

Introduction of RNP IAPs at Stornoway Airport

ACP-2023-020

Stage 3

Engagement Strategy

Version	Date
Final	22 April 2024

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1. Introduction

1.1 Purpose of this ACP

- 1.1.1 Stornoway Airport is seeking to introduce Performance Based Navigation (PBN) Approaches at the airport.
- 1.1.2 Stornoway Airport planned to introduce PBN to improve and innovate approaches at the airport originally in 2013. However, as Civil Aviation Authority (CAA) approval was never received for the proposed designs, it has become necessary for Stornoway Airport to carry out an Airspace Change Proposal (ACP) in accordance with CAP1616.
- 1.1.3 Stornoway Airport are now carrying out a Level 3 ACP, in accordance with the CAP1616H, Appendix A¹ guidance and this document is the Stage 3 Engagement Strategy.

1.2 What is Performance-Based Navigation (PBN)

- 1.2.1 PBN improves the accuracy of where aircraft fly, by moving away from outdated conventional navigation – using ground-based beacons, to modern satellite navigation. This technology allows more flexible position of routes and enable aircraft to fly them more accurately. This helps improve operation performance and reduce delays. PBN is being introduced across the world.
- 1.2.2 There are various specifications of PBN approach and Stornoway Airport are looking to introduce RNP (Required Navigation Performance) approaches. RNP use a series of satellite-based way points which aircraft follow, to fly the overall Instrument Approach Procedure (IAP). Aircraft join the IAP at the Initial Approach Fix (IAF) waypoint before proceeding to the Intermediate Fix (IF), then to the Final Approach Fix (FAF) and descent to either land or undertake a missed approach.

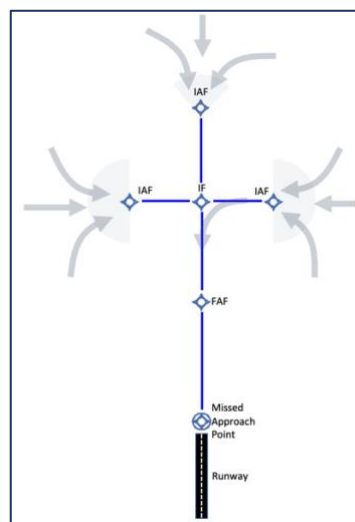


Figure 1: RNP Approach (T-Bar)

¹ [CAP1616H](#)

1.3 The Airspace Change Process

- 1.3.1 In December 2017, the CAA reformed the airspace change process and introduced CAP1616 Airspace Change Guidance detailing the regulatory process for changing the design of airspace over the UK, including flight paths and procedures.
- 1.3.2 In correspondence with the CAA prior to the commencement of this ACP, the CAA advised HIAL that they should follow the Part 1C Airspace Change Proposal format, the process of which is laid out in CAP1616 (Edition 4), Part 1c, pages 97-102².
- 1.3.3 The process is similar to the full Level 1 ACP as laid out in CAP1616, with 7 stages, however the requirements and outputs differ, as do the timescales.
- 1.3.4 At the start of this ACP, on 5 October 2023 Edition 4 of CAP1616 was in use. However, CAP1616 had undergone a consultation and update earlier in 2023 and Edition 5 was published at the end of October 2023, after the Statement of Need and Assessment meeting for this ACP had taken place. As a consequence of the update to CAP1616, a Part 1C ACP has now been renamed as a Level 3 Pre-Scaled ACP.
- 1.3.5 This ACP was initiated under CAP1616 Edition 4 and Stage 1 is in accordance with the requirements of that document.
- 1.3.6 Following discussion with the CAA, Stage 2 onwards will be written in accordance with the new CAP1616H, Pre-Scaled ACP, Appendix A, pages 24-31.

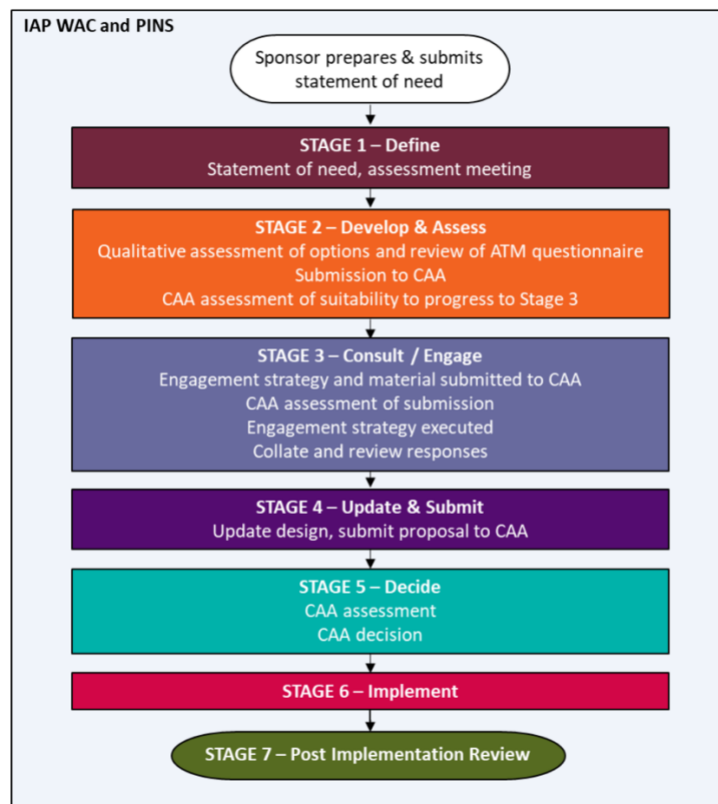


Figure 2: CAP1616h Appendix A - 7 Stages

² CAP1616, 4th edition, published March 2021

1.4 Summary of previous stages

- 1.4.1 The following table summarises the work undertaken to date during Stages 1 and 2 and provides link to the previous submission documents, which are available on the [CAA Portal](#).

Airspace Change Stage	Summary	Links to CAA Portal
Stage 1 ³	<p>In March 2023 HIAL submitted a Statement of Need (SoN) to the CAA.</p> <p>HIAL participated in an assessment meeting with the CAA on 5 October 2023.</p> <p>Under this process, there is no formal Gateway and on 30 October 2023 the CAA determined that this proposal could move into Stage 2.</p>	<p>Statement of Need</p> <p>Assessment Meeting Presentation</p> <p>Assessment Meeting Minutes</p>
Stage 2 ⁴	<p>Stage 2 of CAP1616H is Develop and Assess. This stage requires the change sponsor to carry out an assessment of each proposed option against the mandatory Design Principles.</p> <p>The sponsor must also include qualitative statements on safety, environmental, economic impacts, and positive and negative impacts on other airspace users.</p> <p>The sponsor must also complete the ATM Safety Questionnaire for review by the CAA.</p>	<p>Stage 2 Submission Document</p>

Table 1: Summary of ACP stages to date

1.5 CAP1616H Level 3 Pre-Scaled ACP - Stage 3

Requirements

- 1.5.1 CAP1616H Appendix A recognises that the introduction of IAPs is likely to impact a relatively low number of stakeholders and therefore formal consultation is not necessary, if the proposal has not triggered an additional environmental assessment, which this proposal has not.
- 1.5.2 Therefore, the requirements for Stage 3 – Consult/Engage are for the change sponsor to produce an engagement strategy (this document) setting out the following:
- Which stakeholders they plan to engage and how they were identified. At a minimum, the change sponsor is required to engage aviation stakeholders (specifically, airspace users, air navigation service providers, airports, and relevant members of the National Air Traffic Management Advisory Committee (NATMAC)).

³ Stage 1 of this ACP was carried out iaw [CAP1616 Edition 4](#), Part 1c, pages 97-102

⁴ Stage 2 onwards of this ACP is iaw with [CAP1616H](#), Appendix A, pages 24-31

- Engagement with non-aviation stakeholders, if appropriate depending on the circumstances of the airspace change proposal.
 - How they plan to engage with those stakeholders.
 - What materials will be used to support engagement activities.
 - Engagement timescales and the rationale for this duration.
- 1.5.3 There is no Stage 3 gateway for this pre-scaled process. However, the following documentation must be submitted to the CAA for review.
- Engagement strategy
 - Engagement material.
- 1.5.4 If the CAA is satisfied that the relevant process requirements and guidance have been met, they will progress the airspace change proposal and the sponsor can begin to execute their engagement strategy.

2. Stakeholder Identification

2.1 Stakeholders

- 2.1.1 CAP1616H, Appendix A states that at a minimum, the change sponsor is required to engage aviation stakeholders. HIAL have identified the following aviation industry stakeholders who will be engaged on this ACP.
- 2.1.2 The stakeholders listed in Table 2 are the aviation organisations who utilise Stornoway Airport.

Aviation organisations

Loganair	Gama (Air Ambulance)
Bristow (Search & Rescue)	Stornoway Helipad Air Charter Service
Scottish Ambulance Service HeliMed (HLE)	Airtask Group

Table 2: Aviation organisation stakeholders

NATMAC⁵

Airlines UK	Drone Major
Airport Operators Association	General Aviation Alliance
Airfield Operators Group	Heavy Airlines
Aircraft Owners and Pilots Association	Helicopter Club of Great Britain
Airspace Change Organising Group	Isle of Man CAA
Association of Remotely Pilots Aircraft Systems	Light Aircraft Association
Aviation Environment Federation	Low Fare Airlines
British Airways	Military Aviation Authority
BAe Systems	Ministry of Defence
British Airline Pilots Association	NATS
British Balloon and Airship Club	Navy Command HQ
British Business and General Aviation Association	PPL/IR (Europe)
British Gliding Association	UK Airprox Board
British Helicopter Association	UK Flight Safety Committee
British Microlight Aircraft Association	United States Air Force Europe
British Skydiving	

Table 3: List of NATMAC members

- 2.1.3 The option proposed by HIAL aims to replicate the existing traffic patterns to the greatest extent possible and there is no change to the number or type of aircraft who will be using Stornoway Airport. There are also no anticipated changes to noise and environmental impacts or air quality. However, for transparency and awareness HIAL have decided to engage with a selection of key non-aviation industry stakeholders.
- 2.1.4 HIAL carried out a stakeholder mapping exercise to identify any non-aviation stakeholders in the region who may have an interest in the ACP. Table 4 identifies the

⁵ As per the list provided by the CAA in November 2023

non-aviation industry stakeholders, including local government and environmental organisations, who will be engaged as part of this ACP.

Non-Industry Stakeholders

Comhairle nan Eilean Siar (Western Isles Council)	NatureScot
Scottish Environment Protection Agency (SEPA)	Na h-Eileanan an Iar MSP
Western Isles Hospital (Helipad)	Stornoway Port

Table 4: Non-industry stakeholders

2.2 Method of Engagement

2.2.1 HIAL will engage via email, providing all stakeholders with a presentation about the ACP. The presentation will include information suitable for both industry and non-industry stakeholders, including the following:

- Background and aims of the ACP
- Proposed option, including:
 - Draft IFP charts showing likely track & altitude
 - how the options meet the design principles
- Qualitative statements on the:
 - Impacts on safety
 - Environmental impacts
 - Economic impacts
 - Positive and negative impacts on airspace users
- Information the Habitat Regulation Assessment
- Information on the operational concepts
- Any options, that have been considered, but are not being proposed.

2.2.2 HIAL intend to ask the aviation industry stakeholders to provide feedback on the following questions:

- Do you have any concerns with the proposed Instrument Approach Procedure (IAP)?
- Are there any operational considerations we need to take into account?

2.2.3 HIAL will ask the non-industry stakeholders to provide feedback generally on the proposal.

2.2.4 Stakeholders will be provided with a bespoke email address to contact the HIAL team with any questions regarding the proposals and to provide formal feedback.

2.2.5 Stakeholders will be given 6 weeks to provide feedback on the engagement material and a reminder email will be sent to any stakeholders who have not responded at the mid-point of the engagement, and one week prior to the end of the engagement period.

- 2.2.6 Stornoway Airport are conducting this engagement concurrently with very similar stakeholder engagement at Benbecula Airport. As many of the identified stakeholders, industry and non-industry are the same for both airports, Stornoway Airport will ensure that the email accompanying the engagement material clearly sets out how stakeholders should identify their feedback for each airport.

2.3 Engagement Materials

- 2.3.1 A copy of the engagement material is available at Appendix A.

3. Engagement Timescales

3.1 Timescales

- 3.1.1 HIAL are proposing a 6-week engagement period. This will begin following a confirmation that the CAA are happy for the proposal to progress. We anticipate the CAA to make this decision on 26 April 2024.
- 3.1.2 Assuming the proposal can progress, HIAL will begin engagement on Friday 3 May 2024, emailing the engagement material to all stakeholders identified in section 2 of this document. Stakeholders will have until Friday 14 June 2024 to provide feedback.

3.2 Rationale

- 3.2.1 Due to the limited scope and impacts of the proposal, HIAL believes 6 weeks to be an appropriate length of time for stakeholders to respond to the engagement material.

Appendix A – Engagement Material

ACP-2023-020

Stornoway Airport

Introduction of RNP Approaches at Stornoway Airport

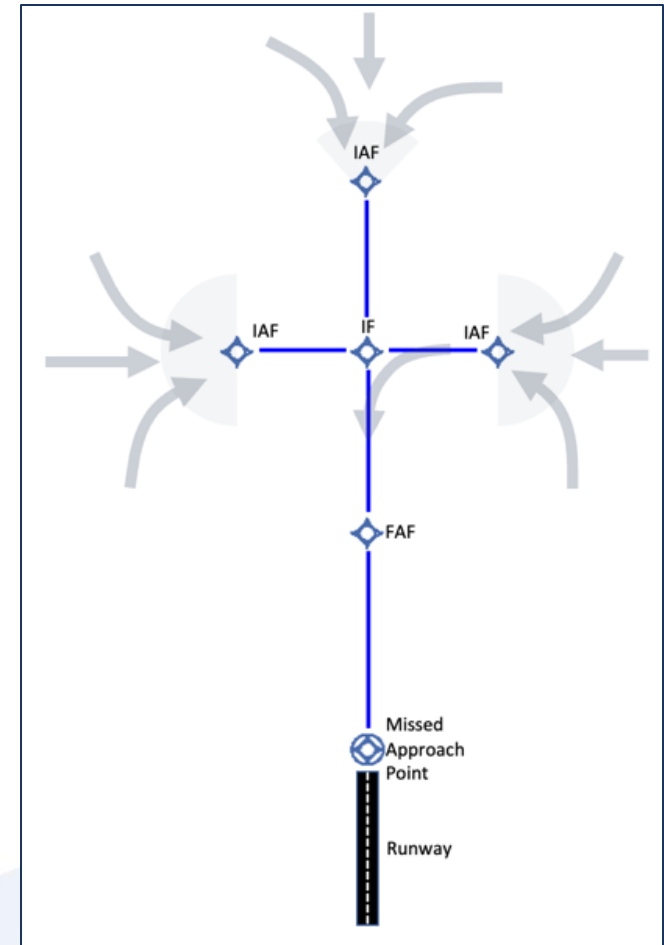
**Stakeholder Engagement
May-June 2024**

Introduction

- Stornoway Airport is proposing to **introduce additional procedures to enhance** the way in which some of the aircraft arrive at the airport.
- The current navigation aids used by aircraft arriving at the airport today rely on older and less reliable technology, which are regularly impacted by outages in the harsh environment of the Western Islands of Scotland and due to the location of the airport, faults and outages can take longer to fix.
- **To ensure the sustainability of airport operations, the connectivity to Islands and mainland Scotland and to support out of hours medical emergency and SAR flights, HIAL would like to introduce a new method for aircraft to arrive at Stornoway airport.**

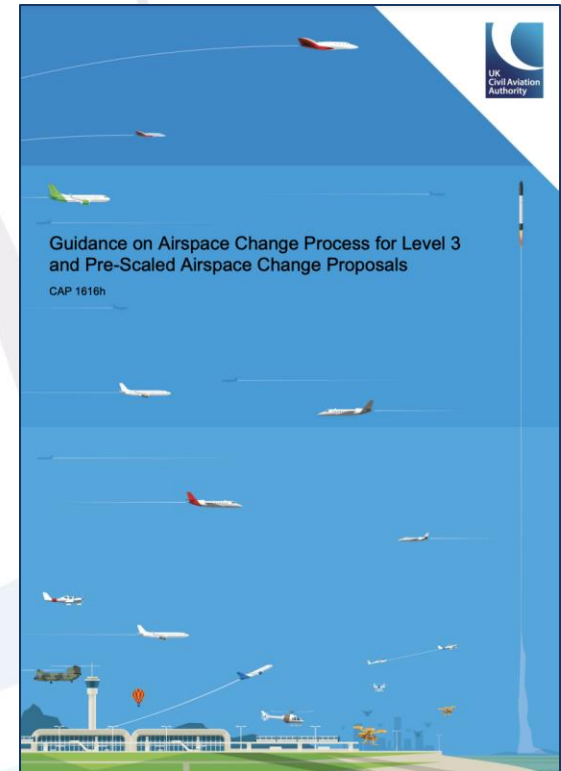
Performance Based Arrivals (PBN) at Stornoway Airport

- This new method introduces a series of satellite-based way points which aircraft will follow to arrive at the airport.
- This is called an RNP (Required Navigation Performance) Instrument Approach Procedure (IAP) and uses PBN technology. PBN improves the accuracy of where aircraft fly, by moving away from outdated, conventional navigation to more modern satellite navigation. This technology allows more flexible positioning of routes and enables aircraft to fly them more accurately. This helps improve operation performance and reduce delays.
- Such PBN procedures are commonplace in the UK and the rest of the world.



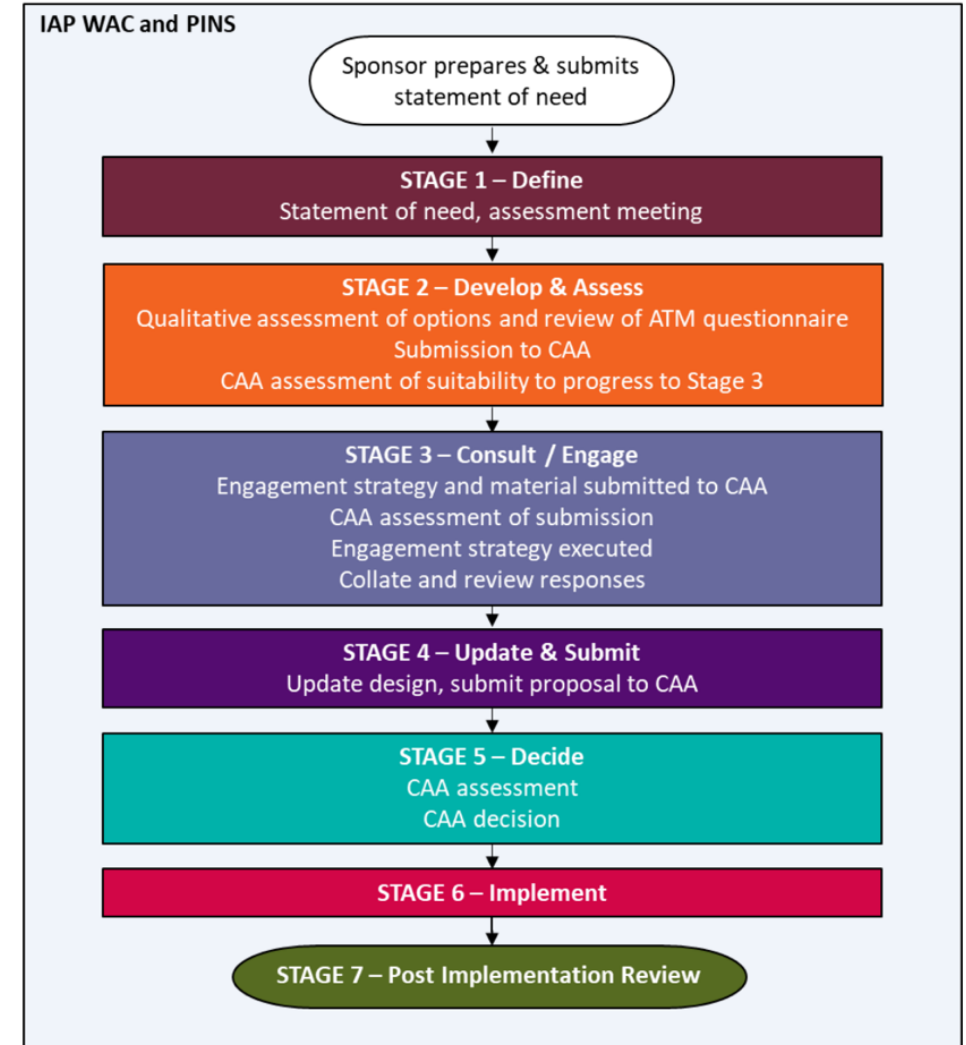
The airspace change process

- Stornoway Airport planned to introduce PBN to improve and innovate approaches at the airport originally in 2013, however, as Civil Aviation Authority (CAA) approval was never received for the proposed designs, it has become necessary for Stornoway to carry out an Airspace Change Proposal (ACP) in accordance with the CAA's guidance, detailing the regulatory process for changing the design of airspace over the UK, including flight paths and procedures. This guidance is known as CAP1616.
- Prior to the commencement of this process, HIAL received confirmation from the CAA that HIAL should follow the guidance outlined in Part 1C of [Edition 4](#) of CAP1616.
- On 30 October 2023 the CAA published CAP1616 (Edition 5) and renamed the process which HIAL should follow, as a [Level 3 Pre-Scaled ACP](#) (Appendix A).
- Stage 1 was completed in accordance with (iaw) Edition 4, however Stages 2 onwards are being completed iaw with Edition 5.



The airspace change process

- The Pre-Scaled ACP outlined in Appendix A has 7 steps.
- HIAL has already completed Step 1 – Define, by submitting a Statement of Need for this proposal and conducting an assessment meeting with the CAA . More information can be found at the Assessment Meeting [presentation](#) and [minutes](#).
- In March 2024 HIAL completed Stage 2 of the process, where we provided the CAA with details of our proposed option and assessed it against the required criteria. Our Stage 2 submission can be found [here](#).



Purpose of this engagement

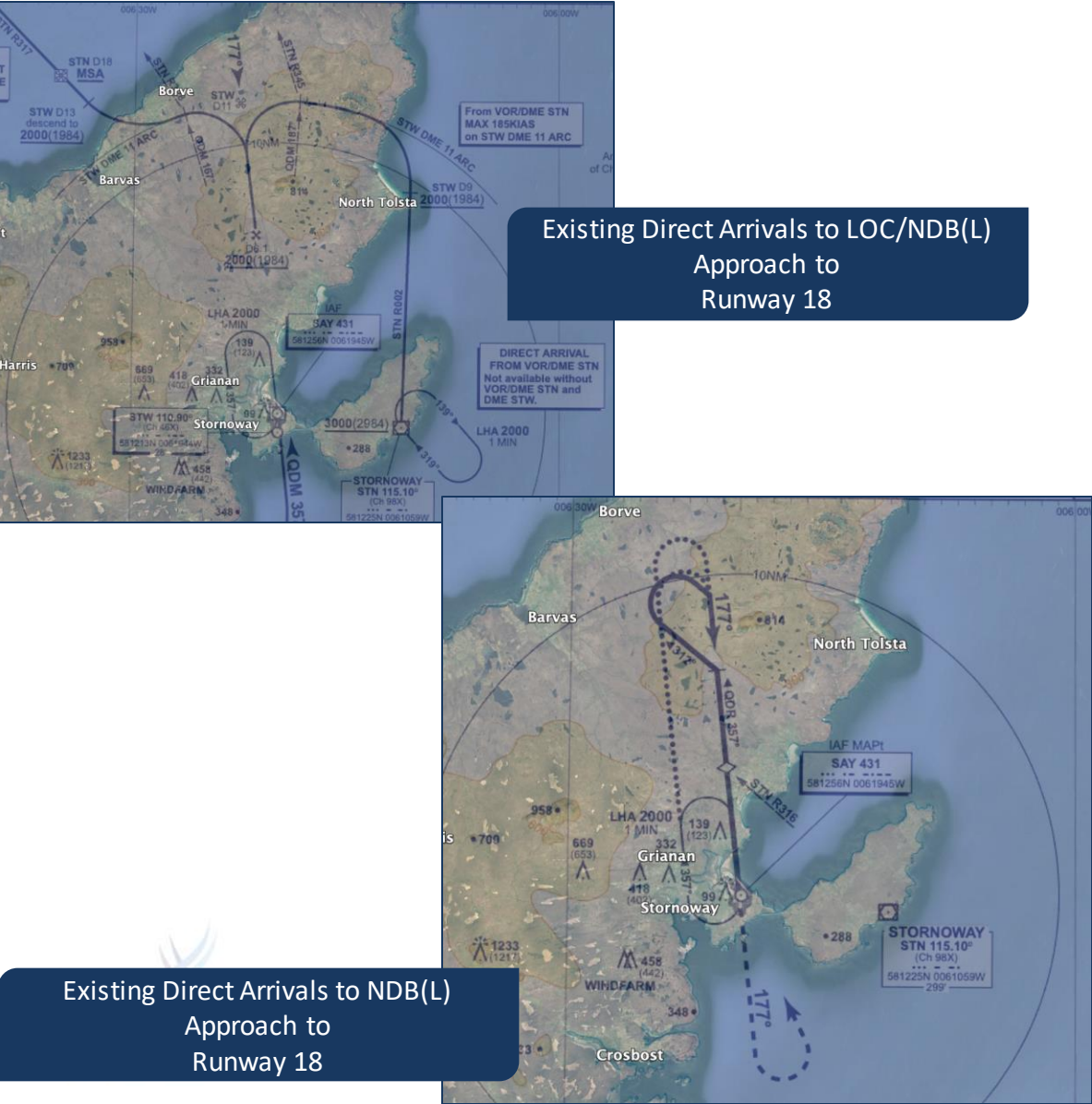
- CAP1616H Appendix A recognises that the introduction of the PBN approaches is likely to impact a relatively low number of stakeholders, therefore formal consultation is **not** required.
- Stornoway Airport is required to engage with aviation industry stakeholders and can engage with non-aviation stakeholders depending on the circumstances of the airspace change proposal.
- Stornoway Airport has identified some non-aviation industry stakeholders who may be interested in this proposal and this engagement material has been created for both sets of aviation and non-aviation stakeholders.

- For our aviation stakeholders we would like feedback on the following questions:
 - **Do you have any concerns with the proposed Instrument Approach Procedure (IAP)?**
 - **Are there any operational considerations we need to take into account?**
- For our non-aviation stakeholders, we welcome **any feedback generally on our proposal.**

Proposed Option

- Stornoway Airport has a single proposed option for PBN (RNP) approaches to both runways, Runway 18 and Runway 36.
- No other options are being proposed as the option has already been through a long process of design, stakeholder feedback, and has incorporated feedback following CAA Instrument Flight Procedures (IFP) review, as well as supporting HIAL safety case development.
- The option been designed to **replicate as closely as possible the existing approaches to Stornoway Airport.**
- The following images illustrates some of the existing approaches for aircraft arriving at the airport and the option for the PBN (RNP) Approach to Runway 18 and to Runway 36 in **red**, overlaid onto some of the existing approaches to Stornoway Airport.

Option Images – Runway 18



Existing Direct Arrivals to NDB(L) Approach to Runway 18

Proposed Design Option to Runway 18 overlaid onto existing arrivals

Option Images – Runway 36



Draft Charts

- The following two slides show **draft** charts with more details of the procedure, including the likely altitudes of the aircraft.

NOT FOR OPERATIONAL USE

INSTRUMENT APPROACH CHART - ICAO

STORNOWAY

RNP

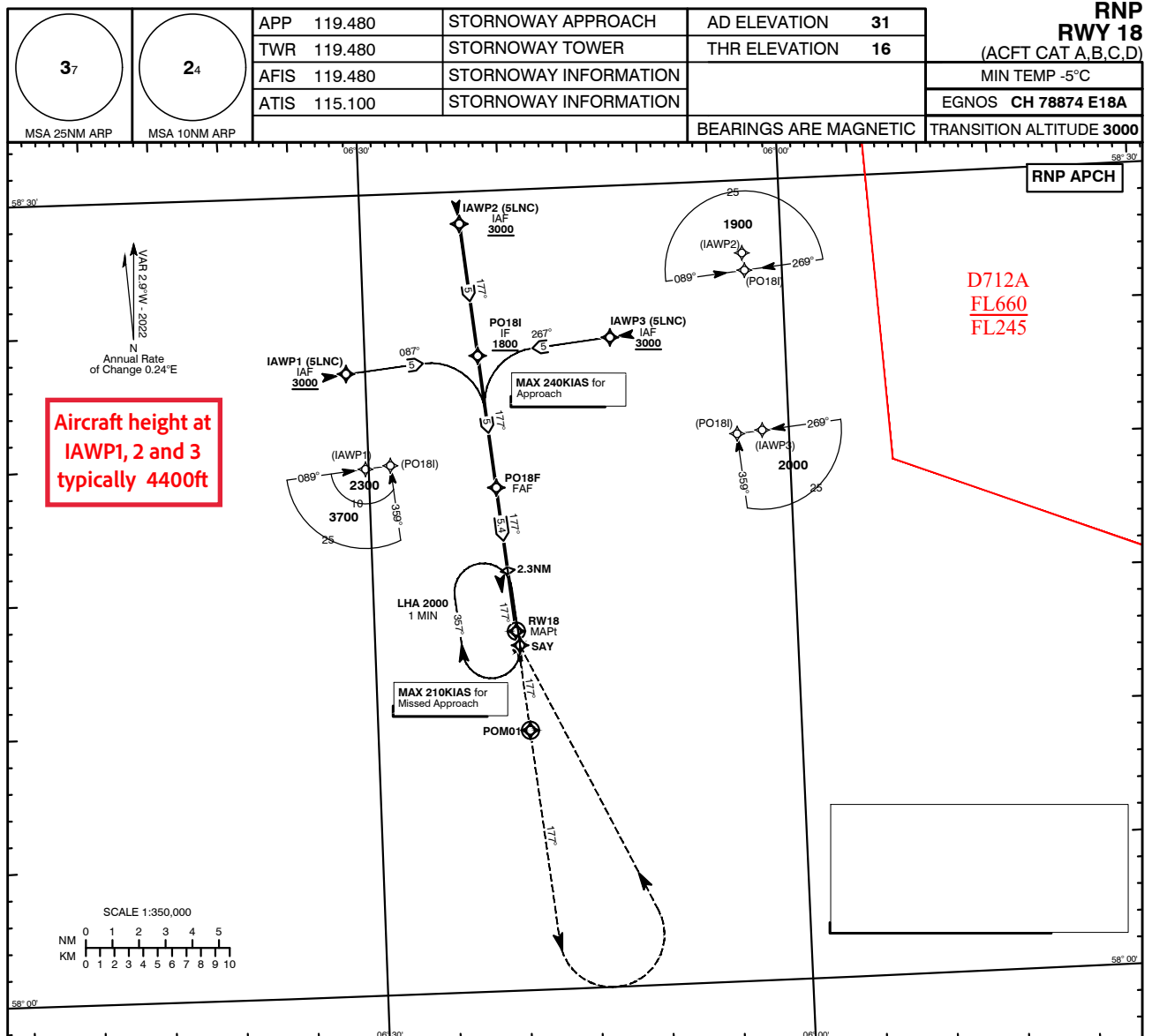
RWY 18

(ACFT CAT A,B,C,D)

MIN TEMP -5°C

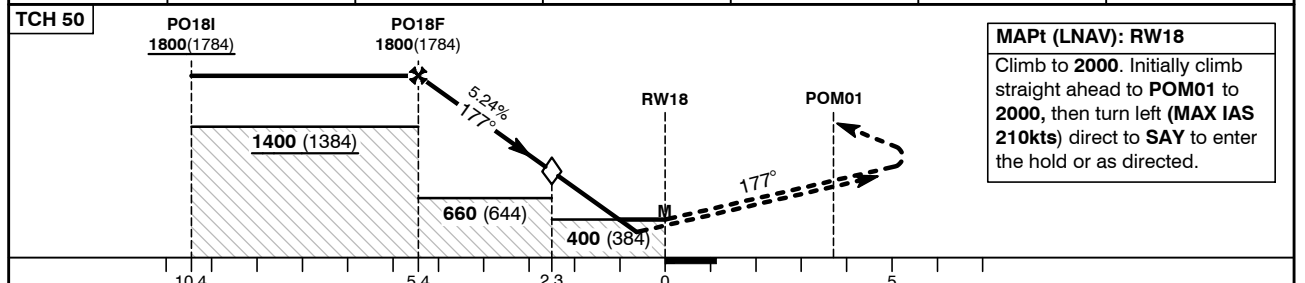
EGNOS CH 78874 E18A

TRANSITION ALTITUDE 3000



RECOMMENDED PROFILE LPV - VERTICAL PATH ANGLE 3.0° (LNAV 5.24%), 318FT/NM

THR 18	5	4	3	2.3 (SDF)	2	1
ALT (HGT)	1660 (1644)	1340 (1324)	1020 (1004)	800 (784)	700 (684)	380 (364)



Aircraft Category		A	B	C	D	Rate of descent	G/S KT	160	140	120	100	80
OCA (OCH)	LPV	266 (250)					FT/MIN	850	740	640	530	420
	LNAV/VNAV	290 (274)	300 (284)	310 (294)	320 (304)							
	LNAV	400 (384)										
VM(C)OCA (OCH AAL)	Total Area	470 (439)	750 (719)	1010 (979)	1390 (1359)							
	EAST of RWY 18/36	450 (419)	530 (499)	680 (649)	760 (729)							

CHANGE: New.

NOT FOR OPERATIONAL USE

INSTRUMENT APPROACH CHART - ICAO

STORNOWAY

RNP

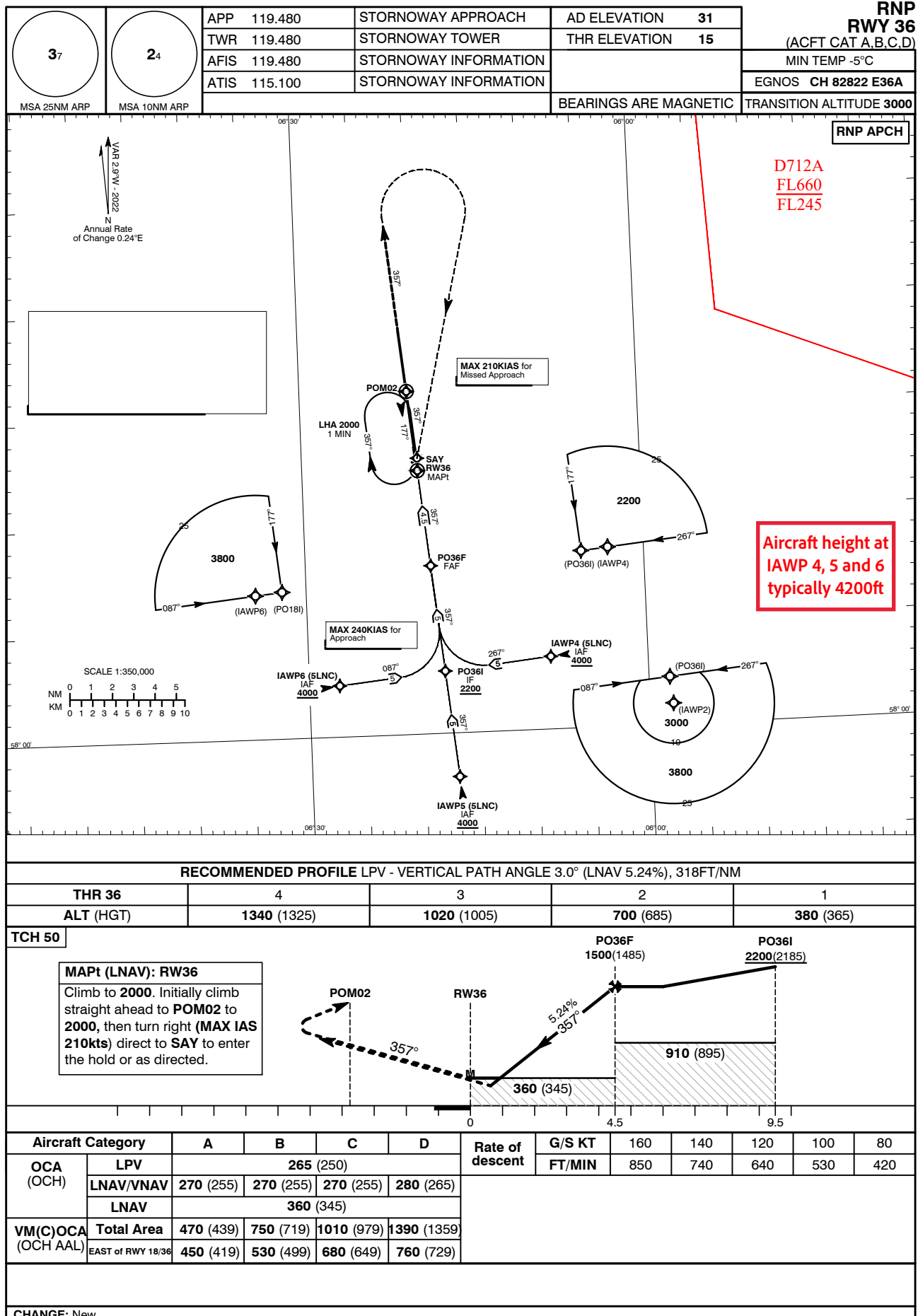
RWY 36

(ACFT CAT A,B,C,D)

MIN TEMP -5°C

EGNOS CH 82822 E36A

TRANSITION ALTITUDE 3000





Design Principle Evaluation

- As part of Stage 2 of the process, Stornoway Airport was required to assess the proposed option against the Design Principles for the proposal. More information can be found in our Stage 2 submission [here](#).
- Design Principles provide a framework to support the development of the option(s) and are often written as high-level statements. Stornoway Airport must use 2 of the CAA's mandatory Design Principles and a required environmental design principle but could also develop their own. Stornoway Airport added 1 additional Design Principle.
 - ***The airspace change proposal must maintain a high standard of safety and should seek to enhance current levels of safety.*** (CAA Mandatory Design Principle Safety)
 - ***The airspace change proposal should not be inconsistent with relevant legislation, the CAA's airspace modernisation strategy or Secretary of State and CAA's policy and guidance.*** (CAA Mandatory Design Principle Policy)
 - ***The airspace change proposal should avoid overflight of densely populated areas where possible.*** (CAA Environmental Design Principle*)
 - ***The proposal should replicate existing design/traffic patterns to the greatest extent possible.*** (HIAL's Design Principle)

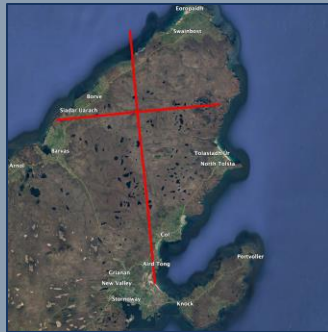
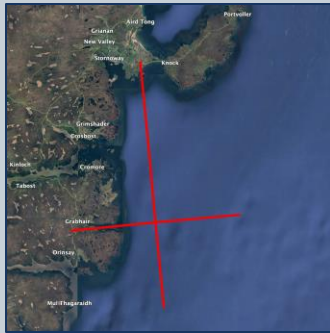
Design Principle Evaluation

- Stornoway Airport was required to demonstrate how the design options met or did not meet the design principles.

		Design Principles			
		The airspace change proposal must maintain a high standard of safety and should seek to enhance current levels of safety	The airspace change proposal should not be inconsistent with relevant legislation, the CAA's airspace modernisation strategy or Secretary of State and CAA's policy and guidance	The airspace change proposal should avoid overflight of densely populated areas where possible	Should replicate existing design/traffic patterns to the greatest extent possible
Option	Image				
Runway 18 Option		Option improves the existing level of safety, compared to non-precision approaches. RNP Approaches improve flight safety over the existing Non-Precision Approaches by reducing the risk of controlled flight into terrain (CFIT). They can also provide better access and lower minima to runways that are not equipped with precision approach and landing systems such as ILS.	Option is being progressed in accordance with CAP1616 and in support of the AMS: "There will be an emphasis on providing satellite-derived final approach guidance for approaches where criteria such as cloud base or visibility would ordinarily limit a pilot's landing options". ¹⁰ As can be seen by the other DP assessments, required by policy, the proposals enhance safety and avoid areas of densely populated areas where possible.	Option replicates the existing design/traffic which is over areas of low population density. The T Bar from the west overflies Upper Barvas and Siadar Uarach however the existing Direct Arrival from the northwest is already positioned over these areas.	Option replicates the existing design/traffic patterns to the greatest extent possible.
Runway 36 Option		Option improves the existing level of safety, compared to non-precision approaches. RNP Approaches improve flight safety over the existing Non-Precision Approaches by reducing the risk of controlled flight into terrain (CFIT). They can also provide better access and lower minima to runways that are not equipped with precision approach and landing systems such as ILS.	Option is being progressed in accordance with CAP1616 and in support of the AMS: "There will be an emphasis on providing satellite-derived final approach guidance for approaches where criteria such as cloud base or visibility would ordinarily limit a pilot's landing options". ⁹ As can be seen by the other DP assessments, required by policy, the proposals enhance safety and avoid areas of densely populated areas where possible.	Option is nearly all over water apart from the T Bar from the west, which overflies Grabhair, however the existing Direct Arrival from the southwest is already positioned over this area.	Option replicates the existing design/traffic patterns to the greatest extent possible.

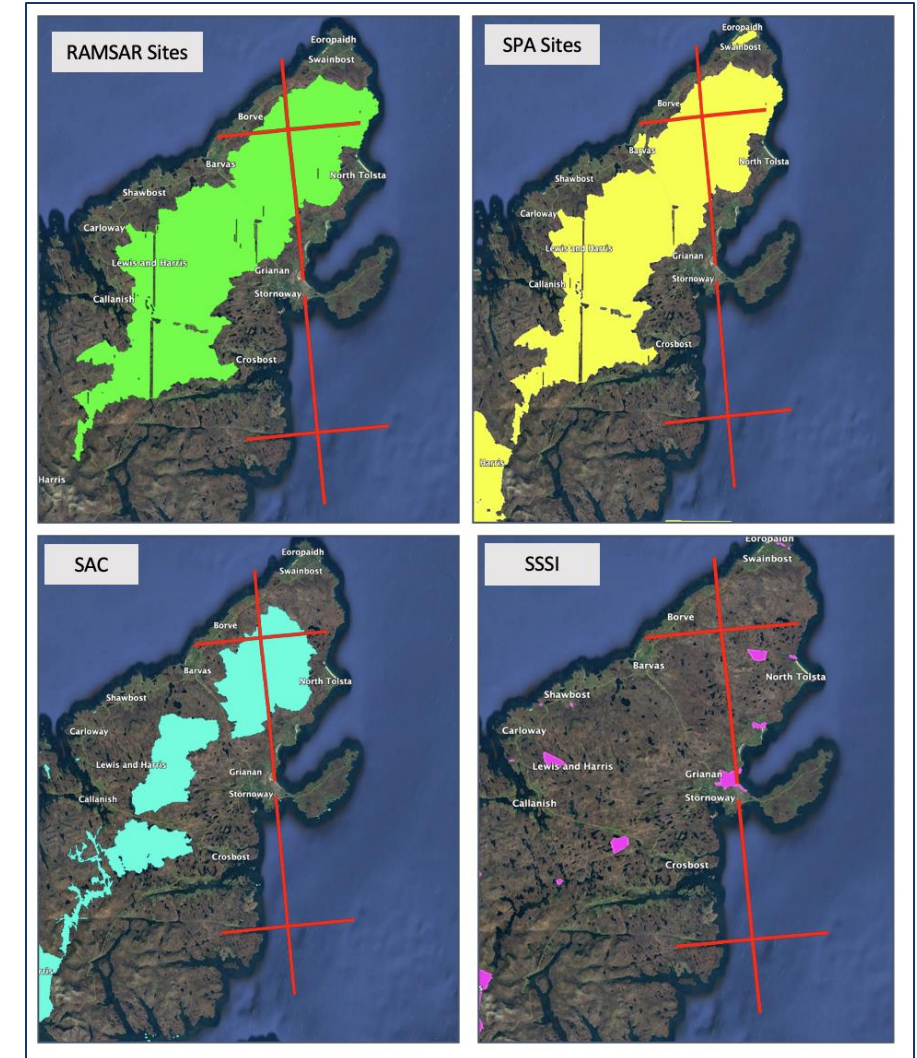
Appraisal of the option

- Stornoway Airport was also required to provide Qualitative statements on the impacts on safety, environmental impacts, economic impacts and any positive and negative impacts on airspace users.
- The following table is a summary of the appraisal which can be found in our Stage 2 Submission Document [here](#).

Category		Impacts on safety	Environmental impacts	Economic impacts (Noise, Air Quality, Biodiversity, Tranquillity & Resilience)	Impacts on airspace users
Option					
Runway 18 Option		Option improves the existing level of safety, in comparison to non-precision approaches. Improves flight safety over the existing non-precision approaches, reducing the risk of controlled flight into terrain.	<p>No new environmental impacts expected, as the design is as close as possible to the existing approaches.</p> <p>There is no change to the anticipated number or type of aircraft using the airport.</p>	<p>There are no anticipated changes to noise impacts or Air Quality.</p> <p>The introduction of these approaches will increase resilience by allowing access to the airport in more limiting visual conditions and could result in fewer Missed Approaches, decreasing CO2 emissions.</p> <p>There is no expected overflight of any National Scenic Areas (NSAs).</p>	<p>There are no changes to airspace boundaries or classifications.</p> <p>The introduction of these approaches will improve access to the airport for all airspace users capable of flying them.</p>
Runway 36 Option		Option also provide better access and lower minima to runways that are not equipped with precision approach and landing systems such as ILS.	The procedures will continue to be flown in a procedural environment, where the Minimum Safe Altitude (MSA) will not change.		

Habitats Regulations Assessment

- In Stage 2 Stornoway Airport were required to carry out a Habitats Regulations Assessment – Early Screening Criteria.
- This is in order to ascertain whether an airspace change proposal is likely to have a significant effect on a European site, such as a Special Area of Conservation (SAC), Special Protection Areas (SPA), RAMSAR sites (wetlands of international sites) and Sites of Special Scientific Interest (SSSI).
- Stornoway Airport carried out this assessment in Stage 2 and completed the required Early Screening Criteria.
- The image to the right shows the new options overlaid onto the European sites in the vicinity of Stornoway Airport.
- The proposed option for arrivals to Runway 36 do not overfly any European sites.
- The proposed option for arrivals to Runway 18 do overfly European sites, but in the same regions and at the same altitude as today. Further details can be found in our Stage 2 submission [here](#).
- At the end of Stage 2, the CAA confirmed that we had fulfilled the requirements of completing the HRA screening criteria forms and no additional evidence regarding the HRA was requested by the CAA for Stage 3.



Operational Concept

- Existing Aerodrome Control Instrument, Approach Control Procedural and Aerodrome Flight Information Services procedures for coordination and integration of all traffic will be adjusted to accommodate the new approach.
- All flights take place in Class G airspace, no changes to airspace classification are proposed for this ACP.

In the UK there are currently five classes of airspace; A,C,D,E and G. Class B is not currently used in the UK. The classification of the airspace determines the flight rules which apply and the minimum air traffic services which are to be provided. Classes A, C, D and E are areas of controlled airspace and G is uncontrolled airspace.

In Class G airspace, aircraft may fly when and where they like, subject to a set of simple rules. Although there is no legal requirement to do so, many pilots notify Air Traffic Control of their presence and intentions and pilots take full responsibility for their own safety, although they can ask for help. Air Traffic Control can provide pilots in Class G with basic flight information service to support their safe flying.

Your Feedback

- Stornoway Airport would welcome your feedback on our proposal. For our aviation stakeholders we would be grateful for your feedback on the following questions:
 - **Do you have any concerns with the proposed Instrument Approach Procedure (IAP)?**
 - **Are there any operational considerations we need to take into account?**
- For our non-aviation stakeholders, we welcome **any feedback generally on our proposal.**
- If you have any questions regarding our proposal or engagement material, please contact the team at the email address below.

Please submit your response via email to HIALACP@traxinternational.co.uk by
1700hrs Friday 14 June 2024.