Defence Safety Authority

Defence Aerodrome Manual (DAM) RAF Marham

Issue 25.2

27 Mar 25

FOREWORD

1. This document, the RAF Marham Defence Aerodrome Manual, describes the airfield at RAF Marham including the management, physical characteristics, services available and operating procedures. The Manual is written to inform and direct military and civilian aircrew using the airfield and to provide orders for personnel operating on the airfield or providing airfield services. The Defence Aerodrome Manual conforms to the guidance provided by the Military Aviation Authority (MAA) in Regulatory Article (RA) 1026. It includes the RAF Marham Flying Order Book at Annex KK and can be considered equivalent to the civilian Manual.

2. This Manual contains detailed information regarding the taxiways, runway, other aerodrome facilities and local area procedures. Aircrew should also cross-refer to the Mil AIP, AIDU Aerodrome Booklet and Civ AIP documents. Any anomalies should be brought to the attention of the undersigned without delay. The Manual is mandated reading for operators of Stn-based Aircraft, and all Stn-based personnel responsible for the delivery of airfield services. The Defence Aerodrome Manual outlines some aspects of the Stn Safety Management System; however, full details are contained on the RAF Marham Safety and Assurance homepage.

3. DMAA is the owner of the MAA Regulatory Publications (MRP) and has the authority to issue them on behalf of the SofS. There are three levels of documentation within the MRP; Overarching Documents (ODs), Regulatory Articles (RAs) and MAA Manuals. This RAF Marham DAM is an MAA Manual and the direction contained herein is subordinate to the ODs and RAs, and superior to other flying related documentation issued within the RAF Marham AOR. Where any confliction is identified the most stringent regulations are to be applied whilst clarification is sought.

4. Unless specifically excluded, the MRP documents, RAs and Manuals apply to all personnel, civilian or military, involved in the design, production, maintenance, handling, control or operation of Aircraft on the UK Military Aircraft Register.

5. The Regulations contained within the MRP, including this DAM, do not absolve any person from using their best judgement to ensure the safety of Aircraft and personnel. Where safety or operational imperatives demand, the Regulations may be deviated from provided that a convincing case can be offered in retrospect.

Wg Cdr Martin Williamson
OC Operations Wing
RAF Marham

DISTRIBUTION
External:
Nil
Internal:
Stn Cdr (HoE)
Cdr Lightning (DDH)
OC Operations Wg/Aerodrome Operator
OC Base Spt Wg
MRM Air Wing Engineer
OC EMS
OC 207 Sqn
OC 617 Sqn
OC Ops Sqn
Air CySC OC DSF
207 Sqn Ops
617 Sqn Ops
TATCC Cdr
Ltng STANF
OC Safety and Assurance
OC LSS
MCO
Stn Fire Officer
SMO
OC Police / SSyO
Duty Ops Controller
Duty Eng Ops Controller
SFSO
S FOD O
S Met O

Regulatory Cross Reference	
This Manual supports and must be read in conjunction with the following MAA Documents and Regulations, and other policy documents:	
RA 1010	Head of Establishment – Aviation Responsibilities and Aviation Duty Holder / Accountable Manager (Military Flying) Establishment Responsibilities
RA 1026	Aerodrome Operator and Aerodrome Supervisor (Recreational Flying) Roles and Responsibilities
RA 1030	Defence Aeronautical Information Management
RA 1032	Aviation Duty Holder-Facing Organizations and Accountable Manager (Military Flying) – Facing Organizations – Roles and Responsibilities
RA 1200	Air Safety Management
RA 1205(4)	Responsibilities of Organizations supporting an Air System Safety Case
RA 1400	Flight Safety
RA 1410	Occurrence Reporting and Management
RA 1430	Aircraft Post Crash Management and Significant Occurrence Management
RA 3000 Series	Air Traffic Management (ATM) Regulations
JSP 360	Use of Military Aerodromes by Civil Aircraft
AP 600	Royal Air Force Information and CIS Policy
DSA02 DFSR	Defence Aerodrome Rescue and Fire Fighting (ARFF) Regulation
MAS	Manual of Air Safety
MAPCIM	Manual of Aircraft Post Crash and Incident Management
MMATM	Manual of Military Air Traffic Management

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DAM REQUEST FOR CHANGE				
Person making request:				
Rank	**Name**	**Section**	**Ext**	**Email**

Change Details		
Page	Chapter	Para
Current Text:		
Proposed Text:		
Amplifying Comments:		
Once complete the proposed changes are to be emailed to Air Traffic Control for consideration: MRM-ATCSUP@mod.gov.uk		

Implementation Actions	
Ref No.	
Ops Wg Assurance and Audit Actions	
E / S / C*	
Recommendation	
Action	
*E-Editorial, S-Substantial, C-Critical	

Information Owner Review			
Role			
Implement at next update**	**Immediate update****	**Reject Change Request****	
Comments:			
Rank & Name		**Date**	
**Delete as required.			

AO Approval			
Rank & Name		**Date**	

Ops Wg Assurance and Audit Final Actions			
Approved	• Send to Editor	Date	
	• Send to Originator	Date	
Rejected	• Send Feedback to originator	Date	

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5.18	Jettison and Fuel Dumping Area (nil at present)	N/A
5.19	Compass Swing Area (nil at present)	N/A
5.20	Explosive Ordnance Disposal Area (nil at present)	N/A
5.21	Dangerous Goods (DG) Procedures (nil at present) –	N/A
5.22	Hydrazine (H70) Leaks	TATCC Cdr
5.23	Remotely Piloted Aircraft (RPA) Orders	TATCC Cdr

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AMENDMENTS					
Amendment No	**Substantial Changes**	**Name**	**Amendment Date**	**Date Incorporated**	**Signature**
Issue 9	Re-Issue	Sqn Ldr Steventon	01 Jul 2021	01 Jul 2021	Electronically Signed
Issue 9.1	Re-Issue	Sqn Ldr Jones	22 Mar 2023	22 Mar 2023	Electronically Signed
Issue 24	Re-Issue for template v24	Sqn Ldr Jones	15 Dec 23	08 Jan 24	Electronically Signed
Issue 24.1	Re-Issue	Sqn Ldr Jones	1 Jul 24	01 Jul 24	Electronically Signed
Issue 25	Re-Issue	Flt Lt Powell	9 Jan 25	9 Jan 25	Electronically Signed
Issue 25.1	Updates to embargos procedures (Annex KK) & inclusion of RW CFO Orders (Annex MM)	Sqn Ldr Holland	13 Mar 25	14 Mar 25	Electronically Signed
Issue 25.2	Updated to CFO UHF Frequency for Stn Ops	Sqn Ldr Holland	27 Mar 25	27 Mar 25	Electronically signed

AMENDMENT PROCESS
All suggested amendments are to be sent to Air Ops and Air Traffic Control for consideration.
DAM MASTER VERSION
The RAF Marham DAM conforms to Issue 10 of the MAA DAM template.

ANNEXES		INFORMATION OWNER
Annex A	Aerodrome Operator Letter of Delegation	OC Ops Wg
Annex B	Safety Meeting Structure	OC Safety Assurance
Annex C	Aerodrome Key Stakeholders	OC Ops Wg
Annex D	Aerodrome Operators Hazard Log	OC Ops Wg
Annex E	Formal Aerodrome Related Agreements	TATCC Cdr
Annex F	Aerodrome Alternative Acceptable Means of Compliance (AAMC), Waivers and Exemptions (AWEs)	TATCC Cdr
Annex G	Aerodrome Location and Control of Entry and Access	OC Police / SSyO
Annex H	Noise Abatement Procedure Orders	OC AWE
Annex I	Temporary Obstruction Orders	TATCC Cdr
Annex J	Aerodrome Arresting System Orders	TATCC Cdr
Annex K	Manoeuvring Area Safety and Control Orders	OC MSS
Annex L	Emergency Orders / Aerodrome Crash Plan	OC Ops Wg
Annex M	Aerodrome Rescue and Fire Fighting Services and Training Orders	OC Fire
Annex N	Disabled Aircraft Removal	OC Ops Wg
Annex O	Air Traffic Control Orders	TATCC Cdr
Annex P	Aerodrome Data Reporting Procedures	TATCC Cdr
Annex Q	Aerodrome Serviceability Inspections	TATCC Cdr
Annex R	Aerodrome Technical Inspections	OC 534 STRE
Annex S	Radar, Radio and Navigation Aid Maintenance, Monitoring and Protection	Air CySC DSF OC
Annex T	Aerodrome Works Safety	TATCC Cdr
Annex U	Aerodrome Users – Vehicle and Pedestrian Control	TATCC Cdr
Annex V	FOD Prevention – Training and Awareness – Orders	S FOD PO
Annex W	Aerodrome Wildlife Management	TATCC Cdr
Annex X	Low Visibility Operations	TATCC Cdr
Annex Y	Snow and Ice Operations	TATCC Cdr
Annex Z	Thunderstorm and Strong Wind Procedures	TATCC Cdr
Annex AA	Civil Aircraft Aerodrome Usage – Terms and Conditions	OC Ops Wg
Annex BB	Electrical Ground Power Procedures	OC MSS
Annex CC	Aviation Fuel Management Procedures	OC LSS
Annex DD	Hazardous Materials - Spillage Plan	OC LSS

Annex EE	Jettison and Fuel Dumping Area (Nil at Present)	OC Ops Sqn
Annex FF	Compass Swing Area (Nil at Present)	N/A
Annex GG	Explosive Ordnance Disposal Area (Nil at Present)	N/A
Annex HH	Dangerous Goods (DG) Procedures	OC LSS
Annex II	Hydrazine (H70) Leak	OC Ops Wg
Annex JJ	RPA Orders	TATCC Cdr
Annex KK	Flying Order Book (FOB)	STANF
Annex LL	Recreational Flying Order Book (RFOB)	TATCC Cdr
Annex MM	Closed Field Operations	OC Ops Sqn

CHAPTER 1: TECHNICAL ADMINISTRATION

1.1 NAME and WORK ADDRESS OF AERODROME OPERATOR (AO)	
Rank	**Name**
Wg Cdr	Williamson
Address	**Contact**
Officer Commanding Operations Wing	Mil: 0300 1544484
RAF Marham	Civ: 07901 730454
Norfolk	
PE33 9NP	Email:Stn Ops MRMOpsDOOGroup@mod.gov.uk

1.2 AERODROME OPERATORS' AUTHORITY

The AO is responsible for the management of an aerodrome environment in order to accommodate the safe operation of aircraft in accordance with MAA RA1026. The management and running of the aerodrome is a Duty Holder Facing (DHF) responsibility. The AO has been issued a letter of delegation by the Head of Establishment (HoE) who has responsibility for the aerodrome. A copy can be found at Annex A.

1.3 SAFETY MEETING STRUCTURE

An organisational aviation safety meeting flow diagram can be found at Annex B.

1.4 AERODROME KEY STAKEHOLDERS

Detail of RAF Marham Key Stakeholders can be found at Annex C.

1.5 AERODROME OPERATING HAZARD LOG (AOHL)

The RAF Marham DAM AOHL can be found at Annex D. The AOHL is a living document and is updated regularly and reviewed by the AO, TATCC Cdr and BMFSO prior to the RAF Marham Air Safety Management Committee, which meets quarterly. The Battlespace Management Hazard Log (BMHL) is also linked at Annex D.

1.6 FORMAL AERODROME RELATED AGREEMENTS

All formal aerodrome related agreements are detailed at Annex E. These agreements are to be reviewed annually by the AO.

1.7 AERODROME ALTERNATIVE ACCEPTABLE MEANS OF COMPLIANCE (AAMC), WAIVERS and EXEMPTIONS

Details of all RAF Marham aerodrome related Waivers, Exemptions and approved AAMC can be found at Annex F.

1.8 AERODROME LOCATION, CONTROL OF ENTRY and ACCESS

RAF Marham is located within the village of Marham and is 9 miles Southeast of the town of Kings Lynn, Norfolk. Local area & Aerodrome Crash Plan maps can be found below. The aerodrome location, control of entry & access points can be found at Annex G.

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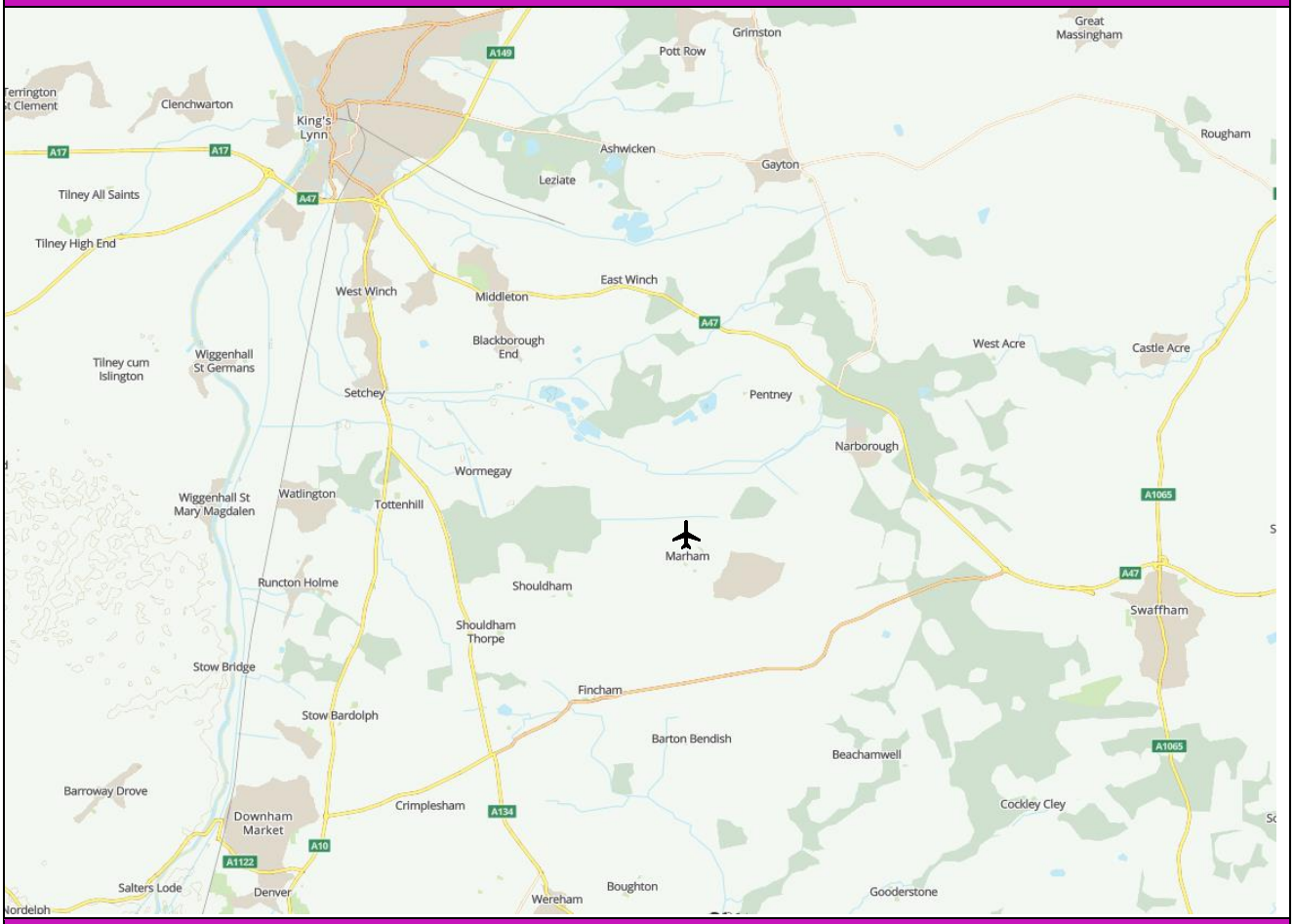
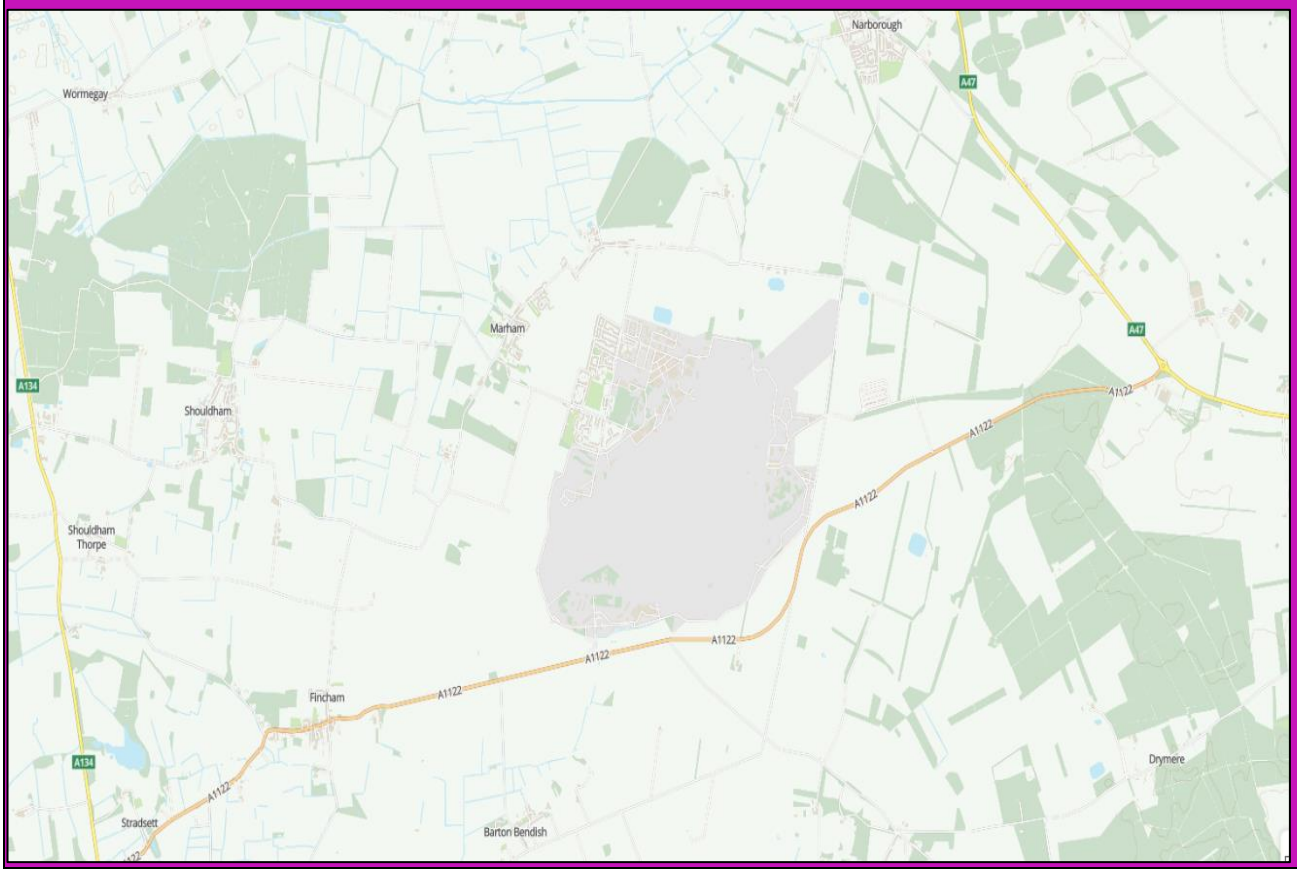
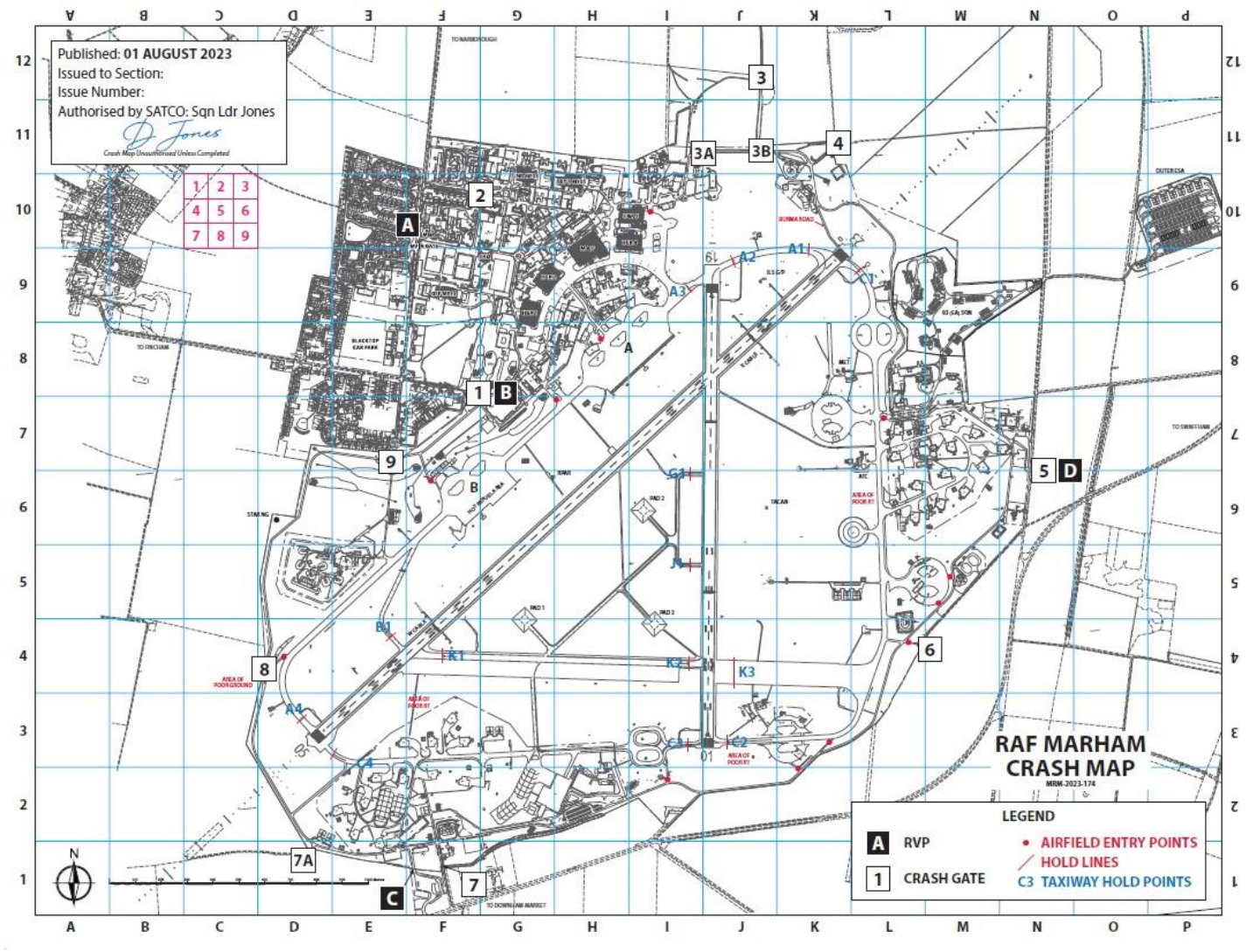
LOCAL AREA MAP



LOCAL AREA MAP (REFINED)



AERODROME CRASH MAP



CHAPTER 2: AERODROME DATA, CHARACTERISTICS & FACILITIES

2.1 AERODROME DATA

Source Data: Measured Height Survey Biennial Airfield Inspection Report 2022 UK Military AIP		
2.1.1 LOCATION INDICATOR and NAME		
EGYM – RAF MARHAM		
2.1.2 AERODROME GEOGRAPHICAL and ADMINISTRATIVE DATA		
2.1.2.1	**ARP Coordinates and site at AD**	N52 38 54·26 E000 33 02·42 Mid-point of Runway 05/23.
2.1.2.2	**Direction and distance from City**	9nm SE of Kings Lynn.
2.1.2.3	**Elevation/Reference Temperature**	76ft / 21°C
2.1.2.4	**Magnetic Variation/Annual Change**	0.1°E (NOV 22) / 0.20°E
2.1.2.5	**Geoid Undulation at AD Elev Position**	149ft / 45m
2.1.2.6	**AD Administration Address** **Telephone** **E-mail** **Website**	Royal Air Force Marham Kings Lynn PE33 9NP Mil: 95951 6244 / 6240 (Ops) Civ: (01760) 337261 / 6244 / 6240 (Ops) MRM-OpsDOOGroup@mod.gov.uk RAF Marham
2.1.2.7	**Types of Traffic Permitted (IFR/VFR)**	IFR/VFR
2.1.2.8	**Remarks**	Nil

2.1.3 UK Mil AIP

1. Follow the Link to the UK Military AIP for further information.

2.2 SPECIAL PROCEDURES

1. Armed Aircraft. Visiting or diverted aircraft which are armed are to inform ATC on initial call inbound.
2. Sculthorpe activity. All aircraft operating IVO Sculthorpe for CAS, JFAC or Para/Air-dropping activity are to contact RAF Marham Zone on VHF 124·15 (UHF 378·7)
3. Overflight of the Explosive Storage Area should be above 1100ft QNH for FW and 600ft QNH for RW aircraft.

For further info see TAP Charts EGYM B1 – Special Procedures.

2.3 NOISE ABATEMENT PROCEDURES

See TAP Charts EGYM Page B1 Special Procedures and C1 Noise Abatement Visual Circuit

2.4 TEMPORARY OBSTRUCTION ORDERS

Orders for Temporary Obstructions can be found at Annex I.

2.5 RUNWAY STRIP OBSTRUCTIONS

All legacy Runway Strip obstructions are to be published within the AOHL at Annex D. Any new Runway Strip obstructions will require a Waiver request to be submitted and if authorized, will be contained within Annex F.

2.6 RUNWAY END SAFETY AREA (RESA)

Designations Runway Number	RESA (m)
05 - 0·07%U	137 x 90
23 - 0·07%D	166 x 90
01 - 0·33%U	190 x 90
19 - 0·33%D	105 x 90

Awaiting overhead photographs.

2.7 LIGHT AGGREGATE (Lytag) ARRESTOR BEDS or ENGINEERED MATERIALS ARRESTOR SYSTEMS (EMAS)

Nil at present.

2.8 AERODROME ARRESTING SYSTEMS ORDERS

Rwy 05 TH	Mk 1 RHAG	Rwy 23 TH	Mk1 RHAG	Mk 1
(Nil Ovrn)	(2100ft)		(1600ft)	(Nil Ovrn)

Normal operations: both cables down.

2.9 MANOEUVRING AREA SAFETY and CONTROL ORDERS

Orders pertaining to these are contained at Annex K.

CHAPTER 3: EMERGENCY AND AERODROME RESCUE AND FIREFIGHTING ORDERS

The AO is to be familiar with the following documents and requirements:	
RA 3261(2):	Aerodrome Emergency Services
RA 3263:	Aerodrome Classification
RA 3049:	Defence Contractor Flying Organization responsibilities for UK Military Aircraft Operating Locations
DSA DFSR 02:	Defence Aerodrome Rescue and Firefighting (ARFF) Regulations
RAF Marham APCIMP V25 :	RAF Marham Aircraft Post Crash and Incident Management Plan

3.1 EMERGENCY ORGANISATION

The AO is to be familiar with: MAA RA 3261(2); MAA RA 3263; and DSA DFSR 02 DFSR 02 provides greater detail on Aerodrome Crash / Rescue Fire Services whilst Acceptable Means of Compliance and Guidance Material are contained within MAA RA 3261(2) and MAA RA 3263. Note: MAA RA 3049 stipulates that Defence Contractor Flying Organisations operating MAA-regulated Aircraft shall meet the requirements detailed in DSA DFSR 02.

3.1.1 AO / DFR RELATIONSHIP

The relationship between the AO and the Defence ARFF Service Provider is defined within DSA DFSR 02 and the Joint Business Agreement/Internal Business Agreement between the Defence ARFF Service Provider and the TLBs. The Customer Supplier Agreement (CSA) is found here. The Fire Section is a service delivery component of the Defence ARFF Service Provider which provides a DH-Facing service to the AO. Note: All orders are to be contained at separate Annexes.

3.2 EMERGENCY ORDERS / AERODROME CRASH PLAN

RAF Marham has an Aircraft Post Crash Management Plan and Major Accident Plan – linked here - which details how major incidents on the Stn, including an aircraft crash, will be dealt with. Details of the plans, including the exercise schedule, are at Annex L.
Detachment Cdrs in charge of aircraft overseas are to take appropriate APCIM precautions as outlined in the MAA MPCM.

3.3 AERODROME RESCUE and FIRE FIGHTING (ARFF) SERVICES and TRAINING ORDERS

In addition to Standard Operational Procedures, Fire and Rescue Service Generic Risk Assessments, Fire Facts and Defence ARFF Service Provider Instructions, detailed Tactical Information Plans covering site-specific operational requirements are to be produced, by the Stn Fire Off, in accordance with Defence ARFF Service Provider direction. These together with Fire Section Orders are contained at Annex M.

3.3.1Task Resource Analysis (TRA)

RAF Marham is designated as ICAO Category 5 airfield, providing ARFF (at a level dictated by output requirements) and structural cover 24 hours a day, seven days a week.

The Defence ARFF Service Provider will provide RAF Marham with appropriate ARFF cover, as derived from an aerodrome Task Resource Analysis (TRA). The TRA will be based on agreed worst credible scenarios (WCS) and will ensure that resources are always available and aligned with operating hours, to ensure that the on-site Fire and Rescue Service is operationally prepared to provide this service. ARFF cover of up to ICAO 8 may be provided on a surge basis.

RA Report for each ICAO Aerodrome category promulgated at Annex M.

3.3.2 ARFF Assessments

To ensure that ARFF Services are operationally prepared for the provision of service, they are required as defined within DSA DFSR 02 to carry out the assessment as listed in Annex M.

Circumstances may require that flying is conducted to/from aerodromes with reduced levels of ARFF services. HoE/ADHs may approve such activity following a risk assessment informed by advice from the on-site ARFF provider. A Form 06 (ARFF Reduction of Cover – Hazard Assessment – (DDH)) must be completed. All completed risk assessments are to be recorded/stored within the Fire Service SharePoint area.

To ensure that ARFF Services are operationally prepared for the provision of service, they are required as defined within DSA DFSR 02 to carry out the assessment as listed in Annex M.

Circumstances may require that flying is conducted to/from aerodromes with reduced levels of ARFF services. HoE/ADHs may approve such activity following a risk assessment informed by advice from the on-site ARFF provider. A Form 06 (ARFF Reduction of Cover – Hazard Assessment – (DDH)) must be completed. All completed risk assessments are to be recorded/stored within the Fire Service SharePoint area.

3.3.3 ARFF Training Area Orders and Training Area Risk Assessments

ARFF Training area Risk Assessments and Orders are contained at Annex M.

3.4 DISABLED AIRCRAFT REMOVAL	
Orders for the removal of disabled aircraft are at Annex N. They detail how an aircraft that has been disabled to a level that is below that which would initiate a full accident response will be quickly and safely removed from the runway, taxiway or Air Servicing Platform (ASP). If there is any doubt as to the status of an incident, advice should be sought from the Defence Air Accident Investigation Branch (Defence AAIB). If a civilian aircraft is involved Civilian AAIB should be consulted.	
ATCO I/C	
3.4.1	Notification of the ARFF Services and Station Operations Watchkeeper (Wkpr).
3.4.2	Aircraft identification and type.
3.4.3	Nature of aircraft unserviceability.
3.4.4	Location of aircraft.
3.4.5	Section of the manoeuvring area affected.
3.4.6	Persons On Board (POB).
3.4.7	Estimated time of Arrival (ETA) of all aircraft requiring use of the closed runway.
3.4.8	Latest time for affected aircraft to divert.
3.4.9	Any unserviceable areas of the manoeuvring area are correctly marked to provide for safe aircraft operation of the remaining areas.
Station operations Watchkeeper	
3.4.10	Notify ATC of a disabled aircraft if not already aware.
3.4.11	Ensure the appropriate Notice to Airmen (NOTAM) has been raised.
3.4.12	If required carry out RUNWAY BLACK plan.
3.4.13	Notify OC Ops Wg / OC Ops Sqn, DEOC, VASS, appropriate Sqn (if it affects a Stn-based aircraft).
3.4.14	Notify Defence AIB, or Civilian AIB for civilian Aircraft, to verify that the establishment assessment of the incident falls beneath that warranting an AIB investigation.
3.4.15	Obtain and record permission from the owner or duly authorised representative of the owner of the aircraft prior to the movement of the disabled Aircraft.
3.4.16	Notify all aircraft operators likely to be affected if RUNWAY BLACK.
3.4.17	For civilian Aircraft, notify the aircraft operating authority.
Fire Section	
3.4.18	Respond iaw DSA DFSR 02 and site-specific Incident Plan.
Aircraft Owner	
3.4.19	The aircraft owner is defined as the holder of the Certificate of Registration and can be held responsible for the aircraft and disposal of fuel and other hazardous materials that have been spilt because of an incident (noting the aerodrome will have instigated the Stn Spill Plan). When advised of an aircraft, the owner should liaise with the Wkpr to discuss its removal.

VASS / Parent Squadron	
3.4.20	Once cleared by the Wkpr, tow the disabled aircraft clear with the appropriate towing arm or ‘universal dolly’.

CHAPTER 4: AIR TRAFFIC SERVICES AND LOCAL PROCEDURES

4.1

Air Traffic Control orders are held at Annex O.

The Flying Order Book (FOB) is now contained at Annex KK.

The Recreational Flying Order Book (RFOB) is now contained at Annex LL.

Greenfield Operations is now contained at Annex MM.

CHAPTER 5: AERODROME ADMINISTRATION AND OPERATING PROCEDURES

5.1 AERODROME DATA REPORTING

The AO is to ensure all published airfield information is correct. The aim of the reporting procedures is to ensure that the MAA and No1 AIDU are notified of any changes to the physical condition of the airfield and of new obstacles that may affect the safety of aircraft operations. Orders for the reporting procedures to advise the relevant agency of any permanent changes to aerodrome information are contained at Annex P. Responsibility for these actions will always remain with the AO. Further guidance on Aerodrome Information & notification is contained in UK AIP/Mil AIP.

5.1.1 Legislation, Standards & Technical References.

Information relating to the aerodrome serviceability or hazards to air navigation is routinely updated through the Aeronautical Information Publications (AIP) & NOTAM.

5.1.2 Reporting Procedures

Any situation that may have an immediate effect on the safety of Aircraft operations is to be reported as soon as possible. In the first instance to ATC on ext. 333 / 01760 337333 or Management Radio Equipment (MRE). If ATC are unavailable, contact the Duty Ops Controller (Wkpr) on ext. 6240 / 01760 337261 x6240.

5.1.3 NOTAM

The AO ensures that all NOTAM action is recorded for possible 1st / 2nd & 3rd party audit. The Wkpr acts as Stn NOTAM focal point. NOTAM action is recorded & archived for a period of 6 months from date of expiry or cancellation. NOTAM requests should be made via email to the Wkpr (MRM-OpsDOOGroup@mod.gov.uk). NOTAMs will be originated in the standard NOTAM format for any of the following circumstances:

5.1.3.1	A change in the serviceability of the manoeuvring area.
5.1.3.2	A change in the operational information contained in this manual & published in the Mil AIP.
5.1.3.3	Aerodrome works effecting the manoeuvring area or penetrating the Obstacle Limitation Surfaces.
5.1.3.4	New obstacles which affect the safety of aircraft operations.
5.1.3.5	Bird or animal hazards on or near RAF Marham.
5.1.3.6	A change in the availability of aerodrome visual aids, i.e., markers & markings, runway lighting, etc.
5.1.3.7	Any change in aerodrome facilities published in AIP.
5.1.3.8	Unusual air activities at the aerodrome.

5.2 AERODROME SERVICEABILITY INSPECTION ORDERS		
5.2.1	Aerodrome Inspections are to be carried out by ATC who are to carry out a comprehensive inspection of the movement area. Orders are at Annex Q.	
	5.2.1.1.	Daily, before the Aerodrome is opened for flying on each occasion. If initial inspection is carried out in darkness, then a further inspection should be carried out after first light.
	5.2.1.2.	If night flying is to be conducted a further inspection is to be conducted prior to last light.
	5.2.1.3.	Prior to sunset, before any planned night movements, or as 5.2.1.2.
	5.2.1.4.	Check the serviceability of all aerodrome traffic lights.
	5.2.1.5.	Controllers are to vacate the vehicle at random intervals & conduct a close-up visual inspection of an area of the runway.
5.2.2	All inspections are to be logged in the ATC logbook, including any issues raised.	
5.2.3	Any issues are to be reported to the relevant section subject matter expert (SME). Any sweeping requests are to be logged.	
	Any work requests are to be put through the correct channels & a record of the request & subsequent action maintained.	

5.3 AERODROME TECHNICAL INSPECTIONS ORDERS	
Orders for the technical inspection of the Aerodrome are produced & conducted in accordance with aerodrome regulations. In addition to the inspections contained at Annex R; a minimum routine maintenance is carried out on all surfaces & equipment as follows:	
5.3.1	Routine inspections of the technical equipment (transmitters, receivers, ILS etc) with precision navigation aids being calibrated by a flight check Aircraft in accordance with AP 600-Royal Air Force Information CIS policy & relevant SPS.
5.3.2	Runway, taxiway & obstruction lights, along with PAPIs & aerodrome traffic lights are inspected daily.
5.3.3	Main earth points are to be tested every 24 months. The resistance is to be as low as possible but is not to exceed 10 ohms. Temporary earth points are to be tested at regular intervals (at least annually) and must not exceed 10,000 ohms. iaw AEP-24 (STANAG 7009) - Aircraft Electrical Hazards on the Flight Line.
5.3.4	Manoeuvring Areas & drainage are inspected, maintained & repaired in accordance with DIO guidance.
5.3.5	All aerodrome signs are inspected weekly by ATC & monthly by DIO SME.
5.3.6	Aerodrome lighting along with other essential equipment is backed up by standby power system. The standby power system is to be inspected daily with a switchover test being carried out monthly. Where the alternative input power supply is provided by independent generators, they must run for at least 15 minutes under full load when carrying out this check.

5.3.7	Traffic lights, CCTV & road barriers for the control of airside vehicle control measures are inspected daily.

5.4 RADAR, RADIO & NAVIGATION AID MAINTENANCE, MONITORING & PROTECTION

Orders, contained at Annex S, for the supervision of access/entry to any of the aerodrome navigation aids or their immediate vicinity are to be produced as part of the Aquila ATM maintenance plan and Airfield Support Team Orders. Orders, contained at Annex S, for the maintenance & monitoring of surveillance equipment are produced in accordance with extant Support Policy Statements (SPS) & the AP 600. Orders, contained at Annex S, for the equipment maintenance & monitoring of all aerodrome navigation equipment are to be produced in accordance with extant policy regulations & the AP 600 to ensure navigation & approach aid equipment (TACAN/ILS/etc) have a continuously monitored fault & check procedure.

5.5 AERODROME WORKS SAFETY ORDERS

Orders, contained at Annex T, cover the control & supervision of work in progress on the aerodrome. It is suggested that control of Working Parties is achieved through the use of the following:

5.5.1 Airfield Works Permits

All working parties who require to operate on, or in close proximity to the Aerodrome are required to submit an online airfield works permit application.

The application can be found at the following link and is also available on the RAF Marham “How Do I?” page.

Details of the works request will be received and reviewed by ATC. Upon approval of the works permit, details of planned works will be distributed to wider Aerodrome Stakeholders.

Working parties arriving for a WIP brief without an approved Airfield Works Permit will be refused access to the Aerodrome by ATC.

5.5.2 Work in Progress (WIP) Records

WIP records are maintained in accordance with MAA RA 3266 – Aerodrome Maintenance. A plan of the aerodrome is displayed in both ATC & Operations for the marking of all obstacles, the nature of the obstruction, its marking & all work in progress.

5.5.3 WIP Log

A WIP Log is established in accordance with MAA RA 3266 – Aerodrome Maintenance. In addition to an aerodrome plan, the WIP Log is to be maintained in the control tower.

5.5.4 WIP Briefings

Supervisors of any working parties are to be fully briefed on their responsibilities. The ATCO IC is responsible for ensuring that the supervisor of the working party is properly briefed. The briefing is to include (but not limited to) the following details:

	5.5.4.1	Limits of the work area.
	5.5.4.2	Direction of aircraft movements.

	5.5.4.3	Route to be taken by works vehicles.
	5.5.4.4	Parking area for works vehicles & equipment.
	5.5.4.5	Control to be exercised over works vehicles & workers.
	5.5.4.6	Signals to be employed.
	5.5.4.7	FOD prevention

5.5.5 Control Measures

When work is to be carried out on the aerodrome & it is not possible to stop flying, special control rules are to be enforced to safeguard the working party. Orders for these control measures are to be produced. All aerodrome work is to be clearly marked using approved high visibility markers & lit during hours of darkness.

5.5.6 Grass Cutting

Grass cutting at RAF Marham is sub-contracted & managed through DIO & Vivo. Routine grass cutting takes place on a continuous rotational basis. The plan is managed dynamically depending on weather conditions. All grass cutting activity is closely coordinated with ATC at all times in order to minimise impact to operations.

Grass length on the main airfield operating areas is managed iaw the Aerodrome Long Grass Policy detailed in MAA RA 3270 in order to deter wildlife activity including breeding & foraging. Grass length is monitored by the Airfield Wildlife Control Team & reported to ATC on a monthly basis. Any required corrective action is subsequently reported to DIO via TATCC Cdr.

See also Annex W: Wildlife management – orders.

5.6 AERODROME USERS. VEHICLE & PEDESTRIAN CONTROL

Orders, contained at Annex U, for the control of vehicular & pedestrian traffic on the aerodrome have been written iaw MAA RA 3262 – Aerodrome Access.

5.7 FOD PREVENTION, TRAINING & AWARENESS

Orders, following the guidance & instructions contained within RA 1400 with regards to FOD prevention, training & awareness are contained at Annex V.

The RAF Marham FOD Prevention Officer is based in the Rolls Royce Service Delivery Centre (RR SDC), is contactable as follows:

a. Mil: 95951 6660

b. Tel: 01760 337261 6660

5.8 AERODROME WILDLIFE MANAGEMENT

The bird activity on & around the vicinity of the aerodrome is managed by a civil agency who are contracted to operate an Airfield Wildlife Control Unit (AWCU) at RAF Marham on a continuous basis. Wildlife Management orders can be found at Annex W.	
5.8.1	Assess & effectively minimise the local bird hazard to aircraft through a coordinated bird control effort on the Stn.
5.8.2	Record & collate recorded information on bird concentrations & movement patterns both on the aerodrome & within its safeguarded zone.
5.8.3	Liaise with Stn executives, DIO Property Management representatives, local authorities & landowners & tenant farmers whose land abuts the aerodrome, concerning such matters as the identification & dispersal of local bird concentrations, & the elimination of bird food sources & other topographical features which might attract birds to the aerodrome vicinity.
5.8.4	Coordinate the use of bird dispersal equipment & materials & ensure that their use is properly controlled in accordance with current regulations.
5.8.5	Ensure that all vehicles & wildlife control equipment is properly serviced in accordance with current servicing schedules & that any un-serviceability is rectified promptly.
5.8.6	Ensure that all WCU personnel are correctly trained in the use of bird dispersal equipment & its safe handling.
5.8.7	Ensure that bird hazard warnings are issued in accordance with the procedures published in FLIPs.
5.8.8	At Stn Safety Management Committee ensure the AO has the latest WCU report that covers any general concerns or wildlife related issues.
5.8.9	Ensure all Wildlife Strikes are reported on ASIMS.
5.8.10	Seek specialist advice whenever necessary from SO2 ATM Infra or DEFRA.
5.8.11	Supervise the maintenance of the bird control log.
5.8.12	Measures are in place for discouraging wildlife such as grass and crop management.
5.8.13	List responsibilities, who manages the wildlife management procedures, who is in charge of the tasks & how they may be performed, etc.
5.8.14	Particulars of the procedures to deal with the danger posed to aircraft operations by the presence of birds or mammals in the aerodrome flight pattern or movement area, including the following:
5.8.15	Ensure plans are in place for assessing any wildlife hazards.
5.8.16	Ensure wildlife control programmes are implemented.

5.9 LOW VISIBILITY OPERATIONS (LVP)

Orders for Low Visibility Operations iaw MAA RA 3274, are contained at Annex X. If required, details of how to measure and report Runway Visual Range are contained within RA 3275. The following must be included:

5.10 SNOW & ICE OPERATIONS

Orders to enable use of aerodrome operating surfaces during periods of snow & ice operations at RAF Marham, known locally as Operation BLACKTOP, are exercised & reviewed annually iaw RA 3278 – Snow & Ice Operations. These are contained at Annex Y.

5.11 THUNDERSTORM & STRONG WIND PROCEDURES

Orders contained at Annex Z cover aircraft operations during thunderstorm (lightning risk) warning periods & periods of forecast strong winds.

5.12 CIVIL AIRCRAFT AERODROME USAGE – TERMS & CONDITIONS

Use of MOD Aerodromes by civil aircraft shall be in accordance with JSP 360 – Use of Military Aerodrome by Civil Aircraft to use RAF Marham contact Stn Ops on 01760 337261 x6244.
Orders governing use by civil aircraft are at Annex AA.
Orders covering the eventuality of a breach of terms & conditions are also contained at Annex AA. Any breaches of the guidelines directed within JSP 360, or local procedures contained within the document (known as Terms & Conditions) will be brought to the attention of the AO who shall decide on an appropriate response, which may include the privilege of operating at the aerodrome being temporarily or permanently withdrawn.

5.12.1	The Terms & Conditions may be varied at any time by the AO to reflect any changes, amendments or additions to working practices at the specific aerodrome. Factors may include some or all of the following:	
	5.12.1.1	Winter Operations.
	5.12.1.2	Operational Support.
	5.12.1.3	Passenger Handling.
	5.12.1.4	Animal Handling.
	5.12.1.5	Refuelling Services.
	5.12.1.6	Catering.
	5.12.1.7	Aircraft Maintenance.
	5.12.1.8	Security.
	5.12.1.9	Flight Safety.
	5.12.1.10	Aircraft Handling.
	5.12.1.11	Airworthiness.

5.12.2	Whilst the AO will use all reasonable endeavours to advise Civilian Users of any changes to the Terms & Conditions, it will be for the Civilian Users to ensure that they are aware of extant Terms & Conditions. The AO shall not be liable for any loss or damage (whether direct or indirect) arising out of any change in the Terms & Conditions.	
5.12.3	All Civilian Users are to operate in accordance with extant DfT NASP & wider ATSy protocols.	
5.12.4	RAF Marham core hours are 0800-1700 Local but frequently, the aerodrome operates non-standard hours. Movements outside of core hours can be requested through Stn Ops – See 2.1.2.6.	
5.12.5	Charter Airline operations are not permitted to operate from the aerodrome.	
5.12.6	Scheduled aircraft operations are not permitted to operate from the aerodrome.	
5.12.7	RAF Marham is not a designated Port of Entry and has no permanent HMRC/UKBF presence. Any flight arriving/departing from overseas must be with prior approval from HMRC/UKBF as agreed with RAFP, and a General Aviation Report must be submitted by the aircraft's captain.	
5.12.8	In the event of a Local or National Emergency whether declared or not the aerodrome may be closed to civilian operators. A non-exhaustive list of potential circumstances includes**:**	
	5.12.8.1	Loss/Reduction of appropriate Fire or Crash cover.
	5.12.8.2	Repatriation of troops.
	5.12.8.3	Loss of power to all, or parts, of the aerodrome.
	5.12.8.4	Interruptions in communications both within the aerodrome & with external agencies.
	5.12.8.5	Unforeseen natural disaster (flooding, etc).
	5.12.8.6	Unforeseen national epidemics (swine flu/bird flu).
Note: In the event of such closure all access to the aerodrome for any reason whatsoever may be restricted & no liability is accepted for any loss or damage (whether direct or indirect) arising.		

In response to recent events at RAF Marham, such as Friends and Families Day, as well as the East Anglia Airspace Users Working Group, the following Aide Memoire for civilian pilots has been approved. This provides guidance for those familiar with operating at Military Airfields where a full Air Traffic Service is provided and allows for the use of aircraft holds during busy times.
Individual concerns for any forthcoming events will be addressed and communication nearer the time.

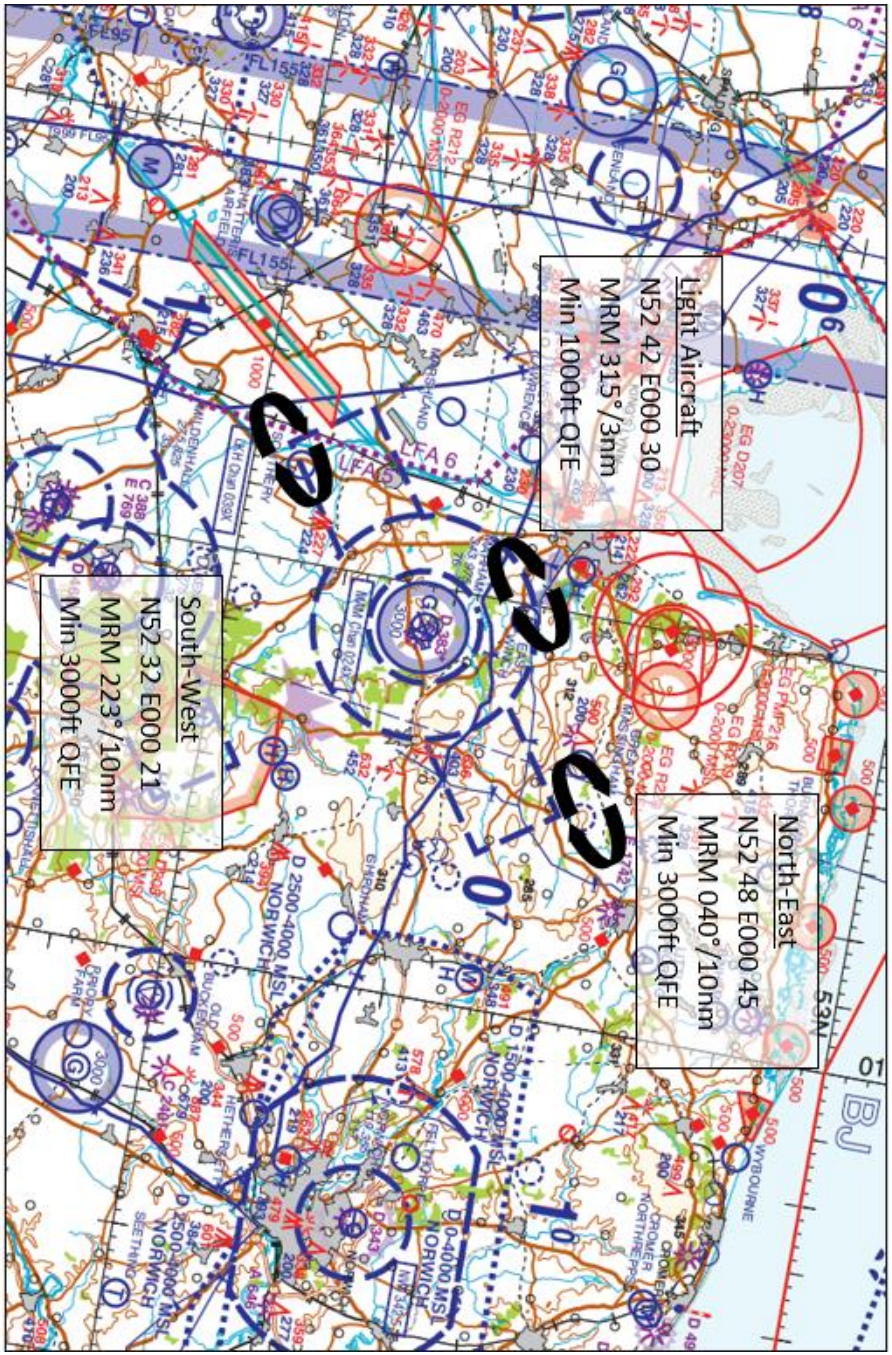


Figure 12: Display Aircraft Holds

Civilian AC Aide Memoire. **Images for reference – refer to the AIP for current charts**	
Marham Approach/Zone	124.150 (UHF 343.975)
Marham Ground	122.100 (UHF 360.4)
Marham Tower / Display	118.325 (UHF 278.125)

Initial Contact:

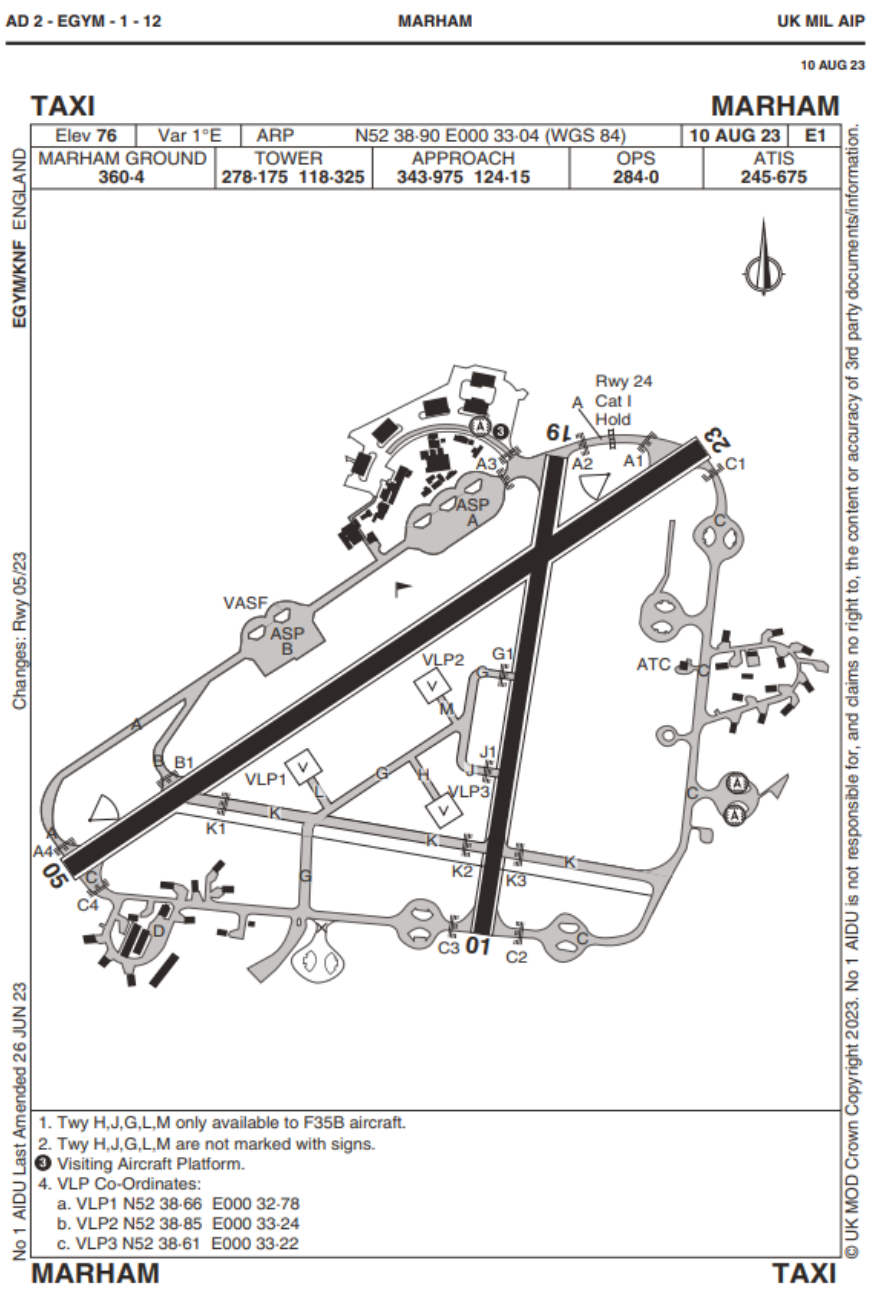
- Initial contact frequency Marham App/Zone, 124.150. Check in with Marham App/Zone no later than 25nm.
- Pass your issued slot time to the controller for sequencing. Your slot time is the time you should plan on landing.
- You may be instructed to take up a hold, which will be one of those detailed left.
- If conducting a visual approach, expect this to be dictated by ATC. If you cannot comply, you are to inform ATC immediately. Types of visual joins to expect; straight-in, downwind or base leg.

Holds:

- Holds will be active throughout the day and will be tactically utilised by Marham ATC. They are detailed on the chart to the left. Pilots should be prepared to self-position to a hold, at a specified height as directed by Marham ATC.

Visiting aircraft brief:

- Runway (rwy) in use: To be briefed by Marham App/Zone before transfer to Tower.
- Circuit direction: Rwy 05RH – Right hand (southerly) circuit, Rwy 23 – Left hand (southerly) circuit.
- Circuit height: 1100ft Marham QNH (600ft on request).
- PAPIs: Rwy 05RH: 2.5 degrees, Rwy 23: 3 degrees.
- Cable state: The configuration for the day will be Overrun cable rigged & lowered, Approach cable de-rigged. Subject to change by ATC as required, aircrew will be notified by



Runway Ops:

c. Military controllers require a positive “gear down” declaration prior to issuing a clearance (unless fixed gear, however gear configuration may not always be known).

d. Marham normally employs single rwy occupancy rules, however with light aircraft, discretionary landing clearances can be given when aircraft ahead are well up the rwy.

e. Rwy 23/05 is the preferred rwy and is 9,131ft long, therefore if able expect to land short or long for expedition. There may be an option to use rwy 01/19 on the day, however this is still pending approval.

Taxi Patterns:

b. Flying Display aircraft will be taxied to ASP B for parking; static Aircraft to ASP A. (some exceptions and see map for locations).

c. Marham does not have a dedicated Ground VHF frequency, therefore Tower VHF Common 122.100 will be used for ground – there may be break through from other units.

Start Up:

a. Start up calls for static aircraft must be approved by ground handlers prior to ATC approval, therefore expect a delay.

b. Persons On Board (POB) will be required, and short weather given.

Departures:

c. Multiple rwys may be utilised to aid expedition (subject to weather).

d. Inform Ground if you require power up checks subject to line up.

e. At the hold, call when ready for departure at which point you will be told to change freq. to Tower, don’t change freq. until advised.

f. A standard departure for all rwys will be: depart VFR, climb rwy track to 2,000ft, squawk 3667 (or as directed), Maintain rwy track until the ATZ boundary, at which point you will be sent to Marham App/Zone 124.150. IFR departures on request.

g. Once on App/Zone they will be able to give you own navigation – this enables multiple rwys to be used at once. Do not turn until approved by App/Zone.

5.13 SAFEGUARDING REQUIREMENTS – WAIVERS & EXEMPTIONS

The procedures involved in safeguarding the operational environment of military aerodromes are explained in greater detail in the MAA RA 3500 series – Aerodrome Design & Safeguarding. All Safeguarding activities are conducted in accordance with extant regulations & any waivers or exemptions issued by the MAA. Waivers & Exemptions are promulgated in Annex F.

5.14 AERODROME ASSURANCE ACTIVITY

Operations Wing holds a Quarterly Management Board to assess all the key Operations and Documentation owned by the Wing, to ensure that Risks are correctly understood and are being held at the appropriate level. The Board is chaired by OC OW, with an Action Record to ensure decisions and actions are correctly recorded.

A DAAF is maintained which records and 1, 2 and 3PA.

5.15 ELECTRICAL GROUND POWER PROCEDURES

Orders contained at Annex BB, deal with priorities for using Ground Power. Personnel are trained by Sqn Training Cell on how to operate safely.

5.16 AVIATION FUEL MANAGEMENT PROCEDURES

Orders for aviation fuel management are contained at Annex CC. The following areas should be covered as a minimum:

5.16.7	Fuelling with engines running.
5.16.8	Fuelling & de-fuelling in hangers.
5.16.9	Fuel spillage procedures.

5.17 HANDLING OF HAZARDOUS MATERIALS (SPILLAGE PLAN)

Orders for Hazardous Materials (Spillage Plan) can be found at Annex DD.

5.18 JETTISON & FUEL DUMPING AREA

RAF Marham does not have any Jettison areas. Annex EE is included for compliance with DAM Template.

5.19 COMPASS CALIBRATION BASE

The Compass Calibration Base is no longer in use at RAF Marham. Annex GG has been retired.

5.20 EXPLOSIVE ORDNANCE DISPOSAL AREA

RAF Marham does not have any EOD areas. Annex GG is included for compliance with DAM Template.

5.21 DANGEROUS GOODS (DG) PROCEDURES

Orders, contained at Annex HH are to be produced for the control & management of DG in accordance with extant regulations.

5.22 HYDRAZINE (H70) LEAKS

RAF Marham does not maintain full capability for dealing with Hydrazine leaks and therefore does not declare an ability to accept planned detachments nor planned diversions of F-16 aircraft. F-16 Aircraft will only be accepted for a recognised operational requirement or in an emergency where no other suitable aerodrome is available.

If visiting nations wish to operate from RAF Marham, it is their responsibility to bring suitably trained and equipped personnel to handle any potential Hydrazine leak. This forms part of the conditions of usage of Marham aerodrome for such detachments.

Annex II is retained as a placeholder only.

5.23 REMOTELY PILOTED AIRCRAFT (RPA) ORDERS

RPA Orders can be found at Annex JJ.

ANNEX A: AERODROME OPERATOR LETTER OF DELEGATION

Letter of authority to act as AO for RAF Marham

Wg Cdr M Williamson
OC Ops Spt Wg
RAF Marham
Upper Marham
Kings Lynn
PE33 9NP

Terms of Reference – RAF Marham Aerodrome Operator's Principal Responsibilities

1. The Secretary of State (SofS) for Defence set out the requirement for an assurance process to ensure that his policy on safety in Defence is being promoted and implemented in the conduct of Defence activities. In my role as the Head of Establishment (HoE) for RAF Marham I hereby appoint you to be the Aerodrome Operator for RAF Marham. Your primary responsibility is the provision of overarching assurance of the appropriate safety, coherence, risk identification and management of operations at RAF Marham. You are to develop mechanisms and procedures which evidentially will provide me, as the HoE, with the necessary assurance that operations at RAF Marham, meet the required Departmental (MAA informed) requirements.

2. In discharging your responsibilities to me for the self-regulation and internal assurance of Air Safety activity, specifically operating procedures, standards and Air Safety, you are to develop, populate and maintain the Defence Aerodrome Manual (DAM) for RAF Marham to include the Defence Aerodrome Assurance Framework (DAAF) which will consolidate existing information on aerodrome facilities and assure appropriate standards are being met in the delivery of Air Safety to all Aircraft, airborne equipment and systems operating from the aerodrome. In the discharge of your responsibilities, you are to consider the direction set by the MAA.

3. Specifically, you are responsible for:

   a. Supporting me by actively managing the aerodrome environment to accommodate the safe operation of Aircraft.

   b. Establishing formal mechanisms to ensure robust communication of any hazards and/or issues relevant to me as HoE and/or those ADHs faced by RAF Marham.

   c. Establishing a formal relationship with me, the unit HoE, and other key personalities to ensure any decisions made are cognisant of the impact on Air Safety. These areas for consideration shall include, but are not limited to, facilities, personnel, equipment, and material.

   d. Establishing formal mechanisms to ensure monitoring and assurance of activities, operating procedures, standards and air safety within and interfacing with your AoR.

   e. Ensure that the RAF Marham DAM is developed according to the output of the aerodrome and incompliance with MAA regulations.

   f. Always ensure the accuracy of aerodrome data and notification of all aerodrome hazards.

4. In particular, you are to:

a. Provide me with evidence-based assurance of the air safety, operating support and operating aspects of the aerodrome under command. This should include a formal 6-monthly assurance report to me.

b. Ensure that personnel responsible for conducting key roles in implementing the assurance strategy are sufficiently qualified, competent, and trained.

5. If you or your staff become aware of any practice, procedure, or circumstance which casts doubt upon the delivery of air safety at the aerodrome you are to draw the matter to my attention immediately.

6. You are to demonstrate and maintain compliance with the MAA SQEP requirements for Aerodrome Operator.

7. You are to confirm in writing that you have read and understood these Terms of Reference. Your confirmation should evidence the SQEP requirements detailed at para 6 above and set out any constraints and limitations inherent in executing the above duties.

<Original Signed>

L Boyd
Gp Capt
Stn Cdr

A.2 Record of Previous Aerodrome Operators

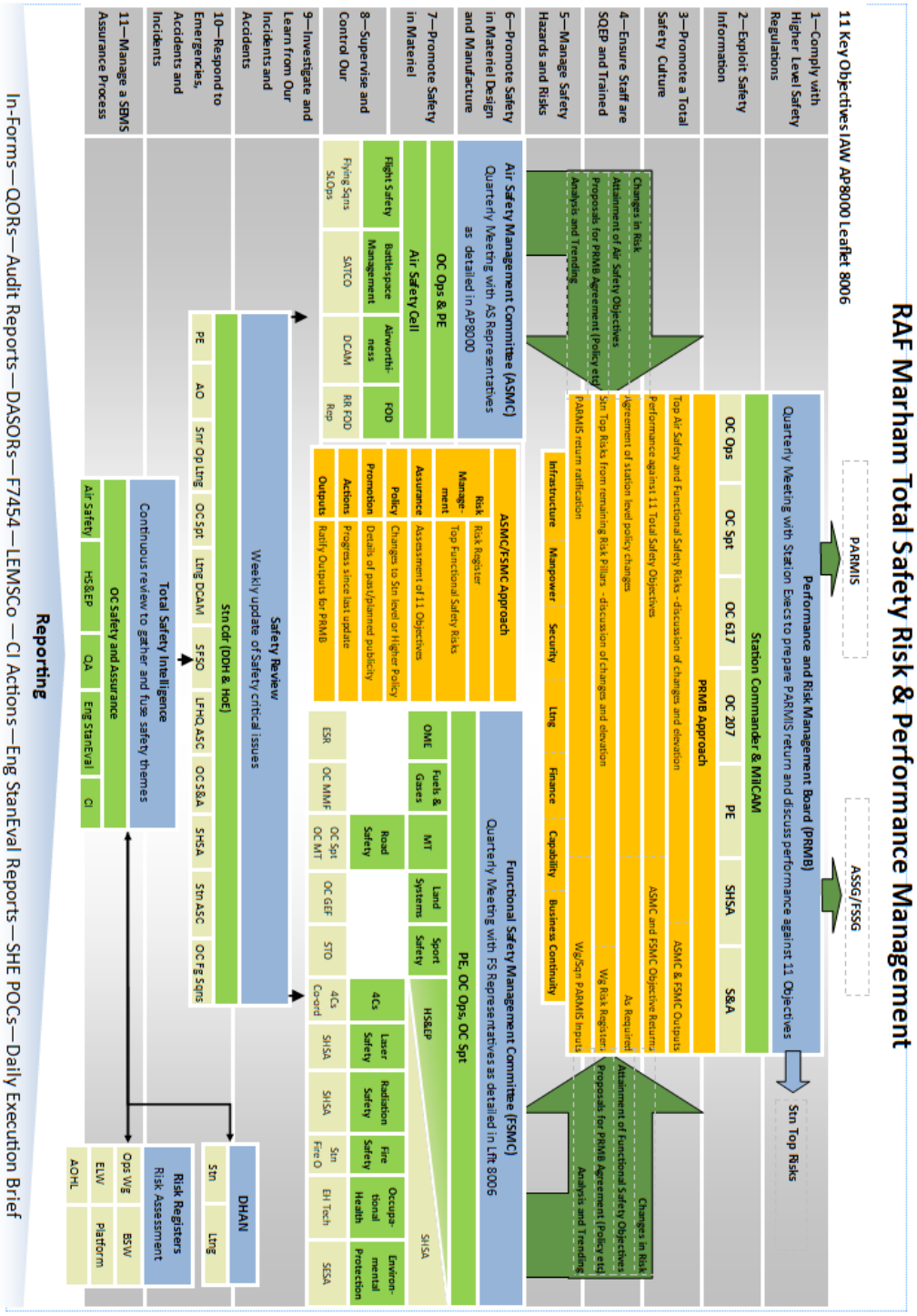
Date From	Date To	AO	Post	HoE on appointment
Aug 12	Aug 14	Wg Cdr R O'Connor	OC Ops Wg	Gp Capt D Cooper
Aug 14	Aug 16	Wg Cdr A Challen	OC Ops Wg	Gp Capt H Smyth
Aug 16	Aug 18	Wg Cdr P Marr	OC Ops Wg	Gp Capt I Townsend
Aug 18	Jul 20	Wg Cdr G Prendergast	OC Ops Wg	Gp Capt I Townsend
Jul 20	Aug 20	Sqn Ldr K Needham	Sqn Ldr Ops Wg	Gp Capt J Beck
Aug 20	Jul 22	Wg Cdr D Clark	OC Ops Wg	Gp Capt P Marr
Aug 22	Nov 22	Sqn Ldr S Atkinson	Sqn Ldr Ops	Gp Capt F A Wigglesworth
Nov 22	Sep 23	Wg Cdr D Clark	OC Ops Spt Wg	Gp Capt F A Wigglesworth
Sep 23	**Present**	Wg Cdr M Williamson	OC Ops Wg	Gp Capt F A Wigglesworth

Note: Renewed on a re-issue. New appointments to be included as above.

ANNEX B: SAFETY MEETING STRUCTURE

Safety Meeting Structure

1. **Safety Meetings**. Safety meetings are held routinely and are mandated by the DDH/HoE. A Total Safety Review (TSR) meeting is held weekly on Friday's and chaired by the HoE and DDH, whilst quarterly Functional Safety Management Committee meetings are chaired by OC Base Spt Wg, and the Air Safety Management Committee (ASMC) meetings are joint chaired by the Aerodrome Operator, Senior Operator and Air Wg Engineer. Diagram below is correct as of Sep 22 but for authoritative reference, refer to the RAF Marham ASMP .



a. **Aerodrome Operator (AO) Safety Management**. OC Ops Wg is responsible to the HoE in two areas: Air Safety & Functional Safety. This ensures Ops Wg supports the HoE in executing their legally accountable role and subsequently their responsibility as HoE to multiple ADH chains to whom they are responsible under military policy.

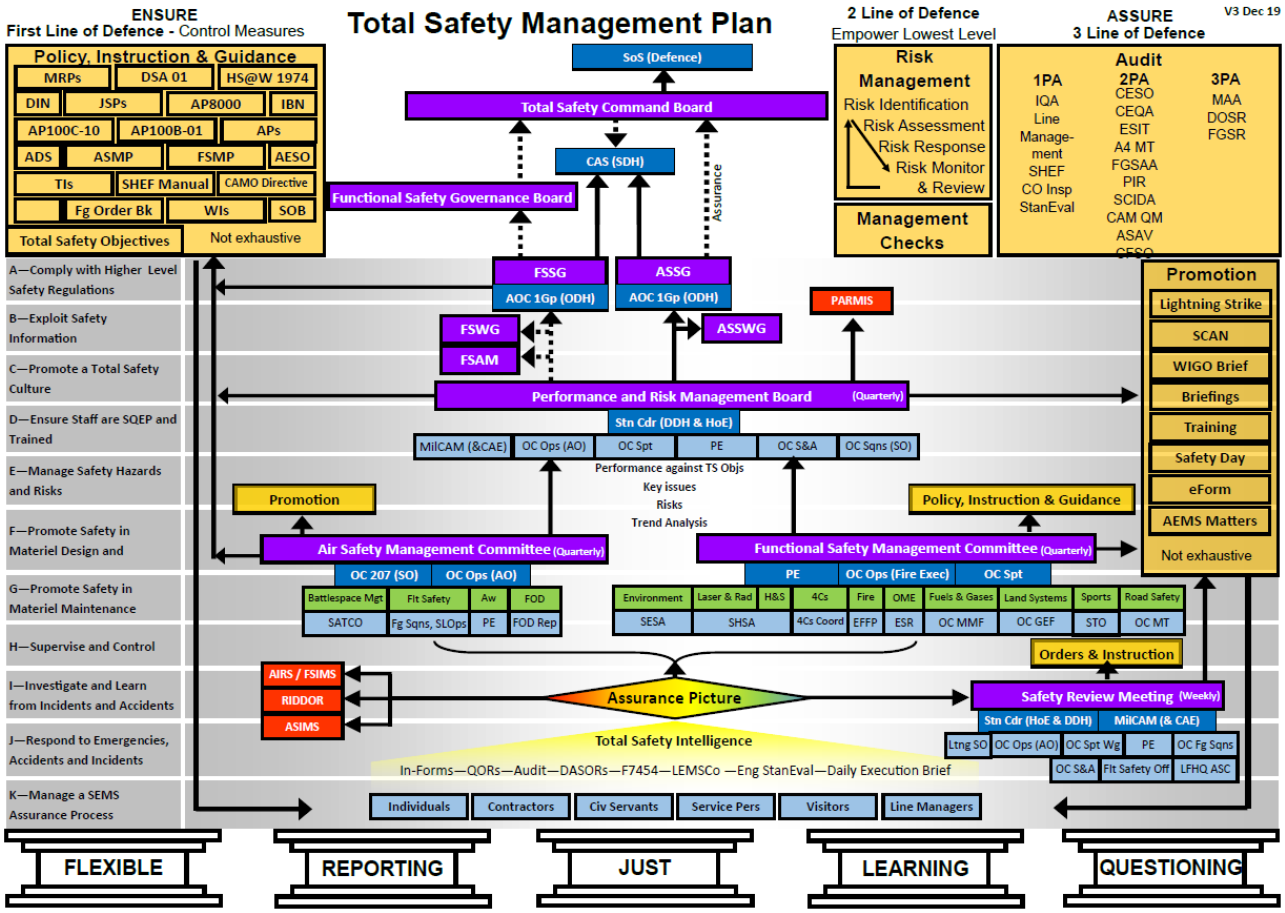
3. The Total Safety Management Plan (TSMP), outlined in the diagram below, is based upon working groups made up of empowered representatives from across the Stn who meet regularly, underpinned by an engaged safety culture. These are the:

a. Total Safety Review Group (Weekly).

b. Air Safety Management Committee (Quarterly).

c. Functional Safety Management Committee (Quarterly).

The Chair of these working groups feeds their groups' progress and issues to the relevant overarching groups, either the Functional Safety Working Group (FSWG) or the Air Safety Working Group (ASWG), depending upon the focus of their group. There will inevitably be crossover between Air and Functional Safety. The FSMC and ASMC are chaired by OC Ops Wg. A weekly update can also be given in the weekly Safety Review Meeting, or sooner if time-sensitive, to ensure that HoE is briefed routinely on the activity of the Working Groups.



ANNEX C: AERODROME KEY STAKEHOLDERS

Head of Establishment:
Station Commander RAF Marham
Group Captain L Boyd
Tel: 01760 337261 x7202
Mil: 95951 7202

Aerodrome Operator:
OC Operations Wing
Wing Commander M Williamson
Tel: 01760 337261 x3425
Mil: 95951 3425

OC Operations Squadron:
Squadron Leader A Holland
Tel: 01760 337261 x 4894
Mil: 95951 4894

TATCC Cdr:
Squadron Leader B Lyman
Tel: 01760 337261 x 4949
Mil: 95951 4949

ANNEX D: AERODROME OPERATORS HAZARD LOG

1. The full RAF Marham AOHL can be accessed here.

Information Owner: TATCC Cdr Extra Input From: Nil

ANNEX E: FORMAL AERODROME RELATED AGREEMENTS

E.1 Formal Aerodrome Related Agreements				
ID	Date of Implementation	Last Reviewed	Agreement With	Link
1	8 Mar 12	1 May 24	Norwich Airport	Link
2	4 Dec 24	4 Dec 24	RAF Swanwick Mil	Link
3	8 Nov 21	08 Nov 21	DIO Holbeach Range	Link
4	01 Jul 24	01 Jul 24	RAF Lakenheath	Link
5	01 Apr 24	01 Apr 24	Langar Airfield	Link
6	08 Sep 24	08 Sep 24	31 Sqn, Terminal Units, 78 Sqn (PTR)	Link

ANNEX F: AERODROME ALTERNATIVE ACCEPTABLE MEANS OF COMPLIANCE (AAMC), WAIVERS AND EXEMPTIONS (AWES)

F.1 Aerodrome Waivers					
ID	Dated	Expires	Name	Link	PARMIS
1	3 Apr 19	30 Apr 29	MAA_AWE_2019_044-Non-Compliance with AGL Characteristics	Included	SR-11691-OS
2	28 Mar 19	31 Mar 29	MAA_AWE_2019_040-Infringement of Obstacle Free Zone	Included	
3	14 Aug 19	1 Dec 30	MAA_AWE_2019_107-Permanent Fixed Wing Aerodrome: Markings and Lighting	Included	SR-1883-OS
4	7 Nov 19	31 Dec 24	MAA_AWE_2019_131-Proximity of Test Oscillator to Taxiway Golf	Included	SR-11691-OS
5	14 Jul 22	31 Jul 25	MAA_AWE_2019_015-Truck Runway Control (TRC) Requirements	Included	SR-11587-OS

Military Aviation Authority

MAA

Gp Capt B Duncan MA RAF
MAA Regulations Deputy Head

Military Aviation Authority
Abbey Wood (North)
Juniper (Wing 4) Mail Point #5104
MOD Abbey Wood
BRISTOL
BS34 8QW

Military Network: 9679 84232
Telephone: 030679842322
Email: DSA-MAA-Reg-DepHd@mod.gov.uk
www.gov.uk/maa

Gp Capt I Townsend ADC MA RAF
RAF Marham
Kings Lynn
Norfolk
PE33 9NP

Reference: 20190402-MAA_AWE_2019_044

3 Apr 19

Dear Ian,

MAA FORMAL AUTHORIZATION OF WAIVER APPLICATION MAA_AWE_2019_044 – NON-COMPLIANCE WITH AERONAUTICAL GROUND LIGHT CHARACTERISTICS – CONSTRUCTION

1. RAF Marham sought[1] approval of a Waiver to meet the published regulatory requirement whereby HoEs and ADH Facing organizations shall ensure that all AGL fittings are of construction and height that their presence does not endanger Air Systems. The height of the runway edge lights on 01/19 and 06/24 is greater than the regulation specification[2].

2. I note that your team have conducted a hazard analysis and you have accepted that any additional Risk to Life due to the elevation of the runway edge lights being contrary to the regulation is mitigated and your operation remains ALARP and Tolerable. Therefore, I am content to approve Waiver MAA_AWE_2019_044.

3. The Waiver will be until 30 Apr 2029 or until the runway edge lights are made complaint, whichever is sooner. Details of the Waiver must be published and promulgated as appropriate, including within the RAF Marham Defence Aerodrome Manual, and reviewed regularly and at least one month prior to expiry. Any changes to the circumstances concerning this Waiver must be immediately notified to the MAA.

Yours

Copy to:

AOC 1 Gp
MAA Op Assure Op Dep Hd
Air BM A35 SO1

[1] Email: 20190329-Request for a Regulatory Waiver - RAF Marham-OS.
[2] RA3515 – AMC 3515(28) Para 122(d).

Military Aviation Authority

Gp Capt B Duncan MA RAF
MAA Regulations Deputy Head

Military Aviation Authority
Abbey Wood (North)
Juniper (Wing 4) Mail Point #5104
MOD Abbey Wood
BRISTOL
BS34 8QW

Military Network: 9679 84232
Telephone: 030679842322
Email: DSA-MAA-Reg-DepHd@mod.gov.uk
www.gov.uk/maa

Gp Capt I Townsend ADC MA RAF
RAF Marham
Kings Lynn
Norfolk
PE33 9NP

Reference: 20190326-MAA_AWE_2019_040

28 Mar 19

Dear Ian

MAA FORMAL AUTHORIZATION OF WAIVER APPLICATION MAA_AWE_2019_040 – INFRINGEMENT OF OBSTACLE FREE ZONE

1. RAF Marham sought[1] approval of a Waiver to meet the published regulatory requirement whereby organizations shall ensure that the Obstacle Free Zone is established[2].

2. I note that your team have conducted a hazard analysis and you have accepted that any additional Risk to Life due to the infringement of the Obstacle Free Zone is mitigated and your operation remains ALARP and Tolerable.. Therefore, I am content to approve Waiver MAA_AWE_2019_040.

3. The Waiver will be until 31 Mar 2029 or until the fence is made complaint, whichever is sooner. Details of the Waiver must be published and promulgated as appropriate, including within the RAF Marham Defence Aerodrome Manual, and reviewed regularly and at least one month prior to expiry. Any changes to the circumstances concerning this Waiver must be immediately notified to the MAA.

Yours

Copy to:

AOC 1 Gp
MAA Op Assure Op Dep Hd
Air BM A35 SO1

[1] Email: 2019025-Request for a Regulatory Waiver - RAF Marham-OS.
[2] RA3512 – AMC 3512(2) Para 15.

Military Aviation Authority

MAA

Gp Capt B Duncan MA RAF
MAA Regulations Deputy Head

Military Aviation Authority
Abbey Wood (North)
Juniper (Wing 4) Mail Point #5104
MOD Abbey Wood
BRISTOL
BS34 8QW

Military Network: 9679 84232
Telephone: 030679842322
Email: DSA-MAA-Reg-DepHd@mod.gov.uk
www.gov.uk/maa

Gp Capt J Beck OBE RAF
RAF Marham
Kings Lynn
Norfolk
PE33 9NP

Reference: 20190813-MAA_AWE_2019_107

14 Aug 19

Dear James,

MAA FORMAL AUTHORIZATION OF WAIVER APPLICATION MAA_AWE_2019_107 – PERMANENT FIXED WING AERODROME: MARKINGS AND LIGHTING

1. RAF Marham sought[1] approval of a Waiver to meet the published regulatory requirement for runway markings[2] and lighting[3] whereby the surface of the 01/19 runway will have additional dedicated STOL markings and lighting.

2. I note that your team have conducted a hazard analysis and you as the ADH have accepted that any additional Risk to Life, due to non-compliant markings and lighting on the 01/19 runway to support STOL activities, is mitigated and that your operation remains ALARP and Tolerable. Therefore, I am content to approve Waiver MAA_AWE_2019_107.

3. The Waiver will be until 1 Dec 2030, to enable a review of requirements, hazards and mitigations. Details of the Waiver must be published and promulgated as appropriate, including within the RAF Marham Defence Aerodrome Manual, and reviewed regularly and at least one month prior to expiry. Any changes to the circumstances concerning this Waiver must be immediately notified to the MAA.

Yours

Copy to:

ACNS (A&C)
AOC 1 Gp
Navy CSAV SO1 Ops Spt
Air BM A35 SO1
MAA Dep Hd Op Assure

[1] Email: Waiver Application – RAF Marham STOL Markings dated 5 Aug 19.
[2] Refer to RA 3514 – AMC 3514(2).
[3] Refer to RA 3515 – AMC 3515(9) and (10).

Military Aviation Authority

MAA

Gp Capt B Duncan MA RAF
MAA Regulations Deputy Head

Military Aviation Authority
Abbey Wood North
Juniper Wing 4 Mailpoint 5104
MOD Abbey Wood,
Bristol
BS34 8QW

Military Network: 9679 84232
Telephone: 0306 679 84232
Email: DSA-MAA-Reg-DepHd@mod.gov.uk

Gp Capt J A Beck MA BEng(Hons) OBE RAF
Station Commander
RAF Marham
Marham
Norfolk
PE33 9NP

Reference:
MAA_AWE_2019_131

7 Nov 19

Dear James,

MAA AUTHORISATION OF WAIVER MAA_AWE_2019_131

1. RAF Marham sought[1] approval for a Waiver against the published regulatory requirement[2] whereby HoEs and ADH Facing organizations shall ensure that obstacles should not be permitted on runways, taxiways or hard standings.

2. I note that your team have conducted a Safety Assessment and you have accepted that any additional Risk to Life due to the mast adjacent to Taxiway Golf is mitigated for F35B operations, and your operation remains ALARP and Tolerable.

3. I am content with your intentions to only allow station-based F35B pilots to use this taxiway, and that they will have been comprehensively briefed that no off-centre formation taxying is to take place on taxiway Golf. This brief is to be explicitly referenced in the Flying Order book and ATC orders. I also note that RAF Marham intend to provide temporary lighting until permanent lighting is installed as part of Project Anvil 2 upgrades.

4. I am content to approve the Waiver until 31 Dec 2024. This will allow for a reassessment of the feasibility of repositioning the mast.

5. This Waiver must be published and promulgated as appropriate, including within the RAF Marham Defence Aerodrome Manual and reviewed regularly and at least one month prior to expiry. Any changes to the circumstances concerning this Waiver must be immediately notified to the MAA.

Yours

Copy to:

AOC 1 Gp
BM Fce Cdr

[1] 20190923-SAofC 04-19 Taxiway Golf

[2] RA 3590(10)-Aeronautical Ground Lighting Characteristics - Construction

Military Aviation Authority

Gp Capt G J J Currie OBE MA RAF
Deputy Head Regulations

Military Aviation Authority
Abbey Wood (North)
Juniper (Wing 4) Mail Point #5104
MOD Abbey Wood
BRISTOL
BS34 8QW

Skype number: +443001552889
Email: DSA-MAA-Reg-DepHd@mod.gov.uk
www.gov.uk/maa

Gp Capt P Marr ADC RAF Stn Cdr RAF Marham KINGS LYNN Norfolk PE33 9NP	Ref: 20220705- Extension_MAA_AWE_2019_015 14 Jul 22

Dear Phil

MAA formal authorization of extension to Waiver MAA_AWE_2019_015

1. Your staff requested[1] an extension to MAA-AWE_2019_015 relating to RA 3276 which requires the Truck Runway Control (TRC) to be removed from its operating position when ATC is not staffed[2].

2. I understand that a thorough review of the original Safety Assessment was conducted and note that you have accepted that the Risk to Life associated with leaving the TRC in situ remains ALARP and Tolerable. Whilst it was previously suggested that Programme MARSHALL infrastructure changes may have provided a solution, I understand that this was not the case and that the ground infrastructure associated with the TRC remains aged and fragile. I am also aware that BM FHQ are in the process of submitting a Request for Change (RFC) requesting Para 4 within RA 3276(2) to be removed which, if accepted, would negate the requirement for a waiver. Therefore, I am content to approve an extension to MAA_AWE_2019_015 until 31 Jul 25 by which time the RFC will have been actioned and a Defence wide solution to the aging TRC fleet may have been found.

3. This extension is valid against the conditions stipulated in the original authorization letter. Details of this extension must be appended to existing promulgated information about the Waiver. Please feel free to engage with me or my staff should you require further assistance.

Yours sincerely.

Gez Currie

Digitally signed by Gez Currie
Date: 2022.07.11 17:04:56 +01'00'

Copy to:

AOC 1 Gp*
BM Fce Cdr*
MAA Dep Hd Op Assure Op*

[1] Email: 20220701-Waiver Extension request.
[2] Refer to – RA 3276(2) – Truck Runway Control Requirements Para 4

Page **1** of **1**

F.2 Aerodrome Exemptions				
ID	Dated	Expires	Name	Link
1				
2				
3				
4				
5				

F.3 Aerodrome Alternative Acceptable Means of Compliance (AAMC)				
ID	Dated	Expires	Name	Link
1				
2				
3				
4				
5				

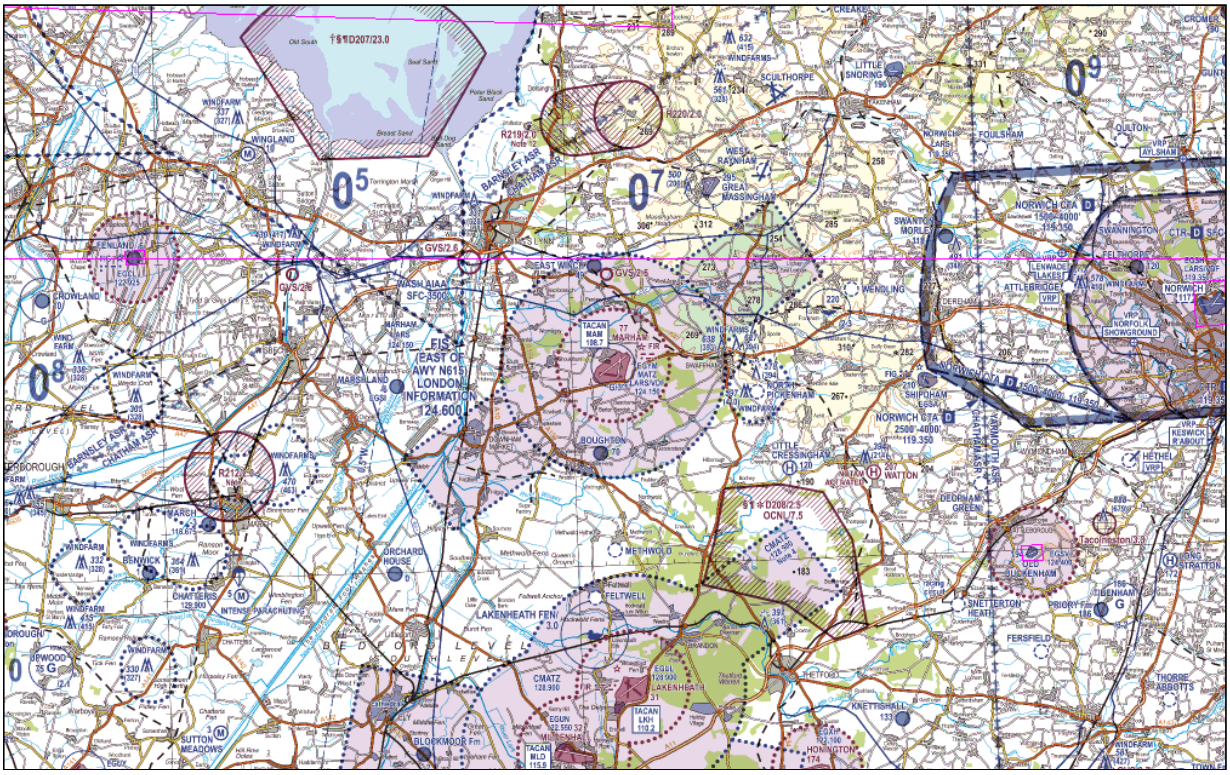
ANNEX G: AERODROME LOCATION AND CONTROL OF ENTRY AND ACCESS

G.1 Aerodrome Location

RAF Marham is in West Norfolk located between the market towns of Downham Market and Swaffham. To the North, the A47 runs from Kings Lynn around Swaffham towards Norwich and to the West, the A10 runs from Kings Lynn past Downham Market and towards Ely. Kings Lynn and Downham Market have main line train stations that go direct to/from London with connections to Norwich, Peterborough and beyond.

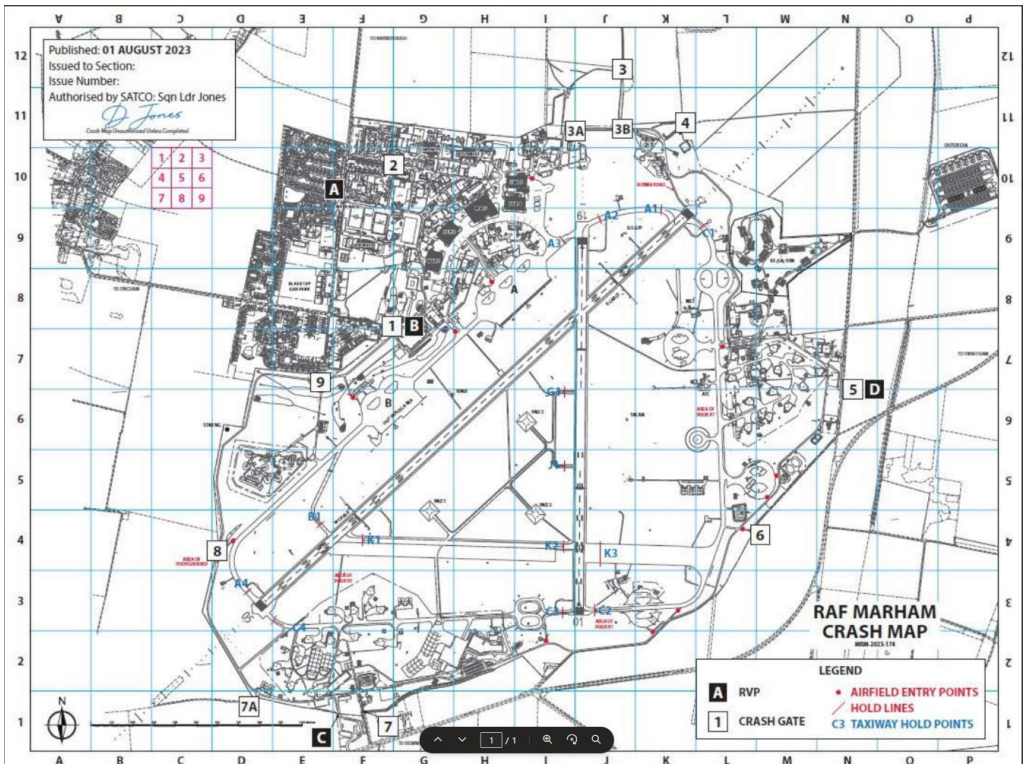
All visitors must report to the RAF Marham Guardroom on arrival. Parking is available at the side of the Guardroom to enable you to do this. All visitors to RAF Marham should be booked in by their host on Stn prior to arrival. Photographic ID (Passport or UK Driving Licence) must be provided to enable the issue of a pass which must be displayed at all times whilst on the Stn. Details of vehicle(s) must be provided to enable the issue of a vehicle pass which must be displayed on the dashboard(s) whilst the vehicle(s) are on the unit.

G.2 Local Area Maps




Marham Rd
Marham Rd
Marham Rd
The St
Chalk Ln
Marham
RAF Marham
Upper Marham
Shouldham Rd
Chalk Ln
A1122
Chalk Ln
Swaffham Rd
Swaffham Rd
Swaffham Rd
White Rd
Narborough Hill
A1122
Fincham Rd

G.3 Crash Map


Published: 01 AUGUST 2023
Issued to Section:
Issue Number:
Authorised by SATCO: Sqn Ldr Jones
RAF MARHAM
CRASH MAP
LEGEND
RVP
CRASH GATE
AIRFIELD ENTRY POINTS
HOLD LINES
C3 TAXIWAY HOLD POINTS

G.4 Control of Entry and Access

For this Order, RAF Marham comprises of the following:

a. The areas contained by the perimeter fences surrounding RAF Marham.

b. All other areas, buildings and installations used for official RAF purposes including non-public, sporting and welfare activities outside the areas defined at paragraph above.

c. Further details can be found within Stn Standing Orders Part 3 Ch3.

Within the areas defined above, the following are out of bounds to all Service and civilian personnel, unless they are required to have access during the normal course of their duties:

a. All aircraft manoeuvring areas.

b. All tech sites and installations.

c. Domestic accommodation, messes, and their surrounds.

d. All contractors' sites, offices, accommodation, and all buildings and works under construction.

e. All Bulk Fuel Installations.

Vehicular access to the aerodrome is only available for personnel holding a valid Airfield Access Permit (FMT600A), IAW RAF Marham DAM, Annex U.

Pedestrian access to the aerodrome is only available with prior authorisation of Air Traffic Control, IAW RAF Marham DAM, Annex U.

Further guidance can be obtained by contacting RAF Marham ATC on Ext 4949.

ANNEX H: NOISE ABATEMENT PROCEDURE ORDERS

H.1 Engine ground Runs

Engine Ground Runs (EGR) are permitted to take place by an authorised EGR team iaw MAM-P, Chapter 2.1 & 5.1. All personnel involved in, or responsible for tasking EGRs are to be conversant with all relevant documentation including DAP101B-8600-2(N/R) part 1 Lflt 34 and Engine Ground (EGO) and Integrated Power Pack (IPP) Operation. LF AESO 02-14 Noise from EGRs can be a considerable nuisance to residents, and every effort is to be made to minimise the effects of such noise.

H.2 Lightning EGO and IPP Operations

Engine Ground Operations (EGOs) and Integrated Power Pack (IPP) operations may be carried out iaw EGO and IPP Operations. LF AESO 02-14. Both aircraft main wheels must be chocked throughout all IPP and EGO and the throttle must be maintained in the idle position. The only exceptions are when an IPP Reset is required or when leak checks are required on bleed air ducting at 10% Engine Thrust Rating (ETR); in these circumstances following confirmation from the Ground Operation Supervisor that the area behind the aircraft is clear and the Aircraft is chocked, qualified EGO (MAMP-C307 holder) personnel may select up to a maximum of 30% ETR iaw LF AESO 02-14. Prior to increasing ETR the ground operator is to confirm that the Parking Brake is selected on. Furthermore, the throttle must be monitored throughout, and the brake pedals should be set such that the toe brakes may be applied fully if required. EGO requirements above 30% ETR must be carried out by a qualified F-35 pilot at an approved location identified in LF AESO 02-14 Annexes A and B.

> NOTE: QUALIFIED EGO MAINTENANCE PERSONNEL MUST NOT SELECT MODE 4 (STOVL) OR INITIATE THE LIFT FAN VIBRATION M-BIT, THUS ENGAGING THE LIFT FAN; THESE OPERATIONS ARE TO BE CARRIED OUT BY QUALIFIED F-35B PILOTS ONLY.

H.3 Time Restrictions

Between 2300(L) and 0700(L) Mon – Fri. Only essential EGRs are to be carried out, and only with the specific approval of the Wkpr. Approval is to be sought through DEOC. There are no time restrictions for IPP Operation.

Arrangements for carrying out EGR on Saturdays, Sundays and any day that the airfield is closed are to be made with the Wkpr through the DEOC prior to cease work on the preceding working day where possible.

H.4 Visiting Aircraft

EGR of visiting Aircraft may be carried out on Alpha or Bravo Dispersals, as appropriate, under the prior notification of the DEOC and the Wkpr.

H.5 Embargos

No EGR are to be carried out during specific noise embargoes directed by the DEOC/Stn Ops.

H.6 Exceptions

Specific requirements of visiting Aircraft, Stn work services and temporary changes in Stn Operating Procedures may require deviation from the above. In all cases, such deviations are to be authorised by the Air Wg Engineer and are to be sought through the DEOC.

ANNEX I: TEMPORARY OBSTRUCTION ORDERS

I.1 Identification Markers

All temporary aerodrome and approach obstructions are indicated by illuminated red markers. The markers are arranged to indicate the full dimensions of the obstructions, both horizontally and vertically. Red lights must be placed at airfield obstructions so that they give taxiing aircraft and moving vehicles adequate distance to manoeuvre well clear of the obstruction. Vehicles regularly operating on aircraft movement areas carry flashing amber beacons. Emergency services, fire, ambulance etc, carry occulting blue lights.

I.2 Area of Unserviceability – Day Operations

Wherever any portion of a taxiway, apron or holding bay is unfit, for the movement of AC but it is still possible for an aircraft to bypass the area safely, unserviceability markers should be displayed. Unserviceability markers should be placed at intervals sufficiently close to delineate the unserviceable area. An unserviceability marker should consist of a marker board of at least 0.5m in height, 1m in length and Day-Glo orange in colour. ATC will be responsible for ensuring marker boards are positioned accordingly.

I.3 Area of Unserviceability – Night Operations

On a movement area used at night, unserviceability lights should be used. An Unserviceability light should consist of a red fixed light. The light should be of a sufficient intensity to ensure perceptibility considering the intensity of the adjacent lights and the general level of illumination against which it would normally be viewed. In no case is the intensity to be less than 10cds of red light. ATC will be responsible for ensuring lighting is positioned accordingly.

I.4 NOTAM Action

ATC staff will issue a NOTAM if the aerodrome or any substantial part of it becomes unserviceable, or if any temporary obstruction, not clearly discernible from the air, cannot be effectively indicated by the standard methods. The report should state:

a. Nature and position of the unserviceable area or obstruction.

b. Nature of markings by day and night.

c. Approximate period for which the area will remain unserviceable.

I.5 Informing Pilot

ATC is responsible for informing the aircraft captain of any unserviceability on the aerodrome that will affect an aircraft taxi pattern. For outbound aircraft, the captain will be informed on start. For inbound aircraft, the captain will be informed after landing and prior to taxi. ATC will initiate alternate taxi patterns, “follow me” vehicles or request wing walkers where appropriate.

ANNEX J: AERODROME ARRESTING SYSTEM ORDERS

J.1 Aerodrome Arresting Systems

The type of aircraft Arresting System employed at RAF Marham is the Rotary Hydraulic Arresting Gear (RHAG) Mk1.
Orders for the safe operation of the RHAG (including standard operating configurations) are available iaw extant policy guidance in the DAP 119J-1405-12 (Formerly AP 119J-1405-12).

J.2 Aerodrome Arresting System Maintenance

Ground Engineering Flight (GEF) is responsible for daily maintenance of the RHAG prior to the airfield opening, night flying and following airfield closure.
The RHAG (Type Code DDT) are maintained by suitably qualified and trained personnel within GEF.

RHAG maintenance schedules are as follows:

a. Before use servicing (Gen Mech E).

b. 3 monthly Maintenance (Gen Tech (M).

c. 3 monthly Maintenance (Gen Tech E).

d. 12 monthly Maintenance (Gen Tech (M)).

e. Restoration Maintenance (Gen Tech (M)/E).

Tape-DDT:

a. 24 Monthly or 50 Arrests Maintenance (Gen Tech (M)).

b. 48 Monthly or 100 Arrests Maintenance (Gen Tech (M)).

EAU-DDT, ABS-DDT, and RES-DDT:

a. 60 Monthly Maintenance (Gen Tech (M) or Contractor).

All maintenance and operational activities are conducted iaw DAP 119J-1406-5F and DAP 119J-1406-12.

J.3 Aerodrome Arresting System Monitoring

The monitoring of aircraft arresting mechanisms is carried out using Joint Asset Management Engineering Solutions (JAMES), controlling maintenance including all child components in accordance with the instructions detailed within the JAMES SOPs for Arrestor Systems.
All requests for further information on this subject are to be directed, in the first instance, to RAF Marham DEOC Tel 01760 446247/8 from civilian telephone networks or 95951 6247/8 from military networks Air-1Gp-UOCA4DEOC@mod.gov.uk.

ANNEX K: MANOEUVRING AREA SAFETY AND CONTROL ORDERS

K.1 Arrangements for allocating Aircraft Parking Positions

The Duty Eng Ops Controller (DEOC) Ext 6247, is responsible for accepting or rejecting all requests for non-Marham based aircraft to visit Marham and be handled by Marham personnel. The criteria used to make this decision will include, as a minimum, the availability of suitable parking, the Armament State of the aircraft, the reason for the visit and any other concurrent tasking on VASS. Generally, all visiting aircraft, will be directed by the DEOC to VASS.

K.2 Arrangements for Initiating Engine Start

Aircrew will liaise with the VASS see off team via hand signals to confirm that all is clear and safe prior to engine start.
The supervisor will ensure the area is clear from obstructions and personnel, prior to approving the engine start. The VASS team will also ensure that a fire bottle is situated at a convenient location in the event that it is required during start up. Once the pilot has signalled the aircraft start is successful the fire bottle will be relocated, by VASS, to the 2nd engine (if there is one) for the additional start, awaiting signal again from the pilot.
Once the aircrew are ready to depart, they will signal VASS to remove the aircraft chocks (if they have not already done so – Prefects have the chocks removed prior to engine start due to the propeller on the front in proximity to the chocks). The ground handling team from VASS will then reposition themselves in order to safely marshal the aircraft out of the parking location and onto the taxiway.

K.3 Ensuring Clearance for Aircraft Push-back (if required)/ restricted taxiing

Aircraft towing regulations are all laid down in MRM AESO 03-14 Procedure for Handling Visiting Aircraft

K.4 Marshalling Services

Aircraft Marshalling Services within VASS are laid down in MRM AESO 03-14 Procedure for Handling Visiting Aircraft

K.5 'Follow Me' Provision

The ATC rover (Yellow Ford Ranger) will be used as a 'follow me' vehicle if one is required.

K.6 Enforcement of Safety Precautions during Aircraft Refuelling Operations

All VASS trained personnel hold the MAM-P authorisation B211. With the Limitation of – Refuelling Assistance Only. This allows VASS to assist the crew members with gravity and pressure refuels as required. Training for Gravity and pressure refuels are carried out during training and the ISpec is followed during this process; see link a to the ISpec and Training packages used at VASS. ISpec 03 lists all of the safety precautions and the assistance that VASS can provide.

K.7 Order for Runway and Apron Sweeping; Apron Cleaning

The aerodrome sweeping programme has been devised to eliminate FOD from the operating surfaces. ATC will be informed by MT Flt if the programme cannot be met. Whilst it is highly desirable for the published programme to be followed it may be necessary for operators to request

diversion of effort into a priority area, in which case MT are to be advised and requested to re-arrange the programme in agreement with the Supervisor.

K.8 Arrangements for Reporting Incidents and Accidents on Apron

Any situation that may have an immediate effect on the safety of aircraft operations is to be reported as soon as possible to ATC via MRE radio (RAF Marham Tower on Channel 2) or telephone 01760 337261 Ext **333** from a civilian telephone network 95951 Ext **333** from a military network.

ANNEX L: EMERGENCY ORDERS / AERODROME CRASH PLAN

L1. The Emergency Orders pertinent to RAF Marham are contained at this link and include:

a. Op RALLY. This details the personnel and actions required to establish the Emergency Coordination Centre (ECC).

b. Aircraft Post Crash and Incident Management Plan (APCIMP). This details the responsibilities and activity required in the event of a military aircraft crash with RAF Marham's APCIM Region

c. Major Accident Plan (MAP) Pts 1-5. This details the actions on across the following areas:

1) MAP Pt 1. General.

2) MAP Pt 2. Fuels.

3) MAP Pt 3. Gas Escape Emergency Plan (GEEP).

4) MAP Pt 4. Explosives.

ANNEX M: AERODROME RESCUE AND FIRE FIGHTING SERVICES AND TRAINING ORDERS

M.1 Operational Output				
ID	Date	Reviewed	Name	Link
1	17 Sep 22	17 Sep 22	Standard Operational Procedures	SOP
2	Apr 22	Apr 22	FRS Generic Risk Assessments	Link
3	12 May 21	12 May 21	Defence ARFF Service Provider Chief Fire Officers Instructions	Link
4	15 Oct 2021	Aug 23	Tactical Information / Response Plans covering site-specific operational requirements (Stn TIPs)	Link
5	24 Jul 23	July 23	Fire Section Orders	Link

M.2 Task Resource Analysis (TRA)				
ID	Date	Reviewed	Name	Link
1	13 Sep 22	Aug 23	ICAO5 TTP	Link
2	13 Sep 22	Aug 23	ICAO8 TTP	Link

M.3 ARFF Assessments				
ID	Date	Reviewed	Name	Link
1	1 Nov 23	Nov 23	DSA Form 01 - Response Area Assessment.	Part 2
2	26 Jul 23	Jul 23	DFSR Form 02 – 1000m Assessment Rwy 01/19	Link
3	26 Jul 23	Jul 23	DFSR Form 02 – 1000m Assessment Rwy 05/23	Link
4	26 Jul 23	Jul 23	DFSR Form 02 – 1000m Assessment Rwy Bravo Dispersal	
5	26 Jul 23	Jul 23	DFSR Form 03 - Water Assessment	Link
6	26 Apr 22	26 Apr 22	DSA Form 04 - Category for Specific Hazard Assessment[1]	Link

M.4 ARFF Training Area Orders and Training Area Risk Assessments				
ID	Date	Reviewed	Name	Link
13			ARFF Training Area Orders	N/A
14			ARFF Training Risk Assessments	N/A

ANNEX N: DISABLED AIRCRAFT REMOVAL

N.1 Disabled Aircraft Removal

This order details the actions to be taken by engineering personnel to remove an Aircraft that is unable to vacate the runway or taxiway under its own power due to unserviceability. For an Aircraft that is unable to vacate the runway or taxiway under its own power due to an accident involving major loss of life or Cat 4/5 damage RAF Marham Aircraft Post Crash Management Plan should be implemented.

N.2 Marham Based Lightning Aircraft

The owning Sqn is responsible for recovering a disabled Lightning Aircraft iaw MRM AESO Book 2, Part 1, Chapter 1, Order 1.

N.3 Visiting Aircraft

If a visiting Aircraft becomes disabled, the following actions are available:

a. The Visiting Aircraft Support Section (VASS) has the capability to tow visiting Aircraft that are unable to vacate the runway or taxiway under their own power.

b. The VASS supervisor is to check with the Aircraft captain that the Aircraft is in a safe condition to move i.e., the Aircraft towing system is serviceable, and all safety pins are fitted.

c. The Aircraft captain has overall responsibility for the movement of the Aircraft.

d. If VASS does not have the capability to move the Aircraft due to Aircraft's serviceability or lack of correct towing arm etc., they are to inform ATC and the DEOC who will provide further direction.

N.4 Disabled Aircraft with Hydraulic or Fuel Leak

If the disabled Aircraft has a leaking Hydraulic or Fuel system, the Aircraft should be directed to shut down as soon as possible. The Aircraft should be parked on a concreted area until all the leaks are contained/cleaned. This is to prevent damage to the tarmac taxiway. For any Aircraft with a Hydraulic system leak ATC should be informed and will provide further direction.

ANNEX O: AIR TRAFFIC CONTROL ORDERS

Annex O has been moved from Chapter 4 of the previous DAM and therefore only relevant changes are shown in red.

O.1 GENERAL

O.1.1 AIRCRAFT MOVEMENTS - PRIORITIES

AC should be handled according to the following priorities:

1. ADPF
2. AC in Emergency, including Protector
3. Operational take-offs
4. Royal and VIP flights
5. Protector Operations
6. Minimum Fuel
7. Practice Emergencies (including SASSY circuits and PFO recoveries)
8. Marham-based departing AC
9. Continuation training by other Marham based AC
10. AC on a practice diversion
11. All other AC

O.1.1.1 AERODROME OPENING HOURS

Published operating hours for Marham are as per NOTAM.

AC are allowed to be on start 15 minutes before AF open with the following caveats in place:

a. ATC are to ensure with Fire and Medics that Cx Cat ICAO 5 is in place 15 minutes prior to AF open. If the airfield is not ready to declare ICAO 5 due to unforeseen circumstances, the ADC controller is to advise Squadron and Station Ops ASAP.

b. The ADC controller shall be in position 30 minutes before the first published TO time.

c. Sqns shall publish all AC locations on STARS so that ATC and Fire are aware of starting locations throughout the entire flying programme. This will provide a timelier response to any emergencies that may occur during the Start-up process.

d. Sqn Ops are to notify ATC of AC starts as a priority.

e. Any emergencies during the start-up phase will be passed to ATC on 333 emergency line. All emergencies will then be raised to FIRE and MEDICS via the ATC Crash phone and managed in accordance with SOPs.

f. The ADC controller, IAW ETATCC orders, shall broadcast on Stud 1 when the AF opens. This broadcast will include the info code, RWY, colour code and QNH. This will notify the pilot that the AF is open, and the AC can then call for taxi.

AC should not taxi until the AF is declared open. Therefore, TO times should not be scheduled earlier than 15 minutes after the published AF opening hours. Change to published hours should be discussed and agreed with A5 Ops and ATC via the appropriate forums.

O.1.2 NOTIFICATION OF ROYAL FLIGHT/VIP AC ARRIVAL TIMES

Whenever a Royal Flight/VIP AC carrying passengers of one-star rank or higher is inbound/outbound to/from RAF Marham, the Supervisor/ATCO IC is to ensure that an ES 3 is instigated 10mins prior to the AC landing/departing. Furthermore, Stn Ops are to be informed once the AC has 2-way Ground to Air communications with ATC, informing them of the ETA.

Informal/Unscheduled Flights by the Royal Family. Present arrangements do not always provide HQ Air Cmd with adequate warning of informal/unscheduled flights by the Royal Family into Air Cmd airfields. Should the Supervisor/ATCO IC receive information that an AC carrying a member of the Royal Family is going to land at RAF Marham, they are to notify the Wkpr without delay.

O.1.3 ATIS/WEATHER INFORMATION TO AC

General. ATCOs are to ensure that AC inbound not recovering via RAF(U) Swanwick have received the latest information from ATIS. RAF(U) Swanwick should pass the latest weather information to all inbound AC to RAF Marham, but a check should be conducted if doubt exists. Where ATIS information has not been received in BLU/WHT Conditions, Short Weather is to be passed. In GRN or worse Met Conditions, full Met Information is to be passed.

Recovery State. ATCOs and Supervisors are to ensure that all Stn Based AC receive details of any change to recovery state. If applicable, any external agency in control of MRM F-35B, e.g. Hotspur, Swanwick or PD airfields are to be contacted, so that they can pass the details to the AC. You must receive confirmation that the AC have been told, before contacting DCF to inform them all actions have been taken.

Start Up/Taxiing. Stn-based AC do not need to request start but should request taxi instructions stating Runway, QNH and current ATIS code. If Runway and QNH is not given then they are to be passed, with a correct readback received prior to a taxi instruction.

Bird Activity High. The bird activity level should be annotated by the ADC in the VCR daily. If the bird activity level on the airfield is high, the ADC must inform the Supervisor; this information should be published on ET/ATIS by the ASOS.

Close Down ATIS. ASOS should ensure a blank message is recorded on the ATIS before the system is inhibited to prevented old information being broadcast to AC the subsequent day.

O.1.4 ALTERNATE ARRANGEMENTS – STN-BASED AC

Instructions for the alternate arrangements of 1 Gp airfields are found in HQ 1Gp ASO 2310(5). Booking of alternate airfields for Stn-based AC is completed by Stn Ops on the instructions of the DCF.

Diversion to Alternate 1 Airfields (Weather). When Stn-based AC divert to the Alternate 1 airfield the Wkpr will inform 1 Gp Ops. The Supervisor/ATCO IC is to advise the D&D Controller and take whatever action is required to hand over the AC to en-route agencies.

Diversion to Alternate 2 Airfields (Crash). When Stn-based AC divert to the Alternate 2 airfield the Supervisor/ATCO IC is to make the arrangements via D&D.

O.1.5 CRASH ACTION and CRASH CATEGORIES

General. RAF Marham has a minimum Crash Category of ICAO 5 for Stn-based AC, this may be surged to ICAO 8 with prior approval. The Fire Section's primary role is the support of flying operations, although it may commit resources to domestic or other non-operational incidents with approval from the ATC Supervisor if Crash Category is affected. For the foreseeable future, the Fire Section operates from the NE HAS Site, best routing to an incident should be assessed from this location.

Indicated or Reported Fire. Not all Crash Vehicles will respond to indicated or reported fires on the domestic site. When a domestic site fire alarm is activated with an AC on recovery to RAF Marham with a declared emergency, the Crash Vehicles are **not** to be deployed off the airfield.

Supervision and Control. Once Crash Action has been initiated, it is the responsibility of the Crew Commander to supervise and control the incident regardless of the aircrew stating they require no further assistance. Crew Commanders are to inform ATC as soon as possible if they intend to commit their assets, as once they are committed there are no Crash/Fire facilities available for the immediate future; the Crash Cat will be reduced to ICAO 0 (Airfield BLACK). Subsequent actions, such as diverting or holding off airborne AC are to be undertaken through liaison with the DCF.

Hot Brakes. When responding to Hot Brakes, ES 2 action will be taken. On arrival, the Crew Commander will obtain the temperature and decide on further actions.

Following a F-35 heavy braking event, the pilot or engineers may conduct a brake temperature check iaw Marham FOB Lightning Order L4.

Emergency State 3 Action. ES 3 action is to be initiated in the following circumstances:

a. DAC Movements - One Fire vehicle (as directed by the Duty Crew Commander) is to follow the DAC AC as it taxies and whilst loading/unloading DAC.

b. Aeromed Flights.

c. Royal Flights/VIP AC carrying 1* rank or higher.

d. Display Flying.

e. As instructed by the ATC Supervisor.

Fire Sections response upon hearing the crash alarm. iot reduce the response times to an emergency on the airfield the following actions are to be carried out:

Emergency at a single location:

a. Fire Section will pick up and put down the crash phone – no vocal communication will occur.

b. Crew Cdr will request emergency message to be passed via MRE.

c. ATC will pass ES type, Location/Grid Ref and the transit route to where the emergency has occurred, receiving a full readback from the Crew Cdr.

d. Once fire vehicle(s) are mobile, ATC will pass the full emergency message.

Emergency at dual/multiple locations:

a. Fire Section will pick up and put down the crash phone – no vocal communication will occur.

b. Crew Cdr will request emergency message to passed via MRE.

c. ATC will pass the full emergency message, receiving a full readback from the Crew Cdr. The Crew Cdr will decide on the route to take and where to position vehicles, informing ATC.

d. ATC will pass the relevant clearance for the vehicles to proceed.

Practice Crashes. In order to improve the effectiveness of our own emergency procedures and exercise the Fire Section and Medics' response to airfield incidents, practice crashes should be carried out weekly by the ATC Supervisor. In order to ensure maximum training value and limit the impact on day-to-day operational activities the following procedure will be followed:

a. The Fire Section will highlight any periods they are engaged with Stn/Section training activities that would be adversely affected by a practice crash.

b. The Fire Section will provide a Safety Officer to observe and de-brief the exercise (pre-positioned if necessary).

c. To initiate the practice, the Supervisor should liaise with the SFireO, complete the Practice Emergency Plaque with an agreed scenario and hand to the ADC.

d. Attention should be given to initial actions of the VCR Team and, response time of the Crash Crew and Medics.

After each practice the Crew Cdr and Safety Officer will report to ATC for a full debrief (medics will attend if deemed necessary).

Release of Airfield Rescue Fire Fighting (ARFF) Assets in Support of Incidents

Iaw BMO Order 202 and JSP 426 Part 1 the RAF Marham ATC Supervisor/ATCO IC is to provide support to ARFF when life may be at risk. The following considerations are to aid the decision-making process:

a. **Local Authority Fire and Rescue Services (LAFRS) Response Times:**

(1) Kings Lynn – 30 Minutes

(2) Swaffham – 30 Minutes

b. **ARFF Response Times:**

(1) On Stn – Under 3 minutes.

(2) Off Stn – In excess of 3 minutes (Crew Cdr will advise).

c. **Local ARFF Priorities:**

(1) Airborne AC recovering to Marham with an Emergency.

(2) Other AC emergencies (Hot Brakes etc).

(3) Royal Flights.

(4) VIP Flights.

(5) Stn-based AC.

(6) Visiting AC.

(7) Domestic cover.

Supervisors/ATCO ICs may consider diverting AC should the Crash Cat reduce as a consequence of supporting other incidents. The DCF should be consulted in the first instance and OC OSW is to be informed of the ongoing situation along with an estimated time for recovering the Crash Cat.

O.1.6 OVERDUE ACTION ALTERNATE ARRANGEMENTS

RA 3312 dictates the policy on when an AC is overdue and the actions that should be taken. However, prior to an AC being overdue at RAF Marham, the following action is to be taken.

Stn-based AC. Providing a "red time" is on ET, approx. 5-10 mins prior to the time expiring the SWB ASOS is to;

a. Confirm that the AC is not currently on frequency or pre-noted inbound (via RA/Sup).

b. Check the information on STARS to confirm the AC sortie length.

c. Check with the relevant Sqn to confirm their ETA.

d. If the AC is still expected at the ET "red time" inform the ATC Supervisor.

Visiting AC. Providing a "red time" is on ET, approx. 5-10 mins prior to the time expiring the SWB ASOS is to;

a. Check the information on STARS to confirm airborne time and time on route.

b. Inform Marham Stn Ops and ask them to make enquiries at the departing Unit.

If the above checks fail to locate the AC and provide an accurate ETA then Overdue Action must be initiated iaw RA 3312.

O.1.7 SPILLAGES OF HYDRAULIC FLUID OR FUEL ON ASPHAULT SURFACES

Whenever an AC shuts down following a RHAG engagement it potentially expels hot hydraulic fluid and/or fuel. Left untreated on an asphalt surface, this can cause deterioration and softening, requiring repair. To prevent this, whenever hydraulic fluid, or aviation fuel, is expelled on aerodrome asphalt surfaces all ATCOs are to ensure the actions contained at Annex A of RAF Marham Major Accident Plan Part 2 are completed and then:

a. Assist in the communication and coordination of the responding clean-up teams.

b. Log all details in Duty Log for further reference and reporting.

O.1.8 INDIVIDUAL SAFETY MANAGEMENT RESPONSIBILITIES

For all personnel:

a. Safety shall, whenever practicable, be given the highest priority above operational, training, public relations, commercial and working practice pressures. Nonetheless, an appropriate balance of safety and the delivery of operational capability shall be maintained.

b. All personnel have an individual responsibility for the impact on Flight and Air Safety from our actions.

c. All personnel must be proactive in highlighting safety concerns, observations or suggestions either through the normal escalation channels i.e., InForm, DASOR etc.

For personnel in executive appointments, such as training or standards, safety implications are to be given full prior consideration whenever changes to equipment, procedures, policy, or personnel are contemplated.

O.1.9 EMERGENCY STATES FOR AEROMEDICAL FLIGHTS and AIR AMBULANCE FLIGHTS WITHIN NORFOLK

There are 4 categories of Aeromedical flight. According to the category, the following actions are to be taken when RAF Marham is notified of an Aeromedical flight:

a. **Aeromed A**. All routine Aeromed flights. The Crash Ambulance (Medic One) is to be on normal standby.

b. **Aeromed B**. An inbound Aeromed flights with Class 2A (immobile) stretcher patients. ES 3 action is to be taken. In addition, one Fire vehicle and Medic One are to be in attendance.

c. **Aeromed C**. An inbound flight containing immobile patients listed as “very seriously ill” or “seriously ill”. ES 3 action is to be taken. One Crash vehicle, Medic One and Starlight are to be in attendance.

d. **Aeromed D**. Aeromed AC requiring refuelling with patients on board. ES 3 action is to be taken. An MPRV and Medic One are to be in attendance.

The Medical Staff also have ground handling responsibilities and meet all inbound RAF Aeromed flights. Although there is no requirement to do so, the Medical Staff may also attend civil Aeromed flights during normal working hours.

The RMC will notify of any special requirements for RAF Aeromed flights.

Air Ambulance Flights within Norfolk. Air Ambulance Flights by Helicopters use the generic callsign ‘HELIMED’. This is followed by their number (‘28’ signifies that the AC is Norfolk based). The final part of the callsign is a letter to denote the flights tasking, as follows:

a. A (priority flight).

b. E (positioning flight).

c. Z (training flight).

i.e. 'HELIMED 28A'

O.1.10 RULES FOR ACCEPTANCE OF ALTERNATE COMMITMENTS

Iaw BMO Order 201 Supervisors/ATCO ICs should consider the following when accepting alternate commitments:

a. RAF Marham's planned flying.

b. Actual and forecast weather.

c. Likely warning time that could be expected from diverting AC.

d. Equipment serviceability.

e. ATCO workforce.

f. VASS workforce.

The ATCO IC is only authorised to accept Coningsby alternate commitment 6/4 (and QRA subject to Ops approval) within the published flying window. All other alternate commitments are to be approved by the Supervisor, unless the ATCO IC is Sup qualified.

Alternate commitments are to be notified immediately of any change in Colour Code or availability of approach aids.

The standard cable configuration is Both Cables Down. Should an Alternate Commitment request an alternate set up, approval is to be sought from the Supervisor.

O.1.11 RULES FOR ACCEPTANCE OF PRACTICE DIVERSIONS

PD requests should only be approved by a supervisor. If ATCO IC is established, PDs are not to be accepted.

AC with an ICAO category above ICAO 5 can carry out low approaches on Runway 05/23 only at RAF Marham. 1Gp operated C-17, C-130 Mk 4/5 and A400M can conduct training approaches iaw HQ Air 1Gp STAR OMA Issue 1; there is a standing AO/HoE approval for C-17, C130 and A400M approaches. USAFE MC130 from RAF Mildenhall also have a standing AO/HoE approval for trg approaches to Runway 05/23 at ICAO 5. Aircraft categories can be found within DSA02 Defence ARFF Regulations Section 0201 (British Military) and Annex D to Section 0201 (NATO Aircraft)

O.1.12 VISITING AC

Visiting Aircraft Brief. All visiting Aircraft should be asked if they are "familiar with Marham as published".

If they are unfamiliar, they are to be briefed on the following;

a. Cable configuration.
b. PAPI's set 3 degrees on Runway 23/19/01 - set at 2.5 degrees on Runway 05.
c. Circuit altitude and direction.
d. Level break at 1100ft QNH
e. Slow lane for Runway 05/23 is the south side.
f. Slow lane for Runway 01/19 is the west side.

Noise Abatement Procedure. Fast jet visiting AC in VFR conditions should be briefed on the noise abatement procedure for RAF Marham if unfamiliar.

USAF Visitors. USAF Pilots are not familiar with the position 'Dead-Side'. In addition to the above visitor brief and in the event of a 'break-off' instruction from any radar approach, USAF AC are to be instructed to 'Break off the approach, climb on Rwy track and report level at 1700ft QNH' for all runways. The MAP should be initiated, regardless of the Pilot's visibility with the Aerodrome, therefore the Controller is not required to ascertain whether the Pilot is visual or not. This should always be passed in full to ensure the instruction is understood.

The Rad-Clr Line liaison call should still be made, ensuring details of the AC executing the MAP are known to ADC.

Note: This procedure can be utilised for foreign visiting AC as required at the discretion of the ATC SUP/Controller.

O.1.13 LIVE OUTSIDE BROADCASTS AT RAF MARHAM

Any live outside broadcast conducted by a civilian television or news agency could have serious repercussions for any Electro Explosive Devices (EEDs), such as EEDs contained within an Aircraft operating in/around RAF Marham. This is because of the operating nature of the broadcast equipment and there are required minimum safe operating distances.

If notified about an upcoming/ongoing live outside broadcast within or around RAF Marham, ATC should be made aware through DEOC of any restrictions. If in any doubt, contact Explosive Safety for further guidance.

O.1.14 ATCO CURRENCY

ATCOs are mandated to maintain currency in all their endorsed disciplines iaw BM Standards & Endorsement (SED) Section 205. Currency is based on a combination of number of hours and different events.

Notwithstanding the 30-day requirement, any ATCO that does not consider themselves to be current in a controlling discipline should immediately inform the Supervisor/ATCO IC.

Hour-based currency in VCR, SRE and Supervisor should be logged daily on the spreadsheet tracker. To maintain currency, ATCOs must achieve 3 hrs in VCR, 3 hrs in SRE and 3 hrs in SUP. This currency must be achieved within a rolling 30-day period.

For PAR/SRA currency, ATCOs require a minimum of 3 PAR and 3 SRA a month. The amount done on each day should be logged on the spreadsheet tracker.

Events based currency is split into Generic and Unit Specific, with separate spreadsheet trackers for logging both. ATCOs should annotate the dates they carried out the procedures in the appropriate box.

MASIM can be utilised to achieve all the event-based currency requirements. If an ATCO is unable to maintain live currency in SRE, PAR and/or SRA, MASIM should be used and highlighted as synthetic currency on the spreadsheet.

O.1.15 ACTIONS ON NOTIFICATIONS OF AC INBOUND CARRYING PASSENGERS WITH SUSPECTED COMMUNICABLE DISEASE

The MMATM Chapter 5 details the information that a pilot has to pass to ATC if they become aware that they have someone on board who is suffering from a suspected communicable disease. When a controller receives such information, they are to pass this immediately to the Supervisor / ATCO IC, who is then to arrange for the following:

a. Ensure Stn Ops are informed, passing all relevant information, as soon as practicable.

b. Ensure that the Public Health England (PHE), East of England is informed without delay on 0330 303 8537.

Early notification will enable Stn personnel to take appropriate measures; however, as a general guide, ATCOs should instruct pilots to shut down in their designated slot and await further instructions prior to offloading passengers. Stn Ops will coordinate the response to such an incident and are to be kept informed throughout. No emergency state action is required.

O.1.16 AIRFIELD CRANE OPERATIONS

The approval process for crane operations is within RAF Marham DAM Annex T. ATC are responsible for ascertaining if there is an Obstacle Limitation Surface (OLS) breach and carrying out further actions; this is conducted by the ASOM or their nominated deputy.

Once approved, the ACR specialist will raise a NOTAM. The VCR specialist will annotate the work in progress slides and board.

O.1.17 BRIEFING OF CONTRACTORS AND WORKING PARTIES

A suitably qualified ATCO (holding a valid ADC endorsement) is to supervise and ensure a comprehensive brief is delivered to all Contractors and Working Parties looking to carry out work on the airfield.

Once the brief has been delivered iaw WIP paperwork, the ATCO is to sign that they have ensured the brief is correctly delivered and that the VCR specialist is fully conversant with the work that is taking place.

O.1.18 EVCS OPERATIONS

EVCS is an emergency use radio designed to cater for a catastrophic communications equipment failure. It operates on a Transceiver and therefore should not be used for the provision of an air traffic service (ATS). A Transceiver only captures one transmission and recording at a time.

Single UHF frequency failure. Utilise EVCS to transmit to Aircraft, switching them immediately to another available mains frequency.

Multiple/catastrophic frequency/ VCCS failure. Utilise EVCS to transmit to all systems for critical flights, transferring Aircraft on frequency to another suitable unit.

Training. All personnel are to undergo equipment specific training before utilising the EVCS, following guidance from the DUTO.

O.2 AERODROME ORDERS

O.2.1 VCR WORKFORCE

Outside of notified flying periods, with Aircraft movements expected but not occurring, VCR workforce can be reduced to the Specialist only with Supervisor Approval.

If no movements are expected, the Supervisor can approve the Specialist to operate away from VCR, e.g., in the ACR. Under this circumstance the threshold lights will remain on red, the Specialist will need to return to the VCR to operate traffic lights for Runway use and keep the VCR Runway Obstructed board correct for Runway and Pad occupancy.

Before leaving the VCR, the Specialist is to transfer '222' to 4949, lock V/A items away in the Safe, inform Fire, Medics and Ops that VCR unmanned and ASOS are contactable on ext. 4949 not 3570. The Safe key, MRE handheld and vehicle board are to be taken with the ASOS. The SWB Specialist should be informed that the approach room has control of 333.

On return to the VCR, the above process is to be reversed.

Secondary or associated duties are not to be carried out in the VCR to ensure an adequate lookout and awareness of the traffic situation is maintained. This will assure the HoE/DDH that ATC are maintaining control and safety of all personnel on the airfield.

O.2.2 AERODROME CONTROLLER RESPONSIBILITIES

The Aerodrome Controller (ADC) is to carry out their duties in accordance with RA 3261. They are not to leave the VCR during their period of duty unless authorised to do so by the Supervisor/ATCO IC, or when relieved by another suitably qualified ATCO. In addition, the ADC is to:

a. When Crash Action is initiated, request a Ground Controller.

b. Supervise the VCR ASOS.

c. Ensure serviceability checks of the Crash and Emergency telephones and the Crash Alarm are carried out prior to the commencement of daily operations.

d. Complete and sign the daily check of arms record (RAF F2943) when the VCR safe is opened. All issues from/to the safe are to be recorded. ADC is to remain vigilant throughout their period of duty in the VCR to ensure the security of all weapons and ammunition.

e. When the aerodrome visibility drops below 1000m or the ADC cannot see the whole length of the Runway, Low Visibility Procedures (LVP) are to be implemented.

O.2.3 GROUND CONTROLLER RESPONSIBILITIES

The Ground Controller is to conduct their duties iaw RA 3261 and is responsible to the ADC for the control of all AC, vehicles and pedestrians on all surfaces of the movement area except for the Runways and Landing Pads.

In addition, the Ground Controller is specifically responsible for:

a. Issuing taxi instructions to AC and passing departure details to RA.

b. Obtaining departure clearance from RA and passing the agreed departure clearance to the AC, ensuring FJ visiting AC are familiar with noise abatement procedures.

c. Supervising the use of MRE equipped vehicles on the Manoeuvring Area. Permission to enter or cross the Runway is solely at the discretion of the ADC.

d. Assisting ADC during emergencies. Once Crash Action has been initiated, the Ground Controller is to take control of MRE.

Control. The Ground Controller is to keep AC on the ground frequency until the holding point before permitting them to contact Tower. AC are to be sent to Tower frequency in the correct order of taxiing. Once approved, AC wishing to enter and backtrack are to be instructed to contact ADC for clearance to enter the Runway.

Timed Take-Offs. When AC are taxiing for a timed take off, or operational take off, the Ground Controller is to inform RA and ADC as soon as possible.

Alerting the Supervisor. If a situation warrants the immediate attention of the Supervisor, ADC (or Ground Controller or VCR ASOS) is to activate the Alert Button on the VCR control panel.

POB. All AC, except for F-35B and AH64 (Apache), shall have their POB confirmed on initial request for start and prior to issuing a start-up clearance.

Delegation of control over surfaces. The ADC may delegate access control for out of use rwys surfaces to the ground controller. E.g., Runway 05/23 in use, ADC may delegate access to Runway 01/19, holding short of the active Runway.

O.2.4 AIRFIELD TRAFFIC LIGHTS

Threshold and Alpha Taxiway Traffic Lights. Traffic lights at all Runway thresholds and entry points to Alpha taxiway are to be RED during airfield opening hours. All clearances for ground vehicles to pass these lights must include “on receipt of a green light”. A correct readback must be obtained before the lights are switched to green and vehicles should not be given clearance to proceed through a RED light. If a crossing clearance cannot be given, the vehicle is to be told to hold. Vehicles needing to enter any Runway can only do so with a clearance and after a correct readback obtained. The Runway Obstructed plaque must be placed on the ADC pinboard with pins denoting vehicles granted access. This must remain until vehicles have been confirmed to have vacated the Runway.

Approach Perimeter Road Lights. Lights are to be set to RED before issuing a clearance as follows:

a. All approaches to the Runway. (approx. 5nm for RADAR traffic, 3nm for slow AC with a delayed clearance or mid-point downwind in the Visual Circuit).

b. Heavy air transport (AT) departures e.g., C17, A330, Antonov, etc.

c. All AC departing off Runway 01 (except Cat A AC).

Overrun Perimeter Road Lights. Lights are to be set to RED before issuing a clearance as follows:

a. All take offs (except Cat A).

b. AC in emergency.

c. AC to touch and go (except Cat A).

d. AC landing Runway 01/19 (except Cat A and F-35B slow landing/RVL)

e. Heavy AT landing (Runway 05/23).

f. AC on fanstop or practice turnback.

g. At any point when flight safety may be compromised.

Perimeter Road Barrier Failure. The barriers are set to lower 8 secs after selection of the lights; the VCR switch will illuminate RED until the barrier has fully lowered. If the barrier fails, the switch light should not illuminate; the VCR specialist should report this to the duty airfield electrician/contractor ASAP.

Mains Power/Traffic Light Failure. In the event of mains power or traffic light failure, all traffic lights should fail to RED. When made aware of this situation, the ADC is to deploy ATC and/or RAF Police vehicles to exercise traffic control at the required perimeter road lights.

Procedure following a Runaway Gun recovery. When an AC has recovered to the aerodrome with a runaway gun the crew are to be directed to slot 6 or 11. ADC is to select the ring-road lights to red to prevent vehicles passing in front of the AC. If Runway 23/05 is unavailable due to maintenance, there are no licensed runaway gun slots available.

O.2.5 AERODROME LIGHTING

The airfield electrician/contractor is available on 07718 317783.

Faults. All faults are to be reported to the duty airfield electrician/contractor without delay through the Supervisor/ATCO IC. If a fault is on the Lighting Control Panel a note is to be made of the circuits in use at the time. This information is to be notified to the oncoming ATCO during watch handover.

PAPIs. Alignment is checked by the airfield electrician/contractor using a Precision Spirit Level; therefore, the only checks normally required are that:

a. All bulbs are serviceable.

b. The units are not damaged and are free of obstructions.

Energy Conservation. Along with the regulations contained at RA 3265, ATCOs are to switch off all aerodrome lighting, whenever movements allow. In poor visibility or at night, lighting may be left on to aid vehicular movement.

Lamp Conservation. To help prolong lamp life, all lighting is to be switched on at the lowest brilliancy setting (excluding NVG) and then brightened as required.

O.2.6 STATES OF READINESS FOR AIRCRAFT EMERGENCIES

States of Readiness. The ADC is to apply the states of readiness for AC emergencies in accordance with BMO Order 304 and the Emergency Reference Cards held in the VCR. In addition, a checklist of F-35B emergencies, with appropriate states, is held in the VCR.

Declaration of a State of Readiness. States of readiness are to be declared as follows:

a. **State One and Emergency State 2**. Crash Phone.

b. **Emergency State 3**. Normal telephone network.

Note: Changes in the Emergency State may be done on MRE if Crash vehicles are already deployed.

Emergency Messages. The VCR ASOS is responsible for broadcasting the emergency messages.

Crash/Fire Vehicle Access. Routing of crash/medic vehicles will be as directed by the ADC, unless there is a multi-location incident. In this instance, the Crew Commander will control the routing. The Ground Controller is responsible for ensuring access routes remain clear of other vehicles and AC where possible. RAF Police will attend State One and will contact ATC on MRE to confirm routing to the incident. For an Emergency State 3, the crash and medic vehicles will be manned at their sections.

Hot Brakes. Hot Brakes are an Emergency State 2 and should be instigated via the Crash Phone, in the format: “Emergency State 2, Hot Brakes, F-35, Alpha Dispersal, 1 POB etc”.

Practice Crash. The opening of the emergency message for a practice crash is: “Practice State One, Practice State One, Practice State One…”.

Video Filming. The Supervisor is to nominate a suitable person to record any Emergency State that can be captured on video.

O.2.7 AERODROME CONTROL PROCEDURES

Taxi Instructions. AC should state the current ATIS code, Runway and QNH when requesting taxi. If the information is not received on taxi request, the Runway and QNH must be confirmed prior to issuing taxi instructions. Positive clearance must be given to cross any Runway threshold and some AC may require progressive instructions.

Departures.

Notify RA when AC taxi with departure details (if not on ET). RA may issue a departure clearance immediately or may call back after pre-noting the next agency.

Call for Release. A Call for release (CFR) is imposed for all IFR departures. ADC should ensure the AC is released prior to obstructing the runway. When AC are departing from the visual circuit on an IFR departure, the release should be requested on the penultimate circuit.

IFR Separation. ADC must ensure that when IMC exists, adequate IFR separation is provided between arriving and departing Aircraft. If doubt exists about the weather conditions, the Supervisor is to be consulted.

Phraseology for Rotary Wing Departures. Rotary AC may depart from various locations on the airfield. ATCOs are to make it clear if AC can depart and cross the active Runway or if Rotary AC can depart but remain clear of the active Runway. The phraseology to be employed is as follows:

> "Callsign, remain Northside/Southside, surface wind, cleared for takeoff (Stipulate rwy if different from published rwy in use).
>
> Or "Callsign, surface wind, cleared for take-off and cross (Runway)."
>
> Discretionary clearance if operating on any surface other than a runway, e.g., "Taxiway Alpha, Surface wind, takeoff at your discretion".

Visual Circuit Restrictions. The maximum number of AC allowed in the visual circuit is 5 (by day) or 4 (by night) for Runway 05/23, and 4 (by day) and 2 (by night) for Runway 01/19.

Low Level Circuits. AC are not permitted to fly more than 2 consecutive low-level circuits.

Continue Approach. There is no restriction on the number of AC permitted to "continue approach" in the visual circuit. However, AC are not to be instructed to extend downwind unnecessarily. Under no circumstances are AC permitted to "continue approach" in the visual circuit and on a radar approach simultaneously.

Radar to Visual/Visual Joins. Radar to visual/visual joins will be pre-noted, including type and POB for visiting AC. ADC will acknowledge by confirming the callsign. The circuit state will not be passed unless specifically requested. The AC will route through the Initial Point (IP) which is 3 nm on the extended approach centreline, displaced ½ nm deadside at 1100' QNH.

If visual. The clearance "…if visual continue with Tower (reason)" is only to be used after a delayed clearance at 4nm has already been issued. It may only be issued to radar traffic for Stn-based AC during daylight hours; the ATCO must be visual with the AC and confident that a clearance can be issued once the AC switches to the ADC frequency. Once the AC changes to the ADC frequency, it becomes subject to relaxed Runway occupancy rules.

Unmonitored ILS. If the PAR is unavailable, at the Supervisor/ATCO ICs discretion and with the pilots' agreement, an unmonitored ILS approach can be carried out. Director will not send an AC to Tower until the AC is established on the localiser. The phraseology to be employed by ADC is similar to a straight in approach except they will state 'Continue ILS approach, Runway 23, QNH, cct state, report long final with intentions'.

Visiting Aircraft. Destination and time en-route of departing AC are to be obtained on taxi (if not before) and the information should be recorded on STARS.

Overflight of AC on start. All light AC and Helicopters are to be instructed not to overfly AC on start.

Lights On/Off/Covert Approaches. Stn-based F-35Bs will request lights off/covert in plain language and can only be accomplished with agreement of any other circuit occupants. All airfield lighting should be selected appropriately when Stn-based AC request Off/Covert lighting. If required, the Alpha dispersal floodlights need to be manually switched off by ATC. The Bravo dispersal lights are controlled by VASS on ext 7016.

F-35B Vertical Landings. F-35Bs have a crosswind limit of 25 kts when conducting a VL. ATCOs should anticipate the AC manoeuvring and turning in order to land into wind whilst over the VL pad.

O.2.8 HELICOPTER OPERATIONS AT RAF MARHAM

Rotors-Running Refuels. Helicopters visiting RAF Marham can conduct rotors-running refuels on approval by Stn Ops. Visiting detachments may be authorised to conduct rotors-running refuels under Forward Air Fuelling Point (FARP) conditions subject to a risk assessment.

O.2.9 RUNWAY OCCUPANCY RULES

Crews are ultimately responsible for separation between AC in the visual circuit. The clearance issued to a pilot informs them that the Runway is available for use; it is the pilots' decision on whether there is sufficient spacing to carry out their approach. Whilst the ATCO is providing these clearances based on a professional assessment of the situation, it is incumbent on the pilot to make the final decision to execute the clearance. However, if ADC believes at any time that Flight Safety may be compromised, AC should be sent around.

In accordance with RA 3277, 'local orders at relevant Aerodromes will need to stipulate the wake turbulence mitigations required against other Aircraft when a jet-lift aircraft (for example F-35B) is arriving, departing or operating in the visual circuit. There is currently no defined criteria for the wake turbulence (WT) separation to be applied'.

Therefore, at RAF Marham for the purposes of WT, between Stn Based aircraft only, F-35B in all configurations can be considered in the SMALL(S) category (Table 1 RA 3277). WT separation between Stn based aircraft and visiting aircraft should be in accordance with RA 3277 and BMO 312, categorising the F-35B when conducting STOVL/Slow approaches into the SUPER (J) Category (Table 1 RA 3277).

Station Based Aircraft Daytime and Night Operations

Runway 05RH/23

Conventional Take-off Landing (CTOL) Approaches: Wherever practicable, relaxed RWY occupancy rules will be employed by ATC between Station Based CTOL AC to allow expeditious use of the RWY e.g. a crew calling finals in the visual circuit when there is another CTOL Stn based AC ahead to land/touch and go/low approach can be cleared to "land/touch and go/low approach, number ahead. Except;

a. A Touch and Go or Low Approach is not to be issued behind an AC to land. Clearance should be "Continue approach" or "Not below altitude 300ft, (reason), cleared low approach" whichever is more relevant. "Not Below altitude 300ft, (reason), cleared low approach" can also be used when the runway is obstructed, for e.g. a vehicle.

b. AC are not to be given any clearance if an AC on the Runway has been given a take-off clearance.

c. Clearance "in turn" may only be issued to formation AC landing off their first approach.

Non-Conventional Approaches:

AC may be cleared to use the in-use Runway behind an F-35B approaching a VL Pad, as the VL F-35B will be Not Below 300ft QNH over the Runway then transition direct from the threshold to the VL PAD, descending to Not Below 300ft QNH. Clearances may only be given to the VL AC if

the approach threshold is clear of vehicles and AC. Conventional F-35B shall not be cleared behind a 'slow' F-35.

Examples:
a) Slow F-35B then Conventional F-35B - Single occupancy rules.
b) VL F-35B (if threshold is clear) then Conventional F-35B – 'Cleared to land'.

VL PAD Approaches

Vertical Landing (VL) approaches are similar in speed to conventional approaches, only slowing down after transitioning from the threshold to the Pad. If the AC ahead is 'slow', a VL can also reduce its speed to match the slow AC, thus allowing a clearance behind.

Examples:
a) Slow F-35B then VL F-35B - 'Pad X, cleared to land'.
b) Conventional F-35B then VL F-35B – 'PAD X, Cleared to land.'

Note: There is no need to state number ahead on the final clearance, if using different surfaces, although this should still be passed Downwind.

Stream Approaches to VL Pads

F-35Bs on stream approaches to the same VL Pad will take visual separation between each AC in the stream. F-35Bs will remain in hover flight until the F-35B ahead has landed and vacated the VL pad before making an approach.

F-35B conducting vertical approaches will not overfly AC, vehicles or obstructions on the Ground. Information on taxiing AC in the vicinity of Pads should be issued. AC backtracking Runways 19 or 23 should be held short of the intersection.

Clearance "in turn" may be issued if the Formation AC are to land on the VL Pads on their first approach.

Stream F-35B approaches to a VL pad will preclude the simultaneous use of the in-use Runway.

Radar Integration.
Regardless of AC type, radar traffic is not to be given a clearance to use the Runway behind visual circuit traffic or vice versa, except.
a) Radar traffic may be "cleared to land, one (or more) on" the runway.
b) For Stn-based AC during daylight hours ATCOs may use "if visual, continue with Tower, reason, circuit state". This will allow the ADC to issue a clearance in accordance with the Station Based occupancy rules stated above.
c) AC wishing to touch and go or low approach may be instructed to "not below altitude 300ft, (reason) cleared low approach" if the runway is obstructed and the circumstances allow
d) Radar traffic may be "cleared to land, one (or more) ahead/on" for VL Pads only.

Visiting AC
Single runway occupancy rules apply to all visiting AC on all runways, except formation AC joining to land from their first approach that can be issued "cleared to land in turn".

With the approval of AO other AC detached to Marham may be deemed 'Stn-based' and subject to the Marham DAM as required.

USAF AC must have a clear circuit iot conduct PFOs, with both the overrun and approach lights set to red.

Runway 01/19RH

Runway 01/19RH is single runway occupancy for CTOL (Fast) approaches and for the STOL Strip.

Station Based STOVL AC can be cleared to use RWY 01/19 with another Stn based STOVL AC ahead to slow land/slow touch and go/slow low approach, number ahead. Except:

a. A Slow Touch and Go is not to be issued behind a slow AC to land. Clearance should be "Continue approach" or "Not below altitude 300ft, (reason), cleared slow low approach" whichever is more relevant. "Not Below altitude 300ft, (reason), cleared slow low approach" can also be used when the runway is obstructed, for e.g. a vehicle.

b. AC are not to be given any clearance if an AC on the Runway has been given a take-off clearance.

c. Clearance "in turn" may only be issued to formation AC to slow land off their first approach.

Note*:*
Line-up In Turn. This can only be used during day light hours and cannot be utilised when LVPs are in place.

O.2.9.1 USE OF GRASS RWY

1. The Grass RWY is available as a **VFR only** alternative landing and departure surface for aircraft operating in support of events, following specific authorisation by the AO. The surface will be declared fit for use by SQEP aircrew shortly prior to an event to enable usage.

2. Simultaneous Parallel RWY Operations are NOT permitted, the Grass RWY is only to be used when the Main RWY is not in use. No instrument approaches or departures are available to the Grass RWY. The position of the Grass RWY is at Figure 1.

3. Visiting AC that are unable to use the Main RWY (eg tailskid equipped) may be permitted to use the Grass RWY with the express permission of the AO[1]. They are not to conduct ccts but are to use the Grass RWY for landing and take-off only. ATC is to positively control the inbound visitor so that there is no other aircraft using the Main RWY as the visitor lands on or departs from the Grass.

4. The Grass RWY dimensions are as follows:

   a. Minimum effective length: 1312 ft (400 m).

   b. Minimum effective width: 82 ft (25 m).

   c. Composition – grass. Displaced 50 ft (15m) to the south of and parallel to RWY 23 / 05RH.

5. The max grass height is 6" (150 mm) with non-standard dayglo markers indicating thresholds.

6. **Serviceability.** ATC is responsible for inspecting the Grass RWY immediately before the aerodrome is opened. This is to comprise of a visual inspection to assess for obstacles and / or obvious irregularities in the surface, no additional SQEP is held by MRM ATC. The serviceability of the Grass RWY should be reviewed if the weather deteriorates during the flying period with the outcome recorded in the ATC Watch Log.

7. **Engine Run-up Checks**. Engine run-up checks are to be completed on ALPHA Dispersal to avoid unnecessary delay to main RWY ops.

8. **RWY Occupancy**. AC are not to touch and go on the Grass RWY. Single occupancy applies under all circumstances. The main RWY and VLPs are not to be utilised concurrently with the Grass RWY. Aircrew are not to call “RWY Vacated” until they have vacated the main RWY 23/05 on arrival, “RWY vacated” is not required on departure.

9. **Circuits.** Ccts are not to be flown to the Grass Rwy.

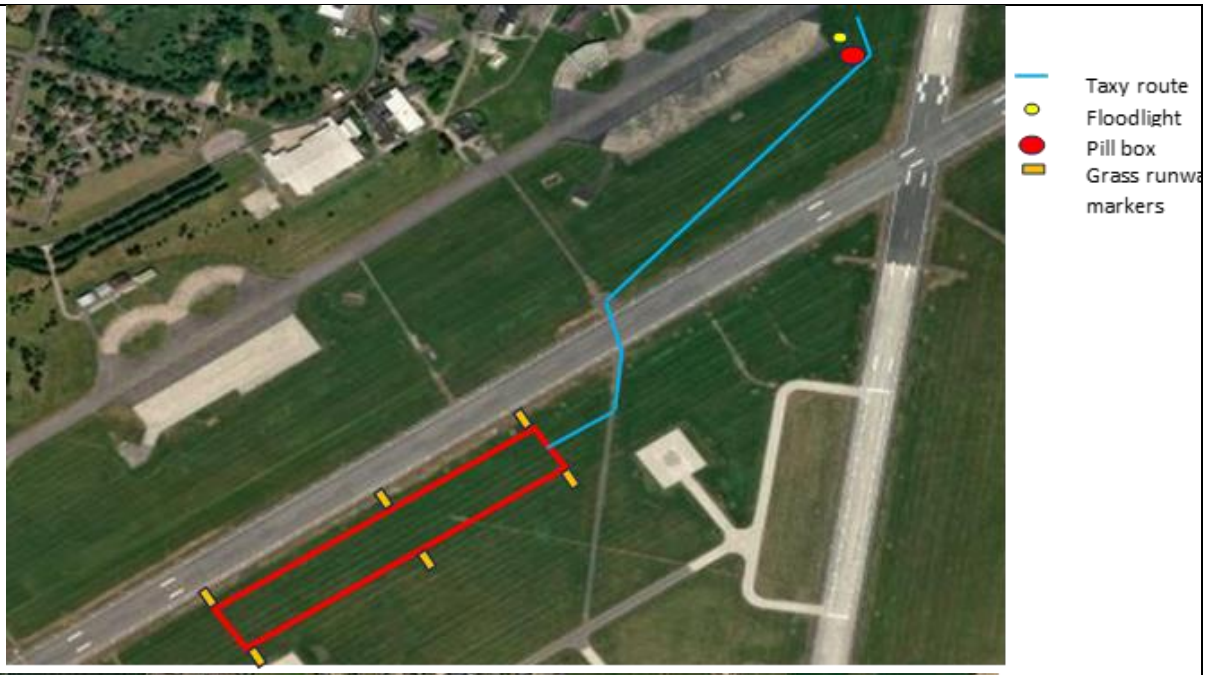
10. **Clearances.** All clearances to utilise the Grass Rwy will be discretionary, given the inability to positively control traffic with traffic lights or MRP compliant aerodrome signage. R/T is to include the location as it is not the duty runway, e.g. “C/S, grass strip, cleared to land”.

11. **Use of Grass RWY as a Diversion**. Under no circumstances can the grass RWY be declared as a diversion for other RWYs in use at RAF Marham.

12. **Taxy Patterns.** Regardless of landing direction, the single point of access to the Grass RWY is via the vehicular fast track linking the VLPs to the site of the former Fire Station. Once the aircraft has vacated the main RWY 23 / 05RH, access to the grass is permitted for further taxy. Under no circumstances are aircraft permitted to cross the main RWY at any other point as this risks damage to the French Drains.

13. **Shutdown.** Aircraft will position to the south of the pill box (top image below), then shutdown on the grass. From this point, the aircraft will be ground handled into position on ALPHA Dispersal.

1.



Top – Taxi Pattern

Bottom – Grass Strip Location.

O.2.10 AERODROME INSPECTIONS

A full inspection of all aerodrome operating surfaces is to be carried out iaw RA 3264 prior to the aerodrome opening. During the winter months, a FOD check of the Runway is to be carried out prior to declaring the aerodrome open. A full inspection is to be carried out as soon as there is sufficient light.

Aerodrome inspections should take note of the following:

a. Obstructions on or near the movement area, which should be properly marked.

b. Defects in the surfaces (especially RHAG pull-out areas), and painted markings, on taxiways and rwys.

c. Correct positioning and apparent serviceability of signboards/RHAGs/Barriers/Aids.

d. Requirements for grass cutting, especially around traffic lights and PAPIs.

e. Serviceability of traffic lights.

f. Sweeping requirements over and above the weekly programme.

An inspection of the aerodrome lighting is to be undertaken before the start of night flying.

Any surface or equipment defect or FOD is to be reported to the Supervisor who is to record the information in the ATC log and take remedial action as required. If, following an inspection by a suitably qualified person, a surface is deemed unsuitable to support AC ops, the area is to be closed and cordoned off with bad ground markers, and lights if appropriate. OC Ops Wg, the Wkpr, DEOC and Sqns are to be informed at the earliest possible opportunity.

O.2.11 AERODROME SWEEPING PROGRAMME

The aerodrome sweeping programme has been devised to eliminate FOD from the operating surfaces. ATC will be informed by ASMT if the programme cannot be met. Whilst it is highly desirable for the published programme to be followed it may be necessary for ATCOs to request diversion of effort into a priority area, in which case ASMT are to be advised and requested to re arrange the programme in agreement with the Supervisor.

O.2.12 WILDLIFE MANAGEMENT POLICY

Aerodrome Wildlife Control Unit (AWCU) operates iaw with RA 3270. To minimise the risk of birdstrikes in the circuit area a complete sweep of the aerodrome is to be made by the AWCU when the aerodrome is initially opened and during the aerodrome inspection by the ADC.

The Supervisor/ATCO IC is to inform the DCF of any report of continued wildlife concentration which constitutes a hazard to AC. The Supervisor/ATCO IC is to be aware of bird concentrations and the action taken to disperse them. In the absence of direction from the DCF they are to use their own discretion as to the course of action to be followed and are to advise ATCOs and pilots accordingly.

Should there be a break of flying activity of more than 30 minutes or the initial Stn movement is more than thirty minutes after the initial wildlife control measures, the ADC is to initiate further sweeps of the Runway and adjacent manoeuvring areas. Sweeps should be done at a time not more than thirty minutes before the start or resumption of flying activities.

O.2.13 BIRDSTRIKES – IDENTIFICATION AND DISPOSAL OF REMAINS

The Airfield Wildlife Control Unit (AWCU) deals with the recovery and disposal of birdstrike remains. On the occasions where a member of the AWCU is not available, the discovering person is to carry out the following actions:

a. Place the remains in a polythene/plastic bag.

b. Record on the bag or a card attached to it:

i. Date and time of the strike.

ii. AC type and its number.

iii. The Stn reporting the strike.

iv. The geographical location of the strike.

v. The height and speed of the AC at the time of the strike.

c. Forward the above to the AWCU at the earliest opportunity.

The AWCU is specifically contracted to carry out wildlife control tasks. The unit is not to be distracted from doing its primary duty. Administrative tasks, or identification is to be done between flying waves tasks, or at the cessation of flying, as appropriate.

O.2.14 RHAG OPERATIONS

Mk 1 RHAGs are installed at each end Runway 05/23. They are positioned 1600ft from the threshold of Runway 23 and 2100ft from the threshold of Runway 05. Supervisors can change the configuration if deemed necessary for Stn, visitors or airfield users as well as raising the cable for any emergency AC inbound if time permits. The standard configuration is:

a. Approach Cable - DOWN.

b. Overrun cable - DOWN.

GEF (Arrestor) is responsible for raising/lowering/rigging/de-rigging RHAGs under the direction of the ADC. If Arrestor are required during the working day, they are to be contacted on Ext 7474, the alternate number is Ext 7477 (option 1).

Fire/Crash crews may be called upon to assist with these tasks and are qualified to raise and lower the RHAG as appropriate. There is NO requirement for GEF to check the cable prior to an engagement taking place.

Following a RHAG engagement the aerodrome is to be declared BLACK and the RHAG inspected for damage. Actions to be taken are as follows:

a. All vehicles (except Fire) and personnel are to approach the AC from the front. ATCOs should, where able, pre-position towing vehicles in a suitable position.

b. The speed and weight of the AC is to be sought from the pilot.

Following an Aircraft arrest, the Fire Crew with GEF personnel will remove the AC from the cable and rewind/recover the cable. Once the cable has been rewound, its serviceability status should be immediately sought from GEF. If it is deemed un-serviceable, it is available for one emergency arrest if required. If it is declared serviceable a second GEF crew will do a subsequent check later, during a break in flying.

Following an AC engagement only GEF personnel can carry out restoration maintenance and declare the RHAG serviceable. A FOD/Runway check is to be conducted prior to declaring the Runway serviceable.

ATCOs are to be aware that Arrestor are to carry out Before Use Servicing (BUS) checks prior to the commencement of flying each day. Should Night Flying also occur, an additional BUS is to be carried out. Arrestor are to confirm the completion of this check by informing ATC of the cable state and log it in the ATC Watch Log. If there is any doubt as to whether a BUS has been carried out, ATC are to contact GEF to confirm prior to the commencement of flying.

O.2.15 TAXIWAY GOLF USE BY STATION BASED AC

Taxiway Golf is permitted for use by Stn-based AC only. Crews must ensure they remain on the centreline of the taxiway.

There is an obstruction made up of an 18ft tall mast which supports a test oscillator, required to operate the High-resolution Direction Finding (HRDF) equipment utilised by ATC.

The obstruction is not marked and is not lit, during night flying, an obstruction light is to be placed at the base of antenna.

The obstruction is approximately 10.35m from taxiway centreline and shown below:

O.2.16 PRECAUTIONARY / FLAME OUT RECOVERIES

1. F-35Bs may recover to the airfield in an emergency and conduct a Flame Out (FO) or Precautionary Flame Out (PFO) recovery. This is conducted either:

    a. Straight-in – from 7,500-10,000ft QNH, 10nm on extended centreline.

    b. Overhead – from 10,000ft QNH following the visual circuit profile.

    c. Random entry – during an emergency.

2. Pilots will practice the PFO straight-in and overhead profile with the following procedures applied:

    a. RA is to identify the AC to the ADC. The ADC should use ATM to maintain identification. If requesting a PFO from the visual circuit, the ADC will liaise with RA before approving, with the AC transferred to RA as required.

    b. Pilots are to be instructed to self-position for the PFO and report visual with the aerodrome.

    c. ADC must approve all before they commence. Pilots will call “High Key”, where the approach can then be approved. If still with RA, liaison with the ADC is required prior to or at this call. The pilot can be instructed to hold (with a reason) if the situation requires.

d. If not visual and remaining with RA, pilots are to be instructed 'PFO approved, descend to altitude 2200 feet, xx in, report visual with the aerodrome'. The ADC will broadcast this information.

e. Pilots are to be switched to ADC once visual, either before or after commencing the procedure. RA is responsible for ensuring traffic information is passed on conflicting traffic via the ADC.

f. Pilots will then report 'leaving High Key' and 'Low Key, gear down'. Low key is approximately 5,500ft QNH.

g. On leaving high key, pilots are to be informed by the ADC of number ahead (including radar traffic within 6 nm).

h. If still with RA at low key, they can be continued 'not below altitude 2200 feet until visual'. A clearance must not be given by the RA.

i. Pilots switching late in the procedure still require QNH and gear checks, prior to a clearance being issued by the ADC.

USAF AC must have a clear circuit iot conduct PFOs, with both the overrun and approach lights set to red.

O.2.17 USE OF CROSSWIND INDICATOR

The crosswind indicator provides instantaneous readings of the crosswind, as well as an average crosswind and headwind component every 2 minutes. F-35 require information on all winds >30 kts, regardless of crosswind component.
The crosswind component is to be passed to Stn-based AC in the following circumstances:

A) Prior to the take-off clearance if it is 10 kts or greater (instantaneous reading).
B) For formation line-ups if 10 kts or greater.
C) AC making an actual single engine approach.
D) When requested.

Note: If there is a tail wind component (of any speed) this is to be passed to the AC when downwind in the visual circuit, on <u>every</u> approach.

O.2.18 CONTROL OF REFUELLING VEHICLES

The control of refuelling vehicles is to be conducted as follows:

a. **Callsigns**. All refuelling vehicles will use the callsign REFUELLER … followed by a number.

Access. Drivers will request positive ATC clearance to proceed on to the manoeuvring area. In the event of an AC taxiing, vehicles are to be instructed to hold. Clearance to proceed is at the discretion of the Ground Controller (or ADC when both control positions are bandboxed).

O.2.19 USE OF VHF RADIO TO CONTROL AC EMERGENCIES ON THE GROUND

The Fire Section at Marham has a VHF radio that will be used to communicate directly with the crew of an emergency AC once that AC is on the ground.

The frequency to be used is 121.600 MHz. The Crew Commander will coordinate the use of this frequency using the callsign, “Marham Crash Crew Commander”. There is no requirement for ATC to monitor this frequency. MRE is still to be used for all liaison calls with the Crew Commander.

When it is known that an AC is inbound with an emergency, the Crew Commander will ask ATC via the MRE for the callsign of the emergency AC. This action will enable the Crash Crews to communicate directly with the pilot. The use of frequency 121.600 Mhz is to be employed only when the emergency AC is on the ground.

O.2.20 HOT PIT REFUELLING

HPR can facilitate a second sortie without the need for ‘turn around’ servicing. An F-35’s engine will remain running whilst conducting HPR. HPR is permitted at 207 Sqn and 617 Sqn.

ATCOs and ASOS are to be aware of and adopt the following:

a. Sorties identified on STARS for HPR should be annotated as HPR on ET.

b. Fire cover is required in-situ of the HR; crash crews will position according to the location.

c. Due to the risk of fire, ADC, Gnd and VCR ASOS are to ensure that no RT is made to or from AC within 30m, and no MRE transmissions are made to or from vehicles within 100m, of the HR AC. Furthermore, ATCOs are not to transmit to the HR AC except in an emergency.

d. If a thunderstorm level high warning is issued during HR, the Gnd controller or VCR ASOS is to transmit “thunderstorm risk high in force, hot pit refuelling to cease immediately” on MRE.

Emergency Action. In the event of an emergency whilst HPR is in progress, the following action is to be taken:

TYPE OF EMERGENCY	ACTION TO BE TAKEN
Fault with HPR AC that requires the attendance of crash combine	All HPR to cease
State 1	All HPR to cease
State 2 – emergency AC inside 10nm	All HPR to cease
State 2 – emergency AC landed; no further assistance required	HPR may recommence
State 2 – Hot Brakes	All HPR to cease
Domestic Incident	Await instructions from the Crew Cdr.

O.2.21 UNITED STATES FAST JET PHRASEOLOGY

US FJ crews use phraseology that sometimes differ from the UK military standard, particularly in the ADC environment. Guidance is as follows:

a. "(Left/Right) Base, Gear Down": Equivalent to "Finals" call.

b. Left/Right hand Pitch: Circuit direction.

c. Requesting the "Option": Option to Land, Touch and Go, or Low Approach.

d. Request "Closed (Pattern)": Visual Circuit.

In the interests of flight safety, ATCOs are authorised to utilise the above phraseology to limit the risk of any misunderstanding by visiting US FJ crews. Care must be taken to avoid confusion to other AC in the circuit, particularly trg AC.

O.2.22 INCORRECT CONFIGURATION APPROACHES FOR TRC CONTROLLER CURRENCY

BM Order 504 details the currency for TRC Controllers to be tested with no notice gear up approaches. At RAF Marham, analysis has identified a trend in F35B aircraft attempting slow approaches in the incorrect CTOL/STOVL configuration. Details of how the check should be conducted are included in O.2.29. Therefore, the scope of this currency shall be widened to include; an incorrect Mode 4 configuration check combined with theoretical discussion of an incorrect gear configuration, as part of the annual TRC assurance check.

The ASOS Standards team is to monitor this currency and identify TRC Controllers due an incorrect configuration approach to the Supervisor.

The Supervisor is responsible for the conduct of the check and as such, must ensure that all involved are aware of their responsibilities for the safe conduct of the procedure. This reduces the potential for error and provides an opportunity to correct any differences in understanding between personnel.

The Supervisor is to request an incorrect configuration approach via the DCF subject to the following criteria:

a. Must be pre-arranged and ADC made aware.
b. Carried out by any ACO Pilot.
c. From the visual circuit only.
d. Less than 3 AC in the visual circuit.
e. Day only.
f. Will include a 'slow' downwind call / 'finals gear down' call.
g. Not from a 'Land/full stop' request.

The incorrect configuration approach (including callsign) is to be entered in the ATC logbook. Failure by the TRC Controller to take appropriate action for an incorrect configuration approach will result in the suspension of their TRC endorsement and a period of retraining.

O.2.23 TEMPORARY AIRFIELD OBSTRUCTIONS

In addition to cranes, all temporary airfield obstructions are subject to NAVAID and airfield surface safeguarding and require approval.

The following authorisation, notification and briefing process is to be used:

a. Any requirement for temporary airfield obstructions from ASMT or contractors are to be requested NLT 24hrs in advance (or on the last standard working day) through ATC.

b. TATCC Cdr, or nominated deputy, will consult with Aquila regarding airfield safeguarding and impact on NAVAIDs. Subject to satisfying safeguarding criteria ATC will agree a suitable period for task completion and brief ASMT/contractor and inform Stn Ops.

c. ASOM is to arrange for NOTAM action (as appropriate) to be taken regarding the temporary airfield obstruction.

d. ATC SWB to inform Stn Ops and flying Sqns via cascade system to back-up NOTAM action. Airfield slides to be updated for briefing purposes.

e. ASMT/contractor to be briefed by ATC personnel upon ATC opening (Mon – Fri 0800(L); weekends as per tasking) standard ATC WIP airfield briefing.

f. ASMT/contractor inform ATC upon completion of the WIP for ATC to cancel the NOTAM, cascade information and update briefing slides.

Any requests out with this process will be denied, unless an urgent operational requirement exists, which will be considered by TATCC Cdr/OC OSW or their nominated deputy.

O.2.24 TRC CONTROLLER USE OF TOWER FREQUENCIES

Should an AC attempt to make an approach with an unsafe landing gear configuration, and there is insufficient time to advise the ADC, the TRC Controller is to transmit a warning. Where possible the warning is to be reinforced by the firing of a red flare. When transmitting such a warning the TRC Controller is to use the phraseology:

"AC Callsign - Marham Caravan - CHECK GEAR"

In addition, if the AC is on the Runway having been cleared for take-off and there is an obvious flight safety problem then the transmit facility can be used. The TRC Controller is to use the phraseology:

"AC Callsign - Marham Caravan - Nature of Problem"

O.2.25 VEHICULAR ACCESS TO TRC POINT

Access to all TRC points is via paved surfaces and may require a transit through traffic lights. When exiting the TRC point the transit starts from inside the traffic lights and therefore a red light is not encountered.

All TRC points are outside the Runway Hold Lines and therefore with this in mind and to keep R/T to a minimum the following procedures are to be adopted:

a. When transiting to the TRC points via paved surfaces an MRE call must be made to transit through the traffic lights.

b. When exiting the TRC point, if the transit route remains outside of the hold lines, no permission is required. An MRE call should still be made to report mobile from the caravan.

Drivers should be vigilant to check for any AC on the taxiway, or vacating the Runway onto the taxiway, prior to vacating the TRC point. Drivers should also be aware of any further clearances which might be required during their onward transit i.e., to cross the 23 Threshold when routing back from 19 TRC point.

O.2.26 ILS APPROACHES TAXI RESTRICTION

Following the re-commissioning of the ILS, vehicles and AC are not to infringe the ILS critical area in front of the Glide Slope Building in any Met conditions.

When an AC carrying out an ILS is within 10nm, no AC or vehicle should be allowed access to 'A' Taxiway between the 19 and 23 thresholds.

O.2.27 REMOTELY PILOTED AIRCRAFT (RPA) INTEGRATION

In accordance with the MRM DAM Annex JJ, RPA can operate from RAF Marham.

During airfield operating hours and depending on the Runway in use, RPA will operate not above 400ft AGL within designated Landing Sites, under the supervision of ATC ADC/ASOS.

The RPA Operator (RPAO) will always be in contact with ATC via MRE.

If there is AC operating within the visual circuit or within 20nm inbound to the airfield, the RPAO will be asked to operate not above 200ft AGL.

RPA may operate autonomously outside of Airfield operating hours within designated Landing Sites not above 400ft.

O.2.28 CHASE PROFILE

Chase profiles will be notified by the formation by use of the word CHASE at the end of the transmission when asked for type of recovery and can only be flown in VMC.

The second chasing instructor AC is a safety element of a student flying on their own and all effort should be made to treat the formation as if a single speaking unit.

As the instructor, second AC, is not making an approach to the runway even if it appears to be doing so, gear checks and clearances are only to be made to the lead student AC.

The instructor is responsible for his separation from all other AC, weather, surfaces, and obstacles.

If weather requires the formation to recover to the airfield via an instrument approach in trails, the formation may close to chase profile once VMC and must notify the controller of the change of profile.

O.2.29 INCORRECT AC CONFIGURATION (MODE 4)

Incorrect AC Configuration for Slow/VL Approaches.

ATCOs and ASOS are to be especially vigilant when Pilots opt for slow or VL approaches to ensure that the lift fan door on the top of the AC appears open (Mode 4). If the Pilot attempts a Slow or VL approach without configuring the AC into 'Mode 4' the jet remains configured for regular flight, whilst the pilot attempts to decelerate below 150kts. The potential for an accident if this occurs, is significant.

The ATCO, ASOS and TRC should visually inspect the jet confirming its configuration, challenging the pilot if necessary: "C/S CHECK MODE 4". This call can be made at any point in the final approach noting the difficulty in achieving this visual check at night. The use of a red flare should be considered if any doubt exists about the message being relayed to the Pilot.

O.2.30 DRONE ACTIVITY REPORTING

Upon sighting or possible sighting of a Drone within the confines of Marham MATZ, this Temp Order is to be followed until higher direction is published. Further detail is available in Op OVERWATCH.

The Supervisor is responsible for the safety of AC and personnel within the MATZ. With a rise in Drone activity the following actions are now required. A breach of aviation law relating to the dangerous operation of a drone is to be reported to civilian police on 101, this includes a drone operating higher than 400ft AGL or close to an airport.

Actions on the sighting of a Drone in or around the MATZ:

All potential or confirmed sightings are to be passed to the ATC Sup, via the 333 line. The Truck Runway Caravan (TRC), SAPPHO or other airfield users must also be continuously vigilant and pass information over MRE to the VCR ASOS as appropriate.

a. The Supervisor is to gain as much detail as possible on the Drone Sighting, Lat/Long, H/A/FL, Time etc.

b. The DCF must be immediately informed, who should report to ATC and liaise with the ATC Sup regarding safety implications to Airbourne AC and to determine possible solutions.

c. All aircraft within the Visual Circuit, or inbound must be passed details on the potential location, height and movement of the drone(s).

d. The ATC Sup or delegated personnel must pass this information to the AO (Aerodrome Operator) and await further instructions.

e. The Duty Ops Officer should be informed iot facilitate a report to the local authorities via 101.

Actions after reporting:

a. DASOR to be raised after the event if the Drone was in the ATZ under event 'Unauthorised Infringement of Airspace'. NATS UK | UAS Restriction Zones (ead-it.com)
b. DASOR to be raised for any reason deemed reasonable if sighted within the MATZ or local area.
c. Fill a report with the CAA form to be found: Report of Alleged Breach of Air Navigation Legislation (caa.co.uk)

O.2.31 PROTECTOR OPERATIONS

1. **Protector Trials Operations**. Protector (PTR) is due to begin Phase 3 trials for Trial PREVALENT PHEONIX. This order separates the ATC specific procedures to be followed from the OpO and LOA.

2. **Priorities**

   - ADPF
   - AC in emergency
   - Operational take-offs
   - Royal & VIP flights
   - Protector Ops
   - Minimum Fuel
   - Practice emergencies (including SASSY circuits and PFO recoveries)
   - Marham-based departing AC
   - Continuation training by other Marham based AC
   - AC on a practice diversion
   - All other AC

3. **Cable States**. PTR requires the arresting cables be 'de-rigged'.

4. **Undercarriage**. PTR has retractable gear.

5. **Start and Taxi procedures.** PTR will call for start iaw SOP and will operate using QFE as a pressure datum. Taxi instructions are to be passed as standard with spacing and sequencing as per normal taxiing rules.

   a. PTR Groundcrew will call on the ground frequency using the callsign GOLDSTAR and POB will always be zero. If needed will be stated as 'un-crewed.

   b. PTR aircrew, once in control of the aircraft, will use the allocated sortie callsign.

   c. PTR callsigns are primarily FIREBIRD, but will also utilise PHOENIX, SCORCHER, DRUMSTICK and SKOOBY.

6. **Taxi Routing.** Controllers are to control the aircraft on the ground with standard control instructions informing the pilot of any closed taxiways as necessary. Protector cannot transit C through the enclave, or Golf as well as any disused areas

7. **Lighting selection.** Light selections for PTR will be iaw ATC SOPs for Cat B AC.

8. **TDA (D296A/B) Activation.** MRM RAD will activate D296A/B on notification the PTR is taxiing or 15 mins prior to departure or entry on recovery. Radar is to ensure D296A/B has been activated on screen. The Free Text Box must **always** include a line for each sector, and its activation status as below:

   D296A - INACTIVE / ACTIVE, COLD / ACTIVE, HOT
   D296B - INACTIVE / ACTIVE, COLD / ACTIVE, HOT

9. **SUACS.** A Special Use Airspace Crossing Service may be provided for civ/mil AC through an "active, cold" sector and is to be treated like a MATZ Crosser. No SUACS are authorised through an "active, hot" sector unless in an emergency or for ADPF.

10. **Climb-out Details.** Climb-out instructions from MRM Radar will be passed for the PTR to climb and spiral to a level at or below FL 100 inside D296A. Once PTR is passing 3000ft and established in the climb, it will be transferred from MRM ADC to MRM RAD. For IFR departures, PTR will depart on the MID and therefore remain terrain safe.

11. **Runway Sanitisation and Airspace Segregation.** Serials within phase 3 flying events require full runway sanitisation for approaches to be made. In case of emergencies, TRC is to be un-staffed, Sappho to return to ATC or clear of ASPs, with the rest of the aerodrome to be fully sanitised.

12. **"RPAS"**. All prenotes, handovers and coordination are to include "RPAS" following callsign. All other R/T iaw CAP 413.

13. **PDs and Divs**. PDs can be accepted as standard, "subject to traffic". Diversions can also be accepted, being mindful not to overcommit, due to Protectors flexible profile.

14. **Recovery.** PTR will be prenoted inbound iaw SOP. Descent will be issued for a visual join. Restrictions on height to be applied if required. On passing 3500ft QFE PTR will transfer ADC. Once two way with ADC they can be cleared for the commence the final descent and ATLC recovery profile.

15. **ATLC R/T.** ATLC phraseology to be used:
   "Callsign, Cleared ATLC, Runway ##, ***QFE*** *### hPa, Report established in Hold"*
   "Callsign, Report Downwind with intentions"
   "Callsign, Roger, Report Final, Gear Down"
   "Callsign, Clearances as per local procedures.

16. **Emergency Procedures.** The following gives a brief explanation of what PTR pilot and aircraft will do:

    a. **Loss of R/T.** The pilot will continue with the last clearance issued and then inform ATC via a landline from the CGCS landline (01533724094) of lost comms. Aircraft will squawk 7600. Pilot in the CGCS will maintain contact via landline to receive clearances. ATC to transmit blind clearances for awareness (TRC).

    b. **Lost Link (LL).** If Protector goes LL it will squawk 7400 then:

       i. Continue its last instruction then hold for 15 minutes.

       ii. Return to D324B/A then descend into the LL hold to the SE of Waddington iaw ref B, unless a priority return to MRM is required.

       iii. **ATC will initiate a State 2 at an appropriate time.**

iv. Pilot will call ATC from CGCS on landline for joining and landing clearances.

v. Controller to broadcast as per “type, range, intentions”.

vi. Aircraft will land and come to a stop on the rwy and shut down.

17. **Emergency Recovery (ER).** If PTR has an emergency and states that it is recovering to Waddington on an ER profile, the aircraft will fly to a crew-designated point on the ground using a descent profile such that it will position to attempt a normal landing on the RWY.

18. **ATC will initiate a State 2 at an appropriate time.** ATC will liaise with the PTR Crew and sanitise the aerodrome including AWCU and TRC staff. Any other contractors or SP requested to vacate the aerodrome.

19. **Emergency Terminate (ET).** If PTR has an emergency and requires recovery to Waddington on an ET profile, the aircraft will fly to a crew-designated point (on the RWY) using a descent profile designed to maximise damage to the aircraft upon **impact with the ground**.

20. **ATC will initiate a State 2 at an appropriate time.**

a. ATC are to sanitise the aerodrome

b. ATC are to withdraw TRC operators, AWCU and any other contractors/SP on the aerodrome.

c. ATC are to broadcast a Stn TANNOY message and an ‘All Stns’ MRE broadcast to alert all pers of the inbound ET profile.

d. ATC are to close the MT route, set all traffic lights to RED

O.2 RADAR ORDERS

O.3.1 RESPONSIBILITIES OF THE SUPERVISOR

In accordance with BMO Order 108, the Supervisor is responsible to the TATCC Cdr for operational and administrative direction and supervision of all ATC personnel on watch and direction of safety services. In addition, the Supervisor is to carry out the following specific tasks:

a. ATCOs are to be allocated to each control position according to endorsements held to ensure currency and to maximise training opportunities.

b. Check the daily navigation and maintenance schedule. Inform Ops of all unserviceability of navigation/approach aids. The release of navigation/approach aids for routine maintenance must consider the weather and flying programme.

c. Liaise with the DCF, as necessary, particularly with regard to AC operations in poor weather conditions.

d. Inform the TATCC Cdr and BMFSO at the earliest opportunity of any incident/AIRPROX and ensure that the ATCO concerned submits an incident report before going off duty.

e. Consider whether ATCOs and/or ASOSs should undergo drug/alcohol testing iaw BMO 113 if concerns exist about their ability to conduct their primary duties. The TATCC Cdr should be informed immediately and will take the appropriate actions through OC OSW and the Stn Cdr.

f. When appropriate, initiate SNOWTAM action iaw UK AIP GEN 3.7.

g. Ensure that all mandatory DASORs are raised ASAP after occurrence.

h. Ensure that Supervisor's comments are completed on DASORs raised when holding the watch.

During established Supervisor hours if a workforce shortage results in a requirement to ATCO IC, it is to be logged on the right-hand page of the logbook and the ETATCC Cdr informed immediately. The ATCO IC is to carry out the tasks listed above, as appropriate. Proactive planning should minimise the frequency an ATCO IC is required throughout the day.

Where possible the daily plot is to be written to ensure that suitable Supervisor numbers are rostered to facilitate the flying window.

ATCO IC is only to be used in extremis situations where operational output dictates a requirement for lower resource levels in order to meet pre agreed operationally essential commitments.

In consultation with TATCC Cdr, Supervisors are to maintain a regular dialogue with GEF regarding planned maintenance activity. This information is to be used alongside A5 planning to ensure maintenance i.e., 3-monthly RHAG maintenance is carried out with minimal disruption. The Supervisor is also to tactically liaise with GEF for minor maintenance requests.

O.3.2 ORDERS FOR RADAR APPROACH CONTROLLER

The Radar Approach (RA) Controller is to check the serviceability of the equipment at the beginning of the watch and at frequent intervals thereafter. They are to monitor all published Marham ICFs unless delegated out to other ATCOs. In addition, the RA Controller is to:

a. Check all published weather details are correct on ET and ATIS.

b. Check the Transition Level and Minimum IFR Cruising Level are correctly displayed.

c. Liaise with the Dir and LARS controllers to coordinate departures as required. Control of certain departures or visual recoveries may be delegated to a suitably qualified LARS controller.

d. Prenote en-route agencies on AC taxy i.e., Swanwick (Mil).

e. Control all visual recoveries informing the pilot of the number of AC in the instrument pattern. The AC is also to be warned into ADC including type and PoB for visitors. AC free-calling for radar to visual/initials or instrument recovery are to be handed to the Dir if staffed.

f. Assist D&D with emergency AC.

On receipt of information that a crash has occurred on, or in the immediate vicinity of, RAF Marham, the RA Controller is to:

a. Ensure that all AC under RAF Marham's control are informed.

b. Inform the D&D.

c. Inform Swanwick (Mil).

d. Instruct the Swb ASOS to inform all alternate aerodromes.

e. Obtain the endurance/intentions of all AC under RAF Marham's control and attempt to ascertain those of AC away from Marham with other agencies; take appropriate action in consultation with DCF. Details are to be passed to the Wkpr.

f. AC remaining under RAF Marham control are to be held in a safe area of good radar cover, in VMC if possible, or with RAF(U) Swanwick, until the situation is resolved. The visual and radar training circuits are to be closed whilst the emergency is in progress.

O.3.3 ORDERS FOR THE ZONE CONTROLLER

RAF Marham has a LARS commitment iaw the UK AIP. LARS is available to military and civil AC below FL100 outside CAS within 30 nm of Marham during published airfield opening hours. The task can be band boxed during quiet periods.

In addition to providing LARS using published frequencies, the Zone controller is to provide a MATZ crossing service. This task may be delegated to another ATCO nominated by the Supervisor/ATCO IC. Furthermore, RA may delegate control of certain departures or visual recoveries to the Zone Controller.

The following Squawks are available for use by Marham LARS:

a. 3660-3666.

b. 3667 unverified, Basic Service. 3667 may be used in event of WAM failure by all Radar Controllers.

O.3.4 ORDERS FOR THE RADAR DIRECTOR

The Radar Director is to:

a. Control all AC recovering to RAF Marham (except for visual recoveries) and all AC in the instrument pattern until handed to Talkdown or released to the ADC. QNH is to be used by all AC. The 2000ft wind should be offered to visiting AC requesting an ILS approach.

b. Inform the pilot of the number of AC in the instrument pattern:

i) On initially joining the instrument pattern.

ii) On turning downwind for further patterns.

iii) For all radar to visual recoveries.

c. Inform the ADC of the inbound AC and type of recovery; include AC type and POB for visiting ac. No circuit state will be passed for radar to visual recoveries unless specifically requested.

d. If the PAR is unavailable, at the Supervisor/ATCO ICs discretion and with the pilots' agreement, an unmonitored ILS approach can be conducted The AC may be transferred to Tower once they are established on the localiser. The AC is to be warned in to tower as an unmonitored ILS approach.

e. Monitor the progress of traffic handed over to the Talkdown Controller/Tower in order to resume control in the event of PAR or RT failure.

f. Inform RA when AC request a short pattern circuit.

O.3.5 ORDERS FOR THE TALKDOWN CONTROLLER

The Talkdown Controller is to carry out their duties iaw RA 3291 and BMO 900 The Talkdown Controller is to:

a. Check the maintenance PC to ensure that the system is operational.
b. Check that the Antenna Motor Drive is on.
c. Check that the PAR is radiating, and MTI markers are visible.
d. Check that Live Record is on.
e. Check that the displayed time is within ± 1 second of the GMT/UTC as locally displayed.
f. Check the serviceability of Stud 6, Stud 7 and the Radar Clearance line on both PAR comms panels.

Alert the Supervisor of any amber or red alerts and notify the Aquila Service Desk.
Ensure the ILS emergency speech facility is checked with an airborne AC (not Typhoon) on the first working day of each week.
If the equipment is released for maintenance, the Talkdown Controller is to re-check the set up before accepting it into service.
The maximum NORMAL and RAIN mode operating ranges are set by flight checks (document held by Aquila engineers) and displayed on the PAR console.
Sensitive Time Control (STC) settings should be set for each rwy as follows:

a. Runway 23 - 12db
b. Runway 05RH - 10db

All liaison calls to ADC are to be made on the RADAR Clearance Line. If two talkdowns are in progress, the 4nm liaison takes priority.

O.3.6 ATC CLEARANCE AND RELEASE

A departure clearance is to be passed to Gnd/ADC taking in to account the next controlling agency. The departure clearance is to include:

Type of departure MID/VFR or Runway Track and associated climb instruction (if different to MID).

Squawk.

Frequency.

Details for next agency (squawks/frequencies/TADS) as appropriate

RA can issue next agency squawks for departure but must consider workload and expected distance to conduct a handover.

AC wishing to depart direct to Holbeach Range (Twr to Twr) are to be pre-noted to specify transfer to Range Primary or Secondary frequency.

CFR. A CFR is imposed for all IFR departures to ensure the air picture is checked by RA prior to release.

O.3.7 CODE CALLSIGN CONVERSION

CCC can be used at RAF Marham, as required, for Stn-based AC departures, recoveries, or general handling. It may also be used for loitering LARS tracks or visiting AC appropriate. It is an entirely internal procedure, and the crews are not pre-briefed on their squawk. The squawks can be allocated as follows:

a. SSR Codes 3640 – 3653 are to be used for Stn-based CCC.

i) Early Sup/RA should allocate squawks against ET and update the GUI. The allocation is passed to the swb ASOS to update ET.

b. 3654/55 (RA) and 3656/57 (Dir) for visiting AC.

Loitering LARS track can be allocated any available LARS squawk.

O.3.8 PROVISION OF RADAR SERVICES

The provision of radar services at RAF Marham is as follows:

a. Departures.

i) Stn-based AC. All Stn-based AC will not action any vectors until passing the RVC. A vector may be legally given on first contact if required.

ii) Visitors. Visiting AC may be instructed to maintain Runway track or offered own navigation. TS may be applied immediately, and radar vectors given above the RVC.

b. Radar to Visual Recoveries.

i) AC under TS. RA 3232 allows descent and vectors 500ft below the RVC within 10nm of the airfield for AC recovering under TS. If the pilot is not visual with the aerodrome by 5nm (3nm with ADC approval) they are to be broken off and re-positioned for an instrument approach

ii) AC under DS. DS is not to be applied below the RVC. If the pilot is not visual with the aerodrome by 5nm, the AC is to be broken off and re-positioned for an approach for an instrument approach.

Provision of Radar Services Outside RVC Coverage. The RVC extends to 40nm from the airfield. Outside 40nm ATCOs are to use the ESA.

a. Reductions of Radar Services. Reductions of radar services are to be applied in accordance with CAP 774. Limitations are to be passed in full.

b. General Handling. Stn-based AC general handling in the vicinity of Marham below the RVC do not need to be reminded of terrain clearance responsibilities. Visiting/LARS AC general handling must be informed of their terrain clearance responsibilities, with a positive confirmation received.

Formations. MARSA cannot be used when formations of AC are operating in a block. To reduce ATCO/pilot workload, formations can be asked if they require reciprocal traffic information i.e., 'do you require traffic information on other formation elements?'

Should the formation get airborne at separate times then confirmation should be sought from the joining member(s) if traffic information is required. This is applicable for formations operating using the same formation callsigns. This cannot be applied between multiple formations.

O.3.9 TACAN PROCEDURE

Procedures. The TACAN approach is to be flown in accordance with published charts and the following procedures:

a. Due to the potential for a large number of primary contacts in the Marham overhead, DS should not be applied once in the hold.

b. Runway 05/23 and 19RH.

i. The AC will be not below 5100ft QNH until outbound from the overhead; an altitude restriction of 4000ft QNH can be imposed.

ii. Emergency hold is 4000ft QNH; an altitude restriction of 3000ft QNH can be imposed.

iii. Any altitude restriction is only to be cancelled when the TACAN has passed the overhead on the outbound leg.

c. Runway 01 – shorter profile due to Lakenheath/Mildenhall CMATZ.
i. The AC will be not below 3800ft QNH until outbound from the overhead; an altitude restriction of 2500ft QNH should be imposed.
ii. Emergency hold is 4000ft QNH; however, an altitude restriction of **2500ft** QNH should be imposed.
iii. Any altitude restriction is only to be cancelled when the TACAN has passed the overhead on the outbound leg.

Phraseology. The following phraseology should be used when all AC report leaving their FL:
a. TACAN: "C/S report turning inbound, checks complete.
b. TACAN to ILS: “C/S report localiser established, checks complete”.
c. TACAN to PAR/SRA: “C/S report steady inbound with heading, checks complete”.
d.

Note: An additional call of "Report before turning inbound" may be required to assist with sequencing of other instrument or Radar to Visual traffic.

TACAN approaches should be monitored on PAR wherever possible, stating; ‘*approaching decision altitude/passing decision altitude’* as for an ILS approach.

If unavailable, and at the Supervisor/ATCO ICs discretion and with the agreement of the DCF, an unmonitored TACAN approach with ADC can be carried out. Dir will not send an AC to Tower until established inbound. The phraseology to be employed by ADC is similar to a straight in approach, the Controller will state;

Continue TACAN approach, Runway XX,QNH XX, cct state, report finals Gear Down.

O.3.10 LIMITATIONS OF ATC SERVICES – WASH WEAPONS AIRSPACE

Military AC. With the exception of AC positioning to enter, or departing Holbeach range, ATCOs are not to provide a radar service to military AC within PMR 225 or EGD 207 unless the area(s) are closed, have been suppressed, or a crossing has been authorised by the Range Controllers.

Civil AC. Civil AC must avoid EGD 207 when active unless a crossing clearance has been sought. If civil AC approach within 5nm of EGD 207, the range controller must be contacted so they can inform any range traffic. Similarly, any AC transiting through PMR 225 must be warned to the range controller, reporting once clear.

O.3.11 MATZ CROSSING SERVICE

The following procedures are to be employed when providing a MATZ Crossing Service:

a. AC transiting the MATZ are to be placed on the Marham QNH if there is traffic to affect.

b. The Zone Controller is to offer traffic information to the RA Controller who can approve the crossing and impose a climb-out restriction if necessary.

c. The Zone Controller is to make a liaison call to the ADC on landline before the AC penetrates the MATZ.

d. If the MATZ Crosser is non-transponder equipped, or wearing a conspicuity squawk, the Zone Controller is to advise the RA/ADC Controllers when the AC is clear of the MATZ. RA should cancel any COR but, this may be delegated to Zone.

e. Approval for AC wishing to transit the MATZ below 1100ft QNH is to be obtained from the ADC. Control will remain with the Radar Controller, however, if there is traffic to affect or AC require to cross the Runway, control is to be transferred to the ADC at the MATZ boundary on an agreed frequency. Once clear of the Runway and any visual circuit traffic, control of the AC is to be returned to the Zone Controller.

f. The internal liaison phraseology for MATZ crossers is:

i) Zone to RA:

Zone. ‘Traffic Information, Marham North 15 Miles tracking South squawking xxxx.’

RA. ‘Contact.’

Zone. ‘Maintaining 2100ft QNH for MATZ crossing on that track.’

RA. ‘Approved’ (COR or other restrictions passed).

ii) Zone to ADC:

Zone. ‘MATZ crosser, North to South 2 miles East of the overhead, at 2100ft QNH.’

ADC. ‘*Readback above*’

Zone. ‘COR xxxxft QNH’.

ADC. ‘COR xxxxft QNH’.

iii) Once Complete

Zone to ADC: “MATZ Crossing complete, COR cancelled”

ADC to Zone: *Readback above*

Marham has two low flying gaps. AC should call for the Northern/Southern gap on Zone U/VHF frequencies. AC should be requested to report North or South abeam Marham. The time abeam Marham is to be logged to assist in the event of a low flying complaint.

O.3.12 WAM-ALONE OPERATIONS

Marham Radar is now permitted to provide a WAM – Alone service to Stn Based F-35B.

The follow describes the proposed mitigations for WAM-Alone ops:

a. ATC will inform pilots of a reduction in traffic information on non transponding AC, iaw CAP 774 and CAP 413.

b. ATC will provide pilots with generic information to enhance situational awareness of non-transponding AC through the use of FLARM. This technique is permitted iaw RA3208 and is further explained in MRM DAM O.3.22.

c. For departures, ATC will liaise with Norwich/Lakenheath to confirm that departure lanes are clear of non-transponding AC.

d. ATC will inform other ATS providers, 78 Sqn (Swanwick Military) and 19 Sqn (Hotspur) of the situation, to facilitate early/late handovers thereby reducing exposure to the WAM-alone environment.

e. ATC will restrict performance take-offs to increase the likelihood of WAM detection of the AC

For all other AC, the below remains extant:

1. **Unplanned outages.** When there is an unplanned outage requiring Cooperative-only RADAR operations at RAF Marham, the following procedures are to be adopted to ensure Stn-based Sqns maintain essential output:

a. Advise all AC on frequency that non-cooperative RADAR is unserviceable and:

i. Provide all AC with a reduced service iaw CAP 413 and CAP 774, by informing ‘C/S…service type…reduced traffic information, traffic information provided on transponding Aircraft only’.

ii. Effect immediate handover of all Lower Airspace Radar Service (LARS) traffic to other LARS or adjacent RADAR units, subject to overlapping RADAR coverage.

b. ATC are to promulgate STAR-NG unserviceability via ATIS and NOTAM. Inform alternate airfields.

c. Cancel all PDs.

d. Cascade to D&D, Swanwick Mil and adjacent ATS units that Marham are unable to offer ATS to all AC other than Stn Based F-35B due to equipment failure.

e. Standard separation of 5nm/3000ft is to be applied between all AC not flying in close formation.

f. Liaise with Norwich/Lakenheath to request traffic information on any non-transponding AC observed in the departure lane, prior to releasing any AC (e.g. PDs in the visual circuit before departure to radar).

g. Request RAF Lakenheath apply SSR Mode 3A to all AC, particularly those operating in extended trails ivo RAF Marham.

h. Radar Training Circuit (RTC) to be closed, minimising the period of ATS provision to Stn-based AC'. Departures and recoveries should only take place when deemed operationally essential.

i. **AC diverting to Marham in emergency are authorised to operate WAM-Alone iaw RA 3241.**

2. **Planned Outages**. Planned outages should be deconflicted from Stn flying where possible. All planned outages must be approved by TATCC Cdr or their nominated deputy. In addition to the procedures laid out above for un-planned outages, the following procedures are also to be undertaken:

a. Ensure TATCC Cdr has enough detail on the outage prior to the SDEB.
b. Stn Ops raise NOTAM identifying the period of planned outage iaw RA 3241.
c. ATC Supervisor is to remind the DCF prior to releasing the Star-NG for planned outage.
d. **AC diverting to Marham in emergency are authorised to operate WAM-Alone iaw RA 3241.**

3. **Total RADAR failure.** Should all systems fail, Marham ATC can only provide a Basic Service and crews are to adopt the following procedures:

a. **Departures**. Depart initially via a MID. Marham ATC will make best effort to pass information on factor traffic. Should a Traffic/Deconfliction Service be required then climb to a minimum of 1700ft QNH for provision from Lakenheath or 3300ft QNH for Swanwick.

b. **Recoveries**.

(1) **METAR conditions Blue/White**. Conduct a Visual Recovery.

(2) **METAR conditions Green or worse**. Request a handover to Lakenheath and initially route to the TACAN hold. Fly a TAC, TAC-ILS or IAA unmonitored approach with a Traffic/Deconfliction service from Lakenheath. At the Intermediate Fix contact Marham Tower and request a straight in approach and they will give final landing clearance. Fly the instrument procedure. Marham ATC cannot clear any other procedure.

O.3.13 TALKDOWN PROCEDURES

Thales, on behalf of Aquila, flight check the PAR annually which provides guidance on the maximum usable range of the PAR. ATCOs are not to use the equipment for the control of Aircraft outside of the following ranges:

a. 16.5 miles – Clear Mode

b. 15 miles – Rain mode

General procedures for the control of all instrument approaches are contained within RA3291-94. Specific procedures for RAF Marham are as follows:

a. **8 Mile Call**. Call made to the ADC utilising the Radar Clearance Line stating range, callsign, intentions, further intentions and any other relevant information i.e., VHF or trails. In the event of simultaneous talkdowns, the 4nm liaison call takes priority.

b. **If Visual**. When Stn-based AC cannot be given a clearance, during daylight hours ADC may use the phrase: "(C/S, if visual, continue with Tower, reason, circuit state"). The Talkdown Controller is to transmit the instruction verbatim on both the frequency and Radar Clearance line. If the pilot is not visual, the Missed Approach Procedure is to be executed.

c. **Not Below 300ft**. The ADC has the authority to adjust a clearance to "(C/S, not below 300ft, reason, clear low approach" where the situation warrants. Flapless and SASSY AC are not to be given this clearance if vehicles are on the Runway threshold.

Monitoring of Approaches:

a. **ILS**. ILS approaches are to be monitored to Decision Altitude. ATCOs must obtain a QNH readback on check-in and confirmation that the gear is down when the AC reports 'glidepath descending'. The pilot is to be advised if the AC is well left/right of the centreline or well below the glidepath. When monitoring an ILS approach on SRE the ATCO is not to make any reference to Decision Altitude. There is no requirement to transmit the range to the AC when contacting ADC for the clearance.

O.3.14 TRAIL GCAs

Under certain circumstances two or more AC may recover using the trail GCA procedure. USAF F15, Typhoon and F-35B AS carry out this procedure on a regular basis. The lead AC receives a PAR talkdown whilst the trail AC is to follow the same flight path using an internal system. A PAR is provided to the trail AC once the lead AC is visual.

Radar Director. Recovering AC are to establish their own separation between 2 and 5 nm in trail before turning onto final approach; once established the normal separation is 2 nm. The Director is to ascertain the DA of the lead AC and the MDA and DA of the trail AC. The Director should provide a wider pattern to enable the trail AC to remain locked onto the leader. Once in trail, instructions should be passed to the lead AC only; the trail AS will 'follow the leader' and not make any radio calls after calling 'tied on'.

Precision Approach Controller. To commence a Trail GCA, only the lead AC need be "hooked" with the data block displayed on screen. The ID of the trail AC should be confirmed to the Talkdown controller on the PAR console by either the Radar Director or the Supervisor as soon as practicable. A standard talkdown is to be given to the lead AC whilst monitoring the progress of the trail AC. ATCOs must obtain a correct readback of the QNH from the lead AC and should be prepared to advise trail AC of any significant deviation from the centreline or glidepath, giving corrections when necessary. Additionally, Talkdown Controllers are to warn trail AC if the

separation between the leader and other trail AC reduces below 1.5 nm. The 8-mile call should be given in the following format:

"8 miles, C/S Flt, intentions, further intentions, trails**"**

Talkdown on the lead AC will cease once the pilot of the AC calls 'visual' or reaches their DA. The data block for the trail AC must be displayed by this point, in order for control to be transferred.

For visiting AC, ATCOs must receive confirmation that the gear is down from all formation elements before requesting a clearance at 4nm. For station based F35 formations ATCOs can accept a "C/S flight, gear down" confirmation from the formation lead.[1] This clearance is for all AC and need only be acknowledged by the formation lead. When the lead AC reaches DA or calls visual, the talkdown is to be transferred to the next AC. On initial RT contact with trail AC, the ATCO should identify and request the heading, then proceed to provide a standard GCA; the pilot will now descend to their DA. If the pilot in trail reaches MDA before control is transferred, the pilot, if not visual, is to level off. They should only descend below MDA when under the direct control of the Talkdown Controller. Pilots who fail to be picked up by the Missed Approach Point are to initiate the Missed Approach Procedure.

Aerodrome Controller. The ADC is to acknowledge the 8 nm call as usual. "Trails" should be highlighted on the broadcast on #2 for the SA of the TRC controller. At the 4nm call the clearance should be issued for all AC. For example:

NITRO 31 Flt cleared low approach, (circuit state)

Clearances should be given to Trails GCA AC a single formation even when intentions differ. However, when an element within the formation requests to land, all subsequent AC requesting to low approach or touch and go behind the landing AC are to be given a 'not below 300ft clear low approach'. The ADC should be prepared to delay trail AC, if necessary, especially when the AC intentions within the formation include a land.

[1] Approved local procedure in accordance with Lightning DHAN serial 50 dated 25 Aug 23.

O.3.15 REDUCED LATERAL SEPARATION

Marham ATCOs are authorised to apply 3 nm reduced lateral radar separation between AC under the control of the same controller or subject to coordination, iaw RA 3228, noting that standard separation applied to formation AC.

O.3.16 TACTICAL COORDINATION AND HANDOVERS BY PROXY

In accordance with RA 3230 only the Supervisor or RA holding all SRE endorsements is authorised to carry out Tactical Coordination by Proxy. In extremis, the Supervisor or RA can delegate handovers by proxy to SQEP individuals.

O.3.17 LOCAL SENSITIVE AREAS

ATCOs are not to routinely vector AC below 2000ft AGL over the following noise sensitive areas marked on the radar map:

a. Downham Market.

b. Fakenham.

c. Kings Lynn.

O.3.18 SSR CONSPICUITY CODES

RA 3228 stipulates the vertical separation to be applied between AC using SSR; there is a distinction between using verified Mode C data and unverified Mode C data. The UK SSR Code Allocation Plan is specified in the UK AIP and lists all promulgated SSR Codes, detailing those designated as conspicuity.

ATCOs must be familiar with adjoining units' conspicuity codes to avoid confusing AC data as verified. The local unit conspicuity squawks affecting RAF Marham are:

a. 7350 – Norwich.

b. 6176 – Cambridge VFR.

c. 6177 – Cambridge IFR.

d. 4501 – Wattisham.

e. 3750 – Wittering.

f. 1777 – Coningsby.

g. 2645 – Cranwell.

h. 1177 – London Information.

The Mode C of 2640-2642 codes denoting AC operating within the Lincolnshire AIAA have been verified; however, they are not under an ATC service so ATCOs will not be able to achieve coordination.

O.3.19 ALTITUDE RESTRICTIONS

Altitude restrictions are a way of ensuring adequate separation exists between departing traffic (including AC conducting MA or CF procedures) and other traffic ivo RAF Marham. These can be applied at any time at the discretion of RA including but not limited to:

a. AC conducting a TACAN approach.

b. Conflicting traffic transiting through the expected departure profile (any met conditions).

c. MATZ crossers.

Any radar controller can request an altitude restriction, but they should be initiated through RA/Supervisor. Responsibility for cancelling an altitude restriction rests solely with RA/Supervisor. This restriction does not remove the requirement for coordination.

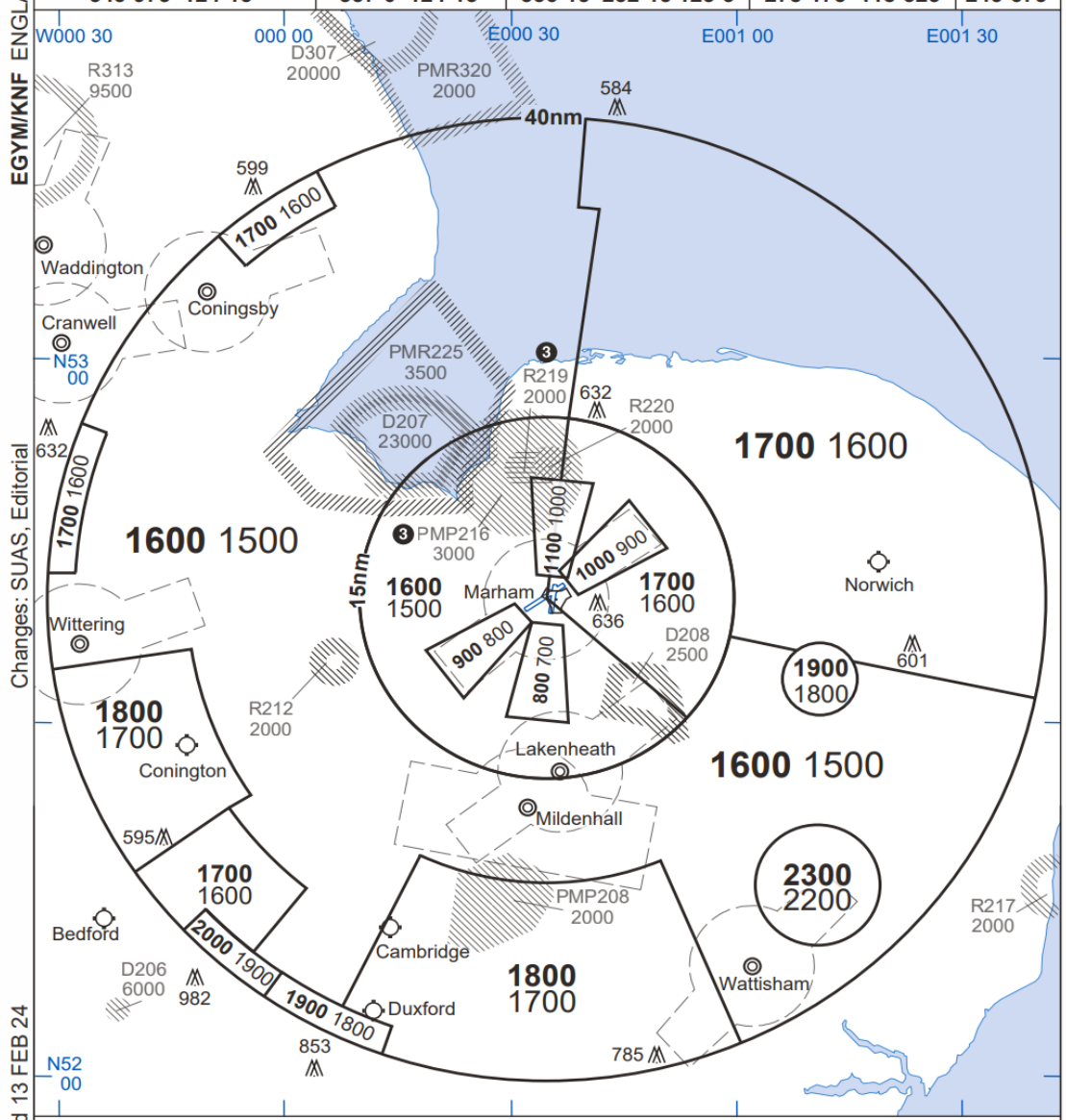
Altitude restrictions should be passed to all AC on instrument recoveries if the MA or CF procedure would break the restriction or if the pilot intends to depart after the approach.

O.3.20 RAF MARHAM ATC SURVEILLANCE MNM ALTITUDE CHART (SMAC)

ATC SURVEILLANCE MNM ALTITUDE MARHAM

Elev 76	Var 1°E	TA 3000	TRL ATC	ARP N53 09·97 W000 31·43 (WGS 84)	21 MAR 24	K13

MARHAM APPROACH	DIRECTOR	TALKDOWN	TOWER	ATIS
343·975 124·15	357·0 124·15	356·15 232·15 123·3	278·175 118·325	245·675



1. **CAUTION**. Chart should only be used for cross check of alts whilst in receipt of an ATC surveillance service.
2. **Comms Failure**. In the event of complete radio comms failure in an aircraft, the pilot is to adopt the appropriate procedures described in RADAR PROCEDURES K1.

❸ Effective times 01 DEC - 01 MAR.

MARHAM **ATC SURVEILLANCE MNM ALTITUDE**
PAN-OPS(ICAO)

O.3.21 SCULTHORPE

Activity at Sculthorpe currently falls into 3 different categories, Low Level Para Activity, High Level Para Activity and JFAC (CAS) Operations. Activity at Sculthorpe is NOTAM'd and RAF Marham ATC should abide by the relevant NOTAM and the rules/guidelines laid down in the references. All AC using Sculthorpe are to check in with RAF Marham on 282.25 MHz or 124.150MHz (VHF) and request a relevant service iaw CAP 774. Non-participating Mil AC are not to be vectored within 2nm or 3100ft QNH of Sculthorpe AD during notified hours of mil ex (promulgated by NOTAM). Civilian AC are to be warned of Sculthorpe activity when operating in the vicinity.

Low Level Para Activity, below 2000ft amsl. AC para dropping at Sculthorpe, whether persons or cargo, are to squawk 0033. Radar circuits for Runway 23 should be conducted at 3100ft QNH, descending once clear of the Sculthorpe area and inbound for RAF Marham. ATCOs should select the relevant dynamic map in order to increase awareness.

Higher Level Para Activity. All AC intending to undertake para dropping activity above 2000ft amsl should contact RAF Marham ATC. AC are to squawk 0033 and obtain a service from ATC. ATC will provide relevant traffic information to the paradropping AC iaw CAP 774.

All paradropping AC should be requested to report before dropping (e.g., 30 seconds or 10 nm). This will provide ATC adequate time to provide traffic information on any conflicting traffic within the drop zone.

O.3.22 FLARM

FLARM Derived Data can now be used to supplement traffic information passed on non-transponder equipped AC. The indicated altitude of the conflicting traffic on FLARM would be given to an AC providing:

a. The ATCO is operating traffic close to non-squawking traffic and requests the Supervisor/ATCO I/C to interrogate FLARM.

b. The Supervisor/ATCO I/C correlates the radar contact to a contact on FLARM, opens the data block and ensures that the last update time is within 1 minute. The vertical position information can then be passed to the ATCO.

c. At this point the ATCO can decide whether this information is relevant. If deemed relevant, traffic information will be passed and with height information stated.

'FLARM indicates height/above/below'.

d. It is crucial that the term 'FLARM indicates' is included as this indicates to the pilot that the information is not assured, and therefore could be inaccurate.

Implementation. ATC Supervisors/ATCO I/C are to have glidernet.org displayed on their PC Screen and are to interrogate FLARM data before passing information to the Radar controller. If sufficient time/SQEP personnel are unavailable, TI is to be passed utilising 'no height information'.

Contingency. http://live.glidernet.org/ can also be loaded onto the Mil-EAMS system on the ASOS console. This contingency can be used in place of a MODNet computer if MODNet is U/S.

Information Owner: TATCC Cdr Extra Input From: Nil

ANNEX P: AERODROME DATA REPORTING PROCEDURES

P.1 Legislation, Standards and Technical References

Information relating to the aerodrome serviceability or hazards to air navigation is to be routinely updated through the AIP and NOTAM. (At larger establishments this can be managed by specified Ops or ATC staffs).

P.2 Reporting Procedures

Any situation that may have an immediate effect on the safety of Aircraft operations is be reported as soon as possible, in the first instance to ATC / Ops (if present) by radio or telephone, or if no present ATC / Ops then direct to the AO or their deputy.

P.3 NOTAM[1]

The AO is to ensure that all NOTAM action is recorded for possible 1st / 2nd and 3rd line audit. NOTAMs will be originated in the standard NOTAM format for any of the following circumstances:

a. A change in the serviceability of approach aids and radios.

b. A change in the operational information contained in the DAM and published in the Mil AIP.

c. Aerodrome works effecting the manoeuvring area or penetrating the OLS.

d. New obstacles which affect the safety of Aircraft operations.

e. Bird or animal hazards on or in the vicinity of the aerodrome.

f. A change in the availability of aerodrome visual aids, i.e., markers and markings, runway lighting, etc.

g. Any change in aerodrome facilities published in AIP.

h. Unusual air activities at the aerodrome.

[1] NOTAM information must be provided by fax or email. Where urgent advice can be given by telephone, it must be confirmed by fax or email as soon as possible. Reporting Officers raising a NOTAM must subsequently check the issued NOTAM for accuracy.

ANNEX Q: AERODROME SERVICEABILITY INSPECTIONS

Q.1 Aerodrome Serviceability Inspections

Aerodrome inspections are to be carried out by the Aerodrome Controller (ADC) iaw RA 3264. The ADC is to carry out a comprehensive inspection of the movement area including but not limited to:

a. Daily, before the aerodrome is opened for flying on each occasion.

b. If night flying is to be conducted a further inspection is conducted prior to last light.

c. Prior to sunset, before any planned night movements.

d. Check the serviceability of all aerodrome traffic lights.

e. Controllers are to vacate the vehicle at random intervals and conduct a close-up visual inspection of an area of the runway.

Before commencing the Aerodrome inspection, the ADC is to ensure that all frequencies are selected on loudspeaker in the VCR and that the local assistant is present before entering the airfield. The controller is to broadcast all movements on MRE as per CAP 413.
It is at the controller's discretion which route they take, as long as all surfaces are inspected, and relevant time is spent conducting the checks.
Where ATC is not present the AO can delegate management of inspection to other individuals but not the responsibility.

Q.2 Inspection/Works Logging

All inspections are to be logged in the ATC logbook, including any issues raised. Any issues are to be reported to the relevant section subject matter expert (SME).
Any sweeping requests after an inspection are to be logged. Any work requests are to be put through the correct channels and a record of the request and subsequent action maintained.

Q.3 Arresting System Inspections

The arrestor systems are inspected daily by GEF. The aerodrome controller is to perform a confidence check to ensure that they are configured for the correct runway in use.

ANNEX R: AERODROME TECHNICAL INSPECTIONS

R.1 Aerodrome Technical Inspections

The following inspections are to be carried out as a minimum:

a. Aquilla ATM are responsible for the routine inspections of the technical equipment (transmitters, receivers, ILS etc) with precision navigation aids being calibrated by a flight check Aircraft accordance with AP 600-Royal Air Force Information CIS policy and relevant SPS.

b. Runway, taxiway and obstruction lights, along with PAPIs and aerodrome traffic lights are inspected daily by the RAF Marham Airfield Electrician.

c. All earthing points are checked annually by the RAF Marham Airfield Electrician.

d. Manoeuvring Areas and drainage are inspected, maintained and repaired in accordance with DIO guidance.

e. All aerodrome signs are inspected weekly by TATCC Cdr and monthly by STRE SME.

f. Aerodrome lighting, along with other essential equipment is backed up by the Stn stand-by power system. The system is inspected by Vivo once every 2 weeks, with a switchover test being carried out once every 6 months.

g. The Airfield Medical Response Vehicle (AMRV) is inspected daily by ASMT in accordance with the AESP. All AMRV equipment is inspected daily by the Regional Health Centre.

h. Traffic lights, CCTV and road barriers for the control of airside vehicle control measures are inspected daily by ATC.

i. Bird Control Unit equipment and vehicles are inspected in accordance with BCU policy.

j. ATC is responsible for annually reviewing Aerodrome Driving orders.

ANNEX S: RADAR, RADIO AND NAVIGATION AID MAINTENANCE, MONITORING AND PROTECTION

S.1 Surveillance Equipment Maintenance and Monitoring

Procedures and definitions for Technical Surveillance Countermeasures Assessments are contained within AP600 Order 2.3.3 Defensive Monitoring (DM) is to permit the detection of COMSEC breaches, which, in operational situations, can allow mitigating action to be taken so as not to prejudice the outcome of a mission. It also provides a direct and factual input to assessments of the vulnerability of HMG and other official communications to the threat of exploitation by a foreign intelligence service, terrorist organisation or criminal. In so doing, it provides practical demonstrations of the vulnerability of given communications, thus contributing directly to the education of communicators and communications users. Details of DM can be found within AP600 Order 2.3.4 and JSP 440, Part 2.
The details and links provided are for information purposes only, all matters concerning DM should be brought to the attention of the Air Cyber Service Centre (SySC) Airfield Support Team (AST).

S.2 Navigation Aid Maintenance and Monitoring

The maintenance of ground radio airfield landing and navigation aids in the RAF is published iaw maintenance or support policy statements and other schedules authorised in advance of the publication of the relevant maintenance topic/ category and defined iaw AP600, Order 2.1.2. The Battlespace Management (BM) Eng Role Office has a requirement to monitor the operational status, performance and availability of airfield radar or navigational equipment. This information is collated to provide trend analysis to BM Force, ADEWS and Aquila iaw AP600, Order 2.1.4.
The details and links provided are for information purposes only, all matters concerning navigation equipment maintenance and monitoring should be brought to the attention of AST.

S.3 Radar, Radio and Navigation Aid Protection

Radio Site Clearance (RSC) is the process by which all Radio Frequency (RF) emitters, which are to be installed or used at RAF Marham, are authorized for transmission. RF emitters include radars, beacons, satellite communications systems, radio navigational aids and radios (fixed or mobile). This includes locally procured radios and equipment, examples of which are AIRWAVE, COTS short range radios and management type radios. RSC is a mandatory process within the MoD; and governed by AP 600, Order 2.1.35.

Integrity of Ground Radio Installations is the responsibility of AST and includes site security, safety, service safeguarding and infrastructure of Ground Radio Installations (GRIs). Further information is contained within AP600, Order 2.1.2.

Defence Radio Site Protection is concerned with ensuring that the operational effectiveness of fixed and transportable radio systems (and the safety of the people and materiel that depend upon them) is not undermined by the damaging effects of Radio Frequency (RF) emissions or poorly sited structures. Additionally, the accuracy and availability of information transmitted and received by a Ground Radio Installation (GRI) may be adversely affected if a man made or natural object intrudes into a critical area around the GRI antenna system. JSP 604 provides details for site restrictions, which must be applied to safeguard against such eventualities. A register of known infringements is available to view here.

The details and links provided are for information purposes only, all matters concerning protection of radar and navigational aids should be brought to the attention of the AST.

ANNEX T: AERODROME WORKS SAFETY

T.1 Work in Progress (WIP)

A plan of the aerodrome is fully maintained and prominently displayed in ATC for the purpose of identifying all obstacles, nature of obstruction, markings and work in progress. It is the responsibility of the ATC Supervisor/ATCO IC to ensure that the information provided on the plan is always accurately displayed.

T.2 WIP Log

A WIP Logbook is maintained in the VCR, in which the Aerodrome Controller (ADC) enters details of all work in progress. In order to certify that the extent of the work area and ATC briefing has been fully understood, each entry is signed by both the ADC and supervisor of the working party. This is completed before any work commences.

T.3 WIP Briefings

Supervisors of any working parties are to be fully briefed on their responsibilities. The ADC is responsible for ensuring that the supervisor of the working party receives a comprehensive brief in accordance with RA 3266. This task can be delegated to the Ground Controller (GC). Any working party or external contractor should provide proof of completion of the requisite Management of External Contractors (MEC, formerly 4 C's)/ Risk Assessment-Method Statement (RAMS)/ Safe System of Work (SSOW) process if required.

T.4 Control Measures

When work is to be carried out on the airfield and it is not possible to stop flying, special control rules are enforced to safeguard the working party. The works supervisor is to be issued with an MRE radio or the ATC duty driver is to be tasked to accompany the working party. The works supervisor or ATC driver is to maintain radio contact with ATC and ensure the work party moves clear of the manoeuvring area prior to any Aircraft movement in their vicinity. The ATC supervisor/ATCO IC is responsible for issuing orders and instructions to the work party. Aircrafts are to be informed of any work in progress that may affect Aircraft operations including any unique taxi instructions or procedures. All airfield work is to be clearly marked using approved high visibility markers and lit during hours of darkness.

T.5 Grass Cutting

A grass cutting plan is established and is maintained in accordance with the aerodrome policy.

T.6 Crane Operations

The purpose of this process is to approve crane ops at RAF Marham. The completion of this will ensure orders and regulations are adhered to, appropriate sections are informed, and safety is maintained for flying operations.

The originating Basing Team (BT) is responsible for Crane Ops.

Applications for crane operations at RAF Marham, regardless of originating contractor will complete the Stn Health and Safety Advisor (SHSA) 4Cs process, using the 'Authorisation for Cranes in the vicinity of RAF Marham' form.

Upon completion and approval of the 4Cs process, the SHSA will send this information onto the Basing Team and the ATC FOM/JNCO IC Shift for processing.
The following actions will then be completed by the crane operator and ATC, in order to grant approval for crane operations and ensure all appropriate details are logged, maintained and monitored.

a. **Crane operator**. The crane operator will contact the ATC ASOM in order to provide the following information.

i. Crane identification.

ii. Crane hire company (as liveried).

iii. Proposed working height (Ft AGL).

iv. Location (GPS coordinates).

v. Mean Sea Level (MSL) of site.

vi. Dates of operation.

vii. Times of operation.

viii. POC, including crane operator contact details.

b. **ATC**. The ATC ASOM will specify any additional requirements to the operator, such as:

i. 200 candela steady red light attached to top of jib.

ii. Notify ATC start and finish of operation.

iii. Whether the works are only subject to a certain runway being in use.

c. ATC are responsible for safeguarding of crane operations. If a crane is greater than 10m above mean sea level (AMSL), it will need to be safeguarded by HQ Air Cmd and AIDU. The ATC FOM is to contact the AIDU Safeguarding Section at the following address: JFIGFndn-AIDUSafeguarding@mod.uk. This will ensure that all cranes conform to RAF Marham's Obstacle Limitation Surface (OLS). If the crane does not breach the OLS, it will be appraised by Eng and ATC will authorise its operation. If the OLS is breached, actions are covered at part T.7 below.

d. TATCC Cdr has responsibility for final approval of all crane ops.

e. Upon completion of all parts stated above, the ATC ASOM will issue a crane permit to the crane operator for the proposed works. Copies of this permit will be sent to the SHSA, crane operator and the relevant BT.

The following actions should be completed by ATC, or as delegated by the TATCC Cdr.

a. The SWB operator will process the approved crane request through Mil-EAMS and a NOTAM will be created.

b. The on shift ASOS will plot the crane operation onto the Work In Progress (WIP) board in the VCR and number it. They will also update the Airfield WIP slide held on SharePoint for all airfield users to utilise.

c. The NOTAM and original request (operators contact details) will be stored in the 'Crane Notifications' folder under the corresponding crane number.

The ATC ASOM will be responsible for timely and consistent monitoring of crane operations, ensuring that changing information is recorded and if appropriate, NOTAM's and permits amended. A robust monitoring process will also identify operations that are due to finish, ensuring the removal of expired NOTAMs.

T.7 Breach of Obstacle Limiting Service

If the OLS is breached by a temporary obstruction the following actions must be completed.

a. The TATCC Cdr or his nominated deputy must be informed and will attempt to negotiate with the crane operator to see if the crane can operate at lower heights. If this is not achievable, it can be tactically managed by the ATC Sup for crane operations to be permitted during periods of non-flying.

b. If part a above cannot be achieved, the TATCC Cdr will request NATS, via AIDU, to re-model airfield procedures in order to facilitate the proposed crane operation. This will come at cost, which the relevant PT are to cover.

ANNEX U: AERODROME USERS – VEHICLE AND PEDESTRIAN CONTROL

U.1 Vehicle and Pedestrian Control

The aim of this order is to ensure that all drivers and pedestrians are aware of the correct procedures for driving on or near the airfield iaw with the regulations for Aerodrome Access at RA 3262 and Road Transport Regulations at JSP 800 Vol 5.

RAF Marham is home to F-35B and supports various visiting Aircraft during the course of the day; it is not unusual to witness multiple Aircraft taxiing or making various approaches to one or more of the runways at the same time. Driving on the airfield requires a high degree of vigilance, especially at night or in low visibility conditions. Vehicles are not permitted on the manoeuvring area unless the driver is in possession of a valid RAF Marham Airfield Access Pass (FMT 600A) as authorised by the Senior Air Traffic Control Officer (TATCC Cdr).

U.2 Airfield Access Permit (AAP)

All personnel required to drive on the airfield are to pre-book an Airfield Access Pass brief with Air Traffic Control (ATC) via the booking page available on SharePoint. The FMT 600A is valid for 12 months and it is the responsibility of the individual to return to ATC annually to re-read and sign for orders. When arriving for the brief, all personnel are to self-certify their colour perception by ticking the certification of CP2/CP3(defective-safe) box. The ATC Airfield Driving Training Team will deliver the brief, test and complete an airfield familiarization iaw RA 3262. The Brief refers to RAF Marham's Airfield Driving Regulations as laid down in SSOs Ch4 Annex B.

U.3 Colour Perception

Due to the airfield lighting and the lamp signals used by both ATC and the Runway Controller, it is important that personnel are able to distinguish between different colours. Before arriving at ATC for the brief, all personnel and contractors are to book a Colour Perception (CP) test at the Stn Medical Centre and retain their CP competency.

a. Permits will only be issued to personnel with a CP of 2 (Normal) or CP 3 (Defective-Safe).

b. Permits will NOT be issued to personnel with CP 4 (Unsafe).

U.4 Airfield Driving in Poor Visibility

During poor visibility, the risk of a runway incursion or collision with Aircraft and other vehicles is greatly increased. Vehicle access to the airfield will be restricted as weather deteriorates. Non-essential work will be suspended. Low Visibility procedures will be conducted in accordance with DAM Annex X, with the main points highlighted below:

a. During poor visibility the airfield is out of bounds to all personnel until permission has been given to enter the airfield by the Aerodrome Controller.

b. Personnel requiring access to the airfield are to report to ATC before proceeding.

c. Vehicles permitted to enter the airfield are to ensure vehicle lighting is on and headlights are dipped. Vehicles with occulting amber lights are to have them switched on.

d. The maximum speed limit is 20mph or as advised by ATC.

U. 5 Airfield Closure

On declaring the airfield closed, ATC will broadcast on MRE and turn all threshold traffic lights to green to allow unrestricted movement of vehicles and pedestrians around the Stn. MRE calls should still be made by vehicles operating on the airfield for the SA of other vehicles.

U.6 Out of Hours (OOH) and Weekend use of the Airfield

Outside published hours, particularly at weekends and evenings, Aircraft from the RAF Marham Aero Club, Paramotoring Club and Model Flying Club operate from Marham airfield. Personnel seeking access to the airfield outside of aerodrome operating hours are therefore to contact Stn Ops.

Stn Ops will disseminate any weekend airfield activity through STARS and E-tannoy.

Personnel requesting prior permission to access to the airfield at weekends or outside of normal flying hours must do so through the ATC during normal working hours.

Outside of airfield opening hours, all vehicles capable of monitoring MRE, particularly ARFF and ASMT crews are to monitor MRE Channel 2 when driving on the airfield in addition to keeping a good lookout.

Outside of Airfield opening hours and when recreational flying activity is published as taking place, ASMT are to establish contact **prior** to activity commencing to deconflict. MRE channel 2 should be monitored and used as per para 10. The duty mobile numbers for ASMT are obtainable from the Wkpr.

ANNEX V: FOD PREVENTION – TRAINING AND AWARENESS

V.1 FOD Prevention Officer

The RAF Marham FOD Prevention Officer is based in the Rolls Royce Service Delivery Centre (RR SDC), is contactable as follows:

Mil: 95951 6660

Tel: 01760 337261 x6660

V.2 FOD Prevention Officer TOR

The FOD Prevention Officer's TOR, published within the FOD Management Plan, include a requirement to log all reported FOD incidents at RAF Marham. Incidents are investigated in accordance with RA 1400 and AP8000 Lflt 8301 in collaboration with the RAF Marham SFSO or SEMSCo as required. The FOD Prevention Officer produces a monthly report to the Stn FOD Prevention Community, in addition to contributing to the series of RAF Marham Total Safety meetings.

V.3 FOD Awareness

All permanently employed contractors, MOD Civil Servants, Service Personnel and contractors permanently workling at assigned to RAF Marham are given a FOD Awareness Briefing as part of the mandatory Fire / FOD / Security Brief package, including details of how to report FOD incidents. This briefing package, which must be completed as soon as possible on arrival to the Unit, then becomes an annual requirement.

V.4 FOD Check Points

All entrances to RAF Marham Aircraft Operating Areas have painted FOD Check Points on the tarmac. Associated signage instructs drivers to stop their vehicles within the FOD Check Points, and to remove any potential FOD before proceeding onto the Aircraft operating Areas.

V.5 Briefing of Contractors

All contractors working at RAF Marham are to be given an annual 4Cs brief before being allowed to commence work. The 4Cs brief includes working on the airfield and the importance of FOD Prevention and methods of reporting any incidents. In addition tool box talks will be held throughout the year in order to retain the focus on FOD prevention.

Contractors working at RAF Marham on an adhoc basis will receive the 4Cs brief ahead of works being authorised to proceed.

ANNEX W: AERODROME WILDLIFE MANAGEMENT

W.1 Introduction

1. The Airfield Wildlife Control Unit's (AWCU) primary aim is to reduce the risk of collision between birds & Aircraft. This is achieved by maintaining, as far as reasonably practicable, a bird-free environment on and around the airfield at RAF Marham. To achieve this, AWCU and relevant Stn personnel need to work closely together to promote a holistic approach to environmental, habitat and wildlife management.

W.2 Background

2. RAF Marham is situated in a highly diverse, high bird activity area. Set in a predominantly arable environment, in close coastal proximity and interspersed with occasional pockets of dense woodland. Also, there are game-rearing areas near both approaches. Farming activity has a direct influence on the numbers of hazardous species that gather in local fields. All of these can have a negative impact on the bird protection afforded by the RAF long grass policy.

3. This Annex is created iaw MAA RA 3270 to give clear direction & understanding of AWCU responsibilities & actions. It outlines those tasks stated & provides guidance for off-Stn bird control & bird scaring & the AWCU monitoring of the airfield habitat & environment.

W.3 Airfield Bird Control & Bird Scaring

4. The AWCU should be actively patrolling two hours before any inbound & one hour before any outbound Aircraft movement, or as directed by ATC, however this may be reduced to a stand-by commitment by the ATC Supervisor. When stood down, there may be a requirement to conduct regular patrols of the airfield to prevent birds becoming habituated or breeding etc. The AWCU will, by any legally approved means available, work to disperse birds away from the immediate active surfaces & will also attempt to disperse birds away from the domestic areas of the Stn, subject to flying programme, to create a bird sterile buffer zone.

5. The AWCU operator should report the bird state level to ATC, prior to the commencement of Stn flying, at the start of each shift & whenever the bird state changes. Different bird states may be in place simultaneously for different parts of the Airfield.

6. The AWCU operator should inform ATC of any changes in risk to Aircraft caused by any increase or reduction in bird activity, or changes in their behaviour which may result in increased likelihood of conflict with Aircraft.

7. The Bird state definitions are as follows:

   a. **LOW**. Usual number of birds on the airfield, in the approaches & passing through & our normal procedures are moving them out of the danger areas.

   b. **MEDIUM**. There is an increased number of birds either on the airfield, in the approach/climb out lane &/or passing through that slightly increases the threat to flying activity.

c. **HIGH.** There is a significant increase in numbers of birds either on the airfield, in the approach/climb out lane &/or passing through causing a significant threat to flying activity.

d. **VERY HIGH.** Large numbers of birds on the airfield, in the approaches & passing through. Our usual practices are unable to ensure a safe operating environment for airfield users.

8. Controllers should avoid issuing instructions to AWCU operators (regarding where/how to control bird activity), unless not to do so would impact on flight safety. Sweeps of the main area have limited use in controlling birds. “AWCU operators would be better employed pushing birds away from the airfield & creating a more hostile environment” (in the opinion of the CSL bird strike avoidance team). AWCU operators will request the flying programme in the morning & at shift changeover, however they are to be aware that the movements schedule changes constantly. Controllers should inform the AWCU when there are gaps in the programme to enable the AWCU to effectively utilise their time. This may include tasks such as removal of nests or birds from hangars, habitat management (e.g., visiting the messes to check on bird attractants such as food waste disposal) & monitoring the landscaping of the domestic site & hedgerows for bird attracting species of trees & shrubs.

9. Controllers should be aware of the visual limitations of the AWCU operator at ground level on the airfield. They should use the extra height of the ATC tower in conjunction with aircrew reports to inform the AWCU operator of problem areas; however, to ensure that the correct course of action is taken, it is essential that ATC personnel allow the AWCU operator to prioritise tasks.

W.4 Off airfield bird control and bird scaring

10. The control of birds on the active surfaces remains the priority of the AWCU; however, birds use the human environment to suit their needs-building nests & roosting in & around buildings (particularly the hangars).

11. The AWCU will, by any legally approved means available to it & so far as is reasonably practicable, work to disperse birds away from the hanger areas & to discourage their return by making the area as inhospitable as possible either by direct action or by advising the Stn on suitable courses of action.

12. The AWCU will carry out pest control programmes as deemed necessary by consultation with building custodians, providing that the pest in question has a direct relationship to bird activity on the Stn & in doing so, does not interfere with the primary role of the AWCU.

13. The AWCU will visit all Stn messes on a weekly basis, checking that the disposal of food waste is carried out in such a way that it does not become an attractant to scavenging birds & vertebrates. The findings of these checks will be reported to the TATCC Cdr for any action deemed necessary & will be included in the flight safety brief.

14. On a seasonal basis the AWCU will check the landscaping of the Stn for any fruit or berry producing shrubs & trees. The findings of these checks will be reported to the TATCC Cdr & SEPO/DIO/Vivo for any actions deemed necessary.

15. The AWCU manager will carry out regular “off airfield” visits to local farmers & bird attracting sites within the safeguarding zone to carry out bird counts & PR meetings. The outcome of which will be reported to the TATCC Cdr through the monthly report.

W.5 Animal Management

16. Animal Management on the aerodrome is conducted by a contracted AWCU provided by Phoenix Bird Control Services Ltd. They are responsible for bird control and wildlife management. During flying hours, the AWCU team maintain a continuous presence on the airfield to deter & manage any animal activity in accordance with MAA RA3270. The AWCU team can be contacted, through ATC on 95951 4949 during aerodrome opening hours or via SMRE channel 2 for authorised users.

17. Deer management is controlled through the Principal Deer Management Officer, Major Rohan Bate, contactable on 020 7414 2468 or rohan.bate256@mod.gov.uk.

18. Tivoli, the sub-contracted company employed by VIVO, are responsible for the management of rabbits and moles on the Aerodrome. Kevin Peacock, the Building Estates Manager (VIVO) is the point of contact for these matters. 95951 7250, kevin.peacock@vivodefence.com .

W.6 Monitoring of habitat & environment

19. The AWCU will carry out monitoring activities on the airfield, including checks on Long Grass Policy, Broad Leaf Vegetation of the Grass & Tree Habitats on & around the Stn. The results of which will be recorded & reported to the TATCC Cdr, SEPO/DIO/Vivo & Flt Safety Cttee for any action deemed necessary. The grassed area will be checked regularly & will be reported through the monthly report.

20. The AWCU will assist the Stn with environmental & habitat monitoring as necessary, providing this does not interfere with the primary role of the AWCU.

21. The AWCU will assist the Stn in the culling of vertebrates at the request of RAF Marham; however, this is only possible if the AWCU operator on duty is qualified to do so & has the correct equipment available.

22. A hard copy of this order can be made available on request to RAF Marham Airfield Manager.

23. The Stn AWCU operates iaw CAP 772, MMATM & Phoenix Bird Control Services Operational Procedures.

ANNEX X: LOW VISIBILITY OPERATIONS

X.1 Restrictions

1. In addition to the instructions at RA 3274, when the aerodrome visibility drops below 1000m or the ATC Aerodrome Controller (ADC) cannot see the whole length of the Runway, Low Visibility Procedures (LVP) are to be implemented by the ATC Supervisor or ATCO I/C on duty.

2. Once the aerodrome visibility is above 1000m and the ADC can see the full length of the Runway, LVP may be cancelled at the Supervisor's discretion. The VCR ASOS should make an MRE broadcast and contact Stn Ops to announce the cancellation of LVP.

X.2 Responsibilities

3. The Supervisor should advise the DCF to check pilot ratings and ensure that the following actions are carried out when Aircraft call for start or at least 30 minutes prior to any ETA.

a. The ADC should set **all** Runway threshold lights and Northern Taxiway lights to RED (Alpha lights are either covered by 19 THold or N Taxi) and instruct all vehicles to use the airfield ring road wherever possible. Any AC or vehicle wishing to cross any Runway must receive a positive clearance (as standard?). Runway/Taxiway lights are to be switched on as appropriate to aid movement around the airfield (If required, Runway 01/19 Runway lights will need to be manually switched on by Gadfly if Runway 05/23 is in use and vice versa).

b. The VCR ASOS should tannoy (via Stn Ops if required) the scripted low visibility warning. The message should be repeated on MRE and also passed to the airfield contractors' offices (ext 7255 and 7690).

c. The ADC should utilise the ATC Rover and AWCU to conduct regular sweeps of the Runway prior to its use.

X.3 Procedures

4. Whilst LVP are in force the following procedures are to be followed:

a. Single Runway occupancy rules are to be applied. In addition, a landing clearance may only be given once the ADC has either visual or verbal confirmation that any AC landing ahead has vacated the Runway.

b. After all normal safety checks have been completed, if the ADC is still unable to see the entire length of the Runway, all clearances are to be issued at pilots' discretion. 'Land at your discretion'. Operators are not to use the phraseology 'clear/cleared' for a discretionary clearance.

c. AC unfamiliar with Marham should not be allowed to taxi unless guided by a follow-me vehicle.

ANNEX Y: SNOW AND ICE OPERATIONS

RAF Marham Snow and Ice operations are held within 20241014-MRM OP BLACKTOP Order V24.0.pdf

ANNEX Z: THUNDERSTORM AND STRONG WIND PROCEDURES

Z.1 Thunderstorm Warnings

1. Work on certain hazardous tasks at RAF Marham is prohibited when thunderstorms occur over or in the immediate vicinity. In order to minimise the down-time for any task, an assessment of the probability of a thunderstorm affecting RAF Marham in the short term is provided by the issue of a statement of 'Thunderstorm Level' (TL) ; or out of hours a 'Thunderstorm Risk' (TR) in accordance with Met Office Standing Orders, Annex 6O, Warnings Standard Operating Procedures. The difference between a TL and a TR is that when a TL is issued there is a Forecaster on duty at RAF Marham whereas a TR is issued by a remote Forecaster when the RAF Marham Met Office is closed.

2. Warnings are broadcast by tannoy from ATC and an E-tannoy from Ops with back-up telephone calls to certain sections from Line Controllers. At RAF Marham there is a Forecaster on duty from 2000 hrs LOCAL Sunday until 1700 hrs LOCAL on Friday with a Duty Forecaster on call over weekends. If Thunderstorm Level High or Moderate is in force when the airfield closes and intended work will be affected by lightning, the Duty Forecaster can be contacted on Ext 4933 during the hours stipulated above. The Duty Forecaster will advise on the latest thunderstorm position. When RAF Marham Met Office closes, advice can be obtained by contacting the Defence Met Guidance Unit (DMGU(S)) on 03067 701332 or 96770 1332.

3. This order is applicable to all personnel whose work can become hazardous due to the effects of lightning. Additionally, this instruction is also of interest to personnel who operate computer systems.

4. When a "Thunderstorm Level High" warning is in force, all RAF Marham personnel and civilian staff are to take the necessary precautions relevant to the task in hand; this includes the cessation of the following:

a. Refuelling of Aircraft and Ground Support Equipment.

b. Handling of Explosives.

c. Certain Ground Radio Servicing Flight tasks e.g.: climbing masts and towers.

d. Barrier operation and maintenance.

e. RHAG maintenance.

f. Aircraft towing.

g. Aircraft washing on the designated wash pan.

h. Flight Line activities including see-ins and starts; all personnel are to seek shelter immediately.

i. RAF Marham personnel and civilian staff operating computer systems are recommended to shut down whenever TL/TR High is issued. If TL/TR Moderate is issued work should, where possible, be saved or backed-up regularly to prevent loss due to power surges.

Z.2 Thunderstorm Warning Definitions – Defence

5. The term 'Thunderstorm Level' is only to be used in relation to locations at which there is a forecaster on duty. The issue of a TL includes the element of precise local observation which is only possible when a forecaster can monitor developments in the immediate vicinity. The period of validity should be kept to a safe minimum in order not to hamper military operations unnecessarily.

Thunderstorm Level Category	Thunderstorm Level Definition
High	Thunderstorms are forecasted or observed within 10NM of the site.
Moderate	Thunderstorms are forecasted or observed within 25NM of the site.
Thunderstorm Advisory	There is potential for Thunderstorms to develop but are not expected to affect the site in the immediate future.

Figure 1

6. The term 'Thunderstorm Risk' (TR) is to be used only in relation to areas and remote sites. A remote site is defined as a site without a forecaster on duty, the TR being for the areas in which the site is located. The word 'risk' is intended to convey to customers that the assessment has been originated by an off-site forecaster and is thus less precise than might otherwise be expected. This is because forecasters with responsibilities for areas and remote sites do not have facilities to monitor developments as closely as is possible at their own locations.

7. The area to be covered by the Thunderstorm Risk must be discussed and agreed with the user, considering customer needs as well as forecasting and monitoring capabilities.

Thunderstorm Risk Category	Thunderstorm Risk Definition
High	A thunderstorm is occurring or is expected to occur over the area in the near future (about 30 minutes).
Moderate	Thunderstorms may develop in the area. The 'may' indicates a degree of uncertainty but nonetheless implies that thunderstorm activity cannot be discounted entirely.
Low	Thunderstorms are expected to develop or have developed within 10 KM or 5 NM of the area or aerodrome. The 'will' indicates a very high degree of confidence.

Figure 2

Z.3 Strong Wind Warnings

8. The following wind warnings will be issued:

a. **STRONG WINDS 25 KT**. Issued when the surface winds or gusts are expected to exceed 25 Kts or more, but less than 34 Kts. This warning is only issued when the aerodrome is open within the period of the warning.

b. **STRONG WINDS 35 KT**. This warning is issued if surface gusts greater than or equal to 34KT but less than 43KT are expected. This warning is issued even if the aerodrome is closed.

c. **GALES**. Issued when the mean wind is expected to be 34 Kts or more. Or when gusts are expected of equal to or greater than 43 Kts, even if the mean wind speed is less than 34 Kts. Gale warnings are issued even if the aerodrome is closed.

d. **GROUP STRONG WINDS**. The issuing criteria differ for daytime or post-ECT flying. GROUP STRONG WINDS Warnings are issued during the day, when the mean wind is expected to be 36 Kts or more. Or when gusts are expected of equal to or greater than 41 Kts, even if the mean wind speed is less than 36 Kts. At night, when the mean wind is

expected to be 31 Kts or more. Or when gusts are expected of equal to or greater than 36 Kts, even if the mean wind speed is less than 31 Kts.

Notes: If a gale warning is issued, the 25KT/35KT strong wind warnings will not be issued. A strong wind warning for gusts in thunderstorms is not required if the gusts are only associated with the thunderstorms. The gusts may be covered in the text of the thunderstorm warning.

9. Warnings are automatically emailed to the required departments. The Duty Observer will then ring around those departments to confirm receipt and will sign the bottom of the document. Direct contact with the Met Office can facilitate additional recipients for these warnings, should they be required. OP BEAUFORT is RAF Marham's response when Gale Force winds or Strong Winds greater than 35 KT are forecast.

ANNEX AA: CIVIL AIRCRAFT AERODROME USAGE – TERMS AND CONDITIONS

AA.1 Civil Aircraft Usage

1. Orders for the civil use of MOD aerodromes is available within the JSP 360 Use of Military Aerodromes by Civil Aircraft document. All Civilian Users are to operate iaw extant Department for Transport National Aviation Security Programme and wider Air Transport Security protocols. The attention of civil pilots is also drawn to the CAA Safety Sense Leaflet 26 – 'Visiting Military Aerodromes' accessible on the CAA web site.

2. Civil Aircraft operators should note the strict requirement for a minimum of 24 Prior Permission Required (PPR) to use RAF Marham. Visiting Aircraft booked through RAF Marham Stn Operations on 01760 446240 from civilian telephone networks or 95951 6240 from military networks or by email via MRM-OpsDOOGroup@mod.gov.uk.

3. Civil Aircraft that land on RAF Marham airfield without an approved PPR number will be treated as a security risk. On notification of such arrival, the WKPR will contact the main guardroom on ext 7620 and request MPGS assistance, who will carry out security procedures in compliance with AP1990 Chapter 2.

AA.2 Opening Hours for Civilians

4. Airfield operating hours for civilian users are predominantly 0830-1730 Mon-Fri, generally no acceptance on weekends and public holidays. However, the operating hours may vary in line with the Stn flying window and will be published via NOTAM. More information can be found by contacting Stn Operations.

AA.3 Terms and Conditions

5. The Terms and Conditions may be varied at any time by the Aerodrome Operator (AO) to reflect any changes, amendments or additions to working practices at the specific aerodrome. Factors may include some, or all of the following:

a. Winter operations

b. Operational support

c. Passenger handling

d. Animal handling

e. Refueling services

f. Catering

g. Aircraft maintenance

h. Security

i. Flight safety

j. Aircraft handling

k. Airworthiness

5. Whilst the AO will use all reasonable endeavors to advise Civilian Users of any changes to the Terms and Conditions, it will be for the Civilian Users to ensure that they are aware of extant Terms and Conditions. The AO will not be liable for any loss or damage (whether direct or indirect) arising out of any change in the Terms and Conditions.

AA.4 Charter Airlines

6. Charter airline operations and scheduled Aircraft operations are not permitted to operate from RAF Marham.

AA.5 Port of Entry

7. RAF Marham is not a designated Port of Entry and has no permanent HMRC/UKBF presence. Any flight arriving/departing from overseas must be with prior approval from HMRC/UKBF as agreed with RAFP, and a General Aviation Report must be submitted by the Aircraft captain.

AA.6 Local or National Emergency

8. In a Local or National Emergency, whether declared or not, the aerodrome may be closed to civilian operators. A non-exhaustive list of potential circumstances includes:

a. Loss of appropriate Fire of Crash cover.

b. Repatriation of troops.

c. Loss of power to all, or parts, of the aerodrome.

d. Interruptions in communications both within the aerodrome and with external agencies.

e. Unforeseen natural disaster (e.g., flooding).

f. Unforeseen national epidemics (e.g., Swine Flu / Covid-19).

Note: In the event of such closure all access to the aerodrome for any reason whatsoever may be restricted and no liability is accepted for any loss or damage (whether direct or indirect) arising.

ANNEX BB: ELECTRICAL GROUND POWER PROCEDURES

BB.1 Electrical Ground Power Procedures

1. This order is applicable to all military and civilian personnel involved with Aircraft maintenance at RAF Marham.

2. Application of electrical ground power carries the risk of electrical shock to personnel and damage to Aircraft.

BB.2 Application of power to the Lightning Fleet

3. Power only to be applied by personnel holding the correct auth. The correct ground power unit as appropriate for starting or ground servicing is to be used.

BB.3 Visiting Aircraft

4. Captain of an incoming/outgoing visiting Aircraft is to request the appropriate power set to be deployed by the visiting Aircraft handling team. Connection of the power set and application of power to the Aircraft is to be carried out under the supervision of the Aircraft Captain.

5. Any requests for further information on this subject should be made, in the first instance, to RAF Lightning A4 DEOC Tel 01760 446247/8 from civilian telephone networks or 95951 6247/8 from military networks Air-1Gp-UOCA4DEOC@mod.gov.uk

ANNEX CC: AVIATION FUEL MANAGEMENT PROCEDURES

CC.1 Management of Bulk Fuel Installations

1. The safe and proper operation of all fuel installations rests with the HoE and is sub delegated to suitably qualified nominated individuals as the Operating Authority and Deputy Operating Authority for the Stn. The OA are responsible for the management of the following:

a. Ensure that all personnel employed on the unit fuels installations hold the correct formal training competencies, are correctly trained on all installations they are expected to operate and hold a valid Certificate of Competence.

b. Ensure that all accounting procedures for Fuel and Lubricant products are fully implemented. This includes mandated physical dips and end of month stock accounting and adjustment action.

c. Ensure that all fuel infrastructure has an in-date Professional Inspection Report, containing a valid Certificate of Continued Use, which is produced annually by a DIO appointed Inspector along with an in-date electrical test certificate graded ‘satisfactory’. Any lapse in this documentation should render the Installation not safe for use until resolution.

d. Ensure the coordination of FGSR activity at the unit, including the progression of non-compliances and act as the liaison with A4 Fuels and FGSR.

e. Ensure there is a robust Quality Assurance and husbandry regime to ensure that fuel contained with Installations is fully fit for intended use.

f. Ensure OA requested works are submitted on identification of infrastructure/equipment failure.

g. Ensure no work covered by a Safety Programme can commence until a Permit To Work has been issued and signed by AP Pet and the OA. The restrictions may render areas of installations OOB to Fuel Operators. This is to be made clear on Fuels State Boards, restriction signage and access to keys being controlled.

CC.2 Fuel storage, quality and delivery

2. RAF Marham has three operational BFIs that store AVTUR F-34 FSII, these are supplied via the Pipeline Receipt Enclosure from Exolum UK Pipeline.

3. To ensure quality assurance of AVTUR/FSII F-34, a composite sample is to be taken using the following method with an Any Level Bottom Sampler (6695-99-255-0244) in the following order:

a. Upper sample to be taken at one sixth depth of the fuel in the tank.

b. Middle sample is to be taken at approximately half of the depth of fuel in the tank.

c. Lower sample is taken at five sixths depth of the fuel in the tank.

Fuel held in bulk storage is tested before issue, receipt or if stock has become dormant. The following checks are carried out by an F&L Operator in each instance:

a. Visual assessment for of free water, suspended water, slime, solid or intergrade/cross contamination of fuel. This is carried out be decanting the composite sample in a clean, dry sample jar with sufficient light to identify any of the listed contaminants.

b. Water detection tests are to be carried out to test for undissolved suspended water. This is carried out using a water detection capsule and syringe. The F&L Operator is to ensure the equipment is clean, dry and detection capsules are in life. The Operator is to Immerse the capsule and syringe to approximately half the syringe length into the fuel sample and draw 5 ml of the fuel sample into the syringe through the capsule. The Operator is to observe for colour change if there is no colour change the fuel is fit for usage, if the colour changes to blue a second retest is to be conducted. If there is a second colour change to blue the fuel is not to be issued and quarantined.

c. Determination of density requires an aviation fuel hydrometer (6630-99-436-0895), hydrometer jar (6640-99-452-6724) and thermometer (6685-99-620-0081). The hydrometer is to be lowered into the fuel spinning the hydrometer. A reading is to be taken at eye level when stationary. The reading is to be corrected to 15°C, using JSP 317 Table 2.3.1.G.1 i,the figure is to be compared to the acceptable parameters for AVTUR.

d. Determination of Fuels System Icing Inhibitor (FSII) is to be carried out using a complete FSII B/2 Kit (6630-01-1657133). 500ml of fuel sample should be decanted and mixed with 2ml of distilled water in separating funnel. This is to be vigorously shaken for 5 minutes and left to settle for a further 5 minutes. The refractometer is to be calibrated and a few drops from the funnel are to be collected into the refractometer. FSII content is to be in the parameters of 0.10%-0.15%.

e. Determination of conductivity of aviation fuel is be taken using an EMCEE conductivity meter (6630-01-1152398). The meter is to have the probe affixed and calibrated before measuring the sample. Conductivity is to be in the parameters of 100-600 pS/M.

Fuel is to be delivered to Marham via the Exolum UK Pipeline. Before any pipeline receipt can commence the OA is to ensure the following:

a. The designated OA has Q-SUP-F Manager and a valid CoC for operating the PRE.

b. Type, grade and quantity of fuel to be transferred are to be confirmed.

c. There is sufficient ullage available in the receiving tank.

d. The Readiness to Receive Plan has been issued to the Exolum PSD and Aldermaston HQ and confirmed verbally prior to commencing a receipt.

e. Pumping rate to be agreed between PSD and OA, flow rate is not to exceed more than 1m/s.

f. All Fuel Operators involved in the receipt operation receive a brief for individual duties.

g. Line is to be walked prior to commencing the receipt, checking all valves for correct position. The final valves are to be opened on the command of the OA.

h. Duty Log is to be opened and all readings and measurements are to be recorded and log all official occurrences during the receipt.

During a receipt the OA is to ensure the following:

a. Tank reconciliation is to take place at half hour intervals using ATGs on BFIs and the flowrate meter in the PRE.

b. Take a receipt sample at 30 minutes before and end of the parcel, specifically for FSII content. If the fuel is out of spec A4 Fuels and DFTA are to be notified at the earliest opportunity.

c. Take a receipt sample each hour during the receipt. If the fuel is out of spec A4 Fuels and DFTA are to be notified at the earliest opportunity.

Post receipt when fuel has ceased flowing the following actions are to be taken by the OA:

a. All valves are to be closed.

b. ATGs are to be checked and compared to figures from the PSD.

c. Settling time of 24 hours (2 Hours operational) should be allowed before wet dipping and full sampling and acceptance tests are to be carried out.

Bulk fuel stocks are checked for water in storage tanks; this is carried out weekly.
Dispensing of AVTUR F-34 FSII from all three BFIs to BFCVs.
Defueling of AVTUR F-34 FSII from BFCVs into all three BFIs.

CC.3 Fuelling Operations for Aircraft on the Ground

When conducting Aircraft fuelling operations, the following precautions apply:

a. Before fuelling operations commence, appropriately authorised personnel are to ensure the fuelling equipment is Serviceable.

b. Before fuelling operations commence, appropriately authorised personnel are to ensure a Contamination Check (CC) has been carried out IAW the specified timelines within the JSP 317.

c. Before fuelling operations commence, appropriately authorised personnel are to ensure the Aircraft is prepared to receive fuel in accordance with the Technical Instruction (TI).

d. Aircraft and fuelling equipment are to be chocked and electrically bonded.

e. The fuelling point and fuelling equipment is to be manned by Competent personnel at all times during the fuelling operation.

f. Before fuelling operations commence, appropriately authorised personnel are to ensure the fuel dispenser contains the correct fuel, iaw JSP 317 and TI.

g. Fuelling equipment is to be sited outside the Aircraft's fire hazard areas.

h. Appropriate first aid fire-fighting equipment is to be suitably located to enable immediate use.

i. Personnel in the immediate vicinity of the Aircraft are to be advised that fuelling is taking place.

j. Fuelling operations are to cease in the event of a spillage and are not to recommence until the spillage has been cleaned up.

k. Liquid oxygen (LOX) systems are not to be replenished during fuelling operations but, when necessary, LOX packs may be changed during operational re-arm servicing iaw the appropriate TI.

l. Before fuelling operations commence, supervisors are to ensure that Personal Protective Equipment (PPE) is provided and worn by all personnel involved in Aircraft fuelling. As a minimum iaw JSP 317, the following PPE appropriate for fuelling operations is to be worn:

i. Safety Boots.

ii. Coveralls.

iii. Gloves.

iv. Goggles or Visor.

v. Ear Defence (engines running).

m. Locally produced Risk Assessments for Aircraft refuelling are to include any additional PPE in accordance with JSP 317 to suit the task/conditions/environment.

n. Personnel are not to wear studded, or metal tipped footwear.

o. Radiation Hazard (RADHAZ) precautions are be followed iaw the TI.

p. When a thunderstorm Risk/level high warning has been issued, or thunderstorm activity is apparent in the vicinity of an Aircraft, fuelling operations are to cease.

CC.4 Bonding Procedures

The following procedures are to be adhered to during fuelling operations on land:

a. Ensure that the fuel bowser earth mechanism is touching the ground.

b. Connect the bowser bonding lead to an appropriate earth point on the Aircraft.

c. Connect the hose bonding mechanism to a conducting part of the Aircraft or specific bonding point, if available.

d. Connect the fuelling hose and commence fuelling.

e. When fuelling is complete, firstly disconnect the fuelling hose, then the bowser bonding lead and the hose bonding mechanism.

CC.5 Fuelling Procedures in Specific Environments

A fuelling operation is only to take place in a hangar when:

a. It has been authorised.

b. There is adequate ventilation and egress capability.

c. There is a high-volume fire-fighting vehicle in attendance ashore or high-volume fire-fighting equipment immediately accessible at all times during fuelling operations afloat.

d. There are suitable towing vehicles / equipment and trained personnel immediately available to remove any/all Aircraft in the event of an incident.

e. When ashore the fuel bowser is to be located outside the hangar. Where entry of the bowser into the hangar is unavoidable, there is to be a clearly defined obstruction-free escape route.

CC.6 Hot Pit Refuelling Process

Hot Pit refuelling is to be carried out iaw MRM Aircraft Refuelling Plan.

CC.7 Fuelling Operations with Passengers On-board

Fuelling operations with Passengers on-board are to be authorised by the appropriate Aircraft Commander, Local Operational Commander or Delivery Duty Holder (DDH).

Procedures to be followed:

a. Passengers are to be advised that fuelling is taking place and that smoking and the use of portable electrical equipment, including mobile phones, is prohibited.

b. NO SMOKING and EXIT signs, where fitted, are to be illuminated throughout the fuelling operation and are not to be switched off until fuelling has been completed.

c. The minimum of internal lighting is to be switched on before fuelling commences and is not to be switched off until fuelling has been completed.

d. The Aircraft main exit doors adjacent to a refuelling point are to be closed. All other main exit doors are to be open, unobstructed, and steps in place where required.

e. Standard precautions for emplaning/deplaning are to be enforced.

f. If carrying casualties, the following extra precautions are to be adhered to:

i. The Aircraft is to be parked on a heading where fuel fumes are carried away from the main Aircraft door.

ii. Extra staff/specialist equipment is to be positioned to ensure rapid evacuation of casualties.

iii. Where possible, a high-volume fire-fighting vehicle is to be positioned by the Aircraft.

iv. Electrical equipment required for medical purposes may remain switched on.

v. Where possible, the aero-medical team leader is to ensure that stretchers are unlocked and that medical staffs are ready to remove patients.

CC.8 Fuelling Zone Procedures

Fuelling operations are only permitted when undertaken by authorised personnel. All personnel involved or responsible are to be fully conversant before commencing any fuelling operations. Particular attention is to be paid to the details at paras 4-6 of this AESO. Aircraft fuelling activities may only take place at the following locations:

a. Alpha and Bravo dispersals.

b. Sqn HAS / Line sites.

c. The Visiting Aircraft Pan.

d. Other sites that have been specifically authorised and meet earthing and drainage regulations.

CC.9 Fuel spillage procedures

Where there is a risk that ground or water course contamination is likely to occur as a result of a spillage, it is the responsibility of all who take part in the transfer of fuel, or the operation of equipment related to oil-based products to reduce that risk and deal with spillages. The most probable cause of a spillage is as a direct result of an accident, the malfunction of equipment or procedural malpractice associated with the operation of installations, Aircraft, equipment or vehicles.

For the Unit Spill Response Plan, see the Major Accident Plan Pt 2.

UNCONTROLLED COPY WHEN PRINTED

All requests for further information are to be directed, in the first instance, to RAF Marham Duty Ops Control Tel 07813 448770 from civilian telephone networks or 95951 6240 from military networks MRM-OpsDOOGroup@mod.gov.uk.

ANNEX DD: HAZARDOUS MATERIALS – SPILLAGE PLAN

DD.1 Initial Actions

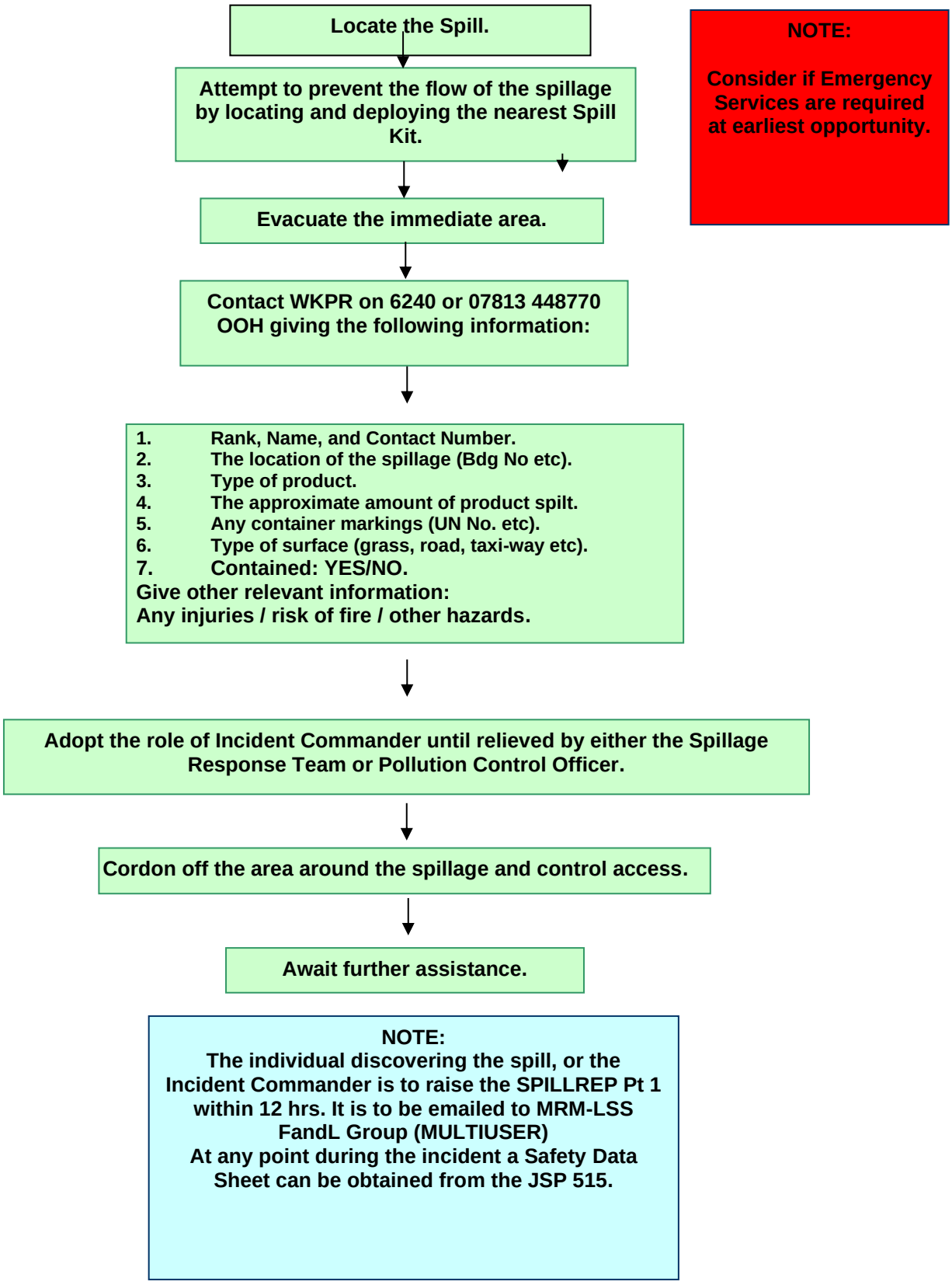
Initial actions for any personnel discovering a spillage are detailed in the flow diagram below.

DD.2 Response

This Unit Spillage Response Plan (USRP) serves two purposes. In the majority of cases, it is the guidance for RAF Marham personnel on what to do in the event of a fuel spill as a discrete incident. However, in some cases, the spill will either be part of a larger incident or, in extremis, will constitute a Major Accident in its own right.

In the case of a Major Accident involving a fuel spill, the regulations and guidance found within DSA 03.OME Part 4 MACR is the primary resource. This spill plan is a supporting document to the RAF Marham MAP Part 2, and should be read in conjunction with the guidance found there.

Anyone who requires access but is unable to view this link should contact RAF Marham Duty Ops Control on 01760 44 6240 from civilian telephone networks or 95951 6240 from military networks.


Locate the Spill.
Attempt to prevent the flow of the spillage by locating and deploying the nearest Spill Kit.
Evacuate the immediate area.
Contact WKPR on 6240 or 07813 448770 OOH giving the following information:
1. Rank, Name, and Contact Number.
2. The location of the spillage (Bdg No etc).
3. Type of product.
4. The approximate amount of product spilt.
5. Any container markings (UN No. etc).
6. Type of surface (grass, road, taxi-way etc).
7. Contained: YES/NO.
Give other relevant information:
Any injuries / risk of fire / other hazards.
Adopt the role of Incident Commander until relieved by either the Spillage Response Team or Pollution Control Officer.
Cordon off the area around the spillage and control access.
Await further assistance.
NOTE:
Consider if Emergency Services are required at earliest opportunity.
NOTE:
The individual discovering the spill, or the Incident Commander is to raise the SPILLREP Pt 1 within 12 hrs. It is to be emailed to MRM-LSS FandL Group (MULTIUSER)
At any point during the incident a Safety Data Sheet can be obtained from the JSP 515.

ANNEX EE: JETTISON AND FUEL DUMPING AREA

EE.1 Jettison and Fuel Dumping

While RAF Marham has no dedicated Jettison Area, due to the close proximity of both the coastline and RAF Holbeach Air Weapons Range, jettison procedures are included as additional information.

EE.2 Emergency Jettison

Following an airborne emergency, there may be a requirement to jettison stores. In extreme circumstances, as a result of a major emergency, the Selective or Emergency Jettison of stores may be actioned at any time.

EE.3 Use of an Active AWR for Stores Jettison

When time and circumstances permit, it is preferable that stores are jettisoned on an active AWR that is open with an RSO present. Release of stores should, where possible, follow the instructions of the RSO and stores should not be dropped without clearance. Ultimately, aircraft captains are responsible for ensuring the impact areas are clear either visually or by use of the GMR to ensure any stores will fall away from any surface shipping or fixed structures. Ideally stores should be released on a published LOA, close to, but not on, a published target and on a LOA that would limit any collateral damage in event of a weapon or store skipping upon impact. These actions will aid EOD team recovery of equipment that is jettisoned and minimize damage to the AWR targets.

EE.4 Use of Clear Range Procedures or Inactive AWR

Since closed/inactive AWRs are regularly visited by civilians, it is preferable to jettison stores over the sea using visual clear range procedures to ensure no damage to any vessel or structure. If time permits, crews should attempt to jettison more than 10NM off the coast pointing out to sea and clear of any vessels or structures. If crews have to revert to using an inactive (closed) AWR, then crews are to treat it in exactly the same way as clear range procedures noting there is an increased risk that civilians may be on the range.

EE.5 ATC Procedure Following Jettison of Stores

If practicable, upon jettison of stores, crews are to advise ATC the time, position and type of stores jettisoned. When crews divert to another airfield, they are to ensure the parent unit DCF is informed at the earliest opportunity of any stores jettison.

EE.6 Live Stores

When live stores are jettisoned this must be done with the Late Arm set to ‘Safe’.
All requests for further information are to be directed, in the first instance, to RAF Marham ATC Tel 01760 this 337261 Ext 3559 Email MRM-ATCSUP@mod.gov.uk

ANNEX FF: COMPASS SWING AREA

The Compass Swing Area at RAF Marham is no longer fit for operations, with no plan to reintroduce it in the future. This section has therefore been retired.

ANNEX GG: EXPLOSIVE ORDNANCE DISPOSAL AREA

Not applicable to RAF Marham.

ANNEX HH: DANGEROUS GOODS (DG) PROCEDURES

Placeholder only: This annex has been removed as there is currently no Dangerous Goods parking capability at RAF Marham. Contact WO SA&ES for further information.

ANNEX II: HYDRAZINE (H70) LEAK

II.1 Hydrazine Leak response has been removed from the Major Accident plan as of Jan 24, as it is no longer relevant to RAF Marham. Any visiting nations wishing to bring H70 equipped aircraft will have to provide their own H70 spill response team, equipment and plan for implementation as a condition of use for RAF Marham.

In extremis, an F-16 diverting to Marham with a suspected fuel leak can be made safe by the Fire Section, but aid from civil authorities will be sought to provide a chemical response kit and team. Aid may also be sought from an external H70 response team to be brought to site to manage any spill.

ANNEX JJ: REMOTELY PILOTED AIRCRAFT (RPA) ORDERS

JJ.1 References

RPA flying will take place at RAF Marham iaw RA 1600 and RA 1603.

JJ.2 Notification of Drone Operations

RPA operators (RPAOs) are to liaise directly with ATC to deconflict daily flying at least 30 minutes prior to airfield opening. The duty 'drone phone' number is (01760) 337261 x4949. Short notice movements will be considered based on current operational commitments. All RPA operations during the published flying window must be approved by the ATC supervisor/ATCO I/C. Autonomous RPA operations are approved outside of published hours. RPAOs must be contactable in case of movements outside of the published flying window.

JJ.3 RPA Operating Limits

RPA flying may take place not above 200ft AGL with Stn-based F-35s departing, in the visual circuit or on recovery within 20nm iaw Figures 1-3. When de-conflicted from AC movements or outside of the published flying window, RPA flying may take place not above 400ft AGL iaw Figure 4. Sorties will last up to 30 minutes and will launch from pre-defined launch sites (LS) iaw Figures 1-4. Sensitive areas such as runways, ESAs and BFIs will be geofenced to assure no overflight. The RPA will remain within the area of operation (AO) depicted in Figures 1-4.

JJ.4 ATC Actions

Post RPAO/ATC liaison, the following actions must be taken:

a. RPA movements added to ET by VCR assistant.

b. ET weather page, ATIS and MilEAMS updated with 'Drone State'.

When updating ET/ATIS and MilEAMS, the words 'drone state' and a corresponding colour to the activity level should be typed/spoken. Stn-based crews have been briefed accordingly. The following colours are to be used:

a. Green - RPA can operate on the airfield, within the Landing Sites (LS) and Operating Areas (AO) when no manned AC are flying ivo of Marham. RPA will operate not above 400ft AGL.

b. Amber - RPA will remain below 200ft and clear of the Dead Side of the active runway, under the control of ATC. Manned AC operations are deconflicted from all RPA activity.

c. Red – Emergencies only. In the event of an emergency RPA remain clear of the runway and VL pads not above 400ft. No AC turns/breaks below 1000ft except for finals turn. No dead side available, overshoots straight ahead. If low level circuit is required due to weather, ATC will ensure RPA is lowered not above 200ft.

JJ.5 Communications

After movements have been approved and successful 2-way communication via MRE has been achieved, RPAOs will request a LS to become 'Hot' iaw para KK.7. Prior to launch approval, the following actions must be taken: -

a. The ADC/ASOS is to display the ‘Centurion 1’ marker on the pinboard, annotated with the LS. The runway obstructed plaque must be used for de-conflicted movements.

b. The ADC is required in the VCR with any F-35s airborne.

LS activation and launch approval will only be passed by MRE Ch11 on explicit approval of the ADC, unless delegated to the ASOS. If MRE becomes unserviceable or is unavailable, only recoveries or essential movements will be conducted. Any last-minute changes or rejections are to be recorded by the ATC supervisor/ATCO I/C in the ATC Watch Log.

JJ.6 RPA Actions against Aircraft Emergency

Should an AC emergency or short-notice movement occur, ‘options’ are available and can be relayed via MRE/mobile telephone iaw Figure 3. The ADC should exercise professional judgement when selecting an option. The following options are available: -

a. Home and land. RPA recovered to LS. This can take up to 2 minutes.

b. Land now at current location. The camera is oriented directly below the RPA and landed vertically at a safe location, taking up to 1 minute.

c. Immediate motor shutdown. Will result in RPA destruction and potential for collateral damage/injury. Will take approximately 30 seconds.

Should the RPA need to be lowered to not above 200ft (currently operating unrestricted but from an approved LS), the operator can be asked to lower the system iaw Para KK.7.

Figure 1

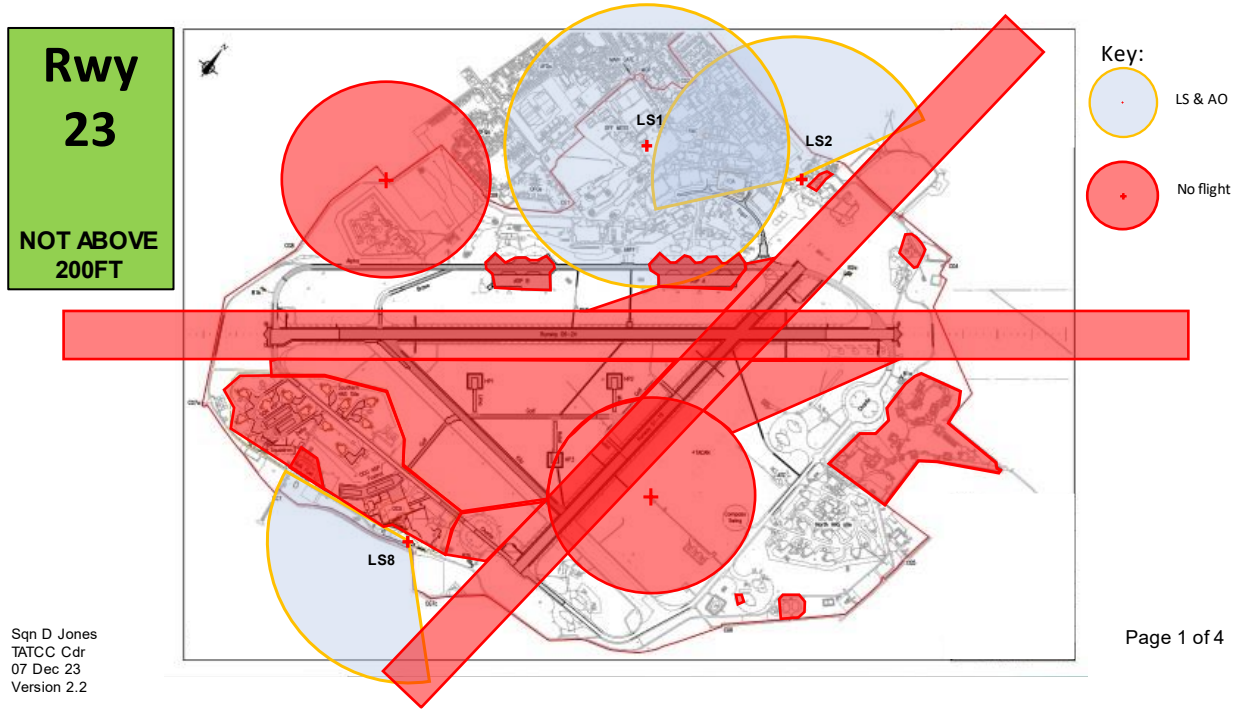
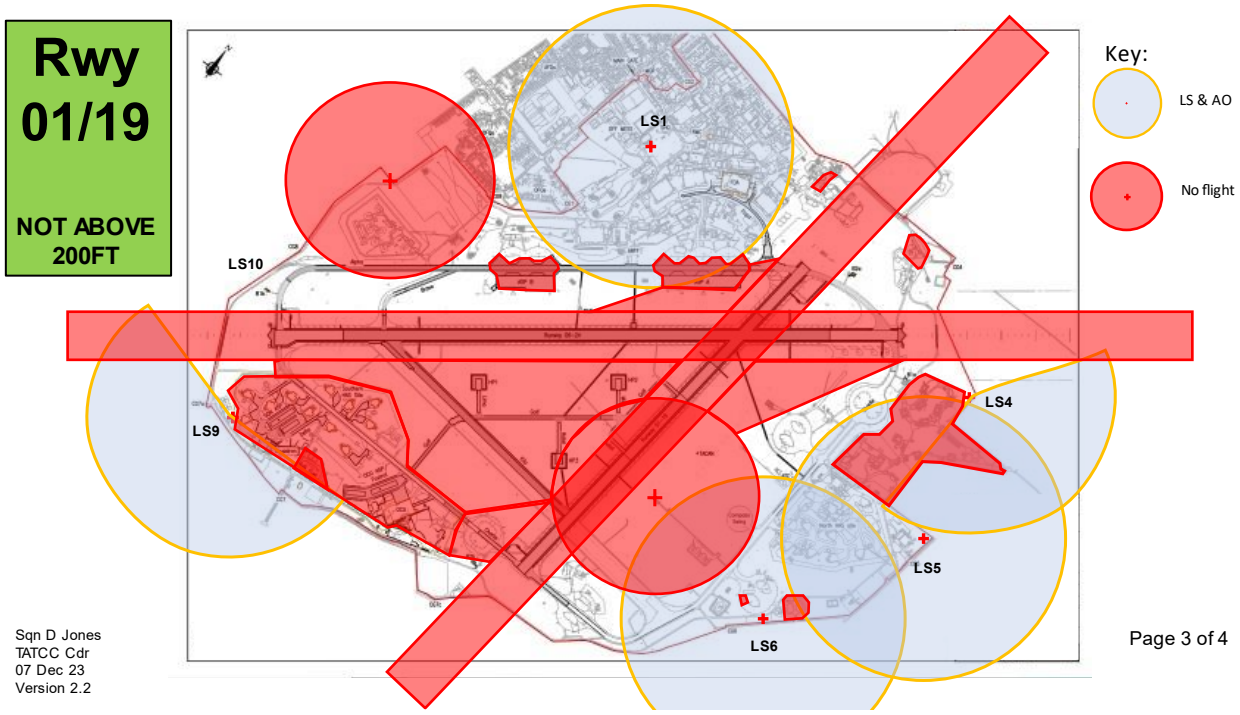


Figure 2

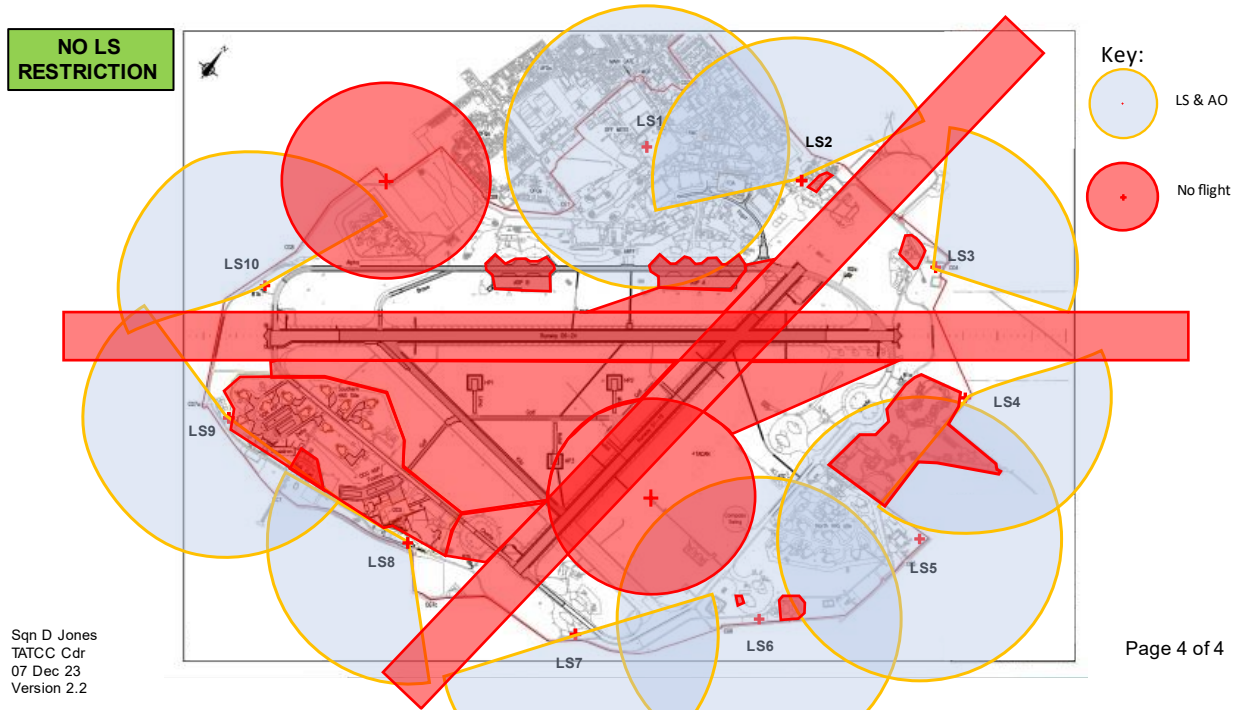
Sqn D Jones
TATCC Cdr
07 Dec 23
Version 2.2

Figure 3



Sqn D Jones
TATCC Cdr
07 Dec 23
Version 2.2

Figure 4



KK.7 ATC and RPAO Communications Plan

Once the RPAO has deployed to a launch location, they will request activation of a LS.

From	To	Message
RPAO	ATC	*'Marham Tower, Centurion 1, request launch site XX hot'.*
ATC	RPAO	*'Centurion 1, Marham Tower, launch site XX approved/negative'.*

Once the RPAO is happy the RPA is operating correctly, they will request launch. Repetition of the launch site is required to deconflict against multiple RPA operations.

From	To	Message
RPAO	ATC	*'Marham Tower, Centurion 1, launch site XX hot, request permission to launch'.*
ATC	RPAO	*'Centurion 1, Marham Tower, launch approved from launch site XX, report on the ground'.*
RPAO	ATC	*'Marham Tower, Centurion 1, roger'.*
The RPAO will confirm when the RPA has landed safely.		
RPAO	ATC	*'Marham Tower, Centurion 1, on the ground'.*
ATC	RPAO	*'Centurion 1, Marham Tower, Roger'.*

Should the RPA still be airborne with Aircraft warned inbound, ATC will inform the RPAO which option to execute.

From	To	Message
Option 1 or 2		
ATC	RPAO	*'Centurion 1, Marham Tower, Aircraft inbound, execute option X, report on the ground'.*
RPAO	ATC	*'Marham Tower, Centurion 1, executing option X, will report'.*
RPAO	ATC	*'Marham Tower, Centurion 1, on the ground'.*
ATC	RPAO	*'Centurion 1, Marham Tower, roger'.*
Option 3		
ATC	RPAO	*'Centurion 1, Marham Tower, execute option 3, Kill, Kill, Kill'.*
RPAO	ATC	*'Marham Tower, Centurion 1, executing option 3, Kill, Kill, Kill'.*
RPAO	ATC	*'Marham Tower, Centurion 1, on the ground'.*
ATC	RPAO	*'Centurion 1, Marham Tower, roger'.*

Lower to not above 200ft		
ATC	RPAO	*'Centurion 1, Marham Tower, Aircraft Movement Imminent, report not above 200 feet'.*
RPAO	ATC	*'Marham Tower, Centurion 1, roger, will report not above 200 feet'.*
RPAO	ATC	*'Marham Tower, Centurion 1, established not above 200 feet'.*
ATC	RPAO	*'Centurion 1, Marham Tower, roger'.*

Annex KK: FLYING ORDER BOOK (FOB)

KK.1 All Marham based aircraft undertake operations in accordance with the Flying Order Book, which is produced and managed by STANF. Visitors will not be able to fly in accordance with the FOB unless they sign to say they have fully understood everything contained within; this is however an unusual scenario and visitors should instead fly in accordance with the guidance given at Annex AA to this DAM.

KK.2 The FOB can be found on the intranet at Annex_KK-Flying_Order_Book-V25

Annex LL: Recreational Flying Order Book (RFOB)

LL.1 RAF Marham is also home to a Recreational Flying Club, that generally use the Aerodrome outside of airfield opening hours. The RFOB can be found at this link.

ANNEX MM: CLOSED FIELD OPERATIONS

Situation

1. Rotary Wing (RW) Closed Field Operations (CFO) may be implemented where standard airfield services are unavailable. All efforts must be made to conduct operations within airfield operating hours. RW CFO will not be routinely approved, unless in support of a high priority operational task, which cannot be achieved within routine airfield opening hours.

Mission

2. To enable RW CFO at RAF Marham to meet specific operational tasks in a timely manner.

Execution

3. **Command and Control (C2).** Authorisation for RW CFO at RAF Marham is required from both the Aerodrome Operator (AO)[1] and Platform DDH[2]. The RAF Marham Operations Watchkeeper (WKPR) and Aircraft Captain are responsible for C2 of the execution. Specific responsibilities are:

a. **Aerodrome Operator.** The RAF Marham AO or nominated deputy is to review any requests for CFO, where there is an over-riding operational imperative for RW tasking outside of routine airfield opening hours. The HoE or nominated deputy[3] is to be informed when RW CFO has been authorised.

b. **Platform DDH.** The Platform DDH or nominated deputy is to approve CFO. Following DDH approval, the RW aircraft tasking authority is to confirm authorisation with MRM WKPR via phone and / or email. The WKPR is to be contacted via the following means:

(1) Phone: 01760 337 261 ext. 6240

(2) Email: MRM-OpsDOOGroup@mod.gov.uk

c. **Aircraft Captain.** The Aircraft Captain is responsible for the executive decision to proceed with the arrival and departure under field conditions.

d. **MRM Watchkeeper.** The WKPR is responsible for the management and co-ordination of this plan through the various phases. They will carry out actions as described at Appendix 1.

4. **Airfield Conditions.** The following minimum airfield conditions must be met at MRM to enable RW CFO:

a. **Crash Category.** Fire cover of ARFF ICAO 3 is routinely maintained outside airfield operating hours. With prior notice, this can be upgraded to ARFF ICAO 5.

(1) The Duty Fire Watch will move to Emergency State 3 (ES3) during RW CFO.

(2) During 'No Fly Days' for off-site live fire training, there is routinely no airfield fire cover. Details of scheduled 'No Fly Days' can be obtained through the WKPR and should be avoided for RW CFO. Where there is an overriding operational imperative and fire cover is not available, then RW CFO may still approved at the AO's discretion.

b. **Weather.** Weather must be Visual Met Conditions (VMC), enabling the Aircraft Captain to operate under Visual Flight Rules (VFR) throughout the period of RW CFO.

5. **Phases.** RW CFO will be executed in four phases, iaw Appendix 1:

a. **Phase 1 – Notification.** Notification of the tasking, immediate actions, and cascade of information to ensure regular airfield users are aware of the activation.

b. **Phase 2 – Preparation.** Production of a robust plan detailing how the operation will be executed.

c. **Phase 3 - Execution.** The aircraft arrival, taxi and departure, with correct safety precautions being followed.

d. **Phase 4 - Termination.** Cessation of the RW CFO and cascade of information.

Communication

6. **WKPR.** The WKPR is the C2 focal point for delivery of RW CFO. They will maintain communication with key enablers through the following means:

a. **Stn Ops.** The WKPR is located in Stn Ops, Ops Wg (Building 257).

(1) GPTN Phone: 95951 6240.

(2) Mobile Phone: 07813 448770.

(3) UHF: 278.175MHz, Callsign *"Marham Ops*".

b. **Recreational Flying Clubs.** Recreational Flying Clubs at Marham are to be made aware of any RW CFO taking place, and informed that all Recreational Flying Club activity is to cease for the duration. If Recreational Flying Club activity is ongoing (eg. due to a short notice RW CFO request), then Recreational Flying Club members should be aware that blind calls will be made on ATC TWR frequency, and they are to monitor the frequency iaw the RFOB to aid with deconfliction. RW CFO will have priority over all Recreational Flying Club activity.

c. **Aircraft.** The WKPR will maintain 2-way radio comms with aircraft via '*Marham Ops*' on UHF 278.175Mhz.

d. **MRE**. At 10 minutes prior to ETA, then at 5 minutes intervals until landing, the WKPR is to make announcements iaw Appendix 1 via the MRE ATC Channel.

7. **Aircraft Captain**. Aircraft Captains are to:

a. Conduct blind calls to *"MRM TWR"* via UHF 278.175Mhz.

b. Establish 2-way comms with Marham Ops via UHF 278.175Mhz. This should be conducted at least 10 minutes from the airfield boundary, on approach, and when ready for departure.

c. Conduct an airborne recce prior to landing to confirm suitability of the available operating surfaces.

d. Land at the Runway 05 Threshold and ground taxi to BRAVO Dispersal via Taxiway A4 or B1 (depending on aircraft orientation).

e. Consider the use of NVGs in the event of no available airfield lighting.

8. **Review**. This procedure is to be reviewed annually by OC Ops Sqn, RAF Marham.

Summary

9. RW CFO is a recognised means of enabling RW aircraft operations during periods of airfield closure. There are risks associated with such operations and this plan outlines a means to mitigate these to as low as reasonably practicable (ALARP). The aircraft captain must always use their judgement in deciding to continue with execution.

Appendices:

1. WKPR Actions Card
2. RAF Marham Visiting Aircraft Booking Form

Appendix 1 to
Annex MM
Dated 12 Mar 25

WKPR Action Card

RW Field Ops – WKPR ACTION CARD					
Serial	**Notification Actions**		**Notes**	**Time**	**Initials**
1	**Confirm RW CFO have been authorised**		Requires i) AO and; ii) Platform DDH approval.		
2	**Inform other Airfield users via booking form**	**AO (OC Ops Wg)**	3425 Mob – As per callout sheet		
		OC Ops Sqn	Mob – As per callout sheet		
		SATCO	Mob – As per callout sheet		
		HoE (Stn Cdr) *SDE OOH	Mob – As per callout sheet		
		ATC (if open)	4949		
		Fire[4]	3473		
		VASS (if open)	7016		
		UOC DEOC	6247		
		GEF	7477 / 7474		
		Med	6535 / 6813		
		ASMT	3206 *Has a refuel been requested?		
		MPGS	7620 / 7445		
		RAFP	7621 / 7214		
		MET	3682		
		MRM Aero Club	7421 / TEAMS / Email		
		MRM Paramotoring Club	TEAMS / Email		
		Model Aircraft Club	TEAMS / Email		
3	**Send Notification to Airfield Users contact list**		“Marham Recreational Flying Clubs to be aware of RW Closed Field Ops. Blind calls will be made on MRM TWR. ETA (give time)”		
Serial	**Prepare Phase**		**Notes**	**Time**	**Initials**
4	**Turn on BRAVO Dispersal lights**		Contact ASMT to turn on BRAVO Dispersal lights		
5	**All Stations MRE Broadcast**		“All Stations, All Stations - Airfield will be ‘live’ in *10* minutes for RW Closed Field Operations. Any users still on the airfield are to respond to this message”		

BRAVO Serial	Execute Phase		Notes	Time	Initials
Inbound procedure					
	Ac Captain to contact Marham Ops on UHF 278.175Mhz		Minimum 10-minute call from airfield boundary.		
6	**Broadcast via MRE when Ac on frequency**		Minimum 10-minute call from airfield boundary.		
7	**Inform Ac Captain to land at threshold and ground taxi to parking bay**		BRAVO Dispersal to be used		
8	**Broadcast via MRE when Ac has shut down**		"Attention all stations, The Aircraft has shut down, Closed Field Ops remains in progress"		
9	**Arrange refuel as required**		Booked through ASMT 3206 or Eng Ops Ext 6247		
10	**Contact parent Airfield**		MRM WKPR to confirm landing with parent Airfield		
Outbound Procedure					
11	**Confirm with Ac Captain**		CS – ETD – POB – Destination – Endurance –		
12	**Broadcast via MRE when Ac on frequency**		Notify Airfield users of movement: "Airfield activity live from Bravo dispersal…"		
13	**Ac Captain is to notify intent to ground taxi from parking bay and lift from threshold. WKPR is to acknowledge**		"Callsign MRM Ops acknowledge intent to depart at your own discretion"		
14	**Ac will confirm en-route and not returning**				
15	**MRM WKPR to pass en-route details to destination Airfield and endurance**				
Serial	**Plan Termination**		**Notes**	**Time**	**Initials**
16	**Pass RW CFO Terminated Message via MRE**		"Closed Field Operations are now Terminated, any activity on the Airfield can now resume"		
17	**Pass RW CFO terminated message to all agencies on the cascade phase (serial 5-19) of this Action Card**		"Close Field Operations now terminated. Airfield returns to normal OOH use"		
Serial	**Ac Crash Actions**		**Notes**	**Time**	**Initials**
1	**Task Duty ASOS to inform:**	**Inform D&D**	**01489 612406 / 95586 2406**		
		Request Met Actual	**Ext – 3682**		
2	**Inform Civ Emergency Services**		**999**		
3	**Carry Out Actions iaw APCIMP**				

Appendix 2 to
Annex MM
Dated 12 Mar 25

RAF Marham Visiting Aircraft Booking Form

POC Name		Contact No.		CIV / MIL
PPR No.				

Type		No. of A/S	
Reg		CALLSIGN	
ICAO CRASH CAT		A/S Able to Trample Cables	YES / NO
ARR ACN		DEP ACN	
REFUEL	YES / NO	AMOUNT	

DETAILS					
Date of Arrival			Date of Departure		
From			To		
ETD	z		ETD MARHAM		z
ETA MARHAM	z		ETA		z
Extra Local Sortie(s)					
Armed	YES / NO				
Type		QTY		NEQ	
Parking					

Reason for Visit / Other Details