RSP | Manston Airport

Appendix A
Technical information on the Design Principles for Manston Airport

Manston Airport Instrument Flight Procedures

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Glossary

Acronym	Meaning
ACP	Airspace Change Proposal
ANSP	Air Navigation Service Provider
AONB	Area of Outstanding National Beauty
ATM	Air Transport Movement
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
CAS	Controlled Airspace
DCO	Development Consent Order
FASI-S	Future Airspace Strategy Implementation - South
ft	feet
GNSS	Global Navigation Satellite System
IAP	Instrument Approach Procedure
ICAO	International Civil Aviation Authority
IFP	Instrument Flight Procedure
NATS	formerly National Air Traffic Services
NSIP	Nationally Significant Infrastructure Project
PINS	Planning Inspectorate
PBN	Performance Based Navigation
SID	Standard Instrument Departure
STAR	Standard Instrument Arrival
USAF	United States Air Force

1. Introduction & Background

1.1 Context

Manston airport is a disused airport on the Isle of Thanet in Kent. It has one of the longest and widest runways in the UK, comparable to other international airports making it a valuable infrastructure asset. RiverOak Strategic Partners (RSP) is proposing to secure the future of this valuable national asset by redeveloping and reopening it as a successful hub for international air freight which also offers passenger travel, executive travel and aircraft engineering services. The airport would be comprehensively rebuilt and upgraded, including the provision of extensive cargo aircraft stands.

The proposed development is subject to a Development Consent Order (DCO) application submitted by RSP to the government Planning Inspectorate (PINS) in July 2019. In August 2019, PINS announced its decision to accept the application for examination as a Nationally Significant Infrastructure Project (NSIP) and a decision is expected from the Secretary of State for Transport in January 2020.

In addition to the DCO, to gain authorisation to operate Manston Airport, RSP will need to secure a range of specialist aviation approvals and permissions from the Civil Aviation Authority (CAA). Although there is considerable overlap between the responsibilities of PINS and the CAA in relation to their respective roles for authorisation, they differ in terms of timescales and levels of responsibility. RSP will need to submit an application to the CAA to establish the airspace and procedures required to enable safe and efficient operations to and from the airport in accordance with the Civil Aviation Publication (CAP) 1616 – Airspace Design: Guidance on the regulatory process for changing airspace design including community engagement requirements. The process to gain approval for airspace, procedures and operations will run initially in parallel to, but separate from, the DCO process. The CAA will ensure that any airspace and aviation proposals put forward by RSP are compliant with national, international and global aviation regulations and the DCO approval would guide the airspace proposal.

This document relates only to the CAA CAP1616 process and the proposal to introduce the airspace and Instrument Flight Procedures (IFPs) required to enable safe and efficient operations to and from the airport. IFP is a term used to describe the published profiles aircraft fly over the ground, both in plan and elevation view when arriving at and departing from an airport.

1.2 Background

The current UK airspace system was designed many years ago; since then ever-increasing air traffic congestion has led to reduced airspace efficiency. Improvements in aircraft technology and performance now present an opportunity to modernise UK airspace and flight procedures. The airspace above London and the south east of England is some of the busiest in the world but is approaching the limit of its design capacity. Department for Transport analysis predicts that without fundamental changes there will be increasing airline schedule disruption leading to delays and cancellations that generate additional personal and commercial costs, and unnecessary environmental impacts.
In December 2018, the CAA published the Airspace Modernisation Strategy , which forms part of the Government's new arrangements to take forward the delivery of the airspace modernisation programme. Modernisation will ensure operations at UK airports can be conducted more efficiently for the benefit of both operators, fare-paying passengers and local communities. For RSP, this will mean working collaboratively with 17 other airports and NATS within the Future Airspace Strategy Implementation – South (FASI-S) programme to ensure that revised arrival and departure procedures in the lower airspace, (below 7,000 ft), integrate efficiently with a new terminal airspace design above 7,000 ft.

The UK has committed to comply with Resolution 36/23 ratified by the 36th International Civil Aviation Organisation (ICAO) General Assembly, to implement routes and airport procedures that are compliant with Performance Based Navigation (PBN) criteria. It also complies with the CAA's commitment to implement PBN at UK Airports by 2024. Essentially, this means introducing procedures to arrive and depart from the airport that are designed and flown with reference to Global Navigation Satellite Systems (GNSS) rather than the traditional ground-based navigation aids. GNSS is the standard generic term for satellite navigation systems that provide autonomous geo-spatial positioning with global coverage. This term includes, for example, the GPS (US), GLONASS (Russia), Galileo (European), BeiDou (China) and other regional systems.

[1] CAA Civil Aviation Publication (CAP) 1711

1.3 Governmental Guidance and the CAP 1616 Process

Under section 66 of the Transport Act 2000, the Secretary of State gave the CAA (the UK aviation independent regulator) a number of airspace-related functions, including: the duty to develop policy and strategy on the classification and use of airspace; to publish the UK airspace design; and to approve changes to it. Under section 70 of the Transport Act 2000, the CAA has a duty to take several factors into account when considering whether to agree to an airspace change proposal; this includes taking account of specific guidance on the environmental objectives contained within the current Air Navigation Guidance.

At the beginning of 2018 the CAA introduced a new process that the regulator and sponsors of airspace change proposals (e.g. RSP) should follow when proposing any airspace change. This new process was developed to ensure a greater level of transparency and two-way engagement with local communities. The new process is described in the CAA Civil Aviation Publication (CAP) 1616, at the link below:
https://publicapps.caa.co.uk/docs/33/CAP1616E2interactive.pdf

The CAP 1616 Airspace Design process sets out the CAA's role to approve changes to airspace design , and to the law and policy which govern the CAA role. The guidance in CAP 1616 sets out the framework for the 7 stages of the process and the activities that must be undertaken from the conception of the need for a change. It details what must be undertaken during the airspace re-design; the consulting and engagement requirements with those potentially impacted; how to assess the impacts of different design options from a safety, operational and environmental perspective; and ultimately how the regulatory decision will be made. If an airspace design change is approved by the CAA, the guidance also covers implementation and the subsequent Post-Implementation Review that assesses how the airspace change has performed since introduction and whether the anticipated impacts and benefits defined in the original proposal and decision have been delivered.

RSP will therefore need to ensure that this planned airspace change balances the requirement to deliver safe, effective and sustainable departure and arrival procedure with the requirements of local communities, whilst at the same time minimising the environmental impacts. Transparency and engagement with local communities is at the heart of the new CAP 1616 process. The Questionnaire issued along with this document will help us to gather your views, to assist in the development of Design Principles; these will serve as the framework against which different design options will be evaluated and taken to full consultation at a later stage. This will help us to ensure that the procedures are designed, wherever practicable, in accordance with the priorities of those people most likely to be affected by the routes.

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[2] The biggest air navigation service provider in the UK, formerly National Air Traffic Services. Parent company of NERL (NATS En Route plc) and NSL (NATS Services Limited).

[3] Defined by CAP 1616 as: "Together, the airspace structure and flight procedures."

[4] Post Implementation Review (PIR), ideally conducted one year after implementation of the changes.

2. Manston Airport Planned Operations

2.1 Introduction

There has been an operational airport at the site since 1916. Until 1998 it was operated by the Royal Air Force as RAF Manston and for a period in the 1950s was also a base for the United States Air Force (USAF). From 1998 Manston became known as Kent International Airport and a new terminal was officially opened that year. Operations at the airport continued with a range of services including: scheduled passenger flights, charter flights, air freight and cargo, a flight training school, flight crew training and aircraft testing. In the most recent years, it was operating as a specialist air freight and cargo hub servicing a range of operators. The airport was closed in May 2014.

RSP is proposing to redevelop the airport and reopen it as a successful hub for international air freight which also offers passenger travel, executive travel and aircraft engineering services. The increase in demand for air transport seen in recent years is forecast to continue in the period up to 2035. London's six airports: Heathrow, Gatwick, Stansted, Luton, London City and Southend, handle 76% of the UK's total air freight. However, the Airports Commission report shows that all London airports will be at full capacity by 2030, demonstrating a requirement for additional capacity to be provided. Manston Airport will, with the right investment, have ample capacity and all the characteristics of an ideal freight-focused airport.

The proposal is to create 19 cargo stands, handling aircraft landing and taking off between 07:00 in the morning to 23:00 each day. The maximum commercial Air Transport Movements (ATM) are expected to be 26,000 annually when fully operational. In addition to the air freight hub, RSP proposes to develop an aircraft maintenance, repair and overhaul facility and end-of-life recycling facilities, a flight training school, a fixed base operation for executive travel and business facilities for aviation related organisations.

2.2 Instrument Flight Procedures (IFPs)

RSP is seeking to introduce Instrument Flight Procedures (IFPs) at Manston Airport, which will define the routes that aircraft will fly when arriving at and departing from the airport, that are designed and flown with reference to GNSS rather than the traditional ground-based navigation aids.

RSP is required to explore options for alternative Standard Instrument Departures (SIDs), Standard Arrival Routes (STARs) and Instrument Approach procedures (IAPs) that are compliant with Performance Based Navigation (PBN) criteria and integrate with the complex airspace of the London Terminal Manoeuvring Area as part of the FASI-S and the London Airspace Management Programme (LAMP).

The efficiency and safety of Manston Airport runway departure and arrival routes that guide aircraft to and from the airport are at the heart of the Questionnaire attached with this document.

2.3 Night Operations

The current proposal is for flight operations at the Airport between 07:00 and 23:00 daily. However, should the future need arise for operations outside these published hours, the airport will be subject to an annual 'quota count' which will control the total amount of aircraft noise that can be experienced at the airport. Each aircraft type is given an independently assessed score, known as a quota count, according to how noisy they are and each take-off or landing at the airport during the night time period will count towards the annual quota. The noisiest aircraft are banned from night flying altogether.

3. Points for Consideration

3.1 Introduction

This section provides some information and further explanation that you may wish to read before considering your responses to the questions provided in the Questionnaire.

3.2 Instrument Flight Procedures (IFPs)

IFPs is a term used to describe the published profiles aircraft fly over the ground, both in plan and elevation view when arriving at and departing from an airport. There are 3 main types of IFPs; a Standard Instrument Departure (SID) for aircraft departing an airport, a Standard Instrument Arrival (STAR) for airport arriving at an airport and an Instrument Approach Procedure (IAP) for aircraft making an approach to land. The SIDs and STARs dictate the routes that aircraft will follow to and from the en-route airways structure whilst an IAP will generally only affect the flight path of an aircraft when within approximately 15 miles of the airport. An IAP is a series of pre-determined manoeuvres by reference to flight instruments which guide the aircraft, with specific protection from ground obstacles, to a point from where a successful landing can be completed or, if the landing is not completed, to an appropriate holding point. In order to execute a successful landing, aircraft will need to be aligned with the runway heading for approximately the final 8 miles of the approach, so regardless of the type of procedure flown, the heights and locations overflown at this stage of flight will be very similar for all types of approaches.

Performance Based Navigation (PBN) procedures make use of GNSS technology to better guide aircraft over the intended track across the ground. When using routes defined by accurate GNSS waypoints, it is important to understand that aircraft will follow the new published routes more accurately and consistently than they currently follow conventional routes, that utilise ground-based navigation aids. This improved track-keeping accuracy means aircraft will be less dispersed either side of each route. Therefore, fewer locations will be directly overflown, but there will be a concentration of over-flights in those areas directly beneath the new published routes.

As a general guide for Manston Airport, arriving and departing aircraft will follow the route swathes as indicated in Figure 1 and Figure 2 below, which take into account the 'knowns' of the local airspace, including airways and navigational aids, as well as consideration of urban concentration in the local area. Figure 1 shows the indicative routes that aircraft will follow when arriving at and departing from Runway 28 and Figure 2 shows the indicative routes that aircraft will follow when arriving at and departing from Runway 10. However, initial design options will not be constrained by these route swathes to ensure that all possible options can be explored.

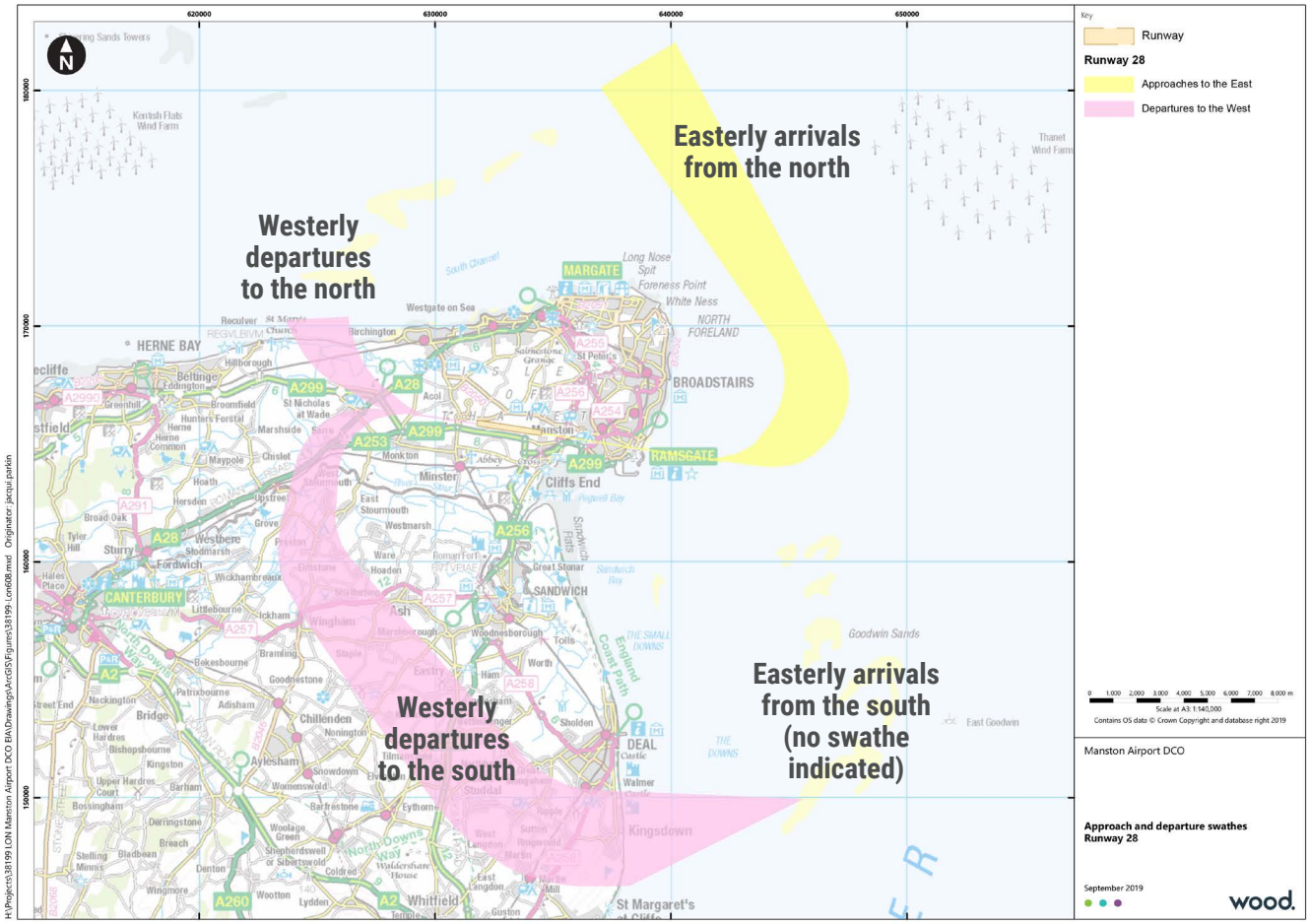

Figure 1 – Indicative Route Swathes for Runway 28

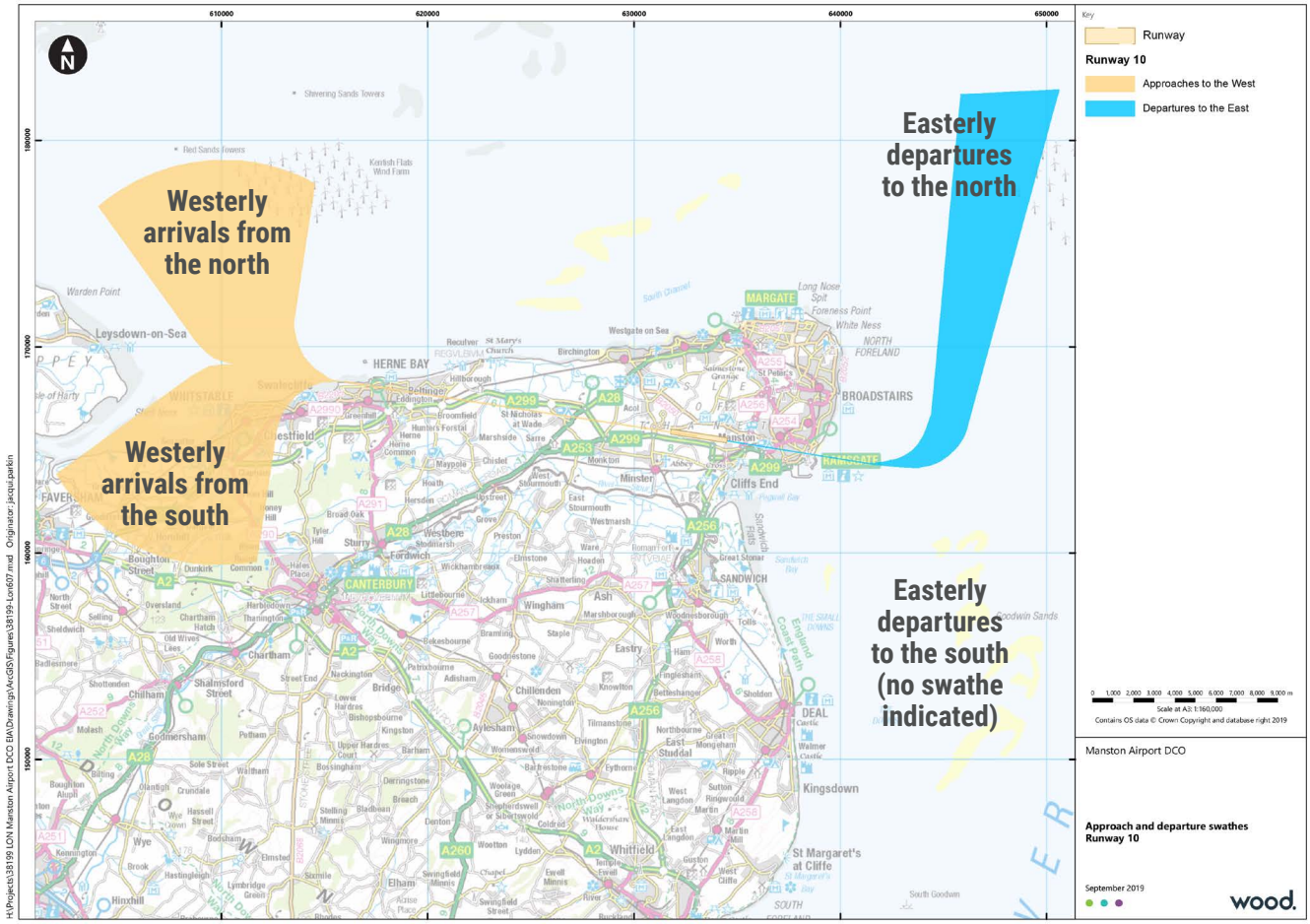

Figure 2 – Indicative Route Swathes for Runway 10

Note: the figures do not show the route swathes to the south east (arrivals to Runway 28 and departures from Runway 10), but these will mirror the northerly swathes on each figure, being over the sea.

It may be possible to formulate designs that minimise the numbers of people overflown or by designing procedures that distribute noise over different areas; however, the routes will be largely constrained by fixed start and end points and will need to be designed in accordance with the technical and safety criteria laid down in the relevant CAA publications and International Civil Aviation Organisation (ICAO) design documents.

3.3 Track Proportion

Generally, aircraft take-off and land into wind. Typically in the UK, historical weather data suggests that for an average year, the prevailing wind is from the west for 70% of the time. This means that, on average, approximately 70% of arriving aircraft will arrive over Ramsgate and 30% will arrive over Herne Bay. For departing aircraft approximately 70% will depart towards Herne Bay and 30% towards Ramsgate. In certain conditions, depending on aircraft performance, aircraft are able to take-off or land with the wind behind them. If able, RSP is planning on operating preferential runway usage, where aircraft will arrive from, and depart to, the west to avoid the town of Ramsgate.

3.4 Urban and Rural Areas

You may wish to consider the advantages and disadvantages of designing routes that are planned to overfly either urban or rural areas. Flights over more sparsely populated areas may seem to be the best alternative. However, you may also wish to consider the levels of background noise when balancing the urban and rural alternatives. Aircraft flying over urban areas will pass over a larger number of people and residences. However, in urban areas the levels of background noise are likely to be much higher than in rural areas. Consequently, aircraft noise may be masked because of higher noise levels associated with traffic and many other background activities, common in urban locations.

3.5 Open Areas

In many urban locations you may feel it is important to protect quiet or open areas (e.g. parks) by designing flight procedures that avoid these areas. However, in large urban areas it may not be possible to avoid overflight of quiet areas and, at the same time, also avoid overflight of more densely populated areas. This may be because of the proximity of runways to urban areas or to the orientation of the runway itself.

3.6 Noise and Emissions

An aircraft flying a straight line directly from one location to another is the most efficient routing option because it represents the shortest distance and time between locations. When flying a longer route between the same locations (perhaps to minimise noise impacts in a sensitive area) the distance and time of the flight will increase, as will the fuel burn and associated emissions into the atmosphere. When answering the questions, please consider this balance between noise and other emissions in general terms.

3.7 Time of Day or Different Operations on Different Days

When responding to the questions, you may also wish to consider whether your comments are applicable at differing times of the day.

3.8 Overarching Design Principles

At this stage (Stage 1) of the CAP 1616 process the CAA requires RSP to develop Design Principles that encompass the safety, environmental and operational criteria and the strategic policy objectives that RSP seeks to achieve in creating the airspace change proposal. It is important that these Design Principles are drawn up through discussion with affected stakeholders. However, there are a number of overarching Design Principles that will be adopted that will inform the development of the design options:

- Safety – Procedures must be designed to meet acceptable levels of flight safety
- Harmonisation – Design options must accord with the CAA's published Airspace Modernisation Strategy (CAP 1711) and any current or future plans associated with it.