Airspace Change Proposal
Stage 2a

London Southend Airport Design Principle Evaluation - Annex

London Southend Airport FASI(S)

ACP-2018-90

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Version	Date	Description of Changes
Version 1	09/11/2022	
Version 1.1	03/11/2023	All changes and updates from Version 1 are in blue text. • Pie charts removed as deemed unnecessary (question was did the stakeholder agree with the assessment or not – yes/ no answer, and provided no useful information) • Two additional options added D23-NE-E and A05-SE-H • Redefined baselines added as standalone options. • Options that previously contained the baseline amended • All options checked and reassessed against the redefined baseline. • Essex County Council feedback added and addressed from 1st round of engagement. • Extra column added in DPE tables to show the RAG score pre feedback (Initial Eval.) to illustrate where feedback has influenced the changes. • Where the RAG score has changed with no feedback evident – justification provided. • Name of organisation who made each comment added for transparency. • RAG scores and feedback assessments checked for consistency and amended where necessary

Executive Summary

This document is the Annex to the report titled 'Stage 2A Options Development and Design Principle Evaluation', which can be found on the ACP Portal. It contains the Detailed Design Principle Evaluation for London Southend Airport's (LSA) Future Airspace Implementation (South) FASI(S) Airspace Change Proposal (ACP) Stage 2 and associated stakeholder feedback.

A summarised version of this assessment is contained within the main document, with detailed descriptions of the methodology and process applied.

Abbreviations

ACP	Airspace Change Proposal
AONB	Area Outstanding Natural Beauty
ATC	Air Traffic Control
BKY	Barkway
BPK	Brookmans Park
CLN	Clacton
CPT	Compton
DA	Danger Area
DET	Detling
DP	Design Principle
FASI(S)	Future Airspace Implementation South
IFP	Instrument Flight Procedure
LAM	Lambourne
LAMP	London Airspace Management Programme
LSA	London Southend Airport
LTMA	London Terminal Manoeuvring Area
MoD	Ministry of Defence
NERL	NATS (En-route) Ltd
NTK	Noise and Track Keeping
RNAV	Area Navigation
RNP	Required Navigation Performance

RSPB	The Royal Society of the Protection of Birds
SPA	Special Protection Area
VOR	Very High Frequency Omni-Directional Range

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1. Introduction

1.1. Design Principle Assessment Document

This document forms the Annex to the report titled 'Stage 2A Options Development and Design Principle Evaluation', which can be found on the ACP Portal. It contains the Detailed Design Principle Evaluation for London Southend Airports FASI(S) Airspace Change Proposal (ACP) and associated stakeholder feedback.

A summarised version of this assessment is contained within the main document, with detailed descriptions of the methodology and process applied.

Feedback

The textual feedback is presented within each section. The stakeholder comments are copied in their entirety with our responses in **BOLD**.

In addition to the comments in the document, we received one response in the survey from Biggin Hill Airport which addressed all the options we presented. This is copied below:

'This response applies to all departure and arrival routes. Biggin Hill Airport believe that it will be possible for all design principles to be applied to the routes which are established within each swathe. We look forward to further engagement, during the consultation, to explore and resolve any route options with possible interactions which will impact the Biggin Hill Airport route options development.'

LSA thanks Biggin Hill Airport for their feedback and looks forward to engaging with them throughout this ACP process.

2. Departures Runway 05 - Northeast

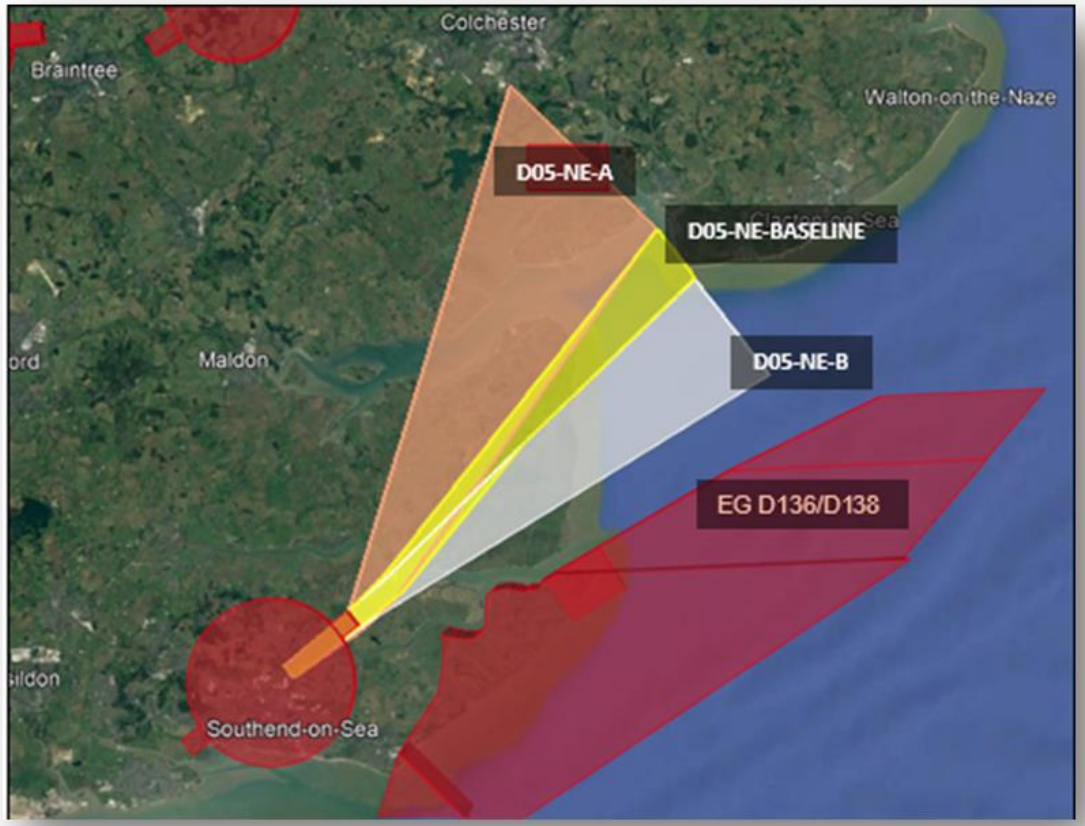

Figure 1: Departure Options Runway 05 - Northeast

2.1. Option **D05-NE-BASELINE**

D05-NE-BASELINE	Design Principle	Qualitative Assessment	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	Assessed as green due to being today's operation and the current baseline.	
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Assessed as green due to being today's operation and the current baseline.	
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Assessed as green due to being today's operation and the current baseline.	
4	**Tranquillity** - Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Assessed as green due to being today's operation and the current baseline.	
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Assessed as green due to being today's operation and the current baseline.	
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Assessed as green due to being today's operation and the current baseline.	
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	Assessed as green due to being today's operation and the current baseline.	
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Assessed as green due to being today's operation and the current baseline.	
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by a IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.	
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Assessed as green due to being today's operation and the current baseline.	
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Assessed as green due to being today's operation and the current baseline.	
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.	
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.	

Table 1: Option D05-NE-BASELINE DP Assessment

2.2. Option **D05-NE-A**

Survey Question

'DEPARTURES Runway 05 - Northeast

Do you think we have correctly applied the Design Principles to swathe **D05-NE-A**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Six respondents agreed that the Design Principles had been correctly applied. Other responses are shown below:

Stakeholder feedback with our responses in **BOLD.**

Riveroak Strategic Partners (Manston Airport)

'DP2/DP3 swathe appears to include Southminster so should be assessed same as D05-NE-B. Also appears to include Burnham-on-Crouch, which appears larger than Southminster.'

LSA agree and we have included the additional areas in our assessment of DP2 and DP3 and changed the RAG score from green to amber.

NATS (NERL)

'No; Swathe A indicates that it would overfly the holiday park at Mersea Island, this is incorrectly captured in the table below.'

LSA agree and we have removed Mersea Island from our assessment of DP2 and DP3 and changed the RAG score from green to amber.

Barling Parish Councillor

'No; the departure DO5 NE-A Aircraft should be encouraged to have a maximum gradient of climb, utilising maximum performance, ensuring thrust reduction altitude is at 1500' and acceleration altitude is 3,000'or preferably 4,000 which will then ensure a minimum noise impact on Great Stambridge, aircraft are then to be kept mid-way between Ashingdon and Canewdon avoiding the major population areas of these villages, and being at the base of London airspace by the river Crouch, reducing the noise footprint at Burnham. How does the current proposal meet (Design principle 9, page 4 of the presentation). DP9. The current actual green lines take aircraft over the populated areas of the area which is unnecessary however with the reduction of VOR and increased RNP the requirement to route to CLN will be reduced allowing a more varied departure routing and aircraft to be higher when over local villages.'

This is welcome feedback from our stakeholder, however the detail given at this stage of the process is more in depth than the current assessment we are carrying out. Further in the ACP process, at CAP1616 Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Natural England

'No, 3,4,5 – Flight path is over Crouch and Roach Estuaries SPA and Ramsar site, Blackwater Estuary SPA and Ramsar, Essex Estuaries SAC, Colne Estuary SPA and Ramsar, and Dengie SPA and Ramsar which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants'.

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4, but this hasn't changed the RAG score.

Private Pilot

'No; Looking at runway 05 NE-A DP4 have 5 possible conflict areas, with a bit of tweaking and use of RNP (RNAV) positions the overflight of populated areas 2,3 and the bird sanctuary 5 could be completely avoided, certainly the aircraft could be a lot higher overpopulated areas if departure option 2 described above is stated in the text on the departure routes. Aircraft then don't have to follow the green tracks to CLN before turning. TUGPO TRIPO then enroute could be the solution. Overflight of the bird sanctuary at Wallasea could easily be at or above 6,000' if departure option 2 described above would be stated.'

This is welcome feedback from our Stakeholder, however the detail given at this stage of the process is more in depth than the current assessment we are carrying out. Further in the ACP process, at CAP1616 Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Essex County Council

NE – A and B – The table provides an amber RAG rating for DP 4 – Tranquillity. It would appear that the A and B routes have been scored because of conflict with a sensitive area. The map and any information outlined in the booklet gives very little detail on the precise nature of the sensitive areas that are analysed beyond the Shoeburyness Danger Area. ECC considers that there are sites that may be considered sensitive areas (e.g. environmentally sensitive, noise sensitive schools, independent living accommodation etc), and these should be clearly identified and understood. Furthermore, the table should provide a brief overview to justify the rating, so that all partners are aware of why a specific rating has been applied. This will assist future review and ensure that the process is clear, logical and transparent for partners.

DP10 – Systemisation - Similarly to the comments set out above the table scores this as amber with 'possible conflict' as the justification. In reviewing this table, it is recommended if the justification could provide a clear understanding of the conflict or systemisation issues that may arise, so that all partners are aware.

DP2 – Overflight and DP3 – Noise Footprint – ECC notes that NE – A is scored green on the table, while NE- B is scored red. Route A seems to follow a somewhat similar route in close proximity to the airport, and where there are more built-up conurbations within Rochford, Southend and the southern parts of the Maldon district. ECC welcomes further elaboration of the ratings to ensure a full understanding of the scoring.

LSA agree and we have amended our assessment of DP2 and DP3 and provided textual justification across all of the DPs, especially when the RAG score has changed. Further, more detailed, analysis of noise sensitive sites such as schools, independent living accommodation etc. will be conducted at CAP1616 Stage 3 when we have a clearer understanding of where the final tracks may lie.

Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

D05-NE-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Depending on the placement of final routes, this option could see an increase in people overflown: the overflight of built-up areas - Southminster, Parkdean Holiday Park, Mersea Island, Burnham-on-Crouch, to name a few. This would be an increase from today's operation, which sees traffic route down the middle of D05-NE-A and D05-NE-B. A level of dispersion would mean overflights are shared across areas. RAG score changed from green to amber following stakeholder feedback.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Depending on the placement of final routes, this option could see an increase in people overflown. The overflight of built-up areas - Southminster, Parkdean Holiday Park, Mersea Island, Burnham-on-Crouch, to name a few. This would be an increase from today's operation, which sees traffic route down the middle of D05-NE-A and D05-NE-B. The opportunity to build-in periods of respite could help mitigate the increase in overflight. RAG score changed from green to amber following stakeholder feedback.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Overflight of Wallasea Island, Crouch & Roach Estuaries SPA, Blackwater Estuary SPA and Ramsar, Essex Estuaries SAC, Colne Estuary SPA and Dengie SPA. Further work would need to be done to establish the impact should this option be carried forward.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Minimal difference from today's baseline operation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Minimal difference from today's baseline operation.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new volume of controlled airspace would be required.		

D05-NE-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Minimal difference from today's baseline operation.		
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by a IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Possible conflict with departures from this swathe interacting with arrival traffic on arrival swathe A05-SE-G should both options be considered.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Minimal difference from today's baseline operation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 2: Option D05-NE-A DP Assessment

2.3. Option **D05-NE-B**

Survey Question

'DEPARTURES Runway 05 – Northeast.

Do you think we have correctly applied the Design Principles to swathe **D05-NE-B**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Seven respondents thought that we had correctly applied the Design Principles.

Stakeholder feedback with our responses in **BOLD**.

Riveroak Strategic Partners (Manston Airport)

'DP2/DP3 swathe includes Burnham-on-Crouch, which appears larger than Southminster, should be considered also.'

LSA agree and we have included the additional areas in our assessment of DP2 and DP3.

NATS (NERL)

'No; Swathe B indicates that it would not overfly the holiday park at Mersea Island, this is incorrectly captured in the table below:'

LSA agree, and we have removed Mersea Island from our assessment of DP2 and DP3.

Barling Parish Councillor

'No; the departure DO5 NE-B Aircraft should be encouraged to have a maximum gradient of climb, utilising maximum performance, ensuring thrust reduction altitude is at 1500' and acceleration altitude is 3,000'or preferably 4,000 which will then ensure a minimum noise impact on the villages of Great Stambridge Paglesham ,improving the importance of safety by ensuring aircraft are significantly above the major hazard of the increased number of birds around the RSPB Wallesea Island area. Not below 4000 on reaching the river crouch or increase the base of the Southend Class D airspace to allow reduction of the noise footprint at Burnham. How does the current proposal meet DP9. The current actual green lines take aircraft over the populated areas of the area, which is unnecessary, however with the reduction of VOR and increased RNP the requirement to route to CLN will be reduced allowing a more varied departure routing and aircraft to be higher when over local villages.'

This is welcome feedback from our stakeholder, however the detail given at this stage of the process is more in depth than the current assessment we are carrying out. Further in the ACP process, at CAP1616 Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Natural England

'No; 3,4,5 – Flight path is over Crouch and Roach Estuaries SPA and Ramsar site, Essex Estuaries SAC, Colne Estuary SPA and Ramsar, and Dengie SPA and Ramsar which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4, but this hasn't changed the RAG score.

Private Pilot

'No; Departure D05 NE B DP2 2 areas DP3 3 areas and DP10 possible conflict 4, this option would be a less noise sensitive option if aircraft were allowed to climb and the use of RNP positions away from built up areas which in modern aircraft technology is easy and these areas could be avoided, and acceleration of aircraft was restricted to above 3500' and stated in the departure text'

Where applicable we have addressed and included these comments in the assessment. Further in the ACP process, at Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Essex County Council

NE – A and B – The table provides an amber RAG rating for DP 4 – Tranquillity. It would appear that the A and B routes have been scored because of conflict with a sensitive area. The map and any information outlined in the booklet gives very little detail on the precise nature of the sensitive areas that are analysed beyond the Shoeburyness Danger Area. ECC considers that there are sites that may be considered sensitive areas (e.g. environmentally sensitive, noise sensitive schools, independent living accommodation etc.), and these should be clearly identified and understood. Furthermore the table should provide a brief overview to justify the rating, so that all partners are aware of why a specific rating has been applied. This will assist future review and ensure that the process is clear, logical and transparent for partners.

DP10 – Systemisation - Similarly to the comments set out above the table scores this as amber with 'possible conflict' as the justification. In reviewing this table, it is recommended if the justification could provide a clear understanding of the conflict or systemisation issues that may arise, so that all partners are aware.

DP2 – Overflight and DP3 – Noise Footprint – ECC notes that NE – A is scored green on the table, while NE- B is scored red. Route A seems to follow a somewhat similar route in close proximity to the airport, and where there are more built-up conurbations within Rochford, Southend and the southern parts of the Maldon district. ECC welcomes further elaboration of the ratings to ensure a full understanding of the scoring.

LSA agree and we have amended our assessment of DP2 and DP3 provided textual justification across all of the DPs, especially when the RAG score has changed. Further, more detailed, analysis of noise sensitive sites such as schools, independent living accommodation etc. will be conducted at Stage 3 when we have a clearer understanding of where the final tracks may lie.

Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

D05-NE-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Depending on the placement of final routes, this option could see a reduction in people overflown. Overflight of built-up areas – Southminster and Burnham-on-Crouch. A level of dispersion would mean overflights are shared across areas. **The decision has been made post the initial evaluation to amend the RAG score.**		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Depending on the placement of final routes and this option could see a reduction in people overflown. Overflight of built-up areas – Southminster and Burnham-on-Crouch. The opportunity to build-in periods of respite could help mitigate the overflight of these areas. **The decision has been made post the initial evaluation to amend the RAG score.**		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Overflight of Wallasea Island, Crouch & Roach Estuaries SPA and Ramsar site, Essex Estuaries SAC, Colne Estuary SPA and Ramsar and Dengie SPA and Ramsar, which could have impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Minimal difference from today's baseline operation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Minimal difference from today's baseline operation.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new volume of controlled airspace would be required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Minimal difference from today's baseline operation.		

D05-NE-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Possible conflict with departures from this swathe interacting with arrival traffic on arrival swathe A05-SE-G should both options be considered.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Minimal difference from today's baseline operation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 3: Option D05-NE-B DP Assessment

3. Departures Runway 05 – Northwest

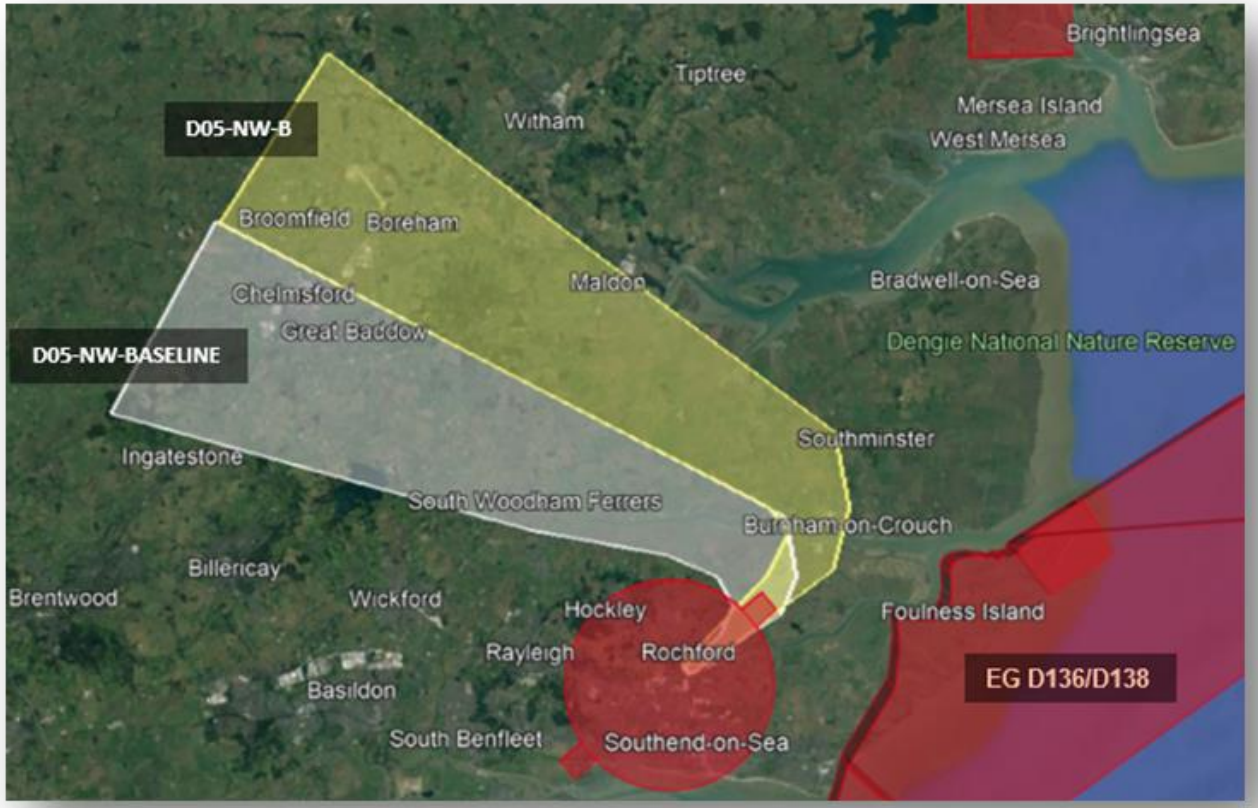

Figure 2: Departure Options Runway 05 - Northwest

3.1. Option **D05-NW-BASELINE/ D05-NW-A**

Survey Question

'DEPARTURES Runway 05 – Northwest.

Do you think we have correctly applied the Design Principles to swathe **D05-NW-A**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Eight responses stated that we had correctly applied the Design Principles.

Other stakeholder feedback with our responses in **BOLD:**

Barling Parish Councillor

'No; DO5 NWA Aircraft should be encouraged to have a maximum gradient of climb, utilising maximum performance, ensuring thrust reduction altitude is at 1500' and acceleration altitude is 3,000'or preferably 4,000 and allowed unrestricted climb to be above 5,000' by the river crouch, avoiding all built up areas, by at 400' turning to follow the river roach until clear of Great Stambridge then turning north until above 5000' and east abeam canewdon before turning northwest. How does the current proposal meet DP9. The current actual green lines take aircraft over the populated areas of the area which is unnecessary however with the reduction of VOR and increased RNP the requirement to route to LAM or BPK will be reduced allowing a more varied departure routing and aircraft to be higher when over local villages.'

This is welcome feedback from our stakeholder, however the detail given at this stage of the process is more in depth than the current assessment we are carrying out. Further in the ACP process, at Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

MAG (London Stansted Airport)

'No; DP10 - Systemisation. Conflict with both current and future London Stansted (STN) departures to the East and South. Level restrictions or Air Traffic Control (ATC) intervention will be required to ensure separation. Potential conflict with future STN Arrivals depending on position and type of the agreed holding facility with NERL. DP 12 – AMS Realisation – STN note the highlighted constraint as Shoeburyness Range, however we would expect the location and potential operations of other airports to be noted as either a constraint or a material consideration to align with the AMS. In both cases STN would like to gain an understanding of the altitude to which the swathes extend to and work with SEN to resolve interactions.'

LSA have included London Stansted Airport's comments in our assessment of DP10, however based on this being our baseline option and no different to today's operation, the RAG score is assessed as green.

Natural England

'No; 3,4,5 – Flight path is over Crouch & Roach Estuaries SPA and Ramsar site which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4, but this hasn't changed the RAG score.

Private Pilot

'D05 NW A is right overhead one of the most densely populated areas around the airport and if projected house building is turned into houses being built will lead to more noise complaints, also with the removal of the VOR LAM, BPK, BKY, CPT in the relative near future this will allow aircraft to be more efficient and produce less CO2 on departure. NWA is less preferred than NWB and NWB could be made more efficient by the use of RNP positions away from Ashingdon, Hockley etc.'

Where applicable we have addressed and included these comments in the assessment. Further in the ACP process, at Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Essex County Council

ECC notes that DP2 entitled overflight states that "the New Procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered". The analysis of the impact for runway 05 – North-West highlights NW-B as amber due to "different communities, possibly at lower level". ECC questions the application of DP2, as this justification does not demonstrate whether there has been increase in persons overflown, which is the purpose of the DP2. From the brief justification text, it is considered that the weight to legacy routes is something that is being assessed within DP2, which is not the purpose of DP2. ECC does consider that within the analysis due consideration should be given to legacy routes, and therefore following this exercise a review of the precise wording for the Design Principles may be required prior to advancing to the next stage in the CAP1616 process.

ECC notes that NW-B is scoring DP3 entitled Noise Footprint as amber. The justification wording may be unclear for some partners, but ECC is interpreting this as because flights may be at a lower altitude this may increase the noise footprint, and hence justify the amber scoring.

NW-A scores DP4 as amber while DP4 (tranquillity) for NW-B is green. ECC considers that the information presented does not clearly allow for an appreciation of the impact on sensitive areas. Our overarching response highlights some of the sensitive areas that should be considered when reviewing the impact of airspace route changes, and it is welcomed that the justification demonstrates a review of such information and then appropriate RAG score given with a supporting justification.

ECC notes that for both NW- A and NW-B DP10 is scored as amber, and for all partners to readily understand the justification further information is required.

LSA have provided textual justification across all of the DPs, especially when the RAG score has changed. Further, more detailed, analysis of noise sensitive sites such as schools, independent living accommodation etc. will be conducted at Stage 3 when we have a clearer understanding of where the final tracks may lie.

Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

D05-NW-BASELINE	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	Assessed as green due to being today's operation and the current baseline.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Current departures to the Northwest route within this swathe, however there are future house building projects in this area which could lead to an increase in people overflown and noise. Some dispersal could help with sharing this impact across the area. Based on this being our baseline 'Do-minimum' option and true of today's operation the RAG score remains green.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Current departures to the Northwest route within this swathe, however there are future house building projects in this area which could lead to an increase in people overflown and noise. The opportunity to build-in periods of respite could help mitigate the effects of the increase in people overflown and noise. Based on this being our baseline 'Do-minimum' option and true of today's operation the RAG score remains green.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	The Crouch Estuary SPA is overflown; however, this is true of today's operation and owing to the fact this is our baseline this DP is assessed as green.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Assessed as green due to being today's operation and the current baseline.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Assessed as green due to being today's operation and the current baseline.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	Assessed as green due to being today's operation and the current baseline.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Assessed as green due to being today's operation and the current baseline.		

D05-NW-BASELINE	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Possible conflict with LSA arrival swathes A05-NW-C & A05-NW-B. Conflict with both current and future London Stansted departures to the East & South. Preference from London Stansted to keep as amber. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward. Based on this being our baseline option and no different to today's operation the RAG score is assessed as green. RAG score amended after redefining the baseline.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Assessed as green due to being today's operation and the current baseline.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 4: Option D05-NW-BASELINE DP Assessment

3.3. Option **D05-NW-B**

Survey Question

'DEPARTURES Runway 05 – Northwest.

Do you think we have correctly applied the Design Principles to swathe **D05-NW-B**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Six responses stated that the Design Principles had been correctly applied.

Other stakeholder feedback with our responses in **BOLD.**

Riveroak Strategic Partners (Manston Airport)

'DP2/DP3 Amber for different communities possibly affected; appears inconsistent with evaluation of D05-NE-A which is green even though no/very few tracks currently overfly this area.'

LSA agree and we have amended our assessment of DP2 and DP3, but this hasn't changed the RAG score.

Barling Parish Councillor

'No; Aircraft should be encouraged to have a maximum gradient of climb, utilising maximum performance, ensuring thrust reduction altitude is at 1500' and acceleration altitude is 3,000'or preferably 4,000 which will then ensure a minimum noise impact on the villages of Great Stambridge Paglesham, improving the importance of safety by ensuring aircraft are significantly above the major hazard of the increased number of birds around the RSPB Wallesea Island area. Routing to SABRE or south of SABRE but being above 4000' on reaching the river crouch or increase the base of the Southend Class D airspace to allow reduction of the noise footprint at Burnham. How does the current proposal meet DP9. The current actual green lines take aircraft over the populated areas of the area which is unnecessary however with the reduction of VOR and increased RNP the requirement to route to LAM or BPK will be reduced allowing a more varied departure routing and aircraft to be higher when over local village.'

This feedback is welcome from our stakeholder, however the detail given at this stage of the process is more in depth than the current assessment we are carrying out. Further in the ACP process, at Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

MAG (London Stansted Airport)

'No; DP10 - Systemisation. Conflict with both current and future STN departures to the East and South. Level restrictions or ATC intervention will be required to ensure separation. Potential conflict with future STN Arrivals depending on position and type of the agreed holding facility with NERL. DP 12 – AMS Realisation - STN note the highlighted constraint as Shoeburyness Range, however we would expect the location and potential operations of other airports to be noted as either a constraint or a material consideration to align with the AMS. In both cases STN would like to gain an understanding of the altitude to which the swathes extend to and work with SEN to resolve interactions.'

LSA agree and we have included the comments in our assessment of DP10 and changed the RAG score from amber to red.

Natural England

'No; 3,4,5 – Flight path is over Crouch & Roach Estuaries SPA and Ramsar site which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4, but this hasn't changed the RAG score.

Private Pilot

'NWB is a better option to NWA especially if aircraft are allowed to climb unrestricted to Flight levels. Which involves coordination with London ATC, with the introduction of LAMP this should be possible.'

This is included in our assessment and reflected in the assessment of the Systemisation DP10, and the RAG score has been changed from amber to red.

Essex County Council

ECC notes that DP2 entitled overflight states that "the new procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered". The analysis of the impact for runway 05 – North-West highlights NW-B as amber due to "different communities, possibly at lower level". ECC questions the application of DP2, as this justification does not demonstrate whether there has been increase in persons overflown, which is the purpose of the DP2. From the brief justification text, it is considered that the weight to legacy routes is something that is being assessed within DP2, which is not the purpose of DP2. ECC does consider that within the analysis due consideration should be given to legacy routes, and therefore following this exercise a review of the precise wording for the Design Principles may be required prior to advancing to the next stage in the CAP1616 process.

ECC notes that NW-B is scoring DP3 entitled Noise Footprint as amber. The justification wording may be unclear for some partners, but ECC is interpreting this as because flights may be at a lower altitude this may increase the noise footprint, and hence justify the amber scoring.

NW-A scores DP4 as amber while DP4 (tranquillity) for NW-B is green. ECC considers that the information presented does not clearly allow for an appreciation of the impact on sensitive areas. Our overarching response highlights some of the sensitive areas that should be considered when reviewing the impact of airspace route changes, and it is welcomed that the justification demonstrates a review of such information and then appropriate RAG score given with a supporting justification.

ECC notes that for both NW- A and NW-B DP10 is scored as amber, and for all partners to readily understand the justification further information is required.

LSA have provided textual justification across all of the DPs, especially when the RAG score has changed. Further, more detailed, analysis of noise sensitive sites such as schools, independent living accommodation etc. will be conducted at Stage 3 when we have a clearer understanding of where the final tracks may lie.

Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

D05-NW-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Potential increase in overflight of built-up areas - Burnham-on-Crouch, for example. A level of dispersion could mean overflights are shared across areas.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Potential increase in overflight of built-up areas - Burnham-on-Crouch, for example. The opportunity to build-in respite could help mitigate the increase in overflight.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Crouch & Roach Estuaries SPA and Ramsar site would be overflown at low level as is true of today's baseline operation.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Minimal difference from today's baseline operation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Minimal difference from today's baseline operation.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new volume of controlled airspace would be required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Minimal difference from today's baseline operation.		

D05-NW-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Potential conflict with LSA arrival swathes A05-NW-C & A05-NW-B. Conflict with both current and future London Stansted departures to the East & South. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward. RAG score amended post stakeholder feedback.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Minimal difference from today's baseline operation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 5: Option D05-NW-B DP Assessment

4. Departures Runway 05 – South/ Southeast

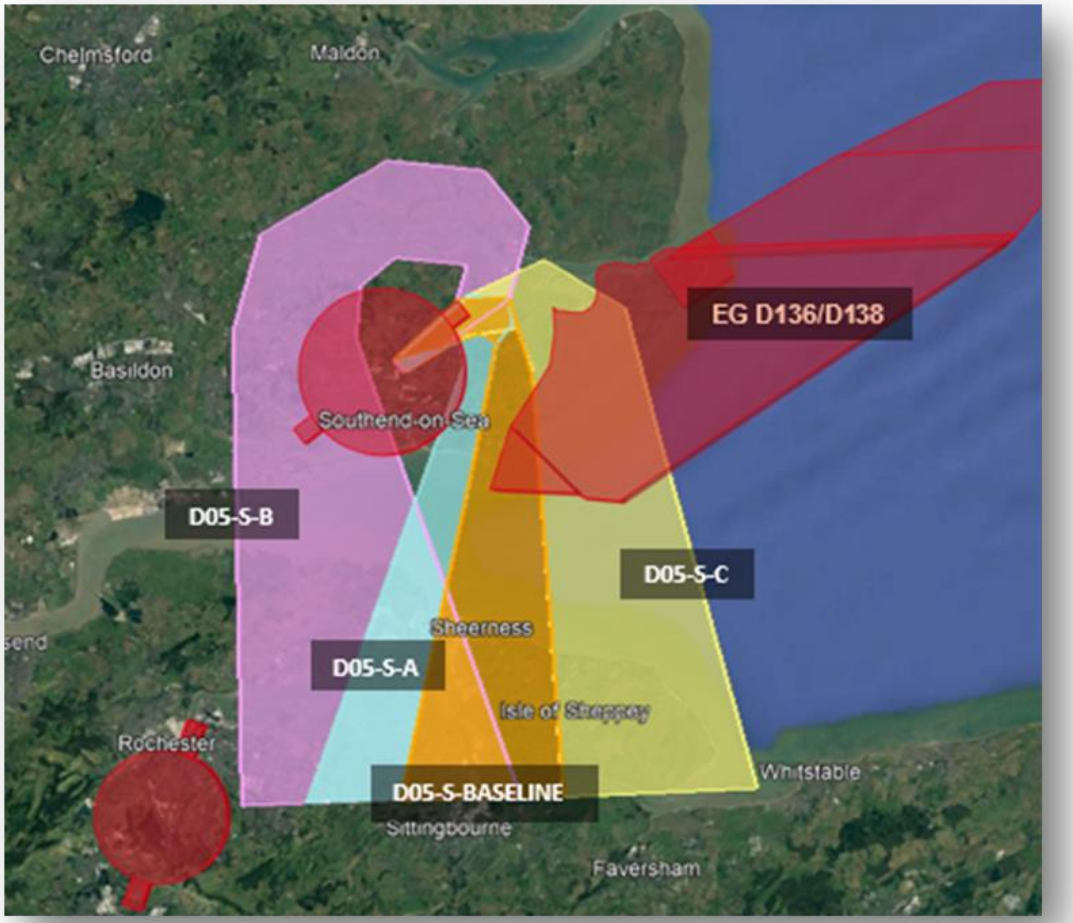

Figure 3: Departure Options Runway 05 - South/ Southeast

4.1. Option **D05-S-BASELINE**

D05-S-BASELINE	Design Principle	Qualitative Assessment	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	Assessed as green due to being today's operation and the current baseline.	
2	**Overflight**-The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Assessed as green due to being today's operation and the current baseline.	
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Assessed as green due to being today's operation and the current baseline.	
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Assessed as green due to being today's operation and the current baseline.	
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Assessed as green due to being today's operation and the current baseline.	
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Assessed as green due to being today's operation and the current baseline.	
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	Assessed as green due to being today's operation and the current baseline.	
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Assessed as green due to being today's operation and the current baseline.	
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.	
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Assessed as green due to being today's operation and the current baseline.	
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Assessed as green due to being today's operation and the current baseline.	
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.	
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.	

Table 6: Option D05-S-BASELINE DP Assessment

4.2. Option **D05-S-A**

Survey Question

'DEPARTURES Runway 05 – South/ Southeast.

Do you think we have correctly applied the Design Principles to swathe **D05-S-A**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Eight respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD**.

NATS (NERL)

'No; DP1 & DP6: Swathe A partially overlapping DA, would be limited availability;'

After redefining the parameters of Option A following the Stage 2 rework to redefine the baseline, this option's eastern edge is now further to the west and does not overlap the Shoeburyness DAs.

Barling Parish Councillor

'No; departures runway 05 South/ Southeast D05-S-A DP 2 Over flight DP 3 Noise DP 4 Tranquillity: No use of the DA has been made on the departures, as can be seen from the green lines on page 20. This leads to noise complaints from the residents of Shoeburyness, Barling, Little Wakering and Great Wakering. When the DA is not open aircraft should be routed through the DA, on departure Passing 400' turn right follow the river Roach until past potton creek then right turn TANET then on course DVR. When the DA is active allowance should be made for the aircraft to depart through the DA, the aircraft depart on a schedule, liaison between Air Traffic and the DA management shouldn't be difficult to co-ordinate the movements. Route aircraft further east and higher to avoid the towns.'

This is welcome feedback from our stakeholder, however the detail given at this stage of the process is more in depth than the current assessment we are carrying out. Further in the ACP process, at CAP1616 Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Natural England

'No; 3,4,5 – Flight path is over Crouch and Roach Estuaries SPA and Ramsar site, Benfleet, and Southend Marshes SPA and Ramsar site, and Thames Estuary & Marshes SPA and Ramsar site and Medway Estuary SPA and Ramsar site, the Swale SPA and Ramsar site which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants. Tranquillity of the Kent Downs AONB may also be impacted.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4, and this has changed the RAG score from green to amber.

Private Pilot

'05 S B used to be the only departure procedure for runway 05, which was replaced by 05 S A few years ago with aircraft departing 05 and flying over the villages of Stonebridge, Little and Great Wakering Barling Shoeburyness in the climb but restricted on altitude by London ATC both S A and S B should be replaced by S C avoids flying over the population and wildlife areas therefore making the departures safer, but would involve coordination with the military DA authorities, as there will be scheduled services using this route pre planning of their activities wouldn't be an issue avoiding the departure times of aircraft.'

Where applicable we have addressed and included these comments in the assessment. Further in the ACP process, at Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Essex County Council

ECC notes that for Runway 05 – South/South-East there are three possible options S- A, S-B and S-C. It is appreciated that there are a few Design Principles DP4, DP5, DP6, DP10, DP11 and DP13 that for some or all airspace route options have been scored amber and in one case red. In reviewing the information that is set out ECC questions whether the assessment has been consistent in the application of whether the benefits of continuous climb and the aircraft reaching its cruising altitude quicker have been consistently applied. ECC acknowledges that where an aircraft can operate continuous climb procedures and reach a cruise altitude quicker the flight can reach the most fuel efficient conditions. It would therefore be appreciated if the analysis could provide some justification as to whether additional track miles may/may not facilitate the ability for the aircraft to engage in continuous climb and possibly reduce a stepped climb which would increase fuel usage. Furthermore ECC questions whether there may be options for using alternate routes for this option and facilitate respite options for the local communities.

LSA have provided textual justification across all of the DPs, especially when the RAG score has changed, specifically DP11 relates to this feedback. Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

D05-S-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Low level overflight of Thorpe Bay. Traffic currently routes this way so no more impact than Baseline (Do Nothing) option.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Impact to suburbs of Little Wakering, Great Wakering, Thorpe Bay and Shoeburyness, no different than today's operation.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Low level overflight of Barling Magna Wildlife Reserve and Roach River Estuary SPA. Overflight of Thames Estuary & Marshes SPA. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	This is the swathe with the shortest route so CO2 emissions will be kept to a minimum.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	This route is currently only used when the Shoeburyness DA as are inactive due to the necessity for a very tight turn to avoid. We have assessed this DP as being partially met due to the implications on certain operators and aircraft type that may be unable to remain clear of the DA should this option be carried forward for a permanent route.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	Used in the current operation so no additional airspace would be required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	A right turn on departure would help to keep the traffic free of conflict.		

D05-S-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Possible conflictions with LSA arrival swathes A05-SE-F and A05-SE-E. Possible confliction with London City Airport's procedures, this will be discussed during future bilateral sessions should this option be carried forward.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	This is the swathe with the shortest route so fuel costs will be kept to a minimum.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process. RAG score amended following standardised evaluation criteria after the initial evaluation.		

Table 7: Option D05-S-A DP Assessment

4.4. Option **D05-S-B**

Survey Question

'DEPARTURES Runway 05 – South/ Southeast.

Do you think we have correctly applied the Design Principles to swathe **D05-S-B**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Eight respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

Southend City Council

'Not completely clear why B gets a red on DP11 though I think that probably a greater swing round and back-maybe worth explaining more'.

LSA agree and we have amended our assessment of DP11 and changed the RAG score from red to amber.

Barling Parish Councillor

'No; Departures runway 05 South /Southeast D05 B DP2 Over flight DP3 Noise DP4 Tranquillity Route aircraft to the north of all villages before they turn south towards DET ensuring they route to the east of Ashingdon to the South of Fambridge at or above 4,000' towards Rawreth above 5,000' and between North Benfleet and Bowers Gifford above 6,000''.

These comments will be considered further in the ACP process, at Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Natural England

'No; 3,4,5 – Flight path is over Crouch and Roach Estuaries SPA and Ramsar site, Benfleet, and Southend Marshes SPA and Ramsar site, Foulness SPA and Ramsar and Thames Estuary & Marshes SPA and Ramsar, Outer Thames Estuary SPA and Medway Estuary SPA and Ramsar site which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants. Tranquillity of the Kent Downs AONB may also be impacted'.

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4, but this hasn't changed the RAG score.

Private Pilot

'05 S B used to be the only departure procedure for runway 05, which was replaced by 05 S A few years ago with aircraft departing 05 and flying over the villages of Stonebridge, Little and Great Wakering Barling Shoeburyness in the climb but restricted on altitude by London ATC both S A and S B should be replaced by S C avoids flying over the population and wildlife areas therefore making the departures safer, but would involve coordination with the military DA authorities, as there will be scheduled services using this route pre planning of their activities wouldn't be an issue avoiding the departure times of aircraft.'

Where applicable we have addressed and included these comments in the assessment. Further in the ACP process, at Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Essex County Council

ECC notes that for Runway 05 – South/South-East there are three possible options S- A, S-B and S-C. It is appreciated that there are a few Design Principles DP4, DP5, DP6, DP10, DP11 and DP13 that for some or all airspace route options have been scored amber and in one case red. In reviewing the information that is set out ECC questions whether the assessment has been consistent in the application of whether the benefits of continuous climb and the aircraft reaching its cruising altitude quicker have been consistently applied. ECC acknowledges that where an aircraft can operate continuous climb procedures and reach a cruise altitude quicker the flight can reach the most fuel efficient conditions. It would therefore be appreciated if the analysis could provide some justification as to whether additional track miles may/may not facilitate the ability for the aircraft to engage in continuous climb and possibly reduce a stepped climb which would increase fuel usage. Furthermore ECC questions whether there may be options for using alternate routes for this option and facilitate respite options for the local communities.

LSA have provided textual justification across all of the DPs, especially when the RAG score has changed, specifically DP11 relates to this feedback. Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

D05-S-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No safety concerns at this stage.		
2	**Overflight - The** New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Burnham-on Crouch and Creeksea potentially overflown at low level. Aircraft should have sufficient height to not cause too much concern by the time they overfly Rayleigh, Hockley and Hadleigh. These are new areas not previously overflown, so the decision has been made post the initial evaluation to amend the RAG score and grade this as 'partially met', although there may be opportunities for a level of dispersion which would mean overflights could be shared across areas.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Burnham-on Crouch and Creeksea potentially overflown at low level. Aircraft should have sufficient height to not cause too much concern by the time they overfly Rayleigh, Hockley and Hadleigh. These are new areas not previously overflown, so the decision has been made post the initial evaluation to amend the RAG score and grade this as 'partially met'. The opportunity to build-in periods of respite could help mitigate the change in noise associated with new overflights.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Overflight of Rainham & Canvey Marshes & Wallasea Island. Flight path is over Crouch & Roach Estuaries SPA and Ramsar site, Blackwater Estuary SPA and Ramsar, Essex Estuaries SAC, Colne Estuary SPA and Ramsar, and Dengie SPA and Ramsar which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Extra track miles. Flight path is over Crouch & Roach Estuaries SPA and Ramsar site, Blackwater Estuary SPA and Ramsar, Essex Estuaries SAC, Colne Estuary SPA and Ramsar, and Dengie SPA and Ramsar which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Extra track miles due to the wraparound of this swathe.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No increase in new controlled airspace foreseen.		

D05-S-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	No increase in complexity foreseen.		
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by a IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Possible conflict with arrival swathe A05-SE-G. Possible conflict with London City Airport, to be discussed in future bilateral sessions should this option be taken forward. However, the assumption is, due to the wrap around and additional track miles, traffic will be above the London City arrivals so the decision was made to downgrade the RAG score as this option would be no worse than today's baseline.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Extra track miles potentially afford opportunity for Continuous Climb Operations i.e., removing the need to stop climb and level off at 3000ft. **For this reason, the decision was made post the initial evaluation to amend the RAG score.**		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 8: Option D05-S-B DP Assessment

4.6. Option **D05-S-C**

Survey Question

'DEPARTURES Runway 05 – South/ Southeast.

Do you think we have correctly applied the Design Principles to swathe **D05-S-C**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Seven respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

Private Pilot

Need to guide traffic away from Danger Zone, which makes C pretty undesirable.

Addressed in assessment of DP1 and DP6 changing the RAG score from green to amber.

NATS (NERL)

'No; DP1 & DP6: Swathe C completely overlapping the DA which is frequently active'.

LSA agree, and we have amended our assessment of DP1 and DP6 changing the RAG score from green to amber.

Barling Parish Councillor

'No; Departures runway 05 South /Southeast D05 C DP2 Over flight DP3 Noise DP4 Tranquillity. This could be adopted if the initial routings kept the aircraft along the river Crouch to Potton creek keeping them away from overflying the towns of Southend, Shoeburyness Great and Little Wakering and Barling or ensuring the aircraft fly not below 6000' over these areas. Utilisation/ coordination of the DA/ other air traffic control agencies would have to be more proactive and should be easy to co -ordinate allowing aircraft unrestricted climb to their cruise altitude.' Where applicable we have addressed and included these comments in the assessment.

These comments will be considered further in the ACP process, at Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Natural England

'No; 3,4,5 – Flight path is over Crouch and Roach Estuaries SPA and Ramsar site, Benfleet and Southend Marshes SPA and Ramsar site, Foulness SPA and Ramsar and Thames Estuary & Marshes SPA and Ramsar, Outer Thames Estuary SPA and the Swale SPA and Ramsar site which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants. Tranquillity of the Kent Downs AONB may also be impacted.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4, and this has changed the RAG score from green to amber.

Private Pilot

'05 S B used to be the only departure procedure for runway 05, which was replaced by 05 S A few years ago with aircraft departing 05 and flying over the villages of Stonebridge, Little and Great Wakering Barling Shoeburyness in the climb but restricted on altitude by London ATC both S A and S B should be replaced by S C avoids flying over the population and wildlife areas therefore making the departures safer, but would involve coordination with the military DA authorities, as there will be scheduled services using this route pre planning of their activities wouldn't be an issue avoiding the departure times of aircraft.'

Where applicable we have addressed and included these comments in the assessment. Further in the ACP process, at Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Essex County Council

ECC notes that for Runway 05 – South/Southeast there are three possible options S- A, S-B and S-C. It is appreciated that there are a few Design Principles DP4, Dp5, DP6, DP10, DP11 and DP13 that for some or all airspace route options have been scored amber and in one case red. In reviewing the information that is set out ECC questions whether the assessment has been consistent in the application of whether the benefits of continuous climb and the aircraft reaching its cruising altitude quicker have been consistently applied. ECC acknowledges that where an aircraft can operate continuous climb procedures and reach a cruise altitude quicker the flight can reach the most fuel efficient conditions. It would therefore be appreciated if the analysis could provide some justification as to whether additional track miles may/may not facilitate the ability for the aircraft to engage in continuous climb and possibly reduce a stepped climb which would increase fuel usage. Furthermore ECC questions whether there may be options for using alternate routes for this option and facilitate respite options for the local communities.

LSA have provided textual justification across all of the DPs, especially when the RAG score has changed, specifically DP11 relates to this feedback. Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

D05-S-C	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	Additional safety work would need to be done to make this a viable option. The entire swathe routes through the Shoeburyness Danger Areas (DA). This option could be used as a potential respite route for when the DAs are inactive. RAG score amended post stakeholder feedback.		
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	No foreseen increase in people overflown.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	No foreseen increase in people overflown.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Crouch & Roach Estuaries SPA and Ramsar site, Southend Marshes SPA and Ramsar site, Foulness SPA and Ramsar and Thames Estuary & Marshes SPA and Ramsar, Outer Thames Estuary SPA and the Swale SPA and Ramsar site; all fall within the confines of this swathe. Further work would need to be done to establish the impact should this option be carried forward. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	This option would mean extra track miles, although marginal, than today's baseline (do nothing) option.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Additional work would need to be done for this option to meet the Operational Requirements DP due to its transit through the DA. RAG score amended post stakeholder feedback.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new volume of controlled airspace would be required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Potential reduction in complexity due to the swathe being further away from the LTMA and associated airfields.		

D05-S-C	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Possible conflict with A05-SE-F & A05-SE-E. Possible conflict with London City procedures. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	This option would mean extra track miles, although marginal, than today's baseline (do nothing) option, and as such would mean a potential increase in Operational Cost.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 9: Option D05-S-C DP Assessment

5. Departures Runway 23 – Northeast

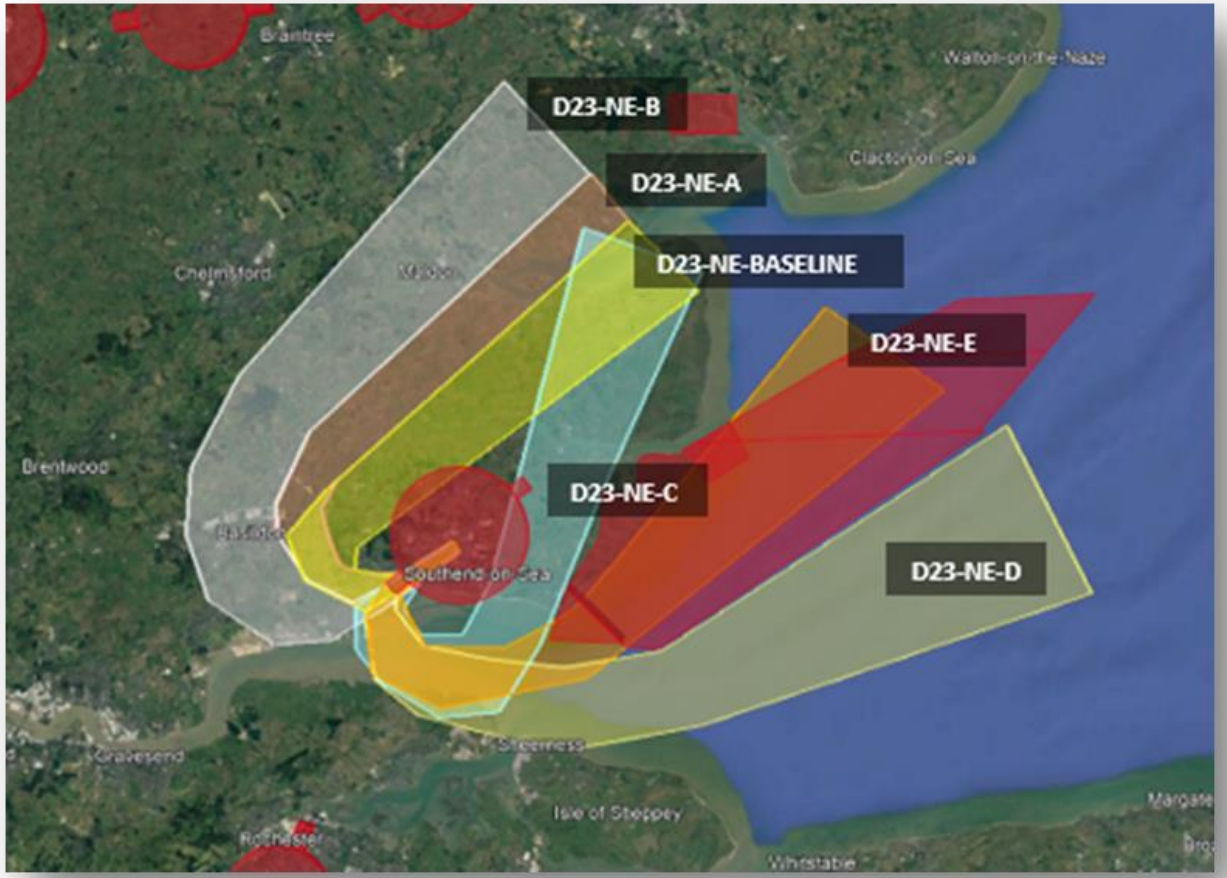

Figure 4: Departure Options Runway 23 - Northeast

5.1. Option **D23-NE-BASELINE**

D23-NE-BASELINE	Design Principle	Qualitative Assessment	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	Assessed as green due to being today's operation and the current baseline.	
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Assessed as green due to being today's operation and the current baseline.	
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Assessed as green due to being today's operation and the current baseline.	
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Assessed as green due to being today's operation and the current baseline.	
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Assessed as green due to being today's operation and the current baseline.	
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Assessed as green due to being today's operation and the current baseline.	
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	Assessed as green due to being today's operation and the current baseline.	
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Assessed as green due to being today's operation and the current baseline.	
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.	
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Assessed as green due to being today's operation and the current baseline.	
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Assessed as green due to being today's operation and the current baseline.	
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Further detailed analysis to be conducted at Stage 3 of the CAP1616 process.	

D23-NE-BASELINE	Design Principle	Qualitative Assessment	Outcome
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.	

Table 10: Option D23-NE-BASELINE DP Assessment

5.2. Option **D23-NE-A**

Survey Question

'DEPARTURES Runway 23 – Northeast.

Do you think we have correctly applied the Design Principles to swathe **D23-NE-A**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Nine respondents stated that we had correctly applied the Design Principles.

Stakeholder feedback with our responses in **BOLD.**

Barling Parish Councillor

'No; Departures 23 Northeast D23 NE A DP2 Over flight DP3 Noise DP4 Tranquillity procedure to be re written to ensure the aircraft are 1,000' higher at the point before they turn and change acceleration altitude to 4000.'

These comments will be considered further in the ACP process, at Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Natural England

'No;3,4,5 – Flight path is over Benfleet and Southend Marshes SPA and Ramsar site, Crouch & Roach Estuaries SPA and Ramsar site, Blackwater Estuary SPA and Ramsar, Essex Estuaries SAC which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4. Due to this option being similar to the baseline, the decision was made to alter the RAG score to reflect the assessment criteria.

Private Pilot

'Allow aircraft to climb efficiently gaining the most altitude whilst covering the shortest distance across the ground. Using departure procedure 2 and removing altitude restrictions or allowing aircraft to turn north abeam Tesco and keep within 1.5 nm of the threshold heading North but East of Hockley avoiding the populated areas would be advantageous and can be achieved by RNP positions.'

Where applicable we have addressed and included these comments in the assessment. Further in the ACP process, at Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Essex County Council

ECC notes that for NE-B, DP2 (Overflight) is scored as amber and it states in the text 'potential increase in overflight of Canvey Island and Basildon (at a higher level)', it also states for DP13 (PBN) that it is amber due to 'increased potential for step climb'. ECC questions whether the ability to achieve a higher altitude would not allow for continuous climb, and the reason for traffic being held down. It is assumed that this is due to conflict with traffic from London City Airport and other London airports within the area. Clarification is sought to ensure that all partners fully appreciate the conflicts and the implications for achieving more efficient flight procedures.

ECC notes that for DP2 only NE-B is scoring amber, whilst it states that aircraft may be at a higher level, it is unclear how this route option scores amber due to noise experience within Canvey Island and Basildon and the others are green. Further justification and information is required to ensure partners are fully mindful of the conflicts and issues.

ECC notes that DP5 (emissions and air quality) scores NE-B amber and NE-D red. It is assumed the variation in red and amber scoring is to reflect the larger swathe for NE-D. It is recommended that there is an appreciation as to whether utilising these or other routes would enable the aircraft to adopt continuous climb procedures, achieving a more efficient cruise altitude and minimising fuel burn. ECC notes that DP11 for NE-D is scored a red

clarification is sought as to whether consideration has been given to the opportunity for continuous climb and the implications this would have to optimise fuel efficiency.

ECC notes that NE-C is scored amber for DP7 (airspace dimensions) due to conflict with the IFP Danger Area, ECC considers that there may still be operational used for this route as it may provide respite opportunities.

LSA have provided textual justification across all of the DPs, especially when the RAG score has changed. Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

D23-NE-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Minimal difference to today's baseline option.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Minimal difference to today's baseline option.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Potential overflight of Dengie National Nature Reserve, Benfleet, and Southend Marshes SPA and Ramsar site, Crouch & Roach Estuaries SPA and Ramsar site, Blackwater Estuary SPA and Ramsar, Essex Estuaries SAC. Assessed as green due to having minimal difference to today's operation and the current baseline.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Minimal difference to today's baseline option.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Minimal difference to today's baseline option.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	Minimal difference to today's baseline option.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Minimal difference to today's baseline option.		

D23-NE-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Minimal difference to today's baseline option.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Minimal difference to today's baseline option.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Further detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 11: Option D23-NE-A DP Assessment

5.3. Option **D23-NE-B**

Survey Question

'DEPARTURES Runway 23 – Northeast.

Do you think we have correctly applied the Design Principles to swathe **D23-NE-B**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Eight respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

Barling Parish Councillor

'No; Departures' 23 Northeast D23-NE- B DP2 Over flight DP3 Noise DP 4 Tranquillity procedure to be re written to ensure the aircraft are 1,000' higher at the point before they turn and change acceleration altitude to 4000' ensure the aircraft climb straight ahead to 4000' or 3 nm before turning right then between Canvey Island and South Benfleet then North bound when passing 5000' or bowers Gifford follow the A130 northbound.'

These comments will be considered further in the ACP process, at Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

MAG (London Stansted Airport)

'DP10 - Systemisation. There appears to be no interaction with STN traffic below 7,000ft but the wider turn of this swathe creates a greater chance of interaction with future STN departures to the East within the network (compared to swathes A, C and D).'

LSA agree and we have included the additional comments in our assessment of DP10 and changed the RAG score from green to amber.

Natural England

'No; 3,4,5 – Flight path is over Benfleet and Southend Marshes SPA and Ramsar site which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4, and this has changed the RAG score from green to amber.

Private Pilot

'Allow aircraft to climb efficiently gaining the most altitude whilst covering the shortest distance across the ground. Using departure procedure 2 and removing altitude restrictions or allowing aircraft to turn North abeam Tesco and keep within 1.5 nm of the threshold heading north but east of Hockley avoiding the populated areas would be advantageous and can be achieved by RNP positions.'

Where applicable we have addressed and included these comments in the assessment. Further in the ACP process, at Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Essex County Council

ECC notes that for NE-B, DP2 (Overflight) is scored as amber and it states in the text 'potential increase in overflight of Canvey Island and Basildon (at a higher level)', it also states for DP13 (PBN) that it is amber due to 'increased potential for step climb'. ECC questions whether the ability to achieve a higher altitude would not allow for continuous climb, and the reason for traffic being held down. It is assumed that this is due to conflict with traffic from London City Airport and other London airports within the area. Clarification is sought to ensure that all partners fully appreciate the conflicts and the implications for achieving more efficient flight procedures.

ECC notes that for DP2 only NE-B is scoring amber, whilst it states that aircraft may be at a higher level, it is unclear how this route option scores amber due to noise experience within Canvey Island and Basildon and the others are green. Further justification and information is required to ensure partners are fully mindful of the conflicts and issues.

ECC notes that DP5 (emissions and air quality) scores NE-B amber and NE-D red. It is assumed the variation in red and amber scoring is to reflect the larger swathe for NE-D. It is recommended that there is an appreciation as to whether utilising these or other routes would enable the aircraft to adopt continuous climb procedures, achieving a more efficient cruise altitude and minimising fuel burn. ECC notes that DP11 for NE-D is scored a red clarification is sought as to whether consideration has been given to the opportunity for continuous climb and the implications this would have to optimise fuel efficiency.

ECC notes that NE-C is scored amber for DP7 (airspace dimensions) due to conflict with the IFP Danger Area, ECC considers that there may still be operational used for this route as it may provide respite opportunities.

LSA have provided textual justification across all of the DPs, especially when the RAG score has changed. Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex A of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

D23-NE-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Potential increase in overflight of Canvey Island and Basildon, although at a higher level. A level of dispersion would mean that overflights are shared across areas.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Potential increase in overflight of Canvey Island and Basildon, although at a higher level. The opportunity to build-in periods of respite could help mitigate the increase in overflights, although this may not be necessary given that they will be at a higher level.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Benfleet and Southend Marshes SPA and Ramsar could see a potential increase in disturbance. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Minimal difference from today's baseline operation. RAG score amended following standardised evaluation criteria after the initial evaluation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Minimal difference from today's baseline operation.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	This option would potentially require a slight increase in controlled airspace to contain the procedures the decision has been made post the initial evaluation to amend the RAG score.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Minimal difference from today's baseline operation although closer proximity to LTMA traffic could see an increase in complexity. RAG score amended following standardised evaluation criteria after the initial evaluation.		

D23-NE-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Potential interaction with London Stansted traffic, this swathe also moves departures closer to the LTMA and London City traffic. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward. RAG score amended post stakeholder feedback.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Minimal difference from today's baseline operation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process. RAG score amended following standardised evaluation criteria after the initial evaluation.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process. RAG score amended following standardised evaluation criteria after the initial evaluation.		

Table 12: Option D23-NE-B DP Assessment

5.4. Option **D23-NE-C**

Survey Question

'DEPARTURES Runway 23 – Northeast.

Do you think we have correctly applied the Design Principles to swathe **D23-NE-C**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Seven respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD**

Private Pilot

'No; A nightmare to fly with the DA on one side and EGMC on the other.'

LSA agree and this is reflected in our assessment of DP1, although this hasn't changed the RAG score.

NATS (NERL)

'No; Swathe C would also have additional track miles.'

LSA agree and we have amended our assessment of DP5 and DP11 and changed the RAG score from green to amber.

Barling Parish Councillor

'No; departure's 23 Northeast D23-NE- C DP 2 Over flight DP 3 Noise DP 4 Tranquillity this would also lead to further distance aircraft to fly, than Option B or D.'

LSA agree, and we have amended our assessment of DP2 and DP3 and changed the RAG score from green to amber.

Natural England

'No; 3,4,5 – Flight path is over Benfleet and Southend Marshes SPA and Ramsar site, Crouch and Roach Estuaries SPA and Ramsar site, Blackwater Estuary SPA and Ramsar, Essex Estuaries SAC, Thames Estuary and Marshes SPA and Ramsar which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4, but this hasn't changed the RAG score.

Private Pilot

'Allow aircraft to climb efficiently gaining the most altitude whilst covering the shortest distance across the ground. Using departure procedure 2 and removing altitude restrictions or allowing aircraft to turn North abeam Tesco and keep within 1.5 nm of the threshold heading north but east of Hockley avoiding the populated areas would be advantageous and can be achieved by RNP positions.'

Where applicable we have addressed and included these comments in the assessment. Further in the ACP process, at Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Essex County Council

ECC notes that for NE-B, DP2 (Overflight) is scored as amber and it states in the text 'potential increase in overflight of Canvey Island and Basildon (at a higher level)', it also states for DP13 (PBN) that it is amber due to 'increased potential for step climb'. ECC questions whether the ability to achieve a higher altitude would not allow for continuous climb, and the reason for traffic being held down. It is assumed that this is due to conflict with traffic from London City Airport and other London airports within the area. Clarification is sought to ensure that all partners fully appreciate the conflicts and the implications for achieving more efficient flight procedures.

ECC notes that for DP2 only NE-B is scoring amber, whilst it states that aircraft may be at a higher level, it is unclear how this route option scores amber due to noise experience within Canvey Island and Basildon and the others are green. Further justification and information is required to ensure partners are fully mindful of the conflicts and issues.

ECC notes that DP5 (emissions and air quality) scores NE-B amber and NE-D red. It is assumed the variation in red and amber scoring is to reflect the larger swathe for NE-D. It is recommended that there is an appreciation as to whether utilising these or other routes would enable the aircraft to adopt continuous climb procedures, achieving a more efficient cruise altitude and minimising fuel burn. ECC notes that DP11 for NE-D is scored a red clarification is sought as to whether consideration has been given to the opportunity for continuous climb and the implications this would have to optimise fuel efficiency.

ECC notes that NE-C is scored amber for DP7 (airspace dimensions) due to conflict with the IFP Danger Area, ECC considers that there may still be operational used for this route as it may provide respite opportunities.

LSA have provided textual justification across all of the DPs, especially when the RAG score has changed. Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex A of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

D23-NE-C	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	This option has been assessed as Amber due to the potential for IFP protection areas to fall within the Shoeburyness DA.		
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	There would be more people and more areas overflown due to extra track miles from today's baseline. RAG score amended post stakeholder feedback.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	There would be more people and more areas overflown due to extra track miles from today's baseline. The opportunity to build-in periods of respite could help mitigate the effects of the increase in overflights. RAG score amended post stakeholder feedback.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Potential overflight of Wallasea Island & Dengie National Nature Reserve, Benfleet, and Southend Marshes SPA and Ramsar site, Crouch & Roach Estuaries SPA and Ramsar site, Blackwater Estuary SPA and Ramsar, Essex Estuaries SAC, Thames Estuary & Marshes SPA and Ramsar.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Extra track miles from today's baseline operation. RAG score amended post stakeholder feedback.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	No issues foreseen.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new controlled airspace would be required. RAG score amended following standardised evaluation criteria after the initial evaluation.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Potential increase in complexity with arrivals due to this option crossing the final approach.		

D23-NE-C	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process. RAG score amended following standardised evaluation criteria after the initial evaluation.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	No systemisation issues foreseen, this option keeps traffic away from the LTMA and associated traffic.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Extra track miles from today's baseline operation. RAG score amended post stakeholder feedback.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 13: Option D23-NE-C DP Assessment

5.5. Option **D23-NE-D**

Survey Question.

'DEPARTURES Runway 23 – Northeast.

Do you think we have correctly applied the Design Principles to swathe **D23-NE-D**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Seven responses agreed that we had correctly applied the Design Principles.

Stakeholder feedback with our responses in **BOLD.**

Riveroak Strategic Partners (Manston Airport)

'DP1/DP7/DP9 If D23-NE-C are Amber for IFP protection areas, would that not also apply to this option?'

D23-NE-C was assessed as Amber for the IFP protection areas due to the tightness of the turn inside the DA. This option does not have the same constraints, so it was assessed and remains green.

NATS (NERL)

'No; Swathe D interacts with the current London City Point merge.'

LSA agree and we have amended our assessment of DP10 and changed the RAG score from green to amber.

Natural England

'No; 3,4,5 – Flight path is over Benfleet and Southend Marshes SPA and Ramsar site, Thames Estuary and Marshes SPA and Ramsar, Outer Thames Estuary SPA and Medway Estuary SPA and Ramsar site which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4 and changed the RAG score from green to amber.

Private Pilot

'Other option would be for the aircraft to depart and turn South and East allow aircraft to climb efficiently gaining the most altitude whilst covering the shortest distance across the ground. Using departure procedure 2 and removing altitude restrictions or allowing aircraft to turn when abeam Tesco and keep climbing avoiding the populated areas would be advantageous and can be achieved by RNP positions.'

Where applicable we have addressed and included these comments in the assessment. Further in the ACP process, at Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Essex County Council

ECC notes that for NE-B, DP2 (Overflight) is scored as amber and it states in the text 'potential increase in overflight of Canvey Island and Basildon (at a higher level)', it also states for DP13 (PBN) that it is amber due to 'increased potential for step climb'. ECC questions whether the ability to achieve a higher altitude would not allow for continuous climb, and the reason for traffic being held down. It is assumed that this is due to conflict with traffic from London City Airport and other London airports within the area. Clarification is sought to ensure that all partners fully appreciate the conflicts and the implications for achieving more efficient flight procedures.

ECC notes that for DP2 only NE-B is scoring amber, whilst it states that aircraft may be at a higher level, it is unclear how this route option scores amber due to noise experience within Canvey Island and Basildon and the others are green. Further justification and information is required to ensure partners are fully mindful of the conflicts and issues.

ECC notes that DP5 (emissions and air quality) scores NE-B amber and NE-D red. It is assumed the variation in red and amber scoring is to reflect the larger swathe for NE-D. It is recommended that there is an appreciation as to whether utilising these or other routes would enable the aircraft to adopt continuous climb procedures, achieving a more efficient cruise altitude and minimising fuel burn. ECC notes that DP11 for NE-D is scored a red clarification is sought as to whether consideration has been given to the opportunity for continuous climb and the implications this would have to optimise fuel efficiency.

ECC notes that NE-C is scored amber for DP7 (airspace dimensions) due to conflict with the IFP Danger Area, ECC considers that there may still be operational used for this route as it may provide respite opportunities.

LSA have provided textual justification across all of the DPs, especially when the RAG score has changed. Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex A of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

D23-NE-D	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Less people overflown than today's baseline and the other options in this departure direction due to the swathe being mainly over the estuary.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Less people overflown than today's baseline and the other options in this departure direction due to the swathe being mainly over the estuary.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Benfleet and Southend Marshes SPA, Thames Estuary & Marshes SPA, Outer Thames Estuary SPA and Medway Estuary SPA and Ramsar site, could all see an increase in disturbance. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Significant increase in track miles from today's operation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	No issues with Operational Requirements foreseen. RAG score amended following standardised evaluation criteria after the initial evaluation.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	This option would require an increase in controlled airspace. RAG score amended following standardised evaluation criteria after the initial evaluation.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	This option could see a potential decrease in complexity.		

D23-NE-D	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by a IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Potential conflict with the current London City point merge. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward. RAG score amended post stakeholder feedback.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Significant extra track miles from today's operation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 14: Option D23-NE-D DP Assessment

5.6. Option **D23-NE-E (**Additional swathe – Stage 2 Rework**)**

Stakeholder feedback with our responses in BOLD.

Southend City Council

'It would be helpful to understand the hours when this option may be feasible and the likely noise levels/height of flight. Also the views of MoD and QinetiQ as consultees.'

'Criteria 2-Overflight-Though probably better overall than Option C in terms of overflight this would bring flights over the East Beach area, impacting parts of the Garrison development, beach users (not residential but important to the economy) and especially the Park Home owners behind each beach which are poorly insulated.
Criteria 4-Tranquilty-This would tangibly increase the area of environmental designation overflown, including areas off Foulness that are pretty quiet at present (except when the guns go off!) We would want to understand why this this is given less weight (is yellow rather than red) than Criteria 5 and 11 (distance flown)'

LSA have amended the description and RAG score of DP4 to reflect Southend City Council's comments. For DP2 -Overflight which is assessed as green, the Evaluation Criteria states 'No different to today or less people overflown' which is correct when related to the baseline so the original assessment stands.

Essex County Council

'Welcome an appreciation of when this revised route may be used, and if there are restrictions on use how useful it may as a potential route to provide some communities with respite? An understanding of the noise exposure would be appreciated.'

We are still early on in the development of all of our options and are exploring potential respite routes for outside the DAs published operating hours.

'Criteria 5 - Emissions and Air Quality - Query whether the increase in track miles is dependent on the precise location that the airline is flying to? Unsure whether this warrants a red indicating significant issue. I would welcome clarification on this.

The change in track miles is against the baseline and this option would be an increase from that.

Criteria 8 Airspace Complexity - I note the explanatory qualitative assessment, but the outcome remains green. This is inconsistent with the criteria 7 and the interaction with the Shoeburyness Danger Area. The Assessment needs to evaluated in a consistent and logical manner. Criteria 7 and 8 should be consistent in their assessment.

Criteria 11 - Operational Cost - see comments for criteria 5.'

LSA agree with Essex County Council's comments and have amended the assessment of DP5 and changed the RAG score from red to amber, DP8 and DP11.

NATS (NERL)

'If the operation of this route were subject to co-ordination between Southend and the range operator, robust safety assurance would be required for NERL. Procedures could be established for use of this area when the range is inactive. NERL considers this to be a possible respite option.'

'DP8 NERL considers that this should be raised to Amber.'

LSA agree and have amended the assessment of DP8 and changed the RAG score from green to amber.

British Gliding Association

'Unfortunately, these swathe illustrations and text do not provide us with enough information to understand the impact on our operations. We need to see detail of horizontal and vertical limits of proposed controlled airspace.'

'The only recognition that the designs need to take into consideration the safety and utility needs of those operating outside controlled airspace refers to avoiding 'bottlenecks' in uncontrolled airspace. The Design Principles are entirely self-serving.'

LSA thanks British Gliding Association for their feedback at this stage, however we are still early on in the development of all of our options and further details and clarity on horizontal and vertical limits will be addressed during Stage 3.

St Lawrence Airstrip

'No impact on my operations'

London Biggin Hill Airport

'No Concerns'

Defence Airspace & Air Traffic Management'

'There have been concerns expressed by those responsible for Shoeburyness range that the proposed options routing through the range might limit MoD activities within. The MoD standfast that in the event of the new routes being approved, standing range activities should take priority and the new routes should only be available when the range is entirely inactive. However, the MoD recognises the requirement for FUA, so in the event of the routes being selected for progression in the ACP then a robust LOA would need to be agreed between Southend Airport and the Range, to ensure MoD activities are not compromised and that traffic routes through the area in a safe manner. The MoD would welcome an open discussion between all relevant parties to discuss the proposal, if deemed required.'

LSA notes the concerns of the MoD and Shoeburyness range, we are still early on in the development of all of our options and are exploring options that may offer potential respite routes for outside the DAs published operating hours. Any progression and development of routes within this swathe would be progressed in full consultation of the MoD and Shoeburyness range.

Seawing Flying Club

'No problems with this option'

Seawing & Private Pilot

'By using option e increases the noise profile of aircraft arriving and departing which allow aircraft to come Close to land when the bird strike factor increases, also with the extra building in the Shoeburyness Wakering barling areas will increase the number of noise complains keep the aircraft over the sea, as aviation moves to net zero carbon fuels pollution won't be an issue'

'D23-ne-e Dpe1: Consideration of the increased building of private houses in the Shoeburyness Wakering areas must be taken into account for catastrophic failure of an aircraft - there have been 2 examples of this at southend in the last 39 years so keep the flight paths over water as much as possible and minimise fatalities.

Dpe2: Departures and Arrivals should be variable for both ends of the runway. But over water/ industrial/ farmland as much as possible to reduce the noise footprint not forgetting the current increased building in Shoeburyness and Wakering and the proposed Dpe3 by keeping the aircraft over

the danger area and sea reduces the noise footprint by turning aircraft over the land by turning aircraft over land will increase the number of noise complaints.

Dpe4: Tranquillity disturbed by the aircraft that depart and arrive over land rather than over the sea for the pre covid years was really annoying however post covid noise levels have decreased due to reduced movements, which has restored tranquillity - as the Airport hopefully gets back to normal levels of operation keeping everything in the danger area and over the sea reduces the noise footprint.

Dpe7 & 8: Keeping the current and expected increase in traffic over the sea will keep the Airspace clear of general aviation/para gliders and therefore safer in avoidance of mid-air collisions and a reduction in airspace infringements which have been on the increase.

Dpe11, 12 & 13: By keeping the Arrivals and Departures away from land complies with all these on cost reduction- on go around from an airprox or infringement costs a lot more than arrival and departure over sea does also allows direct routing to the PBN points and for LAMP.'

For DP2 -Overflight, which is assessed as green, the Evaluation Criteria states 'No different to today or less people overflown' which is correct when related to the baseline so the original assessment stands. We have considered the remaining comments however they have not altered our assessment of the associated DPs.

Heathrow

'The Feedback we provided to the original Stage 2A engagement remains valid and Heathrow has no further comments to add in regard to this additional option.'

Private Pilot

'D23-NE-E looks sensible but unnecessary from a flying perspective. Delta and Alpha look sufficient.'

'DE23-NE-E looks better than other options from a noise perspective, being mostly over water.'

Barling Airfield

'No impact to Barling.'

General Aviation Alliance

'It is impossible to provide a meaningful response when presented with swathes and stating that "This option would require an increase in controlled airspace." But not including any details of what that increase would, or might, consist of.'

LSA thanks General Aviation Alliance for their feedback at this stage, however we are still early on in the development of all of our options and further details and clarity on horizontal and vertical limits will be addressed during Stage 3.

Rochester Airport

'It is another option with potential drawbacks.'

RSPB

'London Southend Airport - Stage 2 Rework Additional Swathes, London Southend Airport FASI(S) ACP.'

ACP-2018-9.

Thank you for the opportunity to respond to the early stage of this consultation. Having a look at the Proposed Departures and Arrivals Swathe, the RSPB has some serious concerns, and the following comments relate to all options provided in the consultation. The proposed swathe follows the coast from Shoebury heading north-east along the coast and the undisturbed mudflats at Wakering Stairs and Foulness Island to its most north-easterly point; many birds including Dark-bellied Brent Goose Branta bernicla feed in this area along with tens of thousands of waders and wildfowl. This whole area is of critical importance for waterbirds as it is one of the least disturbed areas of mudflats in the Thames due to it being within the MoD firing range boundary, therefore heavily used by birds. The Mudflats within Southend Council's jurisdiction are unfortunately not in peak condition and effectively sterilised due to excessive and uncontrolled recreational disturbance. If the Airport were then to potentially take aircraft over the MoD 'refuge' mudflat described above, this would be a further nail in the coffin for this designated area and its internationally important population of wildfowl and waders.

Regarding disturbance/'tranquillity', the consultation document states:

DPE - D23-NE-E

Benfleet and Southend Marshes SPA, Thames Estuary & Marshes SPA, Outer Thames Estuary SPA and Medway Estuary SPA and Ramsar site, could all see an increase in disturbance (page 14).

DPE – A05-SE-H

Benfleet and Southend Marshes SPA, Thames Estuary and Marshes SPA, Medway Estuary and Marshes SPA, The Swale SPA, Stodmarsh SPA, Thanet Coast & Sandwich Bay SPA; all fall within the confines of this swathe. Further work would need to be done to establish the impact should this option be carried forward (page 19).

Arrivals options E and H also pass over sensitive regions and our comments in this feedback should be considered to refer to those options as well.

We also reiterate these concerns for the extremely important waterbird habitats south of the Thames, in Kent. Overall, the whole area is extensively designated internationally and nationally, particularly as Special Protection Areas (SPA), Sites of Special Scientific interest (SSSI) and Ramsar sites. It is also being considered as a potential UNESCO World Heritage Site particularly for its migratory and wintering birds: The East Atlantic Flyway https://www.rspb.org.uk/our-work/rspb-news/rspb-news-stories/east-coast-wetlands/.

Given the potential for serious harm to protected waterbird assemblages from the proposed swathes over a large protected area, both as standalone impacts and in-combination impacts with other pressures such as recreational disturbance, we would need to see detailed analysis of variables and modelling of impacts for departures and arrivals. These include but are not restricted to:

- Height and frequency of planes over protected areas.
- Noise output at pertinent heights, with different aircraft and in different weather conditions.
- Comparison of the effect of expected events on birdlife with known effects from elsewhere.

In summary, the RSPB would need to see clear evidence that the new swathes would not be detrimental to the sensitive designated sites and functionally linked land across the Essex and Kent coasts and their associated waterbird assemblages.

Thank you.'

LSA agrees with the RSPBs comments and has amended the RAG score of DP4 from amber to red to reflect this.

ACC Member

‘Given the context of “we are still early in the CAP1616 process and this engagement is not a consultation on final routes, but an assessment of high-level concepts against the Design Principles you helped us develop” I am overall happy to accept the proposed two new swathes albeit “E” does seem to have some increased pollution risk due to extra flight mileage but would this impact Southend given prevailing westerlies?’

DP5 covers the concerns raised in this comment and has been assessed as amber for that reason.

London Stansted Airport

'No further comment on additional swathes’

Full Design Principle Assessment

D23-NE-E	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	Additional safety work would need to be done to make this a viable option. The entire swathe routes through the Shoeburyness Danger Areas (DA). This option could be used as a potential respite route for when the DA are inactive.		
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	No foreseen increase in people overflown.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	No foreseen increase in people overflown.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Benfleet and Southend Marshes SPA, Thames Estuary & Marshes SPA, Outer Thames Estuary SPA and Medway Estuary SPA and Ramsar site, could all see an increase in disturbance. A significant increase in detrimental impact to bird habitats and activities is likely therefore RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Increase in track miles but not significantly more than the baseline. RAG score amended post stakeholder feedback.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	No issues foreseen.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	This option would require an increase in controlled airspace.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Potential increase in complexity with arrivals due to this option crossing the final approach and interaction with the Shoeburyness Danger Areas (DA). RAG score amended post stakeholder feedback.		

D23-NE-E	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by a IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Potential conflict with the current London City point merge.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Increase in track miles but not significantly more than the baseline. RAG score amended post stakeholder feedback.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 15: Option D23-NE-E DP Assessment

6. Departures Runway 23 – Northwest

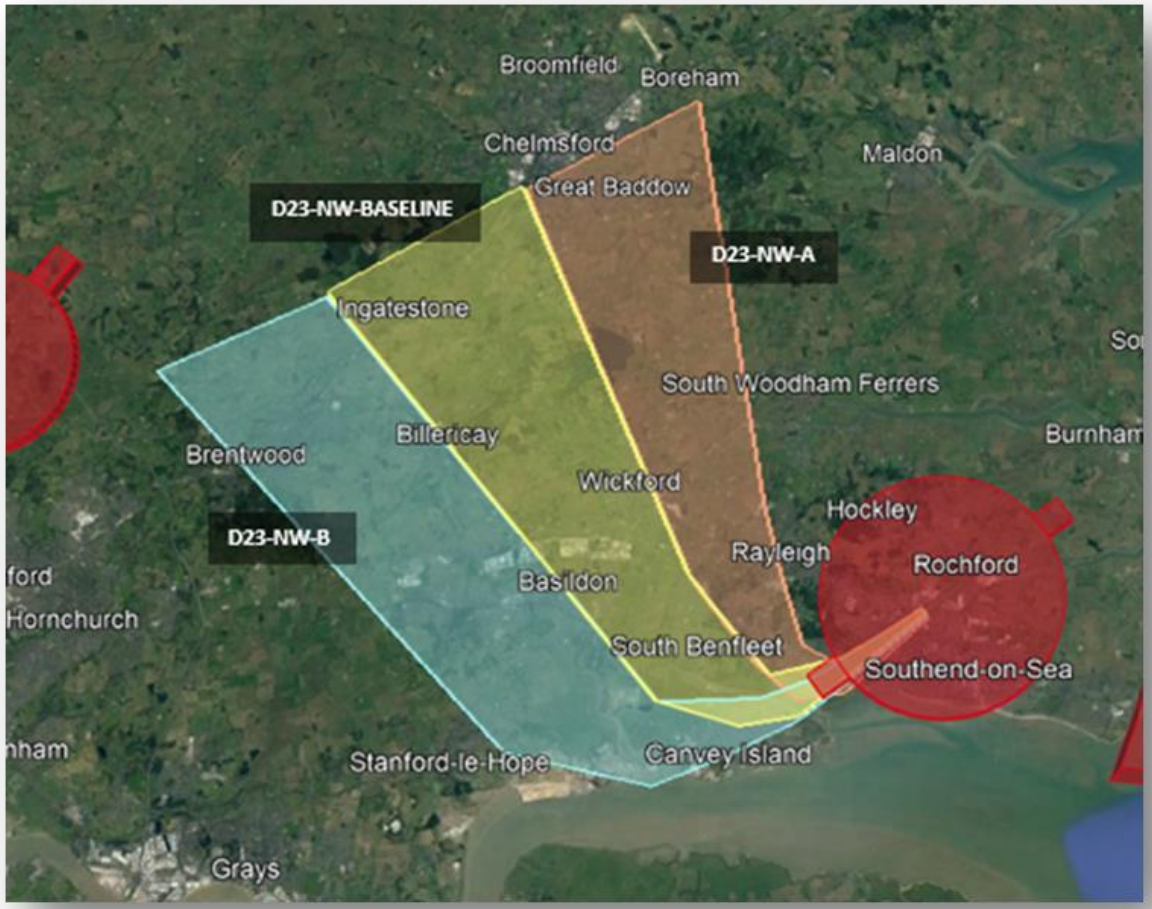

Figure 5: Departure Options Runway 23 - Northwest

6.1. Option D23-NW-BASELINE/D23-NW-C

Survey Question

'DEPARTURES Runway 23 – Northwest.

Do you think we have correctly applied the Design Principles to swathe **D23-NW-C**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Six respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

MAG (London Stansted Airport)

'No; DP10 - Systemisation. Conflict with both current and future STN Departures to the South. Level restrictions or ATC intervention may be required to ensure separation. There is also potential interaction with future STN Arrivals depending on position and type of the agreed holding facility with NERL although less than Option B. DP12 – AMS Realisation - Design options within this Swathe interact with STN South Departures options.'

LSA have included London Stansted's comments our assessment of DP10, however due to this being our baseline 'Do-minimum' option and true of today's operation the RAG score remains green.

Natural England

'No; 3,4,5 – Flight path is over Benfleet and Southend Marshes SPA and Ramsar site which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4, but this hasn't changed the RAG score.

Essex County Council

ECC Notes that NW-C is the swathe that replicates current operations the most, therefore the red scoring for DP2 (overflight) and DP3 (noise footprint) is questioned, it states that there will be an increase in overflight. ECC also welcomes information on which of these three options would facilitate continuous climb procedures. It is noted that NW-C has an increased likelihood of a stepped climb procedures.

ECC notes the amber rating for DP4 (tranquillity) for NW-B and similarly to other airspace change proposals welcomes further information on the sensitive arears and locations that have been reviewed as part of this analysis.

LSA agree and have amended the assessment of DP2 and DP3 based on this being our baseline 'Do-minimum' option and true of today's operation. Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

D23-NW-BASELINE	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	Assessed as green due to being today's operation and the current baseline.		
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Potential increase in overflight of Canvey Island and Basildon depending on placement of the final track, however based on this being our baseline 'Do-minimum' option and true of today's operation the RAG score is reassessed green. RAG score amended after redefining the baseline.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Potential increase in overflight of Canvey Island and Basildon depending on placement of the final track, however based on this being our baseline 'Do-minimum' option and true of today's operation the RAG score is reassessed green. RAG score amended after redefining the baseline.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Benfleet and Southend Marshes SPA and Ramsar could see a slight increase depending on final track placement, however based on this being our baseline 'Do-minimum' option and true of today's operation the RAG score remains green.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Assessed as green due to being today's operation and the current baseline.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Assessed as green due to being today's operation and the current baseline.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	Assessed as green due to being today's operation and the current baseline.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Assessed as green due to being today's operation and the current baseline. RAG score amended after redefining the baseline.		

D23-NW-BASELINE	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Depending on the final track placement, this option could see conflict with both current and future London Stansted departures to the South, London City traffic and LTMA traffic due to the proximity of this option. This could see an increased possibility for step climbs. With these systemisation issues in mind, the decision was made to assess this option as green, based on this being our baseline 'Do-minimum' option and true of today's operation. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Assessed as green due to being today's operation and the current baseline.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process. RAG score amended after redefining the baseline.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process. RAG score amended after redefining the baseline.		

Table 16: Option D23-NW-BASELINE DP Assessment

6.3. Option **D23-NW-A**

Survey Question

'DEPARTURES Runway 23 – Northwest.

Do you think we have correctly applied the Design Principles to swathe **D23-NW-A**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Seven responses agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

Riveroak Strategic Partners (Manston Airport)

'DP2/DP3 and Rayleigh.'

LSA agree and we have included Rayleigh in our assessment of DP2 and DP3.

MAG (London Stansted Airport)

'No; DP10 - Systemisation. Potential conflict with both current and future STN departures to the East. Level restrictions or ATC intervention may be required to ensure separation. There is also potential interaction with future STN Arrivals depending on position and type of the agreed holding facility with NERL. DP12 – AMS Realisation - Design options within this swathe will interact with STN East departures options. However, Option A presents the best potential to deconflict with STN operations. As above, there may also be an interaction depending on the development of the arrivals structure within this area.'

LSA agree and we have included the additional comments in our assessment of DP10 and changed the RAG score from green to amber.

Natural England

'No; 3,4,5 – Flight path is over Benfleet and Southend Marshes SPA and Ramsar site which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4, but this hasn't changed the RAG score.

Full Design Principle Assessment

D23-NW-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	This option could see a potential increase in overflight of Hadleigh and Rayleigh. A level of dispersion would mean overflights are shared across areas. The decision has been made post the initial assessment to amend the RAG score based on the Evaluation Criteria.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	This option could see a potential increase in overflight of Hadleigh and Rayleigh. The opportunity to build-in periods of respite could help mitigate the increase in overflight. The decision has been made post the initial assessment to amend the RAG score based on the Evaluation Criteria.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Benfleet and Southend Marshes SPA and Ramsar would be overflown, but no increase on today's baseline operation.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	This option could see a tight turn at low level- still PANS-OPS compliant.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	No issues anticipated.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	Minimal difference from today's baseline operation.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Minimal difference from today's baseline operation.		

D23-NW-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Potential conflict with both current and future London Stansted departures to the East, however this would be the preferable option for London Southend. This could see an increased possibility for step climbs. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward. RAG score amended post stakeholder feedback.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Minimal difference from today's baseline operation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 17: Option D23-NW-A DP Assessment

6.4. Option **D23-NW-B**

Survey Question

'DEPARTURES Runway 23 – Northwest.

Do you think we have correctly applied the Design Principles to swathe **D23-NW-B**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Seven respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

NATS (NERL)

'No; Newly overflown communities, additional track miles and in closer proximity to London City/LTMA traffic.'

LSA agree and we have included the additional comments in our assessment of DP10 and changed the RAG score from green to red.

MAG (London Stansted Airport)

'No; DP10 - Systemisation. Conflict with both current and future STN Departures to the South. Level restrictions or ATC intervention may be required to ensure separation. There is also potential interaction with future STN Arrivals depending on position and type of the agreed holding facility with NERL. DP12 – AMS Realisation - Design options within this swathe interact with STN South Departures options. Option B presents the greatest chance of interaction with future STN arrivals structures (based on current conversations with NERL).'

LSA agree and we have included the additional comments in our assessment of DP10 and changed the RAG score from green to red.

Natural England

'No; 3,4,5 – Flight path is over Benfleet and Southend Marshes SPA and Ramsar site which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4, but this hasn't changed the RAG score.

Essex County Council

ECC Notes that NW-C is the swathe that replicates current operations the most, therefore the red scoring for DP2 (overflight) and DP3 (noise footprint) is questioned, it states that there will be an increase in overflight. ECC also welcomes information on which of these three options would facilitate continuous climb procedures. It is noted that NW-C has an increased likelihood of a stepped climb procedures.

ECC notes the amber rating for DP4 (tranquillity) for NW-B and similarly to other airspace change proposals welcomes further information on the sensitive arears and locations that have been reviewed as part of this analysis.

LSA have assessed DP4 in relation to sites of environmental sensitivity. More detailed analysis of noise sensitive sites such as schools, independent living accommodation etc. will be conducted at Stage 3 when we have a clearer understanding of where the final tracks may lie. Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

D23-NW-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Different, but less densely populated areas overflown.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Different, but less densely populated areas overflown.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Langdon hills, Fobbing & Canvey/Bowers Marsh, Benfleet, and Southend Marshes SPA and Ramsar could see an increase depending on final track placement.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Minimal difference from today's baseline operation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Minimal difference from today's baseline operation.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	Depending on the final track placement there could be a need for some additional controlled airspace due to the lateral dimensions being exceeded. The decision has been made post the initial assessment to amend the RAG score based on the Evaluation Criteria.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	This option could see a slight increase to complexity due to the closer proximity of the LTMA. The decision has been made post the initial assessment to amend the RAG score based on the Evaluation Criteria.		

D23-NW-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Closer proximity to LTMA traffic, increased potential for conflict with both current and future London Stansted departures to the South, this could see an increased possibility for step climbs. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward. RAG score amended post stakeholder feedback.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Minimal difference from today's baseline operation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 18: Option D23-NW-B DP Assessment

7. Departures Runway 23 – South/Southeast

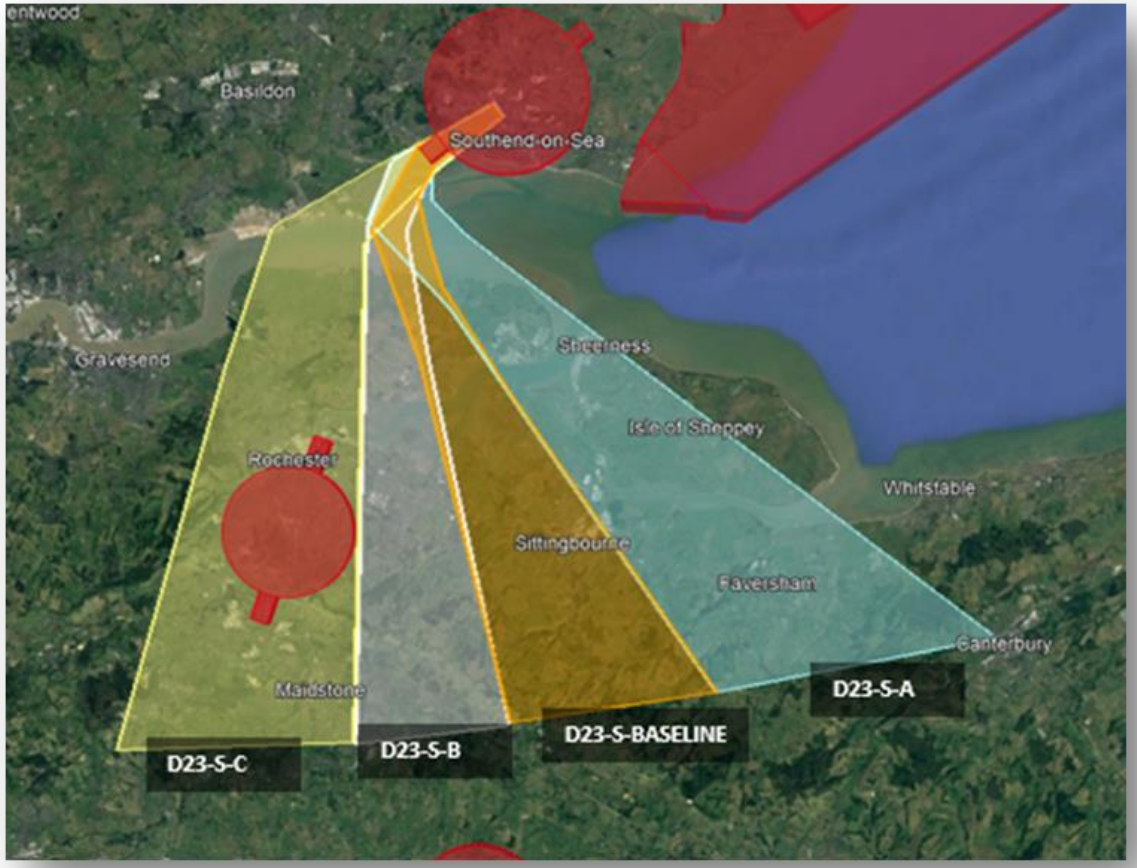

Figure 6: Departure Options Runway 23 - South/ Southeast

7.1. Option **D23-S-BASELINE**

D23-S-BASELINE	Design Principle	Qualitative Assessment	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	Assessed as green due to being today's operation and the current baseline.	
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Assessed as green due to being today's operation and the current baseline.	
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Assessed as green due to being today's operation and the current baseline.	
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Assessed as green due to being today's operation and the current baseline.	
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Assessed as green due to being today's operation and the current baseline.	
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Assessed as green due to being today's operation and the current baseline.	
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	Assessed as green due to being today's operation and the current baseline.	
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Assessed as green due to being today's operation and the current baseline.	
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.	
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Assessed as green due to being today's operation and the current baseline.	
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Assessed as green due to being today's operation and the current baseline.	
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.	
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.	

Table 19: Option D23-S-BASELINE DP Assessment

7.2. Option **D23-S-A**

Survey Question

'DEPARTURES Runway 23 – South/Southeast.

Do you think we have correctly applied the Design Principles to swathe **D23-S-A**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Six responses agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

Anonymous

'All three options overfly the Kent Downs AONB impacting on its tranquillity (DP4), although we note that the current scenario involves overflying of the AONB. Option C would appear to affect a smaller area of the designated land.'

LSA agree and we have included the Kent Downs AONB in our assessment of DP4 and changed the RAG score from green to amber.

Riveroak Strategic Partners (Manston Airport)

'DP2/DP3 given shift in number of tracks from current track picture, should these DPs not be at least amber (same as D05-NW-B potential increase for different communities).'

LSA agree and we have amended our assessment of DP2 and DP3 and changed the RAG score from green to amber.

NATS (NERL)

'No; Potential for more noise disruption in Swathe A and likely to interact with the current London City Point Merge not captured'.

LSA agree and have included NATS comments in our assessment of DP4 and changed the RAG score from green to amber.

Natural England

'No; 3,4,5 – Flight path is over Benfleet and Southend Marshes SPA and Ramsar site, Thames Estuary and Marshes SPA and Ramsar, Medway Estuary SPA and Ramsar site and the Swale SPA and Ramsar which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants. Tranquillity of the Kent Downs AONB may also be impacted.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4 and changed the RAG score from green to amber.

Full Design Principle Assessment

D23-S-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Although similar to the baseline there is a potential increase for different communities. A level of dispersion would mean overflights are shared across areas. RAG score amended post stakeholder feedback.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Although similar to the baseline there is a potential increase for different communities. The opportunity to build-in periods of respite could help mitigate the noise impacts of the increase in overflights. RAG score amended post stakeholder feedback.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Kent Downs AONB, Southend Marshes SPA, Thames Estuary & Marshes SPA, Medway Estuary SPA and Ramsar all have the potential to see increases in disturbance. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Minimal difference from today's baseline operation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Minimal difference from today's baseline operation.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new volume of controlled airspace would be required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Minimal difference from today's baseline operation.		

D23-S-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Possible conflict with LSA arrival swathes A23-SE-E & A23-SE-F. This option could also conflict with the London City point merge. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Minimal difference from today's baseline operation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 20: Option D23-S-A DP Assessment

7.4. Option **D23-S-B**

Survey Question

'DEPARTURES Runway 23 – South/Southeast.

Do you think we have correctly applied the Design Principles to swathe **D23-S-B**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Eight respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

Anonymous

'All three options overfly the Kent Downs AONB impacting on its tranquillity (DP4), although we note that the current scenario involves overflying of the AONB. Option C would appear to affect a smaller area of the designated land.'

LSA agree and we have amended our assessment of DP4 to include Kent Downs AONB, although this option is no different to the current tracks and our baseline so there would be no significant increase and this hasn't changed the RAG score.

Natural England

'No; 3,4,5 – Flight path is over Benfleet and Southend Marshes SPA and Ramsar site, Thames Estuary and Marshes SPA and Ramsar, Medway Estuary and Marshes SPA and Ramsar which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants. Tranquillity of the Kent Downs AONB may also be impacted'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4, although this option is no different to the current tracks and our baseline so there would be no significant increase and this hasn't changed the RAG score.

Full Design Principle Assessment

D23-S-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Depending on position of final track there is a potential increase in overflight of Rainham & Hempstead. A level of dispersion would mean overflights are shared across areas. Based on this being similar to our baseline 'Do-minimum' option and true of today's operation the RAG score is assessed as green.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Depending on position of final track there is a potential increase in overflight of Rainham & Hempstead. The opportunity to build-in periods of respite could help mitigate the effects of an increase in overflight. Based on this being similar to our baseline 'Do-minimum' option and true of today's operation the RAG score is assessed as green.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Overflight of Kent Downs AONB, Benfleet and Southend Marshes SPA, Thames Estuary & Marshes SPA, Medway Estuary & Marshes SPA and Ramsar - although this would be no different to today's operation and our baseline (do nothing) option.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Minimal difference to today's baseline operation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Minimal difference to today's baseline operation.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new volume of controlled airspace would be required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Minimal difference to today's baseline operation.		

D23-S-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	No foreseen systemisation issues currently, minimal difference to today's baseline operation.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Minimal difference to today's baseline operation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 21:Option D23-S-B DP Assessment

7.5. Option **D23-S-C**

Survey Question

'DEPARTURES Runway 23 – South/Southeast.

Do you think we have correctly applied the Design Principles to swathe **D23-S-C**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Seven responses agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

Anonymous

'All three options overfly the Kent Downs AONB impacting on its tranquillity (DP4), although we note that the current scenario involves overflying of the AONB. Option C would appear to affect a smaller area of the designated land.'

LSA agree and we have amended our assessment of DP4 to include Kent Downs AONB, although this option would overfly a smaller portion than the baseline so there would be no significant increase and this hasn't changed the RAG score.

Natural England

'No; 3,4,5 – Flight path is over Benfleet and Southend Marshes SPA and Ramsar site, Thames Estuary and Marshes SPA and Ramsar, Medway Estuary and Marshes SPA and Ramsar which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants. Tranquillity of the Kent Downs AONB may also be impacted.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4 and changed the RAG score from green to amber.

Private Pilot

'Allow aircraft maximum rate of climb.'

Further in the ACP process, at Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Full Design Principle Assessment

D23-S-C	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Potential increase in overflight of different areas, for example - Canvey Island, Gillingham & Rochester. However, a level of dispersion would mean some sharing of overflights over different areas.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Potential increase in overflight of different areas, for example - Canvey Island, Gillingham & Rochester. Nevertheless, the opportunity to build-in periods of respite could help mitigate the effects of an increase in overflights.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Overflight of Kent Downs AONB, Benfleet and Southend Marshes SPA, Thames Estuary & Marshes SPA, Medway Estuary & Marshes SPA and Ramsar. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Marginal extra track miles than the baseline option but not significant.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Minimal difference from today's baseline operation.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	This option would potentially require a slight increase in controlled airspace to contain the procedures. The decision has been made post the initial assessment to amend the RAG score based on the Evaluation Criteria.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Close proximity to the LTMA would increase complexity if this option were to be chosen.		

D23-S-C	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	This option would move the departures for this runway and direction closer to LTMA 1 and London Gatwick Airport's traffic. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward. The decision has been made post the initial assessment to amend the RAG score based on further assessment and the Evaluation Criteria.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Marginal extra track miles than the baseline option but not significant.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process. RAG score amended following standardised evaluation criteria after the initial evaluation.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process. RAG score amended following standardised evaluation criteria after the initial evaluation.		

Table 22: Option D23-S-C DP Assessment

8. Arrivals Runway 05 – Northwest

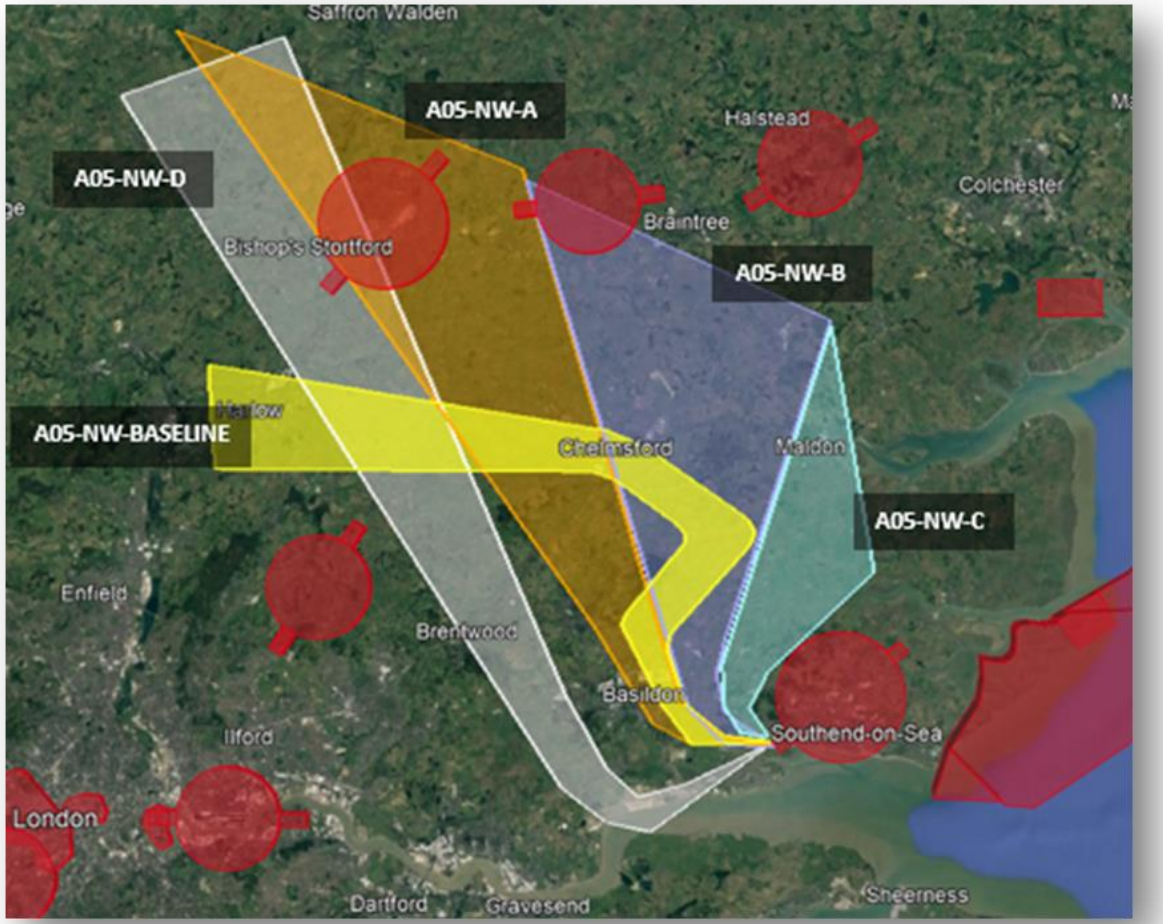

Figure 7: Arrival Options Runway 05 - Northwest

8.1. Option **A05-NW-BASELINE**

A05-NW-BASELINE	Design Principle	Qualitative Assessment	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	Assessed as green due to being today's operation and the current baseline.	
2	**Overflight**-The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Assessed as green due to being today's operation and the current baseline.	
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Assessed as green due to being today's operation and the current baseline.	
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Assessed as green due to being today's operation and the current baseline.	
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Assessed as green due to being today's operation and the current baseline.	
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Assessed as green due to being today's operation and the current baseline.	
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	Assessed as green due to being today's operation and the current baseline.	
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Assessed as green due to being today's operation and the current baseline.	
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.	
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Assessed as green due to being today's operation and the current baseline.	
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Assessed as green due to being today's operation and the current baseline.	
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.	
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.	

Table 23: Option A05-NW-BASELINE DP Assessment

8.2. Option **A05-NW-A**

Survey Question

'ARRIVALS Runway 05 – Northwest.

Do you think we have correctly applied the Design Principles to swathe A05-NW-A?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Seven responses agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

Riveroak Strategic Partners (Manston Airport)

'DP2/DP3 very few existing arrival tracks in this area so likely increase for both DPs'

LSA agree and have assessed DP2 and DP3 as amber as per the Evaluation Criteria. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

NATS (NERL)

'No; DP8 and DP10: Interacts with Stansted and London City traffic. Network connectivity would increase complexity if more than one of these routes was chosen.'

LSA agree and we have included the additional comments in our assessment of DP10 (and changed the RAG score from green to red) and DP8 (however this hasn't changed the RAG score).

MAG (London Stansted Airport)

'No; DP10 - Systemisation. Potential for multiple interactions with both current and future STN Departures to the East and South. Level restrictions or ATC intervention may be required to ensure separation. There is also potential interaction with future STN Arrivals depending on position and type of the agreed holding facility with NERL. DP 12 - AMS Realisation - Potential for multiple interactions with STN Departures to East, Northeast, Southeast and South. Evaluation for A05-NW-A, and A05-NW-D design options do not account for proximity to STN/LTMA operations.'

LSA agree and we have included the additional comments in our assessment of DP10 and changed the RAG score from green to red.

Essex County Council

In reviewing the analysis of the arrival airspace route options for Runway 05 North-West, ECC notes that DP11 (operational cost) demonstrates that this swathe would result in extra track miles. Whilst this may be an issue, ECC would welcome understanding the option that would facilitate continuous descent and whether this may offset any issues associated with additional track miles, as it would facilitate more environmentally optimal flying conditions. ECC is mindful that the adoption of continuous decent procedures can reduce the need for additional fuel use by a stepped landing, therefore increasing fuel efficiency and also reducing noise associated with less use of engine power to maintain certain altitudes on the stepped landing procedures.

Further, more detailed, analysis of potential for continuous climb and descent profiles will be conducted at Stage 3 when we have a clearer understanding of where the final tracks may lie. Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

A05-NW-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Potential to increase concentration over eastern Basildon.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Potential to increase noise over eastern Basildon. However, the opportunity to build-in periods of respite could help mitigate the increase in effects of noise.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	No obvious impact upon sites of tranquillity.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Reasonably direct route that would minimise emissions and fuel burn.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	This swathe is assessed as having met the Operational Requirements DP.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new controlled airspace would be required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Potential complexity issues with proximity to LTMA traffic, but no different from today's operation.		

A05-NW-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Potential interactions with London Stansted and London City traffic. Network connectivity would increase complexity if more than one of these routes was chosen. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward. RAG score amended post stakeholder feedback.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Reasonably direct route that would minimise emissions and fuel burn.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 24: Option A05-NW-A DP Assessment

8.3. Option **A05-NW-B**

Survey Question

'ARRIVALS Runway 05 – Northwest.

Do you think we have correctly applied the Design Principles to swathe **A05-NW-B**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Seven respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

Riveroak Strategic Partners (Manston)

'DP2/DP3 very few existing arrival tracks in this area so likely increase for both DPs.'

LSA agree and have assessed DP2 and DP3 as amber as per the Evaluation Criteria. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

NATS (NERL)

'DP8 and DP10: Network connectivity would increase complexity if more than one of these routes was chosen.'

LSA agree and we have included NATS comments in our assessment of DP8 and DP10, however this hasn't changed the RAG score.

MAG (London Stansted Airport)

'No; DP10 - Systemisation. Potential for multiple interactions with both current and future STN Departures to the East. Level restrictions or ATC intervention may be required to ensure separation. There is also potential interaction with future STN Arrivals depending on position and type of the

agreed holding facility with NERL. DP12 - AMS Realisation - Potential for multiple interactions with STN departures to the East. However, the Eastern edge of this swathe provides for significantly reduced interaction. Evaluation for A05-NW-A, and A05-NW-D design options do not account for proximity to STN/LTMA operations.'

LSA agree and we have included London Stansted Airports comments in our assessment of DP10, however this hasn't changed the RAG score.

Essex County Council

In reviewing the analysis of the Arrival airspace route options for Runway 05 North-West, ECC notes that DP11 (operational cost) demonstrates that this swathe would result in extra track miles. Whilst this may be an issue, ECC would welcome understanding the option that would facilitate continuous descent and whether this may offset any issues associated with additional track miles, as it would facilitate more environmentally optimal flying conditions. ECC is mindful that the adoption of continuous decent procedures can reduce the need for additional fuel use by a stepped landing, therefore increasing fuel efficiency and also reducing noise associated with less use of engine power to maintain certain altitudes on the stepped landing procedures.

Further, more detailed, analysis of potential for continuous climb and descent profiles will be conducted at Stage 3 when we have a clearer understanding of where the final tracks may lie. Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

A05-NW-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Potential to increase concentration over eastern Basildon.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Potential to increase noise over eastern Basildon. However, the opportunity to build-in periods of respite could help mitigate the effects of an increase in noise from overflights.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	No obvious impact upon sites of tranquillity.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Reasonably direct route that would minimise emissions and fuel burn.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	This swathe is assessed as having met the Operational Requirements DP.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new controlled airspace would be required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Network connectivity could increase complexity but no more than today's operation.		

A05-NW-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Possible conflict with London Southend departure swathes D05-NW-A and D05-NW-B. Potential for multiple interactions with both current and future London Stansted departures to the East. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Reasonably direct route that would minimise emissions and fuel burn.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 25: Option A05-NW-B DP Assessment

8.4. Option **A05-NW-C**

Survey Question

'ARRIVALS Runway 05 – Northwest.

Do you think we have correctly applied the Design Principles to swathe **A05-NW-C**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Eight respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

NATS (NERL)

'No; DP8 and DP10: Interacts with SS and LC traffic. Network connectivity would increase complexity if more than one of these routes was chosen.'

LSA agree and we have included NATS comments in our assessment of DP8 and DP10, however this hasn't changed the RAG score.

Natural England

'No; 3,4,5 – Flight path is over Blackwater Estuary SPA and Ramsar site which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4, but this hasn't changed the RAG score (the baseline currently overflies these areas).

Essex County Council

In reviewing the analysis of the arrival airspace route options for Runway 05 North-West, ECC notes that DP11 (operational cost) demonstrates that this swathe would result in extra track miles. Whilst this may be an issue, ECC would welcome understanding the option that would facilitate continuous descent and whether this may offset any issues associated with additional track miles, as it would facilitate more environmentally optimal flying conditions. ECC is mindful that the adoption of continuous decent procedures can reduce the need for additional fuel use by a stepped landing, therefore increasing fuel efficiency and also reducing noise associated with less use of engine power to maintain certain altitudes on the stepped landing procedures.

Further, more detailed, analysis of potential for continuous climb and descent profiles will be conducted at Stage 3 when we have a clearer understanding of where the final tracks may lie. Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

A05-NW-C	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	No increase in people overflown from today's operation.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	No increase in people overflown from today's operation.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Blackwater Estuary SPA and Ramsar could see an increase in overflights, but minimal difference to today's baseline operation.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Extra track miles from today's baseline operation, RAG score amended accordingly.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Currently, there are not many arrivals from this direction. So, there would be minimal difference to the baseline.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	Currently, there are not many arrivals from this direction. So, there would be minimal difference to the baseline.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Currently, there are not many arrivals from this direction. So, there would be minimal difference to the baseline.		

A05-NW-C	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Possible conflict with LSA departure swathes D05-NW-A and D05-NW-B. Potential interactions with London Stansted and London City traffic. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Extra track miles from today's baseline operation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 26: Option A05-NW-C DP Assessment

8.5. Option **A05-NW-D**

Survey Question

'ARRIVALS Runway 05 – Northwest.

Do you think we have correctly applied the Design Principles to swathe **A05-NW-D**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Five respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

Southend City Council

'Would there be increased impacts on Canvey Island re Principles 2 and 3.'

LSA agree and we have included the additional areas in our assessment of DP2 and DP3 and changed the RAG score from green to amber.

Riveroak Strategic Partners (Manston Airport)

'DP2/DP3 very few existing arrival tracks in this area so likely increase for both DPs.'

LSA agree and we have included the comments in our assessment of DP2 and DP3 and changed the RAG score from green to amber.

NATS (NERL)

'No; DP8 and DP10: Network connectivity would increase complexity if more than one of these routes was chosen.'

LSA agree and we have included the additional comments in our assessment of DP8 and changed the RAG score from green to amber and the RAG score for DP10 has changed from green to red.

MAG (London Stansted Airport)

'No; DP10 - Systemisation. Potential for multiple interactions with both current and future STN Departures to the East. Level restrictions or ATC intervention may be required to ensure separation. There is also potential interaction with future STN Arrivals depending on position and type of the agreed holding facility with NERL. DP12 - AMS Realisation - Potential for multiple interactions with STN departures to the East. However, the Eastern edge of this swathe provides for significantly reduced interaction. Evaluation for A05-NW-A, and A05-NW-D design options do not account for proximity to STN/LTMA operations.'

LSA agree and we have included the additional comments in our assessment of DP10 and changed the RAG score from green to red.

Natural England

'No; 3,4,5 – Flight path is over Benfleet and Southend Marshes SPA and Ramsar site, Thames Estuary and Marshes SPA and Ramsar site which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4 and changed the RAG score from green to amber.

Essex County Council

In reviewing the analysis of the Arrival airspace route options for Runway 05 Northwest, ECC notes that DP11 (operational cost) demonstrates that this swathe would result in extra track miles. Whilst this may be an issue, ECC would welcome understanding the option that would facilitate continuous descent and whether this may offset any issues associated with additional track miles, as it would facilitate more environmentally optimal flying conditions. ECC is mindful that the adoption of continuous decent procedures can reduce the need for additional fuel use by a stepped landing, therefore increasing fuel efficiency and also reducing noise associated with less use of engine power to maintain certain altitudes on the stepped landing procedures.

Further, more detailed, analysis of potential for continuous climb and descent profiles will be conducted at CAP1616 Stage 3 when we have a clearer understanding of where the final tracks may lie. Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

A05-NW-D	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Very few existing arrival tracks in this area so likely increase to number of people overflown. RAG score amended post stakeholder feedback.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Very few existing arrival tracks in this area so likely increase to noise footprint. However, the opportunity to build-in periods of respite could help mitigate the effects of noise associated with increased overflight. RAG score amended post stakeholder feedback.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Benfleet and Southend Marshes SPA and Ramsar site, Thames Estuary & Marshes SPA and Ramsar could see an increase in overflights. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Reasonably direct route that would minimise emissions and fuel burn.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	This swathe is assessed as having met the Operational Requirements DP.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new controlled airspace would be required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Network connectivity could increase complexity. The decision has been made post the initial assessment to amend the RAG score based on the Evaluation Criteria.		

A05-NW-D	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Potential for multiple interactions with both current and future London Stansted departures to the East. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward. RAG score amended post stakeholder feedback.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Reasonably direct route that would minimise emissions and fuel burn.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 27: Option A05-NW-D DP Assessment

9. Arrivals Runway 05 – South & East

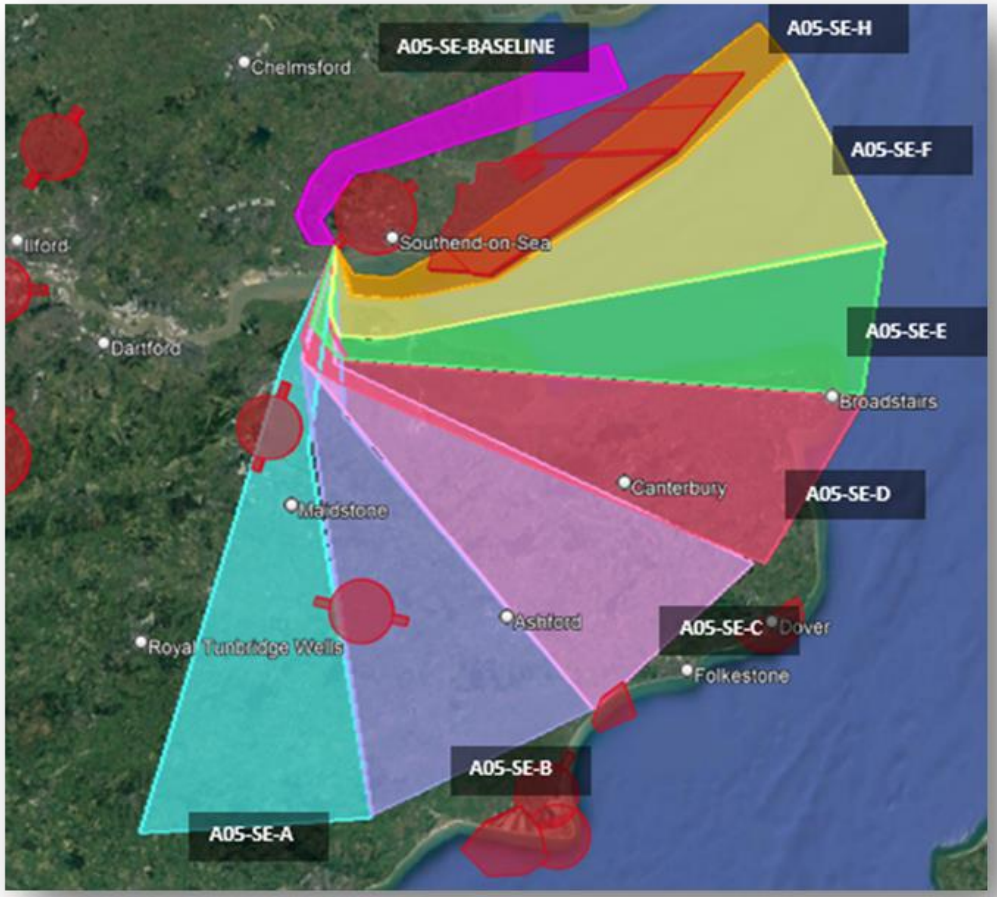

Figure 8: Arrival Options Runway 05 - South & East

9.1. Option **A05-SE-BASELINE/A05-SE-G**

Survey Question

'ARRIVALS Runway 05 - South and East.

Do you think we have correctly applied the Design Principles to swathe **A05-SE-G**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Eight respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

Private Pilot

'No; Very convoluted to fly and takes the aircraft into areas of training.'

Further in the ACP process, at CAP1616 Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks commensurate with controlled airspace containment.

Natural England

'No; 3,4,5 – Flight path is over Crouch and Roach Estuaries SPA and Ramsar, and Dengie SPA and Ramsar which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4. However, based on this being our baseline 'Do-minimum' option and true of today's operation the RAG score hasn't been changed.

Full Design Principle Assessment

A05-SE-BASELINE	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	Assessed as green due to being today's operation and the current baseline.		
2	**Overflight -** The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Assessed as green due to being today's operation and the current baseline.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Assessed as green due to being today's operation and the current baseline.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Assessed as green due to being today's operation and the current baseline.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Assessed as green due to being today's operation and the current baseline. RAG score amended after redefining the baseline.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Assessed as green due to being today's operation and the current baseline.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	Assessed as green due to being today's operation and the current baseline.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Assessed as green due to being today's operation and the current baseline.		

A05-SE-BASELINE	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Assessed as green due to being today's operation and the current baseline. RAG score amended after redefining the baseline.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Assessed as green due to being today's operation and the current baseline. RAG score amended after redefining the baseline.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 28: Option A05-SE-BASELINE DP Assessment

9.2. Option **A05-SE-A**

Survey Question

'ARRIVALS Runway 05 - South and East.

Do you think we have correctly applied the Design Principles to swathe **A05-SE-A**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Seven respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD**

Anonymous

'No; Options A, B, and C would result in more concentrated flight paths over the Kent Downs AONB and therefore should, in our view, be assigned an amber rating for DP4.'

LSA agree and we have included the Kent Downs AONB in our assessment of DP4 and changed the RAG score from green to amber.

NATS (NERL)

'No; Tactically achieved in today's operation but only when deconflicted from LTMA departing traffic to the SE.'

LSA agree and we have included the additional comments in our assessment of DP10 and changed the RAG score from green to red.

Natural England

'No; 3,4,5 – Flight path is over Benfleet and Southend Marshes SPA and Ramsar site, Thames Estuary and Marshes SPA and Ramsar, Medway Estuary and Marshes SPA and Ramsar which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants. Tranquillity of the Kent Downs AONB and High Weald AONB may also be impacted.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4 and changed the RAG score from green to amber.

Private Pilot

'Arrivals allow aircraft a constant 500' 1000' descent rate which will keep engine power at a minimum and slow down, so they are 180kts at 10 miles slowing to 160kts then from 4nm free speed which is best for noise and fuel burn.'

Further in the ACP process, at CAP1616 Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Full Design Principle Assessment

A05-SE-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety** – The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Increased lower-level overflight of Maidstone. The decision has been made post the initial assessment to amend the RAG score based on the Evaluation Criteria.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Increased lower-level overflight of Maidstone. However, the opportunity to build-in periods of respite could help mitigate the effects of noise associated with increased overflight. The decision has been made post the initial assessment to amend the RAG score based on the Evaluation Criteria.		
4	**Tranquillity** - Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	More concentrated flight paths over the Kent Downs AONB, Benfleet and Southend Marshes SPA and Ramsar site, Thames Estuary & Marshes SPA and Ramsar, Medway Estuary & Marshes SPA and Ramsar. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Less track miles than today's baseline operation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Shorter more expeditious route.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new controlled airspace required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Potential for more interactions with LTMA traffic, however this is a more direct route avoiding the extra track miles and proximity to the Shoeburyness DA.		

A05-SE-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Potential interaction with London City traffic and London Gatwick airport current procedures. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward. RAG score amended post stakeholder feedback.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Less track miles than today's baseline operation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 29: Option A05-SE-A DP Assessment

9.3. Option **A05-SE-B**

Survey Question

'ARRIVALS Runway 05 - South and East.

Do you think we have correctly applied the Design Principles to swathe **A05-SE-B**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Seven respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD**.

Anonymous

'No; Options A, B, and C would result in more concentrated flight paths over the Kent Downs AONB and therefore should, in our view, be assigned an Amber rating for DP4.'

LSA agree and we have included the Kent Downs AONB in our assessment of DP4 and changed the RAG score from green to amber.

NATS (NERL)

'No; Tactically achieved in today's operation but only when deconflicted from LTMA departing traffic to the SE'.

LSA agree and we have included the additional comments in our assessment of DP10 and changed the RAG score from green to amber.

Natural England

'No; 3,4,5 – Flight path is over Benfleet and Southend Marshes SPA and Ramsar site, Thames Estuary and Marshes SPA and Ramsar, Medway Estuary & Marshes SPA and Ramsar site and Dungeness and Romney Marsh SPA and Ramsar site which could have significant impacts on the interest features

of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants. Tranquillity of the Kent Downs AONB and High Weald AONB may also be impacted.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4 and changed the RAG score from green to amber.

Full Design Principle Assessment

A05-SE-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety** – The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	No increase in people overflown from today's operation.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	No increase in people overflown from today's operation.		
4	**Tranquillity** - Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	More concentrated flight paths over the Kent Downs AONB, Benfleet and Southend Marshes SPA and Ramsar site, Thames Estuary & Marshes SPA and Ramsar, Medway Estuary & Marshes SPA and Ramsar. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Less track miles than today's baseline operation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Shorter more expeditious route.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new controlled airspace required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	No increase in complexity anticipated.		

A05-SE-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Potential interaction with London City traffic. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward. RAG score amended post stakeholder feedback.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Less track miles than today's baseline operation so better fuel efficiency.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 30: Option A05-SE-B DP Assessment

9.4. Option **A05-SE-C**

Survey Question

'ARRIVALS Runway 05 - South and East.

Do you think we have correctly applied the Design Principles to swathe **A05-SE-C**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Eight respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

Anonymous

'No; Options A, B, and C would result in more concentrated flight paths over the Kent Downs AONB and therefore should, in our view, be assigned an amber rating for DP4.'

LSA agree and we have included the Kent Downs AONB in our assessment of DP4 and changed the RAG score from green to amber.

NATS (NERL)

'Yes; Tactically achieved in today's operation but only when deconflicted from LTMA departing traffic to the SE. Swathe C may be suitable if arrivals were underneath the LC point merge.'

LSA agree and we have included the additional comments in our assessment of DP10 and changed the RAG score from green to amber.

Natural England

'No; 3,4,5 – Flight path is over Benfleet and Southend Marshes SPA and Ramsar site, Thames Estuary and Marshes SPA and Ramsar, Medway Estuary and Marshes SPA and Ramsar which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants. Tranquillity of the Kent Downs AONB may also be impacted'.

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4 and changed the RAG score from green to amber.

Full Design Principle Assessment

A05-SE-C	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety** – The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	No increase in number of people overflown from today's operation.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	No increase in number of people overflown from today's operation.		
4	**Tranquillity** - Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	More concentrated flight paths over the Kent Downs AONB, Benfleet and Southend Marshes SPA and Ramsar site, Thames Estuary & Marshes SPA and Ramsar, Medway Estuary & Marshes SPA and Ramsar. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Less track miles than today's baseline operation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Shorter more expeditious route.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new controlled airspace required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	No increase in complexity anticipated.		

A05-SE-C	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Tactically achieved in today's operation but only when deconflicted from LTMA departing traffic to the SE. Swathe C may be suitable if arrivals were underneath the London City point merge. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward. RAG score amended post stakeholder feedback.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Less track miles than today's baseline operation so better fuel efficiency.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 31: Option A05-SE-C DP Assessment

9.5. Option **A05-SE-D**

Survey Question

'ARRIVALS Runway 05 - South and East.

Do you think we have correctly applied the Design Principles to swathe **A05-SE-D**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Nine respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

NATS (NERL)

'Yes; Swathe D may be suitable if arrivals were underneath the LC point merge.'

LSA agree and we have included the additional comments in our assessment of DP10 and changed the RAG score from green to amber.

Natural England

'No; 3,4,5 – Flight path is over Benfleet and Southend Marshes SPA and Ramsar site, Thames Estuary and Marshes SPA and Ramsar, Medway Estuary & Marshes SPA and Ramsar, The Swale SPA and Ramsar site, Stodmarsh SPA and Ramsar site and Thanet Coast and Sandwich Bay SPA and Ramsar site which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4 and changed the RAG score from green to amber.

Full Design Principle Assessment

A05-SE-D	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety** – The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	No increase in people overflown from today's operation.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	No increase in people overflown from today's operation.		
4	**Tranquillity** - Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Benfleet and Southend Marshes SPA, Thames Estuary and Marshes SPA, Medway Estuary and Marshes SPA, The Swale SPA, Stodmarsh SPA, Thanet Coast & Sandwich Bay SPA; all fall within the confines of this swathe. Further work would need to be done to establish the impact should this option be carried forward. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Less track miles than today's baseline operation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Shorter more expeditious route.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new controlled airspace required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	No increase in complexity anticipated.		

A05-SE-D	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP signer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Swathe D may be suitable if arrivals were underneath the London City point merge. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward. RAG score amended post stakeholder feedback.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Less track miles than today's baseline operation so better fuel efficiency.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 32: Option A05-SE-D DP Assessment

9.6. Option **A05-SE-E**

Survey Question

'ARRIVALS Runway 05 - South and East.

Do you think we have correctly applied the Design Principles to swathe **A05-SE-E**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Nine respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

Natural England

'No; 3,4,5 – Flight path is over Benfleet and Southend Marshes SPA and Ramsar site, Thames Estuary and Marshes SPA and Ramsar, Medway Estuary and Marshes SPA and Ramsar. The Swale SPA and Ramsar site, Outer Thames Estuary SPA, Thanet Coast SPA and Ramsar which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential.

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4 and changed the RAG score from green to amber.

Full Design Principle Assessment

A05-SE-E	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety** – The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	No increase in people overflown from today's operation.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	No increase in people overflown from today's operation.		
4	**Tranquillity** - Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Benfleet and Southend Marshes SPA, Thames Estuary and Marshes SPA, Medway Estuary and Marshes SPA, The Swale SPA, Stodmarsh SPA, Thanet Coast & Sandwich Bay SPA; all fall within the confines of this swathe. Further work would need to be done to establish the impact should this option be carried forward. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Less track miles than today's baseline operation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Shorter more expeditious route.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new controlled airspace required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	No increase in complexity anticipated.		

A05-SE-E	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Possible conflict with London Southend departure options D05-S-C and D05-S-A.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Less track miles than today's baseline operation. RAG score changed to reflect this after the initial evaluation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 33: Option A05-SE-E DP Assessment

9.7. Option **A05-SE-F**

Survey Question

'ARRIVALS Runway 05 - South and East.

Do you think we have correctly applied the Design Principles to swathe **A05-SE-F**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Nine respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

Natural England

'No; 3,4,5 – Flight path is over Benfleet and Southend Marshes SPA and Ramsar site, Thames Estuary & Marshes SPA and Ramsar, Medway Estuary and Marshes SPA and Ramsar, Outer Thames Estuary SPA which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4 and changed the RAG score from green to amber.

Full Design Principle Assessment

A05-SE-F	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety** – The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	No increase in people overflown from today's operation.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	No increase in people overflown from today's operation.		
4	**Tranquillity** - Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Benfleet and Southend Marshes SPA, Thames Estuary and Marshes SPA, Medway Estuary and Marshes SPA, The Swale SPA, Stodmarsh SPA, Thanet Coast & Sandwich Bay SPA; all fall within the confines of this swathe. Further work would need to be done to establish the impact should this option be carried forward. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Extra track miles if arriving from the South but no increase on today's baseline. The decision has been made post the initial assessment to amend the RAG score based on the Evaluation Criteria.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Not dissimilar to today's baseline operation.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new controlled airspace required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	No increase in complexity anticipated.		

A05-SE-F	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Possible conflict with LSA departure swathes D05-S-C and D05-S-A.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Not dissimilar to today's baseline operation. RAG score changed to reflect this after the initial evaluation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 34: Option A05-SE-F DP Assessment

9.8. Option **A05-SE-H (**Additional Swathe Stage 2 Rework**)**

Stakeholder feedback with our responses in BOLD.

Southend City Council

'It would be helpful to understand the heights and noise levels compared to departures (i.e. if noise is less and level of flight higher).
Any relationship to A23-SE-B?'

'Do categories 5 and 11 perform better than in the Departures option because the variance from the current track is much less than departures?'

Yes, this would be a correct assumption.

Further more detailed analysis of noise and flight profile will be conducted at CAP1616 Stage 3 when we have a clearer understanding of where the final tracks may lie.

Essex County Council

'Welcome an appreciation of when this revised route may be used, and if there are restrictions on use how useful it may as a potential route to provide some communities with respite? An understanding of the noise exposure would be appreciated.'

We are still early on in the development of all of our options and are exploring options that may offer potential respite routes for outside the DAs published operating hours.

'Criteria 5 - Emissions and Air Quality - See comments on the previous route (Query whether the increase in track miles is dependent on the precise location that the airline is flying to? Unsure whether this warrants a red indicating significant issue. I would welcome clarification on this) and note that this evaluation has the outcome as green. Need to ensure the method of assessment is consistent in the conclusions ascertained.

Criteria 11 - Operational Cost - Note that whilst criteria 5 has an outcome of green, the outcome for the matter of additional track miles is amber for operational cost. It would appear that the assessment is not consistent.'

LSA have amended our assessment of DP11 to reflect the comments.

NATS (NERL)

'If the operation of this route were subject to co-ordination between Southend and the Range Operator, robust safety assurance would be required for NERL. Procedures could be established for use of this area when the range is inactive. NERL considers this to be a possible respite option.'

'DP8 & DP10 NERL considers that these should include a reference to the interaction with the London City Point Merge.'

LSA agree and have included NATS comments in our assessment of DP8 and DP10, although this has not changed the RAG score.

British Gliding Association

'Unfortunately these swathe illustrations and text do not provide us with enough information to understand the impact on our operations. We need to see detail of horizontal and vertical limits of proposed controlled airspace. This illustration demonstrates how removed from its original intent Stage 2 of CAP1616 has become - the Options effectively include the entire SE corner of England.'

'The only recognition that the Designs need to take into consideration the safety and utility needs of those operating outside controlled airspace refers to avoiding 'bottlenecks' in uncontrolled airspace. The Design Principles are entirely self-serving.'

LSA thanks British Gliding Association for their feedback at this stage, however we are still early on in the development of all of our options and further details and clarity on horizontal and vertical limits will be addressed during CAP1616 Stage 3.

St Lawrence Airstrip

'No impact on my operations'

London Biggin Hill Airport

'We have no concerns over option H, but will be interested in the development of Options A and B'

Defence Airspace & Air Traffic Management'

'There have been concerns expressed by those responsible for Shoeburyness range that the proposed options routing through the range might limit MoD activities within. The MoD standfast that in the event of the new routes being approved, standing range activities should take priority and the New routes should only be available when the range is entirely inactive. However, the MoD recognises the requirement for FUA, so in the event of the routes being selected for progression in the ACP then a robust LOA would need to be agreed between Southend Airport and the Range, to ensure MoD activities are not compromised and that traffic routes through the area in a safe manner. The MoD would welcome an open discussion between all relevant parties to discuss the proposal, if deemed required.'

LSA notes the concerns of the MoD and Shoeburyness range, we are still early on in the development of all of our options and are exploring options that may offer potential respite routes for outside the DAs published operating hours. Any progression and development of routes within this Swathe would be progressed in full consultation of the MoD and Shoeburyness range.

Seawing Flying Club

'No problems with this option'

Seawing and Private Pilot

'No need for option g or h due to the noise increase- fuel pollution isn't an issue as aircraft transition to net zero fuel- however noise polluting will increase and points 1,2, 3,4,6,7, 8,9,10,11,13 would all be affected'

'Most of the points for doe a05seh would be brought into conflict as per the previous answer , there is no operational cost benefit'

Further, more detailed, analysis of noise and flight profile and cost benefit will be conducted at CAP1616 Stage 3 when we have a clearer understanding of where the final tracks may lie. We have considered the remaining comments however they have not altered our assessment of the associated DPs.

Heathrow

'The feedback we provided to the original Stage 2A Engagement remains valid and Heathrow has no further comments to add in regard to this additional option.'

Private Pilot

‘A05-SE-H looks like a good incremental option which will in some circumstances reduce fuel burn.’

Barling Airfield

‘No impact to Barling.’

General Aviation Alliance

‘It is impossible to provide a meaningful response when presented with swathes and stating that "This option would require an increase in controlled airspace." but not including any details of what that increase would, or might, consist of.’

LSA thanks General Aviation Alliance for their feedback at this stage, however we are still early on in the development of all of our options and further details and clarity on horizontal and vertical limits will be addressed during CAP1616 Stage 3.

Rochester Airport

‘As mentioned above, it's another option with the added drawbacks with the Firing Range.’

RSPB

‘London Southend Airport - Stage 2 Rework Additional swathes, London Southend Airport FASI(S) ACP.

ACP-2018-9

Thank you for the opportunity to respond to the early stage of this consultation. Having a look at the Proposed departures and arrivals swathe, the RSPB has some serious concerns, and the following comments relate to all options provided in the consultation. The Proposed swathe follows the coast from Shoebury heading Northeast along the coast and the undisturbed mudflats at Wakering Stairs and Foulness Island to its most north-easterly point; many birds including Dark-bellied Brent Goose Branta bernicla feed in this area along with tens of thousands of waders and wildfowl. This whole area is of critical importance for waterbirds as it is one of the least disturbed areas of mudflats in the Thames due to it being within the MoD firing range boundary, therefore heavily used by birds. The mudflats within Southend Council's jurisdiction are unfortunately not in peak condition and effectively sterilised due to excessive and uncontrolled recreational disturbance. If the Airport were then to potentially take aircraft over the MoD 'refuge' mudflat described above, this would be a further nail in the coffin for this designated area and its internationally important population of wildfowl and waders.

Regarding disturbance/'tranquillity', the consultation document states:

DPE - D23-NE-E

Benfleet and Southend Marshes SPA, Thames Estuary & Marshes SPA, Outer Thames Estuary SPA and Medway Estuary SPA and Ramsar site, could all see an increase in disturbance (page 14).

DPE – A05-SE-H

Benfleet and Southend Marshes SPA, Thames Estuary and Marshes SPA, Medway Estuary and Marshes SPA, The Swale SPA, Stodmarsh SPA, Thanet Coast & Sandwich Bay SPA; all fall within the confines of this swathe. Further work would need to be done to establish the impact should this option be carried forward (page 19).

Arrivals Options E and H also pass over sensitive regions and our comments in this feedback should be considered to refer to those options as well.

We also reiterate these concerns for the extremely important waterbird habitats south of the Thames, in Kent. Overall, the whole area is extensively designated internationally and nationally, particularly as Special Protection Areas (SPA), Sites of Special Scientific interest (SSSI) and Ramsar sites. It is also being considered as a potential UNESCO World Heritage Site particularly for its migratory and wintering birds: The East Atlantic Flyway https://www.rspb.org.uk/our-work/rspb-news/rspb-news-stories/east-coast-wetlands/.

Given the potential for serious harm to protected waterbird assemblages from the proposed swathes over a large protected area, both as standalone impacts and in-combination impacts with other pressures such as recreational distrurbance, we would need to see detailed analysis of variables and modelling of impacts for departures and arrivals. These include but are not restricted to:

- Height and frequency of planes over protected areas.
- Noise output at pertinent heights, with different aircraft and in different weather conditions.
- Comparison of the effect of expected events on birdlife with known effects from elsewhere.

In summary, the RSPB would need to see clear evidence that the new swathes would not be detrimental to the sensitive designated sites and functionally linked land across the Essex and Kent coasts and their associated waterbird assemblages.

Thank you.'

LSA agrees with the RSPBs comments and has amended the RAG score of DP4 to reflect this from amber to red.

ACC Member

'Given the context of "we are still early in the CAP1616 process, and this engagement is not a consultation on final routes, but an assessment of high-level concepts against the Design Principles you helped us develop" I am overall happy to accept the proposed two new swathes albeit "E" does seem to have some increased pollution risk due to extra flight mileage but would this impact Southend given prevailing westerlies?'

London Stansted Airport

'No further comment on additional swathes.'

Full Design Principle Assessment

A05-SE-H	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety** – The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	Additional safety work would need to be done to make this a viable option. The entire swathe routes through the Shoeburyness Danger Areas (DA). This option could be used as a potential respite route for when the DA are inactive.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	No increase in people overflown from today's operation.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	No increase in people overflown from today's operation.		
4	**Tranquillity** - Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Benfleet and Southend Marshes SPA, Thames Estuary and Marshes SPA, Medway Estuary and Marshes SPA, The Swale SPA, Stodmarsh SPA, Thanet Coast & Sandwich Bay SPA; all fall within the confines of this swathe. Further work would need to be done to establish the impact should this option be carried forward. A significant increase in detrimental impact to bird habitats and activities is likely therefore RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Extra track miles if arriving from the South but no increase on today's baseline.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Not dissimilar to today's baseline operation.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	This option would require an increase in controlled airspace.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Potential increase in complexity due to interaction with the Shoeburyness Danger Areas (DA) and the London City Point Merge.		

A05-SE-H	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Possible conflict with LSA departure swathes D05-S-C and D05-S-A,) and the London City Point Merge.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Extra track miles if arriving from the South but no increase on today's baseline. RAG score amended post stakeholder feedback.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 35: Option A05-SE-H DP Assessment

10. Runway 23 – Northwest

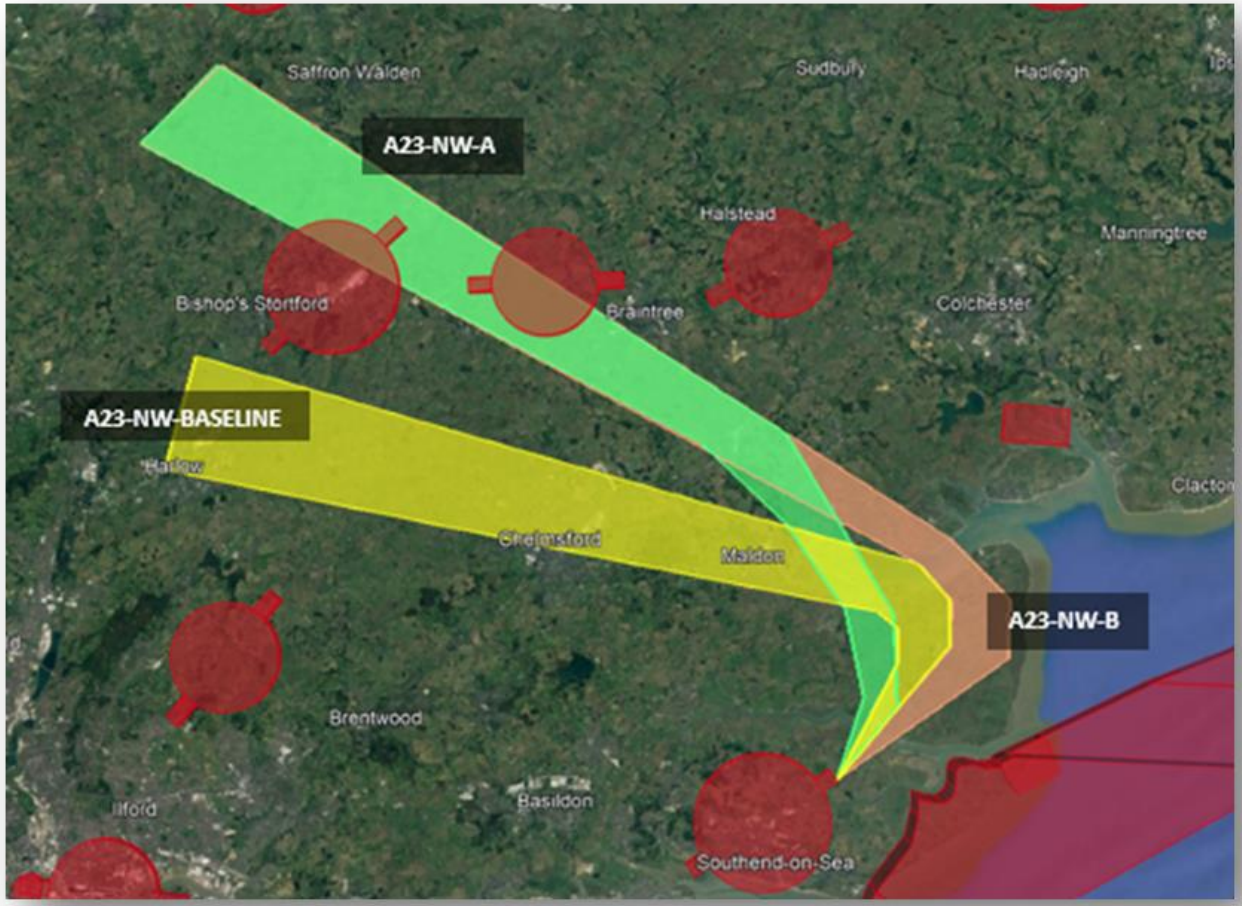

Figure 9: Arrival Options Runway 23 - Northwest

10.1. Option **A23-NW-BASELINE**

A23-NW-BASELINE	Design Principle	Qualitative Assessment	Outcome
1	**Importance of Safety** – The Airspace design and its operation must maintain or where possible, enhance current levels of safety.	Assessed as green due to being today's operation and the current baseline.	
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Assessed as green due to being today's operation and the current baseline.	
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Assessed as green due to being today's operation and the current baseline.	
4	**Tranquillity** - Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Assessed as green due to being today's operation and the current baseline.	
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Assessed as green due to being today's operation and the current baseline.	
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Assessed as green due to being today's operation and the current baseline.	
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	Assessed as green due to being today's operation and the current baseline.	
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Assessed as green due to being today's operation and the current baseline.	
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.	
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Assessed as green due to being today's operation and the current baseline.	
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Assessed as green due to being today's operation and the current baseline.	
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.	
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.	

Table 36: Option A23-NW-BASELINE DP Assessment

10.2. Option **A23-NW-A**

Survey Question

'ARRIVALS Runway 23 – Northwest.

Do you think we have correctly applied the Design Principles to swathe A23-NW-A?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Six respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD**.

Riveroak Strategic Partners (Manston Airport)

'DP2/DP3 no/very few current arrival tracks further out in this Swathe so potential to increase noise impact.'

LSA agree and we have amended our assessment of DP2 and DP3 and changed the RAG score from green to amber.

NATS (NERL)

'DP8 & DP10: Would need to be deconflicted from Stansted and London City. Are you looking for dedicated arrival routes for each runway?'

LSA agree and we have included the additional comments in our assessment of DP10 and changed the RAG score from green to amber.

MAG (London Stansted Airport)

'No; DP10 - Systemisation. Potential for interactions with both current and future STN Departures to the East. Depending on the altitude in the vicinity of Braintree, level restrictions or ATC intervention may be required to ensure separation. There is also potential interaction with future STN Arrivals

depending on position and type of the agreed holding facility with NERL. DP12 - AMS Realisation - Potential for multiple interactions with STN Departures to East particularly from runway 22 at STN'

LSA agree and we have included NATS comments in our assessment of DP8 and DP10, this hasn't changed the RAG score for DP8 and the RAG score for DP10 has changed from green to amber.

Natural England

'No; 3,4,5 – Flight path is over Crouch and Roach Estuaries SPA and Ramsar site, Blackwater Estuary SPA and Ramsar, Essex Estuaries SAC which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4 and changed the RAG score from green to amber.

Essex County Council

ECC recommends that consideration is given to how previous air traffic routes have been assessed to ensure that the sensitive areas for DP4 (Tranquillity) are considered in a consistent manner.

LSA have provided textual justification across all of the DPs, especially when the RAG score has changed. Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

A23-NW-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety** – The Airspace design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Very few existing arrival tracks in this area so likely increase to people overflown. RAG score amended post stakeholder feedback.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Very few existing arrival tracks in this area so likely increase to noise footprint. However, the opportunity to build-in periods of respite could help mitigate the effects of noise associated with increased overflight. RAG score amended post stakeholder feedback.		
4	**Tranquillity** - Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Crouch and Roach Estuaries SPA and Ramsar site, Blackwater Estuary SPA and Ramsar, Essex Estuaries SAC could see an increase in overflights. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Minimal difference to today's baseline operation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Minimal difference to today's baseline operation.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	Minimal difference to today's baseline operation.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Minimal difference to today's baseline operation.		

A23-NW-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Would need to be deconflicted from London Stansted and London City traffic. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward. RAG score amended post stakeholder feedback.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Minimal difference to today's baseline operation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 37: Option A23-NW-A DP Assessment

10.3. Option **A23-NW-B**

Survey Question

'ARRIVALS Runway 23 – Northwest.

Do you think we have correctly applied the Design Principles to swathe **A23-NW-B**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Five respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

Southend City Council

'Principle 4-Would there be some impact on the Dengie peninsula so should this be yellow?'

LSA agree and we have amended our assessment of DP4 and changed the RAG score from green to amber.

Riveroak Strategic Partners (Manston Airport)

'DP2/DP3 no/very few current arrival tracks further out in this swathe so potential to increase noise impact.'

LSA agree and we have amended our assessment of DP2 and DP3 and changed the RAG score from green to amber.

NATS (NERL)

'DP8 & DP10: Would need to be deconflicted from Stansted and London City. Are you looking for dedicated arrival routes for each runway?'

LSA agree and we have included NATS comments in our assessment of DP8 and DP10, this hasn't changed the RAG score for DP8 but has changed the RAG score from green to amber for DP10.

MAG (London Stansted Airport)

'No; DP10 - Systemisation. Potential for interactions with both current and future STN Departures to the East. Depending on the altitude in the vicinity of Braintree, level restrictions or ATC intervention may be required to ensure separation. There is also potential interaction with future STN Arrivals depending on position and type of the agreed holding facility with NERL. DP12 - AMS Realisation - Potential for multiple interactions with STN Departures to East particularly from runway 22 at STN'.

LSA agree and we have included the additional comments in our assessment of DP10 and changed the RAG score from green to amber.

Natural England

'No; 3,4,5 – Flight path is over Crouch and Roach Estuaries SPA and Ramsar site, Blackwater Estuary SPA and Ramsar, Essex Estuaries SAC which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4 and changed the RAG score from green to amber.

Essex County Council

ECC recommends that consideration is given to how previous air traffic routes have been assessed to ensure that the sensitive areas for DP4 (Tranquillity) are considered in a consistent manner.

LSA have provided textual justification across all of the DPs, especially when the RAG score has changed. Additionally, since the engagement we have developed standardised evaluation criteria to ensure consistency across all of the DPs and Options. This can be found in Annex E of the document titled 'ACP Options Development and Design Principle Evaluation' and can be found on the ACP Portal.

Full Design Principle Assessment

A23-NW-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety** – The Airspace design and its operation must maintain or where possible, enhance current levels of safety.	No initial safety concerns.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Very few existing arrival tracks in this area so likely increase to people overflown. RAG score amended post stakeholder feedback.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Very few existing arrival tracks in this area so likely increase to noise footprint. However, the opportunity to build-in periods of respite could help mitigate the effects of noise associated with increased overflight. RAG score amended post stakeholder feedback.		
4	**Tranquillity** - Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Crouch and Roach Estuaries SPA and Ramsar site, Blackwater Estuary SPA and Ramsar, Essex Estuaries SAC and the Dengie peninsula could see a potential increase in overflights. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Minimal difference to today's baseline operation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Minimal difference to today's baseline operation.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	Minimal difference to today's baseline operation.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Minimal difference to today's baseline operation.		

A23-NW-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Would need to be deconflicted from London Stansted and London City traffic. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward. RAG score amended post stakeholder feedback.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Minimal difference to today's baseline operation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 38: Option A23-NW-B DP Assessment

11. Arrivals Runway 23 – South & East

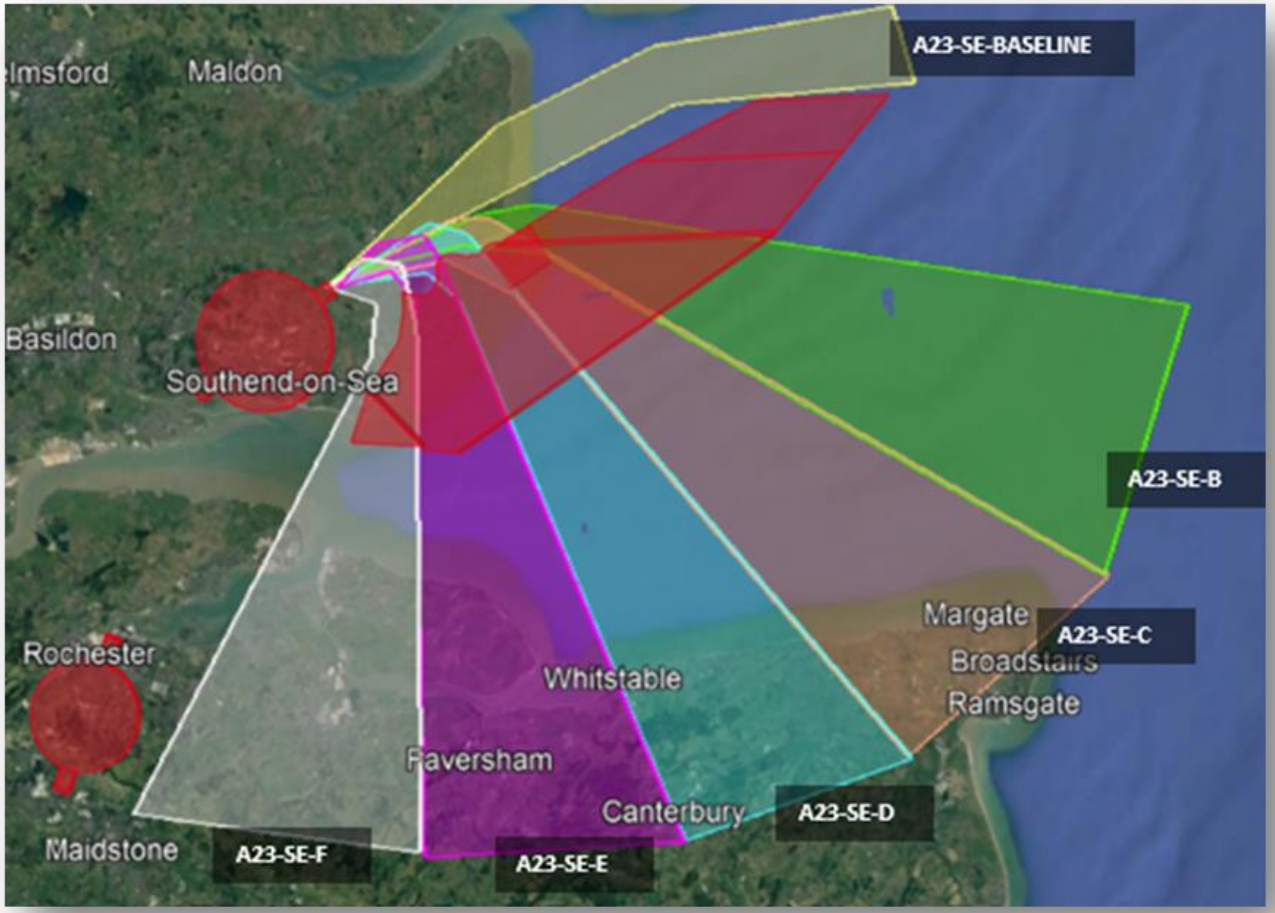

Figure 10: Arrival Options Runway 23 - South & East

11.1. Option **A23-SE-BASELINE/A23-SE-A**

Survey Question

'ARRIVALS Runway 23 - South and East.

Do you think we have correctly applied the Design Principles to swathe **A23-SE-A**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Nine responses agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

Natural England

'No; 3,4,5 – Flight path is over Crouch & Roach Estuaries SPA and Ramsar site, Dengie SPA and Ramsar which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4, but this hasn't changed the RAG score (based on this being our baseline 'Do-minimum' option and true of today's operation).

Essex County Council

ECC considers that there are likely to be respite options for these arrivals.

All options are being considered for both permanent routes and potential respite options.

Full Design Principle Assessment

A23-SE-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	Assessed as green due to being today's operation and the current baseline.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	Assessed as green due to being today's operation and the current baseline.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	Assessed as green due to being today's operation and the current baseline.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Assessed as green due to being today's operation and the current baseline.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Assessed as green due to being today's operation and the current baseline.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Assessed as green due to being today's operation and the current baseline.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	Assessed as green due to being today's operation and the current baseline.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	Assessed as green due to being today's operation and the current baseline.		

A23-SE-A	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Assessed as green due to being today's operation and the current baseline.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Assessed as green due to being today's operation and the current baseline.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 39: Option A23-SE-BASELINE Assessment

11.3. Option **A23-SE-B**

Survey Question

'ARRIVALS Runway 23 - South and East.

Do you think we have correctly applied the Design Principles to swathe **A23-SE-B**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Eight responses agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

NATS (NERL)

'No; DP1 & DP6: Swathe C completely overlapping the DA which is frequently active and will limit availability.'

LSA agree and we have included the additional comments in our assessment of DP1 and DP6 and changed the RAG score from green to amber.

Natural England

'No; 3,4,5 – Flight path is over Crouch & Roach Estuaries SPA and Ramsar site, Dengie SPA and Ramsar, Foulness SPA and Ramsar site, Outer Thames Estuary SPA which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4 and changed the RAG score from green to amber.

Essex County Council

ECC considers that there are likely to be respite options for these arrivals.

All options are being considered for both permanent routes and potential respite options.

Full Design Principle Assessment

A23-SE-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety** – The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	Additional safety work would need to be done to make this a viable option. The entire swathe routes through the Shoeburyness DA. This option could be used as a potential respite route for when the DA are inactive. RAG score amended post stakeholder feedback.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	No increase on current number of people overflown.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	No increase on current number of people overflown.		
4	**Tranquillity** - Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Crouch and Roach Estuaries SPA, Dengie SPA, Foulness SPA and Ramsar site, Outer Thames Estuary SPA could see a potential increase in overflights. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Less track miles than today's baseline operation, RAG score amended post the initial evaluation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Swathe C completely overlapping the DA which is frequently active and will limit availability. RAG score amended post stakeholder feedback.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new controlled airspace would be required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	No increase in complexity from today's operation.		

A23-SE-B	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	No systemisation issues anticipated.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Less track miles than today's baseline operation, RAG score amended post the initial evaluation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 40: Option A23-SE-B DP Assessment

11.4. Option **A23-SE-C**

Survey Question

'ARRIVALS Runway 23 - South and East.

Do you think we have correctly applied the Design Principles to swathe A23-SE-C?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Eight responses agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

NATS (NERL)

'No; DP1 & DP6: Swathe C completely overlapping the DA which is frequently active and will limit availability.'

LSA agree and we have included the additional comments in our assessment of DP1 and DP6 and changed the RAG score from green to amber.

Natural England

'No; 3,4,5 – Flight path is over Crouch & Roach Estuaries SPA and Ramsar site, Dengie SPA and Ramsar, Foulness SPA and Ramsar site, Outer Thames Estuary SPA and Thanet Coast SPA and Ramsar which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4 and changed the RAG score from green to amber.

Essex County Council

ECC considers that there are likely to be respite options for these arrivals.

All options are being considered for both permanent routes and potential respite options.

Full Design Principle Assessment

A23-SE-C	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety** – The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	Additional safety work would need to be done to make this a viable option. The entire swathe routes through the Shoeburyness DA. This option could be used as a potential respite route for when the DA are inactive. RAG score amended post stakeholder feedback.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	No increase on current people overflown.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	No increase on current people overflown.		
4	**Tranquillity** - Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	Crouch and Roach Estuaries SPA, Dengie SPA, Foulness SPA and Ramsar site, Outer Thames Estuary SPA could see a potential increase in overflights. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Decrease in track miles from today's baseline operation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Swathe C completely overlapping the DA which is frequently active and will limit availability. RAG score amended post stakeholder feedback.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new controlled airspace would be required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	No increase in complexity from today's operation.		

A23-SE-C	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	No systemisation issues anticipated.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Decrease in track miles from today's baseline operation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 41: Option A23-SE-C DP Assessment

11.5. Option **A23-SE-D**

Survey Question

'ARRIVALS Runway 23 - South and East.

Do you think we have correctly applied the Design Principles to swathe **A23-SE-D**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Seven respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD**

Anonymous

'No; Options D, E, and F would result in more concentrated flight paths over the Kent Downs AONB and therefore should, in our view, be assigned an amber rating for DP4.'

LSA agree and we have included the Kent Downs AONB in our assessment of DP4 and changed the RAG score from green to amber.

NATS (NERL)

'No; DP1 & DP6: Swathe D completely overlapping the DA which is frequently active and will limit availability.'

LSA agree and we have included the additional comments in our assessment of DP1 and DP6 and changed the RAG score from green to amber.

Natural England

'No; 3,4,5 – Flight path is over Crouch & Roach Estuaries SPA and Ramsar site, Dengie SPA and Ramsar, Foulness SPA and Ramsar site, Outer Thames Estuary SPA, Stodmarsh SPA and Ramsar site and Thanet Coast SPA and Ramsar site which could have significant impacts on the interest features of

these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4 and changed the RAG score from green to amber.

Private Pilot

Arrivals 23 via e and f over the built up areas and flying level isn't a good plan, re design these to avoid the built up areas isn't difficult

Should this option be progressed further in the ACP process, at CAP1616 Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Essex County Council

ECC considers that there are likely to be respite options for these arrivals.

All options are being considered for both permanent routes and potential respite options.

Full Design Principle Assessment

A23-SE-D	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety** – The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	Additional safety work would need to be done to make this a viable option. The entire swathe routes through the Shoeburyness DA. This option could be used as a potential respite route for when the DA are inactive. RAG score amended post stakeholder feedback.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	No increase on current people overflown.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	No increase on current people overflown.		
4	**Tranquillity** - Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	More concentrated flight paths over the Kent Downs AONB and Crouch and Roach Estuaries SPA, Dengie SPA, Foulness SPA, Thames Estuary SPA, Stodmarsh SPA and Ramsar site and Thanet Coast SPA. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Decrease in track miles from today's baseline operation.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Overlapping the DA which is frequently active and will limit availability. RAG score amended post stakeholder feedback.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new controlled airspace would be required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	No increase in complexity from today's operation.		

A23-SE-D	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	No systemisation issues anticipated.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Decrease in track miles from today's baseline operation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		

Table 42: Option A23-SE-D DP Assessment

11.6. Option **A23-SE-E**

Survey Question

'ARRIVALS Runway 23 - South and East.

Do you think we have correctly applied the Design Principles to swathe **A23-SE-E?**

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Seven respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD.**

Anonymous

'Options D, E, and F would result in more concentrated flight paths over the Kent Downs AONB and therefore should, in our view, be assigned an Amber rating for DP4.'

LSA agree and we have included the Kent Downs AONB in our assessment of DP4 and changed the RAG score from green to amber.

NATS (NERL)

'No; DP1 & DP6: Conflicts with LTMA departures. Swathe E completely overlapping the DA which is frequently active and will limit availability.'

LSA agree and we have included the additional comments in our assessment of DP1 and DP6 and changed the RAG score from green to amber.

Natural England

'No; 3,4,5 – Flight path is over Crouch & Roach Estuaries SPA and Ramsar site, Dengie SPA and Ramsar, Foulness SPA and Ramsar site, Outer Thames Estuary SPA, The Swale SPA and Ramsar which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants. Tranquillity of the Kent Downs AONB may also be impacted.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4 and changed the RAG score from green to amber.

Private Pilot

'Arrivals 23 via e and f over the built-up areas and flying level isn't a good plan, re design these to avoid the built-up areas isn't difficult.'

Should this option be progressed further in the ACP process, at CAP1616 Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Essex County Council

ECC considers that there are likely to be respite options for these arrivals.

All options are being considered for both permanent routes and potential respite options.

Full Design Principle Assessment

A23-SE-E	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety –** The airspace design and its operation must maintain or where possible, enhance current levels of safety.	Additional safety work would need to be done to make this a viable option. The entire swathe routes through the Shoeburyness DA. This option could be used as a potential respite route for when the DA are inactive. RAG score amended post stakeholder feedback.		
2	**Overflight**-The new procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	No increase on current people overflown.		
3	**Noise Footprint** – The design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	No increase on current people overflown.		
4	**Tranquillity -** Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	More concentrated flight paths over the Kent Downs AONB and Crouch & Roach Estuaries SPA, Dengie SPA, Foulness SPA, Thames Estuary SPA, Stodmarsh SPA and Ramsar site and Thanet Coast SPA. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The proposed design should minimise CO2 emissions per flight.	Decrease in track miles from today's baseline operation. The decision has been made post the initial assessment to amend the RAG score based on the Evaluation Criteria.		
6	**Operational Requirements** – The new procedures should address the needs of most operators at LSA.	Overlapping the DA which is frequently active and will limit availability. RAG score amended post stakeholder feedback.		
7	**Airspace Dimensions** – The volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new controlled airspace would be required.		
8	**Airspace Complexity** – The airspace design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	No increase in complexity from today's operation.		

A23-SE-E	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Possible conflict with LSA departure swathe D23-S-A. Conflicts with LTMA departures. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Decrease in track miles from today's baseline operation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The new procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process. RAG score amended following standardised evaluation criteria after the initial evaluation.		

Table 43: Option A23-SE-E DP Assessment

11.7. Option **A23-SE-F**

Survey Question

'ARRIVALS Runway 23 - South and East.

Do you think we have correctly applied the Design Principles to swathe **A23-SE-F**?

If no, please provide the Design Principle number and reason in the free text 'other' field.'

Response

Six respondents agreed that the Design Principles had been correctly applied.

Stakeholder feedback with our responses in **BOLD**.

Anonymous

'Options D, E, and F would result in more concentrated flight paths over the Kent Downs AONB and therefore should, in our view, be assigned an amber rating for DP4.'

LSA agree and we have included the Kent Downs AONB in our assessment of DP4 and changed the RAG score from green to amber.

Private Pilot

'No; A variant of F is to go closer to the EGMC ATC, to maybe Southend Pier and then fly 055 before hooking left into 23. Keeps you further away from the DA.'

Should this option be progressed, this comment will be addressed and considered later in the ACP process, at CAP1616 Stage 3, when we reduce our options and refine the swathes to more concise routes. We will then consider and evaluate climb gradients and accurate tracks.

NATS (NERL)

'No; DP1 & DP6: Conflicts with LTMA departures. Swathe F completely overlapping the DA which is frequently active and will limit availability.'

LSA agree and we have included the additional comments in our assessment of DP1 and DP6 and changed the RAG score from green to amber.

Natural England

'No; 3,4,5 – Flight path is over Crouch & Roach Estuaries SPA and Ramsar site, Dengie SPA and Ramsar, Foulness SPA and Ramsar site, Outer Thames Estuary SPA, The Swale SPA and Ramsar, Medway Estuary & Marshes SPA and Ramsar which could have significant impacts on the interest features of these sites including disturbance from low flight altitudes and increased noise, bird strikes, as well as the potential for additional emissions and pollutants. Tranquillity of the Kent Downs AONB may also be impacted.'

LSA have assessed the comments as only relating to DP4 and we have included the additional areas in our assessment of DP4 and changed the RAG score from green to amber.

Private Pilot

'Arrivals 23 via e and f over the built-up areas and flying level isn't a good plan, re design these to avoid the built-up areas isn't difficult.'

Should this option be progressed further in the ACP process, at CAP1616 Stage 3, when we reduce our options and refine the swathes to more concise routes, we will consider and evaluate climb gradients and accurate tracks.

Essex County Council

ECC considers that there are likely to be respite options for these arrivals.

All options are being considered for both permanent routes and potential respite options.

Full Design Principle Assessment

A23-SE-F	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
1	**Importance of Safety** – The Airspace Design and its operation must maintain or where possible, enhance current levels of safety.	Additional safety work would need to be done to make this a viable option. The majority of the swathe routes through the Shoeburyness DA. This option could be used as a potential respite route for when the DA are inactive, or a potential route missing the DA confines, subject to PBN requirements. RAG score amended post stakeholder feedback.		
2	**Overflight** - The New procedures should not increase the number of people overflown by aircraft using the Airport and where possible options that provide a level of dispersion should also be considered.	No increase on current number of people overflown.		
3	**Noise Footprint** – The Design should limit, and where practicable reduce, the impact of noise to stakeholders on the ground and where possible periods of built-in respite should be considered.	No increase on current number of people overflown.		
4	**Tranquillity** - Where practical, route designs should limit effects upon sensitive areas. These may include cultural or historic assets, tranquil or rural areas, sites of care or education and AONB's.	More concentrated flight paths over the Kent Downs AONB and Crouch and Roach Estuaries SPA, Dengie SPA, Foulness SPA, Thames Estuary SPA, Stodmarsh SPA and Ramsar site and Thanet Coast SPA. RAG score amended post stakeholder feedback.		
5	**Emissions and Air Quality** – The Proposed design should minimise CO2 emissions per flight.	Decrease in track miles from today's baseline operation. The decision has been made post the initial assessment to amend the RAG score based on the Evaluation Criteria.		
6	**Operational Requirements** – The New procedures should address the needs of most operators at LSA.	Overlapping the DA which is frequently active and will limit availability. RAG score amended post stakeholder feedback.		
7	**Airspace Dimensions** – The Volume and classification of controlled airspace required for LSA should be the minimum necessary to deliver an efficient airspace design, considering the needs of all airspace users.	No new controlled airspace would be required.		
8	**Airspace Complexity** – The Airspace Design should seek to reduce complexity and bottlenecks in controlled and uncontrolled airspace and contribute to a reduction in airspace infringements.	No increase in complexity from today's operation.		

A23-SE-F	Design Principle	Qualitative Assessment	Initial Eval.	Outcome
9	**Technical Requirements** – The Design shall be fully compliant with PANS-OPS and UK CAA criteria to meet the technical capability requirements of aircraft using the airport.	All the swathes have been assessed by an IFP Designer SME and have the potential to contain a fully compliant route. This will be investigated more closely once individual routes are assessed within the options carried forward to the next stage of the CAP1616 process.		
10	**Systemisation** – The Arrival transitions and departure procedures shall be deconflicted and integrate with the en-route network, as per the FASI(S) programme, and in the case of the arrival transitions shall integrate with the Instrument Approach Procedures (IAPs) reducing the requirement for tactical coordination.	Possible conflict with LSA departure swathe D23-S-A. Conflicts with LTMA departures and close proximity to Gatwick. Potential conflicts, with other airports, to be discussed during future bilateral sessions should this option be carried forward.		
11	**Operational Cost** – Provided it does not have an adverse impact of community disturbance, procedures should be designed to optimise fuel efficiency.	Decrease in track miles from today's baseline operation.		
12	**AMS Realisation** – This ACP must serve to further, and not conflict with, the realisation of the AMS.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process.		
13	**PBN** – The New procedures should capitalise on as many of the potential benefits of PBN implementation as are practicable.	Assessed as fully met due to current high-level options. Furthermore, detailed analysis to be conducted at Stage 3 of the CAP1616 process. RAG score amended following standardised evaluation criteria after the initial evaluation.		

Table 44: Option A23-SE-F DP Assessment

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