LONDON AIRSPACE MANAGEMENT PROGRAMME (LAMP) PHASE 1A

CAA DECISION: PART APPLICABLE TO LAMP PHASE 1A MODULE E

CAP 1366/E

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31 August is now the revised date for the controlled airspace limits review, Portsmouth CTA re-classification review and introduction of segregated VFR operations; as specified in Module C No. 7 and 8, and Module E No. 2, 3, 4 and 5.

amendments marked as underlined text.

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A. Module E – South Coast Changes ACP Issue 2 dated March 2015.

B. TAG Farnborough Airport Airspace Consultation Parts A, C, D and E (February 2014).

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INTRODUCTION

1. In February 2015, National Air Traffic Services (NATS) submitted an Airspace Change Proposal (ACP) titled the London Airspace Management Programme (LAMP) Phase 1A proposal to the Civil Aviation Authority (CAA), to propose changes to airspace in the south-east of England including proposals to change a number of arrival and departure procedures at a number of aerodromes. LAMP Phase 1A is a major airspace change designed to deliver modifications to airspace arrangements affecting a broad swathe of south-east England from Stansted to the Isle of Wight in order to provide, primarily, capacity and efficiency benefits. There are five individual elements (referred to as Modules) of the LAMP Phase 1A proposal.

2. The justifications presented by NATS for the LAMP Phase 1A proposals are that it will modernise airspace structure, improve the operational efficiency of the airspace providing capacity for the future, minimise future delay, improve the environmental performance of the airspace, reduce average CO_2 per flight and reduce the incidence of low level overflight of populated areas.

3. It is acknowledged that of themselves, none of the Modules will increase the capacity of the airspace at this time but each of the Modules collectively contribute to a modernisation of the airspace that enables further systemisation, as and when further phases of airspace change are developed for the south-east of England and are put forward for consideration by the CAA.

4. This decision document expressly incorporates the contents of the **CAA Decision: Part applicable to each LAMP Phase 1A Modules A – E**[1] which thereby forms part of the CAA's decision in respect of the airspace change proposal in this Module. This decision document contains the information and decisions specific to the proposal outlined in LAMP Phase 1A Module E (Reference A).

5. This Module proposes the following:

Changes to flight planned arrival and departure routes for Farnborough, Bournemouth and Southampton airports comprising:

- New RNAV-1 Standard Arrival Route (STAR), SAM2D for Southampton and Bournemouth from the south-east.
- New air traffic service (ATS) route N20 feeding the new SAM2D STAR.
- New air traffic service (ATS) route (U)N16 primarily for re-routing Farnborough, Southampton and Bournemouth departures to Dover for Europe above FL165.
- Minor route re-alignments for (U)Y8 and (U)M8.
- Revised flight plannable routes inbound to Farnborough from the south-west and south-east, and outbound to the east via Dover routing to Europe.
- Lowering of some Controlled Airspace (CAS) in the region of the Isle of Wight to enable the new procedures.

6. This proposal has been the subject of a consultation by the original sponsor (TAG Farnborough) which was followed by the publication of a consultation feedback report by them and the current sponsor, NATS. When submitted to the

[1] http://www.caa.co.uk/CAP1366.

CAA this proposal was accompanied and supported by the documents detailed above.[2]

7. The purpose of this document is to provide an overview of the proposal and the CAA's decision on it.

INFORMATION THAT HAS BEEN CONSIDERED

8. In making this decision, the CAA has considered the documents set out above and set out in the **CAA Decision: Part applicable to each LAMP Phase 1A Modules A – E** and we have recorded our analysis of that material in the CAA's Operational Report, Consultation Report and Environmental Assessment.[3]

PROPOSAL OVERVIEW

9. This airspace change proposal requests the CAA approves the following changes:

- Withdraw the SAM1D STAR (arrival) for Southampton and Bournemouth and to replace it with a new RNAV-5 arrival route further south over the Solent designated as an RNAV-5 STAR known as the SAM2D.
- Implement new ATS routes (U)N16, UN20, re-alignment of ATS routes (U)Y8 and (U)M8.
- Increase the volume of controlled airspace by lowering CAS to FL65 in the following areas
  - The Isle of Wight region from FL105 to FL65.
  - The Selsey region from FL105 to FL65.
  - The Pagham region from FL75 to FL65.
  - The Y8 sliver east of Portsmouth from FL85 to FL65.

10. As discussed in more detail below, as part of our consideration of this airspace change proposal we have asked NATS to modify their design and reduce the amount of new controlled airspace required.

[2] http://www.caa.co.uk/Commercial-industry/Airspace/Airspace-change/Decisions/London-Airspace-Management-Programme-Phase-1A/.

[3] http://www.caa.co.uk/Commercial-industry/Airspace/Airspace-change/Decisions/London-Airspace-Management-Programme-Phase-1A/.

11. The location of these changes in relation to the volume of controlled airspace being proposed are shown in diagrams submitted as part of the airspace change proposal to the CAA[4] which is reproduced at Annex A. That diagram shows the existing controlled airspace (CAS), the proposed CAS, and the volume of CAS now being sought, after the CAA required a revision to the proposal.[5]

12. The Module E proposal would enable departing traffic from Bournemouth, Southampton and Farnborough routing to Europe at FL165 and above to be given improved climb profiles, that is to climb sooner and more continuously.

13. This in turn enables the wider benefits of the LAMP Phase 1A proposals. That is, the re-positioning of the Gatwick STARs above 7000ft AMSL from the east, which in turn enables the revised routing of the Stansted SID switch routing; this enables the improved climb of the southerly London City departures and the re-positioning of the London City arrivals. The Module E proposals are proposed at this time to enable the full network change benefits of LAMP Phase 1A to be proposed.

14. The lowering of controlled airspace to FL65 over the Isle of Wight is proposed to enable the repositioning of the Bournemouth and Southampton arrivals from the south/south-east. This re-positioning of the arrival flows is proposed to reduce the complexity of the mixed flows through the congested airspace at Goodwood and thereby reduce the air traffic control workload in handling those aircraft.

15. The proposed RUDMO Hold, which is over the Solent to the south of Hayling Island, provides an enhancement to facilitate the removal of contingency holding at PEPIS (adjacent to Popham in Hampshire) which in turn reduces complexity in this very busy choke point.

CONSULTATION AND CHRONOLOGY

16. The proposals that form Module E are a subset of a larger set of proposals originally formulated by TAG Farnborough. The formal stages of this airspace change proposal commenced with a Framework Briefing between the CAA and TAG Farnborough on 15 February 2013. At that briefing the CAA advised TAG Farnborough that the consultation needed to include local airspace users and national organisations representing General Aviation (GA).

[4] At pages 43-46.

[5] Annex B shows the final airspace structure as considered by the CAA.

17. TAG Farnborough, undertook a consultation with aviation and environmental stakeholders from 3 February 2014 to 12 May 2014 as detailed in Reference B.[6]

18. On 25 September 2014 NATS agreed with TAG Farnborough that:

- Some elements of TAG Farnborough's proposals were key enablers for LAMP Phase 1A.
- That if those changes were not pursued, none of the other LAMP Phase 1A proposals could be submitted to the CAA for consideration, approval and if applicable, implementation.
- That the remainder of the TAG Farnborough proposals were not ready for submission to the CAA.
- That NATS would take over as sponsor of the necessary elements of TAG Farnborough's airspace change proposal, which would become Module E of LAMP Phase 1A.

19. Once TAG Farnborough's consultation closed, TAG Farnborough prepared a consultation feedback report. NATS reviewed that report, as regards the feedback received in respect of those proposals that became Module E, and prepared its own consultation feedback report (NATS South Coast ACP Consultation Feedback Report Part B).[7] NATS then considered modification of the airspace change proposal originally developed by TAG Farnborough, which ultimately became this Module E airspace change proposal.

20. We conducted an assessment of the TAG Farnborough consultation based on the criteria set out in the **CAA Decision: Part applicable to each LAMP Phase 1A Modules A – E** incorporated into this decision document. In summary, we concluded that the consultation report and associated material were comprehensive, well presented and met our requirements. Notwithstanding that we have, as set out below, as part of this decision process, required NATS to modify its proposals (as a result of some of the feedback received during the consultation, and our view that further mitigations to the impact of the proposals can be achieved without compromising the objectives of the proposal) we have concluded that NATS has properly taken the feedback received into account.

21. We reached this conclusion by undertaking an analysis of the sponsors' consultation feedback and conclusions in comparison with the original

[6] http://www.caa.co.uk/Commercial-industry/Airspace/Airspace-change/Decisions/London-Airspace-Management-Programme-Phase-1A/.

[7] http://www.caa.co.uk/Commercial-industry/Airspace/Airspace-change/Decisions/London-Airspace-Management-Programme-Phase-1A/.

consultation responses from stakeholders.[8] There were a large number of responses received during the consultation undertaken by TAG Farnborough, but 219 stakeholders responded to the part of the consultation associated with the airspace that is affected by these proposals in Module E. However, as respondents were asked to respond to a wide range of questions in this consultation it has not been possible for the CAA to state the precise numbers of respondents that support, object to, or have no objection to this element of the proposal.

22. The individual responses to the TAG Farnborough consultation were forwarded to the CAA by the sponsor in unprocessed form and all items have been individually read.

23. Aspects of the feedback are discussed in more detail below in respect of the material considerations the CAA must take into account in order to decide whether to approve the change requested.

24. However, some feedback has been received directly by the CAA that the consultation process was flawed due to the transfer of sponsorship from TAG Farnborough to NATS for the changes that have become LAMP Phase 1A Module E.

25. We have concluded that this is not the case. This was a competent consultation with a good level of analysis undertaken by the original sponsor that was carried through to the formal NATS proposal with appropriate consideration of the issues raised. There was a clear linkage from the original design and impact assessment of the proposal throughout the change of sponsorship. It is clear that the LAMP Phase 1A development team in NATS played a key part in the development of the original TAG Farnborough proposal and in our view were competent to take over sponsorship of the South Coast Area proposals, which became Module E.

26. In particular, in our view, there is clear evidence that the issues raised by consultees with TAG Farnborough were carried through to the final design by NATS with appropriate mitigation employed (as referenced in the NATS South Coast ACP Consultation Feedback Report Part B).

[8] Discussion of key themes was presented in the TAG Feedback Report, as are responses to more specific questions raised by respondents.
One such question and response for example was: Will more people be overflown?
The response provided was: “No. By replicating the existing routes, the same areas/people will be overflown. Over time due to the increasing proportion of RNAV equipped aircraft there will be a small degree of concentration of the traffic along the route centre-line. This will result in fewer people being directly overflown, but we expect the change to have only a marginal impact on people’s experience of noise”

27. We have also received feedback asserting that the original consultation was flawed because the purpose behind the change now proposed (as Module E of LAMP Phase 1A) is now different to that contained in TAG Farnborough's consultation document. In our view this is not the case.

28. Firstly, although the TAG Farnborough consultation did not specifically refer to the enabling of LAMP Phase 1A, the proposal was coordinated with the LAMP Phase 1A development team within NATS. Therefore, at that time the separate proposals were complementary to each other and that remained the case once the proposal was taken into LAMP Phase 1A. The link to the requirements for Bournemouth/Southampton traffic was referenced in the TAG Farnborough consultation. Secondly, we are satisfied that the consultation provided sufficient and clear information on the expected impacts of the proposals (that have been carried forward as this Module E) that would enable someone reading the consultation to understand the potential impact of the changes on them and therefore enabled a stakeholder to properly participate in the consultation process.

29. On that basis we have decided that the consultation met out our requirements set out in CAPs 724 and 725.[9]

STATUTORY DUTIES

30. As set out in the **CAA Decision: Part applicable to each LAMP Phase 1A Modules A – E**, the CAA's statutory duties and functions are contained in section 70 of the Transport Act 2000 (the Transport Act), the CAA (Air Navigation) Directions 2001, as varied in 2004 (the 2001 Directions), and the 2014 Guidance to the CAA on Environmental Objectives relating to the exercise of its air navigation functions (the 2014 Guidance).[10]

31. In summary, the CAA's primary duty under section 70(1) of the Transport Act requires that the CAA exercises its air navigation functions so as to maintain a high standard of safety in the provision of air traffic services. This duty takes priority over the remaining material considerations set out in section 70(2). Where an airspace change proposal satisfies all of the material considerations identified in section 70(2) and where there is no conflict between those material considerations, the CAA will, subject to exceptional circumstances, approve the airspace change proposal. Where an airspace change proposal satisfies some of the material considerations in section 70(2) but not others, this is referred to

[9] CAP 724 https://www.caa.co.uk/CAP724 and CAP 725 https://www.caa.co.uk/CAP725.

[10] Revised in 2014 by the Department for Transport https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/269527/air-navigation-guidance.pdf.

as a conflict within the meaning of section 70(3). In the event of a conflict, the CAA will apply the material considerations in the manner it thinks is reasonable having regard to them as a whole. The CAA will give greater weight to material considerations that require it to "secure" something than to those that require it to "satisfy" or "facilitate". The CAA regards the term to "take account of" as meaning that the material considerations in question may or may not be applicable in a particular case and the weight the CAA will place on such material considerations will depend heavily on the circumstances of the individual case. The analysis of the application of the CAA's statutory duties in this ACP is set out below.

Safety

32. The CAA's primary duty is to maintain a high standard of safety in the provision of air traffic services and this takes priority over all other duties.[11] In addition to the conclusions in respect of safety set out in the **CAA Decision: Part applicable to each LAMP Phase 1A Modules A – E** the CAA has made the following conclusions with respect to safety.

33. The current controlled airspace design, in the vicinity of Goodwood is very complex. A relatively high level of air traffic control intervention is required in order that aircraft can operate safely in the area. However, an individual air traffic controller can only safely and effectively manage a finite number of aircraft within a given block of airspace at any one time. As the number of aircraft increases beyond what a controller can manage there are two options; constrain traffic numbers or increase controller capacity. Traditionally, the capacity increase was realised by dividing the airspace down into smaller blocks each with its own controller resource; but this cannot continue ad-infinitum. The next option is to redesign the airspace, systemising[12] some or all of areas of it by having routes that are separated by design without the need for controller tactical intervention; this reduces workload, increasing both safety margins and potential for capacity increases in the future. We are satisfied that an important objective of this proposal is to maintain a high level of safety by proposing a re-design of airspace that will reduce the complexity of the airspace and the need for air traffic control intervention.

34. In particular, this proposal removes a number of conflicts, complexities and inefficiencies in the current airspace around Goodwood which currently results in

[11] Transport Act 2000, section 70(1).

[12] The process of reducing the need for human intervention in the air traffic control system, primarily by utilising improved navigation capabilities to develop a network of routes that are safely separated from one another so that aircraft are guaranteed to be kept apart without the need for air traffic control to intervene – NATS' definition.

multiple opposing direction traffic interactions between inbound and outbound traffic.

35. The proposal addresses some of the current tactical intervention and legacy design hotspots in the London Terminal Manoeuvring Area (LTMA). In the Goodwood area in particular, there is a significant reduction in complexity through the systemised de-confliction of routes by re-routing the Southampton 1D STAR, and the revision to the flight planned arrival routes for Farnborough.[13]

36. Consequently, the safety improvements and characteristics of the new design is the primary factor in our consideration of this change.

37. CAA's Safety and Airspace Regulation Group's Instrument Flight Procedure (SARG IFP) regulators' analysis reached the view that all designs, in the final form proposed, were compliant with extant regulations. In particular, the SARG IFP analysis concluded that the Southampton 2D STAR and associated contingency hold at RUDMO (over the Solent) were compliant with extant regulations, albeit that traffic in the hold will need to be radar monitored to ensure it does not enter Danger Area D037.

38. With regard to the airspace design a full route spacing assurance report has been completed by NATS. The CAA is also satisfied that a robust assessment of separation standards with adjacent airspace structures has therefore been conducted and that appropriate arrangements are in place to ensure tactical separation with other traffic. Nevertheless, as a condition of this approval, a regulatory requirement has been placed on NATS to monitor the track of traffic inbound to the RUDMO Hold to ensure appropriate separation from the Danger Area D037 is assured. See Annex C.

39. In the broader context, LAMP Phase 1A starts the process of systemising the LTMA.[14] LAMP Phase 1A does not increase the capacity of the airspace at this time but each of the Modules collectively contribute to a modernisation of the airspace, that enable further systemisation to be contemplated in the future.

40. In addition, it is our view that safety would be enhanced these proposals in the local area, in particular with regard to removing complexity in the vicinity of Goodwood. In addition, these proposals enable the wider LAMP Phase 1A

[13] Consequently this would enable departures from Farnborough, Southampton and Bournemouth to the east to be more efficiently climbed, which enables a re-route via Biggin which in turn would enable the network proposals in Module C to be implemented. These benefits are discussed in more detail because as well as contributing overall to a high level of safety they contribute to the more efficient use of airspace which is also an important material consideration in the CAA's decision.

[14] Systemisation is the process of reducing the need for human intervention in the air traffic control system, primarily by utilising improved navigation capabilities to develop a network of routes that are safely separated from one another so that aircraft are guaranteed to be kept apart without the need for air traffic control to intervene.

design to be implemented which contributes to safety enhancements in other portions of the London Terminal Manoeuvring Area airspace. – see more detail in Module C.

41. Further systemisation means that future growth in aircraft traffic can be managed safely.

42. Accordingly, the CAA is satisfied that a high standard of safety can be maintained as a result of this proposal.

The most efficient use of airspace

43. The CAA is required to secure the most efficient use of the airspace consistent with the safe operation of aircraft and the expeditious flow of air traffic.[15]

44. The CAA considers that the most efficient use of airspace means the use of airspace that secures the greatest number of movements of aircraft through a specific volume of airspace over a period of time so that the best use is made of the limited resource of UK airspace. It is therefore concerned with the operation of the airspace system as a whole.

45. The CAA considers the expeditious flow of air traffic to involve each aircraft taking the shortest amount of time for its flight. It is concerned with individual flights.

46. In this respect, we are content that the proposed new design around Goodwood and the Isle of Wight will address current issues with the busy choke point at Goodwood. The arriving flows from the south-east will be systematically de-conflicted from the departing traffic to the east; this change will reduce controller workload, and not only improve safety in this region, but as an enabler for LAMP Phase 1A Module C, it will mean that an overall improvement in efficiency is achieved in the busy and congested airspace in the south-east of England.

Requirements of aircraft operators and owners

47. The CAA is required to satisfy the requirements of operators and owners of all classes of aircraft.[16]

Volume of Controlled Airspace

48. This proposal seeks an increase in the size of controlled airspace thereby reducing the volume of airspace available for Class G airspace users.

49. As part of our consideration of the proposal the CAA has requested that NATS modify the proposal to reduce the volume of the extra controlled airspace sought under this proposal, which NATS has done.

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[15] Transport Act 2000, section 70(2)(a).

[16] Transport Act 2000, section 70(2)(b).

50. As a result, and as shown in the diagrams in Annexes A and B, the original proposal included a request to lower controlled airspace from FL105[17] to FL65; following CAA intervention, NATS has now modified its request for controlled airspace down to FL75 in the southern portion of the area covered by this proposal. A chronology setting out the iterations and refinements of the proposed lower limits of controlled airspace over the Isle of Wight is detailed in Annex D.[18]

51. Nonetheless, the proposal does reduce the amount of un-controlled airspace available for Class G airspace users. We have taken into account that a large proportion of GA activity takes place below FL65 and those operations will not be affected by this proposal. By way of example, a traffic survey conducted by TAG Farnborough indicated an average of 1.6 flights by GA transponding (identifying) aircraft per day in the airspace affected between FL105 and FL65 throughout September 2012.

52. We have also taken into account that GA traffic departing to cross the English Channel may still climb to altitudes above FL65 (subject to extant controlled airspace and Danger Area activity) although their climb will be slightly delayed due to the lowering of controlled airspace from FL105 to FL65 (or FL75 where the proposal has been so revised).

53. We have also taken into account the impacts to Class G users requiring use of the airspace above FL65 for specialist activities such as high altitude spinning and stalling. We consider that these can be accommodated by the establishment of Letters of Agreement with NATS that facilitate the Flexible Use of Airspace that cater for segregated VFR activity in Class A airspace at certain times. The precise demand for this activity will have to be determined by NATS and facilitating these arrangements will be a condition of approval as outlined in the Regulatory Decision section below. See also Annex C.

54. Notwithstanding this, and cognisant of the fact that the sponsor has raised part of the Worthing Control Area (CTA) just off the south-east coast of Kent from FL65 to FL75, the CAA reviewed the area of controlled airspace where the majority of

[17] FL is an abbreviation of Flight Level. FL expresses altitude defined on a standard pressure datum of 1013 hectopascals (hPa). The actual equivalent altitude (the vertical distance of an aircraft above sea level) of an aircraft flying at a FL flying on a pressure datum of 1013 hPa above sea level can therefore vary depending on the atmospheric pressure setting value evident at sea level. For example, if the surface pressure was 1013 hPa, then an aircraft at FL105 would be at 10500ft AMSL. If the surface pressure was 983 hPa, an aircraft at FL105 would be approximately 900ft lower at 9600ft AMSL (a change of 1 hpa represents an equivalent change of ~30ft of altitude).

[18] The CAA's Module E Operational Assessment was produced prior to some of the developments in this proposal. Therefore, for a complete explanation of the CAA's operational analysis of this proposal the CAA's Operational Assessment and Annex D to this decision must be read together.

changes proposed would take place. A number of areas were identified[19] where it was considered that there may be scope to review the lower limits of controlled airspace with a view to raising these lower limits. As a condition of our approval of these proposals a requirement has been placed on NATS to conduct a review which will necessitate examination of the lower altitude of arrivals and departures routes into the London Terminal Control Area (LTMA) and identify options for raising the base of controlled airspace (thereby reducing the volume of controlled airspace.)[20] Those conditions are set out in more detail in Annex C.

55. During our consideration of this proposal the CAA has also identified two blocks of airspace over the land where we consider reductions in the size of or modifications to the shape of controlled airspace could be safely accommodated. These are the LTMA Sector 3 located to the east of Gatwick and LTMA Sector 8 from the north coast of Kent south-west to the boundary of the LTMA Sector 21/N859 eastern extremity. It is further a condition of the CAA's approval of this proposal that NATS carry out an investigation and review these possibilities within six months of the implementation of these proposals (i.e. within six months of February 2016[21]) with a view to making the possible changes in March 2017. Those conditions are set out in more detail in Annex C.

56. In order to address some concerns regarding airspace classification, NATS will also be required, as a condition of the CAA's approval of the change proposed, to examine whether the controlled airspace over the Isle of Wight region which has been lowered from FL105 to FL65 / FL75 may be re-classified as Class C. NATS is required to complete this review by 30 June 2016 with the objective of meeting the next ICAO 1:500,000 VFR chart amendment.

57. Following the revisions made to the original airspace design subjected to consultation and the subsequent refinement following the CAA's assessment, the CAA considers that changes to controlled airspace proposed in this Module will have a minimal impact on Class G users, although some particular high altitude General Aviation activities such as spinning and stalling may be affected (although this effect may also be mitigated under the conditional approval requirements set out below in Annex C).

Operational impacts

58. The impacts portrayed for elements concerning Farnborough, Southampton and Bournemouth are as indicated in the TAG Farnborough consultation material; the Southampton and Bournemouth arrivals will result in change to profiles as illustrated in the Consultation Part D. We anticipate that the impact of raising the

[19] 15 in total from the north-east tip of Kent and along the English Channel to the Isle of Wight.

[20] Given that such changes will need to be properly co-ordinated with a production of the ICAO 1:500,000 chart cycle, it is unlikely any such potential changes that are identified could be effected until March 2017.

[21] Subsequently revised to 31 August 2016.

lower altitude of controlled airspace (from the FL75 as now proposed from FL65 as originally proposed) over the southern portion of the Isle of Wight may have an impact as a slight delay to arrivals to enable aircraft to lose a further 1000ft may be required.[22]

Fuel Burn/Costs

59. As demonstrated in the NATS Environmental Benefits Report (Reference E), there will be a small dis-benefit in terms of increased fuel burn and consequential increase in CO_2 emissions with Module E. However, in our view this is offset by the overall net benefits of the revised airspace design with the LAMP Phase 1A package and the overall benefits to be realised. A summary of the impacts on CO_2 emissions from the LAMP Phase 1A Modules is at Attachment 1 to NATS' Bridging Module (Reference F) which was submitted as part of this airspace change proposal. The CAA's Module E Operational Assessment and Environmental Assessment provide the relevant data.[23]

60. The CAA's Operational Assessment contains more information on how the CAA reached its decision on the impact on operators and owners of aircraft.[24]

Interests of any other person

61. The CAA considers the words "any person (other than an operator or owner of an aircraft)" to include airport operators, air navigation service providers, members of the public on the ground, owners of cargo being transported by air, and anyone else potentially affected by an airspace proposal.

62. The CAA is required to take account of the interests of any person (other than an operator or owner of an aircraft) in relation to the use of any particular airspace or the use of airspace generally. The CAA examined a number of anticipated impacts, some of which attracted feedback during the consultation process outlined above.

63. This decision document deals with consideration of the anticipated environmental impact on the public on the ground in the paragraphs relating to the environmental impact of the proposed change below.

64. This decision document deals with the impact on air traffic service providers, air traffic controllers, in relation to controller workload, above.

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[22] Although NATS has stated that in its view under the proposal submitted the inbound track of Farnborough arrivals will still result in the arriving flow across the same area overland from the south coast as is seen today.

[23] http://www.caa.co.uk/Commercial-industry/Airspace/Airspace-change/Decisions/London-Airspace-Management-Programme-Phase-1A/.

[24] http://www.caa.co.uk/Commercial-industry/Airspace/Airspace-change/Decisions/London-Airspace-Management-Programme-Phase-1A/.

65. We have concluded that the changes proposed in this Module are likely to benefit air navigation service providers as it is anticipated that air traffic control workload will reduce as a consequence of this change and the changes in the other Modules that it enables.

Guidance on environmental objectives

66. In performing the CAA's statutory duties, we are obliged to take account of the 2014 Guidance provided by the Secretary of State,[25] to the CAA on Environmental Objectives. In addition to the conclusions in respect of the environment set out in the **CAA Decision: Part applicable to each LAMP Phase 1A Modules A – E** the CAA has made the following conclusions with respect to the anticipated environmental impact of the proposal.

67. The CAA's Environmental Research and Consultancy Department (ERCD) has undertaken an assessment of the environmental impact of this change.[26]

68. Having carefully considered this information, we have concluded that principally as a consequence of increased track mileages, there is a small but quantifiable anticipated increase in CO_2 emissions that will result from the changes proposed in this Module. This is however small and fully offset by anticipated emissions reductions across the other LAMP Phase 1A Modules. Whilst the proposal demonstrates that there will be an anticipated reduction in the overflight of substantial numbers of people, the actual numbers of flights affected are estimated to be less than 10 per day in 2019 and thus the noise impacts associated with redistributing flights in the Solent area are likely to be minimal.

69. We have taken into consideration that some of the feedback responses considered that a lowering of the base of controlled airspace would inevitably lead to aircraft flying lower and therefore a greater noise impact.

70. We have assessed the anticipated impact on noise emissions of the changes proposed. When doing so we have had regard to the altitude-based priorities as given to the CAA by the Secretary of State in the 2014 Guidance to CAA on Environmental Objectives (set out in Annex A to the **CAA Decision: Part applicable to each LAMP Phase 1A Modules A – E)**.

71. We have concluded that we do not anticipate there will be a significant impact on noise emissions (within the meaning of Paragraph 9 of the Secretary of State's 2001 Directions to the CAA). See the incorporated **CAA Decision: Part applicable to each LAMP Phase 1A Modules A – E**, Annex A for an explanation of the CAA's policy in this regard. The proposal to reduce the

[25] Transport Act 2000, section 70(2)(d).

[26] http://www.caa.co.uk/Commercial-industry/Airspace/Airspace-change/Decisions/London-Airspace-Management-Programme-Phase-1A/.

minimum altitude would results in some changes to aircraft altitudes and/or routings below 7000ft AMSL. These changes are below the normal 7000ft AMSL threshold at which noise impacts should be considered. However, because they are for additional arrival routes, and the numbers of aircraft movements involved are small (on average less than one aircraft per day on each route) when they are taken together with the altitudes involved and the L_{Amax} noise information provided by the original sponsor TAG Farnborough, we are satisfied that the estimated noise exposure levels associated with the proposed changes would be well below 57dBA Leq and thus standard Leq noise contours would not have shown any changes. On this basis the impacts of the proposal are not considered significant in environmental terms.

72. We note that part of this proposal is to implement new RNAV-5 STARs. We consider that there is likely to be a noise impact of the proposal but the likely impact due to both the nature of RNAV application, i.e. it is not the RNAV-1 standard (which would be likely to create greater concentration) and the altitude and frequency of flights means that the impact is not likely to be significant.

73. Regarding CO_2 emissions, we have concluded that we anticipate that the changes within this Module will result in a small increase in CO_2 emissions. In 2016, we anticipate that the increase in CO_2 emissions as a result of this Module will be in the range of 525 to 1,050 additional tonnes of CO_2. However, overall the changes proposed in this Module will facilitate the LAMP Phase 1A package of proposals anticipated by NATS to provide an estimated 34,900 tonnes of CO_2 savings in 2016. Fuel savings are predicated on a number of factors and have been calculated for a series of scenarios for 2016 and 2020 timelines. Taking a more conservative assessment, for the purpose of making this decision we have concluded that we anticipate that the LAMP Phase 1A changes overall, (if all Modules are implemented and result in the anticipated impacts) would deliver a reduction of approximately 17,400 tonnes of CO_2 in 2016 and 20,800 tonnes in 2020.

74. Since this proposal and the other airspace changes within LAMP Phase 1A require no changes to ground infrastructure, we anticipate that there will be no effects on land-take and biodiversity.

75. Since the proposed change does not alter operations below 1000ft AMSL we anticipate there will be no effect on local air quality.

76. Many of the flight paths proposed in the Module already pass over Areas of Outstanding Natural Beauty (AONBs) and/or National Parks. The proposal will lead to changes, including overflight of new areas of AONB and/or National Parks. In particular approx 1% of flights inbound to Southampton and 15% inbound to Bournemouth airports (an estimated combined total of 3.37 flights per day in 2019) would be directed to overfly the southern half of the Isle of Wight AONB, however, they would do so at altitudes above 7000ft AMSL. When taking

this anticipated impact into account we have had regard to the Secretary of State's altitude-based priorities set out in the 2014 Guidance to CAA on Environmental Objectives (set out in Annex A to the **CAA Decision: Part applicable to each LAMP Phase 1A Modules A – E**).[27]

77. Whilst it is not possible to objectively assess the impact on visual intrusion, the sponsor clearly identified sensitive locations (AONBs and National Parks) where visual intrusion may be an issue and sought views from consultees.

78. We have also taken into consideration that flights over AONBs and National Parks are not prohibited by legislation[28] as a general prohibition against overflights would be impractical.

Integrated operation of ATS

79. The CAA is required to facilitate the integrated operation of air traffic services provided by or on behalf of the armed forces of the Crown and other air traffic services.[29]

80. In this respect, there are no impacts to any other ATS providers.

Interests of national security

81. The CAA is required to take into account the impact any airspace change may have upon matters of national security.[30] There are no impacts for national security. The Ministry of Defence has not objected to this or any other of the Modules in the LAMP Phase 1A proposal.

International obligations

82. The CAA is required to take into account any international obligations entered into by the UK and notified by the Secretary of State.[31] There is nothing in this Module that requires any additional regulatory activity outside the normal approval process.

83. New ATS routes over the High Seas will be notified to ICAO.

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[27] Which states that where practicable, and without a significant detrimental impact on efficient aircraft operations or noise impact on populated areas, airspace routes below 7000ft AMSL should, where possible, be avoided over Areas of Outstanding Natural Beauty and National Parks as per Chapter 8.1 of the 2014 Guidance.

[28] National Parks and Access to the Countryside Act 1949, National Parks (Scotland) Act 2000, and "Duties on relevant authorities to have regard to the purposes of National Parks, Areas of Outstanding Natural Beauty (AONBs) and the Norfolk and Suffolk Broads Guidance Note", Defra 2005.

[29] Transport Act 2000, section 70(2)(e).

[30] Transport Act 2000, section 70(2)(f).

[31] Transport Act 2000, section 70(2)(g).

REGULATORY DECISION

84. The CAA has decided that the proposed airspace design is safe, which satisfies the CAA's primary statutory duty. It is also the CAA's duty to consider the anticipated impact on each of the other material considerations identified in section 70(2) of the Transport Act. In accordance with section 70(3) of the Transport Act, and the CAA published policy, the CAA is required to consider whether the airspace change proposal produces any conflicts between the material considerations identified in section 70(2).

85. We have identified the environmental impacts of the revised procedures, the impact on AONBs and the impact on Class G airspace users.

86. However we have taken also into account that we consider there are significant flight safety and efficiency benefits from this Module and environmental benefits from the overall proposals of LAMP Phase 1A (of which this is part) set out in the **CAA Decision: Part applicable to each LAMP Phase 1A Modules A – E** which this proposal enables. The overall LAMP Phase 1A package will deliver network-wide changes that have safety benefits through greater use of systemisation, removal of airspace hotspots, in this specific case in regard to Goodwood and, in part, in relation to other portions of the London Terminal Manoeuvring Area. Overall, in our view a more efficient use of airspace will be achieved as a result of capacity benefits becoming possible through the de-confliction of arrival and departure routes. This can only be achieved by the enabling changes outlined in this Module E proposal due to the nature of the interactions of the departing traffic to the east via Dover having to be re-routed via Biggin Hill.

87. We have decided that in order to achieve the anticipated benefits consequential on the airspace change proposed in Module E, the CAA will approve this change. The changes approved to controlled airspace are shown in Annex B.

88. Our decision to approve this change is subject to a number of conditions which are attached at Annex C.

89. The revised airspace will become effective from 4 February 2016 (AIRAC 2/2016) and was promulgated via a double AIRAC cycle. The Part 1 of the AIRAC data for this and other LAMP Modules was distributed by AIS on 26 November 2015. In addition, an Aeronautical Information Circular (AIC) Y076/2015 was also distributed on 26 November 2015 to provide a full breakdown of the changes proposed in LAMP Phase 1A.

90. In line with our standard procedures, as set out above, the implications of the change will be reviewed after one full year of operation, at which point, the CAA will obtain feedback and data to contribute to the analysis.

Civil Aviation Authority

22 December 2015

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ANNEX A

Diagrams to show proposed changes to controlled airspace in the Isle of Wight region – subjected to consultation, proposed and refined

Extract from NATS Feedback Report – Fig 4 – airspace as consulted upon

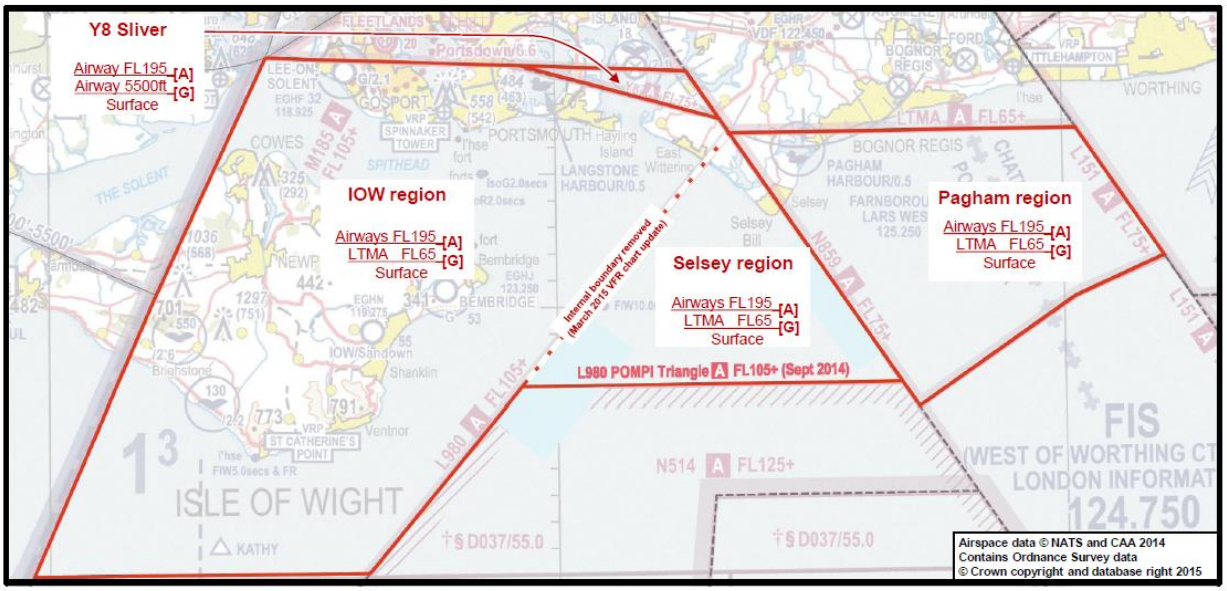


Figure 4 Proposed airspace volumes along the south coast - as originally consulted upon (zoomed in view)

Extract from NATS Feedback Report – Fig 5 – airspace as proposed in ACP

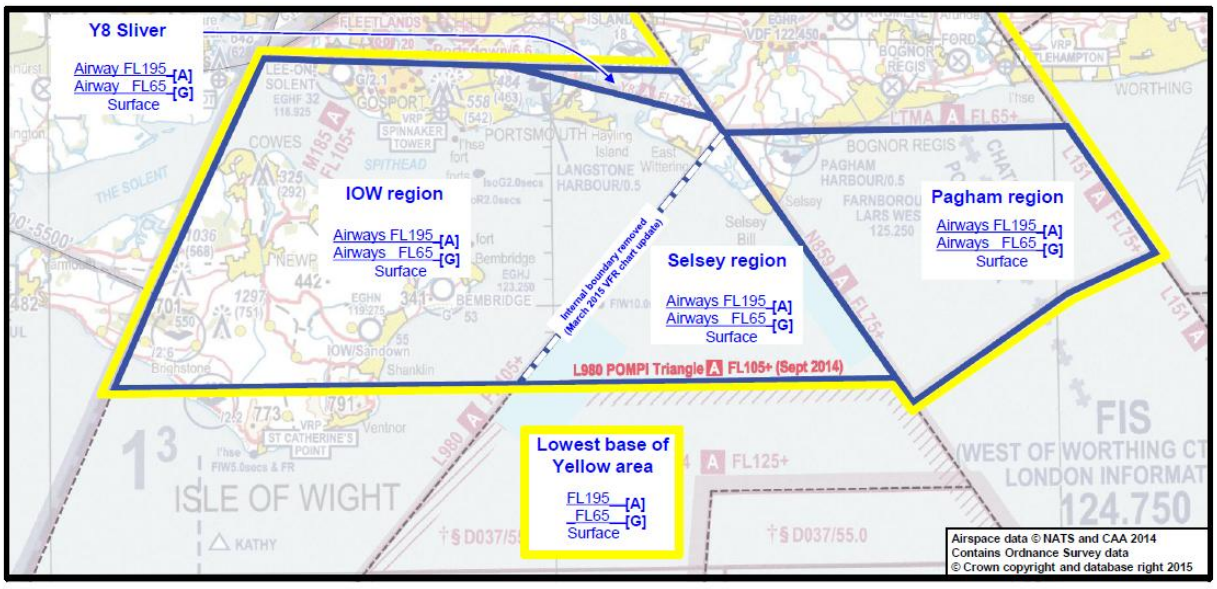
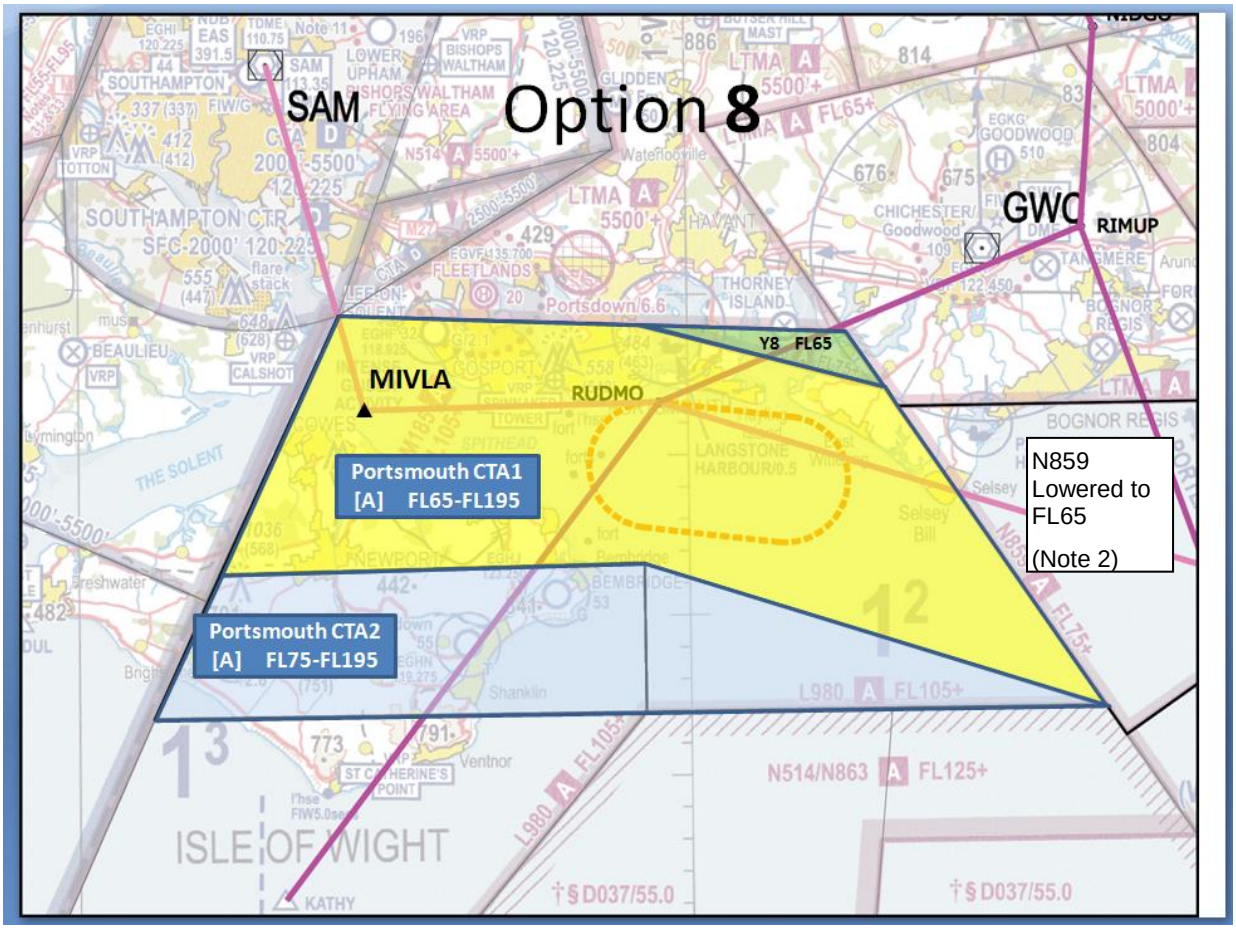


Figure 5 Proposed airspace volumes along the south coast – modified following consultation feedback

Airspace as reconsidered by NATS following CAA Case Study (NATS Option 8)



Notes:

1. The Y8 sliver (in green) has subsequently been combined with Portsmouth CTA 1.

2. The area of N859 as proposed in the consultation as the Pagham Region is lowered to FL65.

3. See the diagram in the AIC Y076/2015 (Annex B) to show the final airspace structure.

ANNEX B

New controlled airspace in the Isle of Wight region – Portsmouth CTA

Extract from AIC Y076/2015 (published 26 November 2015)

3 Changes to Controlled Airspace in the region of the Isle of Wight

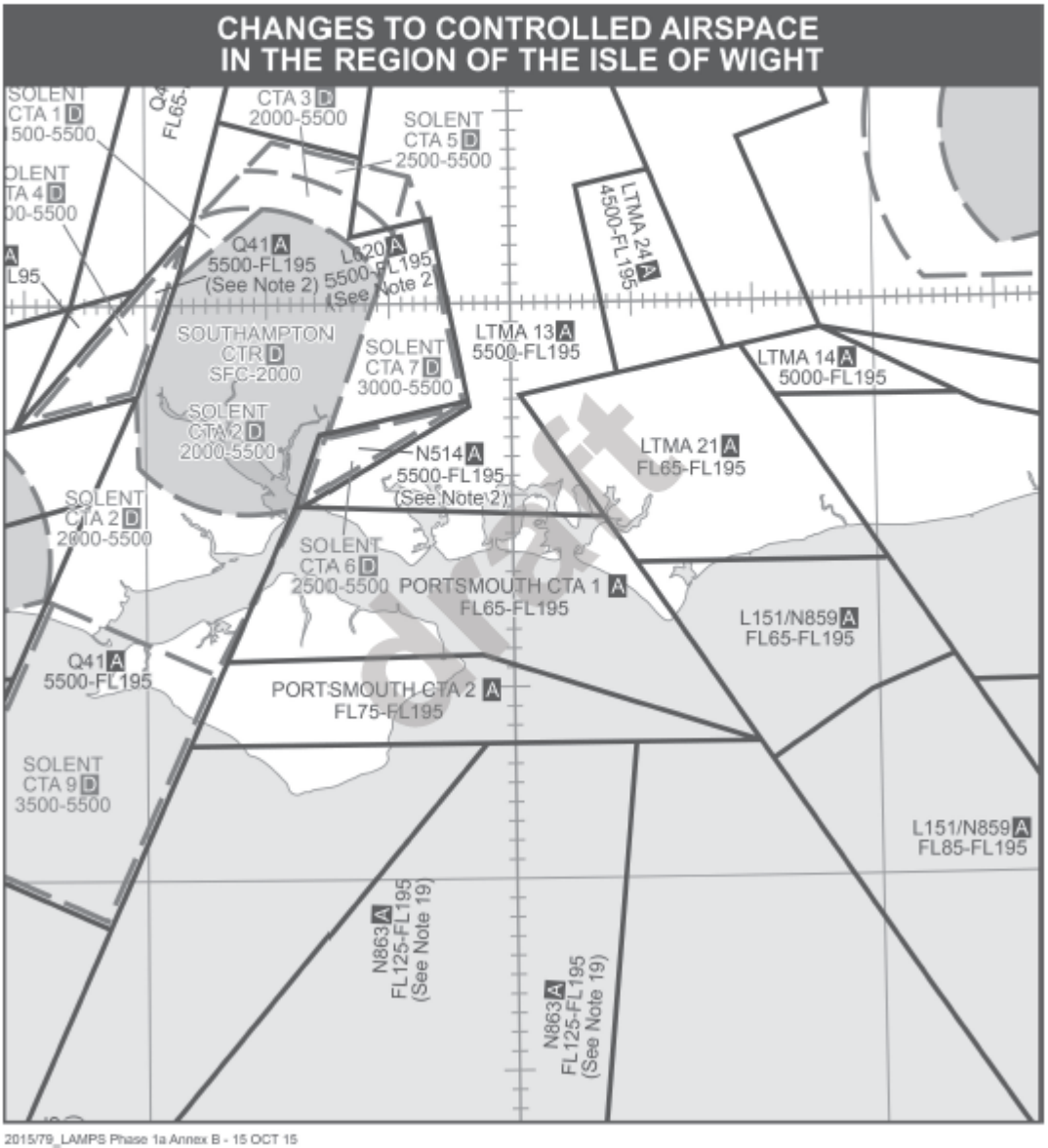
3.1 A map showing the revised controlled airspace is shown below.

Part of L151/N859 is lowered from FL 75 to FL 65.

Part of L980 (known as the POMPI Triangle) L980/M185 and the Y8 sliver are lowered to FL65 and become the Portsmouth Control Area 1.

Part of L980 (known as the POMPI Triangle) L980/M185 are lowered to FL75 and become Portsmouth Control Area 2.

The existing LTMA Sector 22 (lower limit 5500 ft) located to the east of the Solent CTA7, is amalgamated with LTMA Sector 13 (no change in lower limits).



ANNEX C

Conditions of the CAA's decision to approve the Module E proposal

In addition to the Conditions that attach to the CAA's decision to approve the proposals in each of the Modules A-E in the LAMP Phase 1A ACPs, set out in **CAA Decision: Part applicable to each LAMP Phase 1A Modules A – E**, it is a condition of the CAA's approval of the proposal in Module E that:

1	NATS to monitor the track of a number of traffic entering the RUDMO Hold and ensure aircraft do not enter Danger Area D037.
2	The utilisation of controlled airspace regarding climb and descent profiles following LAMP Phase 1A implementation is to be reviewed by NATS by 31 August 2016 in order to address the CAA's list of possible options for raising the lower limits of controlled airspace following implementation of LAMP Phase 1A which were discussed with NATS on 21 May 2015. NATS is to advise the CAA by 31 August 2016 regarding what revisions to the lower limits of controlled airspace are feasible and, if appropriate, advise the CAA which options are not feasible. Note: This is in conjunction with Module C. If changes are possible, these will be co-ordinated by the CAA for implementation at the next available ICAO Southern England and Wales 1:500,000 chart update.
3	By 31 August 2016, in conjunction with the above, determine whether the lower limits of the LTMA may be raised in LTMA Sectors 3 and 8 as follows: -- LTMA Sector 3 (3500-FL195) situated south of the Southend CTA 7 and, -- the revised LTMA Sector 8 from the north coast of Kent to the boundary of the LTMA Sector 21/N859 eastern extremity taking due consideration of the new southern arrival segment of the London City arrival transition procedure. NATS is to advise the CAA by 31 August 2016 regarding what revisions to the lower limits of controlled airspace are feasible and if appropriate, advise the CAA which options are not feasible. If changes are possible, these will be co-ordinated by the CAA for implementation at the next available ICAO Southern England and Wales 1:500,000 chart update. Note: This is in conjunction with Module C.

4	By 31 August 2016, investigate re-classification of the new Portsmouth CTAs 1 and 2 from Class A to Class C. Notwithstanding details provided to the CAA during the Case Study concerning reasons why NATS could not manage Class C operations immediately on implementation, NATS is to determine if these areas could this be Class C rather than Class A as proposed. If a reversion to Class C is possible, NATS is to provide the CAA with a proposal to revert the Portsmouth CTAs to Class C airspace for implementation in March 2017 meeting the appropriate AIRAC deadline and allowing for a CAA regulatory assessment of the proposal. The arrangements for this will be confirmed by the SARG Case Officer and handled through the Stage 7 PIR process.
5	By 1 May 2016, NATS is to engage with all General Aviation stakeholders who provided feedback to the consultation in respect of the airspace now approved as the Portsmouth CTA 1 and CTA 2. NATS is to determine which operations could be accommodated as segregated VFR activity in Class A airspace. For those activities requiring to use the airspace above FL65/75 as appropriate, such as specialist activities for example, high altitude spinning and stalling, which can be accommodated, NATS is to establish appropriate Letters of Agreements with the specific airspace users to cater for segregated VFR activity in Class A airspace. The LoA(s) is/are to contain specific notification and access arrangements, detailing the procedures to be followed. A draft LoA and exemption request is to be submitted to the CAA Case Officer for approval, prior to the agreements becoming effective. Any agreements established are to be ready for operational use by 31 August 2016.

ANNEX D

D1. The Solent and Isle of Wight proposals (Module E) originally consulted upon in the Farnborough Airspace Change Proposal generated considerable opposition from General Aviation (GA) airspace users. This is despite the fact that GA usage at altitudes above FL65 at which the new controlled airspace was, and is, proposed is infrequent. These proposals have since become a LAMP Phase 1A enabler for the reasons discussed in this decision. The issues and subsequent changes to the proposal and other mitigations requested by the CAA are discussed below.

D2. Based on a traffic survey conducted by TAG Farnborough which indicated an average of 1.6 flights by GA transponding aircraft per day throughout September 2012, the impact to Class G users is minimal above FL65; nevertheless, some flights are affected, and the CAA has sought to mitigate the impacts by seeking to reduce the amount of controlled airspace that is proposed to deliver some of the benefits, or to identify access under Flexible Use of Airspace principles, which the CAA would impose as a condition of approval, in order to facilitate access for spinning, etc, by GA pilots.

D3. Under the proposals, GA traffic departing to cross the English Channel may still climb to altitudes above FL65 (subject to extant controlled airspace and danger area activity) although their climb will be slightly delayed due to the proposed lowering of CAS from FL105 to FL65. Following submission of the original proposal and the case study, the proposed lower limits of controlled airspace have now been revised. Hence, the proposed impact on GA activity is less than proposed in the original TAG Farnborough consultation or that proposed in the ACP as the original proposal has been modified as set out below in light of GA feedback received.

D4. The impacts to Class G users requiring to use the airspace above FL65 for specialist activities such as high altitude spinning and stalling, may be accommodated by the establishment of Letters of Agreements with NATS to cater for segregated VFR activity in Class A airspace. The precise demand for this activity will have to be determined by NATS and facilitating these arrangements will be a condition of approval as outlined in the Regulatory Decision section of this document.

D5. Following discussions between CAA and NATS, it was determined that the southern portion of the area proposed at FL65 could be raised to FL75. This partly mitigates some of the potential impacts on GA whilst having a negative, but tolerable, impact on operational efficiency.

D6. Notwithstanding the above issues, and cognisant of the fact that the sponsor NATS has reduced the volume of controlled airspace proposed by modifying the proposal south-west of the Isle of Wight (see Annex A) the CAA reviewed the

area of controlled airspace where the majority of changes were taking place under Module C, and in addition around the Isle of Wight. A number of areas were identified (15 in total from the north-east tip of Kent and along the English Channel to the Isle of Wight) where it was considered that there might be scope to review the lower limits of controlled airspace with a view to raising these lower limits. A requirement has therefore been placed on NATS to conduct a review which will necessitate examination of the lower profiles of arrivals and departures into the London Terminal Control Area (LTMA) and identify options for raising the base of controlled airspace. Given that such changes will need to be properly co-ordinated with a production of the ICAO 1:500,000 chart cycle, it is unlikely any such changes could be put into effect until March 2017.

D7. Subsequently, after the revised proposals were reviewed by the CAA decision maker, the proposed controlled airspace has now been further reduced; the lower limits are now FL65 to the north and FL75 to the south. A diagram extracted from the AIC Y076/2015 is attached at Annex B to illustrate the new airspace structure now proposed and on which the CAA has taken its decision.

D8. Further in order to mitigate the impacts of the increased volume of controlled airspace proposed in Module C and E, the CAA has further identified two areas overland where we require investigation of whether modifications to the lower limits of controlled airspace are possible. These are the LTMA Sector 3 located to the east of Gatwick and LTMA 8 from the north coast of Kent sweeping south-west bound to the boundary of the LTMA Sector 21/N859 eastern extremity. This review is to be completed within six months of implementation, with a view to making changes in March 2017[32].

D9. Note: any changes would have to be synchronised with the next edition of the Southern England and Wales ICAO 1:500,000 VFR chart.

D10. Further, in order to address feedback received during the consultation and directly by the CAA, we will also require NATS to examine whether the controlled airspace over the Isle of Wight region which has been lowered from FL105 to FL65 / FL75 may be re-classified as Class C. NATS is required to complete this review by 31 August 2016. See Annex C.

[32] Subsequently revised to 31 August 2016.

GLOSSARY

	2001 Directions	Civil Aviation Authority (Air Navigation) Directions 2001
	2002 Guidance	The Secretary of State's Guidance to the CAA on Environmental Objectives Relating to the Exercise of its Air Navigation Functions published in 2002
	2014 Guidance	The Secretary of State's Guidance to the CAA on Environmental Objectives Relating to the Exercise of its Air Navigation Functions published in 2014
A	A330	Airbus 330 Aircraft
	A380	Airbus 380 Aircraft
	a/c	Aircraft
	AAL	Above Aerodrome Level
	ACP	Airspace Change Process
	AIC	Aeronautical Information Circular
	AIP	Aeronautical Information Publication
	Alt	Altitude Above Mean Sea Level
	AMSL	Above Mean Sea Level
	ANO	Air Navigation Order
	ANSP	Air Navigation Service Provider
	AONB	Area of Outstanding Beauty
	APD	Approved Procedure Designer
	APF	Aviation Policy Framework
	ARINC 424	Airlines Electronic Engineering Committee - Navigation System Data Base
	ATC	Air Traffic Control
	ATM	Air Traffic Management
	ATS	Air Traffic Service
B	B747-400	Boeing 747-400 Aircraft
	B777	Boeing 777 Aircraft

C	CAA	Civil Aviation Authority
	CF leg	Course To Fix leg
D	dB	Decibel units
	dBA	Decibel units measured on an A-weighted scale
	DfT	Department for Transport
	DEM	Digital Elevation Model
	DER	Departure End of Runway
	DET	Detling D/VOR
	DME	Distance Measuring Equipment
	DVOF	Digital Vertical Obstruction File
	DVOR	DME/VOR Navigational Aid D DVR – Dover D/VOR (plus a number D21) = 21 nautical miles from the VOR
	DVR	Dover D/VOR
	D (plus 2 or 3 digit no.)	DME range from a navigational aid (eg DVR D21 = 21 nms from the specified beacon, in this case the Dover D/VOR)
E	EGGW	ICAO Location Indicator for London Luton Airport
	EGHH	ICAO Location Indicator for Bournemouth Airport
	EGHI	ICAO Location Indicator for Southampton Airport
	EGKK	ICAO Location Indicator for London Gatwick Airport
	EGLC	ICAO Location Indicator for London City Airport
	EGLF	ICAO Location Indicator for Farnborough Airport
	EGLL	ICAO Location Indicator for London Heathrow Airport
	EGMC	ICAO Location Indicator for Southend Airport
	EGSS	ICAO Location Indicator for London Stansted Airport
	EGWU	ICAO Location Indicator for Northolt Airport
F	FAS	Future Airspace Strategy
	FB WP	Fly-by waypoint
	FDR	Flight Data Recorder
	FIR	Flight Information Regions

	FL	Flight Level
	FMC	Flight Management Computer
	FMGC	Flight Management Guidance Computer
	FMS	Flight Management System
	FO WP	Fly-over waypoint
	FTE	Flight Technical Error
G	GNSS	Global Navigation Satellite System
	GPS	US DoD Global Positioning System
H	HDGs	Headings
	hPa	Hectopascal – 1 hectopascal is equivalent to 1 millibar
I	ICAO	International Civil Aviation Organisation
	IFP	Instrument Flight Procedure
	ILS	Instrument Landing System
	IRS	Inertial Reference System
J	JAA	Joint Aviation Authorities
K	KIAS	Indicated Air-speed in Knots
	Kts	Knots
L	Leq	Equivalent continuous sound level
	LAMP	London Airspace Management Programme
	LHR	London Heathrow
M	M	Magnetic
	Mag Var	Magnetic Variation
	MID	Midhurst D/VOR
	MSD	Minimum Stabilisation Distance
	MSL	Minimum Segment Length
N	NADP	Noise Abatement Departure Procedures
	NATS	The group of companies that includes NERL and NATS Services Limited
	NERL	NATS (En Route) plc

	ND	Navigation Display
	NOTAM	Notice to Airmen
	NPR	Noise Preferential Route
	NMS or nms	Nautical Miles
	NSE	Navigation System Error
P	PANS OPS	Procedures for Air Navigation Services Operations
	PBN	Performance-based Navigation
	PDE	Path Definition Error
	PF	Pilot Flying
	PIR	Post Implementation Review
	PIRG	PIR Group
	PM	Pilot Monitoring
	PNF	Pilot Not Flying
	PRNAV	Precision Area Navigation
	PT	Path Terminator
R	R plus 3 digit number	Radial (No:) from a VOR (eg. R260 = 260 degree radial from a specified point)
	RF Turns	Radius to Fix Turns
	RNAV-1	Area Navigation
	RNP	Required Navigation Performance
	RNP APCH	PBN approach procedure
S	SAM	Southampton D/VOR
	SEL	Sound Exposure Level
	SFD	Seaford D/VOR
	SID	Standard Instrument Departure
	STAR	Standard Terminal Arrival Route
	SW	South West
T	TF leg	Track to Fix leg
	TSE	Total System Error

V	VI leg	Vector to Intercept leg
	VOR	Very High Frequency Omnidirectional Radio Range
W	WP	Waypoint