

Introduction of RNP IAPs at Stornoway Airport

ACP-2023-020 Stage 2 Submission

Version	Content	Date
1.0	Original	24 January 2024
2.0	Updated following CAA feedback	1 March 2024

Change Record

CAA Feedback	Sponsor Response	Location of update(s)
The sponsor is required to produce a traffic forecast in terms of the total number and types of aircraft that will be operating at the aerodrome and those anticipated to use the RNP IAPs in the first two years after the introduction of the ACP.	Text and tables added to submission.	Paragraphs 3.2.2-3.2.6 Tables 4-7 Pages 13-14

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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 2 submission.

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 PBN improves the accuracy of where aircraft fly, by moving away from outdated conventional navigation – using ground-based beacons, to modern satellite navigation.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 specification 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.

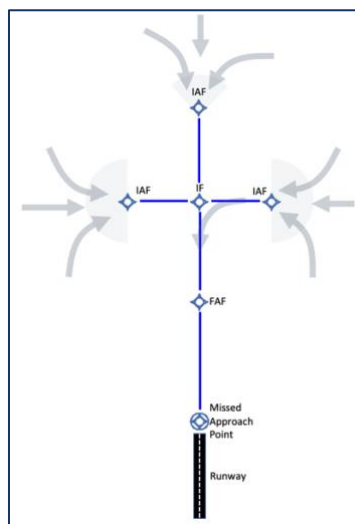


Figure 1: RNP Approach (T-Bar)

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.

1.4 Stage 1 Summary

- 1.4.1 HIAL submitted a Statement of Need to the CAA in March 2023 and held an Assessment Meeting with the CAA on 5 October 2023.
- 1.4.2 The full Statement of Need can be found on the CAA Portal [here](#) and the minutes from the Assessment Meeting are available [here](#).

Stornoway Airport is currently served by IAPs relying on conventional navigation aids (SAY NDB and STN DVOR with the latter being owned and maintained by NATS NERL).

HIAL planned to introduce RNP (originally GNSS) approaches to Stornoway as part of its aim to innovate and move to a PBN environment. The project commenced prior to the introduction of CAP1616. However, CAA approval was never received and the directive on HIAL is that the introduction of the RNP IAPs must now follow the CAP1616 process.

The NDB IAPs are prone to ground effect and regular outages in the harsh environment of the Western Islands of Scotland. RNP IAPs will not have the same dependency on either weather or engineering support (weather permitting, it can take 2 days for an ATSEP to travel to the Island, thus increasing the risk exponentially). Dependency on old and unreliable technology such as the terrestrial based NDB is not sufficient to ensure the sustainability of airport operations and vital connectivity to island communities, including out of hours medical emergency and SAR flights. There is currently no resilience to an NDB failure should the non-HIAL DVOR be out of service (either planned or unplanned)

² [CAP1616](#), 4th edition, published March 2021

The introduction of RNP IAPs are an essential measure at Stornoway to cater for the unreliable nature of the NDB and provide IAPs to life-line services to the island community. RNP are the means by which HIAL aim to support the CAA future airspace and PBN aspirations.

- 1.4.3 Unlike the full level 1 ACP CAP1616 process, there is no requirement for stakeholder engagement in Stage 1, so following the agreement of the assessment meeting minutes the CAA authorised HIAL to move into Stage 2 of the process.

1.5 CAP1616H Level 3 Pre-Scaled ACP - Stage 2

Design Principles

- 1.5.1 A Level 3 Pre-Scaled ACP, Appendix A recognises that the options associated with the implementation of an RNP IAP are very limited, and for this reason, there is no requirement for sponsors' own Design Principles to be developed beyond the mandatory Design Principles (MDP) outlined in CAP1616H and CAP1616F³. These are MDP Safety and MDP Policy.
- *MDP Safety: The airspace change proposal must maintain a high standard of safety and should seek to enhance current levels of safety.*
 - *MDP Policy: 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.*
- 1.5.2 Guidance from the Secretary of State to the CAA recognises that the CAA must consider the environmental impacts of a proposal before making a decision, but the Air Navigation Guidance 2017 does not apply to these types of airspace change proposals. The MDP Environment therefore does not apply to this pre-scaled process. However, change sponsors must produce an assessment of any design options considered against the following environmental design principle:
- *The airspace change proposal should avoid overflight of densely populated areas where possible⁴.*
- 1.5.3 Whilst the sponsor must include these three design principles, they should also include other design principles that reflect local considerations or impacts to other airspace users, so that they are considered part of the design process.
- 1.5.4 The development of these design principles can be undertaken without additional engagement.
- 1.5.5 Stornoway Airport has decided to add a fourth design principle:
- *The proposal should replicate existing design/traffic patterns to the greatest extent possible.*
- 1.5.6 All design options will need to demonstrate how they meet (or don't meet) the design principles developed at this stage. This is shown in our Option(s) Evaluation in Section 4.3 of this document.

³ [CAP1616F page 20](#)

⁴ This is in line with the government's policy to limit and, where possible, reduce the number of people in the UK adversely affected by aircraft noise and the impacts on health and quality of life associated with it.

Environmental Assessment Requirements

- 1.5.7 The CAA must consider the environmental impact of a proposal before making a decision, but Air Navigation Guidance does not apply to this type of ACP⁵.
- 1.5.8 The sponsor should consider the environmental impact of any potential design option and should set out the change that is anticipated from the introduction of the proposed IAP, along with any supporting evidence. This should include:
- *The anticipated change in the number of aircraft using the aerodrome;*
 - *The change in the type of aircraft using the aerodrome;*
 - *Changes in altitude of aircraft using the procedures; and,*
 - *Change in areas overflown by the introduction of the IAPs.*
- 1.5.9 No further environmental assessment will be necessary if:
- *The sponsor can reasonably demonstrate that the introduction of RNP IAP is not expected to increase the total number of aircraft movements at the aerodrome in the first two years after introduction, by 10% or more (by at least a minimum of 3,6540 movements per year), and;*
 - *The proposal does not change the final approach path of aircraft within 1nm from the runway, and;*
 - *The proposal will not change the environmental impact of aircraft utilising other aerodromes.*

Additional Requirements

- 1.5.10 The sponsor should engage with an Approved Procedure Design Organisation (APDO) to understand the potential design options in the context of the circumstances at the aerodrome (for example, obstacles, nearby airspace structures as well as environmental considerations).
- 1.5.11 The change sponsor will need to develop their operational concept and complete the CAA's ATM Safety Questionnaire. The review and associated feedback of this Questionnaire allows the sponsor to continue to develop their final Safety Case for the operation of the procedures.
- 1.5.12 The change sponsor must complete the habitats regulations assessment early screen criteria form, available at CAP1616i, Environmental Assessment Requirements and Guidance for Airspace Change Proposals⁶. If the sponsor can reasonably demonstrate that the airspace change proposal is unlikely to have a significant effect on a European site, no further habitats regulations assessment will be required.

⁵ CAP1616H Appendix A, para A6

⁶ [CAP1616i](#)

2. Airport Information

2.1 General Information

- 2.1.1 Stornoway Airport is located approximately 2nm east of the namesake town on the Scottish Isle of Lewis. The airport primarily supports scheduled passenger services to and from the Scottish mainland as well as Benbecula Airport, to the south.
- 2.1.2 The Airport receives a number of postal and air ambulance flights, as well as both business, commercial passenger and general aviation visitors. It is also base to a number of civilian Search and Rescue helicopters, operated by the Bristow Group.
- 2.1.3 There are two runway strips containing RWYs 18/36, 2315m long and 46m wide, and RWYs 06/24, 1000m long and 23m wide.
- 2.1.4 An overview of airspace, infrastructure and operations at Stornoway Airport is provided within the aerodrome specific section of the UK Aeronautical Information Publications (AIP) at AD2.EGPO [here](#).



Figure 2: Local Area Chart (Stornoway)

2.2 Air Traffic Movements

- 2.2.1 Stornoway Airport operates on a Prior Permission Required (PPR) only basis. The scheduled aerodrome opening hours are (UTC):

Mon-Fri 0700-1945 (0600-1845); Sat 0700-1530 (0600-1430); Sun 1245-1745 (1145-1645) and by arrangement with AD operator (HIAL).

- 2.2.2 The following tables summarise the air traffic movements at Stornoway Airport since 2019.

Commercial Movements						Non-Commercial Movements						
	Total	Air Transport	Of Which			Test & Training	Other flights by AT Operators	Aero Club	Private	Official	Military	Business Aviation
			Air Taxi	Positioning Flights	Local Movements							
2019	9444	7691	2026	309	220	774	-	-	294	-	156	-
2020	5662	4571	1988	128	224	562	4	-	147	-	26	-
2021	6809	5225	2083	203	283	675	-	-	260	-	163	-
2022	7384	5029	598	101	284	684	557	-	310	274	66	79

Table 1: Air Traffic Movements 2019-2022⁷

- 2.2.12 The principal operator at Stornoway Airport is Loganair, who operate scheduled services to/from Glasgow, Edinburgh, Inverness, Southampton, and Benbecula Airports. Stornoway Airport also has flights from Bristow's (Search and Rescue) which is based at the airport, Gama (air ambulance) and UK military aircraft.

2.3 Current Procedures

- 2.3.1 The existing instrument approaches for aircraft arriving at Stornoway Airport are LOC/DME, NDB/DME and NDB approaches to each runway plus a VOR/DME arrival.
- 2.3.2 Over the last 5 years at Stornoway Airport, Runway 18 was in use approximately 70% of the time and Runway 36 was in use approximately 30% of the time.
- 2.3.3 The approximate usage of the existing procedures is in the following table.

	Current approximate usage			
	LOC Approach	NDB Approach	VOR Approach	Visual Approach
RWY 18	80%	5%	1%	14%
RWY 36	80%	5%	1%	14%

Table 2: Existing procedures % usage

- 2.3.4 The following images show the existing approaches to Runway 18 at the airport.

⁷ Information taken from CAA airport data [here](#)

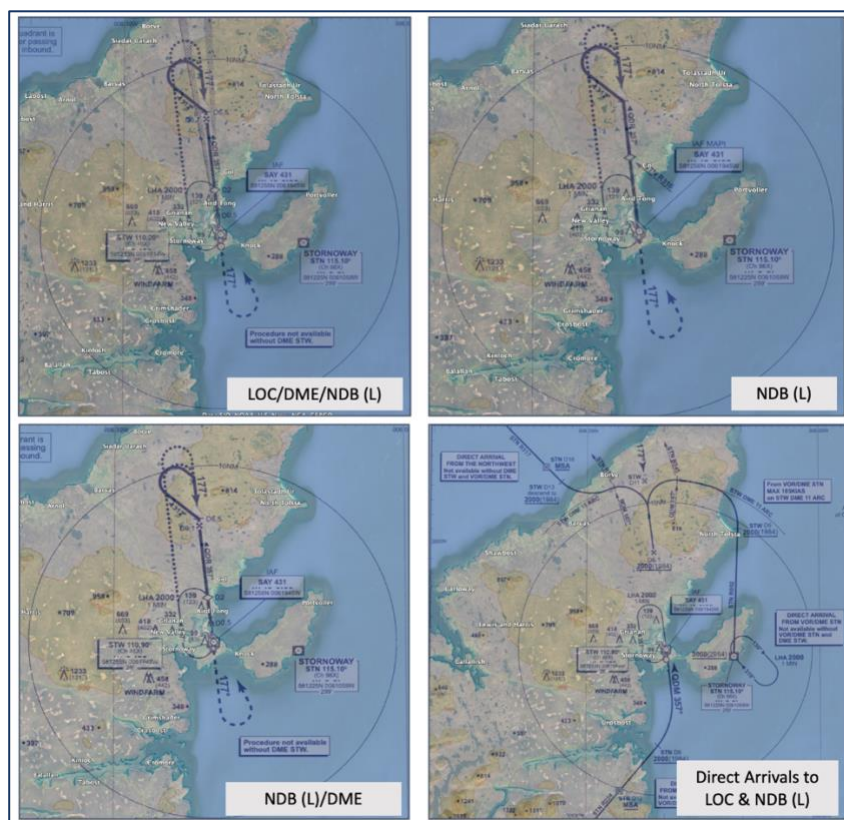
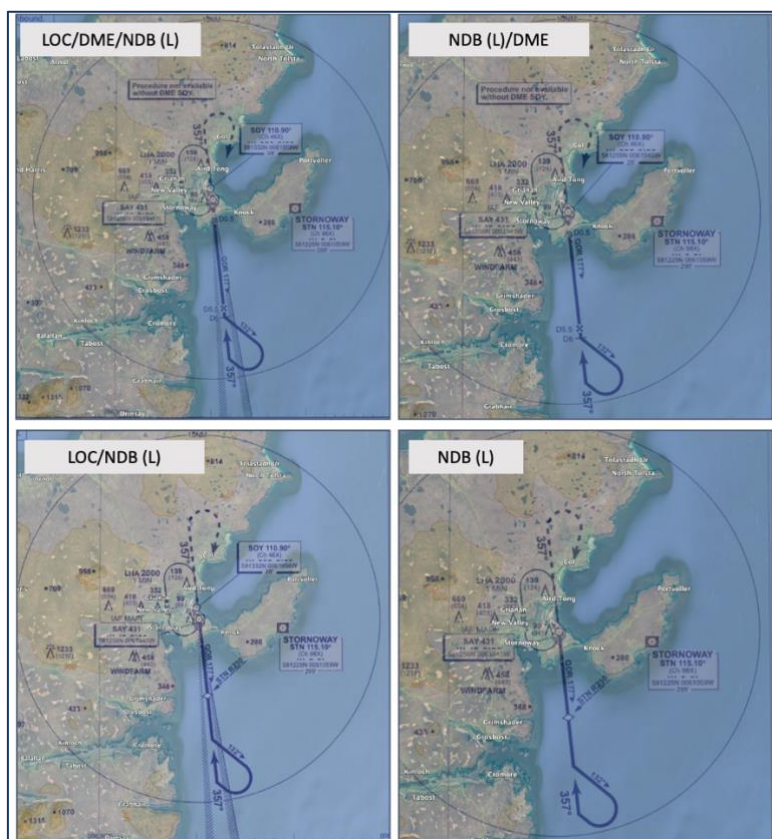


Figure 3: Existing approaches to Runway 18

2.3.5 The following images show the existing approaches to Runway 36 at the airport.



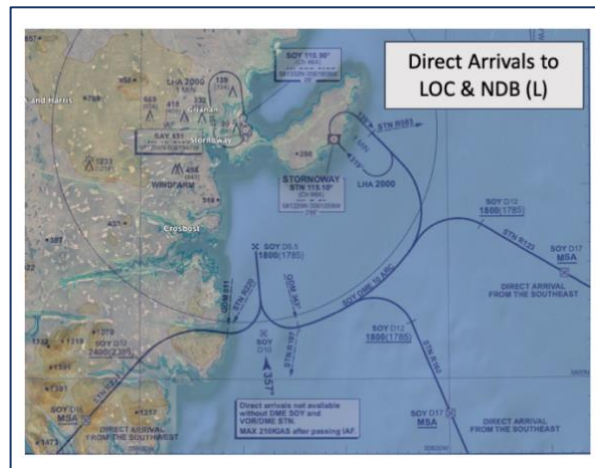


Figure 4: Existing approaches to Runway 36

2.3.6 There is also a VOR DME approach to the aerodrome.

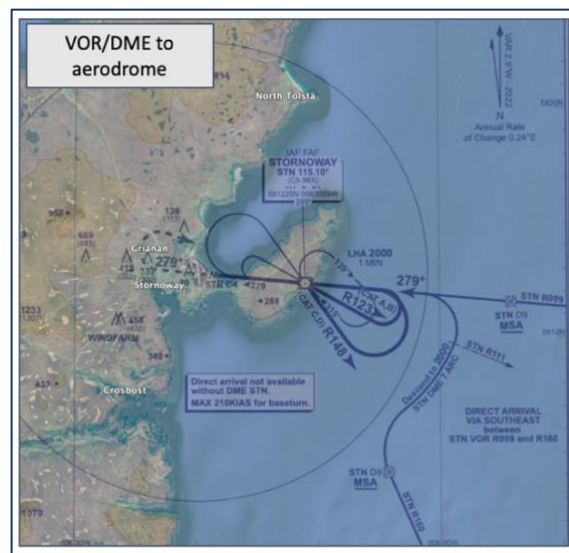


Figure 5: VOR DME approach to the aerodrome

2.3.7 The existing VOR based procedures will continue to be available at Stornoway Airport.

3. Proposed Option

3.1 Development of Option

- 3.1.1 For a Level 3 ACP, it is acceptable, with supporting justification, for the sponsor to produce one option.
- 3.1.2 The original options for RNP approaches to Stornoway Airport were designed by Cyrrus and submitted to the CAA in late 2012/early 2013. These designs were amended in 2013 and in 2016 and to address CAA feedback and re-submitted to the CAA. They were subject to further feedback from the CAA in 2020 and were subsequently amended again.
- 3.1.3 The current option is the design which has already been through a long process of IFP design, stakeholder feedback and has incorporated feedback following CAA IFP review, as well as supporting HIAL safety case development.
- 3.1.4 The following 4 images illustrates the option for the RNP Approach to Runway 18 (red line) overlaid onto the existing approaches to Stornoway Airport.

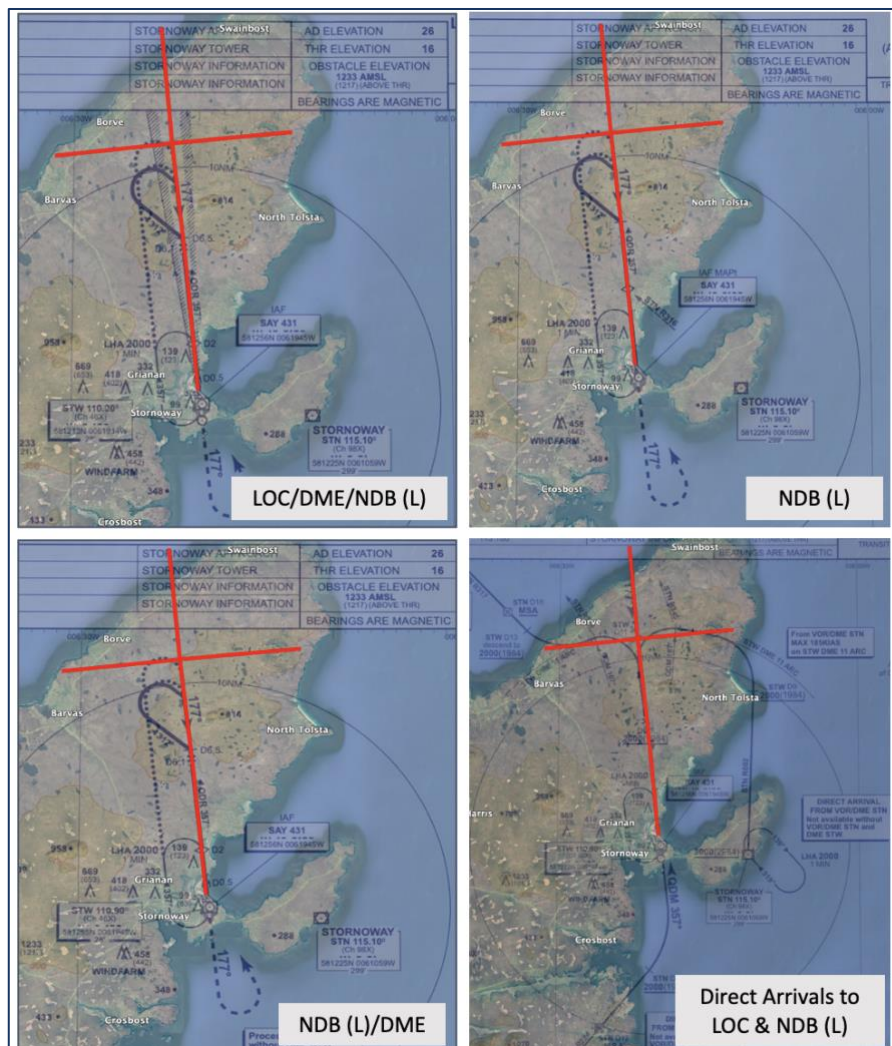


Figure 6: Design option for RNP Approach to Runway 18

- 3.1.5 The following 5 images below shows the option for the RNP Approach to Runway 36 (red line) overlaid onto the existing approaches at Stornoway Airport.

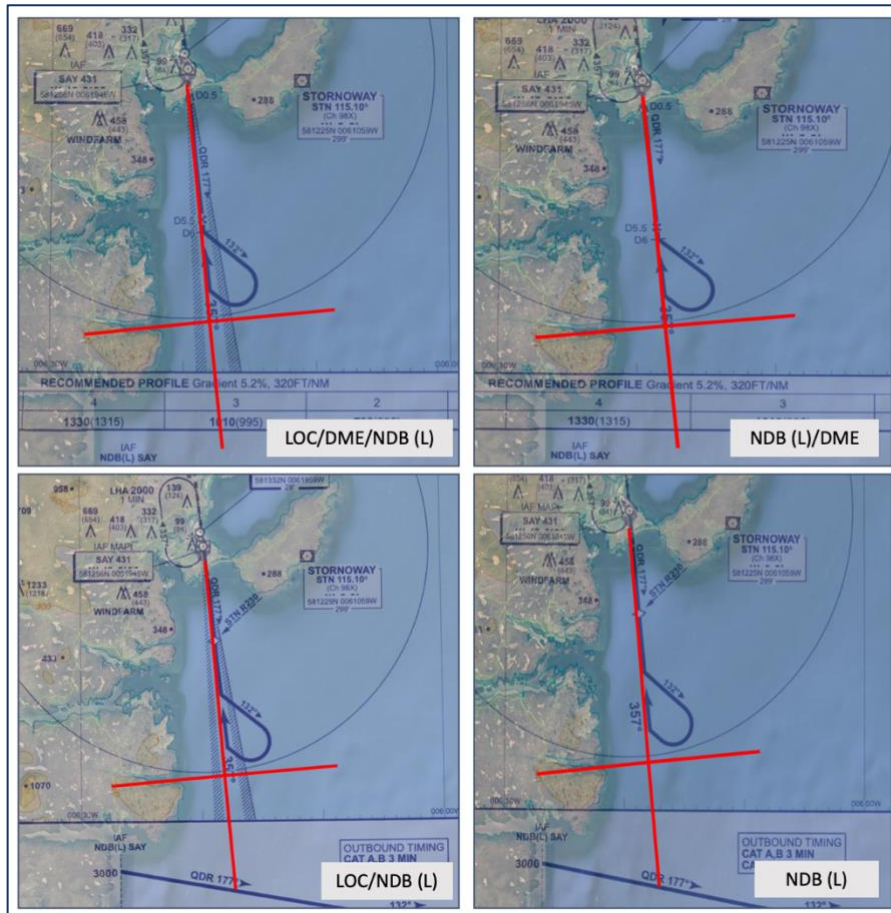


Figure 7: Design option for RNP Approach to Runway 36

3.2 Expected use of the option⁸

3.2.1 The estimated use of the RNP Approach and the remaining approaches is in the table below.

	Approximate usage with RNP Approach				
	LOC Approach	NDB Approach	VOR Approach	RNP Approach	Visual Approach
RWY 18	75%	5%	1%	5%	14%
RWY 36	75%	5%	1%	5%	14%

Table 3: Forecast use of approaches

3.2.2 Following the assessment of the Stage 2 submission, the CAA requested the following additional information from Stornoway Airport.

“The sponsor is required to produce a traffic forecast in terms of the total number and types of aircraft that will be operating at the aerodrome and those anticipated to use the RNP IAPs in the first two years after the introduction of the ACP.”

3.2.3 The following table shows the estimated usage, rounded to the nearest whole number, based on 2023 data. These numbers are likely to be an overestimate, as it assumes all arrivals are capable of flying an RNP approach, which is not the case in reality.

	Approximate usage with RNP Approach 2023				
	LOC Approach	NDB Approach	VOR Approach	RNP Approach	Visual Approach
RWY 18 (70%)	1988	133	27	133	371
RWY 36 (30%)	852	57	11	57	159

Table 4: Estimated use of approaches based on 2023 ATMs

3.2.4 In terms of forecasting, numbers are expected to be fairly static, with the limited operators/PSO⁹ related traffic that utilise the airport. The main operator, Loganair, have updated their fleet so the current traffic levels and aircraft types would be a reasonable benchmark for Stornoway airport. As an example, total movement at Stornoway were 7384 in 2022 and 7542 in 2023, representing a c.2% increase. Assuming a 2% increase across all movements in 2024, 2025 and 2026 would produce the following figures:

	Approximate usage with RNP Approach 2024				
	LOC Approach	NDB Approach	VOR Approach	RNP Approach	Visual Approach
RWY 18 (70%)	2027	135	27	135	378
RWY 36 (30%)	869	58	12	58	162

Table 5: Forecast use of approaches 2024

⁸ The figures in tables 4-7 have been rounded to the nearest whole number

⁹ Public Service Obligation means the route is subsidised by the Scottish Government, as it is not viable otherwise. The obligation is to provide services that would not be performed on a purely commercial basis.

Approximate usage with RNP Approach 2025					
	LOC Approach	NDB Approach	VOR Approach	RNP Approach	Visual Approach
RWY 18 (70%)	2068	138	28	138	386
RWY 36 (30%)	886	59	12	59	165

Table 6: Forecast use of approaches 2025

Approximate usage with RNP Approach 2026					
	LOC Approach	NDB Approach	VOR Approach	RNP Approach	Visual Approach
RWY 18 (70%)	2109	141	28	141	394
RWY 36 (30%)	904	60	12	60	169

Table 7: Forecast use of approaches 2026

Forecast types of aircraft

3.2.5 The most typical aircraft types expected to use the RNP APCH procedures are AT45, AT75, BE20, E145, SF34 and S92 (depending on weather) which make up 85% of total movements.

3.2.6 The anticipated type of aircraft using the aerodrome in the future remains the same.

3.3 Option not being proposed

3.3.1 'Do nothing' is not being proposed as an option for this ACP, as the existing procedures remain available.

4. Option Assessment

4.1 Summary of CAP1616 requirements

- 4.1.1 HIAL are required to produce an assessment of each proposed option, (a single option is acceptable), with information as to why it is being considered as a potential option.
- 4.1.2 The information should include how the options meet the design principles, as well as qualitative statements on the:
- *Impact on safety*
 - *Environmental impact*
 - *Economic impact (relevant parts of Stage 2 guidance in CAP1616f)*
 - *Impacts (positive and negative) on airspace users*
 - *Confirmation that the ATM Safety Questionnaire has been reviewed*
 - *Feedback from APDO on design options, that are to be included in engagement materials*
 - *A description of any options that have been considered but are not being proposed and the reasons why they are not being proposed.*
 - *Habitats Regulation assessment early screen criteria form*

4.2 Evaluation Methodology

- 4.2.1 The first phase of the appraisal of the design option is to assess how the options meets the design principles and provide qualitative statements on the criteria laid out in paragraph 4.1.2.
- 4.2.2 HIAL has undertaken that assessment in the form of a Design Principle Evaluation (DPE), similar to that required in a Level 1 ACP, to assess whether the option has Met, Partially Met or Not Met the criteria.
- 4.2.3 The four Design Principles which the option will be evaluated against are:
- *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.*
 - *The proposal should replicate existing design/traffic patterns to the greatest extent possible.*

- 4.2.4 HIAL will apply the following methodology to the DPE:

Design Principle	Met	Partly Met	Not Met
The airspace change proposal must maintain a high standard of safety and should seek to enhance current levels of safety.	Option maintains existing level of safety, or improves on it	Expected to maintain existing level of safety, but further safety work required	Issues identified with could be detrimental to 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.	Qualitative SME assessment of whether the option is consistent with the relevant legislations.	Qualitative SME assessment of whether the option would require further work to ensure consistency with the relevant legislations.	The option is not consistent with relevant legislations and further work would not resolve this.
The airspace change proposal should avoid overflight of densely populated areas where possible	Qualitative SME assessment of whether the option overflies less people than existing procedures	Qualitative SME assessment of whether the option overflies the same number of people as existing procedures	Qualitative SME assessment of whether the option overflies more populated areas than existing procedures
Should replicate avoid existing design/traffic patterns to the greatest extent possible	Option replicates the existing design/traffic patterns	Option partially replicates the existing design/traffic patterns	Option does not replicate existing design/traffic patterns

Table 8: Design Principle Evaluation Methodology

- 4.2.5 HIAL will also provide qualitative statements on the remaining criteria as laid out in CAP1616H, Appendix A, paragraph A19.

4.3 Design Principle Evaluation

4.3.1 The following table evaluates our RNP approach option for each runway against the Design Principles.


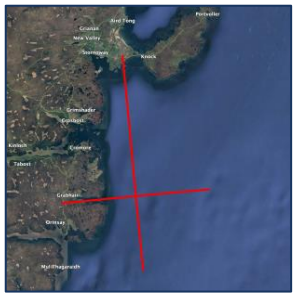

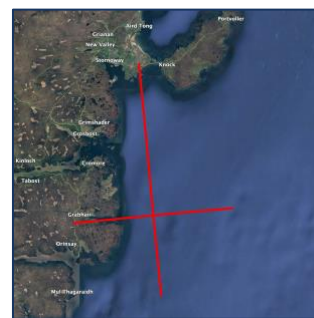
		Design Principles			
		The airspace change proposal must maintain a high standard of safety and should seek to enhance current levels of safety	The airspace change proposal should not be inconsistent with relevant legislation, the CAA's airspace modernisation strategy or Secretary of State and CAA's 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.

Table 9: Options Evaluation

¹⁰ CAP1711 3.44
IAP Stornoway

4.4 Options Appraisal

4.4.1 The following table evaluates our RNP approach option for each runway against the safety, environmental and economic impacts, and the impacts on other airspace users, which are required at Stage 2.

	Option	Runway 18 Option	Runway 36 Option
	Image		
Category	Criteria		
Safety	Initial indication of safety implications	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 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.
Environmental	Environmental Impact (e.g design of the track over the ground or restrictions on the number of ac that can use the procedures on a given day)	The design of the option is as close as possible to the existing approaches; therefore, no new environmental impacts are expected.	The design of the option is as close as possible to the existing approaches; therefore, no new environmental impacts are expected.
	Anticipated change in the number of ac	The anticipated number of aircraft using the aerodrome remains the same.	The anticipated number of aircraft using the aerodrome remains the same.
	Anticipated change in type of aircraft	The anticipated type of aircraft using the aerodrome remains the same.	The anticipated type of aircraft using the aerodrome remains the same.

	Changes to the altitude of aircraft using the procedure	The procedures will continue to be flown in a procedural environment where the MSAs will not change.	The procedures will continue to be flown in a procedural environment where the MSAs will not change.
	Change to areas overflown	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 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.
Economic – Communities	Noise Air Quality	No anticipated changes.	No anticipated changes.
Economic – Wider Society	Greenhouse gas impact Tranquillity Biodiversity Capacity/Resilience	<p>Introduction of an RNP Approach will increase resilience by allowing access to the airport in more limiting visual conditions than the existing approaches.</p> <p>This could be expected to result in fewer Missed Approaches and resultant diversions, decreasing CO₂ emissions.</p> <p>An RNP APCH will enable continuation of life-line services to the island community.</p> <p>There is no expected overflight of any NSAs.</p> <p>For an assessment of Biodiversity please see section on Habitats Screening Assessment.</p>	<p>Introduction of an RNP Approach will increase resilience by allowing access to the airport in more limiting visual conditions than the existing approaches.</p> <p>This could be expected to result in fewer Missed Approaches and resultant diversions, decreasing CO₂ emissions.</p> <p>An RNP APCH will enable continuation of life-line services to the island community.</p> <p>There is no expected overflight of any NSAs.</p> <p>For an assessment of Biodiversity please see section on Habitats Screening Assessment.</p>
Economic – General Aviation	Access	No changes to airspace boundaries or classifications however the introduction of an RNP Approach will improve access to the airport for all airspace users capable of flying them.	No changes to airspace boundaries or classifications however the introduction of an RNP Approach will improve access to the airport for all airspace users capable of flying them.
Economic – General Aviation/Commercial Airlines	Economic impact from increased effective capacity Fuel Burn	Introduction of an RNP Approach will increase resilience by allowing access to the airport in more limiting visual conditions than the existing approaches.	Introduction of an RNP Approach will increase resilience by allowing access to the airport in more limiting visual conditions than the existing approaches.

		This could be expected to result in fewer Missed Approaches and resultant diversions, decreasing CO ₂ emissions.	This could be expected to result in fewer Missed Approaches and resultant diversions, decreasing CO ₂ emissions.
Economic – Commercial Airlines	Training Costs Other Costs	No additional training costs expected.	No additional training costs expected.
Economic Airport/ANSP	Infrastructure Costs Operational Costs Deployment Costs	There is no additional infrastructure required for the RNP APCHs. ATC staff will require training although this is expected to be covered within normal operating costs.	There is no additional infrastructure required for the RNP APCHs. ATC staff will require training although this is expected to be covered within normal operating costs.
Airspace Users	Positive/negative impacts	No impact on GA users in the area not using the airport. The benefits to GA are already articulated above.	No impact on GA users in the area not using the airport. The benefits to GA are already articulated above.

Table 10: Options Appraisal

4.4.2 According to CAP1616H, Appendix A, paragraph A14, no further environmental assessment will be necessary if:

- *The sponsor can reasonably demonstrate that the introduction of RNP IAP is not expected to increase the total number of aircraft movements at the aerodrome in the first two years after introduction, by 10% or more (by at least a minimum of 3,6540 movements per year), and;*
- *The proposal does not change the normal final approach path of aircraft within 1nm of the runway, and;*
- *The proposal will not change the environmental impact of aircraft utilising other aerodromes.*

4.4.3 The proposed design options do not expect to increase the total number of movements at the airport, does not change the final approach path of aircraft to the runway within 1nm from the runway end and the proposal will not change the environmental impact of aircraft utilising other aerodromes.

4.5 ATM Safety Questionnaire

4.5.1 The ATM Safety Questionnaire has been submitted to the CAA as part of the Stornoway Airport Stage 2 documents.

4.6 APDO Feedback

4.6.1 Cyrrus, an APDO have been involved in the design process since 2012, designing 3 iterations of the designs to full CAA IFP submission package standard. Therefore, we will have detailed, draft IFP charts to use for stakeholder engagement in Stage 3.

4.7 Habitats Regulation Assessment – Early Screening Criteria

4.7.1 The HRA questions in [CAP1616i](#), page 33 are as follows:

Q1. Are there any changes to air traffic patterns or number of movements expected below 3,000ft due to the airspace change proposal.

Q2A. Are there any European sites within a radius of 18km of each runway end?

Q2B. Are there any European sites identified in Q2A overflown (i.e. plane passing directly overhead or within 2,655ft of the boundary of European site at 3,000ft or below) by the proposed flight routes?

Q3A. Will the airspace change proposal reduce the number of movements overflying one or more European sites, while not increasing them over another?

Q3B. Will the airspace change proposal increase the altitude of aircraft overflying one or more European sites, whilst not decreasing altitude over another?

4.7.2 HIAL have identified the following European Environmental sites (RAMSAR, Sites of Special Scientific Interest (SSSI), Special Protection Areas (SPA) & Special Areas of Conservation (SAC)¹¹ in the vicinity of the approaches.

4.7.3 The images below show the sites overlaid with the existing approaches for Runway 18.

¹¹ Ramsar = green, SSSI = pink, SPA = yellow, SAC = turquoise

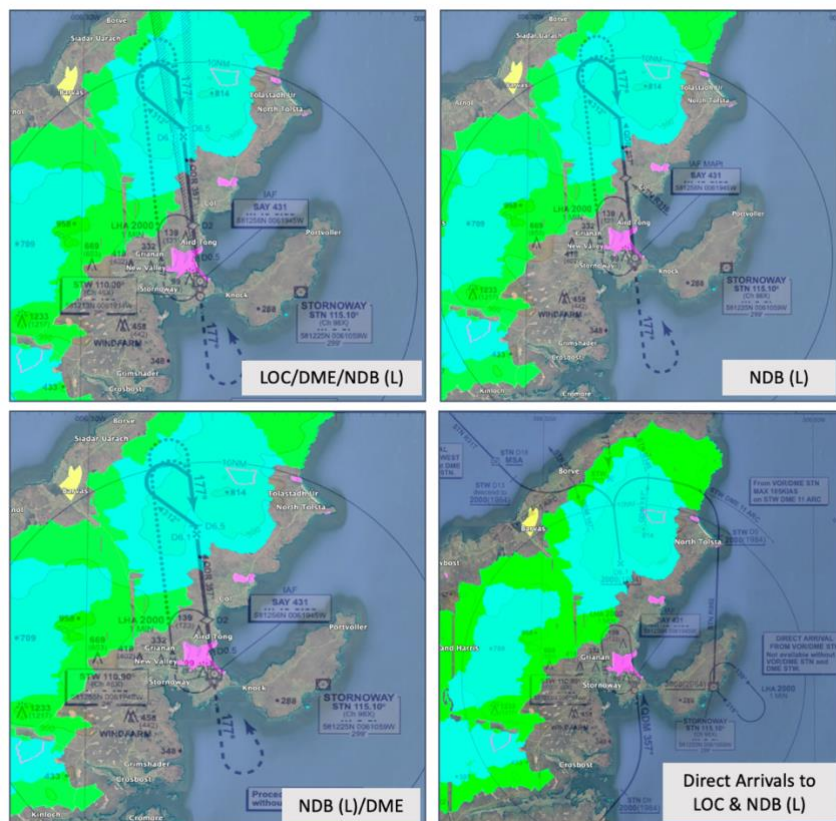
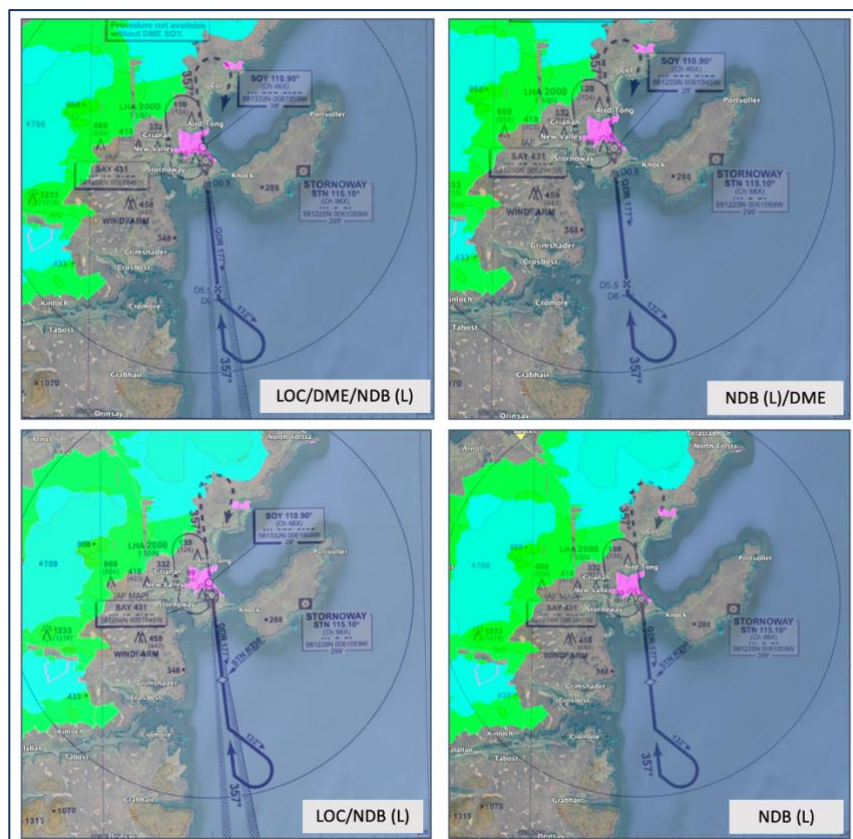


Figure 8: RAMSAR/SSSI/SPA/SAC sites and existing RWY18 procedures

4.7.4 The images below show the sites overlaid with the existing approaches for Runway 36.



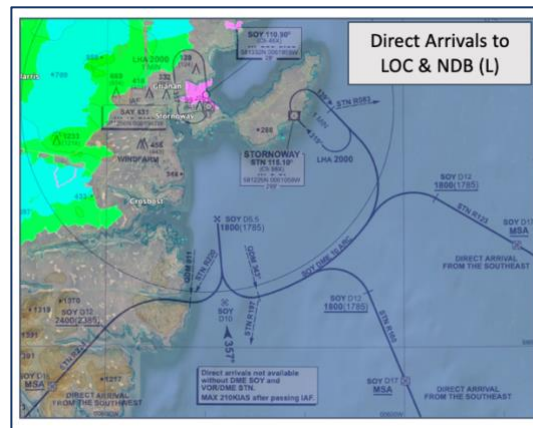


Figure 9: RAMSAR/SSSI/SPA/SAC sites and existing RWY 36 procedures

- 4.7.5 The proposed RNP approaches have been designed to replicate existing approaches as much as possible.
- 4.7.6 The following image shows the sites overlaid with the proposed RNP approaches. The proposed Runway 36 approaches do not overfly any European sites. The proposed Runway 18 approaches do overfly European sites but in the same regions and at the same altitude as today.

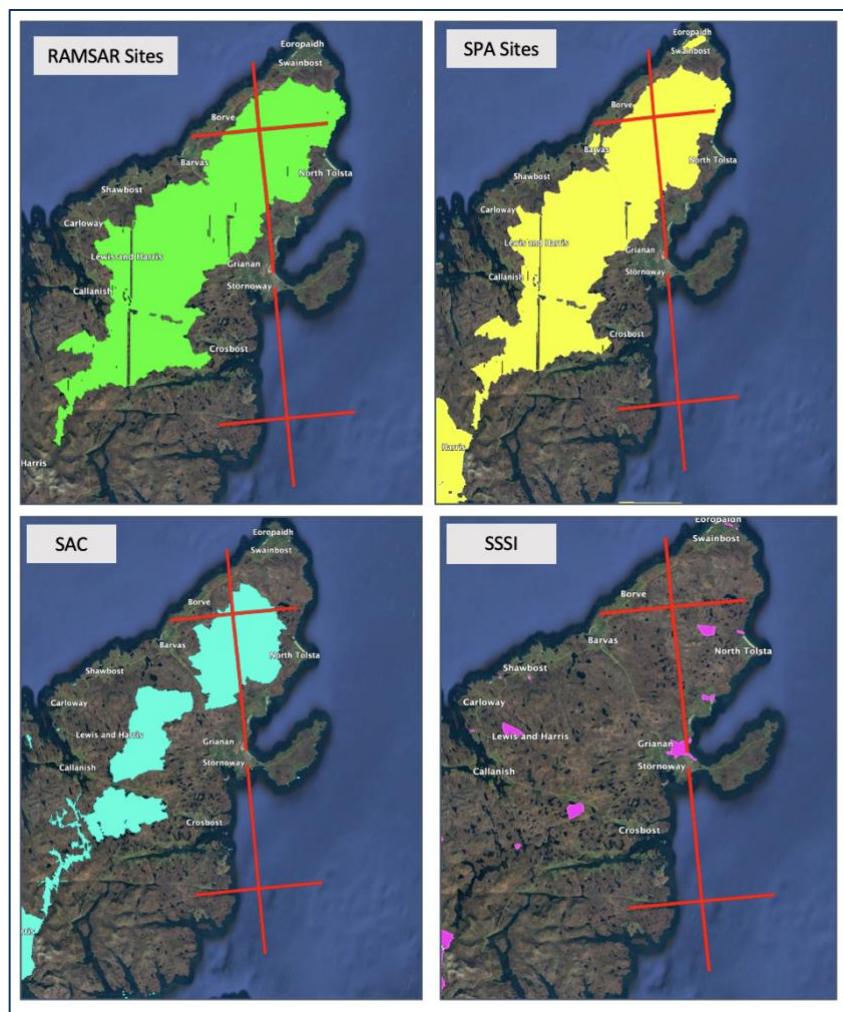


Figure 10: RAMSAR/SSSI/SPA/SAC sites ivo Stornoway Airport

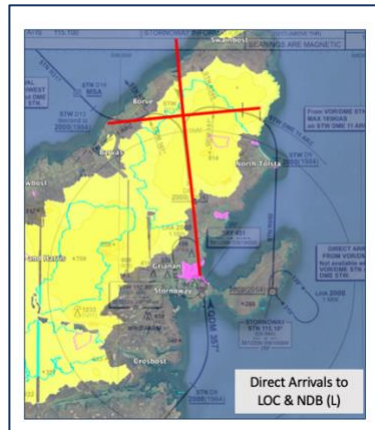


Figure 11: RAMSAR/SSSI/SPA/SAC sites with existing Direct Arrivals & proposed approach to RWY18

4.7.7 Therefore, the answers to the HRA questions are as follows:

Q1. Are there any changes to air traffic patterns or number of movements expected below 3,000ft due to the airspace change proposal.

A1. No.

Q2A. Are there any European sites within a radius of 18km of each runway end?

A2A. Yes

Q2B. Are there any European sites identified in Q2A overflown (i.e. plane passing directly overhead or within 2,655ft of the boundary of European site at 3,000ft or below) by the proposed flight routes?

A2B. Yes, although they are already overflown today at the same altitude.

Q3A. Will the airspace change proposal reduce the number of movements overflying one or more European sites, while not increasing them over another?

A3A. No

Q3B. Will the airspace change proposal increase the altitude of aircraft overflying one or more European sites, whilst not decreasing altitude over another?

A3B. No

5. Conclusion

- 5.1.1 Stornoway Airport are requesting permission from the CAA to move into Stage 3 of the Level 3 airspace change process.