Aerodrome Safety

Aerodrome Manual

Heathrow Airport Limited
The Compass Centre
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Hounslow, Middlesex
TW6 2GW

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Heathrow
Making every journey better

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18.2 The Heathrow Aerodrome Compliance team is responsible for safeguarding off-airport and liaison with local authorities. Local Planning Authorities (LPA) send all safeguarding consultations direct to the Aerodrome Compliance Team who assesses all planning applications in relation to the various safeguarding criteria. They will reply to the LPA stating either ‘No objection’, ‘No objection

A. General

A.0 Administration and control of the aerodrome manual

0.1 Introduction & Statements of Compliance

The Aerodrome Manual forms an important part of the certification process required by the Civil Aviation Authority (CAA) with respect to the operation of the aerodrome. This document complies with all applicable requirements as detailed in UK Reg (EU) No 139/2014 (the UK Aerodromes Regulation) ADR.OR.E.005 and is in accordance with the terms of the aerodrome certificate. References to rules are currently contained in CAA 139/2014 Aerodromes AMC GM, CAA 139/2014 Aerodrome CS ADR GM and in CAA 139/2014 Aerodromes CS HPT GM.

The Manual and its associated documents contain information relevant to the safe operation of Heathrow's aerodrome. It describes the aerodrome services and facilities, the airfield management structure, responsibilities, the aerodrome safety management system, providing references to pertinent operational procedures and standards.

All users of the aerodrome are expected to follow the standards and operational procedures referred to in this document, in order to meet or exceed the minimum standards required by the terms of the certificate.

Heathrow Airport Limited gives safety the highest priority at all times. It is committed to ensuring the health and safety of employees, customers, business partners and members of the public, so far as is reasonable and practicable.

Heathrow welcomes and encourages the participation of airside users in the continuous improvement of the safety standards laid out in this manual.

Javier Echave
Chief Operating Officer
Accountable Manager
Heathrow Airport Limited.

0.1.3 Parts of the Aerodrome Manual

Part A – General information, administration and control of the Aerodrome Manual
Part B – Aerodrome management system, qualification and training requirements
Part C – Particulars of the Aerodrome Site
Part D – Particulars of the Aerodrome required to be reported to the Aeronautical Information Service
Part E – Particulars of the Operating Procedures of the Aerodrome, its equipment and Safety Measures

0.1.4 Explanations, abbreviations and definitions of terms needed for the use of the manual:

Abbreviation	Description
ACM	Aerodrome Compliance Manager
ACR	Aircraft Classification Rating
AfCR	Airfield Control Room
AfDM	Airfield Duty Manager
AFRS	Airport Fire Service
AGL	Airfield Ground Lighting
AIP	Aeronautical Information Publication
AIS	Aeronautical Information Service
ALFRED	Aerodrome Live Fault Reporting and Engineering Data
ANO	Air Navigation Order (CAP 393)
AODM	Aircraft Operations Duty Manager
AOC	Airline Operations Committee
AOM	Airport Operations Manager
AOU	Aircraft Operations Unit
APOC	Airport Operations Centre
APU	Auxiliary Power Unit
ASDA	Accelerate Stop Distance Available
ASO	Airside Systems Operations
ASOP	Airside Standard Operating Procedure
ATC	Air Traffic Control
ATIS	Aerodrome Terminal Information Service
CAA	Civil Aviation Authority (Competent Authority)
CCTV	Closed Circuit Television
CAP	Civil Aviation Publication
DAAD	Deviation Acceptance and Action Document
EASA	European Aviation Safety Agency
ELOS	Equivalent Level of Safety
FOD	Foreign Object Debris
GMC	Ground Movement Control
HAL	Heathrow Airport Limited
HOEC	Heathrow Operational Efficiency Cell (NATS)
ICAO	International Civil Aviation Organisation
LDA	Landing Distance Available

Abbreviation	Description
ILS	Instrument Landing System
IRVR	Instrumented Runway Visual Range System
LFB	London Fire Brigade
MATS	Manual of Air Traffic Services
MOR	Mandatory Occurrence Report
MRS	Managing Responsibly System
NATS	National Air Traffic Services
NOTAM	Notice To Airmen
OAN	Operational Advice Notice
OCL	Obstacle Clearance Limit
OFZ	Obstacle Free Zone
OSI	Operational Safety Instruction
PAPI	Precision Approach Path Indicator
PCR	Pavement Classification Rating
PPE	Personal Protective Equipment
RIDS	Ramp Information Display System
RESA	Runway End Safety Area
RFFS	Rescue and Fire Fighting Service
RT	Radio Telephony
SARPs	Standard and Recommended Practices
SAU	Stand Allocation Unit
SC	Special Conditions
SEGS	Stand Entry Guidance System
SIS	Staff Information System
TODA	Take Off Distance Available
TORA	Take Off Run Available
UHF	Ultra-High Frequency (radio)
VCR	Visual Control Room (ATC)
VDGS	Visual Docking Guidance System
VHF	Very High Frequency (radio)

0.2 System of amendment and revision

0.2.1 Details of the persons responsible for the issuance and insertion of amendments and revisions: The HAL Airside Certification & Regulation Manager is responsible for the issuance of this document, and the management of any amendments or revisions. The Aerodrome Manual is reviewed on an annual basis or following a significant change.

0.2.2 A record of amendments and revisions with insertion dates and effective dates:

Date	Amendments / Revisions	Author
10/3/16	V0.1 – DRAFT for CAA Review	M.McKee
06/04/16	V1 – First Issue	M.McKee
06/07/16	V1.1 – Changes to management team & structure	M.McKee
17/02/17	V2 – Various changes	M.McKee
15/05/17	V2.1 – Change of Airside Director; Change to various organisational structures; change to strip distances on various taxilanes.	M. McKee
08/08/17	V2.2 – Changes to management structure (SACM removed, ASAM added); temporary vacancy for Safety Improvement Director. Change to organisational structure to combine ramp assurance and safety under ASAM. Addition of Deputy Senior Airport Fire Manager role Amendment to SC for M.635 (missing centreline lights for 27L)	M. McKee
01/11/17	V2.3 – Change of accountable manager and tweaks to organisational structures.	M. McKee
01/04/18	V2.4 – Changes to management structure and nominated personnel. Amendments to SC in light of CS issue 4.	M. McKee
03/05/18	V2.5 – Changes to management structure and nominated personnel. Additions of/amendments to OSI and Airside Standards	M. McKee
12/09/18	V2.7 – Changes to management structure and nominated personnel.	M. McKee
03/05/19	V3.3 – Changes to management structure and nominated personnel. Additions of/amendments to OSI and Airside Standards	M. McKee
10/04/2020	V4.0 – Changes to management structure and nominated personnel. Changes to Certification Basis	P. Morgan
25/06/2020	V5.0 – Changes to management structure and nominated personnel	P. Morgan

28/10/2020	V6.0 – Changes to management structure and nominated personnel	M. Goacher
20/03/2023	V7.0 – Annual review, changes to management structure, nominated personnel. Changes to Certification Basis and Legal changes with CAA 139/2014	M. Goacher
25/06/2024	V7.1 – Changes to management structure and nominated personnel. General review to follow later in 2024.	M. Goacher
07/02/2025	V8.0 – Annual review and associated amendments where appropriate	M. Goacher
09/05/2025	V9.0 – Changes to the management structure, nominated personnel, and manual layout to reflect the CAP 139/2014	G. Tyler

0.2.3 Handwritten amendments and revisions are not permitted except in situations requiring immediate amendment or revision in the interest of safety.

0.2.4 A description of the system for the annotation of pages or paragraphs and their effective dates: Throughout this manual, links are provided to other Heathrow documents which are subordinate to the Aerodrome Manual and may be referred to for further detail on a particular subject. These are annotated within the document thus;

A RED border indicates that one or more "Airside Standard, Plan or ASOP" exists for a subject. These documents are predominantly aimed at the Heathrow Airside Operations Department and are available upon request from the Safety Office.

A BLUE border indicates that one or more "Operational Safety Instruction (OSI)" exists for a subject. These documents are issued to the whole Airside community and set out safety requirements for both Heathrow internally, and external stakeholders. OSI's are published on the Heathrow website – www.heathrow.com/airside, as well as available through the Airport Community App

0.2.5 A list of effective pages or paragraphs: Unless otherwise stated, all paragraphs in the manual are current.

0.2.6 Annotation of changes (in the text and, as far as practicable, on charts and diagrams): Changes to the text from the previous issue of the manual, both additions and removals, will be marked in the margin immediately adjacent to the text concerned, prior to review and approval.

0.2.7 Temporary revisions

(a) Temporary revisions (<6m duration) will be issued to the community by means of an Operational Advice Notice, and to flight crews via a NOTAM and/or AIP supplement, if applicable. Longer term temporary revisions (>6m) will be included within the Aerodrome Manual, with an appropriate annotation of the timescale involved, Operational Safety instruction publication and an AIP amendment if applicable.

0.2.8 Description of the distribution system and a distribution list for the aerodrome manual, its amendments and revisions

(a) The Aerodrome Manual is published on Heathrow's website and is accessible to the

aerodrome users or the general public and this can be accessed here www.heathrow.com/airside. An electronic version can be downloaded from this area also. All users are notified by means of an Operational Safety Instruction when a new version of the manual is issued.

ASSMS_OSI_082 Aerodrome Manual

A.1 General information

1.1 Purpose and scope of the aerodrome manual

1.1.1 The principal purpose of the Aerodrome Manual ("The Manual") is to describe how the aerodrome management will discharge its safety responsibilities.

1.1.2 The Manual seeks to ensure that all colleagues (HAL and third parties) are aware of the safety aims of the organisation, the chain of command, and their own responsibilities with respect to aerodrome safety.

1.1.3 The Manual sets out Heathrow's aviation safety policies. The Manual is Heathrow's primary aerodrome safety document; and provides the strategic basis for the development of tactical plans and operational procedures.

1.1.4 All Aircraft operators at Heathrow are required, as part of the aerodrome 'Conditions of Use', to adhere to the safety obligations detailed in the Manual and its subordinate documentation.

1.1.5 The Manual will describe the relevant aerodrome management structure and detail the safety accountabilities/responsibilities borne by each individual or group of colleagues.

1.1.6 The Manual will describe the aerodrome services and facilities, and set out the particulars of the aerodrome site, including any restrictions on operation or aerodrome availability.

1.1.7 Relevant Heathrow safety and environment policies and procedures are included or referred to within the Manual.

1.2 Legal requirement for an aerodrome certificate and the aerodrome manual

1.2.1 The ICAO requirement for member states to adopt a regulatory system for the Certification (i.e. Licensing) of Aerodromes used for international operations is set out in the Standards and Recommended Practices (SARPs) contained in Annex 14 Volume I to the Convention on International Civil Aviation (The Chicago Convention of 1944). Submission of an Aerodrome Manual by the applicant, as part of the approval/acceptance process for the granting of an Aerodrome Certificate, is included as a Recommendation.

1.2.2 The United Kingdom Civil Aviation Act of 1982 (the Act) makes provision for an Air Navigation Order (the Order) or ANO, last amended by the Air Navigation (Amendment) Order 2017, which puts the provisions of the Chicago Convention and its Annexes into effect. The ANO is published in Civil Aviation Publication 393 'Air Navigation: The Order and the Regulations' (CAP 393).

1.2.3 Within the Air Navigation Order (ANO), article 207 sets out the requirement for flights operated for the purposes of commercial transport (as detailed in article 208) to use only aerodromes certificated for the take-off and landing of such aircraft.

1.2.4 The UK continues to have the same standards established under EU retained legislation and the certification responsibilities will remain with the CAA. Current certification will remain in place for an unlimited duration, unless it is surrendered or revoked. ADR.OR.B.005 requires an applicable certificate to be issued by the Competent Authority (the UK Civil Aviation Authority) in order to operate an aerodrome for commercial transport.

1.2.5 In addition, Regulation (EU) No 139/2014 as retained and amended in UK domestic law (UK Reg (EU) No 139/2014 (the UK Aerodromes Regulation) para. 1 ADR.OR.E.005 requires that each aerodrome operator establish and maintain an aerodrome manual, such that it shall "…contain or refer to all necessary information for the safe use, operation and maintenance of the aerodrome…''.

1.3 Conditions for use of the aerodrome by its users

1.3.1 Heathrow issues an annual 'Conditions of Use' document, which sets out the obligations which are incumbent upon airline operators to use Heathrow's facilities.

1.3.2 Section 6.1.2 sets out the requirement for Airline Operators to comply with the terms of the Aerodrome Manual.

1.3.3 The Conditions of Use also contain the current charges levied by Heathrow for the use of the aerodrome and associated facilities.

1.3.4 The Conditions of Use are reviewed and re-published annually. A copy of the document is available upon request from the Aerodrome Operator, or online at https://www.heathrow.com/company/doing-business-with-heathrow/flight-conditions-of-use.

1.3.5 Operators at Heathrow must comply with the Ground Operation Licence (GOL) or Airside Operations Licence (AOL), as applicable, which sets out obligations that are incumbent on the operators relating to ground operation.

1.3.6 Procedure for the Notification of Communicable Diseases & Death on Board Aircraft

ASGrOps_OSI_039 – Procedure for Notification of Communicable Diseases and Death on Board Aircraft at Heathrow

1.4 The obligations of the aerodrome operator, rights of the Competent Authority and guidance to colleagues on how to facilitate audits/inspections by the Competent Authority personnel.

1.4.1 In accordance with UK Reg (EU) No 139/2014 (the UK Aerodromes Regulation) paragraph ADR.OR.C.015 access, HAL will grant access to any person authorised by the Competent Authority, for the purposes of witness, inspection, test, assessment or exercise, to any facility or document relevant to HAL's activities as a certificated aerodrome.

1.4.2 Procedure for termination of operation

(a) In circumstances whereby Heathrow Airport Limited intends to terminate the operation of the aerodrome, the following will be carried out;

(i) The competent authority will be notified as soon as possible

(ii) Pertinent information will be provided to the Aeronautical Information Service provider

(iii) Heathrow will surrender its Certificate to the competent authority on the date of termination of operations.

(iv) Heathrow will ensure that appropriate measures have been taken to prevent the unintended use of the aerodrome by aircraft.

B. Aerodrome Management Qualification and Training Requirements

B.2 A description of the management system

ASSMS_PLAN_001 – Aerodrome Safety Management System
ASTrain_Standard_002_Learning & Development
ASTrain_Plan_002_Learning & Development
ASSMS Standard 018 – Airside Safety Committees
Airside_ASDRVE_Standard_011 – Runway Incursion Prevention

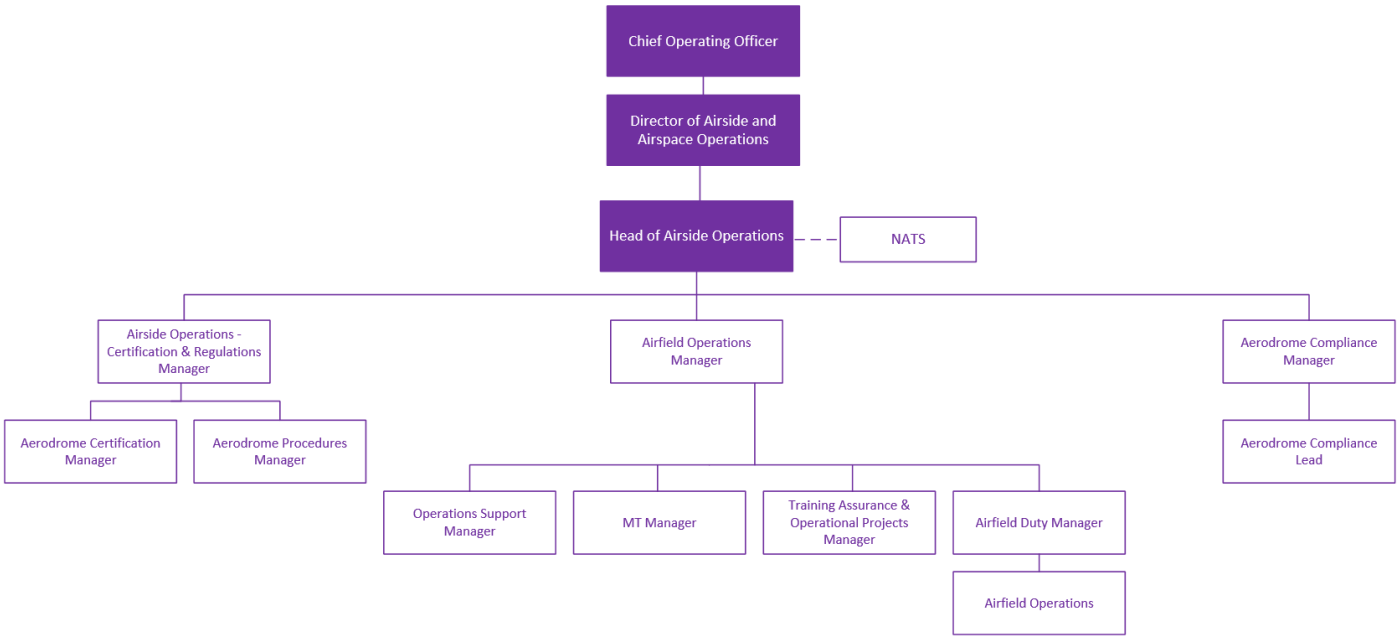
2.1 Aerodrome organisation and responsibilities including the following: a description of the organisational structure, including the general organogram and other departments' organograms. The organogram should depict the relationship between the departments. Subordination and reporting lines of all levels of organisational structure (Departments, Sections etc) related to safety should be shown.

2.1.1 Accountable Manager

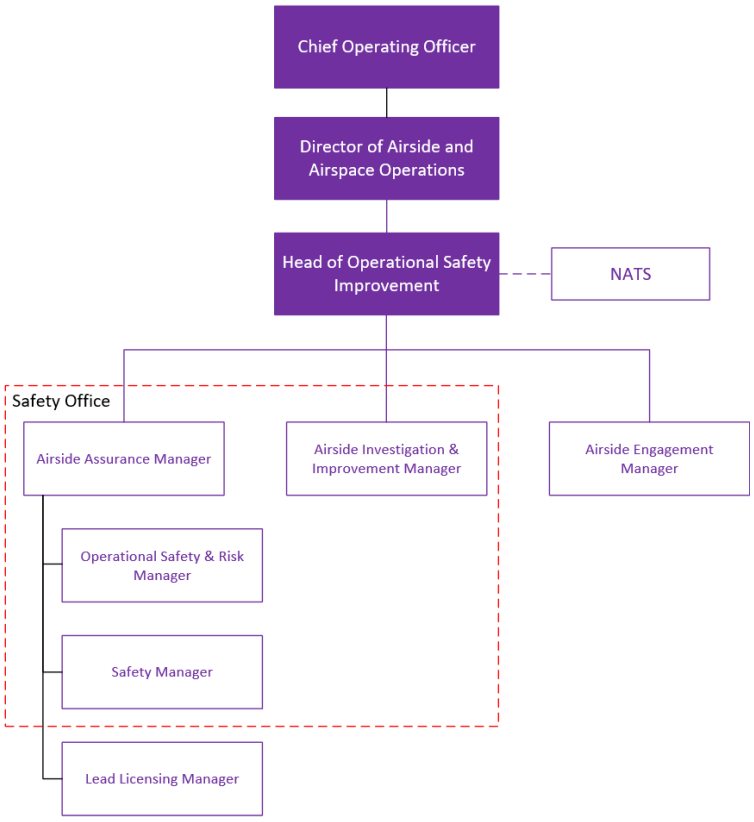
2.1.2 Operations Directorate

2.1.3 Safety, Health & Wellbeing

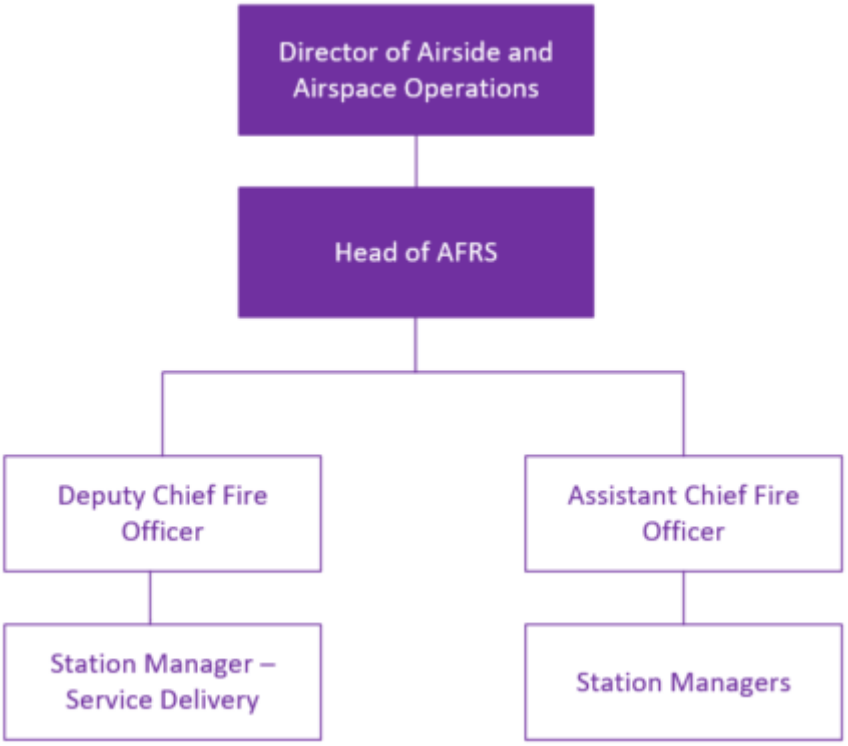
2.1.4 Airside Operations



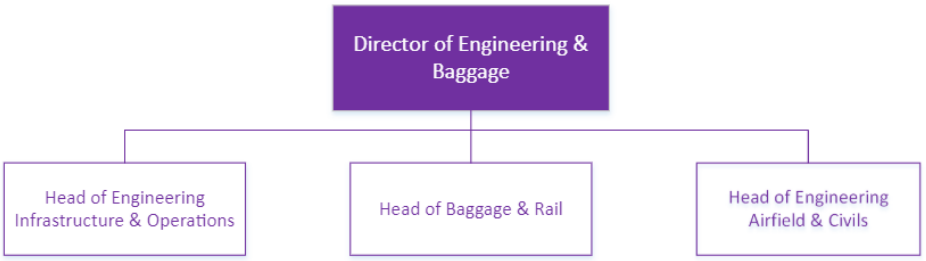
2.1.5 Operational Safety Improvement



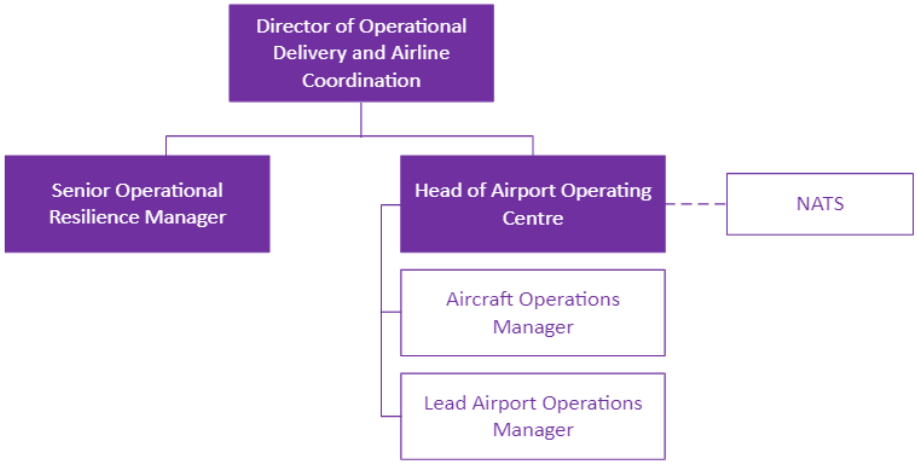
2.1.6 Airport Fire & Rescue Service



2.1.7 Engineering & Baggage



2.1.8 Airport Operations



2.2 Names, authorities, responsibilities and duties of management and nominated persons; responsibilities and duties of other operational, maintenance personnel, as well as the aerodrome safety committees and the Local Runway Safety Team and their functioning, should also be included.

Named Persons

(a) Chief Operating Officer (COO) – Javier Echave Espot

The Heathrow Airport Limited Chief Operating Officer has overall responsibility for the operation of the airport and holds the post of **Accountable Manager** with respect to the Aerodrome Certificate. Responsibility for ensuring the conditions of the Certificate are met is delegated to the Director of Airside and Airspace Operations.

(b) Director of Airside and Airspace Operations – Dale Reeson

Reporting to the Chief Operating Officer, the Director of Airside and Airspace Operations is responsible for the day-to-day delivery of a cohesive airport operation. On the airfield, the role holder is responsible for the safe operation of the airfield, comprising all areas under the control of the airside team. This responsibility encompasses the development and implementation of the strategies and policies required to manage the airside operation and includes the Airport Fire Service. The role is also responsible for ensuring that all airside development is planned and executed in a safe manner and with minimum impact on the operation, as well as responsibility for the Safety Office.

(c) Health, Safety & Wellbeing Director – Amanda Owen

Reporting to the Chief People Officer, the Safety, Health & Wellbeing Director is responsible for providing health and safety technical expertise and strategic leadership for business units.

(d) Director of Engineering & Baggage – Gavin Payne

Reporting to the Chief Operating Officer, the Director of Engineering & Baggage is the nominated "Maintenance Manager" under AMC1 ADR.OR.D.015(b) Personnel requirements - responsible for the development of strategies and policies for the management of assets, including the maintenance of the Runways, Taxiways, and Stands, grass areas, Aprons and roads, as well as the Airfield Ground Lighting (AGL), Fixed Electrical Ground Power (FEGP), aircraft boarding bridges, stand entry guidance systems, apron lighting.

They are also responsible for the maintenance of passenger facing assets including roads, tunnels, water systems, HVAC, HV/LV electrical systems and Passenger Safety Equipment.

(e) Head of Airside Operations – Trevor Waldock

The Head of Airside Operations (HoAO) is the nominated *Manager of Operational Services* under AMC1 ADR.OR.D.015(b) Personnel requirements and carries out those duties per applicable regulations

(f) Airfield Operation Manager – Mike McKee

Reporting to the Head of Airside Operations is the Airfield Operations Manager who is responsible for ensuring the safe operation of the airfield day-to-day, and the strategic management of Airfield Operations. The role is also responsible for the aerodrome snow plan, and the management of aircraft recovery. These responsibilities are exercised through the Airfield Duty Managers (AfDM) and Airfield Operations

(g) Airfield Duty Manager (AfDM) – 24hr shift

Reporting to the Airfield Operations Manager, the Airfield Duty Manager is responsible for the H24 safe operation, availability and status of the airfield.

The AfDM is the day-to-day manager of the Airfield Operation and is also responsible for the operational liaison with ATC, the emergency services, airline management, ground handling, third party service provides and other HAL operational managers, to ensure the safe use of facilities at all times. The AfDM liaises directly with the Emergency Services Incident Officers to provide specialist airfield knowledge at an incident scene.

The AfDM is responsible for the monitoring and control of all airside work, including the approval of permits to work.

(h) Aerodrome Compliance Manager - Lisa Allen

Reporting to the Head of Airside Operations, the Aerodrome Compliance Manager is responsible for on aerodrome development, airside works approvals, safeguarding, crane permits, drone permit, process and procedures.

(i) Airside Operations Certification and Regulations Manager – Alpesh Patel

Reporting to the Head of Airside Operations, the Airside Operations Certification and Regulations Manager is responsible for influencing and engaging with external and internal stakeholders and identifying regulatory change within industry. The team is also responsible for promulgation of Operational Safety Instructions (OSIs).

(j) Head of Operational Safety Improvement – Sharon Smith

Reporting to the Director of Airside & Airspace Operations, the Head of Operational Safety Improvement is the nominated Safety Manager under AMC1 ADR.OR.D.015(c) Personnel requirements ADR.OR.D.015(c) and is responsible for the aerodrome compliance, safety assurance and the safety reporting system. They are also responsible for airside safety improvements, Ground Handling Licencing, aviation fuel, ground handling performance and Team Heathrow engagement. The role is responsible to ensure that safety events are investigated fully, identifying root cause and mitigating actions. This person is also the nominated Compliance Manager under AMC1 ADR.OR.D.005(b)(11) Management system and carries out those duties in accordance with applicable regulations.

The Head of Operational Safety Improvement will also ensure that regular compliance monitoring will be undertaken within the department to assure against the relevant regulations and guidance.

(k) Head of AFRS – David Bartlett

Reporting to the Director of Airside and Airspace Operations is the Head of AFRS whose role is responsible to ensure that national standards, company standards, and statutory legislation are applied and to provide advice and support on all RFFS related issues when required. The role also takes accountability for fire service-learning solutions, integrating them into the HAL business and ensuring it meets regulatory requirements. The Head of AFRS will also ensure that regular compliance monitoring will be undertaken within the department to assure against the relevant regulations and guidance.

(l) Assistant Chief Fire Officer – Andrea Macdonald

Reporting to the Head of AFRS is the Assistant Chief Fire Officer and is responsible for training, compliance, development, recruitment and people within the Airport Fire and Rescue Service. This role also takes on the responsibility as the Chairperson for the Emergency Operations Group (EOG) which sits within Aerodrome Emergency Planning under AMC1 ADR.OPS.B.005(b) Aerodrome emergency planning ADR.OPS.B.005 alongside the Senior Operational Resilience Manager.

(m) Head of Airport Operations – Kevin Bland (interim)

Reporting to the Director of Operational Delivery and Airline Coordination, the Head of Airport Operations is responsible for leading the Airport Duty Manager team, and the effective management of the Airport Operations Centre (APOC). Stand planning & performance is delivered through the Aircraft Operations Manager. The Head of Airport Operations is accountable for the management of the ANSP (NATS) through the appropriate contract, the Aircraft Operations Duty Manager (AODM) and the colleagues of the Aircraft Operations Unit (AOU) are responsible for the delivery of Air Traffic Control operations at Heathrow through Heathrow's ATC service provider – NATS. The role is further responsible for monitoring the operational performance of the airlines and developing action plans to improve this in conjunction with NATS and airline customers.

(n) Senior Operational Resilience Manager – Craig Thompson

Reporting to the Director of Operational Delivery and Airline Coordination, is the role of the Senior Operational Resilience Manager. This role has accountability for Aerodrome Emergency Planning, including the Aerodrome Emergency Plan (Emergency Orders) under AMC1 ADR.OPS.B.005(b) and is responsible for wider business resilience planning.

2.2.1 Delegation of Responsibility

In the absence of a member of the senior management team, responsibility for the 24-hour safe operation, availability and status of the airfield rests with the Airfield Duty Manager (AfDM).

2.2.2 Changes to the role of Accountable Manager

If Heathrow appoints a new Accountable Manager, the competent authority will be notified using the appropriate SRG 2011 form.

2.2.3 Operational Teams

(a) Airfield Operations

Reporting to the Airfield Operations Manager and led by the Airfield Duty Manager (AfDM) on shift, the role of the Airfield Operations team is to assure the safety and availability of the airfield on a H24 basis. The team are organised on a 'watch' basis with each watch consisting of Senior Airfield Officers, Airfield Operations Officers and Airside Transport Officers.

The Airfield Operations team is based in the Airside Operations Facility (AOF) on the Eastern side of the airfield. The control room has direct telephone lines to ATC and the HAL Airport Fire Service. There is also a 'listen out' facility on the Emergency and Crash Lines from ATC. There are various computer systems which link to the wider Heathrow operational network.

Airfield Operations carry out a series of inspections and patrols of the manoeuvring area (under the '3-Tier' approach to inspections), checking surface and lighting conditions. Airfield Operations will carry out wildlife hazard management duties, monitor the safety of works areas, and attend all airside accidents/incidents.

In the event of an aircraft accident or incident requiring the attendance of non-Heathrow emergency services, the Airfield Operations will escort them from the nominated RVP or Control Post to the incident site. The Airfield Operations provide a marshalling service where stand entry guidance systems are unserviceable, not installed or during operational disruption and provide 'follow-me' leader services for aircraft and other service vehicles across the manoeuvring area.

The areas and distances to be covered on the airfield necessitate the use of vehicles. The vehicles are equipped with the HAL domestic trunk radio system which maintains a link between all colleagues and the AfCR. In addition, vehicles are equipped with airband VHF radios, and colleagues are either under the active control of ATC (for instance when on the runway) or listening out (manoeuvring area or stands). As a result, ATC can request assistance from Airfield Operations colleagues at any time. Vehicles are equipped with mobile data (4G/wi-fi) which enables tablet devices to be used in the vehicle for a variety of applications. Some vehicles are also equipped to carry out wildlife control duties, with distress call amplifiers and gun cabinets installed. The vehicles also have transponders installed to provide ATC with awareness of their positions within their systems.

In addition, Airfield Operations operate a fleet of vehicles to support the airfield operation. These include dry sweepers, combination sweepers and a large selection of snow clearance vehicles. Vehicles are fitted with UHF radios for the HAL domestic trunk radio system, and some are further fitted with VHF airband radios for driving on the manoeuvring area. Teams of drivers carry out daily cleaning duties around the airfield, focussing on roads, stands and walkways, in order to reduce FOD risk. The team will carry out scheduled chemical deep cleaning on stands and respond to ad-hoc sweeping requirements on the manoeuvring area as required.

In the event of an aircraft accident, Airfield Operations will provide specialist vehicles for the incident, including emergency equipment trailers, which contain tents for shelter.
Airfield Operations carry out runway friction monitoring and rubber removal duties, using specialist equipment.

Airfield Operations are also responsible for habitat management including grass cutting, bottoming out and herbicide application in line with the Wildlife Hazard Management Plan and have a range of equipment to enable this activity.

(b) Aircraft Operations Unit

The Aircraft Operations Unit (AOU) has overall authority for stand allocation at Heathrow using appropriate systems and processes to ensure safe parking of aircraft on appropriate stands. However, due to the extensive use of Terminal 5 by British Airways, the day-to-day responsibility for stand allocation in this terminal is delegated to the airline, although HAL can override British Airways' allocation if deemed necessary. The AOU operate under the direction of the duty Aircraft Operations Duty Manager (AODM) in APOC.

(c) Civils Delivery Team

The Civils Delivery Team report to the Head of Engineering for Airfield and Civils, they ensure facilities on the airfield are maintained in a safe and operational state. The role is discharged by a Civils Delivery Manager. Day to day delivery of the maintenance is conducted through the Civilis Delivery Engineers

(d) Airside Engineering

Reporting to the Head of Engineering for Airfield and Civils, the Airside Engineering team (ASO) work on a 24hr shift working basis. They are led by the Airside Duty Engineering Managers. The team carry out planned and reactive maintenance on all airfield electrical systems including Aeronautical Ground Lighting (AGL), Precision Approach Path Indicators (PAPI), Apron Lighting, Fixed Electrical Ground Power (FEGP), Stand Entry Guidance Systems (SEGS) and standby generators. As part of the maintenance plan, they also carry out light brilliancy checks of the runway lights and lux level checks on the Apron. They are also responsible for responding to and repairing faults raised through the fault reporting system.

2.2.4 The name, status and responsibility of persons authorised by the Civil Aviation Authority (the CAA, as the competent authority) under article 257 of the Air Navigation Order 2016 to detain aircraft at the aerodrome for safety and other, related reasons, as set out in article 257.

2.2.5 HAL has the legal powers to detain, or assist in the detention of, any aircraft at Heathrow, for a variety of reasons including (but not exclusive to) for financial purposes (non-payment of charges), aviation safety, security, or in support of a court order.

2.2.6 The detention of an aircraft will usually be carried out by the HAL Airfield Duty Manager (AfDM), acting on behalf of the Director of Airside and Airspace Operations, the Civil Aviation Authority (CAA) or under direction from a Court Official.

ASGrOps_OSI_036 – Detention of Aircraft

2.3 A description of the safety management system

2.3.1 Scope of the safety management system

Details of the Heathrow Airside Safety Management System under AMC3 ADR.OR.E.005 Aerodrome manual are all covered with this document. Part B.2.1 - B.2.2.12, can be found in the Aerodrome SMS Manual. (Excluding 2.6 and 2.8 of the above regulation)

2.3.2 Procedures related to the use of alcohol, psychoactive substances and medicines

2.3.3 Heathrow has a Substance Abuse policy for all its direct employees. In addition, an OSI exists for third party employees related to 'Alcohol and Classified Drugs'

ASGrOps_OSI_046 – Alcohol and Classified Drugs

2.3.4 A description of the method and procedures for recording aircraft movements, including movement and aircraft type, dates, and number of passengers.

2.3.5 Under its Conditions of Use, Heathrow requires airline operators to submit movement details for billing and operational planning purposes. Information on passenger numbers and aircraft movements is stored electronically on a database and is accessible to authorised Heathrow colleagues.

2.3.6 Description of the quality management system for aeronautical data and aeronautical information provision activities and related procedures, including those for meeting the relevant safety and security management objectives

2.3.7 Details of aeronautical data and aeronautical information under AMC3 ADR.OR.E.005 can be found in the Aerodrome manual, Part B 2.2 and under section Part D, 5-6.

B.3 Procedures for reporting to the competent authority including handling, notifying and reporting accidents, serious incidents and occurrences.

3.1 Definition of accident, serious incident and occurrence and of the relevant responsibilities of all persons involved.

3.1.1 Details of Procedures for reporting to the competent authority AMC1 ADR.OR.C.030 Occurrence reporting can be found in the Aerodrome SMS Manual under section C.8

ASSMS_OSI_065 – Mandatory Occurrence Reporting (UK reg (EU) no 376/2014)

3.2 A description of the method and procedures for recording aircraft movements including movement type and aircraft type, dates and number of passengers

3.2.1 The HAL 'Conditions of Use' require all airline operators to electronically submit to HAL daily passenger numbers and aircraft movements. This data is stored within HAL database systems and is used for statistical and financial purposes (charging). As detailed in AMC2 ADR.OR.D.035 Record keeping and as per B2.2.4

B.4 Aerodrome personnel qualifications and procedures, related to.

Airside_ASTrain_Standard_002 – Learning and Development

4.1 Training programme, including responsibilities, frequencies, syllabi and the identified training standards for all personnel involved in the operation, rescue and fire-fighting maintenance and management of the aerodrome, and those persons operating unescorted on the movement area and other operational areas of the aerodrome.

4.1.1 Details of Aerodrome personnel qualifications and procedures, AMC3 ADR.OR.E.005

Aerodrome manual. Part B 3 covered in the Heathrow Airside Safety Management System, section C.6. Details of the Fire Service training standards are covered in section E.20 of this manual.

C. Particulars of the Aerodrome Site

C.4 Description of the aerodrome site

4.1 A plan showing the distance of the aerodrome from the nearest city, town or other populous area

4.1.1 A map showing the location of the aerodrome relative to the nearest city is available on the AIS website.

4.2 Detailed maps and charts of the aerodrome showing the aerodrome's location (longitude and latitude) and boundaries, major facilities, aerodrome reference point, layout of runways, taxiways and aprons, aerodrome visual and non-visual aids, and wind direction indicators (Scale 1:2500)

4.2.1 The Heathrow aerodrome chart, as published in the UK AIP (section AD 2-EGLL-2-1), provides an overview of the airfield boundaries, layout of the movement area, visual and non-visual aids and wind direction indicators.

4.2.2 In addition, the Heathrow 'Airfield Map' is issued to the airport community, giving a simplified combined view of the airfield layout and can be found on the Heathrow.com/Airside website

ASOther_OSI_064 Airfield Map

4.2.3 Heathrow is subject to constant construction and development. HAL employ a contractor to survey and update the information shown in the maps and charts. Developments on the aerodrome are incorporated when complete. The charts published in the AIP are updated on Heathrow's behalf by NATS, based on information provided by Heathrow. The Airfield Map is updated by Heathrow's own Asset Information Management Centre and is as accurate as possible at the date shown on the drawing.

4.2.4 The number of amendments made to the maps and charts throughout the year is dictated by the amount of significant construction or change to the airfield.

4.2.5 The accountability for ensuring that the appropriate maps and charts are accurate rests with the Aerodrome Compliance Manager.

4.3 A plan showing the location of any aerodrome facilities and equipment outside the boundaries of the aerodrome

4.3.1 Except for a section of the approach lighting on each runway (which are displayed on the UK AIP aerodrome chart), no significant aeronautical facilities are positioned outside the boundaries of the aerodrome.

4.4 Description of the physical characteristics of the aerodrome, elevations, visual and non-visual aids, as well as the information regarding the aerodrome reference temperature, strength of pavements, rescue and fire-fighting level of protection, ground aids, main obstacles and whether they are lighted

4.4.1 These topics are covered in section D.6 – Aerodrome dimensions and related information.

4.5 Description of the types of operations that the aerodrome is approved to conduct

4.5.1 Heathrow is approved to conduct public transport operations.

4.5.2 Heathrow is approved to conduct operations during the day and at night.

4.6 Types of operations the aerodrome is approved to conduct:

4.6.1 The use is governed by regulations applicable to the London CTR

4.6.2 The aerodrome use is subject to conditions as per the AIP – EGLL AD 2.20 Local Traffic Regulations.

4.6.3 Procedures for the safe integration of other aviation activities such as gliding, parachuting and banner towing.

(a) No ‘other aviation activities’ take place using Heathrow as a base.

(b) The airspace surrounding Heathrow is classified as Class D, is highly controlled (permission to enter the area for VFR flights is only granted by prior approval) and extremely busy - it is therefore unlikely that gliding, parachuting and banner towing activities will take place around Heathrow.

(c) ATC will manage VFR and SVFR flights through the airspace around Heathrow in accordance with CAP493 (MATS Pt 1) and MATS Pt 2 (EGLL) procedures.

D. Particulars of the Aerodrome Required to be Reported to the Aeronautical Information Service

D.5 The aeronautical information services available and the procedures for the promulgation of general information, including:

Airside_ASProm_Standard_004 – Aeronautical Information

- Detailed in section AMC3 ADR.OR.E.005 Aerodrome manual. Part D 5 - 6
- In common with the rest of the UK, Aeronautical Information Services are not provided directly by Heathrow Airport Limited. The AIS is contracted and provided centrally by NATS Ltd.
- UK AIS is located at – UK AIS, NATS Ltd, Room 3115, Sopwith Way, Southampton, SO31 7AY.
- Most UK AIS publications are available in electronic format. The UK AIP, AIP Supplements and AICs are available on the UK AIS website.

	Created by	Promulgated by
5.1 The name of the aerodrome	n/a	UK AIP, via NATS AIS
5.2 The location of the aerodrome	Annual Aerodrome survey	UK AIP, via NATS AIS
5.3 The geographic co-ordinates of the aerodrome reference point determined in terms of the World Geodetic System – 1984 (WGS-84) reference datum	Annual aerodrome survey	UK AIP, via NATS AIS
5.4 The aerodrome elevation and geoid undulation	Annual aerodrome survey	UK AIP, via NATS AIS
5.5 The elevation of each threshold and geoid undulation, the elevation of each runway end and any significant high or low points along the runway, and the highest elevation of the touchdown zone of a precision approach runway	Annual aerodrome survey	UK AIP, via NATS AIS
5.6 The aerodrome reference temperature	UK Met Office	UK AIP, via NATS AIS

5.7 Details of the aerodrome beacon	n/a	n/a
5.8 The name of the aerodrome operator and contact details (including telephone numbers) of the aerodrome operator which may be contacted at all times	n/a	UK AIP, via NATS AIS

The annual aerodrome survey is commissioned by Heathrow and carried out by a specialist contractor (currently SLC Ltd).
The accountability for the initiation, management and promulgation of the aerodrome survey rests with the Aerodrome Compliance Manager.
On-going changes to the aerodrome infrastructure or facilities are promulgated via the AIS provider and published in the UK AIP. These changes are requested by the Aerodrome Compliance team (for aerodrome changes) or by NATS (for navigational aids changes).
Short term changes to infrastructure or facilities are promulgated via NOTAM and/or ATIS. These are generally submitted by the Airfield Duty Manager (for aerodrome changes) or by NATS (for navigational aids changes).

D.6 Aerodrome dimensions and related information, including:

6.1 Runway – true bearing, designation number, length, width, displaced threshold location, slope, surface type, type of runway and, for a precision approach runway, the existence of an obstacle free zone

Designation	**09L**	**27R**	**09R**	**27L**
True Bearing	089, 00’ 07”	269, 02’ 32”	089, 00’ 53”	269, 03’ 08”
Length (based on UKTM)	3901m	3901m	3658m	3658m
Width	50m			
Shoulders (each side)	Between A1 and A11 = 20.5m; Between A11 and A13 = 12.5m	Between A1 and A11 = 20.5m; Between A11 and A13 = 12.5m	Between N1 and N7 = 20.5m; Between N7 and N11 = 12.5m	Between N1 and N7 = 20.5m; Between N7 and N11 = 12.5m
Displaced Threshold	309m	n/a	308m	n/a
Slope	Non-Significant			
Surface Type	Grooved Asphalt			
Type of Runway	CAT IIIB Precision Approach	CAT IIIB Precision Approach	CAT IIIB Precision Approach	CATIIIB Precision Approach

Existence of OFZ	Yes			
TORA	3901m	3882m	3658m	3658m
TODA	3901m	3960m	3658m	3658m
ASDA	3901m	3882m	3658m	3658m
LDA	3592m	3882m	3350m	3658m

6.2 Length, width and surface type of strip, runway end safety areas, stopways; length, width and surface type of taxiways; apron surface type and aircraft stands, clearway length and ground profile

6.2.1 All runways have a 280m wide **strip**, extending to 60m past the ends of each runway.

6.2.2 **Runway End Safety Areas** are provided for each runway, of the following sizes;

	Undershoot RESA Dimensions (m)	**Overrun RESA (Landing) Dimensions (m)**	**Overrun RESA (Take-off) Dimensions (m)**
09L	240 x 210	240 x 210	240 x 210
27R	240 x 210	240 x 182*	240 x 182
09R	240 x 210	240 x 210	240 x 210
27L	240 x 210	240 x 210	240 x 210

*** = The length of the 27R Overrun RESA (Landing) Dimensions (m) and Overrun RESA (Take-off) Dimensions (m) is slightly reduced due to the position of the Terminal 5 balancing pond. The length remains the same.**

6.2.3 No **stopways** are provided at Heathrow.

6.2.4 A **clearway** of length 78m and width 150m is provided for runway 27R only. The clearway in part is of concrete construction and has no significant change in its ground profile in comparison to the preceeding paved surface.

6.2.5 **Taxiways & Taxilanes** are constructed as follows

Designator	**Construction**	**Code**	**Width (m)**
Alpha (West)	Concrete	E	23
Alpha (South)	Concrete/Asphalt	F	25
Alpha (East)	Concrete/Asphalt	F	25
Alpha (North) A1 – A6	Concrete/Asphalt	F	25
Alpha (North) A6 – A10E	Concrete/Asphalt	E	23
Alpha (North) A10E – Link 57	Concrete/Asphalt	F	25

Bravo (West)	Concrete	E	23
Bravo (South)	Concrete/Asphalt	F	25
Bravo (East)	Concrete/Asphalt	F	25
Bravo (North)	Concrete/Asphalt	F	25
Charlie	Concrete	F	25
Delta	Concrete	F	25
Echo	Concrete	F	23
Foxtrot	Concrete	E*	23
Golf	Asphalt	E	23
Hotel	Concrete	E	23
Kilo	Concrete	F	25
Lima	Concrete	F	25
Mike	Concrete/Asphalt	E**	23
Romeo	Concrete	E	23
Sierra	Concrete/Asphalt	E**/F	23
Tango	Concrete	E/F	23/25
Victor	Asphalt	E	23
Whiskey	Concrete/Asphalt	E**	23
Yankee	Concrete	C	18
Zulu	Concrete	D**	23

Link Taxiways

Link 11	Asphalt	E	23
Link 12	Asphalt	E	23
Link 13	Asphalt	E	23
Link 21	Asphalt/Concrete	F	25
Link 22	Asphalt/Concrete	F	23/25

Link 23	Asphalt/Concrete	E**/F	25
Link 25	Concrete	E	23
Link 26	Concrete	F	25
Link 27	Concrete	F	25
Link 28	Concrete	E/F	23/25
Link 29	Concrete	F	25
Link 30	Concrete	F	25
Link 31	Concrete	F	25
Link 32	Asphalt	F	25
Link 33	Asphalt	F	25
Link 34	Asphalt	F	25
Link 35	Asphalt	E	23
Link 36	Concrete	E	23
Link 41	Concrete	E	23
Link 42	Concrete	E**	23
Link 43	Asphalt	F	25
Link 44	Asphalt	E**	23
Link 51	Concrete	F	25
Link 52	Concrete	F	25
Link 53	Concrete	F	25
Link 54	Concrete	E	23
Link 55	Concrete	E	23
Link 56	Concrete	F*	25
Link 57	Concrete	F	25
Link 58	Concrete	E	23
Link 60	Concrete	F	25

*** Route is constructed to higher aircraft code, however it is operationally restricted to a lower code.**

**** Route is available for a higher aircraft code than constructed with some appropriate procedures in place.**

6.2.7 **Aprons** are, in the vast majority of cases, constructed of concrete. Stand 357 (on Bravo – North) is the only remaining stand constructed using block paving.

6.3 Visual aids for approach procedures, approach lighting type and visual approach slope indicator system; marking and lighting of runways, taxiways and aprons; other visual guidance and control aids on taxiways and aprons, location and type of visual docking guidance system; availability of standby power for lighting.

6.3.1 Heathrow's aerodrome lighting is suitable for precision approach categories II and III operations. Taxiway lighting systems and signs are suitably equipped for operations below 350m RVR.

6.3.2 No **aerodrome beacon** is installed.

6.3.3 **Approach lighting** for all runways is constructed as follows;

(a) Full Calvert coded centrelines and five-bar system.

(b) The lights are all uni-directional, high intensity, white, and beamed at 6' (threshold) to 9' (outer bar) to the horizontal.

(c) Supplementary high intensity approach lighting system over the inner 300m of the approach. This consists of 27 barrettes of 4 lights each, arranged in 9 rows of three, symmetrically each side of the extended runway centreline.

(d) The SAL's are uni-directional, high intensity, white (centre barrette) or red (outer barrettes) and beamed at the same angles as the corresponding approach lighting.

(e) Runway 27L and Runway 09R approach lighting is provided using LED fittings. All other runways use traditional halogen fittings.

(f) The following lights have been removed due to interference with other systems:

(i) Runway 09L; paired fitting 570m before the threshold

(ii) Runway 27R; paired fitting 420m before the threshold

(iii) These missing lights represent less than 2% of the system. This is detailed in section 2.13

(g) The approach lights are flight checked twice a year

6.3.4 All runways are equipped with a single bar **PAPI** on the left side, comprising four triple projector units. Each circuit is fitted with lamp failure detection.

6.3.5 **Runway lighting** is constructed as follows;

(a) Green **threshold lights** at each landing threshold. These 18 lights are uni-directional, flush, high intensity, and are full width, supplemented by wing bars of four lights each side.

(b) **Centreline lights** at 15m spacing. The lights are bi-directional, flush, high intensity, and beamed at 5' to the horizontal for the first 900m of each runway direction, and 3' for the remainder. The lights are white up to 900m from the runway end, with the following 600m alternate red and white, and the final 300m all red in colour.

(c) **Edge lights** at 60m spacing. These lights are positioned at 25m either side of the centreline. These lights are bi-directional, flush, high intensity, and white.

(d) **Touchdown zone lights** at 900m from the threshold of each runway direction. These consist of 24 barrettes of four lights, arranged in twelve rows, each barrette positioned symmetrically each side of the runway centreline. The lights are uni-directional, flush, high intensity, and white.

(e) **Runway stop end lights** at each runway end. These lights are uni-directional, flush, high intensity, and red.

6.3.6 **Taxiway lighting** is constructed as follows;

(a) The airfield is equipped with bi-directional green **centreline lighting**, installed on all

sections of the taxiway. Lighting is selectively switchable on all routes. The lights are spaced at appropriate intervals for operations in RVR of less than 350m.

(b) Stop bars are installed at taxiway intersections and are linked to the selective switching of the centreline lights. These are comprised of high intensity red lights either side of the centreline.

(c) At runway entrances, high intensity, bi-directional runway guard **bars** are installed. Bars are located at CAT I and CAT II/III or at CAT I/II/III holding positions. Runway guard bars are illuminated 24 hours a day and are suppressed in conjunction with a verbal ATC clearance to allow aircraft or vehicle access to the runway.

(d) Runway Guard Amber ('wig-wags'), comprising low level amber flashing lights, are installed at all taxiway/runway intersections (including CAT II/III holding positions). Each light unit is fitted with lamp failure detection.

(e) The **taxiway centreline lights** located within the localiser sensitive area are colour coded to show alternate green and yellow in both directions. These lights commence with a green light close to the runway centreline 30-60m before the intersections and end with a yellow light at the end of the localiser sensitive area.

(f) Blue edge lighting, located on the edge of taxiways and runway turn offs. These comprise of fixed blue lights and blue reflectors.

(g) An **interlock system** is fitted to the taxiway centrelines on runway lead ons/offs. The system controls each side of the holding point stop bars independently and is linked to the first 90m of the taxiway centreline lights. The system ensures that traffic on a taxiway destined for the runway is not able to identify (and therefore follow) a continuous lit centreline onto the runway, without the red stop bar first being suppressed.

6.3.7 **Helicopter aiming point** lighting is provided by 6 low intensity omni-directional inset white lights

6.3.8 Variable intensity lighting is available for approach, runway and taxiway lighting, and is controlled by ATC. Brilliancies are available in accordance with the table in 6.3.10

6.3.9 Taxiway crossings on the road network are identified with additional signage both on the taxiway surface and also on the road surface and adjacent sign board. This consists of the following;

(a) Taxiway surface – 'Vehicle Crossing Ahead' paint markings circa 30m away from the crossing on either side

(b) Road surface – 'STOP' painted at the crossing entrance

(c) Signage board adjacent to the road displaying the instruction to STOP , and give way to both vehicles and aircraft on the taxiway

6.3.10 All Runways

	Approach (inc. Threshold)	Supp'l Approach	TDZ	Runway Centreline	Runway Edge and Stop End	PAPI	Time
1	100%	100%	100%	100%	100%	100%	Day
2	100%	0	0	100%	100%	80%	Day
3	30%	30%	100%	100%	100%	80%	Night

4	10%	10%	30%	30%	30%	30%	Night
5	3%	0	10%	10%	10%	10%	Night
6	1%	0	1%	1%	1%	1%	Night

Taxiways

100%, **30%** and **1%** brilliancy options are available.

6.3.11 **Signals** are provided as follows;

(a) The airfield has four illuminated wind sleeves located in grass areas near to the respective runway thresholds. There are no other signalling items.

6.3.12 **Runway signage** is provided as follows;

(a) Positional information signs are located at each runway exit. They are on the reverse side of the respective runway-taxiway holding point sign.

6.3.13 **Taxiway signage** is provided as follows;

(a) Illuminated taxiway information signs are provided.

(a) Taxiway location signs are coloured yellow-on-black. Directional signage is black-on-yellow. Intermediate taxi-holding position signage is coloured white-on-red.

(b) The main taxiways are referred to by letters (i.e.. A, B, C…) Connecting taxiways are referred to as 'links' (i.e.. Link 11, Link 12, Link 13…)

(c) Intermediate taxi-holding positions are referred to by letter/number (i.e.. C1, D2, AY5…)

6.3.14 Runway-Taxiway holding areas and holding position signage is provided as follows;

(a) The departure runway holding area is surrounded by reporting points (i.e.. PLUTO, HORKA…) which are marked by white-on-red illuminated mandatory signs.

(b) Runway-Taxiway holding positions providing access to, or egress from a runway, are signified by location signs (e.g., A1, N2E, SB3…) and by the appropriate mandatory white-on-red runway designator and/or CATI and CAT II/III runway holding signs located at the respective positions.

(c) CATI (Pattern 'A') runway holding position marking is always the last holding position prior to entering a runway. CAT II/III (Pattern 'B') runway holding position marking is used to identify a holding point further away from a runway than a Pattern 'A' marking.

(d) CATI and CAT II/III holding positions as follows;

	09L	**27R**	**09R**	**27L**
CAT I (Pattern A)	AB13, AB12	A1, A2, A3, A4	NB11, NB10, N7, S11, S7	NB1, NB2E, NB2W, NB3, S1, SB3
CAT II/III (Pattern B)	A13, A12	-	N11, N10, N8	N1, N2E, N2W, N3, SB3

6.3.15 **Apron lighting** is provided as follows;

(a) Apron lighting pylons with multiple LED lamp fittings are provided on all apron areas.

6.3.16 **Apron signage** is provided as follows;

(a) Each stand has an illuminated sign showing the stand number. This can be part of the Visual Docking Guidance System, or as a stand-alone sign. Within the T5 Campus, there are a number of stands, which have a supplementary system (commonly known as the Ramp Information Display System (RIDS)) which display additional information relating to the performance of the turnaround.

6.3.17 **Runway markings** are provided as follows;

(a) Runway designation, threshold, centreline, edge markings, touchdown zone and aiming point markings. All runway markings are white in colour.

(b) Yellow taxiway markings at appropriate points provide guidance off the runways onto the taxiway system.

6.3.18 **Taxiway markings** are provided as follows;

(a) Taxiway centreline markings are an unbroken yellow line. Intermediate Taxiway Holding positions are marked by a perpendicular broken yellow line.

(b) Taxiway edge markings are provided in some parts of the airfield.

(c) There are some guidance markings painted on the taxiways, such as stand number indicators and taxiway designations where deemed appropriate.

(d) All Runway/Taxiway holding positions have the appropriate markings for CAT I, CAT II/III, or CAT I/II/III operations.

(e) All runway/taxiway holding positions have 'Runway Ahead' markings and enhanced centreline markings, these locations are at runway crossing points or where the potential to enter a runway strip is greater.

(f) All taxiway/taxilanes vehicle crossings are demarcated using black and white surface markings. This is supplemented on the taxiway/taxilanes surface with a 'Vehicle Crossing Ahead' paint marking

(g) Unserviceable area on the airfield are marked with a yellow cross

6.3.19 **Apron markings** are provided as follows;

(a) A double white line is used to demarcate between the manoeuvring area and the apron.

(b) Stand centrelines are marked in continuous yellow, with secondary (MARS) centrelines painted in yellow/white alternating.

(c) Stands are marked with stopping positions to aid with aircraft positioning for towed and marshalled movements.

6.3.20 The **helicopter aiming point** is marked as follows;

(a) A white equilateral triangle measuring 18m on each side, is located on the taxiway system – in Link 43.

6.4 The location and radio frequency of VOR aerodrome checkpoints

6.4.1 No VOR aerodrome checkpoints are installed.

6.5 The location and designation of standard taxi routes

6.5.1 Taxi routes are published in the UK AIP ground movement chart (AD 2-EGLL-2-2)

6.5.2 A separate 'Code F' taxi route map is also produced and published in the UK AIP (AD 2-EGLL-2-3)

6.5.3 All routes are indicated on the published Airfield Map which denotes which sections of Taxiways are Code C, D, E, or F.

6.6 The geographical co-ordinates of each threshold, appropriate taxiway centreline points and aircraft stands

6.6.1 Co-ordinates of each threshold are published in the UK AIP (Aerodrome Chart; AD 2-EGLL-2-1)

6.6.2 Co-ordinates of each stand are published in the UK AIP (Aircraft Ground Movement/Parking; AD 2-EGLL-2-4,5,6,7), or can be found in Appendix A

6.6.3 Taxiway centreline co-ordinates are not published.

6.7 The geographical co-ordinates and the top elevation of significant obstacles in the approach and take-off areas, in the circling area and in the surroundings of the aerodrome (in the form of charts)

6.7.1 Significant obstacles on and around the aerodrome are published in the UK AIP. Notable charts showing this information are;

(i) Aerodrome Chart; AD 2-EGLL-2-1
(ii) Standard Departure Charts – Instrument; AD 2-EGLL-6-x
(iii) Standard Arrival Charts, Instrument Approach Charts; AD 2-EGLL-7-x; AD 2-EGLL-8-x

6.7.2 Lists of obstacles, co-ordinates and elevations are also published in text format in the UK AIP, section EGLL AD 2.10.

6.8 Pavement surface type and bearing strength using the Aircraft Classification Rating – Pavement Classification Rating (ACR-PCR) classification system

6.8.1 Runway 09L/27R has a PCR of 1020 R/A/W/T and Runway 09R/27L has a PCR of 820 R/A/W.T, sufficient for all aircraft types currently operating from Heathrow.

6.8.2 The remainder of the movement area is suitably constructed for the aircraft operating from Heathrow.

Runway, Taxiway, Apron Physical Characteristics		
Apron / Runway / Taxiway	Surface	PCR
RWY 09L/27R	Grooved Asphalt	1020 R/A/W/T
RWY 09R/27L	Grooved Asphalt	820 R/A/W/T
Aprons	Concrete	-
TWY A North/South	Concrete / Asphalt	820 R/A/W/T
TWY A East	Concrete / Asphalt	980 R/A/W/T
TWY A West	Concrete	1440 R/D/W/T
TWY B North	Concrete / Asphalt	920 R/A/W/T
TWY B South	Concrete / Asphalt	820 R/A/W/T
TWY B East	Concrete / Asphalt	980 R/A/W/T
TWY B West	Concrete	1440 R/D/W/T
TWY C & D	Concrete	1400 R/D/W/T

TWY E	Concrete	880 R/A/W/T
TWY F	Concrete	840 R/A/W/T
TWY G	Asphalt	840 R/A/W/T
TWY H & K	Concrete	1020 R/A/W/T
TWY L	Concrete	960 R/A/W/T
TWY M	Concrete / Asphalt	1260 R/B/W/T
TWY R	Concrete	736 R/A/W/U
TWY S & W	Concrete / Asphalt	787 R/A/W/U
TXY T	Concrete	980 R/A/W/T
TXY V	Asphalt	1020 R/A/W/T
TWY Y	Concrete	706 R/D/W/T
TXY Z	Concrete	527 R/A/W/U
Link 22	Concrete / Asphalt	787 R/A/W/U
Link 23	Concrete / Asphalt	1020 R/A/W/T
Link 28	Concrete	980 R/A/W/T
Link 42	Concrete	787 R/A/W/U
Link 43 & 44	Asphalt	787 R/A/W/U
Link 56 & 57	Concrete	1480 R/D/W/T
Runway Entrance / Exit		
A1, A6, A8, A11	-	820 R/A/W/T
A2, A3, A4, A5, A7, A9E, A9W, A10E, A10W, A12, A13	-	1020 R/A/W/T

N1, N2E, N3, N4E, N4W, N5E, N5W, N6, N7, N10, N11, S1, S3, S4E, S4W, S5E, S5W, S6, S7, 11	-	820 R/A/W/T

6.9 Pre-flight altimeter check locations established and their elevation

6.9.1 No altimeter check locations are established at Heathrow.

6.10 Declared distances (based on UKTM)

	TORA	**TODA**	**ASDA**	**LDA**
09L	3901m	3901m	3901m	3592m
27R*	3882m	3960m	3882m	3882m
09R	3658m	3658m	3658m	3350m
27L	3658m	3658m	3658m	3658m

***Clearway – 78 x 50 M**

6.10.1 The most up-to-date declared distances, including those for intersection departures, may be found in the UK AIP, in section EGLL AD 2.13

6.10.2 Procedure for calculating reduced declared distances where there are temporary objects infringing the strip or obstacle limitation surfaces

6.10.3 The responsibility for calculating and promulgating reduced declared distances rests with the AfDM.

6.10.4 Procedures for calculating revised declared distances are available in Airfield Operations Local Operating Procedure Airside_ASD-O_ALOP_25

6.11 Contact details (telephone/telex/fax numbers and e-mail addresses) of the aerodrome co-ordinator for the removal of disabled aircraft, expressed in terms of the largest aircraft type

6.11.1 Heathrow does not nominate an aerodrome co-ordinator for disabled aircraft removal.

6.11.2 The Heathrow representative at any incident involving a disabled aircraft will be the Airfield Duty Manager (AFDM), who may be contacted on 0208 745 7373, or airfield_duty_manager@heathrow.com

6.12 Rescue and fire-fighting level of protection, types and amounts of extinguishing agents normally available at the aerodrome

6.12.1 RFF Category at Heathrow is **10.** The quantities of water, foam and complementary agents appropriate to AFRS Category 10 are available for immediate discharge and exceed the requirements of CAA Regulation; AMC4 ADR.OPS.B.010(a)(2) Rescue and firefighting services.

6.12.2 At all times the AFRS will provide the number of vehicles and quantities of media described in AFRS Volume 1 Administration, Chapter 12 – section 12.1.

The main complementary media is Monnex and is regarded as a high-performance dry powder. Refer to AFRS Volume 1 Administration, Chapter 12 – section 12.1.1, for further information.

6.13 Exemptions or derogations from the applicable requirements, cases of equivalent level of safety (ELOS), special conditions (SC, National SC & DAAD) and limitations.

Element	Exemption	Section	Detail of exemption
CS ADR-DSN.A.005	(N) SC	AERODROME REF CODE	The UK determines the Aerodrome Reference Code Number (code element one) from the greater value of TODA or ASDA, and not the Aeroplane Reference Field Length.
CS ADR-DSN.B.075	SC	RUNWAYS	Short distances (i.e. small and insignificant in the overall length of the runway and with no issues noted by either HAL or Airline Operators) on the runways fail to meet the gradient change specification.
CS ADR-DSN.B.130	SC	RUNWAYS	Short sections of the transverse slope of the runway shoulders exceed 2.5%
CS ADR-DSN.B.180	SC	RUNWAYS	Longitudinal slope along short sections of the runway strip exceed the specification.
CS.ADR.DSN.D.250	SC	TAXIWAYS	Minimum clearance distance (i.e. the distance from the outer main wheels of an aircraft to the taxiway edge) not provided on a taxiway curve at A6 when tracked cockpit-over-centreline.
CS ADR-DSN.D.260	SC	TAXIWAYS (Runway to Taxiway Separation Clearance)	Minimum runway to taxiway separation distances are not met at the following locations; - Sierra abeam hold S7 - Sierra between S6 and AVROE
CS ADR-DSN.D.260	SC	TAXIWAYS (Taxilane centreline to object clearance – Code E)	Minimum taxilane centreline to object clearance distances (Code E) are not met at the following location; - Zulu
CS ADR-DSN.D.260	SC	TAXIWAYS (Taxiway centreline to object clearance – Code E)	Minimum taxiway centreline to object clearance distances (Code E) are not met at the following locations; - Foxtrot between F1 and Golf - To the South of Sierra between S7 and SY6 (Code D/E)

Element	Exemption	Section	Detail of exemption
CS ADR-DSN.D.260	SC	TAXIWAYS (Taxiway centreline to object clearance – Code F)	Minimum taxiway centreline to object clearance distances (Code F) are not met at the following locations; - To the East of Alpha at MORRA - To the East of Link 23, between Alpha & Link 21 - To the West of Whiskey, abeam the Royal Suite Apron and stands 454-456. - To the North of Bravo (S) between Link 32 and Kilo - East and West of Echo between Link 35 and Link 36 - To the South of Sierra between stands 601 and 609 - To the South of Sierra between Tango and Victor - To the South of Tango between stands 405 and 412 - To the East and West of Link 42 - To the South of Link 44
CS ADR-DSN.D.280	SC	TAXIWAYS	A small number (7) of localised sections of taxiway do not meet the required transverse slope requirement.
CS ADR-DSN.D.315	SC	TAXIWAYS	Taxiway strip width is not met at various places around the airfield.
CS ADR-DSN.D.330	SC	TAXIWAYS	Slopes on taxiway strips – various non-significant non compliances around the airfield.
CS ADR-DSN.D.335/340	(N) SC	TAXIWAYS	Displaced landing thresholds are provided and aircraft at full length holding points infringe the approach surface.
CS ADR-DSN.E.360	SC	APRONS	Numerous stands exceed the maximum permitted slope (transverse or longitudinal)

Element	Exemption	Section	Detail of exemption
CS ADR-DSN.E.365	DAAD	APRONS	Clearance distances* on some aircraft stands do not meet the specification. *Clearance distances to old rail-drive airbridges on stands 327, 329, and 331.
CS ADR-DSN.L.535	SC	MARKINGS	There is no specification for the number of 'piano keys' a 50m runway should have – however Heathrow has the equivalent number for a Code F (45m) runway.
CS ADR-DSN.L.597	SC	MARKINGS	Heathrow uses an equivalent marking for apron service roads which cross taxiways.
CS ADR-DSN.M.635	SC	LIGHTS	Two of the approach lighting systems (27R, 09L) have a pair of centreline lights missing linked to the MLS system.
CS ADR-DSN.M.710	(N) SC	LIGHTS	Turn-off lights show amber/green in both directions – the specification requires green approaching the runway.
CS ADR-DSN.M.715	SC	LIGHTS	Spacing between lights on one runway exit (A13) is larger than the specification.
CS ADR-DSN.M.730	SC	LIGHTS	Red stop bars protecting a runway at Heathrow are bi-directional (not uni-directional as per the specification) High intensity lights are used on red stop bars (not low intensity as per the specification)
CS ADR-DSN.M.750	SC	LIGHTS	Some stands do not meet the requirement of a 'uniformity ratio of not more than 4:1'
CS ADR-DSN.N.770	(N) SC	LIGHTS	Where installed at Heathrow, road holding points have flashing amber lights not red as per the specification.
CS ADR-DSN.M.775	SC	LIGHTS	The light output of illuminated airfield signage cannot be measured in situ.

Element	Exemption	Section	Detail of exemption
CS ADR-DSN.M.785	SC	LIGHTS	Signs at intersections are not located at a minimum of 60m from the centreline of the intersecting taxiway as per the specification. Heathrow does co-locate mandatory signs with other signs.
CS ADR-DSN.M.795	(N) SC	LIGHTS	Stand number indication boards are yellow-on-black rather than the specification of black-on-yellow.
CS ADR-DSN.Q.840, 846, 847	DAAD	OBSTACLES	There are numerous objects which penetrate the northern transitional surface of runway 09L/27R, and a small number which penetrate the TOCS for 27L. None of these objects are marked or lit.**
CS ADR-DSN.R.870	DAAD	VISUAL AIDS	Heathrow uses cones/blocks that are 0.3m high for marking unserviceable areas+.

*Clearance distances to old rail-drive airbridges on stands 327, 329, and 331.

**objects infringing the aerodrome can all be found in AIP section 2.10

+these are related with work-sites and non aircraft-trafficable areas.

E. Particulars of the operating procedures of the aerodrome, its equipment and safety measures

E.7 Aerodrome reporting, including:

Airside_ASProm_Standard_004 – Aeronautical Information

7.1 Arrangements and procedures for reporting changes to the aerodrome information set out in the AIP and requesting the issue of a NOTAM, including reporting changes to the Competent Authority and recording the reporting of changes

7.1.1 Responsibility for ensuring that information within the AIP is up-to-date rests jointly with HAL, NATS and the Department for Transport.

7.1.2 The HAL Aerodrome Compliance Manager (ACM) is responsible for maintaining the AIP with respect to aerodrome facilities, obstructions, some Local Traffic Regulations, and the airfield charts.

7.1.3 NATS are responsible for maintaining flight procedures and associated charts.

7.1.4 The Department for Transport is responsible for noise abatement procedures.

7.1.5 Changes to the AIP are notified to AIS via the submission of a 'Change Request' on the Aurora System. Records of changes submitted by HAL are kept by the Aerodrome Compliance Team.

7.1.6 Information related to the airfield operational state, or temporary changes of an immediate nature, are promulgated via NOTAM by the HAL Airfield Duty Manager (AfDM). The AfDM is responsible for determining the requirements for promulgation and actioning accordingly.

7.1.7 The AfDM will issue a NOTAM by submitting an electronic NOTAM proposal via the AFPEx portal online.

7.1.8 The AFPEx portal keeps records of NOTAMS submitted for publishing by Heathrow.

7.2 Procedures and frequencies for aeronautical data surveying

Airside_ASProm_Standard_004 – Aeronautical Information

7.2.1 Responsibility for the initiation, management and promulgation of aeronautical data surveys rests with the HAL Aerodrome Compliance Manager (ACM).

7.2.2 The ACM commissions an approved survey company to carry out a 'full' or 'check' survey on a yearly basis. The current preferred supplier for aerodrome surveying is SLC Ltd.

7.2.3 Upon completion, the survey data is checked and analysed for completeness and significant changes. Particular attention is paid to changes on the aerodrome and in the approach and take-off funnels. Changes are recorded and incorporated in the appropriate documentation. The third-party survey company is then instructed to forward the survey data to NATS Airport Services.

7.2.4 NATS will then check the content of the survey using appropriate computer software. Once validated, a set of 'Type A' charts are produced for the approval of the ACM.

7.2.5 On approval, the full survey is published, and the aerodrome charts and AIP amended if necessary.

7.2.6 Any significant new obstacles identified are investigated, and if necessary/possible, removed.

7.2.7 A copy of the latest survey is held by the ACM.

E.8 Procedures for accessing the aerodrome movement area, including:

8.1 Coordination with the security agencies

8.1.1 Heathrow works with various security agencies to assure safety of passengers and aircraft. Heathrow has an internal security function, who carry out screening of passengers, colleagues and vehicles through various security areas around the airport. Heathrow also has its own dedicated branch of the Metropolitan Police Service (SO18 – Aviation Policing).

8.1.2 Heathrow provides statutory access to the aerodrome for security agencies and competent authority inspectors.

8.1.3 At an aircraft incident, the Airfield Duty Manager (AfDM) will liaise with the Met Police incident commander to co-ordinate activities, and where appropriate, provide scene preservation for evidential purposes.

8.2 Prevention of unauthorised entry into the movement area

8.2.1 The full perimeter of the airfield is protected by an anti-intruder fence.

8.2.2 Colleagues and vehicular access through the fence is provided at Control Posts. Control posts will also provide access from the Central Terminal Area (CTA) onto the movement area. Control post locations are shown on the HAL aerodrome map.

8.2.3 Pedestrian access through control posts or from terminal areas onto the aprons is controlled by means of an ID Card swipe system (known as MAID) which ensures that holders are permitted access only to areas of the airport for which they have a recognised need for access.

8.2.4 Vehicles using control posts to access the movement area are subject to search by security colleagues, and only vehicles with a valid license (Vehicle Apron Pass) are permitted access.

8.2.5 HAL operates a licencing policy for all operators of vehicles airside, which, among other things, specifies the number of vehicles a company may operate airside. Acceptance of the licence also directs operating companies to abide by the appropriate Operational Safety Instructions (OSI) issued by HAL, which further define the safety requirements for companies operating airside.

8.2.6 All personnel and vehicles are screened in accordance with the requirements of the National Aviation Security Programme (NASP). The application of HAL's security procedures can be found in the Airport Security Programme, published annually, with more detailed procedures contained in the HALSEC Operations Manual. Security requirements for airport users are published via a series of Airport Security Notices.

8.2.7 There are several emergency gates around the airfield, which provide access to Rendezvous Points and remote areas. The gates are kept locked when not in use, and keys tightly controlled. Keys are held by HAL Security, the Airside Operations Department, Airport Fire Service and Metropolitan Police.

8.2.8 Signage is placed at regular intervals around the perimeter, warning of the aircraft

movement area, and that unauthorised entry is not permitted. The boundary of the Critical Part of the Security Restricted Zone (CPSRA) is also signed with mandatory security notices.

8.2.9 There are two significant 'Other' security restricted areas on the airfield (those outside the Critical Part) – British Airways and Virgin Atlantic maintenance facilities which are outside the licenced boundary, and the cargo facility south of runway 09R/27L. Access to and from these areas is controlled and the boundary between these areas and the Critical Part is managed by HAL Security and protected using a radar system.

E.9 Procedures for the inspection, assessment and reporting of the condition of the aerodrome movement area and other operational areas and facilities, (including runway surface friction characteristics assessments and water-depth measurements), including:

9.1 Arrangements and means of communicating with air traffic services during inspections

All the vehicles of the Airfield Operations team carrying out inspections have VHF radios fitted, which enable immediate communication with ATC, and have transponders installed to provide ATC with awareness of their positions within their systems.

9.1.1 Inspections taking place on taxiways and aprons are carried out on a 'give way' basis; as such inspection vehicles are expected to maintain situational awareness using the radio and to yield to aircraft. Runway inspections on live runways are carried out under positive control from ATC.

9.1.2 The Airfield Operations team are empowered to suspend operations where safety is at risk and are able to do this immediately using the VHF radio link to ATC.

9.2 Inspection checklists, logbook and record-keeping

9.2.1 Completion of routine surface and lighting inspections on the movement area are electronically recorded in ALFRED.

(a) Surface faults and AGL faults found during inspections are electronically logged using ALFRED.

9.2.2 Environmental procedures

ASEnv_OSI_038 -Administration and Enforcement of Night Aircraft Movement and Quota Limits
ASEnv_OSI_055 –Pre Conditioned Air Rules and Procedures
ASEnv_OSI_056 –Pollution Prevention
ASEnv_OSI_057 –De-icing Fluid Management Reporting Procedures
ASEnv_OSI_058 –Waste Management and Disposal including Aircraft Catering Waste
ASEnv_OSI_059 –Spillage and Incident Reporting Procedures
ASEnv_OSI_060 -Surcharges for Noise Infringements by Departing Aircraft
ASEnv_OSI_061 -Ground Noise at Heathrow – Approval Control Process and Safety of Engine Ground Running

(a) Heathrow Airport Limited (HAL) is committed to minimising the impact of its growing business on the environment and local communities through the continuous improvement of environmental performance and by acting as responsible stewards of the environment at all times.

(b) Heathrow is subject to a number of environmental controls in common with other major industries. The avoidance of water, air and land contamination, which can result from inadequate storage of materials, routine operations or emergency situations, is an essential operating requirement.

(c) Heathrow is also subject to aircraft Noise Abatement legislation, both on the ground and in the air.
(d) The emphasis rests firmly on the avoidance and minimisation of risk, and all practical steps should be taken to prevent events by means of training, awareness of legislation, good maintenance of equipment and good working practices.

9.3 Inspection intervals and times; reporting results and follow up actions

Airside_ASInsp_Standard_008 – Airfield Inspections
Airside_ASInsp_Standard_009 – Apron Floodlighting Illuminance Checks

9.3.1 The Airfield Operations team is responsible for ensuring compliance with the certification requirements laid down by CAA. To do this, a series of inspections of the movement area are carried out in a 'three-tier' methodology. The three-tier inspection regime is a series of inspections on the movement area and associated airfield ground lighting systems.

	Description
Level 1 (L1)	A routine daily inspection of the movement area and airfield ground lighting by the colleagues of the Airfield Operations team. This inspection is generally carried out from a vehicle, and covers all the movement area (Runways, Taxiways, Stands and Roads) and includes a horizon scan of the surrounding area looking for objects with the potential to infringe the OLS. Any equipment faults or defects found are reported to the Engineering Help Centre for passing to the respective engineering teams for rectification.
Level 2 (L2)	A more detailed inspection of a specific area is carried out by Airfield Operations under the 'Taxiway and Stands Monitoring System' (TMS & SMS) and Runways. The taxiways, associated lighting and stands are each divided into 32 areas, with one area of each being inspected per day. Runways are inspected at a frequency of half a runway each week. This inspection is either carried out from a vehicle, or on foot. Lighting and runway inspections are carried out at night, with taxiway and stand surface inspections during daylight hours. Any equipment faults or defects found are reported to the Engineering Help Centre for passing to the respective engineering teams for rectification.
Level 3 (L3)	An audit/inspection carried out by members of the airside management team on a bi-weekly basis. The airfield is split into inspection zones, which results in each zone being inspected around

	3.5 times per year. This inspection checks L1 and L2 performance and allows the management team to gain a perspective of the operational condition of the airfield. A walking inspection of the runways is carried out Every five months by the airside management team and will include representatives from wider departments, including engineering.

9.3.2 **Runway Surface Inspections (L1)** are carried out as follows;

(a) Four routine surface inspections are carried out during the operational day. These are;
- (i) Pre-Operations – carried out before the first arriving aircraft. During certain months of the year this is carried out during the hours of darkness; Airfield Operations vehicles are fitted with high power LED inspection lights to carry out the task.
- (ii) AM – mid-morning; usually between 0900z and 1030z
- (iii) PM – mid-afternoon; usually between 1400z and 1500z
- (iv) Dusk – surface and lighting inspection

(b) The pre-operations and dusk inspections are carried out by a single Airfield Operations vehicle. The AM and PM inspections are carried out using two vehicles. All vehicles are in active radio contact with ATC at all times.

(c) Additional inspections are carried out as required. These may be at the request of ATC, for instance after an aborted take-off, certain categories of emergency, or during inclement weather conditions. Inspections may also be instigated by the Airfield Operation, for instance following a 'FOD Radar' activation.

(d) Inspectors are trained to note and report anything which may affect the category or serviceability of the runway, including surface conditions, paint markings, lighting, FOD, obstructions or bird control. The inspector will take action appropriate to the issue, which may include raising engineering work orders, or in extreme cases where aircraft safety is at immediate risk, suspending operations on the affected runway via ATC. The inspector will also inform the Airfield Operations control room and the Airfield Duty Manager (AfDM). The AfDM will co-ordinate actions with other departments or ATC if escalation is required.

9.3.3 **Runway lighting inspections** are carried out as follows;

(a) Surface lighting inspections (thresholds, stop ends, TDZ, centreline, edge lights etc.) are carried out by Airfield Operations each night as part of the dusk inspection.

(b) The colleagues of the Airfield Operations team carry out an inspection of one of the sets of approach lights each night on a rotation basis. The approach lights are checked for calibration by Airside Engineering every 6 months.

(c) Inspectors are trained to note and report anything which may affect the category or serviceability of the runway. Lighting faults which affect the runway category are reported to Airfield Operations and the AfDM for escalation to ATC and engineers for rectification.

(d) PAPI units are inspected for serviceability by the Airfield Operations team as part of the 'first light' runway surface inspection. The units are inspected for correct setting angle once per week by Airside Systems, and if necessary are adjusted in situ. PAPI units may also be checked for alignment on the request of Airfield Operations or ATC – for instance following a pilot report of misalignment, or an incident where an aircraft under or over-shoot has occurred.

(e) Each month, Airside Systems check the runway light output using a MALMS portable photometric unit. The check covers TDZ, centreline and edge lights. Lights that are below specified levels are cleaned or changed as part of the maintenance programme. Detailed records are held by Airside Systems.

(f) Runway light cleaning takes place once per week, and will attend to a group of runway lights, such as the centreline, edge lights or threshold/stop end. Particular attention is paid

to lights which have underperformed in the photometric check (MALMS) carried out by Airside Systems.

(g) Flight lighting checks of all approach and runway lighting shall be completed at least once every 6 months. Flight checks of PAPI units must be completed at least every 6 months.

9.3.4 Runway turn-off lighting inspections are carried out as follows;

(a) Each night, Airfield Operations colleagues carry out a detailed L2 inspection of a number of runway turn-offs.

(b) All runway turn offs are inspected over a 14-day period.

(c) The inspection covers the serviceability and function of the lead-on, lead-off, stop bar (CAT I and CAT II/III where applicable), and '90m interlock' functionality.

(d) The inspection is carried out in conjunction with ATC. A common set of 'steps' are followed by the controller and Airfield Operations colleagues carrying out the inspection, which allows each route and stop bar to be checked in turn.

(e) Any unserviceable fittings or failures in functionality are reported via ALFRED or escalated via the AfDM if required. ALFRED creates maintenance requests via the Engineering maintenance database (Maximo) – these requests are directed to the appropriate team for resolution. Inspectors are able to track progress of faults using the tablet and escalate if the issue requires it.

9.3.5 Taxiway surface inspections are carried out as follows;

(a) Level 1 inspections are carried out by Airfield Operations in an appropriately equipped vehicle. The colleagues operate on a 'listening out' basis with ATC at all times. The taxiways are inspected on a Level 1 basis 3 times in a 24 hour period.

(b) Inspectors are trained to note and report anything which may affect the serviceability of the taxiway, including surface condition, paint markings, FOD, lighting and pit/drain covers. The inspection also covers runway guard lights, signs, work-in-progress and bird control.

(c) Inspectors will take appropriate action, which may include raising engineering work orders, or in extreme cases where aircraft safety is at immediate risk, closing the taxiway (via ATC). The inspector will also inform the Airfield Operations control room and the AfDM.

(d) Additional inspections are carried out at the request of ATC, after a taxiway closure, or at the cessation of works/maintenance.

(e) A more detailed, Level 2 inspection is carried out each day under the 'Taxiway Monitoring System'. This involves a slow speed driving or walking inspection of a particular area of taxiway. The whole taxiway system is inspected to a Level 2 standard over a 32-day period. Inspectors will raise maintenance requests via the Engineering Help Centre or flag areas for monitoring. Results from these inspections are used to inform preventative or minor maintenance requirements and wider decisions on capital asset replacement programmes.

(f) A More detailed L3 inspection is carried out by members of the airside management team on a bi-weekly basis. The airfield is split into inspection zones, which results in each zone being inspected around 3.5 times per year

9.3.6 Taxiway lighting inspections are carried out as follows;

(a) A general L1 inspection of the taxiway lighting is carried out each evening by the Airfield Operations team as part of a routine patrol regime.

(b) A more detailed L2 inspection of one area per night is carried out under the 'Taxiway Monitoring System'. The whole taxiway lighting system is inspected in detail over a 32-night period.

(c) The inspection is carried out in conjunction with ATC. A common set of 'steps' are followed by the ATC lighting panel operator (LPO) and Airfield Operations colleagues carrying out the inspection, which allows each green selectable route and red stop bar to be checked in turn.

(d) The inspector will take appropriate action to address defects when found, which may include raising work orders via the Engineering Help Centre, or in serious cases may require the closure of a section of taxiway.

(e) Results from the inspections are used to inform reactive or preventative maintenance requirements.

9.3.7 Aprons & stand equipment inspections are carried out as follows;

(a) Level 1 inspections of apron areas are carried out by Airfield Operations in a suitably equipped vehicle. Inspections are completed 4 times in each 24-hour period.

(b) A more detailed L2 inspection of one area per day is carried out under the Stands Monitoring System'. This involves a walking inspection of the specified area. The programme means that all the apron areas are inspected to a L2 standard over a 32-day period. This inspection includes surface condition, paint markings, works-in-progress, birds/bird attractants, and airside discipline.

(c) A more detailed L3 audit is carried out by members of the airside management team, and is designed to check the effectiveness of Level 1 and Level 2 inspections, and also to gain a perspective of the operational condition of the airfield, providing oversight of the performance and outputs of the Level 1 & 2 Inspections. The L2 inspection zones are grouped together into 4 zones per group with each group audited on a bi weekly basis and the whole movement area is audited at least twice a year.

(d) Emergency stand telephones are checked in line with the three-tier inspection programme, and any faults reported directly to HAL IT services.

(e) Stand lighting is inspected as part of the evening L1 inspection, and any faults reported via the Engineering Help Centre. Stand lighting is also inspected annually by HAL Engineering – this inspection includes a lighting assessment using calibrated light meters.

(f) In addition, all colleagues working on the apron area are expected to report any hazard which may impact upon airside safety. If necessary, Airfield Operations will send a member of colleagues to assess the situation and make the area safe in the first instance.

9.3.8 Runway friction measurement is carried out as follows;

(a) HAL follows CAP 683 guidance "The Assessment of Runway Surface Friction for Maintenance Purposes"

(b) HAL carries out full assessment measurements of runway friction in order to monitor the condition of the runway surface on a minimum 5-month cycle, endeavouring to achieve this more regular dependant on weather conditions.

(c) HAL uses the Airport Surface Friction Tester (ASFT) for measuring surface friction. HAL also has a second ASFT as a backup, and a third machine called the Skiddometer. The machines are maintained in Airfield Operations to ensure that a machine is available for immediate use.

(d) Any materially significant areas of the runway surface which record below Minimum Friction Level values are reported to flight crews by the AfDM via NOTAM as 'slippery when wet'.

(e) Details of the operation of the ASFT can be found in the Airside_ASD-O_ALOP_028

(f) A record of friction measurements is held in online platform. The results from friction measurements are used to target rubber removal efforts.

E.10 Procedures for the inspection routine and emergency maintenance of visual and non-visual aids, as appropriate, and the aerodrome electrical systems including:

10.1 Inspection checklists, logbook and record-keeping

10.1.1 The AGL and airfield electrical systems are maintained by HAL Airside Systems, with additional support by ATG (supplier of the AGL Control System), and a variety of other sub-contractors. Airfield Operations carry out inspections of the AGL systems, as detailed in section E.9

10.1.2 HAL Airside Systems maintain records of the activities carried out as part of the maintenance regime. Fault repairs and mandatory maintenance inspections completed are recorded using the 'Maximo' tool. Records stored in Maximo allow historical data on failure rates and maintenance regimes to be analysed and incorporated into revised maintenance programmes to prevent future failure.

10.2 Inspection intervals and times; reporting results and follow up actions

10.2.1 For details of inspection regimes for visual aids, see section E.9

E.11 Operating, maintenance and repair instructions, servicing information, troubleshooting and inspection procedures of aerodrome equipment

- Airside Systems technicians receive sufficient training and achieve relevant qualifications such that they are able to carry out preventative maintenance and repair on airfield electrical installations.
- In addition, method statements are provided via the 'Maximo' asset management system to aid technicians carrying out their allocated tasks.

E.12 Procedures for maintenance of the movement area, including paved areas; unpaved runways and taxiways; runways and runway strips and aerodrome drainage

12.1 For further information on maintenance of pavement areas, see section E.9

E.13 Procedures for aerodrome works including:

Airside_ASWorks_Standard_005 – Control of Airside Works

ASWorks_OSI_003– Procedure for the Approval of Cranes and other Tall Construction Equipment
ASWorks_OSI_004 – Control of Airside Works

13.1 Co-ordinating, planning and carrying out construction and maintenance work

13.1.1 Any request for work that is carried out on the airfield is submitted through the Aerodrome Compliance Team. In consultation with appropriate companies and/or Heathrow Airport Limited departments, the work is planned and scheduled. This plan/schedule is then agreed and communicated to the relevant departments/Companies.

13.1.2 In appropriate cases (such as large or complex construction projects), supporting documentation will also be produced by the department to provide additional guidance to all parties involved (including ATC, contractors, airlines etc.). These documents are known as Airside Works Instructions (AWI) and are written by the Aerodrome Compliance Team, and these are supplemented with Operational Advice Notices (OANs), NOTAMs and AIP Supplement when appropriate.

13.1.3 Approved works will be issued a works permit by Airside Works Approval, via an online computer system. The works permit sets out the particulars of the work to be conducted, and any safety conditions to be adhered to whilst the work is completed.

13.1.4 On the day/night of the works, the contractor must have the works permit authorised (checked) and activated by the Airfield Operations team prior to set up/start of work. This may be via a phone call or a meeting, as required by the Airfield Local Operating Procedure (ALOP).

13.1.5 The set up and inspection of works areas forms part of the inspection process carried out by Airfield Operations.

13.1.6 Upon completion of the work, the works permit is deactivated.

13.2 Arrangements and means of communicating with air traffic services during the progress of such work

13.2.1 Prior to commencement of night works on the manoeuvring area, the AfDM will produce a map showing the areas of the airfield which will be closed for work during the course of the night. This map is then shared with ATC, key airline partners and various other internal HAL departments.

13.2.2 The closure of parts of the manoeuvring area for works is supervised by the Airfield

Operations. ATC are advised, over the VHF air-band system, of the closure of each area, prior to suitably safeguarding the area. The reverse occurs at hand back.

13.2.3 During the night, the Airfield Operations department is in regular communication with ATC as works areas close and open. Any issues encountered during works which may affect the serviceability of a particular area will be discussed with ATC by the AfDM.

13.2.4 Any works outside of the operational hours will be approved by the AfCR for minor works, or the AfDM for major works. Any impacting works are promulgated as necessary.

E.14 Procedures for apron management including:

14.1 Transfer of the aircraft between air traffic services and the apron management unit

14.1.1 Not applicable at Heathrow.

14.2 Allocation of aircraft parking positions

ASGrOps_OSI_047 – Allocation of Aircraft Parking Stands
ASGrOps_OSI_030 – Aircraft Aprons/Stands – Types & Markings
ASGrOps_OSI_034 – Operation of Royal Suite Apron Stands 457, 457L, 457R & stand 458
ASGrOps_OSI_033 – Stands 601-609

14.2.1 Stand allocation at Heathrow is carried out by the Aircraft Operations Unit (AOU) who work initially from a flight schedule provided by Airport Coordination Limited (ACL). The schedule is updated continually, either by electronic interface directly from ACL, the airlines and National Air Traffic Service (NATS), or by AOU operators. Updating relates to aircraft registrations, arrival and departure times.

14.2.2 Stands are allocated by AOU some hours in advance of the aircraft's arrival. The allocations are transmitted by the Terminal Management System (TMS) to the Integrated Database for Airport Handling Operations (IDAHO) and from there to Air Traffic Control, the airlines, handling agents, fuel companies and control authorities. The IDAHO system also supplies ETA's and landing times to terminal Flight Information Display Systems (FIDS), the Internet and HAL Finance for aircraft charging purposes.

14.2.3 The overriding authority for stand allocation at Heathrow rests with AOU. However, due to the extensive use of Terminals 5 by British Airways, they assume the day-to-day responsibility for stand allocation in this terminal. Allocations made by British Airways are passed to AOU via IDAHO into TMS. AOU then validate this information before sending it out for publication. HAL reserves the right to override British Airways allocation if deemed necessary.

14.2.4 A database of stand sizes and aircraft dimensions is held within IDAHO and TMS. All stand allocations are validated against this database to ensure stand to aircraft compatibility.

14.2.5 All information concerning the movement of arriving and departing aircraft are recorded in the IDAHO database. This database is also used for recording towing movements and stand occupancy times. The IDAHO database is used to calculate landing fees and parking charges.

14.3 Engine start and aircraft push back

ASGrOps_OSI_092 - Aircraft Arrival, Turnaround and Departure Procedures on Stands
ASEnv_OSI_061 – Ground Noise at Heathrow - Approval Control Process and Safety of Engine Ground Running
ASGrOps_OSI_026 – Aircraft Towing Operations
ASGrOps_OSI_072 – Airfield Pushback Restrictions
ASEnv_OSI_078 Use of Aircraft Auxiliary Power Units

14.3.1 Accountability for the control of ground noise at Heathrow rests with HAL. There are a number of local procedures in place to limit unnecessary engine ground running.

14.3.2 As a rule, engines are not started on stand. APU's may be run on stand for a minimal amount of time, and only immediately after arrival or just prior to departure.

14.3.3 Engine start on stand prior to push back may be approved by ATC, subject to HAL's approval.

14.4 Marshalling and follow-me service.

14.4.1 The vast majority of stands at Heathrow are fitted with advanced Visual Guidance Systems (A-VDGS). However, in the event that the A-VDGS are not available or not installed, Heathrow provides a marshalling service.

14.4.2 Marshalling is carried out by the colleagues of the Airfield Operations Department. Colleagues learn to marshal aircraft during initial training and receive annual competency checks.

14.4.3 Heathrow also provides a 'follow-me' leader service upon request of flight crews or ATC. This is also carried out by the colleagues of the Airfield Operations, using vehicles equipped for the duty.

E.15 Procedures for apron safety management including…

15.1 Protection from jet blast

ASEnv_OSI_061 – Ground Noise at Heathrow - Approval Control Process and Safety of Engine Ground Running
ASGrOps_OSI_092 – Aircraft Arrival, Turnaround and Departure Procedures on Stand

15.1.1 Pilots operating at Heathrow are requested, via the UK AIP, section EGLL AD 2.20, to ensure they use minimum power necessary to avoid jet blast on adjacent stands.

15.1.2 ATC have various procedures, detailed within MATS Part II for reducing jet blast risks during push back, including specifying the number of intervening stands between concurrent push backs, and specifying the direction of push from particular stands to avoid jet blast risk on adjacent stands.

15.1.3 Engine ground running is limited to low power or check start only on stand, and only with the approval of Heathrow. Stands with particular hazards related to jet blasts have specific operational conditions applied. During routine patrols, Airfield Operations will monitor engine running and address any hazards observed.

15.1.4 All ground engine runs are approved by the AfCR. High-powered engine runs are continually monitored by Airfield Operations.

15.1.5 All high-power engine runs are expected to be carried out within dedicated engine run facilities. Any change to this requirement is managed closely by Airfield Operations and

takes place in remote areas of the manoeuvring area in order to reduce the hazard to personnel, vehicles and other aircraft.

15.2 Enforcement of safety precautions during aircraft refuelling operations

ASGrOps_OSI_019 – Fuelling of Aircraft

15.3 FOD prevention, including apron cleaning/sweeping

Airside_ASInsp_Standard_008 – Airfield Inspections

ASGrOps_OSI_081 Airside Cleanliness & FOD Management

15.3.1 FOD Radar – Heathrow has an operational FOD detection system that monitors the runway surface which compliments the detailed inspection requirements, and while the use of such a system is not a regulatory requirement, it contributes to exceeding the above regulatory and safety objectives. The primary objective of the operation of such systems is to enhance the safety performance of the aerodrome through improved FOD detection, while not hindering aircraft operations at the airport.

15.3.2 The sweeping and cleaning of the airfield is carried out as part of the duties of Airfield Operations. These duties include cleaning, sweeping, FOD management and emptying of the various bins on stand.

15.3.3 Airfield Operations has a variety of sweepers, combination sweepers, dustcarts and gulley-suckers/bowsers. A combination of these vehicles is deployed daily to ensure that good coverage of the airfield is achieved, and that debris or spillages are able to be dealt with promptly.

15.3.4 Contractors working on the airfield carrying out maintenance will usually be required to provide their own sweepers to ensure that working areas are clean prior to return to operational use. Inspections of work sites carried out by Airfield Operations ensure that this is the case.

15.3.5 A stand cleaning programme ensures that every stand at Heathrow is cleaned using a detergent. These cleans take approximately 30 minutes to complete each stand and are carried out at opportune times during the operating day, when stands are vacant.

15.3.6 HAL have positioned at the head of every stand FOD bins, to which airline and handling agent colleagues can dispose of any FOD found on the airfield. These bins are emptied and cleaned by Airside Operations on a regular basis. Also provided at a number of locations around the airfield are POL (Pollutant, Oil & Lubricant) bins for the aircraft engineers to deposit appropriate waste containers into. These are also emptied and cleaned on a regular basis.

15.3.7 HAL have installed a number of compactors in various apron areas, to which airline and handling agent colleagues can take bulk rubbish. The compactors are emptied, cleaned and maintained on a regular basis by a contractor.

15.3.8 In addition, all operating companies and personnel on the apron are expected to take responsibility for FOD management and removing hazards to aircraft and other colleagues.

15.4 Monitoring compliance of personnel on the apron with safety procedures

Airside_ASInsp_Standard_008 – Airfield Inspections
Airside_ASDRVE_Standard_010 – Airside Vehicle Safety Requirements
Airside_ASGrOps_Standard_012 – Third Party Auditing
Airside_ASDRVE_Standard_010 – Penalty Points
Airside_ASDRVE_Standard_010 – Airside Driver Permit Scheme
Airside_ASGrOps_Standard_012 – Turnaround Checks

15.4.1 Airfield Operations carry out regular routine patrols of the apron area. One of the areas of focus for the colleagues carrying out the inspection is the behaviour of personnel operating on the apron.

15.4.2 Should it be required, Airfield Operations will carry out positive interventions where possible. Infringement notices may also be issued for more serious safety infractions, or for driving offences. These notices (known as Airside Occurrence Ticket – AOTs) are passed on for follow up by the Airside Compliance Officers.

15.4.3 In addition, the Airfield Operations team carry out a prescribed number of audits of the aircraft turnaround process each day. These audits focus upon the key elements of the process, covering from the time before the aircraft arrives on stand to post the aircraft's departure. Immediate safety hazards are addressed 'in the moment' – otherwise audit reports are completed.

15.4.4 Output from turnaround audits is captured digitally and contents are shared via online dashboards with the ground handling companies and trends shared with the community at variety of safety forums.

ASDRVE_OSI_017 – Pedestrian Walkways & Crossing Airside
ASGrOps_OSI_092 Aircraft Arrival, Turnaround and Departure Procedures on Stand
ASGrOps_OSI_024 – Aircraft Maintenance on Stand
ASDRVE_OSI_011 – Airbridges; Operators' Permit, Operation & Use
ASDRVE_OSI_018 – Aircraft Fixed Electrical Ground Power-Operating Procedures and Condition of Use
ASGrOps_OSI_042 – Use of Personal Protective Equipment Airside
ASDRVE_OSI_087 – Management of Airside Infraction
ASGrOps_OSI_045 – Handling of Electric Mobility Aids
ASGrOps_OSI_043 – Prohibition of Smoking in Airside Areas
ASDRVE_OSI_012 – Unit Load Device (ULD) Management
ASGrOps_OSI_067 – Airside Incident and Accident Reporting
ASGrOps_OSI_041 – Minimum Induction Training for Staff Operating on Airside Roads & Ramp Areas
ASDRVE_OSI_009 – Escorting of Vehicles Airside
ASGrOps_OSI_026 – Aircraft Towing Operations
ASGrOps_OSI_072 – Airfield Pushback Restrictions
ASGrOps_OSI_029 Access to Bealine Base for Aircraft Under Tow
ASGrOps_OSI_073 – Use of Remotely Operated Pushback Vehicles

E.16 Procedures for the control of vehicles operating on or in the vicinity, or the movement area, including traffic rules, right of way, speed limits, and method for issuing driving permits, and enforcement means

(a) The procedures related to the control of vehicles that operate on or in the vicinity of, movement area, including traffic rules, speed limits, driver training and within the training modules for the Airside Driving Permits (ADP), which includes the Apron (A ADP), Manoeuvring (M ADP) and Runway (R ADP). All drivers on the airfield must hold one of these airside driving licences and this only entitles them to drive in the areas covered by their training, as well as the methodology for enforcing these rules are located in the following Standards and OSI's. All vehicles that access the airside environment must have a valid Vehicle Apron Pass (VAP) which is managed by the company Authorised Signatory under the terms of their Ground/Airside Operations Licence (GOL / AOL)

Airside_ASDRVE_Standard_010 – Airside Vehicle Safety Requirements
Airside_ASDRVE_Standard_010 – Penalty Points
Airside_ASDRVE_Standard_010 – Airside Driver Permit Scheme

ASDRVE_OSI_008 – Vehicles and Equipment Airside – Requirements
ASDRVE_OSI_005 – Vehicles and Equipment Airside – Operations
ASDRVE_OSI_006 – Airside Driver Training and the Airside Driver Permit
ASDRVE_OSI_087 – Management of Airside Infraction
ASDRVE_OSI_010 – ATC Radio Frequencies and Control of Vehicles on the Manoeuvring Area
ASDRVE_OSI_074 – ATC Recognised Callsigns for Vehicles
AsGrOps_OSI_073 – Use of Remotely Operated Pushback Vehicles
ASDRVE_OSI_015 Control Post 16 Operating Protocol

E.17 Procedures for wildlife hazard management including assessing wildlife hazards and arrangements for implementation of the wildlife control programme and promulgation of the relevant information to the AIS; wildlife strike form

Airside_ASWHM_Standard_007 – Airfield Bird Control
Airside_ASWHM_Standard_007 – Bird Hazard Management
Airside_ASWHM_Standard_007 – Use of Firearms

ASWHM_OSI_077 – Wildlife Hazards and the Reporting

17.1 Policy

17.1.1 HAL operates to the guidelines laid down in CAP772 'Wildlife Hazard Management at Aerodromes'.

17.1.2 The Heathrow Wildlife Control Management Plan document is held by the Head of Airside Operations.

17.1.3 A policy of habitat management and active bird control is used to produce an airfield environment that is unattractive to birds. In addition, there are regular visits to local sites that attract birds, and consultation with site owners to encourage an awareness of the bird hazard to aircraft.

17.2 Assessment of wildlife hazards

17.2.1 A Wildlife Hazard Steering Group meets on a regular basis to review policy and active bird control measures.

17.2.2 A risk identification approach is taken to assessing wildlife hazards, as outlined in CAP 772. This approach takes the occurrence of a strike over the prior 5 years against its likely severity, to give an overall risk rating, against which wildlife hazard management plans are created.

17.3 Procedures

17.3.1 On airport habitat management includes the use of long grass on the airfield, control of vegetation and insects, management of food waste outlets and the wiring or netting of water areas.

17.3.2 Active bird control is carried out by the colleagues of the Airfield Operations team who maintain a continuous bird patrol within the airfield boundary. Electronically produced bird distress calls, pyrotechnics fired from pistols and live rounds from shotguns are used to scare birds from the airfield. In addition, lethal control is exercised where other methods have failed to adequately address the risk. The bird patrol is carried out in appropriately equipped vehicles giving access to all areas of the airfield.

17.3.3 Information from the continuous bird patrols is recorded on a database, which produces statistical information for trend analysis.

17.3.4 A Section 5 Firearms Authority is held by the Head of Airside Operations. Airside Operations hold a dealer's certificate enabling Airfield Operations department to operate on that licence.

17.3.5 When the presence of a large number of birds is thought to constitute a hazard to aircraft, Airfield Operations will liaise with ATC who then advise aircrew. A message will also be broadcast on the ATIS and a NOTAM issued if appropriate.

17.3.6 In situations where a wildlife hazard presents a clear and immediate risk to aircraft, colleagues of the Airfield Operations are empowered to suspend operations on a runway or area of taxiway whilst the hazard is dealt with.

17.3.7 All bird carcasses found on the Manoeuvring Area are treated as bird strikes. Any reported bird strike within the airfield perimeter is investigated by Airfield Operations. Bird strikes within the perimeter are reported by Airfield Operations to the CAA on the appropriate form. Any bird remains (or detailed photographs) are sent to Birdstrike Management Ltd for formal identification.

17.4 Training

17.4.1 Airfield Operations personnel receive instruction on bird control and firearms during their initial training. All operational colleagues attend a CAA recognised bird control course, and a course qualified person is on duty at all times. Periodic refresher training is undertaken.

E.18 Procedures for:

18.1 Procedures for obstacle control and monitoring within and outside of the aerodrome boundaries and notification to the CAA, of the nature and location of obstacles and any subsequent addition, or removal, of obstacles for action as necessary, including amendment of the AIS publication and responsibility for obstacle lighting on and off the airfield.

Airside_ASSG_Standard_015 – Aerodrome Safeguarding

ASWorks_OSI_003 – Procedure for the Approval of Cranes and other Tall Construction Equipment
ASSG_OSI_050 – Drones at Heathrow

18.1.1 For obstacle control, monitoring, and amendment of the AIS, see section **E.7**

18.2 The Heathrow Aerodrome Compliance team is responsible for safeguarding off-airport and liaison with local authorities. Local Planning Authorities (LPA) send all safeguarding consultations direct to the Aerodrome Compliance Team who assesses all planning applications in relation to the various safeguarding criteria. They will reply to the LPA stating either 'No objection', 'No objection subject to Condition(s) (as specified)' or 'Objection' for which reason(s) are given. Further details of the processes can be found in the Aerodrome Safeguarding Manual which is available in the Aerodrome Safeguarding SharePoint.

The Heathrow Aerodrome Compliance Team is responsible for obtaining prior approval from the CAA for all applicable 'on-airport' developments. An initial Safeguarding Assessment will be carried out by a member of the Aerodrome Compliance Team. The assessment will ensure that the safety of the aerodrome is not compromised. Where appropriate, every opportunity will be made to eliminate non-standard items and enhance the safety of the airside operation.

Following this assessment, all proposed changes will be forwarded to the CAA for approval. Safeguarding relating to crane operations is managed by the Aerodrome Compliance Team who are responsible for approving the operation of cranes and tall construction equipment on and around the airport.

Drones

Drone operation - Heathrow operates a drone permit application process, which reviews and coordinates all drone operations in the vicinity of the aerodrome. The application process is managed by the Aerodrome Compliance Team.

Airside_ASSG_Standard_015 - Safeguarding

Drone detection - Heathrow has to be vigilant for any malicious drone use on and off the airfield. Heathrow has a detection system, operated on our behalf by a contracted company, which alerts the user to any potential malicious drone. A threat assessment process is followed and APOC and the Metropolitan Police are contacted for any drones of concern.

E.19 Aerodrome emergency plan, including:

Airside_ASEO_Standard_013 – Emergency Planning

ASEO_OSI_076 – Emergency Orders

19.1 Dealing with emergencies at the aerodrome or in its surroundings

19.1.1 In line with the mandatory requirement, Heathrow Airport publishes and acts upon an Emergency Orders document which sets out the arrangements for dealing with aircraft emergencies at or within the vicinity of Heathrow Airport.

19.1.2 It also provides management, colleagues and contractual service providers with a comprehensive guide to the procedures, with the aim of delivering an effective and efficient emergency response.

19.1.3 The Emergency Orders are amended on a periodic basis subject to significant change in process, procedural impacts or when practices would invalidate the existing plans.

19.1.4 Responsibility for the publication and issue of the Emergency Orders rests with the Senior Operational Resilience Manager and the Head of AFRS.

19.2 Tests for aerodrome facilities and equipment to be used in emergencies, including their frequency

19.2.1 All Airfield Operations and AFRS vehicles and equipment are inspected daily prior to use. Any defects noted are recorded and passed to the Heathrow vehicle maintenance supplier for rectification.

19.2.2 All specialist emergency equipment, such as the Emergency Medical Unit, are tested periodically and any issues addressed.

19.3 Exercises to test emergency plans, including their frequency

19.3.1 Heathrow has adopted the UK Alternative Means of Compliance (AltMoC) AMC1 ADR.OPS.B.005(c) Aerodrome emergency planning when scheduling exercises to test emergency plans.

19.3.2 Heathrow carries out a series of modular tests in order to fully exercise emergency response plans at periodic intervals.

19.3.3 Actual emergency events or activations of the emergency orders may be used to evidence that some modules have been effectively tested. Reviews will be carried out to ensure that any deficiencies may be identified and corrected.

19.3.4 Heathrow will hold a full-scale aerodrome emergency exercise at intervals not exceeding four years.

E.20 Rescue and Fire Fighting including:

RFFS Policy

Heathrow Airport Limited (HAL) provides and maintains an Airport Fire & Rescue Service, capable of making an effective response and intervention to incidents that occur within the aerodrome operational area. The operational area is defined as the area containing any point on the airfield and 1000 metres beyond the threshold of each runway, as illustrated in the Airport Emergency Orders; Annex 3; Airport Fire & Rescue Service – Response Areas and Standby Position.

Fire Stations

In order to meet the response times specified in AMC5 ADR.OPS.B010(a)(2) Rescue and Firefighting Services – Response Time, two fire stations are provided. These are positioned at strategic locations relative to the runways;

(i) Fire HQ, located centrally to the airfield, to the West of taxiway Echo.
(ii) Fire East, located in the North-East corner of the airfield, adjacent to holding point M1

Roles and accountabilities

The **Head of AFRS**, reporting to the Director of Airside and Airspace Operations, is responsible for the overall operational efficiency of the AFRS. The safety accountabilities of this role are as follows;

(i) Manage colleagues and resources to ensure compliance with, and maintenance of, airside safety standards and recommended practices in accordance with the Aerodrome Certificate, CAA Regulation and Civil Aviation Publication (CAP) guidance documents.
(ii) Ensure mandatory training is carried out in accordance with HAL standards and guidance document CAP 699 ‘Standards for the Competence of AFRS personnel employed at United Kingdom licensed aerodromes.
(iii) Prepare, submit and manage Airport Fire & Rescue Service business plans, ensuring sufficient resources are available.

(iv) Ensure that safety is given the highest priority at all times in meeting the operational standards for personnel and equipment.
(v) Launch immediate inquiries following any breach of Health and Safety.
(vi) Continuously review procedures for handling aircraft incidents and ensure that current known “best practice” is incorporated.
(vii) Ensure controls are in place to minimise environmental risk associated with RFFS activities.
(viii) Refer to AFRS Volume 1 Administration, Chapter 2 – 2.2 - section 2.2.1, for further information.

The **Deputy Chief Fire Officer** reports to the Head of AFRS and is responsible for the operational efficiency and day to day running of the Airport Fire & Rescue Service. At an incident the Deputy Chief Fire Officer (DCFO) may be required to attend either the incident site and manage internal/external bodies which may include the AAIB, ATC, Airline representatives, duty or senior management team and any other agencies. Refer to AFRS Volume 1 Administration, Chapter 2 – section 2.2.2, for further information.

The **Assistant Chief Fire Officer** is responsible for training, development, recruitment and people within the Airport Fire and Rescue Service. The ACFO is also the Chairperson of the Emergency Operations Group. Refer to AFRS Volume 1 Administration, Chapter 2 – 2.2 – Section 2.2.3 for further information.

The **Station Manager – Service Delivery** reports to the Deputy Chief Fire Officer and will assist the Senior Leadership Team in the day to day running of the AFRS including assisting to develop and maintain policy and processes that ensures the AFRS meet regulatory requirements and the business needs of Heathrow Airport. Lead and oversee on Fire Service projects as required, deputise for AFRS SLT and/or represent AFRS in stakeholder meetings as required. Refer to AFRS Volume 1 Administration, Chapter 2 – 2.2 – Section 2.2.4.1 for further information.

The 4 Watch based **Station Managers** reports to the Station Manager and is responsible for assisting in the operational efficiency and day to day running of the Duty Watch. Refer to AFRS Volume 1 Administration, Chapter 2 – section 2.2.5, for further information. Refer to AFRS Volume 1 Administration, Chapter 2 – 2.2 – Section 2.2.4 for further information.

The **Watch Manager** reports to the Station Manager and is responsible for assisting in the operational efficiency and day to day running of the Duty Watch. Refer to AFRS Volume 1 Administration, Chapter 2 – 2.2 – Section 2.2.5 for further information.

The **Crew Commander** report to the Watch Manager and are responsible for assisting in the operational efficiency and assisting in the day to day running of the Duty Watch. Refer to AFRS Volume 1 Administration, Chapter 2 – 2.2 – section 2.2.7, for further information.

Firefighters report to the Watch Manager and carry out the day-to-day activities in order to maintain a fully compliant AFRS in order to save life, protect property in line with company standards and licencing requirements. Working daily to maintain competence within guidance document CAP 699. Refer to AFRS Volume 1 Administration, Chapter 2 – 2.2 – section 2.2.8, for further information.

Selection of Personnel

HAL is an equal opportunities employer. Medical Standards adopted by HAL are in accordance with the Heathrow Airport Ltd AFRS recruit medical and physical policy. Refer to AFRS Volume 1 Administration, Chapter 2 – Section 2.30 AFRS Firefighter Medical Standards and AFRS Operational Manuals Reference Documents – Medical and Fitness; Heathrow Airport AFRS Fitness Policy.

Potential recruits must progress through the Heathrow Airport Fire & Rescue recruitment process. Refer to AFRS Volume 1 Administration, Chapter 2 – Section 2.22 Recruitment Selection System for AFRS Personnel.

HAL Policy is that all AFRS colleagues will be medically assessed on a regular basis. Medical assessments are carried out by the Occupational Health Department Physician at Heathrow Airport. The assessments are carried out at 3 yearly intervals, regardless of age.

Training

Heathrow AFRS provide training in accordance with HAL standards and CAA guidance document CAP 699.

Except where medical exemptions apply, Firefighters are expected to drive appliances or other operational vehicles hold the appropriate driving licence. Revalidation of the license will be carried out to standards and conditions set by the Driving Standards Agency (DSA).

Refer to AFRS Volume 1 Administration, Chapter 4 – section 4.1, for further information.

Staffing

Heathrow provides sufficient RFFS cover for Category 10 responses.

In order to achieve this, the resource allocation is assessed through a 'Task and Resource Analysis' (TRA) and is signed off by the Aerodrome Accountable Manager.

The AFRS operate with 4 Watches, Red, White, Blue & Green. Each Watch has the following numbers of personnel;

- 1 x Station Manager.
- 1 x Watch Manager.
- 5 x Crew Commander.
- 18 Firefighters.

Optimum AFRS resource coverage to achieve 2 x CAT 10 operations is as follows;

- 2 x Supervisors.
- 15 x Crew Commanders/Firefighters.

Minimum AFRS resource coverage to achieve 1 x CAT operations is as follows;

- 1 x Supervisor.
- 13 x Crew Commanders/Firefighters.

Airfield operations can be supplemented by a crew of 4 on the Domestic appliance (if available) which includes; 1 x Crew Commander & 3 x Firefighters.

The AFRS will plan to achieve the optimum coverage on a shift by shift basis with these totals being;

- Airfield x 17 (2 x Supervisors + 15 x Crew Commanders/Firefighters.)
- Domestic x 4 (1 x Crew Commander 3 x Firefighters.)

Refer to AFRS Volume 1 Administration, Chapter 16 – Section 16.1, for further information.

Appliances, Extinguishing Media & Medical Equipment

The extinguishing media, rescue equipment and personnel provided in line with the agreed TRA for the appropriate category. The appliances utilised will be Major Foam Tender Pumps (MFTP), Command Vehicle and Domestic Pump. The Rescue Stairs and Hose Layer will, if required, be deployed at the discretion of the Station Manager utilizing available personnel.

The quantities of water, foam and complementary agents appropriate to AFRS Category 10 are available for immediate discharge and exceed the requirements of AMC4 ADR.OPS.B.010(a)(2). Rescue and firefighting services

At all times the AFRS will provide the number of vehicles and quantities of media described in AFRS Volume 1 Administration, Chapter 12 – section 12.1.

The main complementary media is Monnex, which is regarded as a high-performance dry powder. Refer to AFRS Volume 1 Administration, Chapter 12 – section 12.1.1, for further information.

All appliances and equipment are tested in accordance with the manufacturers' instructions. Appliance defects are reported to the HAL vehicle maintenance provider and categorised according to priority and seriousness of the defect. The Watch Manager is responsible for follow up action including contacting the HAL vehicle maintenance department if the defect requires immediate action.

Equipment and vehicle tests & inspections records are maintained and held on the AFRS EMS, a computer data recording system.

Appliance servicing and defect records are held by the HAL vehicle maintenance provider.

Heathrow's AFRS carries a variety of medical equipment. Inventories are detailed in the AFRS document 'Needs Analysis – Provision of Emergency Medical Equipment' and are reviewed annually.

2 x Emergency Medical Trailer are stationed at the Airside Operations Facility (AOF) and are deployed to any incident via a request to Airfield Operations.

Airfield Operations is responsible for ensuring regular maintenance of the trailers whilst the AFRS have responsibility for the medical equipment carried within.

Refer to AFRS Volume 1 Administration, Chapter 14, for further information on medical equipment.

Alerting Procedures and Response Objectives

Monitoring of the movement areas and initiation of emergency response is a function carried

out by Air Traffic Control.

The AFRS will always aim to achieve the Response Objective in accordance with AMC5 ADR.OPS.B.010(a)(2). Rescue and Firefighting Services – Response Time

The training programme for AFRS personnel and familiarisation of the airfield encompasses AFRS standby positions, runway holds and designated runway crossing points. Response exercises are undertaken to keep AFRS personnel familiar with best routes to any point on the aerodrome in an ever-changing environment. Refer to AFRS Volume 3 Operational Procedures, Chapter 16 – section 16.1, for further Information.

Communications

UHF fixed and portable radios and fixed VHF radios are provided to allow two-way communication with internal teams, flight crews, and ATC. Refer to AFRS Volume 1 Administration, Chapter 10 – section 10.1, for further information.

Unforeseen Circumstances which may Affect Promulgated Level of AFS Fire Category

ASEO_OSI_068 – Operations at Heathrow Airport with Depleted Rescue and Fire Fighting Service

In the event of a change in fire category from that published in the UK AIP, the AfDM is responsible for promulgating the change to ATC and to flight crews via NOTAM.

In the event of either Fire Station being unavailable or loss of services essential to 'normal' operation of the Airport Fire & Rescue Service, Contingency Plans are in place. The Contingency Plans are held in the Station Managers office at Fire HQ

Refer to AFRS Volume 1 Administration, Chapter 16 – section 16.2, for further information.

E.21 Removal plan for disabled aircraft, including:

Airside_ASEO_Standard_013 – Removal of Disabled Aircraft

ASEO_OSI_069 – Aircraft Recovery Plan

Relevant arrangements, equipment, and procedures for its implementation

The policy and management for the removal of disabled aircraft is outlined in Operational Safety Instruction 'Aircraft Recovery Plan' and satisfies the requirement for a plan for the removal of disabled aircraft. This OSI cover the expeditious removal of an aircraft from an operational runway or taxiway area, including the provision of appropriate manpower and equipment to execute the task.

Responsibility for the management of aircraft recovery resides with the Airline Operator, or aircraft owner, in liaison with the Airfield Duty Manager (AfDM). Only colleagues authorised by the aircraft owner are permitted to remove the aircraft.

HAL does not hold equipment specifically for the purpose of removal of disabled aircraft. However, with the agreement of the Airline Operator, HAL may be able to provide some non-specialist equipment to support in the removal of disabled aircraft. Airlines are mandated to have a recovery plan as part of the operating licence at Heathrow Airport, the BA / IATP pool for removal of disabled aircraft is located at the aerodrome.

E.22 Procedures for ensuring the safe handling and storage of fuel and dangerous goods in the aerodrome, including:

ASGrOps_OSI_019 – Fuelling of Aircraft

22.1 Equipment, storage areas, delivery, dispensing, handling and safety measures

22.1.1 Heathrow Airport Limited (HAL) itself does not supply or store aviation fuel or provide fuelling facilities at Heathrow. It does, however, have lease agreements with the major fuel companies and suppliers. The lease agreements specify the conditions under which aviation fuel may be supplied at Heathrow. In particular, they cover construction of storage tanks, pipelines and hydrants, road tanker operation insurance, emergency procedures and fire precautions. The agreements also stipulate that the fuel companies must observe all general or local acts of parliament which may be applicable and specifically the Petroleum (Consolidation) Act 1928 (with associated documents) and the Pipelines Act 1962

22.1.2 The only grade of fuel available at Heathrow is Jet A-1.

22.1.3 Aviation fuel is delivered to Heathrow by the oil companies using dedicated underground pipelines and a limited road tanker offload facility. Fuel is stored in two tank farms areas - one at Perry Oaks (in the centre of the airfield, between Delta and Echo taxiways), and the second in the Cargo Area.

22.1.4 Both fuel facilities are owned by a joint venture company of oil companies, known as Heathrow Airport Fuel Company (HAFCO). It comprises BP International Ltd, Valero Energy Ltd (formerly called Chevron Ltd), ESSO Petroleum Company Ltd, Kuwait Petroleum International Aviation Company (UK) Ltd (trading as Q8), Shell UK Ltd, Total UK Ltd and Vitol Aviation BVBP, ExxonMobil, Shell, ChevronTexaco, Total and Q8 (24hr Tel; 020-8754 8762).

22.1.5 The fuel hydrant system is operated by a joint venture known as Heathrow Hydrant Operating Company Limited Ltd (HHOpCo), comprising British Airways PLC (BA), BP International Ltd, Valero Energy Ltd (formerly Chevron Ltd), ESSO Petroleum Company Ltd, Kuwait Petroleum International Aviation Company (UK) Ltd (trading as Q8), Shell UK Ltd, Total UK Ltd and Vitol Aviation BV. (24hr Tel; 020-8754 8762).

22.1.6 Fuel transfer from the hydrant outlets to the aircraft is carried out by a number of fuel companies and consortiums. All companies operate under the Aviation Fuel Quality Control and Operating Procedures as per the Joint Industry Guidelines (JIG).

22.1.7 The into-plane fuelling service providers are:

Name	Supplies on behalf of…	Contact Number
Swissport Fuelling Services	**Vitol**	**020-8564-4903**
Menzies	**Shell and ExxonMobil (Esso)**	**020-8897-2836**
Menzies (dedicated to BA)	**BA's suppliers**	**020-8759-5354**
Aviation Fuel Services Ltd	**BP, Q8, and Total**	**020-8759-1363**

(AFS)		
S&JD Robertson North Air Limited	**BA's suppliers**	**07785-767-583**

22.2 Quality and correct specification of aircraft fuel; audit and inspection intervals, checklists, sampling and record keeping.

22.2.1 HAL has access to the fuel industry audits, where recommendations and sign-off can be checked. The HAL Ground Handling and Engineering teams carry out annual checks on HHOpCo. Additionally, AFS, ASIG, Menzies, North Air, and Swissport are audited through the GOL audit schedule.

E.23 Low visibility operation

Low visibility operations: description of operational procedures including coordination with air traffic services unit and apron management unit, standard taxiing routes, control of activities and measurement and reporting of runway visual range.

ASWeather_OSI_052 – Low Visibility Operations

Airside_ASWeather_Standard_014 – Adverse Weather - LVP

The two main runways at Heathrow are equipped with Forward-Scatter Technology (Vaisala FD-70's) at the upwind, mid-point and downwind ends of each runway. These come into operation when the Runway Visual Range on the associated runway drops below 1,500 metres, and, at the lower end of the visibility range are capable of reading the IRVR in 25 metre steps. The units are frangible and are located 350ft (105 m) from the runway centreline. They are self-monitoring but are recalibrated by the manufacturers every nine months.

IRVR digital readouts are provided in Air Traffic Control, the London Air Traffic Control Centre, the Southern AIS Centre, the Meteorological Centre, British Airways 'Heathrow Airport Centre' control room, AfCR and are promulgated throughout the airport by HAL ACDM. The AfCR are able to monitor weather conditions and deploy additional resources where necessary.

Heathrow's procedures for operating in Low Visibility are detailed in the appropriate OSI – 'Low Visibility Operations'

E.24 Procedures for winter operations

Heathrow Snow Plan Airside

ASWeather_OSI_053 – Winter Hazards and the Aerodrome Snow Plan

Annually, Heathrow publishes its 'Snow Plan' which sets out how it will carry out snow removal and de/anti-icing activities, and how the organisation is structured to carry out the plan.

The Snow Plan also sets out the responsibilities of third-party airside users during a snow or winter weather event, in terms of 'self-help' and reporting the conditions of aprons for further action by the Airfield Operations.

E.25 Procedures for operations in adverse weather conditions

Airside_ASWeather_Standard_014 – Adverse Weather – Anti and De-icing
Airside_ASWeather_Standard_014 – Adverse Weather – Strong Winds

ASWeather_OSI_054 – Adverse Weather

The activities carried out by Heathrow during, or in preparation for, adverse weather conditions, are listed in the OSI Library which can be found at Heathrow.com/company/team-heathrow/airside along with other supporting documents.

The dedicated Met Office forecaster based in the Airport Control Centre (APOC) may issue a weather warning for Strong Winds, Gales, Thunderstorms, Ice etc.

Weather warnings are promulgated to the airport community using the ACDM web portal. They are also promulgated via the Airport Community app. Major handling companies are also contacted by email and/or telephone.

Airfield Operations will increase patrols of the movement area during adverse weather, to include but not limited to additional FOD checks, freezing condition checks and surface defect inspections. During periods of low visibility, only vehicles essential for airfield operations should be allowed on the manoeuvring area. Additional inspections of runways will be carried out if necessary or at the request of ATC.

E.26 Procedures for night operations

ASEnv_OSI_038 – Administration and Enforcement of Night Aircraft Movements and Quota Limits
ASEnv_OSI_060 – Surcharges for Noise Infringements by Departing Aircraft
ASEnv_OSI_061 – Ground Noise at Heathrow – Approval Control Process and Safety of Engine Ground Running

Heathrow is equipped for operations in the day or night period.

Control of the AGL and the decision to use it rests with ATC and is governed by the procedures in MATS Part II.

At night, as detailed in section E.9, inspections are carried out by Airfield Operations which focus upon lighting quality and serviceability. Any faults found are passed for rectification to Engineering.

E.27 Procedures for the protection of radar and other navigational aids, control of activities, and ground maintenance in the vicinity of these installations

Instrument Landing System (ILS) installations have their critical areas protected using pegs and signage. Critical areas are also marked on the Airfield Map to aid drivers.

The 10cm radar installation at Heathrow is located outside the critical part of the security restricted zone, to the South East of the airfield. It is physically protected from intrusion. Works on the radar are managed by NATS.

Development applications or crane/tall equipment permit applications in the local area which are going through the safeguarding process are assessed for impact upon the 10cm radar, as well as Ground Movement Radar and other navigational aids. Assessments are carried out by NATS specialist teams and objections raised if required.

Permits to work on the airfield in the vicinity of navigational aids are only issued following

consultation with NATS.

E.28 Procedures for the operation of aircraft with higher code letter at the aerodrome, including taxiing routes

ASGrOps_OSI_026 – Aircraft Towing Operations

Heathrow is able to accept Code F aircraft across the majority of the airfield. These routes are detailed in the UK AIP, section AD 2-EGLL-2-3.

In the event of unusual or large aircraft requiring the use of the airfield. The AfDM will make an assessment of the most suitable taxi route.

E.29 Procedures and measures for the prevention of fire at the aerodrome

All HAL colleagues receive training on the prevention of fire.

Airfield Operations and AFRS colleagues, as part of their routine inspection regime, will look for fire risks, such as sources of ignition or fuel.

Smoking is prohibited in the airside environment at Heathrow, except in small, carefully controlled areas.

All vehicles and self-propelled GSE (including electric) that operate airside must have at least two full safety inspections per year, which must be uploaded as part of the Vehicle Apron Pass (VAP) application Process. This is in addition to the daily pre-use checklist and ensures safety and roadworthiness.

HAL also employs an external company to conduct weekly random checks on vehicles to ensure vehicle roadworthiness.

All electric vehicles must report the battery type to Heathrow as part of the VAP application process.

Document Data

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Author Name Geoff Tyler	**Approval Name** Trevor Waldock	**Technical Approval Name** n/a

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v8.0	Annual review and associated amendments where appropriate	07th February 2025
v9.0	**Changes to organisational structure and accountabilities**	**12th May 2025**

Appendix A – Stand Coordinates

STAND	COORDINATES	STAND	COORDINATES
	Terminal 2	236R	512812.07N 0002637.12W
209	512825.98N 0002659.03W	238	512809.75N 0002637.07W
209L	512827.08N 0002657.90W	239	512807.11N 0002637.12W
209R	512826.09N 0002700.17W	241	512807.19N 0002632.77W
210	512825.99N 0002654.42W	242	512809.76N 0002632.96W
210L	512827.10N 0002653.29W	243	512812.65N 0002632.98W
210R	512826.10N 0002655.56W	243L	512811.88N 0002631.27W
211	512827.34N 0002651.07W	243R	512813.20N 0002632.96W
212	512824.38N 0002651.17W	244	512815.52N 0002633.00W
212L	512823.68N 0002649.38W	246	512818.73N 0002633.03W
212R	512825.09N 0002650.99W	246L	512817.97N 0002631.32W
213	512821.50N 0002651.14W	246R	512819.28N 0002633.01W
213L	512820.79N 0002649.36W	247	512821.61N 0002633.19W
213R	512822.21N 0002650.96W	247L	512820.89N 0002631.34W
216	512813.30N 0002649.29W	247R	512822.15N 0002633.03W
217	512811.87N 0002649.25W	248	512824.25N 0002632.97W
218	512809.71N 0002650.90W	249	512826.96N 0002633.00W
218L	512808.93N 0002649.26W	251	512807.65N 0002619.58W
218R	512810.26N 0002650.85W	252	512810.05N 0002619.20W
219	512806.83N 0002649.25W	253	512812.69N 0002619.00W
220	512805.46N 0002649.24W	253L	512813.45N 0002620.78W
221	512807.35N 0002655.75W	253R	512812.13N 0002619.14W
221L	512806.30N 0002657.09W	254	512815.57N 0002619.02W
221R	512807.14N 0002655.01W	254L	512816.33N 0002620.80W
223	512806.32N 0002659.26W	254R	512815.01N 0002619.16W
224	512806.31N 0002701.59W	255	512818.77N 0002619.08W
225	512806.28N 0002704.09W	255L	512819.52N 0002620.85W
226	512806.30N 0002706.55W	255R	512818.18N 0002619.21W
231	512826.95N 0002637.31W	256	512821.41N 0002619.29W
232	512824.23N 0002637.29W	257	512823.80N 0002619.31W
233	512821.60N 0002637.09W	258	512826.76N 0002619.09W
233L	512822.33N 0002638.86W	258L	512827.47N 0002619.90W
233R	512821.05N 0002637.10W	258R	512826.02N 0002619.89W
236	512812.63N 0002637.10W	701	512824.59N 0002549.62W
236L	512813.39N 0002638.81W	702	512826.27N 0002546.82W

STAND	COORDINATES	STAND	COORDINATES
	Terminal 3	327	512818.42N 0002741.52W
301	512807.35N 0002716.04W	328	512823.72N 0002744.07W
303	512807.33N 0002720.65W	329	512820.28N 0002743.59W
303L	512806.18N 0002721.78W	330	512825.58N 0002746.13W
303R	512807.15N 0002719.65W	331	512822.20N 0002745.51W
305	512807.32N 0002725.27W	332	512826.45N 0002747.96W
305L	512806.17N 0002726.40W	334	512826.42N 0002750.80W
305R	512807.14N 0002724.26W	335	512824.37N 0002749.98W
307	512807.30N 0002729.87W	336	512826.41N 0002753.88W
309	512808.68N 0002733.01W	340	512825.60N 0002755.89W
311	512809.88N 0002734.32W	340L	512826.73N 0002757.13W
313	512805.76N 0002742.60W	340R	512825.71N 0002755.97W
316	512807.17N 0002747.15W	342	512823.45N 0002755.35W
317	512809.21N 0002749.35W	351	512825.79N 0002731.89W
318	512810.68N 0002748.15W	353	512827.27N 0002733.61W
319	512811.24N 0002751.59W	355	512828.64N 0002736.39W
320	512812.74N 0002750.34W	357	512826.45N 0002730.78W
321	512813.28N 0002753.83W	357L	512827.38N 0002729.65W
322	512814.74N 0002752.61W	357R	512827.46N 0002731.79W
323	512814.59N 0002737.28W	363	512815.28N 0002756.00W
325	512816.53N 0002739.24W	364	512816.82N 0002754.75W
326	512821.85N 0002742.01W	365	512816.15N 0002756.15W

STAND	COORDINATES	STAND	COORDINATES	STAND	COORDINATES	STAND	COORDINATES
	Terminal 4	420	512740.15N 0002642.20W	456	512741.62N 0002722.64W		Royal Suite/VIP
401	512730.01N 0002655.61W	421	512738.36N 0002643.17W	458	512745.69N 0002723.92W	457	512744.92N 0002725.11W
402	512729.16N 0002658.98W	422	512735.74N 0002632.54W	461	512727.15N 0002706.98W	457L	512743.67N 0002723.40W
403	512728.01N 0002702.19W	423	512737.90N 0002631.03W		Cargo Apron	457R	512744.90N 0002724.67W
405	512729.89N 0002702.97W	424	512740.03N 0002629.44W	601	512743.12N 0002730.74W		
406	512732.03N 0002659.91W	425	512742.24N 0002627.97W	602	512743.11N 0002734.60W	Hel aim pt	512744.27N 0002704.97W
407	512734.09N 0002657.04W	429	512745.02N 0002629.06W	603	512743.09N 0002738.43W		
408	512736.07N 0002654.52W	430	512739.43N 0002624.30W	604	512743.60N 0002742.27W		
409	512737.98N 0002651.87W	431	512739.39N 0002620.41W	605	512743.58N 0002746.11W		
410	512739.85N 0002648.78W	432	512739.31N 0002616.52W	606	512743.06N 0002749.93W		
410L	512740.95N 0002649.21W	440	512739.37N 0002707.48W	607	512741.85N 0002753.90W		
410R	512739.34N 0002649.41W	441	512741.19N 0002704.87W	608	512741.84N 0002757.68W		
411	512742.00N 0002645.70W	449	512730.17N 0002718.18W	609	512741.83N 0002801.46W		
412	512743.94N 0002643.33W	450	512730.39N 0002718.42W	611	512741.44N 0002816.57W		
414	512745.47N 0002638.75W	451	512732.60N 0002718.22W	612	512739.63N 0002816.63W		
415	512743.75N 0002639.52W	452	512732.82N 0002718.35W	613	512737.36N 0002816.67W		
416	512743.67N 0002640.01W	453	512735.47N 0002718.26W	614	512736.24N 0002826.93W		
417	512742.42N 0002639.79W	454	512737.30N 0002718.30W	615	512739.30N 0002827.00W		
419	512741.23N 0002640.56W	455	512739.50N 0002720.71W	616	512742.54N 0002826.93W		

STAND	COORDINATES	STAND	COORDINATES
	Terminal 5	545L	512816.10N 0002848.91W
501	512826.57N 0002922.32W	545R	512817.45N 0002850.35W
502	512826.10N 0002920.09W	546	512819.65N 0002850.45W
503	512826.06N 0002917.86W	546L	512818.98N 0002848.94W
505	512825.72N 0002915.27W	546R	512820.35N 0002850.37W
506	512826.35N 0002909.85W	547	512823.08N 0002850.64W
507	512824.96N 0002909.84W	547L	512822.42N 0002848.96W
508	512823.35N 0002910.42W	547R	512823.83N 0002849.76W
509	512821.74N 0002909.81W	548	512826.29N 0002850.23W
511	512820.35N 0002909.80W	548L	512825.64N 0002848.71W
512	512818.73N 0002910.38W	548R	512826.98N 0002849.87W
513	512816.80N 0002911.03W	551	512806.62N 0002836.43W
514	512816.55N 0002911.11W	552	512809.01N 0002836.45W
515	512815.12N 0002909.87W	553	512811.41N 0002836.47W
516	512814.15N 0002911.10W	554	512813.80N 0002836.50W
517	512813.72N 0002909.76W	555	512816.44N 0002836.33W
518	512811.76N 0002911.08W	556	512819.93N 0002836.36W
519	512809.94N 0002908.66W	557	512823.36N 0002836.39W
520	512809.93N 0002911.33W	558	512826.24N 0002836.42W
521	512809.92N 0002913.76W	561	512826.28N 0002831.81W
522	512809.91N 0002916.36W	562	512823.40N 0002831.77W
523	512809.90N 0002918.95W	563	512820.04N 0002831.75W
524	512805.14N 0002919.74W	564	512817.16N 0002831.73W
525	512805.15N 0002917.52W	565	512813.96N 0002831.70W
526	512805.17N 0002912.50W	566	512811.32N 0002831.44W
527	512805.51N 0002910.32W	567	512808.93N 0002831.42W
531	512825.71N 0002854.69W	568	512806.53N 0002831.40W
532	512823.31N 0002854.81W	572	512821.87N 0002817.89W
533	512820.92N 0002854.81W	573	512819.47N 0002817.87W
534	512818.53N 0002854.79W	575	512813.67N 0002817.60W
535	512816.13N 0002854.75W	576	512809.79N 0002817.58W
536	512813.74N 0002854.73W	581	512806.67N 0002819.09W
537	512811.34N 0002854.71W	582	512807.16N 0002815.60W
538	512808.95N 0002854.69W	583	512807.18N 0002811.69W
539	512806.55N 0002854.51W	590	512809.05N 0002813.45W
541	512806.46N 0002850.34W	591	512811.47N 0002813.47W
542	512808.86N 0002850.33W	592	512813.90N 0002813.49W
543	512811.25N 0002850.38W	594	512819.57N 0002814.01W
544	512813.89N 0002850.40W	595	512822.45N 0002814.27W
544L	512813.22N 0002848.88W	596	512825.33N 0002814.56W
544R	512814.55N 0002850.19W		
545	512816.77N 0002850.43W		