Harmonisation of the Transition Altitude, Procedures and Airspace Designation in the South East region of England and re-designation of the Daventry Class C airspace.

STAKEHOLDER CONSULTATION

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Executive Summary

This document explains changes proposed by NATS to harmonise Transition Altitude (TA) procedures and Airspace designation in the South East region of England. In addition NATS proposes to re-designate Class C airspace (FL195 – FL245) in the London and Midlands area. It contains information from which stakeholders identified as consultees in this process can gain an understanding of the proposal and hence give informed feedback. NATS does not intend to introduce any new Controlled Airspace as a result of this re-designation.

This proposal seeks to harmonise the TA in the proposed area, to 6,000ft in order to match that in all other UK Controlled Airspace (CAS) with the exception of the Manchester TMA and associated airspace. It also proposes, in order to enable this TA harmonisation, to redefine the boundary of the London Terminal Manoeuvring Area (LTMA) to include adjacent airways sections and integrate sections of the current Worthing and Clacton CTAs. The changes will include the newly defined LTMA, Clacton and Worthing Control Areas (CTAs) in AIP section ENR-1-7-2 para 4.1: airspace beneath which all aircraft must adopt the TA of the controlled airspace above.

These proposals also apply to airfields situated beneath the newly defined airspace i.e. their TA will change to reflect the airspace above and therefore set to 6,000ft. This will simplify their airfield operations and within adjacent airspace beneath the CTAs.

Under the Release of Controlled and Segregated Airspace policy[1], there will also be a separate proposal to release 1,000ft of CAS from part of the LTMA south of Gatwick Airport. This will raise the base of CAS to 4,500ft and will necessitate a slight redefinition of CAS in this area.

If accepted, this airspace change will enhance safety, by simplifying airspace structures and boundaries, and ensuring that within and beneath the designated airspace, all aircraft are using the same TA. This removes possible operational confusion in the area due to differences in TA, and reduces the risk of infringement into CAS due to use of the incorrect TA.

A further advantage is to simplify operations below CAS in the South East of England which will be published as part of briefing material and new VFR route maps prior to the Olympic games in 2012.

This consultation follows a process agreed by the Civil Aviation Authority (CAA) which gives consideration to the nature of this proposed airspace change. In accordance with the guidance (Ref.1), NATS is consulting with aviation stakeholders including representatives of General Aviation.

CAA guidance is that this proposed change does not require consultation with environmental stakeholders since it is limited to a change in the technical make-up of the airspace.

The period of consultation commences on 8th April 2011 and closes on 1st July 2011 (12 weeks), and the intended date of implementation is 8th March 2012.

[1] DAP, 23 August 2010, http://www.caa.co.uk/docs/7/20100823RCSAPolicyStatement.pdf

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1. Introduction

1.1 Air travel is integral to the success of the UK economy and has become an important part of modern life; for business or pleasure, more of us are flying more frequently than ever before. More flights mean busier skies, and how we use and manage our airspace is a matter of great responsibility. The passage of aircraft above us is managed by air traffic control. Air Traffic Control (ATC) ensures safety and keeps aircraft flowing efficiently. The more efficient the system can be made, the more we can reduce the impact of aviation on the environment, and make advances in safety. For these reasons, NATS undertakes constant reviews of UK airspace and, when necessary, recommends changes to how it should be managed.

1.2 This consultation document relates to a proposal to harmonise the Transition Altitude (TA) in the area proposed, to 6,000ft in order to match that in all other UK Controlled Airspace (CAS) except the Manchester TMA and associated airspace which remains at 5,000ft. It also proposes, in order to enable the TA harmonisation, to redefine the boundary of the LTMA to include the airways to the West and South of the current CTA, and to re-designate areas of the Worthing and Clacton CTA. Additionally, AIP section 1-7-2 para 4.1, airspace beneath which all aircraft must adopt the TA of the airspace above, will also apply. As the sponsor of this change, NATS is seeking feedback on the proposal before submitting it to the UK airspace regulator, the Civil Aviation Authority (CAA), for consideration and decision. The feedback received during this consultation will influence the final design that is submitted to the CAA. The CAA will decide on the merits of the proposal, and whether or not the airspace change can be introduced.

What is NATS?

1.3 NATS provides air traffic control services to aircraft flying through UK airspace, over the eastern part of the North Atlantic, and at 15 UK airports. Our responsibility is for the safe and efficient management of some of the most complex airspace in the world. In 2007 NATS handled almost 2.5 million flights carrying more than 235 million passengers.

1.4 Air traffic control services for aircraft travelling between airports are known as 'en route' air traffic control services. NATS provides en route air traffic services under licence from the CAA. This licence requires us to ensure the provision of a safe service, make the most efficient use of airspace and be capable of meeting reasonable levels of future demand.

1.5 Whilst NATS is responsible for providing a safe and efficient service, we do not control the demand placed upon UK airspace, the numbers of flights or the times of flights. These are determined by the demand for air travel from businesses and the general public. The Government's aviation policy and the airspace policy set out by the Directorate of Airspace Policy at the CAA provide the framework for meeting anticipated future demand.

1.6 To find out more about NATS go to **www.nats.co.uk**.

Why review the way airspace is managed?

1.7 There are a number of reasons for reviewing the way airspace is managed:

Safety. Our overriding priority is to ensure the safe movement of aircraft. As the skies become busier we review the way airspace is managed to maintain or enhance our high safety standards.
Delay. We are required under our licence from the CAA to be capable of meeting any reasonable level of overall demand. Busier, congested skies lead to flight delays which airspace change proposals are designed to address.
Environment. We recognise the impact of aviation on the environment and a key aim of the airspace change process is to mitigate that impact wherever possible.

2. The purpose of consultation

2.1 The primary purpose of the consultation exercise is to allow stakeholders to consider the proposal and provide NATS with feedback.

2.2 At the end of the consultation NATS must demonstrate to the CAA that the best balance possible has been achieved between conflicting demands and objectives. The CAA requires that changes are made only "after consultation, when it is clear that an environmental benefit will accrue or where airspace management considerations and the overriding need for safety allow for no practical alternative" (Ref. 1). It is on this basis that the CAA will decide whether or not to approve the proposed change. NATS' first priority is safety and the harmonisation of TA seeks to provide a higher degree of safety assurance within this area of airspace.

2.3 This consultation has been carried out in accordance with guidance provided by the Government and the CAA. (See Appendix E.)

2.4 The details of this consultation exercise have been agreed in principle with the CAA and meet the requirements of their airspace change process (Ref.1). This includes the rationale for whom should be involved in the consultation on this proposal. Appendix A lists the stakeholders identified to be involved in this consultation, although feedback is also welcomed from all other interested parties.

2.5 Any matters raised during the consultation period that have not been adequately considered during the development of the proposed design may require NATS to make changes to the proposal. Any such changes may require further consultation.

3. The scope of consultation

Environmental stakeholders

3.1 The proposal is limited to a change to the TA operating procedures in the South East of England region, and a re-designation of existing CAS. This proposal would not change the patterns of flights or recreational aircraft operating within the Class G airspace under the airspace in question. Hence the CAA has agreed that consultation with environmental groups is not required for this proposal. NATS does not intend to introduce any new Controlled Airspace as a result of this re-designation.

Aviation stakeholders

3.2 Groups representing airspace users such as the military, general aviation (such as recreational flyers) and commercial air transport are included in this consultation. A full list of stakeholders included in the consultation is given in Appendix A: List of Stakeholders.

4. What happens now?

4.1 The period of consultation commences on 8th April and closes on 1st July 2011 which is a period of 12 weeks.

4.2 When responding, consultees must specify the grounds for supporting or objecting to the proposal. Feedback in favour of, or objecting to, the proposal without supporting reasons will be reported to the CAA but NATS will not be in a position to consider the merits of the feedback.

4.3 NATS will analyse the feedback and produce a post-consultation report. This report will be made available via the NATS website and notification will be sent to the consultees identified in Appendix A. This report will also update stakeholders on subsequent phases of the development process such as any further consultation that may be required, the submission of a formal proposal to the CAA and its consideration of that proposal.

4.4 Details of the consultation exercise will form part of the airspace change proposal that NATS will submit to the CAA for consideration and decision. Copies of all responses will be provided to the CAA, including any personal information contained in them, *except where the respondent requests otherwise*. If the proposal is accepted by the CAA, NATS will implement the airspace change at an appropriate opportunity.

4.5 The implementation date may be affected by the following:

- The length of time taken by the CAA in reaching its decision;
- The need for any revision of the airspace change proposal identified by the consultation process and any further period of consultation required for such revisions;
- Operational constraints.

5. How do I respond? Should I respond?

5.1 NATS requests that you consider this proposal and provide a written response. In accordance with the CAA airspace change process (Ref 1), a period of 12 weeks has been allowed for this stakeholder consultation. Where possible an early response would be appreciated so that any issues arising may be addressed as soon as possible. The closing date for replies associated with consultation issues is **1st July 2011**.

5.2 Please respond to this consultation even if you have no objection to the proposal.

5.3 Before you respond to this consultation you may wish to consider the following questions:

a) Do you operate ***within*** CAS in the area in question?
b) If yes, do the proposals benefit your operation?
c) Do you operate ***beneath*** the airspace in question?
d) If yes, does the use of a harmonised TA simplify your operation?
e) Are there any ***unintended consequences*** of the proposed changes, of which you feel NATS should be made aware?

5.4 This consultation will be primarily managed by email as our preferred medium, however postal responses will be accorded identical status and processed in the same way.

5.5 Via email - Please compose your response in the following format:

To: AirspaceConsultation@nats.co.uk

Subject: SE England TA Consultation Response

First line of text:
"I am responding on behalf of [name of organisation]"
Or *"I am responding as a member of the public"*

Second line of text – agreement to pass on personal details to the CAA, for Data Protection Act compliance as per paragraph 4.4 above:
"I/We agree/do not agree that personal details contained within this response may be sent to the CAA as part of the Airspace Change Proposal"

Third line of text: Your formal response, one of the following:
"I/We support the TA harmonisation proposal"
or *"I/We object to the TA harmonisation proposal"*
or *"I/We have no objection to the TA harmonisation proposal"*

Subsequent text:
The grounds behind your formal response, as per paragraphs 4.2 and 5.3 above.

5.6 Via postal system - Please compose your response in the above format, and send it to:

SE England TA Consultation Co-ordinator
Mailbox 9A
NATS
4,000 Parkway
Whiteley, Fareham
Hampshire PO15 7FL

6. Development Objectives

CAA Policy
It is CAA Policy is to harmonise TA within UK CAS, and this proposal seeks to enact that policy.

Safety

- In addition to enacting CAA policy, the primary NATS objective for this change is enhanced safety. Harmonisation of TA and associated procedures brings safety benefit through simplification of airspace and procedures both within and beneath CAS.

- The South East England region, including airspace from the southern boundary of the LTMA to the London Flight Information Region (FIR) boundary is a complex area including many smaller airfields.

- The airspace beneath the Clacton and Worthing CTAs (unlike the majority of CTAs in UK airspace) is included within the Altimeter Setting Region (ASR) system, and not subject to the use of the QNH of local airfields. This creates a confused picture.
  The relevant page of the AIP is ENR 1-7-1 paragraphs 3.1, 3.9 and 3.10

- The South East England region forms an area south of the LTMA to the boundary of French Airspace. Embedded within it and protruding to the west and to the south west run airways L9, N859, N514 and L620. The Worthing and Clacton CTAs are not included in the list, within the AIP, (ENR 1-7-2 para 4.1) of CTAs beneath which aircraft must adhere to the same TA as the airspace above. (see table extract from ENR 1-7-2 para 4.1 below)

Aberdeen CTR/CTA	6000 ft	Glasgow CTR/CTA	6000 ft
Belfast CTR/TMA	6000 ft	Leeds Bradford CTR/CTA	5000 ft †
Birmingham CTR/CTA	6000 ft	Liverpool CTR/CTA	5000 ft
Bristol CTR/CTA	6000 ft	London TMA	6000 ft
Cardiff CTR/CTA	6000 ft	Manchester TMA	5000 ft
Daventry CTA	6000 ft	Newcastle CTR/CTA	6000 ft
Doncaster Sheffield CTR/CTA	5000 ft	Scottish TMA	6000 ft
Durham Tees Valley CTR/CTA	6000 ft †	Solent CTA	6000 ft †
East Midlands CTR/CTA	6000 ft	Sumburgh CTR/CTA	6000 ft †
Edinburgh CTR/CTA	6000 ft		

NATS proposes that the redefined Worthing and Clacton CTAs are included in the above table in ENR 1.7.2 Para 4.1

NOTE: The 6,000ft Transition Altitude does not apply beneath the Southern CTA 2 (base FL205) and CTA 3 (base FL215) where the TA remains at 3,000ft (see Figure 4 on page 15).

Delay

6.1 This change does not seek to improve capacity or reduce delay, and is not expected to have any impact on these.

Environment

6.2 The proposed change would not affect the initial climb profiles of flights in the region. IFR flights would fly the same routes and vertical profiles as today. There is not expected to be any change in noise exposure, CO_2 emissions or local air quality.

Other airspace users

6.3 Any airspace users outside CAS will be required to adjust their practices to accommodate the revised TA beneath the airspace in question. However, this proposal will simplify the airspace in order to make flight beneath this complex area easier, and will reduce the risk of confusion or infringement.

7. The Current Situation

7.1 At present, beneath the Worthing and Clacton CTAs and airways L9, N859, N514 and L620 the Transition Altitude is 3,000ft. These are adjacent to sections of airspace with a transition altitude of 6,000ft within and below the LTMA. This is a confused picture, which can lead to operational errors, and therefore the possibility of both level busts and infringements. However the evidence for these tends to be anecdotal and can be difficult to collect.

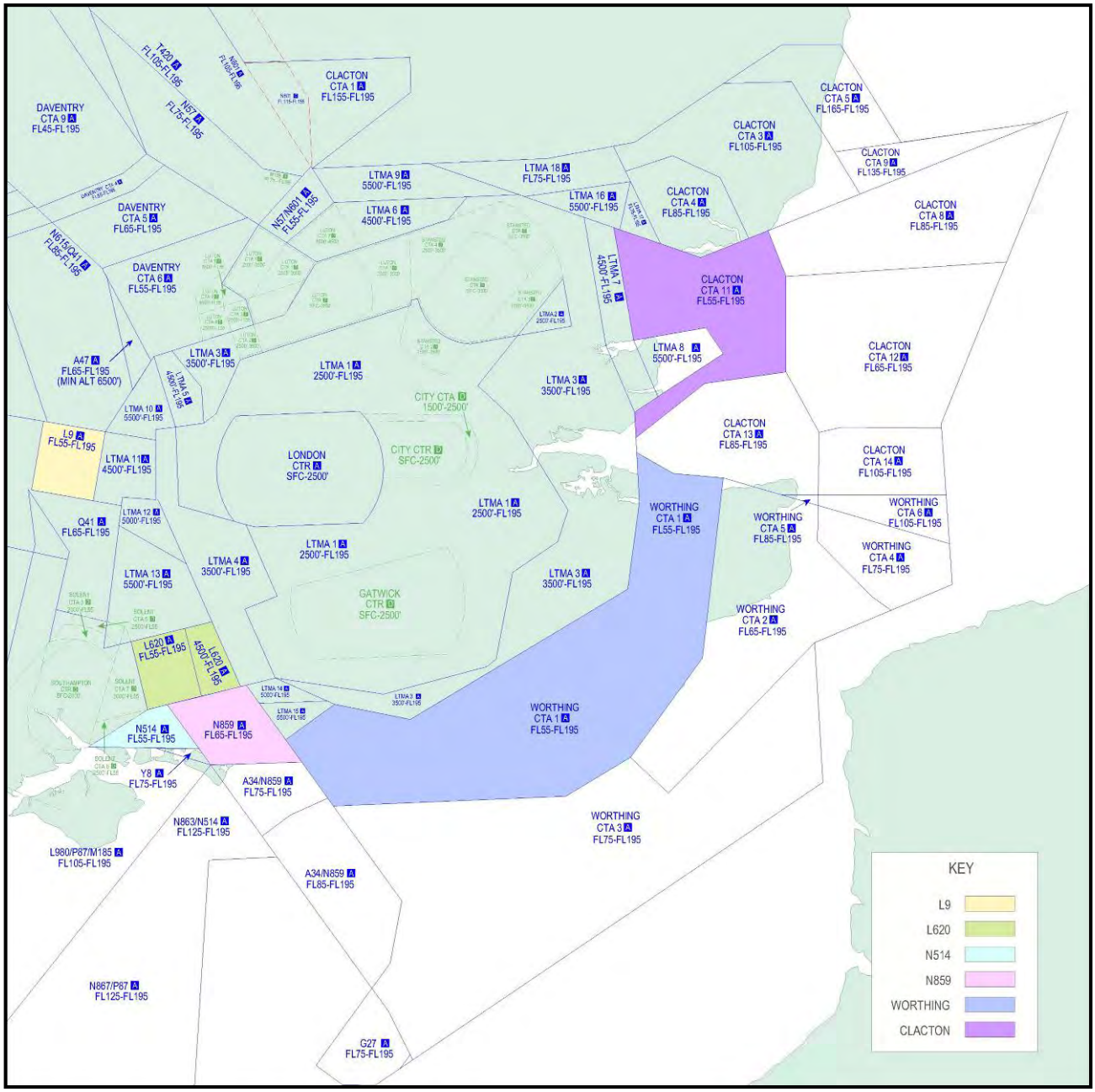


Figure 1 Existing Airspace **© NATS 2011**

8. Proposed Changes

The proposed changes to the airspace are as follows:

8.1 LTMA Confines & Classification

It is proposed that the airspace currently contained within the airways immediately adjacent to the west and south west of the LTMA, namely L9, N859, N514 and L20 should be subsumed into, and become part of, the LTMA. (see Figure 2)

Airspace	Base change	New Definition
Section of L9 adjacent to LTMA1	Current base FL55 becomes 5,500ft.	LTMA23
Section of L620 adjacent to Solent CTA7	Current base FL55 becomes 5,500ft	LTMA22
Section of L620 adjacent to LTMA4	No change	LTMA24
Section of N514 adjacent to Solent CTA8	Current base FL55 becomes 5,500ft	LTMA22
Section of N859 adjacent to LTMA 14/15	No change	LTMA21
Section of TMA 3 divided as per the separate Release of Controlled and Segregated Airspace proposal, south of Gatwick	TMA 3 remains at 3,500ft, new portion raised to 4,500ft	LTMA 25

In addition the airspace presently designated as Worthing CTA1 is proposed to be re-designated as LTMA and the airspace presently designated as Clacton CTA11 be disestablished and subsumed into the LTMA. This airspace will retain its Class A status and there will be no other change to routes or procedures within as a result.

8.2 Worthing CTA Confines & Classification

It is proposed that a section of the airspace currently contained within the Worthing CTA should be subsumed into, and become part of, the LTMA. (see Figure 2)

Airspace	Base change	New Definition
Worthing CTA 1	Current base FL55 becomes 5,500ft.	LTMA20

8.3 Clacton CTA Confines & Classification

It is proposed that a section of the airspace currently contained within the Clacton CTA should be disestablished and subsumed into, and become part of, the LTMA. (see Figure 2)

Airspace	Base change	New Definition
Clacton CTA 11	Current base FL55 becomes 5,500ft.	LTMA 8

8.4 **TA inside CAS**

Inside CAS within the confines of the newly designated areas, the TA will become 6,000ft.

8.5 **TA outside CAS**

Outside CAS in areas not overlain by the re-designated LTMA, the TA will remain at 3,000ft amsl.
Beneath the CTAs referred to above, the TA will become 6,000ft.
As the proposal states that the airways either side of the current LTMA will be subsumed into the LTMA (see Fig. 2 below), the Class G airspace beneath these airways will also operate on a TA of 6,000ft. Therefore, all aircraft beneath this expanded LTMA must operate on the same TA as the CAS above (AIP ENR 1-7-2 para 4.1)

The usage of QNH will be clarified to align with other CTAs, and to follow AIP ENR 1-7-2 para 3.10:

> *When flying in Airspace below TMAs and CTAs detailed above, pilots should use the QNH of an adjacent aerodrome when flying below the Transition Altitude. It may be assumed that for aerodromes located beneath such Areas, the differences in the QNH values are insignificant.*

The redefined LTMA, Worthing and Clacton CTAs will be included in ENR 1.7.2 Para 4.1

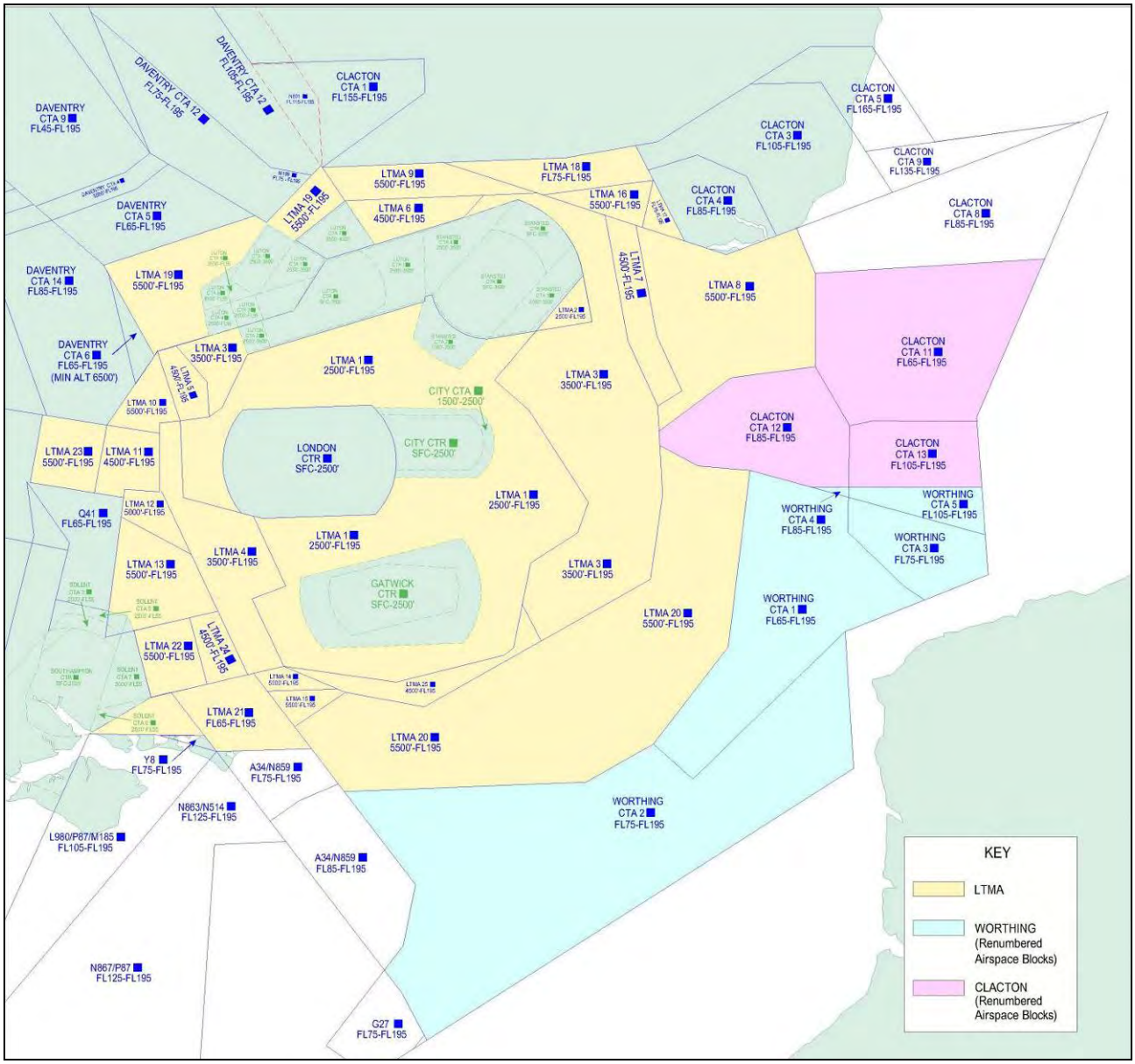


Figure 2 Proposed redefinition of LTMA **© NATS 2011**

8.6 **CAS Bases**

CAS with a base less than the new 6,000ft TA will adjust from a Flight Level (FL) to their equivalent altitude. For example, an area with CAS base of FL55 with the current TA will adjust to a base of 5,500ft amsl.
It is proposed that CAS with a base of FL65 will remain at FL65 and it is then added to the list of CTAs beneath which pilots must observe the same TA as the CAS above them. Retaining the current CAS base configuration limits the amount of change being applied, the possibility of operational confusion, and therefore of infringement.

8.7 **Procedures Inside CAS**

8.7.1 Within CAS, procedures will remain unchanged from present operation.

8.8 **Aerodrome AIP changes below affected CAS**

8.8.1 The following aerodromes either lie partly or completely below the affected CAS and therefore the following charts/text may require amendments:

Airfield	**AIP Sections**
Cambridge (EGSC)	AD 2-EGSC-2-1 / 2-1 / 5-1 / 8-1 – 8-6
Chichester / Goodwood (EGHR)	AD 2-EGHR-2-1 / 4-1 – 4-2
Clacton (EGSQ)	AD 2-EGSQ-2-1
Farnborough (EGLF)	AD 2-EGLF-2-1 / 2-2 / 4-1 / 5-1 / 8-1 – 8-6
Lydd (EGMD)	AD 2-EGMD-2-1 – 2-2 / 8-1 – 8-9
Manston - Kent International (EGMH)	AD 2-EGMH-2-1 – 2-2 / 5-1 / 8-1 – 8-9
Norwich (EGSH)	AD 2-EGSH-2-1 – 2-2 / 5-1 / 8-1 – 8-6
Shoreham (EGKA)	AD 2-EGKA-2-1 / 8-1 – 8-8
Southend (EGMC)	AD 2-EGMC-2-1 - 2-2 / 5-1 / 8-1 – 8-6
Southampton (EGHI)	AD 2-EGHI-2-1 - 2-2 / 5-1 / 7-1 – 7-3 / 8-1 – 8-11

8.9 Class C airspace proposals FL195-FL245

The current Class C airspace in the South East of England is a complex area defined as LTMA, Worthing and Clacton CTAs (see Figure 3).
The proposal is to harmonise these areas into one CTA with three sections, all Class C – Southern CTA 1 base FL195, CTA 2 with a base of FL205 and CTA 3 with a base of FL215 (see Figure 4)
NATS does not intend to introduce any new Controlled Airspace as a result of this airspace re-designation. It should also be noted that there are no changes to routes or procedures

Figure 3 UK SE Present Configuration FL195 – FL245 (AIP extract)

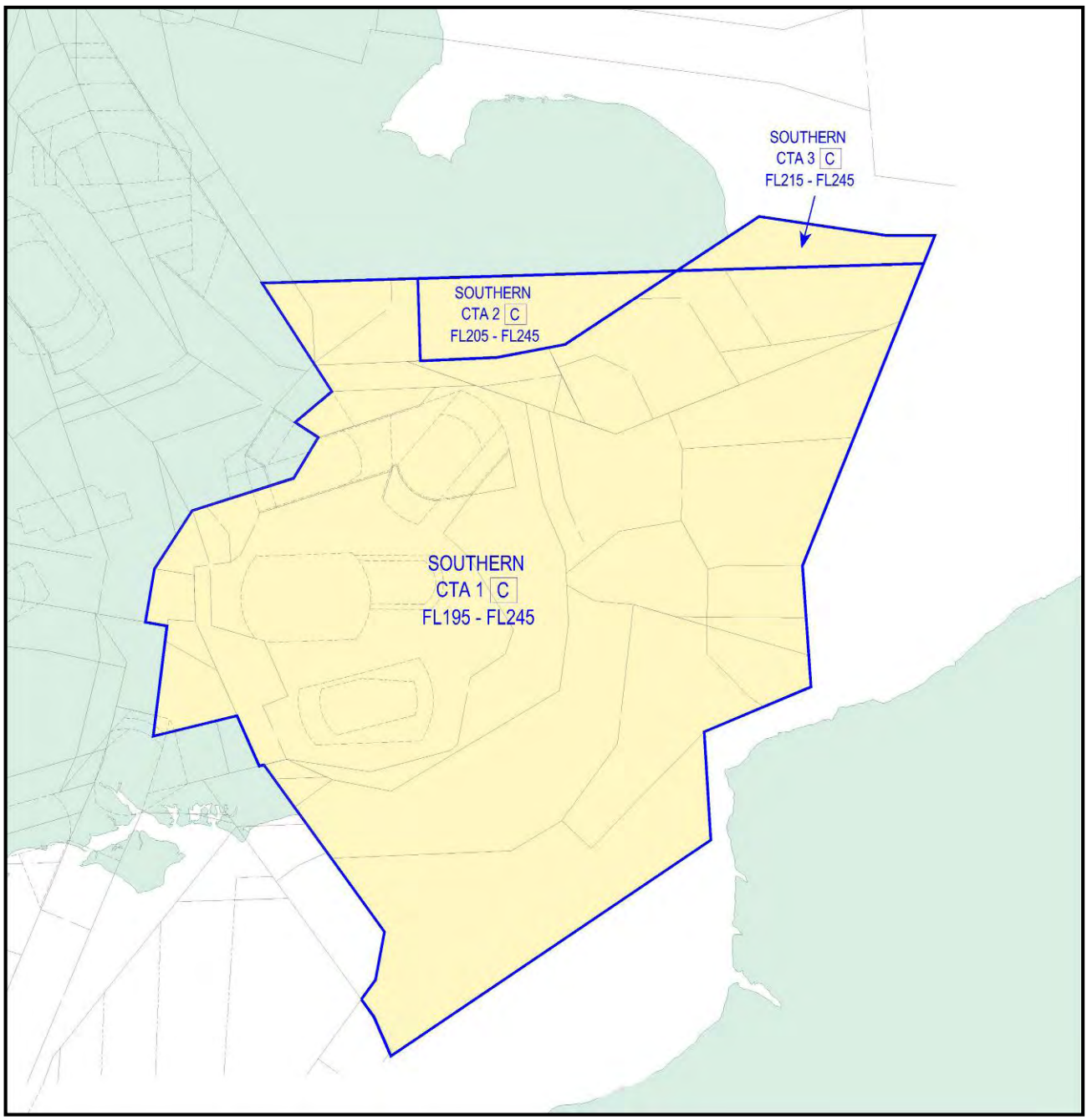


Figure 4 UK SE Proposed configuration FL195–FL245 © NATS 2011

8.10 UK Midlands Present Configuration

As with the Southern CTA, the Daventry area is similarly complex (see Figure 5). The proposal is to re-define as one area Midlands CTA 1, Class C FL195 – FL245 (see Figure 6).

NATS does not intend to introduce any new Controlled Airspace as a result of this airspace re-designation. It should also be noted that there are no changes to routes or procedures.

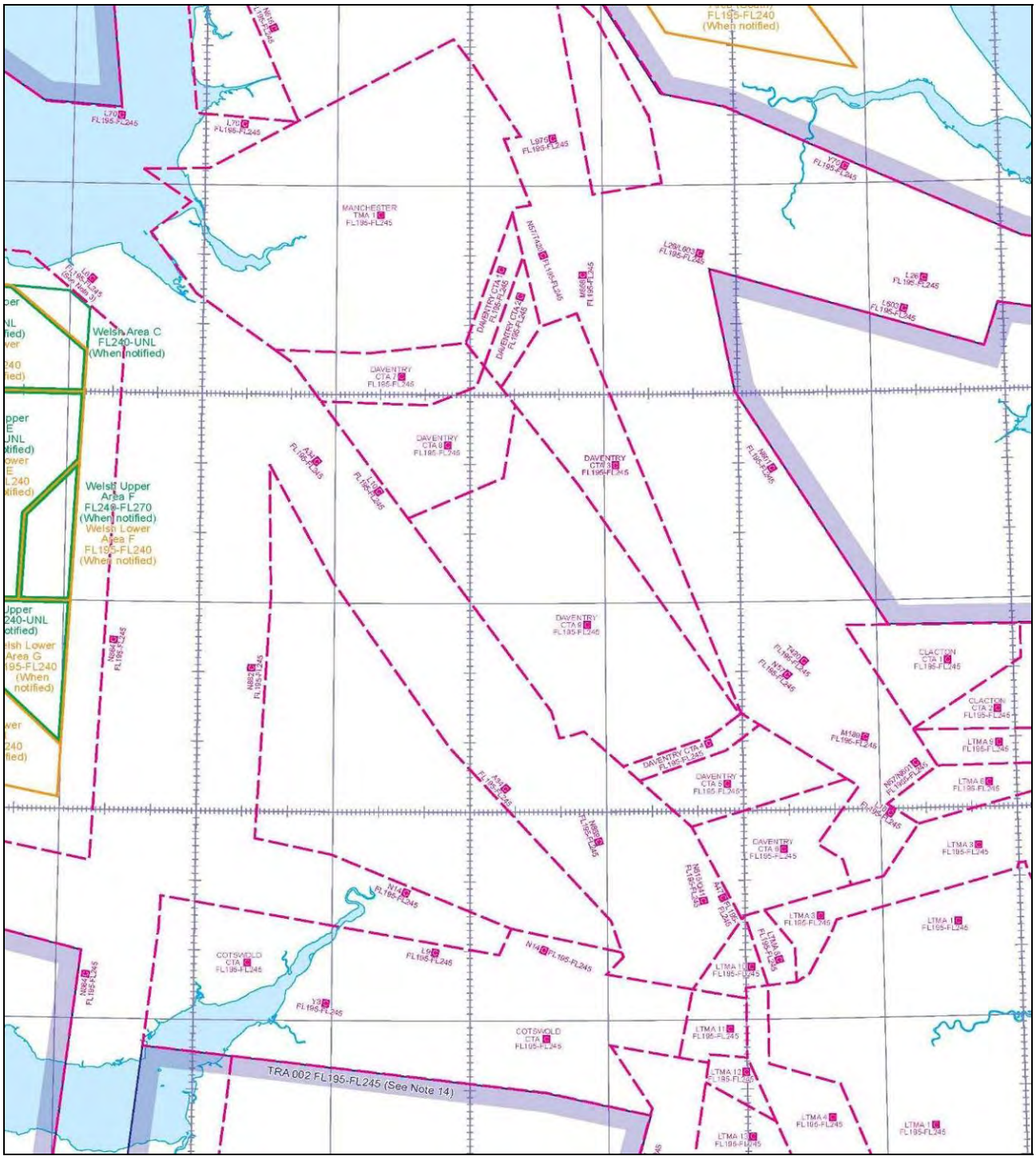


Figure 5 UK Midlands configuration FL195 – FL245 (AIP extract)

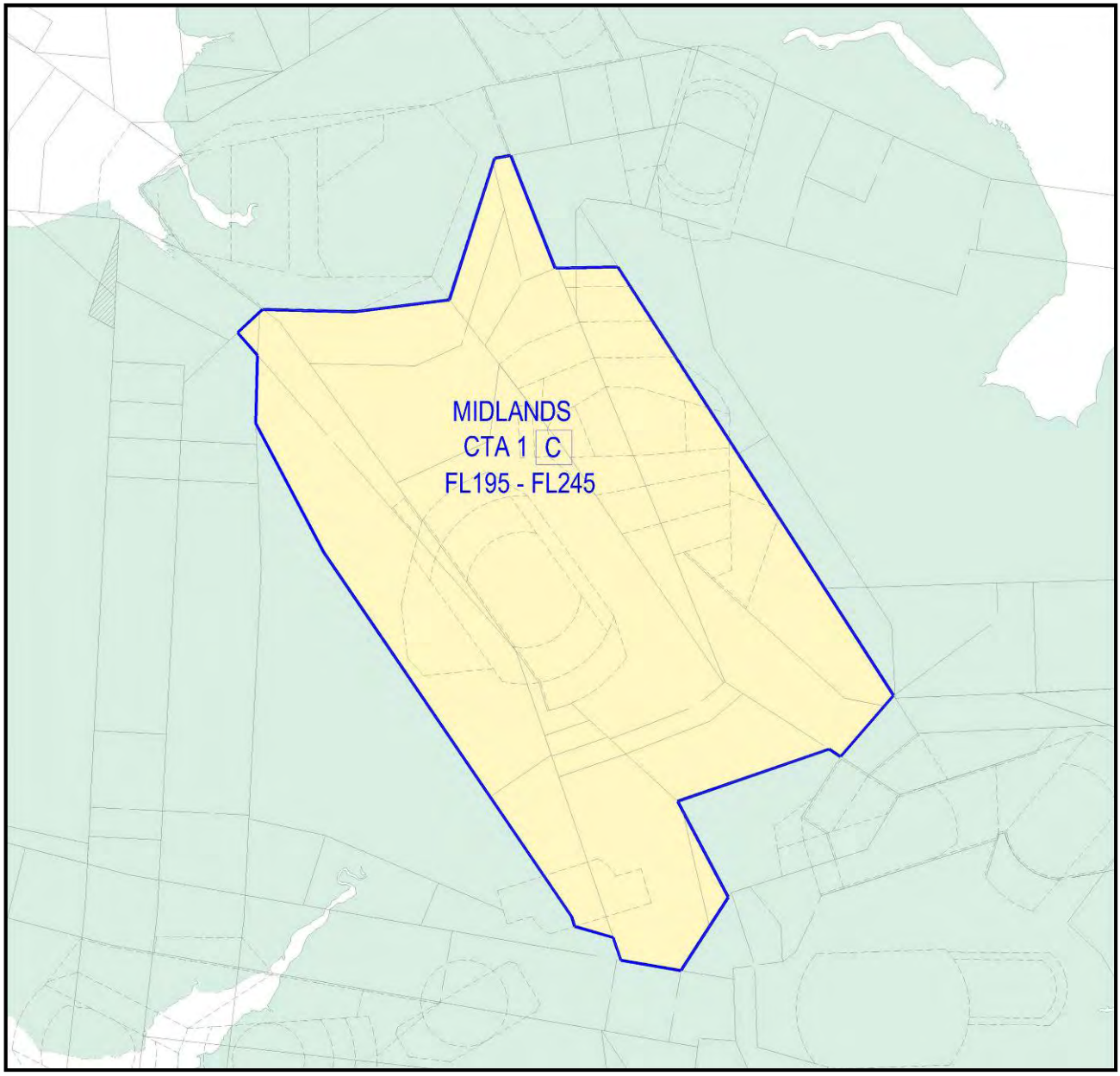


Figure 6 UK Midlands proposed configuration FL195 – FL245 © NATS 2011

9. Justification

9.1 Justification for the re-designation of the confines of LTMA, Worthing and Clacton CTA and for the change of TA to 6,000ft is summarised as follows:

- Progresses CAA policy to harmonise TA inside UK CAS;
- Harmonises TA across airspace boundaries with the LTMA;
- Removes confusion as to which TA should be used by traffic outside CAS transiting beneath the LTMA and CTAs;
- Reduces possibility of (vertical) infringement into CAS in the South East UK region, as all traffic will use the same TA;
- Simplifies CAS boundaries;
- Reduces possible operational confusion and therefore infringement risk, due to all operators using the same pressure datum in the vicinity of CAS.

9.2 Justification for the re-designation of Class C airspace above FL195 in the Midlands and South East area is summarised as follows:

- Simplifies CAS boundaries;
- Simplifies airspace classification and operating practices in complex areas;
- Rationalise and simplify airspace charting production;
- Harmonise Airspace management procedures.

10. Design options

10.1 This proposal seeks to harmonise TA in the South East England region, in line with CAA policy. In order to achieve this aim, only one option, other than do nothing, was considered:

Re-designation of the boundaries of the LTMA, Worthing and Clacton CTAs and harmonise the TA both within and beneath those boundaries, as per the Figures presented above.

This option is being proposed as the only option with which to harmonise TA in this region. It simplifies a complex area of airspace, and will allow improved operations both within CAS and beneath.

11. Environmental effects

11.1 No new routes are proposed. This change is based solely on CAA policy and improved safety, and is not designed to facilitate traffic growth or to increase capacity. There would be no changes to where aircraft fly as a result of the proposed change i.e. no change to routes, flight paths or concentrations of aircraft. Flight patterns within CAS would be unchanged. It is not expected that people living and working beneath and around the airspace would experience any difference in the over-flying air traffic as a result of this change.

11.2 **Exhaust emissions and fuel burn**

NATS takes the environmental impact of exhaust emissions into consideration when evaluating airspace designs, and seeks to ensure that proposed designs meet the objective of reducing CO_2 emissions per flight.

The modelling of aircraft fuel burn and the related CO_2 emissions using the NATS emission model, KERMIT, is based upon an assumption that the International Standard Atmosphere (ISA) conditions prevail throughout. Under these conditions there is no difference between FL60 and 6,000ft (QNH) and therefore there can be no difference in fuel burn attributed to this change.

Where there is perceived to be no change in either the track over the ground, or the vertical profile flown, the change in fuel burn can only be attributed to a change in take-off mass that will result in the change in flight planned route. This change is beyond the scope of current modelling capabilities to capture and therefore no quantifiable change in fuel burn/CO_2 emissions is expected to result from this change.

11.3 **Noise, Tranquillity, Visual Intrusion, Local Air Quality**

11.4 The proposed TA Harmonisation and re-definition of the LTMA and Worthing and Clacton CTAs will not change the usual trajectories of flights using the airspace. Hence analyses of noise impact, tranquillity, visual intrusion, and local air quality have not been undertaken.

12. Impact on aviation stakeholders

12.1 This change is intended to simplify and improve safety performance both within and beneath the airspace in question.

12.2 Beneath the CAS in question, the harmonised TA will allow pilots transiting the area to retain use of a single TA across a much larger area of airspace, and will reduce the need to regularly adjust from altitude to flight level (hence from QNH to standard pressure) several times, in order to remain clear of CAS.

12.3 The use of a single TA in the region will simplify route planning and reduce the risk of infringement for those pilots operating outside CAS.

13. Next steps

13.1 Responses to this consultation will be collated and analysed. A summary will be circulated to the CAA and to participating stakeholders after the consultation has closed. Any matters raised during the consultation period that have not been adequately considered during the development of the proposed design may require NATS to make changes to the proposal. Any such changes may require further consultation as determined by the CAA.

13.2 If and when NATS is satisfied, having considered the consultation responses, that the proposal achieves the appropriate balance between all the stakeholder requirements, a formal airspace change proposal (ACP) will be submitted to the CAA for consideration in line with the airspace change process (Ref 1). This will include a full record of all feedback from this consultation.

13.3 Comments regarding NATS' compliance with the consultation process as set out in the CAA's guidelines for airspace change process (Ref 1) should be directed to the CAA at:

Head Airspace Policy Coordination and Consultation
Directorate of Airspace Policy
CAA House
45-59 Kingsway
London
WC2B 6TE
E-mail: businessmanagement@caa.co.uk

14. References

1. CAP 725, CAA Guidance On The Application Of The Airspace Change Process, March 2007, CAA Directorate of Airspace Policy

http://www.caa.co.uk/docs/33/CAP725.PDF

15. Glossary

Amsl	Above mean sea level
ATC	Air Traffic Control
CAA	Civil Aviation Authority
CTA	Control Area (a volume of controlled airspace extending from typically 5,000ft, usually associated with an area of complex ATS routes)
CTR	Control Zone (a volume of controlled airspace extending from the surface to ~6,000ft, usually associated with a large airport)
DAP	Directorate of Airspace Policy (the department of the CAA responsible for airspace matters)
DTY CTA	Daventry Control Area
FIR	Flight Information Region
IFR	Instrument Flight Rules
QNH	Atmospheric pressure at mean sea level
RWY	Runway
SID	Standard Instrument Departure
TA	Transition Altitude
TMA	Terminal Manoeuvring Area
VFR	Visual Flight Rules

Appendix A: List of Stakeholders

NATMAC (National Air Traffic Management Advisory Committee) BATA BPA Heavy Airlines European UAV Systems Centre Ltd Light Airlines UKAB PPL/IR BALPA GATCO GAPAN BHPA BAA LAA GASCo HCGB Aviation Environment Federation UKFSC BBGA AOA BGA BMFA British Helicopter Association AOPA UK BBAC BMAA BAE Systems British Airways easyJet	**Local Airfields** Cambridge Chichester / Goodwood Clacton Lydd Manston – Kent International Norwich Shoreham Southend
Others MoD LILLE Approach Control (Interaction with low-level airspace, LoA with NATS)	

Appendix B: Overview of Structure and Operation of UK Airspace

The airspace over the UK is a national asset and finite resource. The safe and efficient utilisation of our airspace is vital to both the UK economy and national defence. Accordingly, it is essential that UK airspace be provided, as far as possible, for the benefit of all users.

In simple terms, UK airspace, from ground level to approximately 66,000ft, is categorised as being either 'Controlled Airspace' or 'Uncontrolled Airspace':

Controlled airspace is established for the protection of aircraft during the various phases of flight and to facilitate a safe and expeditious flow of air traffic. Any aircraft operating within controlled airspace require an Air Traffic Control (ATC) clearance and must comply with the instructions issued. Controlled airspace is therefore, in most cases, a 'known environment', i.e. all traffic is known to the ATC system.

Commercial, passenger-carrying aircraft operate almost exclusively inside controlled airspace. Controlled airspace can be divided into 6 main types:

- Control Zones, which extend from ground level and surrounding major airports
- Control Areas, which do not extend down to the ground but have base levels between approximately 1,500 and 5,000ft above the ground
- Airways, which are corridors of controlled airspace that form the main routes connecting major airports and are a form of Control Area
- Terminal Control Areas, which are larger Control Areas established around groups of airports where several airways converge
- Upper Airspace that comprises all UK airspace from FL245 (24,500ft) upwards.
- Class C airspace from FL195 – FL245

Whilst within controlled airspace standard routes are published as a template for planning purposes, Air Traffic Controllers may use the full lateral and vertical extent of this protective airspace. In fact, the ability for controllers to tactically position aircraft is essential in ensuring the most effective flow of traffic, placing the safe separation and sequencing of aircraft above all other considerations. Consequently, aircraft will not necessarily follow exactly the same flight paths. However, the closer aircraft are to the airport of arrival or departure the less flexibility exists to adapt their flight profiles. For example, an aircraft 5 miles from touchdown needs to be aligned with the runway and therefore is likely to be in exactly the same piece of sky that the aircraft ahead occupied. The further from touchdown, the more variation in positioning is likely to exist because of the requirement to achieve the safe separation in the sequencing of arriving aircraft.

Only the controlled airspace established in the immediate vicinity of major airports extends down to the ground. As indicated previously, most areas of controlled airspace have base levels of several thousand feet above the surface.

Detailed maps and charts depicting the UK's airspace structure can be purchased from several commercial outlets.

Uncontrolled airspace: the airspace outside controlled airspace extends from ground level to 19,500ft or to the base of controlled airspace.

Although 'uncontrolled', pilots can request a range of Air Traffic Services (ATS) within such airspace from a variety of civil and military ATS providers. These services range from the mere provision of information to a radar service in which controllers provide sequencing and separation instructions.

Uncontrolled airspace is airspace within which receipt of an ATS, whilst often available, is not an absolute requirement. Pilots can operate without talking to ATC and without a specific air traffic clearance. They therefore fly on a 'see and avoid' basis such that they can determine their routes according to their own requirements. Such activity is subject to compliance with the basic Rules of the Air Regulations and any weather, airspace, pilot or aircraft licensing limitation. The majority of military, instructional and recreational flying takes place in uncontrolled airspace.

ATC Organisation: Responsibility for the provision of ATC services in the UK lies with both civil and military service providers that will provide a service to both civil and military aircraft within their areas of responsibilities. For the most part and in very general terms, activity inside controlled airspace is managed by NATS (Enroute) plc, whose operation is regulated by the Civil Aviation Authority. Much of NATS activity is conducted from 3 control centres:

- **NATS Swanwick (Area Control and Terminal Control):** from where the flow of traffic in UK airspace south of 55 degrees North (over England and Wales) in the Upper Airspace, along the Airways system and within the high levels of Control Areas is managed; also from where the flow of traffic inbound to and outbound from the major airports in the South East of England is managed.
- **NATS Prestwick Centre:** from where the flow of traffic in UK airspace north of 55° North (over Scotland) in the Upper Airspace, along the Airways system and within the high levels of Control Areas, and the flow of traffic inbound to and outbound from the major airports in the Manchester region is managed

Appendix C: A Brief Outline of Air Traffic Control Principles

Introduction

The UK contains many large airports each of which generates significant volumes of air traffic. As a result the UK is recognised as having some of the most complex airspace structures and procedures in order to ensure the safe passage of aircraft flying through its airspace.

Air Traffic Control (ATC) is a service provided to afford a safe, orderly and expeditious flow of air traffic. The vast majority of commercial airliners and other large aircraft plan their routes along Air Traffic Service (ATS) routes. These routes are protected by volumes of controlled airspace in which the position, height and intentions of aircraft are both known and controlled by ATC.

The details of each flight's proposed route form an individual "Flight Plan" that is used by aircraft operators to advise ATC of the proposed route to be flown between departure and destination airports.

Controlled Airspace and ATS Routes

Further out from an airfield aircraft are generally at higher altitudes or levels whilst they climb to, or descend from, their cruising flight levels. This permits the controlled airspace to be arranged in steps thereby allowing other (typically non-commercial) aircraft that are not in receipt of an ATC service to operate freely in uncontrolled airspace below or laterally clear of the ATS route.

ATS routes are themselves surrounded by volumes of controlled airspace which must extend a minimum of 5 nautical miles either side of the route centreline. These are established to protect aircraft during the en-route phase of flight. Large Control Areas are established in certain areas that contain many ATS routes.

Aircraft wishing to operate within controlled airspace must submit a flight plan and gain a clearance to enter from an ATC unit. On entering controlled airspace aircraft must obey all ATC instructions and maintain radio contact.

An aircraft flying within controlled airspace will therefore be operating within a known environment in which the Air Traffic Controller can safely separate it from all other aircraft operating within the controlled airspace. So long as an aircraft is flying within controlled airspace, it will also remain safely separated from aircraft flying freely outside of the controlled airspace environment.

Uncontrolled Airspace

Controlled airspace is delineated by a specified boundary and outside of this boundary the airspace is known as uncontrolled airspace. Within uncontrolled airspace aircraft operate with relative freedom without being in receipt of any Air Traffic Control Service and therefore are operating in what is sometimes referred to as an "Unknown" environment, i.e. the intended flight profile of aircraft is unknown. Aircraft routinely operating within uncontrolled airspace include light general aviation aircraft, military aircraft, helicopters, hot air balloons and gliders. Wherever possible, commercial passenger aircraft operate within the confines of controlled airspace for the protection that this environment affords compared to operating within an uncontrolled and unknown environment. However, some airports, due to the small volumes of commercial air traffic operating from them, are not protected by controlled airspace.

Route Centrelines and 'Vectoring'

The centreline of an ATS route is generally defined by navigational beacons or known positions called fixes. Aircraft navigate between these beacons and fixes when following ATS routes (see Figure C1 depicting an example of a simplified airspace structure).

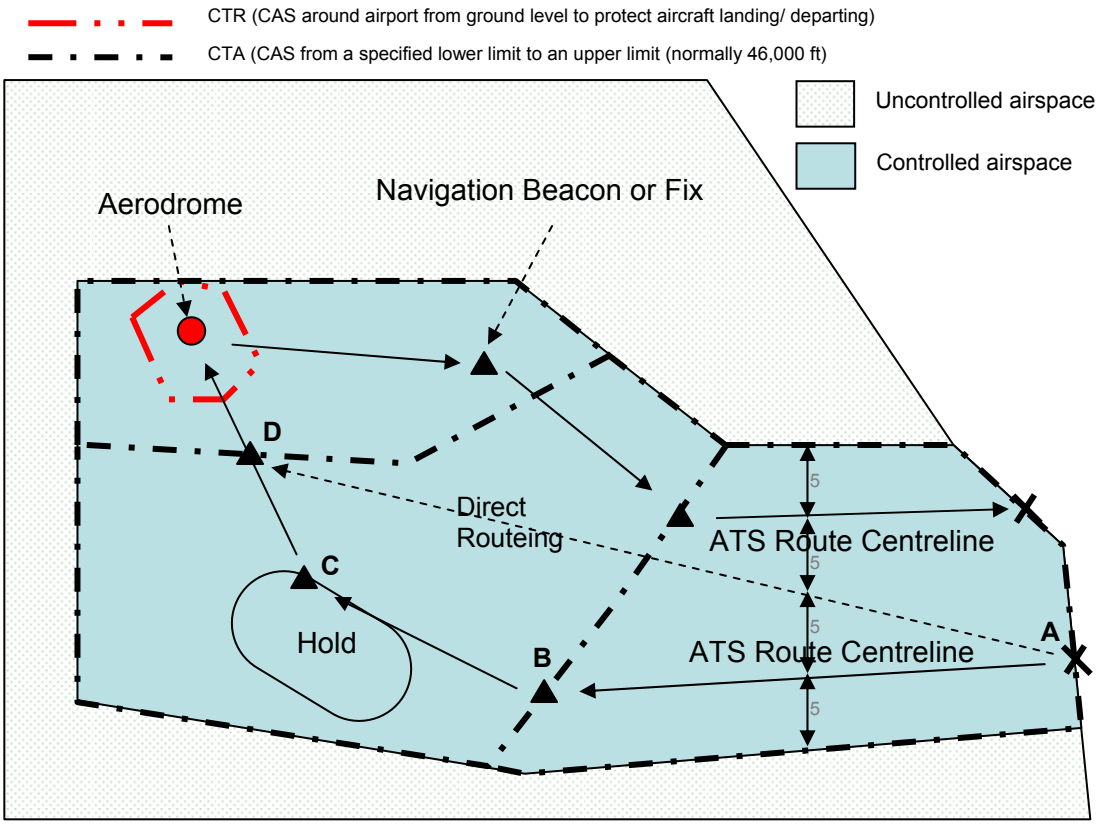


Figure C1 Simplified example airspace structure.

Although aircraft flight-plan their routes by reference to these ATS Route centrelines, aircraft are still deemed to be on the route as long as they remain within 5 nautical miles of its centreline. The controlled airspace associated with an ATS route extends a minimum 5 nautical miles either side of the promulgated route centreline. This is to allow for any navigation inaccuracies by the aeroplane and to provide space for ATC to separate any conflicting traffic using radar (i.e. by directing aircraft onto separated tracks within the boundaries of controlled airspace). Each aircraft files a flight plan setting out the route it plans to follow (such as shown in Figure D1 from point A to B to C to D). However, in order to provide a safe and efficient service, ATC may direct aircraft to take a more direct route anywhere within controlled airspace e.g. straight from A to D. This may reduce the distance that has to be flown to reach the destination. ATC may also direct aircraft off a route to ensure separation is maintained from other traffic, by instructing them to fly a magnetic heading (referred to as "vectoring").

ATC separate aircraft both vertically and horizontally. The vertical separation applied between aircraft in controlled airspace is a minimum of 1,000ft. The minimum horizontal separation between aircraft separated by less than 1,000ft vertically is 3 nautical miles. Within a large portion of UK airspace this 3nm minimum lateral radar separation is increased to 5 nautical miles due to the radar systems we employ.

Although Airspace Change Proposals define new and revised ATS routes by their centrelines it should be noted that these must be supported by a minimum of 5

nautical miles of controlled airspace either side of the centreline and between specific lower and upper limits. This is because aircraft can be directed anywhere within the full extent of established controlled airspace, and not just along the promulgated ATS route centreline.

Airspace Definitions (Altitudes and Flight Levels)

Volumes of controlled airspace are generally defined by specifying a lateral boundary and vertical extent.

Vertical boundaries may be defined in either altitude (in feet) or Flight Levels (FLs). Note that one FL relates to 100ft, i.e. FL70 equates to 7,000ft. Altitudes are generally used to define the height of an aircraft in the lower volumes of airspace (generally operating below 6,000ft in controlled airspace in the UK) as it is the most effective unit to use to determine aircraft position relative to the ground, therefore enabling an aircraft to avoid high ground etc. Flight Levels are generally used in higher volumes of airspace (generally operating above 6,000ft in controlled airspace in the UK) where the vertical separation of one aircraft relative to another aircraft is more important compared to their heights above ground.

The difference in the units is because altitudes (in feet) are affected by variations in local atmospheric pressure, whereas FLs are based upon a universal unit of pressure (1013.2 Hectopascals - hPa) that is unrelated to local atmospheric conditions. This means that all aircraft equipment should agree on where FL100 is, as all aircraft flying at Flight Levels will set a common datum of 1013.2hPa on their barometric altimeter. This common view of aircraft level enables more efficient and consistent vertical separation.

It should be noted that as Flight Levels do not take into account local atmospheric pressure, they do not represent a fixed reference point above the ground, therefore depending on the actual local pressure in any area an aircraft at a given Flight Level may seem to be slightly higher or lower in the sky (although such variation would not usually be noticeable to an observer viewing from the ground).

Appendix D: ICAO Airspace Classification

The International Civil Aviation Organization (ICAO) airspace classes are fundamentally defined in terms of flight rules and interactions between aircraft and Air Traffic Control (ATC). Some key concepts are:

- Separation: Maintaining a specific minimum distance between an aircraft and another aircraft or terrain to avoid collisions, normally by requiring aircraft to fly at set levels or level bands, on set routes or in certain directions, or by controlling an aircraft's speed.

- Clearance: Permission given by ATC for an aircraft to proceed under certain conditions contained within the clearance.

- Traffic Information: Information given by ATC on the position and, if known, intentions of other aircraft likely to pose a hazard to flight.

The classifications adopted by ICAO are:

Class A: All operations must be conducted under Instrument Flight Rules (IFR) or Special Visual flight rules (SVFR) and are subject to ATC clearance. All flights are separated from each other by ATC.

Class B: Operations may be conducted under IFR, SVFR, or Visual flight rules (VFR). All aircraft are subject to ATC clearance. All flights are separated from each other by ATC.

Class C: Operations may be conducted under IFR, SVFR, or VFR. All flights are subject to ATC clearance. Aircraft operating under IFR and SVFR are separated from each other and from flights operating under VFR. Flights operating under VFR are given traffic information in respect of other VFR flights.

Class D: Operations may be conducted under IFR, SVFR, or VFR. All flights are subject to ATC clearance. Aircraft operating under IFR and SVFR are separated from each other, and are given traffic information in respect of VFR flights. Flights operating under VFR are given traffic information in respect of all other flights.

Class E: Operations may be conducted under IFR, SVFR, or VFR. Aircraft operating under IFR and SVFR are separated from each other, and are subject to ATC clearance. Flights under VFR are not subject to ATC clearance. As far as is practical, traffic information is given to all flights in respect of VFR flights.

Class F: Operations may be conducted under IFR or VFR. ATC separation will be provided, so far as practical, to aircraft operating under IFR. Traffic Information may be given as far as is practical in respect of other flights.

Class G: Operations may be conducted under IFR or VFR. ATC separation is not provided. Traffic Information may be given as far as is practical in respect of other flights.

Classes A-E are referred to as controlled airspace. Classes F and G are uncontrolled airspace.

Appendix E: HM Government Code of Practice on Consultation

Web address - http://www.bis.gov.uk/policies/better-regulation/consultation-guidance

Text from page 4 of the Department for Business Enterprise & Regulatory Reform (BERR) Code of Practice on Consultation
Document address - http://www.bis.gov.uk/files/file47158.pdf

The seven consultation criteria are:

1. **When to consult**

Formal consultation should take place at a stage when there is scope to influence the policy outcome.

2. **Duration of consultation exercises**

Consultations should normally last for at least 12 weeks with consideration given to longer timescales where feasible and sensible.

3. **Clarity of scope and impact**

Consultation documents should be clear about the consultation process, what is being proposed, the scope to influence and the expected costs and benefits of the proposals.

4. **Accessibility of consultation exercises**

Consultation exercises should be designed to be accessible to, and clearly targeted at, those people the exercise is intended to reach.

5. **The burden of consultation**

Keeping the burden of consultation to a minimum is essential if consultations are to be effective and if consultees' buy-in to the process is to be obtained.

6. **Responsiveness of consultation exercises**

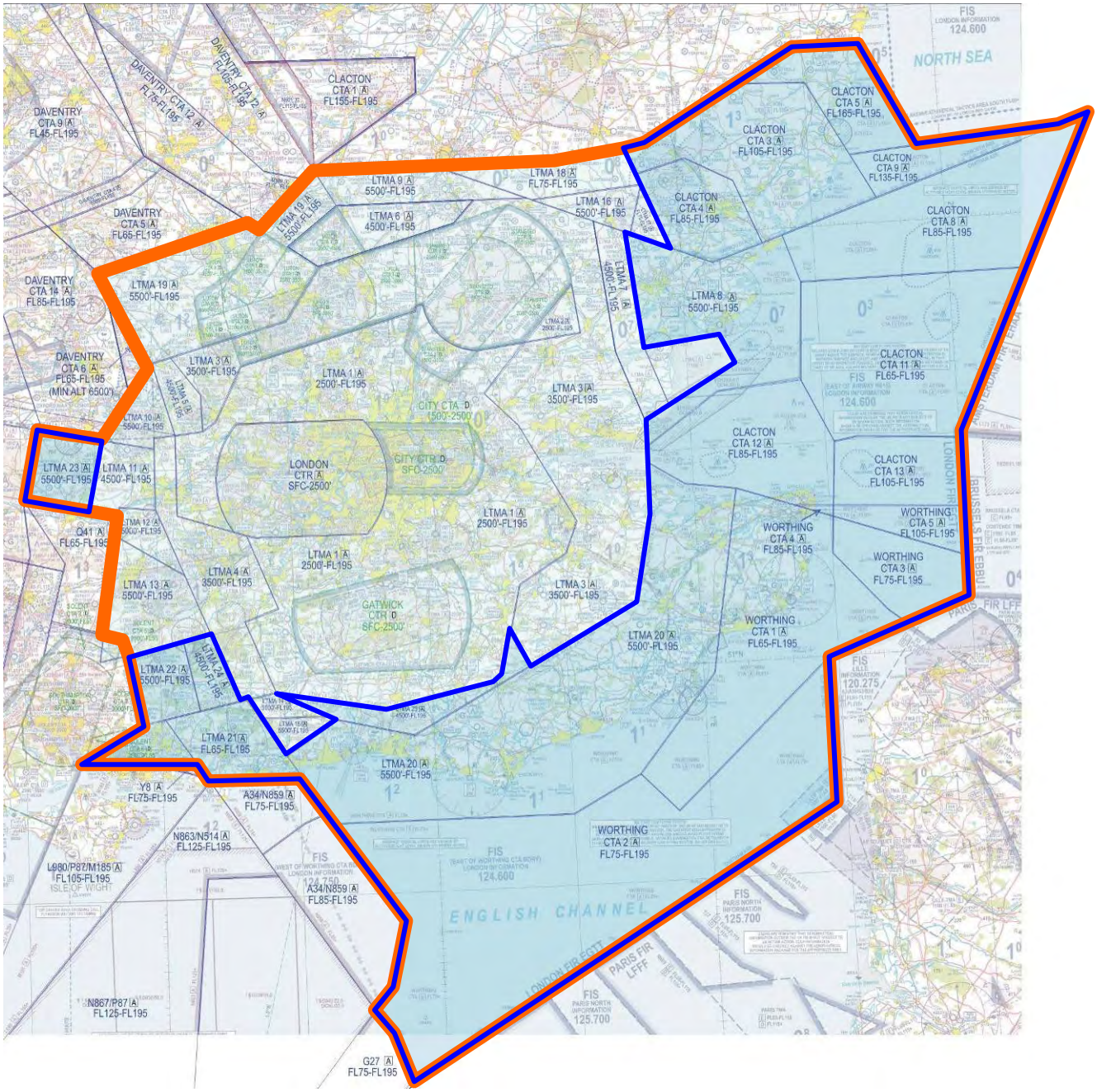
Consultation responses should be analysed carefully and clear feedback should be provided to participants following the consultation.

7. **Capacity to consult**

Officials running consultations should seek guidance in how to run an effective consultation exercise and share what they have learned from the experience.

Appendix F: Proposed redefinition of the SE area overlaid on a topographical chart

In the chart below, the orange area is where it is proposed that the applicable TA will be 6,000ft amsl. The blue areas show where the TA would change to this new altitude.



VFR chart © CAA/NATS 2011, contains OS data Crown © 2011 License no. 100049107, overlaid airspace data © NATS 2011