London Southend Airport

Introduction of Standard Instrument Departure Procedures

Report of the Sponsor Consultation

Executive Summary

London Southend Airport (LSA) is proposing to introduce Standard Instrument Departure (SID) Procedures to replace the outdated Preferred Departure Routes (PDRs) that have been in place for many years.

The introduction of SID procedures is necessary because:

- The PDRs are no longer compatible with current CAA Policies for the design of Instrument Departure Procedures;
- The PDRs were designed for an "outside controlled airspace" operating environment; the introduction of controlled airspace around LSA in April 2015 providing linkage to the overlying London Terminal Control Area (LTMA) requires the PDRs to be changed to SIDs;
- The PDRs do not reflect CAA Policy for the application of Performance-Based Navigation (PBN) in UK terminal airspace;
- The recently introduced (February 2016) changes to the LTMA arrangements under the London Airspace Management Plan (LAMP) Phase 1a require changes to be made to some of the departure routes from LSA;
- The CAA requires the change to be made.

The CAA requires that the introduction of, or changes to, SID procedures is to be considered as an airspace change and is to be developed in accordance with the airspace change process detailed in CAP725[1]. An essential feature of the airspace change process is that the sponsor of the change (in this case LSA) must carry out a comprehensive consultation with both the aviation community who may be affected by the proposed change and with representatives of communities on the ground who might be affected by the proposed change.

This is the Report of the Sponsor Consultation carried out by LSA between 26 February 2016 and 27 May 2016[2], a period of 13 weeks, and has been compiled with the assistance of Cyrrus Limited.

A total of 303 aviation, environmental and Local Government organisations or representatives were consulted. The aviation consultees included local airspace user organisations, national representative bodies and Air Traffic Management organisations. Environmental consultees included County, Borough, District, Town and Parish Councils over whose areas of interest the proposed SID procedures would lay. Certain national Environmental Organisations were also included, together with appropriate Members of Parliament.

[1] CAP725: CAA Guidance on the Application of the Airspace Change Process

[2] By prior arrangement a number of responses were accepted after the consultation end date.

Responses were received from 125 consultees on behalf of 135 consultee representatives[3] giving a response rate of 44.6%. This is considered to be a good response to a technical airspace consultation of this nature.

The views of individual members of the public or individual aviators were welcomed and have been taken into account in this Report of the Consultation. Five submissions were received.

In general, those Airport users and the wider aviation community who responded to the Consultation supported or stated that they did not object to the proposals.

The majority of non-aviation consultees (Councils, Parish Councils etc) stated that they had no objection to the proposals or stated that they had no comment to make.

19 consultees had issues of general concern or with regard to certain aspects of individual SID procedures which, for continuity, have been registered in this Report as "Objections". Notwithstanding that a number of consultees supported, had no objection to the proposal or gave a non-committal response, their responses identified aspects of the proposed procedure that could be given further consideration or amplification by LSA. The comments made by all consultees have been carefully analysed to determine if there are any material issues affecting the proposal as a whole or whether any alteration of the proposed SID designs would be practicable before submitting a formal proposal to the CAA.

LSA has taken a balanced and even-handed approach to the issues raised. The issues and the LSA consideration of them is detailed in the body of this Report.

Having satisfactorily carried out a Sponsor Consultation in accordance with the CAA's requirements, LSA intends to continue with the preparation of a formal proposal for submission to the CAA in accordance with the provisions of CAP725.

LSA extends its thanks to all consultees and other individuals who took the time to participate in this important consultation.

[3] Consolidation of military response and combined responses: See Section 3.

Abbreviations

	Airports referenced in this document
LSA	London Southend Airport
LCY	London City Airport
STN	London Stansted Airport
LGW	London Gatwick Airport
LHR	London Heathrow Airport
	Other airports are referenced by their unabbreviated names.
ACP	Airspace Change Proposal
AIP	Integrated Aeronautical Information Package
amsl	Above Mean Sea Level
ANSP	Air Navigation Service Provider
AONB	Area of Outstanding Natural Beauty
ATC	Air Traffic Control
ATM	Air Traffic Management
ATS	Air Traffic Services
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
CAT	Commercial Air Transport
CTA	Control Area
CTR	Control Zone
DA	Danger Area
DfT	Department for Transport
DME	Distance Measuring Equipment (a ground-based navigation aid)
FAS	Future Airspace Strategy
FMS	Flight Management Systems
GA	General Aviation
GNSS	Global Navigation Satellite Systems (space-based navigation aids, e.g. GPS)
GVS	Gas Venting Station

IAS	Indicated Air Speed
ICAO	International Civil Aviation Organisation
IFP	Instrument Flight Procedure
IFR	Instrument Flight Rules
LAMP	NATS London Area Management Programme
LTC	London Terminal Control (NATS)
LTMA	London Terminal Control Area
NAP	Noise Abatement Procedure
NATMAC	National Air Traffic Management Advisory Committee
NATS	The en-route and terminal ANSP (Previously National Air Traffic Services)
NTK	Noise and Track Monitoring Equipment
ODD	Omni-Directional Departure
PDR	Preferred Departure Route
PBN	Performance Based Navigation
RNAV	Area Navigation
RSPB	Royal Society for Protection of Birds
SID	Standard Instrument Departure
TMA	Terminal Control Area
VOR	VHF Omni-Directional Radio Range (a ground-based navigation aid)

References

[1] CAP725 CAA Guidance on the Application of the Airspace Change Process[4]

[2] Guidance to the Civil Aviation Authority on Environmental Objectives Relating to the Exercise of its Air Navigation Functions[5]. (Department for Transport)

[3] London Southend Airport Airspace Change Proposal: Proposal to Introduce Standard Instrument Departure Procedures: Sponsor Consultation Documents

[4] The CAA issued a revised Edition of CAP725 in March 2016. Both the new Edition and the previous (2007) Edition have been taken into account by LSA in the development of this Report. However, the development of the SID procedures and their interaction with the overlying airspace was carried out under the previous (2007) edition of CAP725.

[5] The DfT issued revised guidance to the CAA in January 2014 whilst the SID procedures and the background airspace arrangements were at the advanced development stage. Both the new Edition and the previous (2002) Guidance have been taken into account in the development of this Report.

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1. Introduction

1.1. London Southend Airport (LSA) is proposing to introduce Standard Instrument Departure (SID) Procedures to replace the outdated Preferred Departure Routes (PDRs) that have been in place for many years.

1.2. The introduction of SID procedures is necessary because:

- The PDRs are no longer compatible with current CAA Policies for the design of Instrument Departure Procedures;
- The PDRs were designed for an "outside controlled airspace" operating environment; the introduction of controlled airspace around LSA in April 2015, providing linkage to the overlying London Terminal Control Area (LTMA), requires the PDRs to be changed to SIDs;
- The PDRs do not reflect CAA Policy for the application of Performance-Based Navigation (PBN) in UK terminal airspace;
- The recently introduced changes to the LTMA arrangements under the London Airspace Management Plan (LAMP) Phase 1a require changes to be made to some of the departure routes from LSA.

1.3. Furthermore, when the approval for the introduction of controlled airspace around LSA was given by the CAA in January 2015, the CAA specified that the PDRs must be replaced by SID procedures compliant with all current policies as soon as practicable following the finalisation of the LAMP Phase 1a arrangements. The continued use of the PDRs was permitted only as a temporary measure until the airspace arrangements for LAMP Phase 1a were finalised.

1.4. This project entails the replacement of 12 PDRs with 6 SID procedures[6].

1.5. The CAA requires that the introduction of, or changes to, SID procedures shall be considered as an airspace change and shall be developed in accordance with the airspace change process detailed in CAP725. An essential feature of the airspace change process is that the sponsor of the change (in this case LSA) must carry out a comprehensive consultation with both the aviation community who may be affected by the proposed change and with representatives of communities on the ground who might be affected by the proposed change.

1.6. LSA carried out a comprehensive consultation, as specified above, between **26 February 2016 and 27 May 2016,** a period of 13 weeks[7]. A summary of the consultation process is given at **Appendix A**.

[6] This is enabled by the CAA's SID Truncation Policy of January 2014 which enables lengthy multiple departure procedures which share common segments to be truncated to a single shorter procedure coupled with the establishment of trans-TMA Link routes by NATS as part of the LAMP Phase 1a arrangements.

1.7. This document is the **Report of the Consultation** and has been compiled with the assistance of Cyrrus Limited. It contains a statistical analysis of the Consultation and the response to it. It identifies key issues raised by stakeholders about aspects of the proposed SID procedures and provides LSA's consideration of, and response to, those concerns.

1.8. This Report, together with the Sponsor Consultation documents and responses received, will form part of a formal Airspace Change Proposal submitted to the CAA in accordance with the requirements of CAP725.

[7] By prior arrangement with LSA 3 responses were accepted after the consultation closure date.

2. Confidentiality

2.1. The CAA requires that all consultation material, including copies of responses from consultees and others, is included in any formal submission made to the CAA.

2.2. LSA undertakes that, apart from the necessary submission of material to the CAA and essential use by our consultants for analysis purposes, LSA will not disclose the personal details or content of responses and submissions to any third parties. Our consultants are signatories to confidentiality agreements in this respect.

2.3. However, consultees should be aware that the CAA has recently adopted a Policy that all material submitted as an ACP will be published on the CAA website once a Regulatory Decision has been made. LSA will endeavour to ensure, as far as we are able, that all material published by the CAA associated with this consultation is depersonalised to the maximum extent possible.

3. Statistics

3.1. A total of 306 Consultation invitations were initially sent to stakeholder consultee organisations or individuals, comprising airlines and other locally based airspace users, Off-airport aerodrome operators and airspace users and members of the National aviation organisations represented on the CAAs National Air Traffic Management Advisory Committee (NATMAC)[8]. For non-aviation stakeholders, Officials of County, District, Borough, Town and Parish Councils over whose areas of interest the proposed flight paths would lay were consulted. Certain other representative environmental organisations were included, together with Members of Parliament.

3.2. Subsequent to commencement of the Consultation it was established that one consultee aerodrome had closed, two NATMAC organisations were withdrawn and one had its representative numbers reduced, and one additional Parish Council was included. Thus the final consultation comprised 303 stakeholder organisations or individuals. The consultee Groups and number of individual consultees representing those Groups are detailed in **Figure 1** below**.**

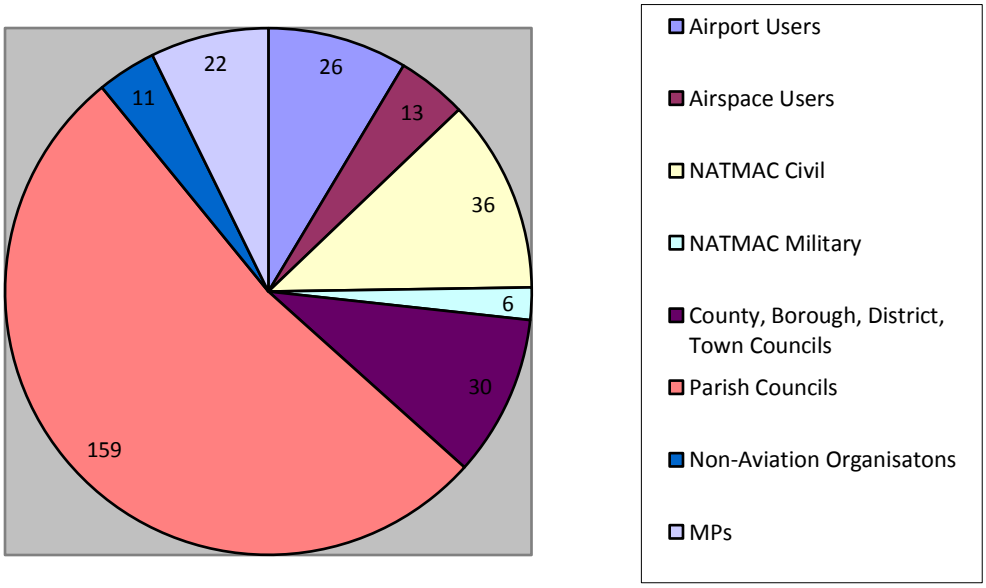

Figure 1: Distribution of Consultees

[8] Some NATMAC organisations field more than one representative, each of whom was copied the Sponsor Consultation invitation. In total 29 civil organisations are represented by 36 individuals and 5 military departments are represented by 6 individuals. Thus the total of NATMAC organisations consulted is 34. A further 2 CAA departments who sit on NATMAC are informed of the Consultation but are not permitted to comment.

3.3. Responses were received from 125 consultee organisations[9] on behalf of 135 individual consultees, giving a response rate of 44.6%. This is considered to be a good response to a technical airspace consultation of this nature. The distribution of responses in the consultee Groups is shown in **Figure 2** and **Table 1** below.

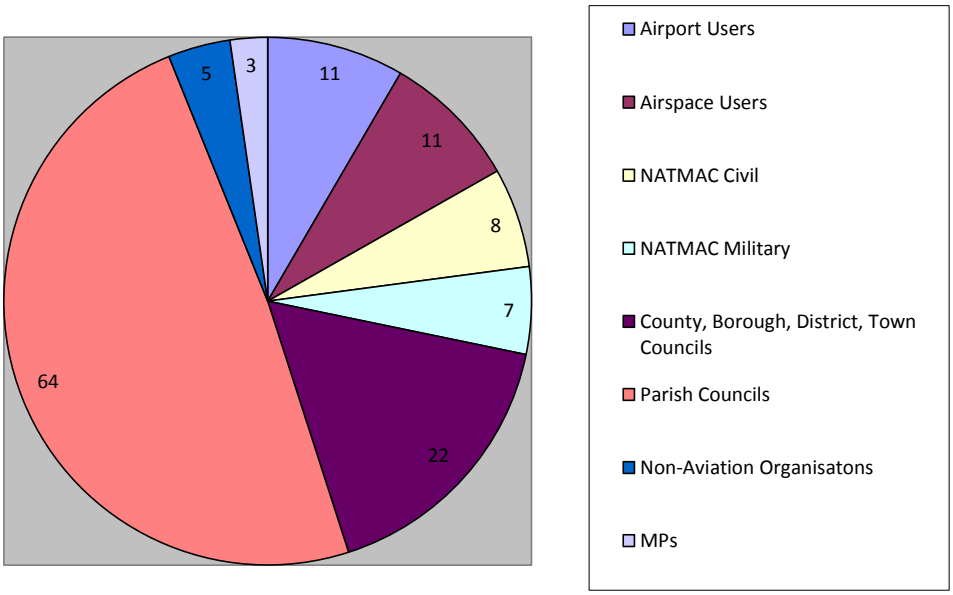

Figure 2: Distribution of responses

[9] The response analysis reflects the number of organisations, as a whole, rather than the total number of individuals representing those organisations. Where more than one response was submitted by representatives of an organisation the points raised have been amalgamated into a single consultee view.

	Listed Consultee Groups	Number Consulted	Responses	%
1	Airport users	26	11	42.3
2	Off-airport airspace users and aerodrome operators	13	11	84.6
3	NATMAC Civil (representatives)	36 consultees (for 29 organisations)	8 organisations (for 12 consultees)*	27.6
4	NATMAC Military (departments)	6 (for 5 departments)	1 (for 7 consultees)**	100
5	Non-Aviation Councils Essex Kent	 25 5	 18 4	 72.0 80.0
6	Non-Aviation Parish Councils Essex Kent	 106 53	 51 13	 48.1 24.5
7	Other non-aviation organisations	11	5	45.5
8	Members of Parliament	22	3	13.6
	Totals	303 consultees (for 295 organisations)	125 responses (for 135 consultees)	44.6

* Note: Responses were received from 8 NATMAC organisations who fielded 12 individual consultees.

**Note: Standard practice for NATMAC Military consultees is that DAATM submits a single response on behalf of all consultee departments. This is therefore taken to be a 100% response. The Military Regulator (MAA) is not allowed to comment. The military response also embraced one Off-Airport Airspace User consultee.

Table 1: Responses from Consultees

3.4. Six queries were received from consultees about the consultation material or responding to it. These were addressed and resolved individually. There were no requests for hard copies of the documentation.

3.5. Five consultee responses were received which were, in total, not pertinent to this consultation. A few other responses included reference to aspects which were not

pertinent to this consultation. These have been noted by LSA but not detailed in this Report.

3.6. In addition, submissions from individual members of the aviation community or members of the public were welcomed. Five such responses were received (of which 3 supported the proposal and 2 submitted comment which was not relevant to the consultation subject). All relevant comments made have been taken into account in this Report.

3.7. The Consultation page on the LSA website was visited 860 times, although it is not possible to say how many of these were repeat visits by individuals.

3.8. Essex County Council asked whether a briefing presentation was to be offered as for the previous airspace consultation. Consequently LSA organised a briefing presentation for interested Councils and Parish Councils. This was held on 27 April 2016 and was attended by representatives of six Local Planning Authorities (LPAs).

3.9. A briefing meeting was requested by a local Member of Parliament, which was held on 25 May 2016.

3.10. A Meeting was held with Canvey Island Town Council on 16 June 2016 to clarify some concerns about overflight of the Island (by both arriving and departing aircraft).

3.11. It was stated in the Sponsor Consultation Document that individual responses, other than electronic acknowledgement, would not be sent and that this Report would represent the consolidated LSA response to consultees and to the issues and themes raised by consultees and others. Notwithstanding, it was appropriate that in a number of cases LSA chose to respond to selected consultees in order to provide clarification about certain features of the Consultation, which if not addressed would have created possible misunderstandings and uncertainty.

4. Analysis of Responses

4.1. Of the 125 responses received from consultee organisations:

- 31 (24.8%) organisations supported or had no objections to the proposal. Some of these consultees made valid observations or comments on certain aspects of the SIDs and on future monitoring of the performance of the SIDs which have been taken on board by LSA and are noted in **Appendix B** of this Report.

- 65 (52.0%) stated that they had no comment to make on the proposal;

- 19 (15.2%), whilst mostly not objecting outright to the Consultation, had some issues of concern regarding certain aspects of individual SID procedures. For completeness these have been recorded as "Objections" for the purposes of this Report and the issues are addressed in **Appendix B**.

- 6 (4.8%) responses were received which could not be determined as objecting to or having no objection to the SID procedures. These are listed as "non-Committal" and the comments made in these responses have been addressed in **Appendix B.**

- 4 (3.2%) responses were received which were not pertinent to this Consultation. One concerned arrival flight paths; one was about an airline's flight planning preferences. One was about possible changes to the Airport's Noise Abatement Procedures (NAPs), which have not been sought by the signatories to the NAPs and one response concerned the controlled airspace configuration and the loss of controlled airspace and increased costs to General Aviation activity. This latter response repeated concerns raised in the previous controlled airspace consultation but were not pertinent to this consultation as no changes to controlled airspace are proposed. These have been noted by LSA but not included in this Report.

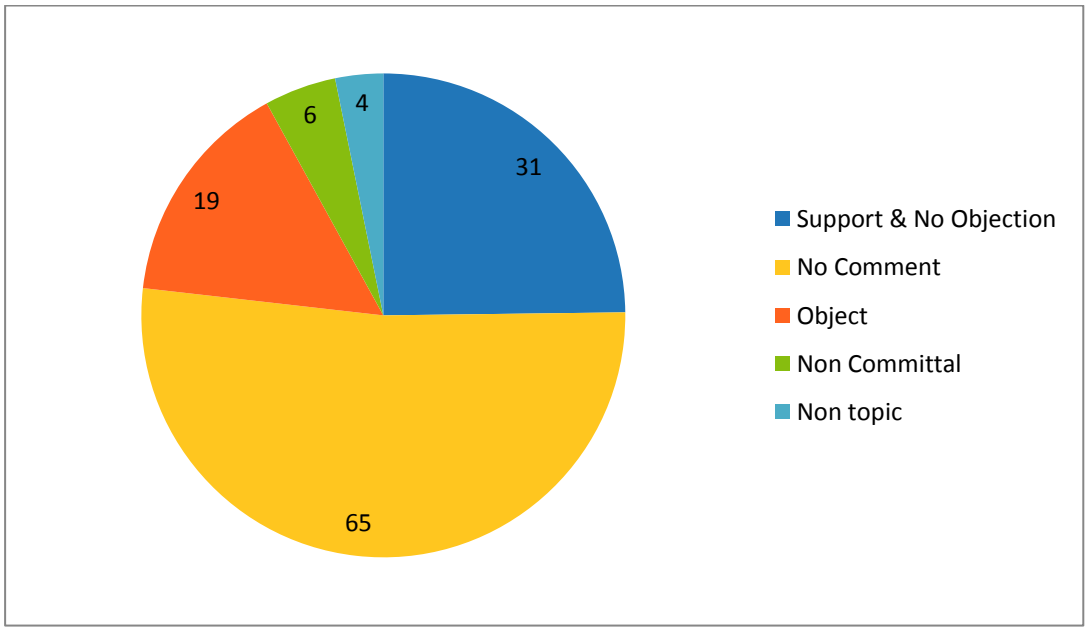

Figure 3: Support Ratio of Consultee Responses

4.2. Of the responses from consultees that expressed concerns or observations about certain aspects of individual SID procedures, these are cross-referenced to the individual SID procedures as follows[10]:

- None objected to the proposal as a whole:
- 1 had comments regarding the "close-in" aspects of runway 23 departures;
- 3 had comments regarding Runway 23 departures via LAM;
- 7 had comments regarding Runway 23 departures via CLN;
- 7 had comments regarding Runway 23 departures via EKNIV;
- 5 had comments regarding Runway 05 departures via LAM;
- 8 had comments regarding Runway 05 departures via CLN;
- 2 had comments regarding to Runway 05 departures vis EMKAD;
- 10 had comments of a general nature.

4.3. A response from one non-consultee, whilst supportive in principle, questioned the impact of LSA SIDs on overall LTMA sector capacity. Whilst TMA Sector capacity is

[10] In some cases an objection or concern was pertinent to more than one departure procedure, e.g. CLN from both runways 23 and 05.

a matter for NATS to address, LSA has made comment pertinent to the development of LSA SIDs. This has been included in **Appendix B**.

4.4. A number of LPA responses sought further information on the potential noise impact of the procedures on individual communities and on possible future community developments.

5. Key issues arising from the responses

5.1. In analysing the responses from consultees and others, LSA has identified key themes in those responses that objected to, or had comment on, the proposed SID procedures. For each of the key themes identified LSA has taken a balanced approach in considering and responding to each issue.

5.2. The principle issues arising from the consultee responses, together with LSA consideration of them are detailed at **Appendix B.** The analysis is broken down into general comments and route-specific issues.

5.3. The issues are presented in no particular order of importance other than to group issues of a similar nature or specific route close to each other. The list encompasses comments from those who supported or did not object to the proposals as well as those who specifically objected to elements of the Consultation. Where a number of consultees submitted similar comments these have been combined as a single entry. Except in one instance, the specific identity of consultees has not been given in **Appendix B**.

5.4. It must be recognised in responding to the objections or comments received that:

- The ICAO PANS-OPS procedure design criteria which the CAA specifies must be used for the design of the SIDs allow little flexibility in the positioning and configuration of turns and the distances between waypoints;
- The extant LSA NAPs are not to be changed as a consequence of the requirement to develop SID procedures;
- The SID designs must be compatible with the overlying route structure in the LTMA with which it interfaces;
- The airspace over which LSA has direct jurisdiction and relative flexibility for route design extends only to 3000ft amsl.

5.5. Whilst the CAA guidance requires noise assessments to extend to 7000ft amsl, for the flight safety and airspace integration reasons outlined in the Consultation Documents all SID procedures from LSA must be “capped” at 3000ft amsl. Whilst LTC endeavours to give departing aircraft clearance to climb above 3000ft at the earliest opportunity, this is achieved only when it is safe to do so against other flights in the overlying LTMA airspace. LSA has no direct authority over where aircraft will climb above 3000ft amsl or where they will reach 7000ft amsl.

5.6. Furthermore, beyond the extent of the NAPs in the immediate vicinity of the Airport, LSA has no Noise Preferential Routes associated with the SIDs, to which aircraft must adhere over longer distances or until they have reached higher levels. Thus the tactical nature of the ATM operation at the lower levels of the LTMA may result in aircraft being vectored away from the SID routes in order to make the

most effective use of the available airspace. This is likely to occur more frequently on some routes than on others and was detailed in the Consultation Documents.

5.7. A significant aspect of responses to the Consultation concerned the routing of aircraft over sparsely populated tranquil areas in order to alleviate overflight of built-up area; principally overflight of the Dengie Peninsular to give alleviation to Burnham-on-Crouch for departures towards CLN. LSA has considered this matter very carefully in the light of the DfT guidance on both issues and the limited availability of controlled airspace offshore to the north-east of LSA to contain departing aircraft in conflict with arrival traffic flows to LCY and LSA. We have concluded that, on balance, routing aircraft northwards initially from Runway 05, which will facilitate earlier climb clearance being given into the overlying LTMA airspace, with the consequent benefits to fuel burn and reduced emissions, and expeditious flow of traffic as well as the reduced noise exposure to Burnham-on-Crouch, outweighs the desire to avoid overflight of the Dengie Peninsular. This conclusion accords with the DfT and CAA guidance.

6. Conclusions

6.1. The Sponsor Consultation has been carried out in accordance with the requirements of the CAA as detailed in CAP725. A comprehensive cross-section of Industry, Environmental and Community consultees has been included. The Industry consultees included representation at local and national level and included both airspace users and ATS provider interests.

6.2. Provision was made for individual members of the aviation community or individual members of the public to participate in the Consultation and make their views known. Due regard has been taken of such submissions received.

6.3. An adequate response rate (44.6%) has been achieved from which a balanced judgement can be made on peoples' opinions on this change to the departure procedures from LSA.

6.4. LSA has found that no new or unexpected issues have arisen which would materially affect the fundamental case for the replacement of the PDRs with SID procedures, as required by the CAA.

6.5. LSA has found that, within the airspace safety and procedure design constraints, together with the necessary environmental objectives, the procedure designs as proposed represent the most appropriate balance between the competing demands. Therefore no further changes are proposed as a consequence of the Consultation.

6.6. LSA concludes, therefore, that given the safety responsibilities and accountabilities placed upon it under the Air Navigation Order and EC Regulations 550/2004 and 1035/2011 and the CAA regulatory requirements for procedure design, there are no material issues arising from the Consultation that would justify withdrawal or modification of the proposal.

6.7. Consequently, LSA considers that the case for the introduction of the proposed SID procedures is sound and that the SID designs to be submitted to the CAA are appropriate and meet regulatory requirements. Thus, in accordance with the CAA's regulatory requirements, LSA will develop a formal Airspace Change Proposal which will be submitted to the CAA.

7. What happens next?

7.1. As noted above, LSA will now develop a formal ACP (as specified in CAP725) for submission to the CAA for the introduction of SID procedures from LSA as detailed in the Consultation documents. Alongside this the technical details of the procedure designs will be submitted to the Instrument Flight Procedures Regulation department of the CAA in accordance with the requirements specified in CAP785[11].

7.2. We expect that the ACP will be ready for submission to the CAA in late Summer 2016.

7.3. Following receipt of the formal proposal, the CAA will carry out a documentation check to ensure that the LSA submission is complete and will request clarification and/or additional information if necessary. A Case Study will then be carried out by the CAA leading to a Regulatory Decision by the Head of the Safety and Airspace Regulation Group. This decision will normally be reached within a period of 6 months from submission of all documentation.

7.4. In the event that the Regulatory Decision supports the proposal then the Implementation Phase will begin. This takes a minimum of 56 days from the time that the necessary documentation is submitted to the Aeronautical Information Services (AIS) in accordance with the international requirements for the promulgation of aeronautical information

7.5. Thus, it is anticipated that the proposed SID procedures for aircraft departing from LSA could be established in mid-2017. The actual date of introduction will be on an AIRAC[12] date to be agreed with both the CAA and NATS[13], with 2 AIRAC Cycles (56 days) pre-notification to the aviation industry in accordance with standard ICAO requirements.

[11] CAP785: Approval of Instrument Flight Procedures

[12] Aeronautical Information Regulation and Control: A publication and implementation system for aeronautical information established on a world-wide basis by ICAO which ensures that significant changes to aeronautical information are only implemented on specified dates and publication of the information also takes place on specified dates so that the users of the information have an adequate lead time to assimilate the changes and incorporate them into their operating systems.

[13] NATS will need to make certain changes to its data handling systems and ATC documentation for which there are limited time-slots when this can be done.

A. Appendix A Background to the Consultation and methodology used

A.1. Introduction

A.1.1. The CAA sets out its regulatory requirements and process for applications to change the status of airspace or associated arrangements in CAP 724 "*The Airspace Charter*" and CAP 725 "*CAA Guidance on the Application of the Airspace Change Process*". An essential element of the airspace development process is for the Change Sponsor, in this case LSA, to carry out an extensive consultation with the airspace users who may be directly or indirectly affected by the change and with organisations representing those who may be affected by the environmental impact of the change.

A.1.2. The introduction of, or changes to, SID Procedures is considered by the CAA to be an airspace change and, as such, falls under the scope of airspace change process detailed in CAP725 requiring a full Industry, Environmental and Community consultation.

A.1.3. The development of the proposal to replace the historic PDRs with properly constructed SID procedures which fully comply with current CAA Policies and which are operationally compatible with the recently introduced airspace arrangements and the consequent Sponsor Consultation has been conducted in accordance with the CAA requirements.

A.2. Consultation Methodology

A.2.1. A comprehensive set of Sponsor Consultation Documents was prepared by the team at LSA with the assistance of Cyrrus Ltd, a specialist airspace management consultancy company with extensive experience of managing Airspace Change Proposals (ACPs) and conducting consultation to meet the CAA requirements. The CAA also provided advice on the development of the Sponsor Consultation Documents prior to their release.

A.2.2. Due to the nature of the proposed consultation and the extent of material required, the Consultation documentation was broken down into 4 main documents covering the general explanatory issues together with 6 Technical Annexes detailing each of the proposed SID procedures individually. In this way, consultees could access the information relevant to their own locality without necessarily accessing details of routes not relevant to them.

A.2.3. The Consultation invitation letter was distributed to consultee organisations by e-mail, detailing access links to the Sponsor Consultation Document via the LSA website. Electronic distribution of and website access to Consultation material is acceptable to the CAA and now forms the standard method of undertaking such consultations.

A.2.4. The LSA website was updated with details of the Consultation under the Corporate and Community; Community Relations Section and providing a link to a discrete section of the website containing "Frequently Asked Questions" (FAQs) and each of the Consultation documents.

A.2.5. Paper copies of the Consultation Document were available to consultees on request. None were requested.

A.2.6. The Cabinet Office Code of Practice on Consultation and the CAA requirements specify a minimum period of 12 weeks for consultation. LSA carried out this Consultation between **26 February 2016 and 27 May 2016**, providing a 13-week period to allow for the Easter period.

A.2.7. Within the consultation period consultees were asked to consider the proposal and submit a response to LSA, either in writing or through a discrete e-mail address (LSASID@southendairport.com).

A.2.8. It was recognised that some non-aviation consultee organisations may not be well versed in aviation industry terminology or the CAA consultation process. Consequently, the Sponsor gave those consulted ample opportunity to seek clarification of the terminology used or any other aspects of the Consultation or the proposed procedure design.

A.2.9. Furthermore, in order to ensure that other members of the public who may have had an interest in the proposal would be aware of the Consultation, on the advice of the CAA a number of Press Releases were given to local newspapers. However, the newspapers declined to publish details of the Press Releases. This was discussed with the CAA. Consequently LSA concluded that, given the extensive and comprehensive consultee list and the LSA website promotion of the Consultation, notification of the Consultation had been adequate without the media content.

A.2.10. At the request of Essex County Council a briefing meeting was held on 27 April 2016 which was attended by representatives of 6 LPAs. A further briefing meeting was held on 25 May 2016 with a local Member of Parliament at his request. Finally, a meeting was held with representatives of Canvey Island Town Council on 16 June 2016 at which concerns about overflight of the Island by both arriving and departing aircraft were discussed.

A.2.11. In order to promote maximum response, LSA was proactive throughout the Consultation process. A review of responses received was undertaken six weeks prior to the end of the Consultation and, for those who had not responded, a reminder e-mail or letter was sent. Subsequently this was followed up, where necessary, with further e-mail reminders and individual telephone calls to organisations or representatives in the last two weeks to ensure that each consultee could offer a response if he/she was so inclined.

A.3. Consultees

A.3.1. Development of the "Consultee List" is very much dictated by the CAA requirements specified in CAP725 and LSA sought appropriate advice from the CAA in developing the list.

A.3.2. The CAA requires that the consultation must be addressed, inter alia, to those UK National Aviation Organisations represented on the CAA's National Air Traffic Management Advisory Committee (NATMAC). The list of NATMAC organisations and their representatives was provided by CAA SARG. It should be noted that a number of NATMAC organisations field more than one representative. Thus, initially a total of 39 consultees represented 31 civil consultee organisations and 6 military consultees represented 5 military departments. (NB Current protocol dictates that a single consolidated military response is provided which represents all of the military departments.) In addition, 2 CAA SARG departments who participate in NATMAC were informed of the Consultation but CAA internal protocols do not allow them to take part in Sponsor Consultations. These numbers were later adjusted by CAA advice of the removal of 2 NATMAC organisations and one (of 3) representatives of another organisation. Thus the final list of NATMAC Civil consultees was 36 individuals representing 29 consultee organisations.

A.3.3. In addition, local Airport and airspace user groups were consulted, comprising the Airport Consultative Committee Chairman, Airlines which use LSA, on and off-Airport Flying Training Organisations and certain adjacent aerodromes that might be affected by the proposed SID procedures. (One small aerodrome invited to participate was subsequently found to have closed.)

A.3.4. With respect to Community and Environmental consultees, the CAA requires that the Consultation encompasses statutory bodies and appointed Councils, down to Parish Council level, throughout the area that would be overlaid by the proposed airspace design. One additional Parish Council was added to the original consultee list shortly after the consultation commenced and was offered additional time to formulate their response.

A.3.5. Thus, the final total of invited consultees was to 295 consultee organisations. The consultee list therefore comprised:

- 26 Airport users, including Airlines, Flying Clubs and other based companies;
- 13 off-airport airspace user interested parties, including a number of nearby aerodromes;
- 29 Civil NATMAC member organisations, represented by 36 individuals;
- 5 Military NATMAC member departments, represented by 6 individuals;

- 30 County, City, District, Borough, and Town Councils, comprising 25 in Essex and 5 in Kent;
- 159 Parish Councils or Parish Meetings, comprising 106 in Essex and 53 in Kent;
- 11 Other non-aviation organisations;
- 22 Members of Parliament.

A.4. Responses

A.4.1. Responses from consultees and others were received and assessed throughout the consultation period. The breakdown of responses from consultee organisations is given in the body of this Report.

A.4.2. Six queries were received from consultees about the Consultation material or responding to it. These were addressed and resolved individually.

A.4.3. Although it had been stated in the consultation document that, in accordance with accepted consultation practice, no individual responses (other than an electronic acknowledgement) would be sent because it was considered that this Report would be sufficient and apposite in acting as the response to individual concerns and objections; responses were in fact sent to 3 consultees to clarify aspects of their responses.

A.4.4. In analysing the responses from consultees and others, common "themes" to issues of concern were identified to which a consolidated LSA view is given in **Appendix B** of this Report.

B. Appendix B Key issues and themes of concern arising from the consultation

NB. Certain issues raised by consultees were of a general nature relating to the proposal as a whole or the design of procedures as a whole. Other comments relate to one or more individual SID procedures. This is reflected in the consolidated tabulation of comments below.

	Issue	LSA Comment
1	General: Pre-consultation Consideration should be given to pre-consultation discussions with LPAs.	In general, LSA accepts this recommendation, which would normally comprise the "Focus Groups" stage of an ACP development. However, in this particular case, LSA concluded that as Focus Groups had been utilised in the development of the previous ACP for the introduction of controlled airspace, which at that stage had still included the introduction of SIDs to replace the PDRs[14], then a repeat of the Focus Groups would not be necessary. (The use of Focus Groups is not mandatory within the CAP 725 Process.) Our decision not to repeat the Focus Groups for the now separate SIDs element of the overall airspace project was discussed with the CAA, who concurred that our approach was reasonable.
2	General: Consultation documentation Concern about the presentation and content of the consultation documentation. Too much jargon. Too complicated for lay-person to understand. The Glossary did not help.	LSA appreciates the difficulties in producing documentation of a complex technical subject in a manner and format that the lay-person with little aviation knowledge can understand. A Glossary was provided to explain some of the technical terms as simply as possible whilst not losing the overall accuracy of the description for those who have a greater depth of aviation knowledge. LSA offered, in the documents, the opportunity for consultees to ask for further clarity or explanation if it was needed. (Some consultees took advantage of Meetings with LSA.)

[14] The SIDs element of the controlled airspace ACP was subsequently separated out of the controlled airspace ACP in order to not delay the urgent introduction of controlled airspace in the light, at that time, of a possible lengthy delay to NATS implementation of LAMP Phase 1a. It appeared possible that SIDs would need to be developed to fit the "LSA controlled airspace but pre-LAMP LTMA configuration" and then a second set of SIDs would be needed to fit the "LSA controlled airspace plus LAMP LTMA configuration". Both sets of SIDs would need to have been designed and consulted upon in a short timeframe. The CAA agreed (as detailed in the consultation document) that as an interim measure the PDRs could remain in place at the introduction of LAMP Phase 1a until the LAMP-configured SIDs ACP (this ACP) could be completed.

	Issue	LSA Comment
3	<u>General: Future land-use development</u> A number of LPAs considered that the development of LSA routes should take into account possible future land-use developments detailed in Local Plans which are coming forward for consultation.	The previous (2002) Edition of the DfT Guidance said "*Airspace planning and land-use planning in the vicinity of airports should continue to be a mutually informed process. The position of departure routes and the alignment of arrival routes are important factors that inform local authorities' development control functions and the legacy of past planning decisions will usually provide compelling arguments for preserving established route structures where possible*." The current (2014) guidance doesn't include this guidance. It does, however, note that the value of maintaining the legacy arrangements should be taken into account. In this context the Consultation demonstrates that, within the constraints of the current procedure design policies and the reconfiguration of the overlying airspace arrangements under LAMP Phase 1a, LSA has placed value on the legacy arrangements in that it has: i) endeavoured to replicate as closely as practicable the legacy alignment of departure routes (based on demonstrated flight path plots of departing aircraft) in the immediate vicinity of the Airport; ii) only introduced changes to the alignment of departure routes where appropriate, or where necessitated under the LAMP Phase 1a airspace changes, and which reduce overflight of currently populated areas; and iii) reduced the "spread" of departure flight paths through the use of RNAV procedure design criteria in accordance with Government policy and CAA performance-based navigation policy. LSA considers this to be an issue which the CAA needs to address on a national basis in its ongoing Review of the CAP725 Process. Accordingly, therefore, LSA will take the matter forward to the CAA.

	Issue	LSA Comment
4	<u>General</u> A number of LPAs considered that more detail should have been given in the consultation documentation on the noise impact on individual communities. This might help communities to understand how the competing concerns of safety, airspace management and environmental matters are balanced from an aviation perspective. Reference to national and international guidance documents should be given.	We believe that the information provided was suitable to enable individuals to reasonably assess the likely impact of the proposed SID procedures on their communities or individual properties. It would be completely impracticable to give a detailed impact assessment "before" and "after" for every community given the many variables that affect the climb performance of individual departing aircraft and the integration of each departing aircraft with others in the airspace network. Individuals will be aware of how LSA departing aircraft affect, or do not affect, them now and from the information provided could make a reasonable assessment of whether they would be more, or less, affected by the proposals. The Executive Summary Document of the Consultation Document package included a comprehensive list of reference documents which contain guidance as to how the competing demands of airspace and procedure design and environmental considerations should be carefully balanced against each other. Prior to release for consultation a copy of the documentation was passed to the CAA for comment.
5	<u>General: Noise</u> The metrics used do not indicate what the expected noise levels would sound like. Other metrics could have been used which may have been better understood.	LSA consulted the CAA for assistance in determining the best way of explaining the expected changes in noise distribution in a situation where for most departure routes we were endeavouring, as far as practicable, to replicate the historic PDRs and/or day-to-day operation of departing aircraft. At the same time we had to take into account the limitations of our NTK equipment in respect of producing highly detailed and complex graphics. We have based our descriptions of the potential noise impact on the guidance given in CAP725 and the advice received from the CAA.

	Issue	LSA Comment
6	General: RNAV1 Do all CAT aircraft using LSA have RNAV-1 approval from their State of Registry Aviation Authority.	No, not yet. Whilst the majority of CAT operators and aircraft have their State Approval for RNAV-1 (or better) operations, some operators (mainly those using older, legacy aircraft types) do not yet have approval. However, the CAA has published a mandate (Aeronautical Information Circular Yellow 92/2013[15]) that from 9 November 2017 all IFR General Air Traffic (i.e. "Airways" flights) using the London Area Airports (which includes LSA) must be equipped and approved for RNAV-1 operations. Thus the period between the introduction of RNAV-1 SIDs at LSA and the date that all "Airways" traffic must be RNAV-1 approved will be less than 1 year. In the interim period, those few departing aircraft that are not RNAV-1 approved will be issued with individual non-RNAV ATC clearances to enter the LTMA route network and will use the "Omni-Directional Departure" provisions to ensure obstacle clearance and will comply with the Airport Noise Abatement Procedures detailed in the UK AIP.
7	General: Class G airspace Object to the reduction in Class G airspace and impact on the GA community, reduced training airspace, funnelling of GA traffic etc. Expect LSA to work closely with nearby training airfields to ensure that access is not restricted unreasonably and to ensure flexible use of airspace.	These comments are more pertinent to the earlier controlled airspace development rather than to the SID procedures. The SIDs do not require any additional controlled airspace, indeed earlier iterations of potential SID designs have been adapted where necessary to ensure that they fit into the (reduced) controlled airspace dimensions granted by the CAA. LSA experience of ATM operations since the introduction of controlled airspace (April 2015) shows that no GA aircraft have been denied access to controlled airspace for reasons specifically attributable to LSA departing traffic.

[15] The same AIC specifies that by Winter 2019 all of the specified London Area Airports will have introduced RNAV-1 SIDs, STARs and Transitions to Final Approach procedures

	Issue	LSA Comment
8	General: Planned Implementation Date LSA must take account of NATS Swanwick requirements for scheduling systems changes in its planning of implementation dates.	Agree. LSA will work closely with NATS Swanwick to agree a planned implementation date which is compatible with NATS Systems Change schedule as well as the AIRAC pre-notification requirements.
9	General: ATC Training LSA must ensure that adequate staffing and training are provided.	The introduction of SIDs will not, in itself, require any changes to the ATC staffing arrangements beyond those which were introduced when controlled airspace was established. LSA will work closely with NATS to ensure that effective interfaces are in place at LSA and LTC to support the change from PDR to SID procedures.

	Issue	LSA Comment
10	<u>General: Vectoring</u> "Less tactical vectoring" vs "dependence on tactical vectoring" gives a mixed message. The ACP document should show greater clarity on the expected "normal" situation with regard to vectoring of aircraft under the jurisdiction of NATS LTC.	The introduction of properly designed and integrated SID procedures will, we believe, lead to reduced tactical vectoring at the early stages of departure and a greater repeatability of flight path. Certainly less vectoring will be required by LSA ATC in comparison to the previous "outside controlled airspace" environment as the need to avoid unknown aircraft has been removed from the equation. The SIDs incorporate defined tracks, which provides ATC with a greater consistency of flight path than the PDRs which do not have defined tracks in the initial segments. However, it is acknowledged that tactical intervention will inevitably be required, normally in the later stages of the departure when aircraft have achieved higher altitudes, to ensure the most expeditious climb clearance can be given (normally against arriving and departing LCY traffic crossing above). There is no intention (or ability on the part of LSA) to limit the ability for LTC to vector aircraft. Tactical re-routing of departing aircraft would particularly continue to apply for departures via the EVNAS-LAM route which it is acknowledged in the Consultation documents to be a less than ideal route but is procedurally necessary for flight planning purposes.

	Issue	LSA Comment
11	<u>General: Speed limits</u> Support the use of speed limits to reduce the spread of departures in turns but seek reassurance that the speed restrictions have no impact on flight safety.	The standard airspace speed limit applied to SID procedures in controlled airspace is 250kt (Indicated Airspeed (IAS)), which is also the internationally applied speed limit below FL100 (10,000ft) where there is a mix of IFR and VFR flights. The speed limit assists ATC in determining the appropriate departure interval to be applied between successive aircraft of different performances following the same route. However, the use of speed limits less than 250kt for noise abatement purposes (i.e. to reduce the spread of tracks around turns for aircraft of different performance) is widely used in SID procedures throughout the UK and elsewhere and is accepted by the CAA. The selection of procedure nominal design speeds, and of any speed restrictions to be consequently applied to the operation of aircraft, must reflect the capabilities of the aircraft that are expected to use the procedures. Speed restrictions of 210kt IAS or less on departure are widely applied and are well within the operating capabilities of aircraft types likely to use the procedures from LSA. In the procedure designs the speed limit for the initial turn is removed as soon as practicable once the aircraft has completed the turn to enable it to accelerate to 250kt IAS.
12	<u>Impact on LCY departures</u> It is important that the proposed LSA SIDs do not inhibit the operation of LCY eastbound departures.	As a full and developing member of the LTMA Airports community LSA expects and requires equitable access to LTMA airspace for departing (and arriving) flights. The SIDs have been designed – in conjunction with NATS – to reflect NATS requirements for linkage with the LTMA route network for LAMP Phase 1a. Far from inhibiting the operation of LCY departures, it is both LCY departure and arrival procedures which have inhibited the procedural allocation of higher altitudes to LSA SIDs and the tactical intervention which will be necessary to achieve expeditious climb clearance.

	Issue	LSA Comment
13	<u>Impact on STN departures</u> Concerns about NATS Clacton Sector capacity. Departure delays experienced since the introduction of LAMP Phase 1a. <u>Impact on LHR traffic</u> Will the introduction of the LAM SIDs affect LTMA capacity for LHR traffic?	LSA has been fully engaged with NATS in the development of the LAMP Phase 1a LTMA configuration (introduced in February 2016) together with the development of LSA controlled airspace (introduced in April 2015). The development of the SID procedures is compatible with both. From the outset of the LAMP Phase 1a development NATS has been aware of, and has taken account of, LSAs forecast traffic growth and has taken this fully into account in its development of LAMP airspace arrangements. (LAMP development simulations included LSA traffic generation at forecast 2021 levels.) As a developing Regional Airport (in accordance with Government Airports Policy) LSA requires equitable access to the TMA and Network airspace for departing and arriving traffic LTMA and Network capacity is a matter for NATS to address.

	Issue	LSA Comment
14	<u>General: Expected track deviation</u> Use of ±0.2NM as the expected maximum track deviation to describe the expected navigation performance of aircraft using the SIDs.	A number of UK airports have now introduced (or trialled) RNAV SID procedures in recent years, with mixed results. Information in the public domain on the track-keeping performance of aircraft using RNAV1 SIDs indicates a widely achieved performance of ±0.1NM. Based on the available information, we have taken an expectation of maximum deviation of ±0.2NM to be more reasonable to reflect the particular nature of the proposed LSA SIDs. Whilst the Required Navigation Performance (RNP) for RNAV1 operations remains a maximum deviation of ±1.0NM, nonetheless the day-to-day achieved navigation accuracy can be expected to be substantially better than the permitted "worst case"[16]. It is emphasised that the ±0.2NM swathe has no bearing on the ability for LTC to vector aircraft under their jurisdiction. Aircraft which are vectored may be seen outside the swathes.
15	<u>Use of 3000ft amsl as the procedural upper limit instead of 3400ft amsl</u> The upper limit of the PDRs was 3400ft amsl whereas the upper limit of the SIDs is 3000ft amsl.	3000ft amsl has been the procedural upper limit for departure clearances from LSA since the introduction of controlled airspace in April 2015. This is because the vertical separation minima that ATC (internationally) must apply between IFR flights in controlled airspace is 1000ft. Previously, when LSA was outside controlled airspace, the requirement was that the "outside controlled airspace" flight should be, simply, "outside" the LTMA base level of 3500ft amsl - thus not above 3400ft amsl was specified in the PDRs. However, some operators expressed an operating preference for using "whole thousands" of feet and thus utilised 3000ft. (IFR flights inside controlled airspace should be retained at least 500ft above the base level to ensure adequate – but not necessarily 1000ft - separation from flights outside controlled airspace.)

[16] Similarly, for the historic conventional navigation SIDs in UK TMAs, whilst the required navigation performance using the ground-based navigation infrastructure generally equated to approximately ±5NM (sometimes much more when using "far-away" VOR radials) nonetheless the observed day-to-day actual navigation performance was such that it allowed the development of NPR swathes of ±0.81NM (±1500m) to be specified at the Designated Airports.

	Issue	LSA Comment
16	<u>Procedure design speeds</u> Clarification is sought as to when procedure design speeds can be removed.	Procedure design speed limits are incorporated into the initial turns of the procedure designs to limit the "spread" of flight paths for aircraft of different departure performance around the initial turns. [An aircraft which accelerated quickly to 250kt IAS would make a much wider turn then an aircraft flying at only 180kt IAS.] The speed limit for this purpose is only necessary until the aircraft has made the turn and is heading towards the next waypoint. However, to comply with ICAO PANS-OPS procedure design criteria, a speed limitation can only be changed at a waypoint. The procedure design criteria for the minimum distance between waypoints results in a large minimum distance between successive waypoints for extended turns (greater than 120˚). In all cases, the first waypoint after the initial turn has been placed as close to the turning waypoint as permitted by PANS-OPS, notwithstanding that the aircraft will have completed the turn before reaching that waypoint.
17	<u>Rwy 23 SIDs</u> Request relocation of flight paths away from Canvey Island [Meeting held. Principal concern is arriving flights overflying the COMAH site. Concern also about the location of the flyover waypoint for SIDs.]	The location of the turning waypoint for the left and right-turning SIDs from Rwy 23 is dictated by the Airport Noise Abatement Procedures and the application of the ICAO Procedure Design Criteria. Neither LSA nor the Section 106 signatories to the Noise Abatement Procedures wish to change these procedures. Thus, it is inevitable that departing aircraft will overfly parts of Canvey Island which, unfortunately, includes the built-up area. See also Item 36

	Issue	LSA Comment
18	<u>Rwy 23 & 05 LAM SIDs</u> Object specifically to EVNAS – LAM segment of SIDs. See it as potential to further expand CAS. Challenge honesty of LSA consultations. Seek assurances that LSA has no plans to expand CAS. CTA-4 to the west of LSA appears unused and should be released.	LSA have always been open and honest in their SID consultation. The CAA would not have allowed us to release the documentation had that not been the case. The segment EVNAS – LAM is necessary as a flight plannable route providing linkage to the LTMA route network. LSA and NATS had, from the outset of the controlled airspace project, endeavoured to develop a SID alignment that would more accurately reflect the day-to-day tactical routing of LSA departures through the complex airspace to the north-west of LSA. Unfortunately it was not possible to do so; thus EVNAS – LAM must remain as the procedural flight plannable route, as it was for the PDRs. As explained in the Consultation, it is unlikely to be flown regularly in the day-to-day operation. The EVNAS - LAM segment is not intended to secure additional controlled airspace to the north-west of LSA. With respect to CTA-4, we will take the comments forward to the CAAs Post-Implementation Review (PIR) of the SIDs ACP to see whether, in the light of operational experience with the SIDs and other aspects of the airspace arrangements, any changes to the configuration of the CTA can be accommodated.
19	<u>Rwy 23 & 05 LAM SIDs</u> Object to routing via EVNAS- LAM instead of previous route. Object to extensive flight at 3000ft instead of previous operation where aircraft climb earlier. PDRs were safe and efficient. Object to change from PDR to SID	Misunderstanding of the design and operation of SIDs. Clarifying Letter sent.

	Issue	LSA Comment
20	<u>Rwy 23 & 05 LAM SIDs</u> Will any changes to the current ATM arrangements be introduced to reflect the DfT 2014 guidance between 4000ft and 7000ft?	No. We expect the ATM operation for traffic on the LAM SIDs to remain the same as for the previous LAM/BPK/CPT PDRs. LSA has no intention or requirement to impose new vectoring restriction in the Southend CTR/CTA. (The airspace between 3500ft and 7000ft is under the jurisdiction of NATS LTC.) We believe that the existing ATM arrangements are compatible with the new DfT guidance.
21	<u>Rwy 23 LAM SID</u> Were LSA aware of the recent changes to STN SIDs when developing the SIDs? The recent change to STN SIDs may have facilitated the "Direct to LAM" option.	Yes LSA has been fully engaged with NATS since the outset of the LSA controlled airspace project in 2012, at which stage the NATS planning of the airspace changes for LAMP Phase 1a was well under way. Ultimately, the manner and position at which departing flights from all Airports join the TMA route structure is specified by the TMA controlling authority (LTC), not the Airport. As explained in the Consultation document, we worked closely with NATS to try and establish a formal route which would more closely replicate the day-to-day tactical integration of LSA departures with the myriad of other airspace procedures and operations to the north-west of LSA. STN (and Luton, Northolt and LCY) departures via Detling (DET) were not the only factors which precluded the "Direct to LAM" option. The "Direct to LAM" option would also have required additional controlled airspace to ensure managed protection against other legitimate airspace use to the west of Hanningfield Reservoir - this was not an option.

	Issue	LSA Comment
22	<u>Rwy 05 LAM SID</u> Routing to the north of South Woodham Ferrers (SWF) may affect future residents of an expanded SWF as proposed in the emerging Local Plan. It is important to ensure that ACPs are "future-proofed" and consider the implications for future as well as for existing residents.	See Items 1 and 3 above. Routing LAM departures from Rwy 05 to the north of SWF whilst departures from Rwy 23 pass to the south of the conurbation ensures that the same residents are not affected by departing aircraft from both runways, which is in line with DfT guidance. Furthermore, any tactical routing of departing aircraft on this SID to integrate with other flights in the LTMA is most likely to take aircraft to the north of the SID than to the south of it. Thus overflight of the (currently) built up area of SWF would be less affected by tactical (expeditious) routing of departing aircraft than if the SID was aligned to the south.
23	<u>Rwy 05 LAM SID</u> Insufficient detail as to why the vectored routing of aircraft to the east of EVNAS cannot be reflected in the SID design. Has the proposed SID design taken account of the recent changes to departure routes from STN?	See Item 21 reference STN departure route changes. The tactical radar vectored routing given by LTC controllers to LSA departing flights in order to get them climbing as soon as practicable into the LTMA route network against other aircraft in the system depends very much on the actual disposition of other aircraft at the time. For example, whether STN is using Runway 22 or Runway 04 will affect the interaction between LSA departures and any STN arrivals or departures that are in the System (or about to depart from STN) and whether there is enough track distance to climb LSA departures above STN traffic arrivals. Another factor would be LHR arriving traffic descending into the Holding Pattern at LAM above the LSA departing traffic. This presents a very dynamic situation for the LTC controllers and their management of the LTMA traffic flows.

	Issue	LSA Comment
24	<u>Rwy 23 & 05 CLN SIDs</u> Concern that routes appear to be over populated land rather than over sea and more rural areas. Seek impact assessment of results of tests of noise and air pollution on Maldon residents. Concern about the impact on the operation of Stow Maries aerodrome. Concern about fuel dumping over fishing lakes.	With the orientation of the overlying route network it is inevitable that departure flight paths lie over land areas. The offshore areas to the east are equally occupied with a network of routes, principally arrival routes to LCY and LSA itself. The alignment of the SIDs has been designed to overfly the least populated areas where this is possible within the safety requirements for procedure design. None of the SID procedures lies closer than 2 miles from the Maldon conurbation. There should be little overflight of Maldon by aircraft departing from LSA unless an aircraft has reached a higher altitude and been given a more direct routing to its destination by LTC. Notwithstanding that Maldon is not overflown by any of the SID routes, from the information given in the Consultation Document it can be seen that the noise experienced on the ground beneath an overflying A319 aircraft type climbing nominally through 4000ft – 5000ft would be between 60 – 70dBA. 60dBA is equivalent to conversational speech at a distance of 1 metre; 70dBA is equivalent to a vacuum cleaner 1 metre away. Given that none of the routes overflies Maldon, the noise exposure would be commensurately less. As stated in the Consultation Document, the Government Guidance on Air Quality states that due to the effects of mixing and dispersion, emissions from aircraft above 1000ft are unlikely to have a significant effect on air quality. Given that departing aircraft from LSA do not overfly Maldon the introduction of SIDs at LSA will have no impact on air quality in the area. The SID procedures will have no impact on the operation of Stow Maries aerodrome. If a departing aircraft has to jettison fuel in order to make an immediate return and landing at LSA then, except in a dire emergency, any such jettisoning would normally take place over the sea and at as high an altitude as possible for the circumstances (recommended to be above 10000ft).

	Issue	LSA Comment
25	<u>Rwy 23 & 05: CLN SIDs</u> Suggested relocation of waypoint near Osea Island. Objection to the procedures, as designed, which affect too many people on the Dengie Peninsular. Other alignments would affect fewer people.	LSA thanks the respective consultees for their constructive suggestion. The development of the SIDs towards CLN and the positioning of the waypoints was very much an iterative process and many potential locations for the "Osea" waypoint (MCN10) were tested in conjunction with the development of the LSA controlled airspace and the LAMP Phase 1a LTMA configurations and the disposition of communities along the routes. Indeed a location comparable to that suggested was tested but was found to be incompatible with the controlled airspace boundaries for the Southend CTA that were ultimately approved by the CAA. It would also have resulted in the subsequent track towards CLN being more over land (to the north of the Estuary) rather than over the Estuary itself. CAP778 states that the controlled airspace "containment" of a SID (that is the distance that the nominal track must be inside controlled airspace) should be not less than 3NM. In fact the "Osea" waypoint as we have positioned it is less than 3NM from the controlled airspace boundary but it provides, on balance, a better environmental fit overall than adhering strictly to the requirements. We have again evaluated the configurations suggested by the consultees (for both runways 23 and 05). The location suggested for the "Osea" waypoint would, in fact, be only approximately 1NM from the controlled airspace boundary, which would be unacceptable. Furthermore, whilst the realignments would, to some extent, relieve the communities suggested they would, by the same token encompass other communities. Therefore, LSA has concluded that, on the balance of all the competing demands, the SID configurations as proposed represent the best overall compromise between the competing demands.

	Issue	LSA Comment
26	<u>Rwy 05 CLN SID</u> Support the realignment of the route to avoid Burnham-on-Crouch (B-o-C) and retain aircraft in controlled airspace but seek more information on how the SID has been designed to avoid other communities on the Dengie Peninsular and in Maldon District.	See Items 25 above and 27 below. Many potential alignments of the SID were tested in the development of the preferred option (including testing the impact of different procedure design limiting speeds for the initial turn.) The procedure design criteria for replicating the Noise Abatement Procedures dictate the location of the first (turning) waypoint and the objective to avoid overflight of B-o-C dictates the procedure design speed and the "amount" of turn that is needed. The location of the "Osea" waypoint was then an iterative process taking into account the controlled airspace boundaries and base levels, expected climb performance of departing aircraft, and reference to various Ordnance Survey Maps (1:2500 Scale), Google Earth underlay and the specialist procedure design tools to determine, on balance, the most effective tracks inbound to and outbound from the "Osea" waypoint. To the north-east of the "Osea" waypoint we considered it important that nominal flight path should be over the Blackwater Estuary as far as possible rather than over the conurbations of either Tollesbury, West and East Mersea, and Brightlingsea for a more northerly track or Steeple, St Lawrence, Bradwell-on-Sea and Point Clear for a more southerly track. To the south of the "Osea" waypoint the size and dispositions of the conurbations of Althorne, Southminster, Mayland, Maylandsea, Steeple, St Lawrence and Ramsay Island were all given due consideration and a careful balance struck in determining the most appropriate alignment for the SID nominal track.

	Issue	LSA Comment
27	<u>Rwy 05 CLN & LAM SIDs, Rwy 23 CLN SID</u> Support the aims of concentration on the fewest number of routes, minimising the number of people overflown and reduction in overflight of B-o-C. But object to the routes as proposed. The impact of routes on tranquillity should be taken into account. Overflight of tranquil areas has the potential to impact adversely on the tourism economy. No reference to any supporting evidence on the expected impact on tranquillity of the proposed routes. No indication of likely impact to local residents. Some consultee Councils did not wish to see low flying aircraft over their Districts, which they considered should be tranquil areas.	The DfT Guidance on the environmental objectives of procedure design addresses the subject of tranquillity and acknowledges that there is growing pressure to protect and preserve tranquil areas. It suggests that whenever practicable and in line with the stated priorities, tranquillity should be taken into account. However, the thrust of the priorities stated in the DfT Guidance is that below 4000ft the emphasis must be on minimising the noise impact to people on the ground and to avoid overflight of densely populated areas. From 4000ft to 7000ft the focus should still be on minimising the impact of noise on densely populated areas but this should be balanced by the need for an efficient and expeditious flow of air traffic. Only <u>where possible</u> below 7000ft should overflight of AONBs and National Parks be avoided. (The Dengie attracts neither of these designations.) LSA acknowledges the tranquillity of the Dengie Peninsular and its importance to the local communities, but has also given weight to the higher population-based priorities of the Government Guidance. The Consultation Documentation provided information on the current and expected future utilisation of each departure route. See also Items 4, 24, 25, and 26 above.

	Issue	LSA Comment
28	Rwy 05 SIDs Welcome improved repeatability of SIDs but this places an increased importance that tracks should be absolutely optimised to avoid overflight of B-o-C. The proposed routes still seem to leave substantial overflight of B-o-C.	We believe we have optimised the proposed SIDs, taking account of the ICAO Procedure design criteria and the CAA regulatory requirements to avoid direct overflight of B-o-C to the greatest extent practicable. We will continue to monitor the tracks of departing aircraft once the SIDs are introduced to ensure that they actually meet the environmental objectives set out.
29	Rwy 05 SIDs Noise levels from aircraft overflying B-o-C are greatest in the Summer seasonal peak period and the greatest noise comes from older aircraft which are used more during the Summer period. Further mitigation measures are urgently required to reduce noise impact on B-o-C.	LSA cannot specify which aircraft types our airline operators must, or must not, use. Similarly, our airline operators tailor their scheduling to reflect public demand for flights, which is greatest in the Summer period. This is not a factor in the SIDs design or operation.
30	Rwy 05 CLN The tactical routing that has been in use since April 2015 has not substantially reduced overflight of B-o-C. Most overflight of B-o-C is below 3000ft.	The tactical routing applied by ATC comprises a radar heading that the aircraft takes up on completion of the Noise Abatement Procedure. Where the aircraft "rolls-out" of the initial turn and takes up the radar heading is not as repeatable as for a SID procedure where specific nominal ground tracks are detailed in the procedure. We expect that the SID procedure will more consistently avoid direct overflight of B-o-C and will be monitoring both track keeping performance and climb performance of departing aircraft.

	Issue	LSA Comment
31	<u>Rwy 05 CLN & LAM; Rwy 23 CLN</u> Accepted that the vertical constraints in the SIDs represent the "worst case" scenario, but no indication is given as to what proportion of departing aircraft will be held down at low level or where aircraft may be able to begin their climb.	No departing aircraft will remain at 3000ft amsl until the end of the SID. ATC has a duty to ensure that aircraft are retained within controlled airspace, thus clearance to climb above 3000ft amsl must be given to ensure that aircraft climb into controlled airspace where the base level is higher than 2500ft amsl. Most departing aircraft on these routes will be given clearance to climb above 3000ft amsl shortly after take-off and before they reach the 3000ft amsl point, so they will, in fact, be able to climb continuously without levelling at 3000ft amsl. It is not possible to state a percentage as the traffic conditions vary from day-to-day. Others may level off for a short period at 3000ft amsl, but the receiving LTC Sector controller's objective is always to get aircraft climbing as quickly as possible into the LTMA route network.
32	<u>Rwy 05 CLN SID</u> Object to re-routing departures over Dengie. Currently most flights route between Burnham and Southminster and this route should be retained. Revised routing should be to the east, along the River Crouch instead of north. Blackwater Estuary has many nature designated areas.	A SID routing eastwards along the River Crouch before turning towards CLN is not feasible due to the new arrival procedures to LCY which are offshore and along the Thames Estuary and also the offshore arrival route and holding pattern for LSA arrivals. These overlying procedures would preclude climb clearance for LSA departures for a considerable distance thereby increasing fuel burn and CO_2 emissions. Furthermore, the CAA did not grant the full controlled airspace configuration that LSA requested in the previous consultation and so such a routing below the arrival routes noted above would lie outside controlled airspace. Similarly, a routing aligned between Burnham-on-Crouch and Southminster would result in aircraft leaving controlled airspace when flying beneath the LSA offshore holding pattern and arrival route and, equally, delaying climb clearance. Since the introduction of the LAMP Phase 1a airspace changes in the LTMA in February 2016 some departing aircraft have been tactically routed to the north in order to deconflict them from arriving traffic from the east. We have also noted that most have been given direct climb clearance without having to level off at 3000ft amsl.

	Issue	LSA Comment
33	<u>Rwy 05 LAM & CLN SIDs</u> Object to adverse impact on Asheldham and Dengie residents. Moving routes away from populated areas is likely to increase annoyance in isolated rural areas where there is less background noise.	See previous Items. Aligning routes away from the most heavily populated areas is in accordance with DfT guidance.
34	<u>Rwy 05 CLN SID</u> Seek information on how the SID altitude restriction affects conflicts between CAT flights and private flights in the Maldon area. How have the interests of private aircraft been taken into account?	Private flights (light aircraft) are allowed access to controlled airspace on request and must comply with ATC instructions whilst within the airspace. This provides a "known and managed" traffic environment which enables ATC to manage the airspace efficiently and reduce conflict between the various airspace users with the minimum of disruption to their intended operation. As noted in the Consultation document and earlier in this Tabulation, the ATC objective is to get departing CAT aircraft climbing into the LTMA route network as soon as practicable and it is anticipated that very few CAT flights will actually be held down to 3000ft amsl. LSA is aware of the many light aircraft operating sites to the north of LSA. Indeed a number of them are within the LSA controlled airspace and Letters of Agreement are in place to facilitate their operations. To date, there have been no refusals of service to light aircraft pilots wishing to operate in the north-eastern part of the LSA controlled airspace that can be specifically attributable to departing CAT flights. We expect our good working relationship with the local light aircraft operators to continue.

	Issue	LSA Comment
35	<u>Rwy 23 CLN SID</u> The proposed route is to the north of the existing route and is closer to the consultee village. The route should turn to the east and follow the River Crouch instead of further north or, alternatively should turn left and follow the Thames Estuary.	The proposed SID has been designed to minimise overflight of communities as far as is practicable within the procedure design criteria that must be applied. It is not feasible to design a route which turns eastwards instead of north-eastwards because it would affect a greater number of people at low altitude and would cross the arrival flight path to runway 23 in the vicinity of Burnham-on Crouch. It would also take aircraft outside controlled airspace to the east and the overlying arrival procedures to LCY and LSA would delay climb clearance being given by ATC. It would result in departing aircraft transiting through arrival Sectors in LTC airspace, which would not allow the most effective and efficient use of the available airspace. Similarly, routing eastwards along the Thames Estuary would be in direct conflict (head-on) with the LCY arrival routes and climb clearance would be substantially delayed, resulting in greater fuel burn and CO_2 emissions. Since the introduction of the LAMP Phase 1a airspace arrangements in the LTMA in February 2016, our monitoring of the climb profile of departing aircraft via CLN shows that most aircraft pass to the south of the community concerned at altitudes in excess of 4000ft amsl.
36	<u>Rwy 23 EKNIV SID</u> Recommend that LSA should acknowledge the COMAH site located on Canvey Island and highlight to what extent LSA have considered the potential hazards.	None of the SID procedure nominal tracks overflies the COMAH site on Canvey Island, although the outer boundary of the worst-case RNAV1 navigational tolerance for the EKNIV SID just impinges on the eastern boundary of the site. Only an exceptionally slowly climbing aircraft (which had not reached 1500ft before the turning waypoint) would continue straight ahead towards the site in order to comply with the Airport Noise Abatement Procedures. The COMAH site attracts no airspace hazard status and overflight is not prohibited or restricted in any way by airspace regulations.

	Issue	LSA Comment
37	Rwy 23 EKNIV SID SID passes directly over village at lower altitude than the arrivals which previously overflew.	The community concerned lies 1NM to the east of the nominal SID track and thus, given the accuracy of Performance-Based Navigation (PBN), should seldom be directly overflown by aircraft which have not climbed above the SID altitude or been given a more direct routing by LTC. Given the more efficient use of the LTMA airspace as a whole under the LAMP airspace arrangements which were introduced in February 2016, it is anticipated that the majority of departing aircraft would be above 4000ft when passing to the west of the community concerned. It should be noted that LSA will continue to monitor both track-keeping performance and climb profiles of departing aircraft after introduction of the SID procedures.
38	Rwy 23 EKNIV SID The SID overflies new population to the west of the current flight path. The SID should be a refinement of the PDR, not a new route. Also the SID results in concentration rather than dispersion of current operation, which exacerbates situation	Alignment of SID cannot replicate Thames Gate tactical routing due to the Yantlett Danger Area and the Grain Gas Venting Stations (GVS). It is not possible to replicate random dispersion of Thames Gate operation (not a PDR) by regularised SID design and operation.
39	Rwy 23 EKNIV SID Climb profile of departures on SID not as good as currently demonstrated. 3000ft to EKNIV. Previous climb profiles should be maintained	The Thames Gate operation was initially limited to 3000ft amsl until cleared higher by LTC. The SIDs upper limit of 3000ft is constrained by new arrival procedures to LCY, as detailed in the Consultation Document. Most aircraft should be given clearance above 3000ft amsl by MCS08 (north of the A228), or earlier if there is no conflicting LCY arrival.

	Issue	LSA Comment
40	<u>Rwy 23 EKNIV SID</u> Object to aircraft being held down to 3000ft against LCY traffic when they would normally be higher. Overflies large areas of environmentally sensitive and designated land and leisure facilities. SIDs should allow better control of flights across the Hoo peninsular and avoiding the village.	As explained in the Consultation document, the limit of 3000ft amsl placed on the SID procedure by design is a procedural safety requirement to ensure separation against other aircraft flight paths. On any occasion when there is not an actual aircraft in conflict then the departing aircraft would be given continuous climb clearance, normally before it reaches 3000ft amsl. One of the two communities who raised similar comments lies more than 1NM to the east of the SID nominal track and outside the "worst case" navigation tolerance for RNAV1 operations. The other lies 4NM to the west of the nominal track. Given the accuracy of PBN neither community should be directly overflown by departing flights.
41	<u>Rwy 23 EKNIV SID</u> A number of consultees objected to overflight of RAMSAR sites and SSSIs on the Hoo Peninsular.	LSA is aware of the environmentally sensitive land designations widely applied across the Hoo peninsular. However, the area attracts no airspace avoidance status and is not listed in the UK AIP as a bird sanctuary. LSA thanks, in particular, Natural England who provided comprehensive advice on Habitat Regulations Assessment, which will assist in the development of the ACP to be submitted to the CAA.
42	<u>Rwy 23 EKNIV SID</u> The SID overflies Kingsnorth Power Station, Medway microlight training centre and Solar farms. How has this been addressed in environmental study?	Kingsnorth attracts no airspace hazard designation (unlike the DA and GVS to the north-east). Solar farms do not attract any airspace hazard status. Therefore both have no impact on flight operations. Airspace arrangements are in place to accommodate the operation of microlight aircraft from Stoke aerodrome.

	Issue	LSA Comment
43	Rwy 05 EMKAD SID Aircraft departing from Rwy 05 overfly the Wallasea Island Wild Coast Project. We recommend that LSA monitor bird concentrations and migration paths and modify the SIDs if there is a conflict.	LSA is aware of the RSPB Wallasea Project. The nominal SID track lies close to the western corner of the site but does not directly overfly the Island. Wallasea Island attracts no airspace avoidance status and is not listed in the UK AIP as a Bird Sanctuary.
44	Rwy 23 EKNIV & Rwy 05 EMKAD SIDs LSA should monitor noise complaints from the North Kent area. Although a reduced overall area will be overflown, the concentration flights through more precise navigation may cause annoyance. This Council prefers sharing overflight on a more equitable basis through dispersal of flight paths with predictable respite.	LSA will continue to monitor flight paths of departing LSA traffic within the extent of the Airport's NTK equipment. However, it must be acknowledged that LSA flights will continue to represent only a small proportion of flights overflying the Kent AONB - the majority will be departures from LCY, albeit generally higher than the LSA traffic. Also, once under the jurisdiction of LTC, which will normally be before crossing the north Kent coast, and climbing to higher levels, aircraft may be re-routed by LTC on more direct tracks to their destinations. This is likely to result in a natural dispersion of traffic through the AONB area much the same as today.
45	Rwy 23 EKNIV & Rwy 05 EMKAD SIDs Overflight of the Kent Downs AONB should be monitored to ensure that the changes to departure procedures do not adversely affect the tranquillity of this area.	See item 44 above
46	Rwy 23 EKNIV & Rwy 05 EMKAD SIDs Do not wish to see any changes that would increase flights over the north Kent area. Already very busy with overflights from Heathrow and Gatwick.	The growth of air traffic at LSA was approved some years ago by the appropriate LPAs and is not conditional on the introduction of SID procedures. The SIDs do not increase the potential traffic growth that has already been approved.

	Issue	LSA Comment
47	<u>Rwy 05 EMKAD SID</u> Object to lower height limit applied to the SID. 3000ft limit is too low over the Isle of Sheppey. Significant noise problems for Sheerness, particularly at night. The previous arrangement with flights crossing at 5000ft worked well. Foresee potential problems with LCY arrivals at 4000ft. Clarification needed as to whether LSA departures will climb to 5000ft above LCY arrivals.	The new LCY arrival route for the LAMP Phase 1a airspace arrangements follows the Thames Estuary (approximately mid-way between Sheppey and Shoeburyness) descending from 6000ft to 4000ft. In addition, this procedure includes a holding pattern "ATPEV" at which LTC can hold arriving aircraft at short notice at 4000ft, 5000ft and 6000ft, should a problem arise at LCY itself. Thus a procedural upper limit of 3000ft must be built into the LSA SID to resolve the procedural conflict. There is, as noted, insufficient airspace to the north of the LCY arrival flight path for a LSA departure to climb above (to 7000ft) the LCY arrival procedure. However, a departing LSA flight would only be held down to 3000ft when there is an actual LCY arriving flight on the arrival procedure in conflict. If there is no conflicting LCY arrival then the LSA departure would be given direct climb clearance above 3000ft by LTC controllers. However, for flight safety reasons the 3000ft limit must be built in to the standard procedure.
48	<u>Rwy 05 EMKAD SID</u> Concern about noise and pollution from aircraft overflying tourist beaches.	The community concerned is approximately 4.5NM east of the nominal SID flight path and therefore should not be overflown by aircraft departing from LSA unless they have been given climb clearance to higher levels and been tactically re-routed by LTC towards their destination. In the latter case, a departing aircraft would be expected to have reached at least 5000ft by the locality concerned.