LAND'S END AIRPORT

CAP 1616 – AIRSPACE CHANGE PROPOSAL

FOR THE

LAND'S END TRANSIT CORRIDOR (LETC)

-

STAGE 4: UPDATE & SUBMIT

4A: Update Design

ID : ACP-2019-75

LAND'S END AIRPORT

ACP SUBMISSION STEP 4A: UPDATE DESIGN

June 2021 v2.0

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Issue	Month/Year	Change Requests
1.0	Apr 2021	Initial Draft Version
1.1	Apr 2021	Inclusion of LETC diagrams in Section 3.4
1.2	May 2021	Minor editorial changes & New charts showing the LETC
2.0	June 2021	Reconsideration of proposal & reissue of 4a Document

i Abbreviations & Glossary of Terms

ACAS	Airborne Collision Avoidance System	Equipment fitted to an aircraft that will provide information on other aircraft regarding range, altitude and bearing.
ACP	Airspace Change Proposal	The process by which a sponsor applies for a change to the design of a part of the UK airspace
ADS-B	Automatic Dependant Surveillance Broadcast	A way for an aircraft to determine its position via satellite navigation and periodically broadcast it, enabling it to be tracked
AIAA	Area of Intense Aerial Activity	
ATC	Air Traffic Control	
ATCA	Air Traffic Control Assistant	
ATCO	Air Traffic Control Officer	
ATCU	Air Traffic Control Unit	
ATM	Aerodrome Traffic Monitor	A type of radar used to assist in the safe operation of runways and airport utilisation
CAA	Civil Aviation Authority	The UK's aviation regulator ensuring that aviation reaches the highest safety standards
CAP	Civil Aviation Authority Publication	
CAT	Commercial Air Transport	
DP	Design Principle	
EC	Electronic Conspicuity	A means of aircraft transmitting their position to other ground or air-based systems
GA	General Aviation	
HEMS	Helicopter Emergency Medical Service	
IFR	Instrument Flight Rules	A term used to describe a pilot flying and navigating the aircraft with reference to the instruments in the flight deck

IMC	Instrument Meteorological Conditions	Instrument meteorological conditions (IMC) are meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less than the minima specified for visual meteorological conditions (VMC).
ISSC	Isles of Scilly Steamship Company	
ISSG	Isles of Scilly Steamship Group	
LETC	Land's End Transit Corridor	
LRMZ	Land's End Radio Mandatory Zone	
MLAT	Multilateration	A navigation and surveillance technique used to provide information on the position of an aircraft
PAX	Passengers	
PINS	Point In Space	A non-precision instrument approach mainly used by helicopters
RMZ	Radio Mandatory Zone	A designated piece of airspace that requires all aircraft to be fitted with and operate suitable two-way radio equipment
RNAS	Royal Naval Air Station	
RNP	Required Navigation Performance	Is a family of navigation specifications which permit the operation of aircraft along a precise flight path with a high level of accuracy and the ability to determine aircraft position with both accuracy and integrity.
SAR	Search and Rescue	
TCAS	Traffic Collision Avoidance System	Suitably equipped aircraft communicate digitally, between themselves, information regarding range, altitude and bearing to provide advice on airborne collision avoidance
TMZ	Transponder Mandatory Zone	A designated piece of airspace that requires all aircraft to be fitted with and operate electronic conspicuity equipment
UK	United Kingdom	
VMC	Visual Meteorological Conditions	Visual meteorological conditions (VMC) are the meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling equal to or better than specified minima.

1 Introduction

1.1 This document forms part of the document set required in accordance with the requirements of the CAP1616 airspace change process.

1.2 This document aims to provide adequate evidence to satisfy Stage 4, Step 4A, Update Design.

1.3 Land's End Airport is proposing to introduce an improved airspace solution to the Land's End Transit Corridor (an existing block of airspace linking the mainland to the Isles of Scilly) that could provide mitigation to the current unknown traffic environment. With an increase in air traffic movements within the Land's End Transit Corridor, the commencement of a second commercial operator (Penzance Helicopters) and the introduction of multiple IFR approaches (with more planned) a need for an Airspace Change was identified.

1.4 The owner of Land's End Airport, the Isles of Scilly Steamship Company (ISSC), has been providing lifeline services between the mainland and the islands for over 100 years. Air services provide a year-round lifeline link between the mainland and the Isles of Scilly and this proposal represents the final stage of a major investment program for the benefit of the island-based community and visitors.

1.5 This proposal is related to improving the safety of existing services and not about stimulating new traffic or altering any existing routes. Hence, in accordance with the levels as defined in CAP1616, the CAA has categorised this proposal as a Level 2C change. In line with the requirements for a Level 2C change, the environmental impact assessment has been conducted on the basis of CO2 emissions only. There would be no perceptible change to noise impacts to stakeholders on the ground; hence no noise analysis has been undertaken.

1.6 The Land's End Transit Corridor is situated in the far South-West of England and is an established block of airspace approximately 38nm long and 15nm wide (Surface to 4,000ft altitude) linking the mainland to the Isles of Scilly.

It is situated in Class G airspace and partially within the RNAS Culdrose AIAA. (See Appendix A for diagram)

1.7 The LETC is used predominantly by scheduled passenger and freight carrying flights - both fixed-wing and, as of March 2020 from Penzance Heliport, rotary aircraft. In addition, it is used by military aircraft (both fixed-wing and rotary), SAR & Helimed helicopters, Trinity House helicopters, General Aviation flights and other charter and air-taxi operators.

Aircraft using the LETC become funnelled within a very narrow lateral and vertical area of airspace. In order to provide increased protection for all users, and in particular, the scheduled public transport flights - some of which may be conducting IFR RNP approaches - a need for an airspace change was identified.

Air Traffic Control Officers (ATCO's) at Land's End Airport and St. Mary's Airport oversee the safe, orderly and expeditious flow of aircraft using the LETC. The current LETC operation is further enhanced by an existing Letter of Agreement made between Operators and Land's End and St. Mary's ATCU's. An additional specific Letter of Agreement between Land's End ATCU and RNAS Culdrose ATCU details the procedures for when the Land's End RNP approaches are in use.

There are now four Airports/Heliports situated within the LETC – Land's End Airport, St. Mary's Airport, Penzance Heliport and Tresco Heliport. All these destinations are served by commercial air transport and all have, or intend to have, their own IFR RNP or PIN's approaches.

1.8 Land's End Airport handled 15,042 aircraft movements (11,177 Airport Movements and 3,865 Overflights) and 64,000 terminal pax in 2019 (Jan-Dec). This makes it the 36th busiest Airport in the UK.

St. Mary's Airport handled 12,329 Airport Movements and 94,000 terminal pax in 2019 (Jan-Dec). This makes it the 35th busiest Airport in the UK.

1.9 During this period of reduced air travel the route from Land's End to St Mary's has continued to be one that is accessed by essential flights both for passenger carrying and freight and has retained continuous traffic albeit at a reduced number. It was reported earlier in May 2021 that the Land's End to St Mary's route has actually been the busiest in the UK in April 2021.

TOP 10 ROUTES FROM UK AIRPORTS APRIL 2021			
Route	Airport Codes	Frequencies April 2021	Rank April 2021
Isles of Scilly – Land's End	ISC LEQ	363	1
Alderney – Guernsey	ACI GCI	258	2
Belfast George Best City – London Heathrow	BHD LHR	150	3
Edinburgh-London Heathrow	EDI LHR	120	4
New York JFK – London Heathrow	JFK LHR	120	4
Glasgow – London Heathrow	GLA LHR	120	4
Aberdeen – London Heathrow	ABZ LHR	120	4
London Heathrow - Manchester	LHR MAN	120	4
Derry – London Stansted	LDY STN	112	9
Isle of Man - Liverpool	IOM-LPL	96	10

Source OAG Data Analysis

1.10 Having had time to reconsider the situation surrounding the LETC and the provision of Air Traffic Services from the different units, and reviewing the feedback from stakeholders with the potential knock on effects of legislation changes in the near future we believe that a change in the original submission should be made.

1.11 We now propose that a more proportional and equitable solution would be to reclassify the LETC as an RMZ and alter the size to include the IAP's at Land's End & St

Mary's Airports (Option 3). This change to a RMZ is still very much in line with the Statement of Need and the agreed Design Principles.

This new airspace would be known as the Land's End RMZ (LRMZ).

2 Consideration of consultation responses which may impact the final design, and outcome

2.1 There were 30 responses that contained comments which may have had an impact on the final design, each comment was examined and assessed alongside the Design Principles and options brought forward for consultation.

2.2 For a summary of responses which may impact the final design see document Stage 3, Step 3D, Collate and Review Responses. A link to this document on the CAA Portal is included below.

https://airspacechange.caa.co.uk/PublicProposalArea?pID=199

2.3 The following table describes how each response and element has been considered, its outcome and Land's End Airport's explanatory response to that element.

Response ID	Name/Organisation	Summary	Potential Impact on the proposal	Outcome and Land's End Airport's final response
AANX-E AAB9-3 AA7W-P AA7V-N	XXXXXXXXXXX XXXXXXXX XXXXXXXXX XXXXXXXX	Recommend creation of RMZ with open FIR slot SFC-2000ft along the coast	LETC joins ATZ at 2000ft with open airspace below	Not progressed: This design wouldn't eliminate unknown traffic flying in close proximity to the LETC and Land's End ATZ. This would generate a serious safety concern for arriving and departing aircraft as three of the final approaches at Land's End have tracks that cross the coast at relatively low levels. These runways also have IAP's associated with them that are likely to be used in poor weather conditions and as such Land's End ATC are bound by a duty of care to eliminate unknown traffic and potential conflicts to the greatest extent possible. SAR and MOD aircraft regularly carry out training operations along the coastline and are always in contact with ATC when doing so, having aircraft also using this airspace and not communicating with any ATC agency increases the potential of confliction.

				Paragliding and hang-gliding activities take place in and around the Sennen Cove area on a regular basis. These flights are coordinated with ATC beforehand and thus are a known activity that ATC can warn other pilots about. Aircraft flying in this airspace and not communicating with any ATC agency increases the potential of confliction.
AA9M-E	XXXXXXXXXXX	Always flies with EC and radio wants us to consider ADS-B and not TMZ	Different types of EC could be accepted	Partially progressed: At some point in the future this would seem to be a sensible and potentially the preferred form of TMZ, however current legislation does not allow for an ADS-B zone. CAA are currently conducting trials and considering ADS-B for future use in air traffic control systems. After further consideration we are opting for RMZ and not RMZ/TMZ.
AA7U-M	XXXXXXXXX (Perranporth)	Believes root cause of Unknown Traffic to be poor indication of LETC on charts and poor airmanship. Also concerned that boundaries of RMZ/TMZ would become busier with orbiting traffic	Congestion points around airspace	Partially progressed: There is no evidence to suggest that choke points would be created around any of the airspace as air traffic capacity has not been reached in regard of the number of aircraft that could be accommodated within the LETC and within the provision of the BASIC service offered by Land's End

				Airport. Providing aircraft were suitably equipped to enter the LETC then no air traffic reason could be established to prevent access to the airspace thus preventing choke points. Having stated the above Land's End Airport has looked at the eastern boundary of the LETC near the area concerned and moved the boundary to make it more conspicuous on relevant charts and to ensure that airspace is not unnecessarily included into the LETC.
AA9E-6	XXXXXXXXXX	The LETC over the mainland should be lowered and minimised	LRMZ becomes smaller	Partially progressed: The lowering of the LETC wouldn't improve safety as there would potentially be more unknown aircraft flying within the current airspace. The design of the horizontal limits of the LETC have been looked at and an area around each IAP at St Mary's, Tresco, Land's End and Penzance incorporated into the LETC.(See section 3) The overall size of the LETC has remained roughly that of the initial proposal, which is larger than the

				current LETC, however, the eastern boundary of the LETC has been moved to make it more conspicuous on relevant charts and to ensure that airspace is not unnecessarily included into the LETC (see Section 3 below).
AA95-P	XXXXXXXXXXX	Concerned RMZ/TMZ would only be able to operate H24	Non-operation of a/c when ATC not open	Progressed to final proposal: The operational hours of a RMZ need not be H24 and can coincide with the hours of operation of the airports within the LETC.

AA7S-J	XXXXXXXXXX	Concerned of the impact an increase in the vertical limit of the LETC would have on Newquay LARS	Size of the proposed new LRMZ	Not progressed: There is no call for nor intention to alter the vertical limit of the LETC.
AA7H-7 AA7X-Q	XXXXXXXXXX (Sloane) XXXXXXXXX	Wants us to consider ADS-B	Different types of EC could be accepted	Not progressed: At some point in the future this would seem to be a sensible and potentially the preferred form of TMZ, however current legislation does not allow for an ADS-B zone. CAA are currently conducting trials and considering ADS-B for future use in air traffic control systems. After further consideration we are opting for RMZ and not RMZ/TMZ.

	28 individuals detailed in Table 2 from document, Stage 3, Step 3D, Collate and Review	Would prefer no change to how the LETC is currently	There would be no change to the LETC	Not progressed: In December 2019 Land's End Airport identified a need for change in order to enhance the safety of all airspace users within the LETC. It produced a Statement of Need and this was discussed with and accepted by the CAA during an assessment meeting and then, in line with the CAP1616, an ACP was initiated. The need to enhance safety has not altered and whilst Land's End Airport accepts that any change will impact airspace users the overriding safety concerns must take precedent and thus doing nothing to improve safety within the LETC cannot be an option. Land's End airport will always keep the safety of all airspace users at the forefront of any proposal put forward to the CAA and endeavour to keep negative impacts to a minimum.
AAB2-V	XXXXXXXXXX	Identifies that there have been airprox's in the LETC, RMZ would be sufficient, the LETC should be smaller, can RMZ/TMZ be non H24?	No TMZ established Size of the proposed new LETC would change	Partially progressed: The correct use of radio equipment offers the greatest safety benefits to all airspace users and whilst this seems an obvious and sensible action for all pilots to take there are still occasions when aircraft are operating within the LETC without communicating with

				ATC. This being the case in order to reduce the potential for conflict in the airspace and remove the unknown traffic element the use of radio equipment in the LETC needs to be mandated. After further consideration we are opting for RMZ and not RMZ/TMZ. The operational hours of a RMZ need not be H24 and can coincide with the hours of operation of the airports within the LETC. Regarding the size of the LETC: The overall size of the LETC has remained roughly that of the initial proposal, which is larger than the current LETC, however, the eastern boundary of the LETC has been moved to make it more conspicuous on relevant charts and to ensure that airspace is not unnecessarily included into the LETC (see Section 3 below).

AA9Y-T	XXXXXXXXX	Airspace is used safely, perfectly safe to use radio only	No TMZ introduced	Progressed to final proposal: " The objective of a RMZ/TMZ is to enhance the conspicuity of aircraft operating within, or in the vicinity of, complex, busy or otherwise unprotected airspace, in order to maintain a balance between safe, efficient operations and fair, equitable access to said airspace for all airspace users. RMZ and/or TMZ are established when the establishment of a more restrictive classification of airspace is not warranted but additional measures to enhance flight safety are required." Radio and Transponder Mandatory Zones - October 2020 CAA Airspace Policy Statement The correct use of radio equipment offers the greatest safety benefits to all airspace users and whilst this seems an obvious and sensible action for all pilots to take there are still occasions when aircraft are operating within the LETC without communicating with ATC. This being the case in order to reduce the potential for conflict in the airspace and remove the unknown traffic element the use of radio equipment in the LETC needs to be mandated.

				After further consideration we are opting for RMZ and not RMZ/TMZ.
AA9Q-J	XXXXXXXXXX	Cannot afford transponder so would be excluded	No TMZ introduced	Progressed to final proposal: The correct use of radio equipment offers the greatest safety benefits to all airspace users and whilst this seems an obvious and sensible action for all pilots to take there are still occasions when aircraft are operating within the LETC without communicating with ATC. This being the case in order to reduce the potential for conflict in the airspace and remove the unknown traffic element the use of radio equipment in the LETC needs to be mandated. After further consideration we are opting for RMZ and not RMZ/TMZ. Follow this link for CAA policy regarding RMZ/TMZ And Consultation on revised SARG Airspace Policy Statement
AA7K-A	XXXXXXXX (BMAA)	A known traffic environment can be achieved by the use of a Radio Mandatory Zone.	No TMZ introduced. Different types of EC could be accepted	Progressed to final proposal: The correct use of radio equipment offers the greatest safety benefits to all airspace users and whilst this seems

		The BMAA supports the minimum level of airspace classification to achieve flight safety. Should consider use of ADS-B		an obvious and sensible action for all pilots to take there are still occasions when aircraft are operating within the LETC without communicating with ATC. This being the case in order to reduce the potential for conflict in the airspace and remove the unknown traffic element the use of radio equipment in the LETC needs to be mandated. Current legislation does not allow for an ADS-B zone. CAA are currently conducting trials and considering ADS-B for future use in air traffic control systems. After further consideration we are opting for RMZ and not RMZ/TMZ.
AA96_Q	XXXXXXXXX (MOD)	No objections	RMZ proposal put forward	Progressed to final proposal: After further considering the comments of all respondents and making alterations to the shape and size of the LETC (see section 3 below), we are opting for RMZ and not RMZ/TMZ.
AA9X-S	XXXXXXXX	Less regulation is best. RMZ is ok	RMZ proposal put forward	Progressed to final proposal: After further considering the comments of all respondents and

				making alterations to the shape and size of the LETC (see section 3 below), we are opting for RMZ and not RMZ/TMZ.
AABW-1	XXXXXXXX	See the sense of RMZ, see no safety case for TMZ	RMZ proposal put forward	Progressed to final proposal: After further considering the comments of all respondents and making alterations to the shape and size of the LETC (see section 3 below), we are opting for RMZ and not RMZ/TMZ.
AABQ-U	XXXXXXXXX	Don't like any of options, RMZ could be acceptable	RMZ proposal put forward	Progressed to final proposal: In December 2019 Land's End Airport identified a need for change in order to enhance the safety of all airspace users within the LETC. It produced a Statement of Need and this was discussed with and accepted by the CAA during an assessment meeting and then, in line with the CAP1616, an ACP was initiated. The need to enhance safety has not altered and whilst Land's End Airport accepts that any change will impact airspace users the overriding safety concerns must take precedent and thus doing nothing to improve safety within the LETC cannot be an option. Land's End airport will always keep the safety of all airspace users at the forefront of

				any proposal put forward to the CAA and endeavour to keep negative impacts to a minimum. After further considering the comments of all respondents and making alterations to the shape and size of the LETC (see section 3 below), we are opting for RMZ and not RMZ/TMZ.
AABN-R	XXXXXXXXX	Does not dispute the mandatory use of radio prudent, cannot see why TMZ	RMZ proposal put forward	Progressed to final proposal: The correct use of radio equipment offers the greatest safety benefits to all airspace users and whilst this seems an obvious and sensible action for all pilots to take there are still occasions when aircraft are operating within the LETC without communicating with ATC. This being the case in order to reduce the potential for conflict in the airspace and remove the unknown traffic element the use of radio equipment in the LETC needs to be mandated. After further considering the comments of all respondents and making alterations to the shape and size of the LETC (see section 3 below),

				we are opting for RMZ and not RMZ/TMZ.
AA76-N	XXXXXXXXXX (PDG)	Fully agree with proposals for RMZ/TMZ + size	Full proposal put forward	Progressed to final proposal: After further further consideration of the comments of all respondents and making alterations to the shape and size of the LETC (see section 3 below), we are opting for RMZ and not RMZ/TMZ.
AAB7-1	XXXXXXXXXXXX	RMZ would address the issue of unknown traffic	RMZ proposal put forward	Progressed to final proposal: After further considering the comments of all respondents and making alterations to the shape and size of the LETC (see section 3 below), we are opting for RMZ and not RMZ/TMZ.
AA7F-5	XXXXXXXX (NATS)	Fully agree	Full proposal put forward	Progressed to final proposal: After further considering the comments of all respondents and making alterations to the shape and size of the LETC (see section 3 below), we are opting for RMZ and not RMZ/TMZ.
AA7M-C	XXXXXXXXX	Safety first, RMZ/TMZ with greater area benefit to crews and aircraft	Full proposal put forward	Progressed to final proposal: After further considering the comments of all respondents and making alterations to the shape and size of the LETC (see section 3 below), we are opting for RMZ and not RMZ/TMZ.

AA7N-D	XXXXXXXXX (Chief Pilot Skybus)	Fully support RMZ/TMZ + size change	Full proposal put forward	Progressed to final proposal: After further considering the comments of all respondents and making alterations to the shape and size of the LETC (see section 3 below), we are opting for RMZ and not RMZ/TMZ.
AA78-Q	XXXXXXX (Fly NQY)	Due to remote location radio and transponder should be mandatory. This is about safety.	Full proposal put forward	Progressed to final proposal: After further considering the comments of all respondents and making alterations to the shape and size of the LETC (see section 3 below), we are opting for RMZ and not RMZ/TMZ.
AA74-K	XXXXXXXX (Rtrd Airline)	A/c should be fitted with radios and basic transponder	Full proposal put forward	Progressed to final proposal: After further considering the comments of all respondents and making alterations to the shape and size of the LETC (see section 3 below), we are opting for RMZ and not RMZ/TMZ.
AA73-J	XXXXXXXXX (Manager Skybus)	RMZ/TMZ + size change supported	Full proposal put forward	Progressed to final proposal: After further considering the comments of all respondents and making alterations to the shape and size of the LETC (see section 3 below), we are opting for RMZ and not RMZ/TMZ.
AA7Z-S	XXXXXXXX (SATCO Isles of Scilly)	Fully support RMZ/TMZ + size change	Full proposal put forward	Progressed to final proposal:

				After further considering the comments of all respondents and making alterations to the shape and size of the LETC (see section 3 below), we are opting for RMZ and not RMZ/TMZ.
AA7B-1	XXXXXXXXX	Fully support RMZ/TMZ + size change	Full proposal put forward	Progressed to final proposal: After further considering the comments of all respondents and making alterations to the shape and size of the LETC (see section 3 below), we are opting for RMZ and not RMZ/TMZ.
AABK-N	XXXXXXXXX	Full Support – Should consider use of ADS-B	Different types of EC could be accepted	Progressed to final proposal: After further considering the comments of all respondents and making alterations to the shape and size of the LETC (see section 3 below), we are opting for RMZ and not RMZ/TMZ. At some point in the future an ADS-B zone would seem to be a sensible and potentially the preferred form of TMZ, however current legislation does not allow for an ADS-B zone. CAA are currently conducting trials and considering ADS-B for future use in air traffic control systems.

Table 1: How consultation feedback has been considered

3 Design Log

3.1 Several of the comments made by respondents have helped Land's End Airport refine the design of the shape and size of the proposed new LETC. These have been referenced below in table 2.

Response ID	Name/Organisation	Summary	Impact on the design of the LETC
AA9E-6	XXXXXXXXx	The LETC over the mainland should be lowered and minimised	The eastern boundary of the LETC near the St Ives area (NE corner) has been moved to make it more conspicuous on relevant charts and to ensure that airspace is not unnecessarily included into the LETC. After considering the vertical extent of the LETC it was concluded that the current 4000ft vertical limit was correct in terms of traffic management and safety.
AAB2-V	XXXXXXXXX	The LETC should be smaller, can RMZ/TMZ be non H24?	The eastern boundary of the LETC near the St Ives area (NE corner) has been moved to make it more conspicuous on relevant charts and to ensure that airspace is not unnecessarily included into the LETC. The hours of operation of the proposed RMZ have been clarified.
AA7U-M	XXXXXX (Perranporth)	Concerned that boundaries of RMZ/TMZ would become busier with orbiting traffic	It is proposed that the eastern boundary of the LETC be moved further away from the St Ives bay area thus allowing more space for traffic to operate in this area without potentially infringing or coming too close to the LETC boundary. This would also make the boundary more conspicuous on charts.

Table 2: Comments which have impacted the design of the LETC

3.2 When considering the shape and size of the proposed LETC a major factor was to include all the IAP's and associated holds within it, when these had been taken into account, and considering the comments from John Wood (Perranporth – AA7U-M) we could see that a slight alteration could be made to the eastern boundary to make it more conspicuous on the relevant charts and to ensure that his flying training activities could still take place without having to enter the LETC at that point.

3.3 The new airspace would be redefined as the Land's End RMZ (LRMZ) and so where appropriate the rest of the document will refer to this new airspace as such.

3.4 The proposed changes are for the Land's End RMZ shape to change to include the instrument approaches at Penzance, Land's End, St Mary's and Tresco and for it to become a RMZ as shown in fig 4. It is proposed that this be carried out in stages as laid out in 5.2.5 below. The vertical extent of the Land's End RMZ would remain the same as surface (SFC) to 4000ft.

3.5 The eastern (land) portion of the Land's End RMZ falls within the Culdrose AIAA (SFC-6000ft). Most of the sea portion falls within class G airspace. There are two ATZ's, one at St Mary's (SFC-2000ft and 2nm radius) and the other at Land's End (SFC-2000ft and 2nm radius). Neither Penzance nor Tresco heliports have an ATZ.

3.6 The airspace would continue to be used by all types of aviation that currently utilise it with a possible future use of large freight carrying UAS that are currently undergoing trials between St Mary's, Land's End and Perranporth airports.

3.7 The shape change would take place in three stages as follows

Stage 1 – Change the shape to include the IAP's at Land's End Airport
Stage 2 – Change the shape to include the PINS approach at Penzance Heliport
Stage 3 – Change the shape to include the IAP's at St Mary's Airport

The reason for the stages is to take into account that neither St Mary's nor Penzance have their procedures published as of yet and if not already will be going through their own ACP's shortly. In order to take these potential changes into account we would propose that the finished shape look something akin to fig 4 below, accepting that the final procedures for Penzance and St Mary's may change slightly as their ACP's progress. For ease of demonstration and to acknowledge the fact that Penzance has a currently active ACP it is assumed that Stage 2 would include Penzance and Stage 3 St Mary's, however this may be reversed depending on the outcomes of their respective ACP's.

It is proposed that we carry out stage 1 now in this ACP and further stages depending upon the successful outcomes of Penzance and St Mary's ACP's.

3.8 Changes between Consultation and Final Proposal

As a result of the consultation we were able to incorporate some ideas regarding the size and shape of the Land's End RMZ in effect refining the shape to ensure airspace wasn't unnecessarily taken up. Step 4A: Update Design, section 3 Design Log refers to this.

3.9 The final overall shape of the Land's End RMZ takes into account the IAP's at both airports, associated holds at both airports, the proposed PINS approaches at Penzance and the VFR northern route from Land's End to St Mary's.

3.10 The Stage 1 shape of the Land's End RMZ includes the IAP's at Land's End and is shown in fig 2 below.

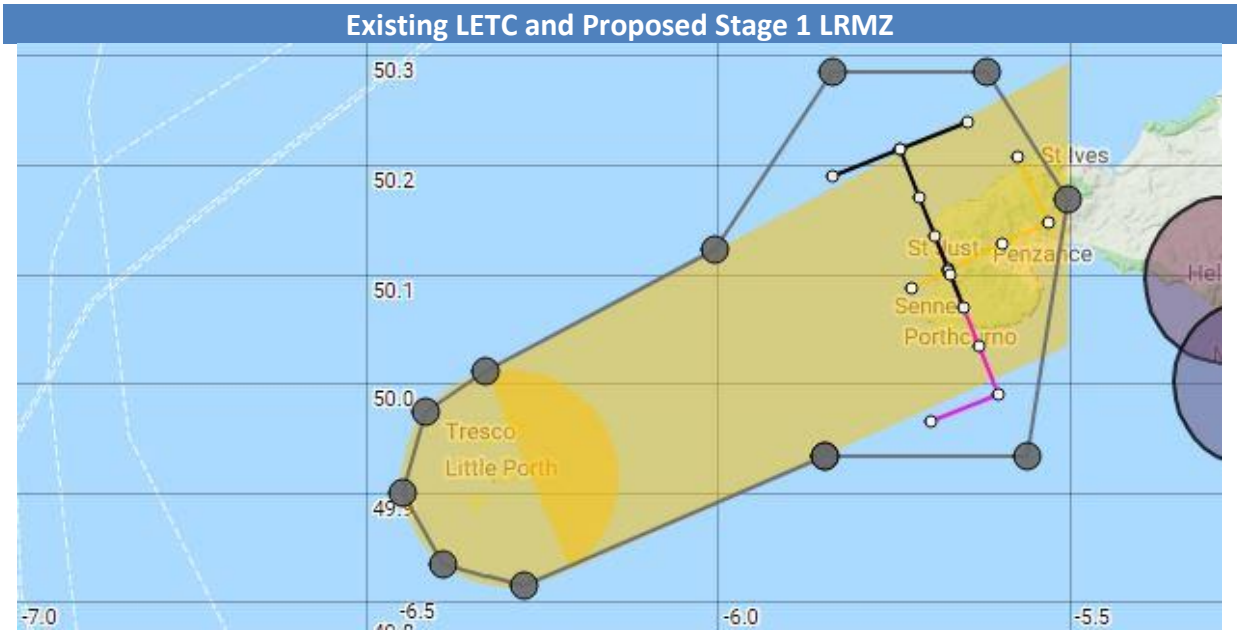


Fig 2: Current LETC in yellow with the proposed LRMZ (Stage 1) outlined

3.11 The Stage 2 approximate shape of the Land's End RMZ will include the PINS approach at Penzance and is shown in fig 3 below. The exact size and shape of the extra portion around Penzance may alter depending on any revisions that may be needed to the Penzance PINS ACP.

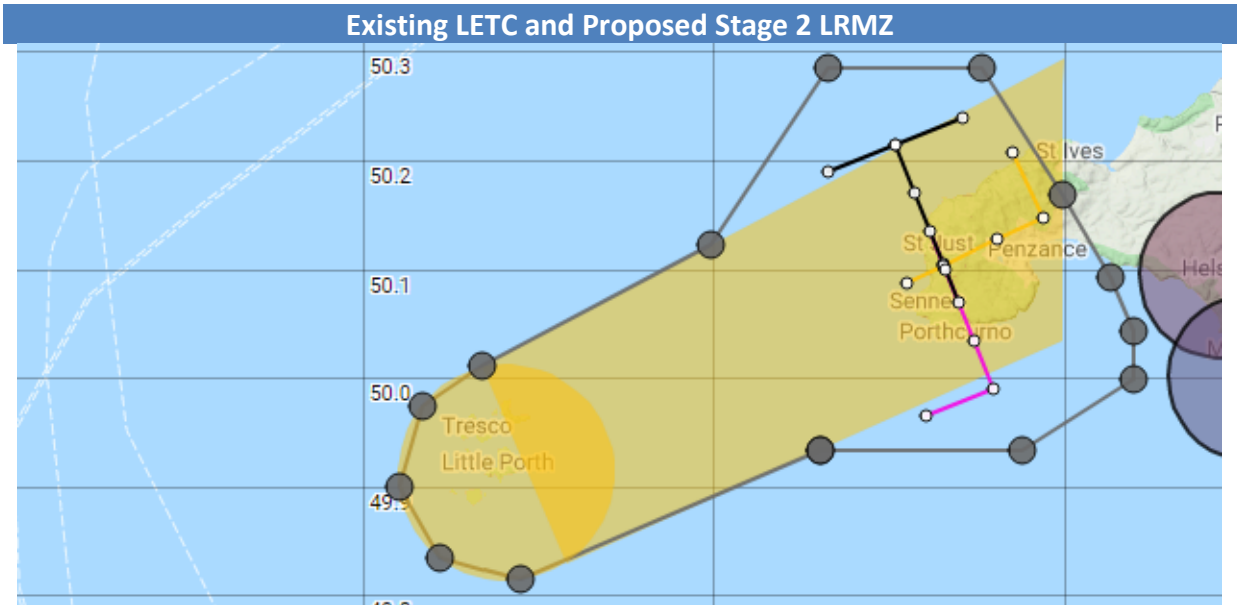


Fig 3: Current LETC in yellow with the proposed LRMZ (Stage 2) outlined to now include the proposed PINS approach at Penzance

3.12 The Stage 3 approximate shape of the Land's End RMZ will include the PINS approach at Penzance ant the RNP IAP's at St Mary's and is shown in fig 4 below. The exact size and shape of the extra portion around Penzance and St Mary's may alter depending on any revisions that may be needed to their respective ACP's.

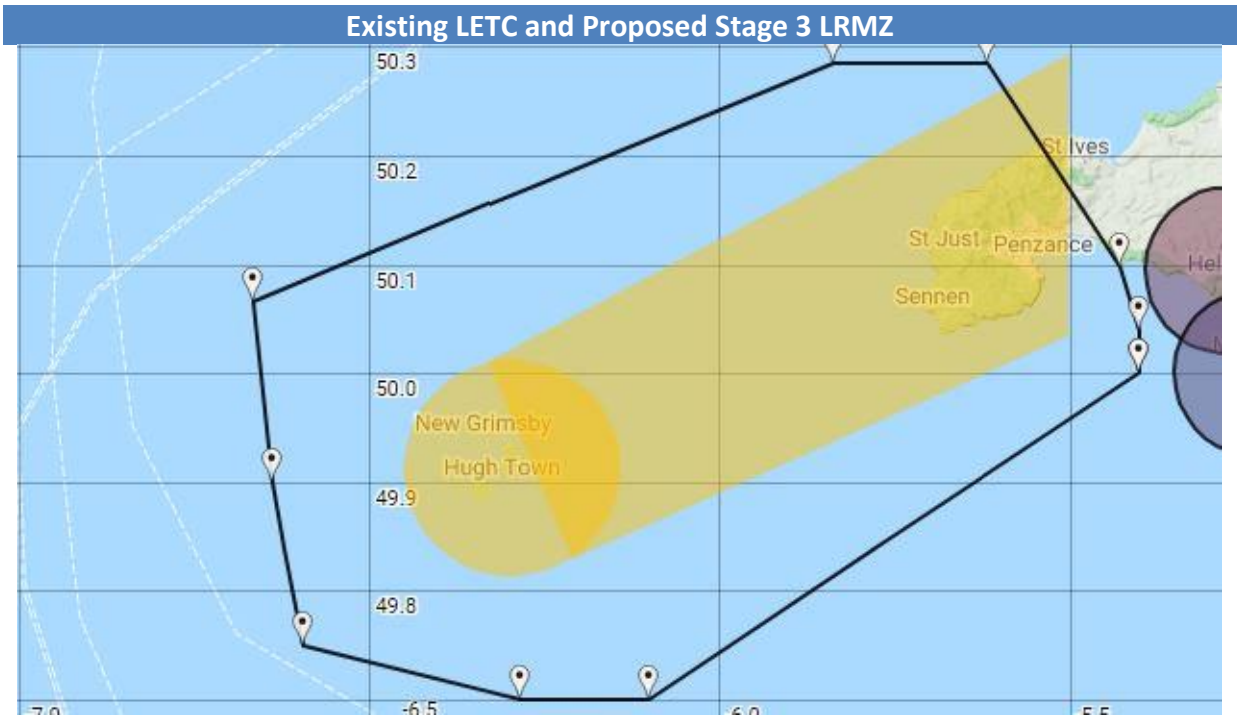


Fig 4: Current LETC in yellow with the proposed Land's End RMZ (Stage 3) in outline that includes approaches and holds at St Mary's, Land's End and Penzance.

3.13 The horizontal limits of the Land's End RMZ Stage 1 can be defined as running approximately parallel to an imagined centreline between Land's End airport and St Mary's airport with a boundary some 6nm north and south if it. Working from St Mary's towards Land's End the LRMZ follows the size and shape of the current LETC until a point approximately halfway between the two airports when the shape widens to encompass the IAP's & associated holds at Land's End. Stage 2 would be the same as above with the addition of an extra portion to include the PINS approach at Penzance.

3.14 The horizontal limits of the LRMZ Stage 3 can be defined as running approximately parallel to an imagined centreline between Land's End airport and St Mary's airport with a boundary some 15nm to the north and another some 13nm south. The eastern boundary is some 9nm east of Land's End airport with the western boundary some 15nm west of St Mary's airport.

3.15 Most of the size change takes place over the sea and won't have an adverse effect on most of the traffic using that portion of the LRMZ. Traffic transiting to the Isles of Scilly would almost certainly be within the LRMZ anyway and RNAS Culdrose has confirmed during the consultation phase that all of their aircraft using this airspace are radio and transponder equipped.

4 Final Options Appraisal

4.1 Proposed Option: RMZ + Alter the size of the LETC to encompass the IAP's at Land's End and St Mary's Airports & Penzance Heliport (In stages see section 3 above).

Group	Impact	Level of Analysis	Evidence
Communities	Noise impact on health & quality of lifestyle	Qualitative	There will be negligible changes to air traffic patterns so there will be no impact for noise. Most of the LETC is over the sea between Land's End and the Isles of Scilly.
Communities	Air quality	Qualitative	Negligible changes to aircraft routings below 7000 ft so no effect on air quality. This change option would not increase the number of aircraft within the LETC so air quality would not be adversely affected.
Wider Society	Greenhouse gas impact	Qualitative	Negligible changes to aircraft routings below 7000 ft so no effect on aviation greenhouse

			gas emissions. This change option would not increase the number of aircraft within the LETC so aviation greenhouse gas emissions would not increase.
Wider Society	Capacity / resilience	Qualitative	Capacity in terms of the number of aircraft that could utilise it would remain the same as today as the physical dimensions of the LETC would change only to include the IAP's. Workload may increase slightly as the current 'unknown traffic' would be in contact with ATC, however, this would be well within the capacity of the current ATC system.
General Aviation	Access	Qualitative & Monetise	Aircraft would need to be equipped with and operate suitable 2-way radio equipment. A one-off cost in the region of £500 would be needed to purchase suitable radio equipment. There may be a very small number of aircraft, estimated to be <1% that do not, or would not wish to, use 2-way radio equipment and therefore would not be permitted to enter the airspace without prior agreement. As per the published CAA policy statement prior agreements could be entered into to allow limited operation of these aircraft subject to other factors agreed with ATC.
General Aviation / Commercial airlines	Economic impact from increased effective capacity	Qualitative	No change from today

General Aviation / Commercial airlines	Fuel burn	Qualitative	No change from today
Commercial airlines	Training costs	Qualitative	No change from today
Commercial airlines	Other costs	Qualitative	No change from today
Airport / ANSP	Infrastructure costs	Qualitative & Monetise	Land's End Airport currently has all necessary ATC equipment for the level of service provided and therefore there would be no extra costs to the airport or ANSP.
Airport / ANSP	Operational costs	Qualitative & Monetise	Land's End Airport currently has all necessary ATC equipment for the level of service provided and therefore there would be no extra operational costs to the airport or ANSP.
Airport / ANSP	Deployment costs	Qualitative & Monetise	Land's End Airport currently has all necessary ATC equipment for the level of service provided and therefore there would be no deployment costs to the airport or ANSP.

5 Safety Assessment

This assessment is unchanged from the equivalent Stage 3 document

5.1 Options Appraisal Safety Assessment – Option 1 Radio Mandatory Zone (RMZ)

Should the LETC be reclassified as an RMZ then all aircraft wishing to operate within would have to establish 2-way radio communication with ATC before entry. This should remove the possibility of unknown traffic from the LETC. The usefulness of this relies on the accuracy of pilot position and level reports. If a pilot cannot establish 2-way communication with ATC, then they would have to remain clear of the RMZ. There are circumstances under which certain activities take place without radio contact at present (e.g. para gliding at Sennen Cove) and with careful planning and formal agreements these activities could continue. Again, by entering into letters of agreement, aircraft could get airborne from sites within the RMZ and establish 2-way radio communication at the earliest opportunity.

The RMZ may not need to be active 24/7 and could be promulgated to coincide with the commercial operations of the airports/heliport within the LETC thus making the LETC as accessible as possible in line with increased safety margins. Currently commercial operations take place Mon–Sat 0800-1830. Any extra commercial operations could be covered by NOTAM.

Points to be considered with this are

- All aircraft must establish 2-way radio communication with ATC to operate within the LETC
- Almost all aircraft are fitted with appropriate 2-way radio communication equipment and for those that aren't handheld radios can be purchased and used effectively
- Certain activities may be permitted without radio contact under a LOA (An informal discussion and further clarification has already taken place with stakeholders who expressed concern over not being granted access due to non-radio operation. Land's End ATC clearly stated the overarching goal of increasing safety for all users and continuing the policy of access for all)
- This is a good option for GA operations as it is a practical middle ground between doing nothing and having controlled airspace, which would pose many restrictions to aircraft wishing to operate within the LETC
- Although a clearance isn't needed to enter an RMZ, CAA policy is if a pilot is told to 'standby' they are to remain clear of the airspace **(14 August 2015: POLICY FOR RADIO MANDATORY ZONES AND TRANSPONDER MANDATORY ZONES, Annex A)**

The establishment of a RMZ would eliminate the unknown traffic element in the LETC and not pose too many restrictions to aircraft in terms of cost and access so 'Radio Mandatory Zone (RMZ) is a viable option.

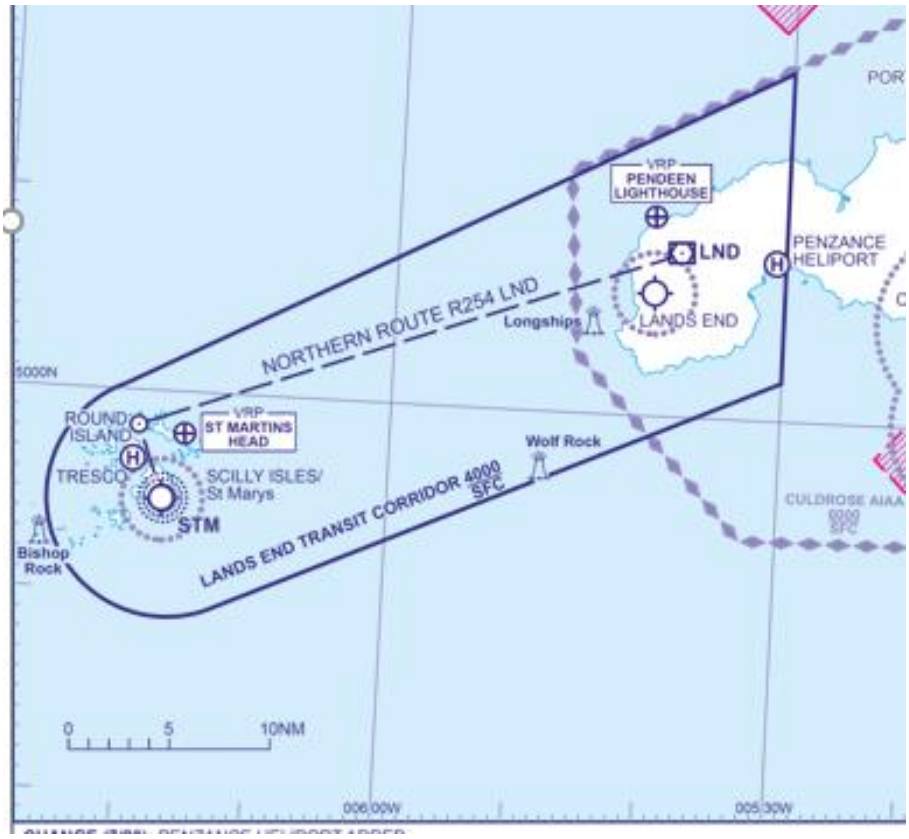
5.2 After initial consideration regarding what might be gained from altering the size of the LETC, it was decided that a major improvement would be to increase the size around the IAPs at Land's End and St Mary's airports. Currently when aircraft are carrying out an IAP their tracks take them outside the LETC. By having the IAP's inside the LETC and having it designated as a RMZ as well this would greatly enhance safety for aircraft carrying out these approaches especially if they were in IMC at the time.

5.3 The proposed option - RMZ + Alter the size of the LETC to encompass the IAP's at Land's End and St Mary's Airports & Penzance Heliport (in stages see section 3 above), will provide the safest and most effective solution for all current and future users of the LETC. This option has a negligible impact on CO2 emissions, has no further noise impact than already present, nor does it negatively impact air quality or lifestyles of those under the flight paths.

Appendix A

Land's End Airport Ltd

CHART SHOWING THE CURRENT LETC



AIRAC AD 2-EGHC-3-1 Land's End Transit Corridor