in the next section (section 4).

On average, using the instrument approaches incurs 4.5 NM in additional track miles flown. When compared to a diversion to an alternate aerodrome (due to bad weather), this involves flying to Bristol (>180 NM) and Cardiff (>120 NM), both considerable distances away.

4 The proposed options

This section outlines the three options which were considered to meet the requirements and objectives by Haverfordwest Aerodrome, as outlined in section 3.

4.1 Option A – Implementation of instrument approaches

Haverfordwest Aerodrome is proposing to introduce instrument approaches to runway 03 and 21 only which will be used in conjunction with the existing visual approaches. This option aligns with the objectives and drivers for change listed in section 3.1. **This is the aerodrome's preferred option.**

The proposed instrument approach will involve aircraft following Global Positioning System (GPS) waypoints that are programmed into the flight management computer on board the aircraft. They work on the same concept as a car "sat-nav", but provide vertical as well as horizontal guidance. Instrument approaches do not rely on ground based infrastructure.

The three main characteristics of this type of approach are:

1) The approaches from either ends of the runway will be a "straight-in" instrument approaches. In other words, the approach will follow an extended centre-line of the landing runway as compared to a proportion of visual approaches that involve the aircraft positioning within the visual circuit. This 'straight-in' design is optimal for both flight operations and safety and is established preferred practice for instrument approaches, as set out in CAA policy. CAA document CAP 1122, Appendix 1, clearly states that approach designs should be kept as simple and standard as possible, e.g. whenever possible no off-set approaches (approaches to be kept to the centre line of the runway).
2) Aircraft will follow a set path over the ground, leading to greater consistency of flight paths.
3) The proposal will not require any ground based equipment to be installed and therefore there are no equipment maintenance schedules. The instrument approaches are designed to use information from satellites for accurate navigation.

Figure 6 and Figure 7 define the path (dark blue line) aircraft using the instrument procedure will use when using runway 03 and 21. This will lead to a more predictable and repeatable route for approaches to the aerodrome when compared to the red lines which represent the path taken by aircraft approaching the aerodrome visually.

4.2 Option B – Do nothing

This option does not meet the aerodromes requirements and objectives stated in section 3. It will not be possible to increase safety through assured obstacle clearance on approach to runway 21 or increase safety through enabling stabilised approaches to runway 03 and 21. It does not allow recovery for airport based aircraft in deteriorating weather conditions or provide local instrument training capabilities and transport infrastructure and better viability of the airport.

4.3 Option C – Implement NDB/DME approach

Conventional ground based navigation aids such as Non-Directional Beacons (NDB) and Distance-Measuring Equipment (DME) are currently available for use at Haverfordwest

Aerodrome, to aid pilots to find the aerodrome. There are however no associated approach procedures which make use of the equipment. The NDB does not provide vertical guidance to the pilot on approach and is liable to interference and interruptions in the signal due to thunderstorm activity and hilly terrain. Therefore, this further reduces the options available for pilots to make an instrument approach to Haverfordwest Aerodrome.

They require considerable investment with respect to maintenance and future equipment replacement at end of their operational life. They are also not as accurate as the proposed instrument approach procedures and do not provide vertical guidance to the pilot. More importantly, they do not provide a safety benefit to the operation.

This option has been considered and discounted as not meeting the aerodromes objectives. In addition, as these approaches are being phased out within the aviation industry the option does not feature in the consultation feedback form in section 8.

4.4 Mitigation included in the proposed design to minimise the impact

The design of the instrument approaches has been performed within the internationally agreed design criteria published by ICAO. The designs of the instrument approaches proposed (Figure 13 and Figure 14) have been developed taking into consideration:

1) Ensuring terrain clearance over the Preseli Hills.
2) Minimise over-flights of built-up areas to the maximum extent.
3) Avoidance of the danger areas surrounding West Wales Airport.
4) Avoidance of the danger areas along the South Pembrokeshire coast.

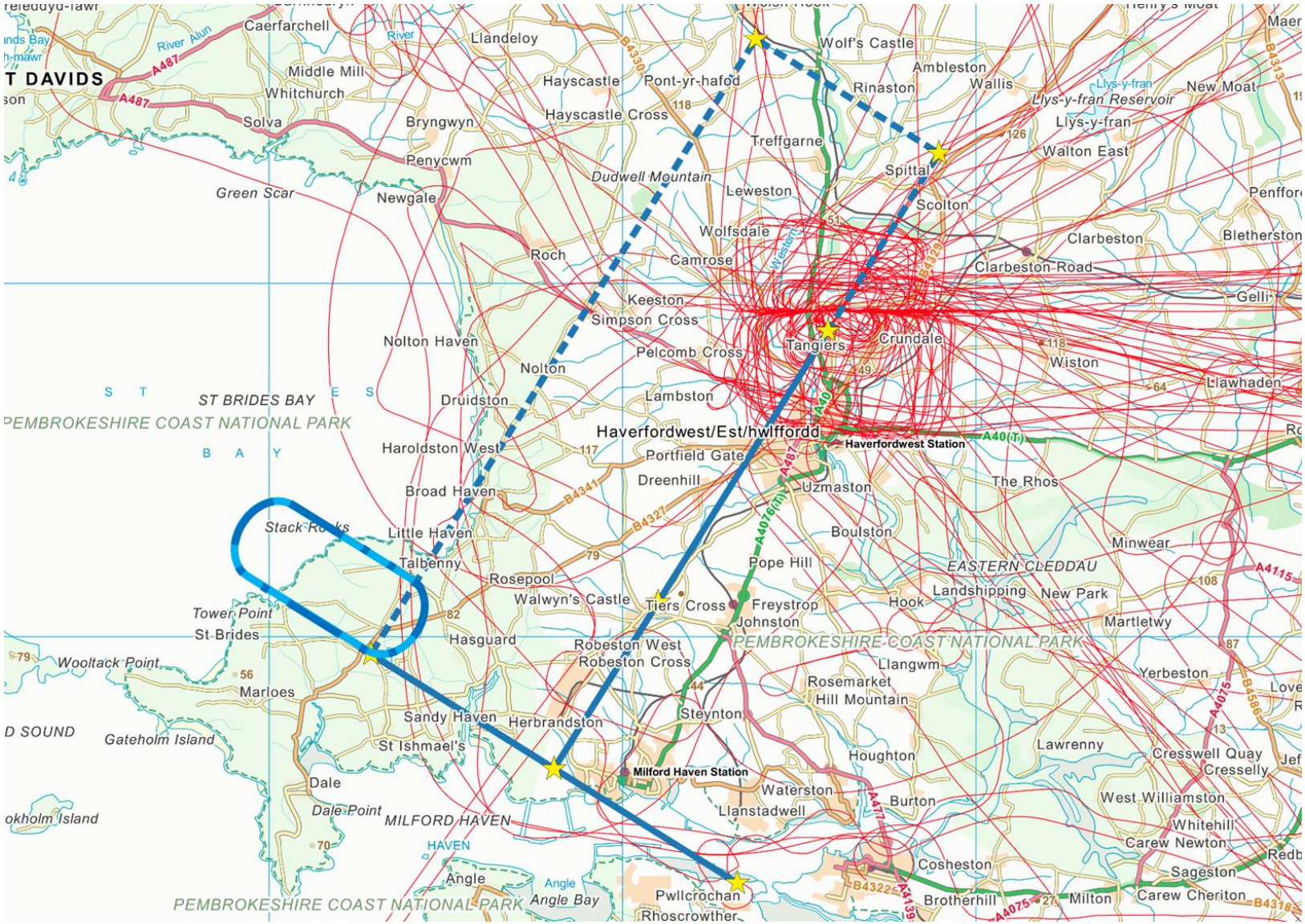


Figure 6 Proposed instrument approaches to runway 03

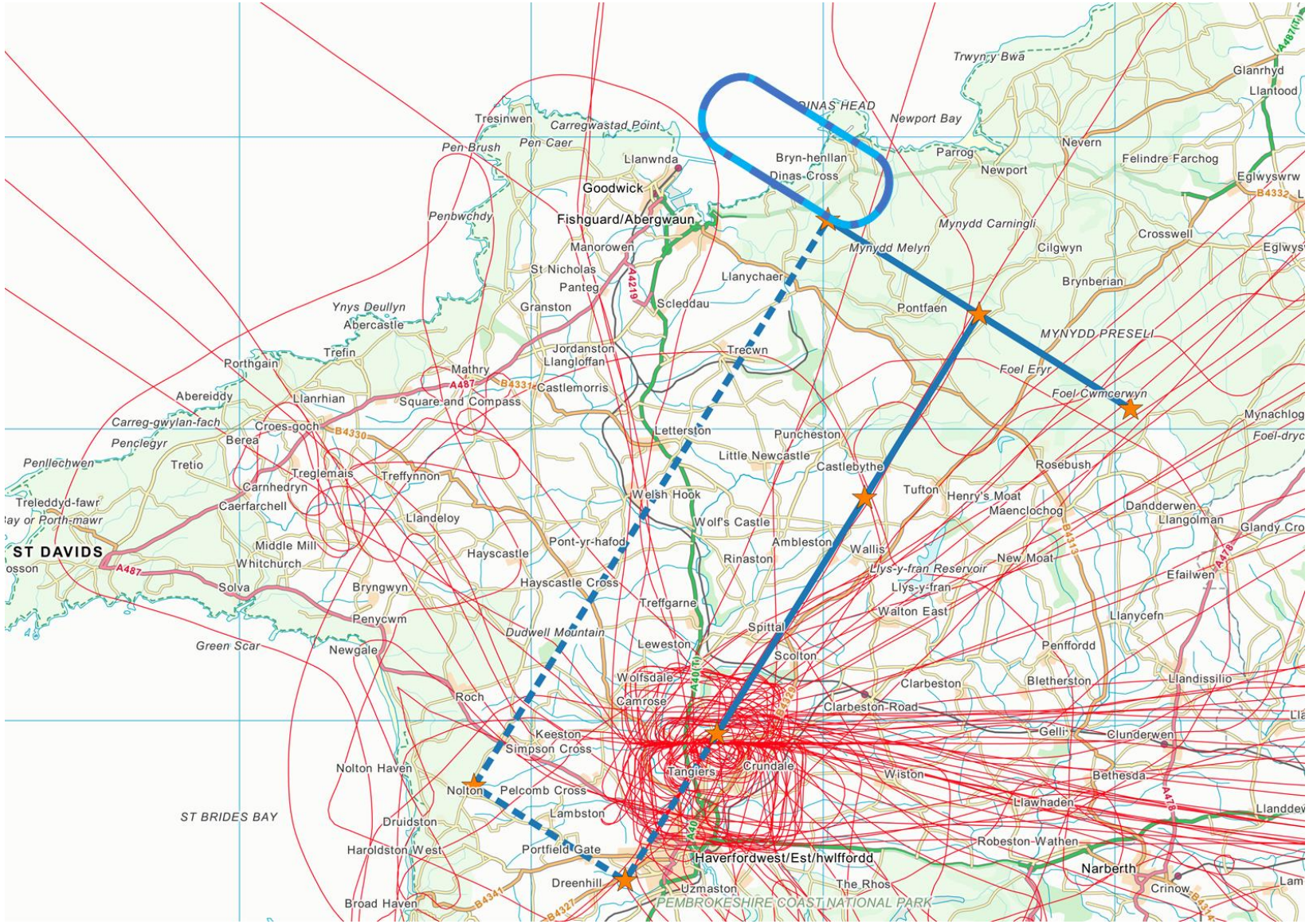


Figure 7 Proposed instrument approaches to runway 21

5 Potential environmental impacts

This section evaluates the potential environmental impact of introducing the instrument approach at Haverfordwest Aerodrome.

5.1 Environmental impacts

5.1.1 Noise

Haverfordwest Aerodrome do not expect a significant increase in additional aircraft approaches to the aerodrome and they do not expect a change in aircraft types using the approach, if the proposal is implemented. The aerodrome and its key aviation stakeholders conclude there will be an insignificant increase in noise from aircraft operations.

Given that the introduction of the instrument flight procedures will lead to a repeatable ground track over which aircraft will fly it is possible that there will be some increase in noise in some areas. However, the guidance afforded to aircraft through the instrument procedure is expected to result in aircraft flying higher (with less ground noise) than today. This is explained further in Section 6.

As part of the aerodromes on-going noise management activities, aircraft operators undertaking visual operations are required and will continue to assist in lessening the impact of noise on the surrounding areas. This includes avoiding the local riding stables and residence to the north of runway 21 and maintaining the circuit position on the downwind leg. The Noise Abatement Procedures are promulgated in the UK Aeronautical Information Publication (AIP) (EGFE AD 2.21).

5.1.2 CO_2 Emissions

Following engagement with the aerodromes key aviation stakeholders, (i.e. pilots, airspace users and airport operations staff,) there is a consensus that the proposal will allow aircraft to fly a stabilised approach with lower engine power settings.

The current approach onto runways requires pilots to follow a visual approach into the aerodrome as previously explained in section 5. Once the pilot has the aerodrome in sight, they will be required to make a turn to align with the runway. When an aircraft begins to turn, a higher engine setting may be required to maintain airspeed and thus increase CO_2 emissions, fuel burn and noise. The instrument approach proposed will allow aircraft to fly in a straight line over the ground to land with minimal alterations to their direction of travel and engine settings. This type of approach will allow pilots to configure the aircraft more efficiently and potentially minimise fuel burn, CO_2 and noise during the approach.

This lower power settings are offset against an average increase of around 4.5 nautical miles for an aircraft to fly the instrument approach.

5.1.3 Tranquillity and Visual Intrusion

The instrument approaches are not being implemented to increase the number of flights to or from Haverfordwest Aerodrome and any increase is expected to be negligible as described earlier. Consequently, the aerodrome does not believe that there will be any significant positive or negative impact on tranquillity and visual intrusion as a result of the proposal.

The height of aircraft arriving onto runway 03 and 21 will be higher during specific legs of the approach when compared to the current visual approach route. In particular, at the

initial approach fix where the initial approach leg of an instrument approach begins. Figure 8 shows the proposed instrument approaches in relation to local features on the ground.

The placement of a **Hold at 2800ft** *c*lose to the town of Fishguard (outlined as a dotted blue ring in Figure 7), is most likely to introduce some visual intrusion, however this does not mean residents of Fishguard will see significant numbers of aircraft as it is expected that there will be approximately one aircraft a week that commences the approach near Fishguard and only a small proportion of these will fly the hold. The hold is designed to ensure that in strong-wind conditions that an aircraft remains clear of the danger areas associated with West Wales Airport. This is described more in Section 6.

Note, traffic overflying the Preseli Hills as a result of the proposed instrument approaches is not expected to change however usage of the instrument approach will mean aircraft are flying at a higher altitude. Aircraft visually approaching the aerodrome already overfly the Preseli Hills.

6 How does this proposal affect me?

This section provides a qualitative assessment of the noise and number of aircraft which may have an impact to areas overflown by the proposed instrument approach procedures.

6.1 Assessment

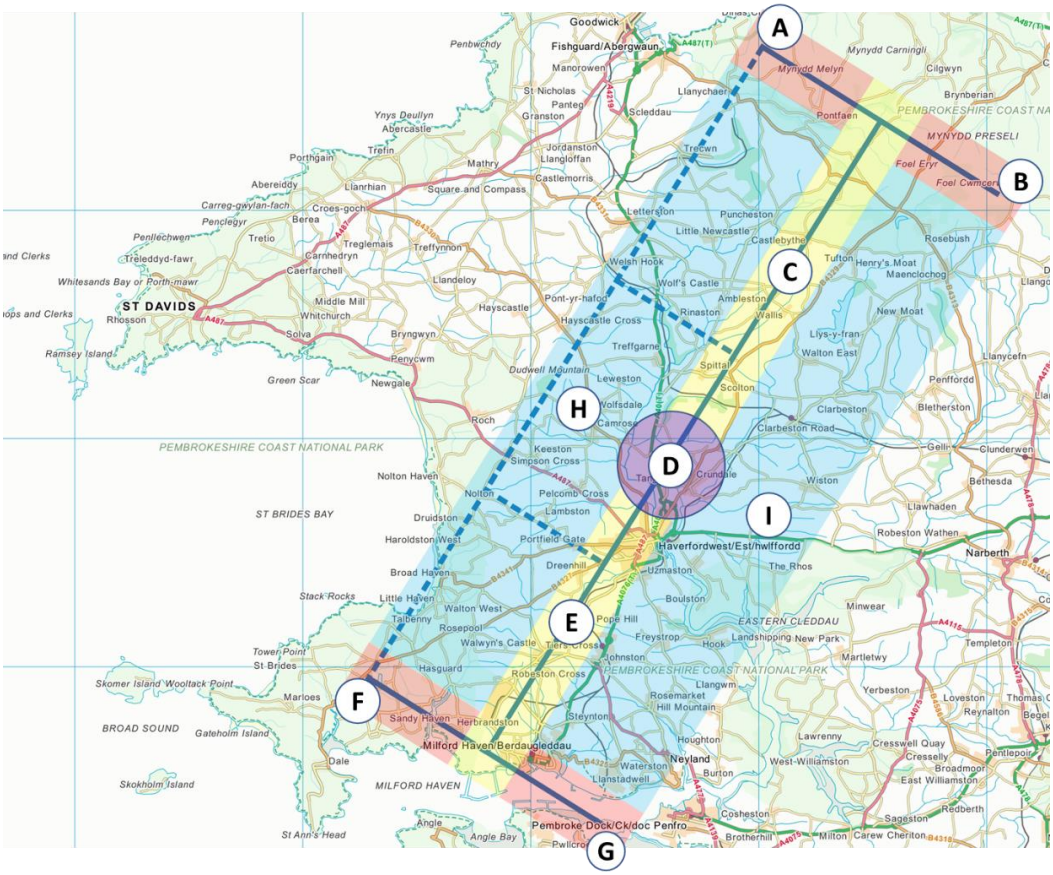


Figure 8 Map of areas impacted by instrument approach

The dark blue line in Figure 8 highlight the proposed instrument approaches to both runway 03 and 21 and the shaded areas show the underlying areas which may be impacted. Aircraft will typically either start the instrument approach by joining from A or B and funnel into C (to land on runway 21) or joining from F and G and funnelling into E (to land on runway 03). All approaches terminate within D at the aerodrome. Area H is used by aircraft using the missed approach procedure. When, for any reason, it is judged that an approach cannot be continued to a successful landing, a missed approach or go-around is flown.

Table 1 describes the impact to areas A to I in terms of **noise** and **number of aircraft**. The description of estimated impact in Table 1 is described below.

Indicator	Impact
	We estimate a net reduction of noise or aircraft numbers.
	We estimate a net increase of noise or aircraft numbers.
	We estimate no change of noise or aircraft numbers.

Region	Impact	Category	Rationale (Change to current day visual operations)
A		Noise	Aircraft will be flying higher (minimum 2900ft) when compared to an aircraft on a similar track flying to the aerodrome visually.
		No. of aircraft	55 aircraft per year are estimated to route through the area. This is estimated to be greater than today since aircraft are being routed through A rather than flying directly to the aerodrome.
B		Noise	Aircraft will be flying higher (minimum 2900ft) when comparted to an aircraft on a similar track to the aerodrome visually.
		No. of aircraft	10 aircraft per year are estimated to route through area. This is estimated to be same as today.
C		Noise	Aircraft flying the instrument approach will be higher and descending on lower power setting than an aircraft approaching the aerodrome visually.
		No. of aircraft	213 aircraft per year are estimated to route the area. This is estimated to be greater than today since aircraft are being routed through A and B rather than flying directly to the aerodrome.
D		Noise	No change to current noise in the ATZ as traffic patterns are not changing.
		No. of aircraft	No perceptible change to number of aircraft in the ATZ since the majority (~ 94%) of movements approach visually.
E		Noise	Aircraft flying the instrument approach will be higher and descending on lower power setting than an aircraft approaching the aerodrome visually.
		No. of aircraft	24 aircraft per year are estimated to route through area. The proposed instrument approach is not expected to significantly alter the current traffic flows.
F		Noise	No perceptible change in noise as area rarely used by aircraft.
		No. of aircraft	4 aircraft per year are estimated to route through area. The proposed instrument approach is not expected to significantly alter the current traffic flows.
G		Noise	No perceptible change in noise as current aircraft route over the estuary south of Milford Haven.
		No. of aircraft	18 aircraft per year are estimated to route through area. The proposed instrument approach is not expected to significantly alter the current traffic flows.
H		Noise	No perceptible change in noise since use of the missed approach is will be rare and visual operations currently dominate the area.
		No. of aircraft	17 aircraft per year are estimated to route through area. This is estimated to be same as today.
I		Noise	Slight decrease in noise as aircraft are routed through areas B and G.
		No. of aircraft	No perceptible change in aircraft numbers due to dominance of aircraft manoeuvring visually.

Table 1 Qualitative assessment of areas impacted by the instrument approach procedures

7 Consultation Process

7.1 Overview

The purpose of this consultation is to provide stakeholders and members of the public an opportunity to express their opinion, comment on the Airspace Change Proposal and for Haverfordwest Aerodrome to share information with them.

A full list of the stakeholders being contacted directly is provided in Appendix E which fall into two following groups: aviation and non-aviation stakeholders. The consultation document will be available to all stakeholders through the Pembrokeshire County Council website (advertised through local media and social media), public meetings and hard copies available at local libraries and on request.

7.2 Roles and responsibilities

The roles and responsibilities of the key organisations central to facilitating, ensuring adherence to the consultation process and approval (if successful) of the proposal have been provided below.

Haverfordwest Aerodrome

The Pembrokeshire County Council is the 'change sponsor' for this proposal and is therefore responsible for the content of the proposal and also the consultation process. In developing the Airspace Change Proposal, Haverfordwest Aerodrome are following the framework laid down by the CAA within CAP 725 CAA Guidance on the Application of the Airspace Change Process.

CAA Safety & Airspace Regulation Group (SARG)

The CAA Safety & Airspace Regulation Group (SARG) is responsible for the Airspace Change Process. Any complaints regarding the aerodromes adherence to the airspace change process should be made to the address below. Any other responses will be referred back to Haverfordwest Aerodrome.

Airspace Regulator (Coordination)

Airspace, ATM and Aerodromes

Safety and Airspace Regulation Group

CAA House

45-59 Kingsway

London WC2B 6TE

Civil Aviation Authority

The ultimate decision on the implementation of the proposed approach procedure will be taken by the UK Civil Aviation Authority (CAA), the national regulatory body.

7.3 Consultation kick-off

The proposal will be subject to a 14-week long stakeholder consultation commencing on 20th November 2017 and finishing on 26th February 2018.

All information regarding the airspace change proposal can be found on the Pembrokeshire County Council website at www.pembrokeshire.gov.uk/haveyoursay.

Hard copies will also be made available, on request, from the Council's Customer Contact Centre on 01437 764551.

7.4 How to respond to this consultation

All stakeholders are invited to submit their feedback during the consultation period through the following channels, below. All feedback will be given appropriate consideration and included in the aerodrome's consultation summary report which will identify the issues and key themes identified through the consultation and how the aerodrome intends to address them. This will be published on the Pembrokeshire County Council website before the formal proposal is submitted to the CAA (see the ACP Timetable, Table 2). All feedback received will be submitted to the CAA. If you do not want your personal information to be passed to the CAA then please ensure that this is clearly shown/stated in your feedback.

It is strongly recommended, this section is fully read before you write your response.

The consultation closes at 12:00 Noon, on Monday 26th February 2018.

Website and Email

You are invited to respond using the online response form available at www.pembrokeshire.gov.uk/haveyoursay.

Alternatively, you will find a hard copy version of the response form in Section 8 of this document.

You can also find a hard copy of the response form to download at www.pembrokeshire.gov.uk/haveyoursay, which you can print off and complete. Once complete either scan in and return to surveys@pembrokeshire.gov.uk or post to the address below.

Post

If you are unable to use email, please send a letter to the following address:

Pembrokeshire County Council

Policy

2D County Hall

Haverfordwest

SA61 1TP

Please note, we will only be responding to individual comments when it is necessary to do so to ensure that all stakeholders have the information that they need to participate in the consultation (e.g. if further information or clarification this proposal is needed).

If you would like to ensure your proposal is received, it is recommended to use a recorded delivery service.

7.5 What happens next?

After the consultation period closes, the Pembrokeshire County Council will analyse the responses and publish a report summarising the feedback received and will identify the issues and key themes identified through the consultation and how the aerodrome intends to address them. Relevant information about the consultation in general, and any other information which might be useful, will also be collated. The report will be published on the Pembrokeshire County Council website within a suitable period of the closure date of the Consultation period.

Following this, the Airspace Change Proposal (ACP) based on this consultation document and the feedback report, will be sent to the CAA.

The CAA will then complete their regulatory assessment of the proposal. The CAA will decide if it has merit, and will publish a decision on its website.

Date	Action
20th November 2017	Consultation period commences
26th February 2018	Consultation period ends
16th April 2018	Consultation summary report issued
Q2 2018	Submission of full ACP to CAA
Q3 2018	CAA Regulatory Decision
Q1 2019	Implementation of instrument approaches

Table 2 Planned airspace change timetable

8 Consultation feedback form

Using a standard format makes it easier to interpret responses, which in turn makes each response more effective. Please use the following form when responding to the consultation by email or letter. It would be helpful to include in your comments specific place(s) where you think there would be changes of impact due to this proposal. Comments are also welcome if you think there would be no change of impact.

Please complete this form and return to Pembrokeshire County Council via email or post. **Name:** **Representing (self or organisation):** **Address:** **Email:** ☐ Please tick this box if you do NOT want to share your personal information with the CAA
Consultation Options – Please tick the option which you would like to support **Option A** Introduce the instrument approach procedures to runway 03 and 21 ☐ **Option B** Do Nothing ☐
Comments: (please add additional pages as required if submitting hard copy responses)
Pembrokeshire County Council has a duty under the Equalities Act 2010 to assess the impact of any proposals on which it consults on those protected under the act. If you share a characteristic protected under the Act and would like to tell us about any particular impacts please use the space below:

Figure 9 Consultation feedback form

A Glossary

ACP	Airspace Change Proposal	A proposal presented to the Civil Aviation Authority by an airport or an air traffic service provider eg NATS (see below), to change/introduce controlled airspace or (published) aircraft procedures.
AIP	Aeronautical Information Publication	Information updated every 28 days that is essential to air navigation.
AOPA	Aircraft Owners and Pilots Association	The Aircraft Owners and Pilots Association UK, the trading name of British Light Aviation Centre Limited, is part of AOPA, the world's largest, most influential aviation membership association.
ATZ	Aerodrome Traffic Zone	An airspace of defined dimensions established around an aerodrome for the protection of aerodrome traffic.
CAA	Civil Aviation Authority	The governing body of Aviation in the UK.
CAP	Civil Aviation Publication	Publications produced by the Civil Aviation Authority.
DME	Distance Measuring Equipment	Navigation beacon, usually coupled with a VOR beacon, to enable aircraft to measure their position relative to that beacon.
FAS	Future Airspace Strategy	Plans for the future make up of UK airspace.
GA	General Aviation	Flights not involved in commercial air transport.
GPS	The Global Positioning System	A space-based radio-navigation system owned by the United States government and operated by the United States Air Force.
GNSS	Global Navigation Satellite System	Aircraft can navigate by the use of satellites (much the same as a satnav on your phone or car).
IAF	Initial Approach Fix	The position in the sky that an aircraft will start its approach to land.
IAP	Instrument Approach Procedures	A series of predetermined manoeuvres for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually or the missed approach procedure is initiated.
IFR	Instrument Flight Rules	Navigate by use of cockpit instruments tuned in to radio beacons and the Global Navigation Satellite System (GNSS). These aircraft require instrument procedures that enable the aircraft

		to approach and land at an aerodrome.
MAP	Missed Approach Procedures	When, for any reason, it is judged that an approach cannot be continued to a successful landing, a missed approach or go-around is flown. A missed approach procedure is the procedure to be followed if an approach cannot be continued. It specifies a point where the missed approach begins, and a point or an altitude/height where it ends.
NATMAC	National Air Traffic Management Advisory Committee	The National Air Traffic Management Advisory Committee (NATMAC) is a non-statutory advisory body sponsored by Director of Airspace Policy (DAP). The Committee is consulted for advice and views on any major matter concerned with airspace management.
NDB	Non-Directional Beacon	A radio transmitter at a known published position used an aviation navigational aid.
PBN	Performance-based Navigation	Navigation of aircraft using navigation satellites and computerised on-board systems.
RNAV	Area Navigation	Aircraft can fly any course without having to route over a beacon on the ground.
VFR	Visual Flight Rules	Navigate and land by visual reference to the ground and landmarks.

B Haverfordwest Aerodrome ATZ

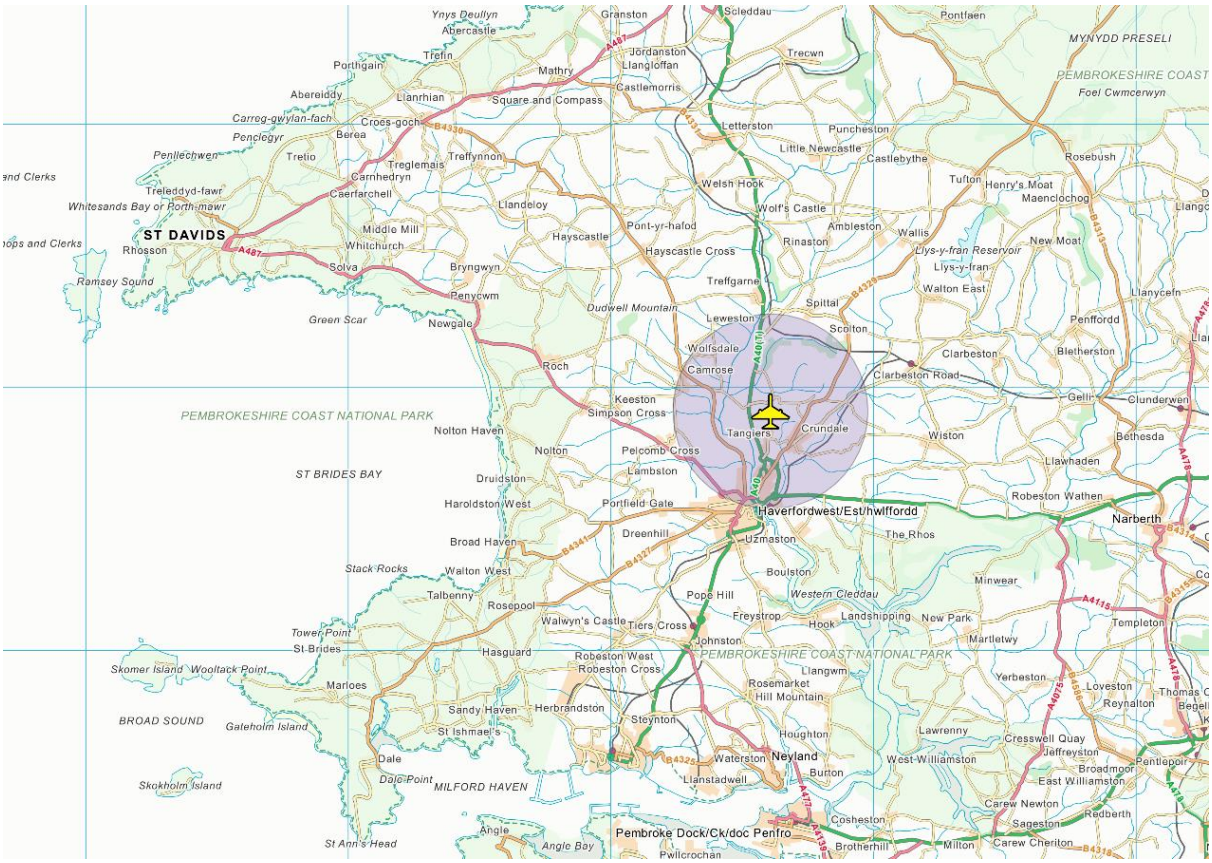


Figure 10 Haverfordwest Aerodrome ATZ

C Typical aircraft operating at Haverfordwest Aerodrome

Figure 11 Beech Super King Air 200

Figure 12 Cessna R172 Skyhawk

D Instrument approach charts

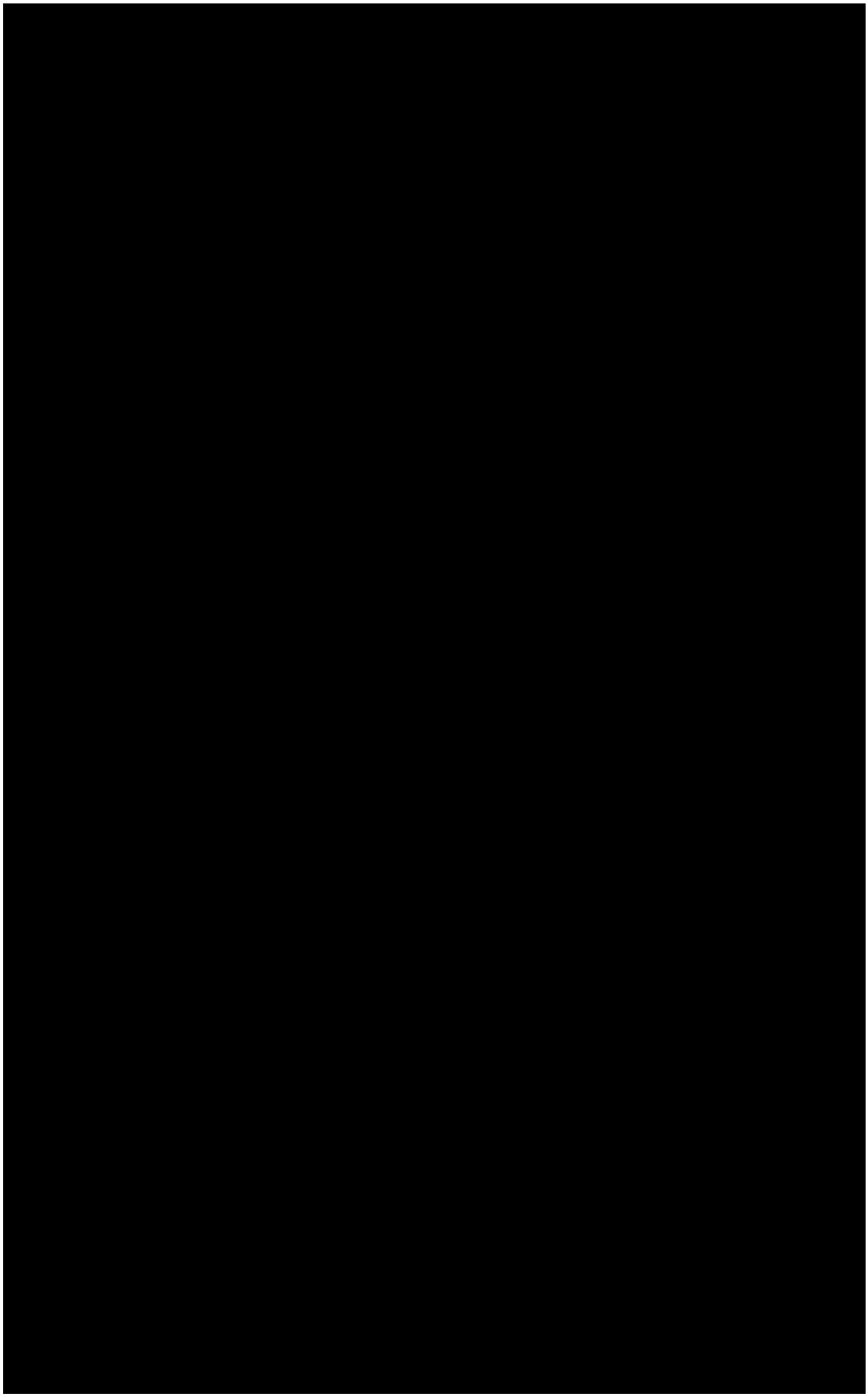


Figure 13 Draft instrument approach procedure for runway 03

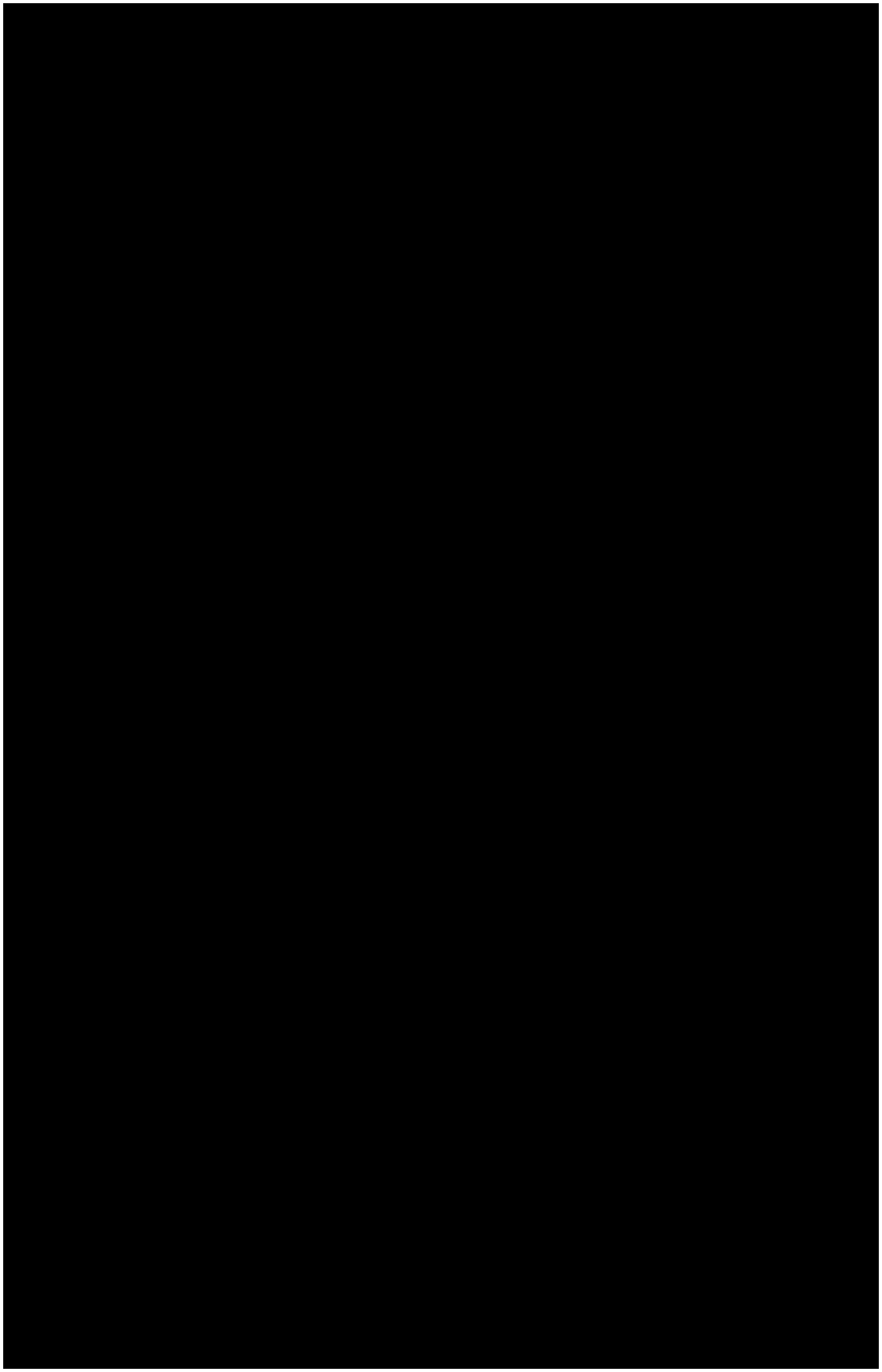


Figure 14 Draft instrument approach procedure for runway 21

E List of consultees

E.1 Aviation consultees

Airspace and airport users group

Consultee	Description	Contact
Fly Wales Air Charter and Flying School	Air Charter and flying school	http://www.flywales.co.uk/
Pembrokeshire Flying Club	Flying club	http://www.pembrokeshireflyingclub.co.uk/
Fly Heli Wales	Helicopter Charter and flying school	info@flyheliwales.co.uk
EMRTS Cymru	Emergency Medical Retrieval and Transfer Service	emrts@wales.nhs.uk
West Wales Airport	Licensed aerodrome and centre for Unmanned Systems Operations	enquiries@flyuav.co.uk
Western Power Distribution	Helicopter Power line inspection Operator	wpdhelicopterunit@westernpower.co.uk

The National Air Traffic Management Advisory Committee (NATMAC)

Consultee	Acronym
Aircraft Owners & Pilots Association	AOPA UK
Airfield Operators Group	AOG
Airlines UK	
Airport Operators Association	AOA
Aviation Environment Federation	AEF
British Aerospace Systems	BAE Systems
British Air Transport Association	BATA
British Airline Pilots Association	BALPA
British Airways	BA
British Balloon & Airship Club	BBAC
British Business & General Aviation Assc	BBGA
British Gliding Association	BGA
British Hang Gliding & Paragliding Assc	BHPA
British Helicopter Association	BHA
British Microlight Aircraft Association	BMAA
British Model Flying Association	BMFA
British Parachute Association	BPA
Civil Aviation Authority	CAA
Defence Airspace & Air Traffic Management	DAATM
Future Airspace Strategy VFR Implementation Group	FASVIG
GAA	
General Aviation Safety Council	GASCo
Guild of Air Pilots & Air Navigators	GAPAN

Consultee	Acronym
Guild of Air Traffic Control Officers	GATCO
Heathrow Airport Ltd	HAL
Heavy Airlines	
Helicopter Club of Great Britain	HCGB
Honourable Company of Air Pilots	
Isle of Man	IoM
Light Aircraft Association	LAA
Light Airlines	
Low Fares Airlines	LFA
Military Aviation Authority	MAA
Ministry of Defence	MoD
National Air Traffic Services	NATS
PPL/IR	
UK Airprox Board	UKAB
UK Flight Safety Committee	UKFSC
Unmanned Aerial Vehicles Association	UAVS

E.2 Non-aviation consultees

Local Authorities

Consultee	Contact
Pembrokeshire County Council	enquiries@pembrokeshire.gov.uk
Pembrokeshire Coast National Park Authority	info@pembrokeshirecoast.org.uk

Town and Community Councils

Consultee	Contact
Haverfordwest Town Council	julietraymond@haverfordwest-town-council.co.uk
Milford Haven Town Council	townclerk@milfordhaventowncouncil.co.uk
Fishguard and Goodwick Town Council	clerk@fishguardgoodwick-tc.gov.wales
Dinas Cross Community Council	norman.thomas7@btinternet.com
Cwm Gwaun Community Council	gwenno.eynon@yahoo.co.uk
Maenclochog Community Council	Mr D Williams (Clerk) Gwalia, Tufton, Clarbeston Road, SA63 4TU
Scleddau Community Council	scleddaucc@hotmail.com
Puncheston Community Council	punchestoncc@btinternet.com
Letterston Community Council	letterstoncc@outloook.com
Wolfscastle Community Council	Parchgeoff@gmail.com

Ambleston Community Council	amblestoncc@btinternet.com
New Moat Community Council	Mrs M Thomas (Clerk) Erwlas, New Moat, Clarbeston Road, SA63 4SA
Hayscastle Community Council	leejwilkins4@gmail.com
Spittal Community Council	cwillsspittalcc@aol.co.uk
Wiston Community Council	phsammy@btinternet.com
Nolton and Roch Community Council	noltonrochcc@outlook.com
Camrose Community Council	trisha.Camrosecc@yahoo.co.uk
Rudbaxton Community Council	gselcock@yahoo.co.uk
Uzmaston, Boulston and Slebech Community Council	uzmastonboulstonslebech@gmail.com
Merlin's Bridge Community Council	merlinsbridgecc@live.co.uk
The Havens Community Council	christine@havenscommunities.org.uk
Tiers Cross Community Council	tierscrosscc@yahoo.co.uk
Johnston Community Council	johnstoncommunitycouncil@gmail.com
Freystrop Community Council	freystropcc@yahoo.com
Rosemarket Community Council	rosemarketcommunitycouncil@tesco.net
Walwyns Castle Community Council	walwyns@btinternet.com
Llanstadwell Community Council	janeclark2009@hotmail.co.uk
St Ishmaels Community Council	mikecottam@hotmail.com
Herbranston Community Council	herbrandstoncc@yahoo.co.uk

Members of Parliament

Consultee	Contact
Steven Crabb MP, Member of Preseli Pembrokeshire	stephen.crabb.mp@parliament.uk
Simon Hart MP, Member for Carmarthen West and South Pembrokeshire	simon.hart.mp@parliament.uk
Paul Davies AM, Assembly Member for Preseli Pembrokeshire	Paul.Davies@assembly.wales
Angele Burns AM, Constituency Member for Carmarthen West and South Pembrokeshire	Angela.Burns@assembly.wales
Neil Hamilton AM, Regional Member for Mid and West Wales	Neil.Hamilton@assembly.wales
Joyce Watson AM, Regional Member for Mid and West Wales	Joyce.Watson@assembly.wales
Eluned Morgan AM, Regional Member for Mid and West Wales	Eluned.Morgan@assembly.wales
Simon Thomas AM, Regional Member for Mid and West Wales	Simon.Thomas@assembly.wales