UK Civil Aviation Authority

CAP1096

Guidance to crane / tall equipment users on the notification process, obstacle lighting and marking requirements

First published by the Civil Aviation

Published by the Civil Aviation

Authority 2026

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Revision history

30 April 2021	Initial issue
XXXX 2026	New format CAP

Glossary of Terms

Abbreviation	Term	Definition
ACOMS	Airspace Co-ordination and Obstacle Management Service	UK Civil Aviation Authority's online portal for managing notifications of obstacles—like cranes, masts, or structures—that could affect airspace safety
ADQ	Aeronautical Data Quality	The accuracy, integrity, and reliability of aeronautical data to ensure safe and efficient flight operations.
AGL[1]	Above Ground Level	The height of an object or aircraft measured from the surface of the ground directly beneath it.
AGL[2]	Aeronautical Ground Lighting	Lighting systems installed on airfields to guide aircraft during landing, takeoff, and taxiing, especially in low visibility or night conditions.
AMSL	Above Mean Sea Level	The height or altitude of an object or aircraft measured relative to the average sea level.
APDO	Approved Procedure Design Organisation	A CAA-approved organisation authorised to design Instrument Flight Procedures (IFPs) and provide related safeguarding services in UK airspace.
ARP	Aerodrome Reference Point	The geographical location of the aerodrome and the centre of its traffic zone where an ATZ is established.
CAA	Civil Aviation Authority	The UK's national aviation regulator responsible for overseeing air safety, airspace management, and compliance with aviation laws and standards.
	Crane or Tall Equipment Hirer	The organisation responsible for arranging a crane or tall equipment on site, including notifying the CAA when the crane may affect airspace or aviation safety. Where a crane or tall equipment is owned rather than hired, the organisation using the crane assumes these responsibilities.
	Crane or Tall Equipment Operator	The qualified person responsible for operating the crane to position loads and, where applicable, undertake the erection or assembly of the crane in accordance with the lift plan and site procedures.
	Crane or Tall Equipment Owner (Supplier)	Crane and Tall Equipment Owner (Supplier) – The organisation that owns and maintains the

		crane or tall equipment and, where applicable, supplies it for use, ensuring it meets safety and operational standards before deployment.
CNS	Communication, Navigation, and Surveillance	Communication, Navigation, and Surveillance: the integrated systems that enable aircraft to exchange information, determine position, and be monitored for safe air traffic management.
CONA	Crane and Obstacle Notification Area	An area depicted on the map within the CAA's digital mapping system to protect all relevant airspace surfaces for flight safety.
DGC	Defence Geographic Centre	The UK Ministry of Defence's specialist unit for geospatial intelligence, providing maps, aeronautical charts, aerial imagery, and geographic data to support defence planning, operations, and international partners.
IFP	Instrument Flight Procedure	A published set of routes and instructions that allow aircraft to navigate and operate safely under Instrument Flight Rules (IFR), using instruments rather than visual references.
IFR	Instrument Flight Rules	The rules under which a pilot can fly and navigate an aircraft, in certain weather conditions where visibility is below the minima for visual flight, primarily through use of on-board instruments.
MAMC LFC	Military Airspace Management Cell Low Flying Coordination	UK Ministry of Defence department responsible for booking, coordinating, and safely managing all military low-level aviation.
NOTAM	NOTAM	An official alert issued to inform pilots and aviation personnel about temporary changes or hazards that could affect flight operations.
OLS	Obstacle limitation Surface	Imaginary surface(s) established around an aerodrome to define the limits for obstacles, ensuring safe aircraft operations during takeoff, landing, and approach.
OSGB	Ordnance Survey National Grid reference system	The official national mapping agency for Great Britain, providing accurate geographic and cartographic data for land and infrastructure.
OSGB36	Ordnance Survey Great Britain 1936.	OSGB36 is the national geodetic reference system used in Great Britain, defining map coordinates based on the Ordnance Survey's 1936 datum.
RAF	Royal Air Force	The aerial warfare branch of the United Kingdom's armed forces, responsible for defending UK airspace and conducting air operations worldwide.

WGS-84	Word Geodetic System 1984	A global reference system for coordinates and mapping, providing a standard framework for latitude, longitude, and elevation used in navigation and GPS.

Contents

CHAPTER 1
Introduction

1.1 Purpose

1.1.1 As with any tall object, the presence of a single crane or number of cranes has the potential to affect aviation activities. In the main, crane and tall equipment-related issues are considered and managed in much the same way as for any tall object, however due to the distinctive character of the crane and tall equipment construction and operations, they are addressed separately.

1.1.2 This guidance applies to crane and tall equipment operators proposing to operate within a Crane and Obstacle Notification Area (CONA).

1.1.3 There are two types of CONA:

- Bespoke CONA – published by the aerodrome and shown on the aerodrome's notification map.
- Default CONA – a 6 km radius from the aerodrome reference point (ARP), used where no bespoke CONA has been published.

1.1.4 Notification is required where:

- The activity is located within a published bespoke CONA or
- The activity is located within the default CONA and;
    - Is within 2km of the ARP, regardless of height, or
    - Is between 2km and 6km of the ARP and exceeds the height of 10 metres above ground level (AGL)

1.2 Crane and Tall Equipment Obstacle Notification Areas (CONAs)

1.2.1 The Civil Aviation Authority (CAA) has established CONAs to manage the potential impact of cranes and tall equipment on aerodrome operations. CONAs are depicted on the CAA digital mapping system and identify areas where notification to, and approval from, the relevant aerodrome is required prior to operation.

1.2.2 The standard default CONA extends 6 km from an aerodrome. Within this area:

- A 2 km radius from the Aerodrome Reference Point (ARP) applies, within which all crane and tall equipment operations must notify the relevant aerodrome, irrespective of height.
- Beyond the 2 km ARP radius and within the remainder of the 6 km CONA, notification is

required where cranes or tall equipment exceed 10 metres above ground level (AGL).

1.2.3 In addition, notification is required for any crane or tall equipment that exceeds 100 metres AGL, irrespective of its location.

1.2.4 Where an aerodrome has published a bespoke CONA on the CAA digital mapping system, the bespoke CONA shall take precedence over the standard 6 km CONA. Bespoke CONAs reflect an aerodrome's individual safeguarding requirements and help ensure the continued safety of aircraft operations.

1.2.5 Other publications relevant to the scope of this guidance:

- CAST Advice Note 4 Cranes other Construction Issues CAST Advice Note 4, available at: https://www.caa.co.uk/media/ytolzbjr/cast-advice-note-4-cranes-other-construction-issues-apr-24.pdf
- Construction Plant-hire Association (CPA) Technical Information Note TIN 039 'Operating Tower Cranes in the Vicinity of Aerodromes, Notification and En-route Obstacle Lighting', available at http://www.cpa.uk.net
- BSI BS 7121 Code of practice for the safe use of cranes. Multi-part document available to buy at https://shop.bsigroup.com/
- UK Air Navigation Order 2016 (ANO) available at: https://www.caa.co.uk/uk-regulations/aviation-safety/civil-aviation-act-1982-the-ano-2016-the-rules-of-the-air-2015-and-the-dg-regulations-2002/the-civil-aviation-air-navigation-order-2016/
- UK Regulation (EU) 139/2014 Aerodromes, available at: https://regulatorylibrary.caa.co.uk/139-2014-pdf/PDF.pdf
- CAP168 – Licensing of Aerodromes, available at: https://www.caa.co.uk/publication/download/26459
- CAP738 – Safeguarding of Aerodromes, available at: https://www.caa.co.uk/publication/download/12346

CHAPTER 2

Crane and tall equipment operators

2.1 Scope

2.1.1 This CAP applies to operators of cranes and tall equipment that may affect the safety of aircraft operations in the vicinity of an aerodrome.

2.1.2 For the purposes of this CAP, the height of a crane or tall equipment is the highest point reached by the crane, equipment or load during the operation. Where a crane or tall equipment is located on top of another structure, the overall height above ground level is the relevant height.

2.2 Notification Requirements

2.2.1 Refer to the CONA map on the CAA's digital mapping system (link to be included) which identifies areas where cranes or tall equipment must obtain prior permission from the relevant aerodrome before operation

2.2.2 Notify the relevant aerodrome when operating a crane or tall equipment within an aerodrome/s crane and obstacle notification area shown on the below link

2.2.3 If operating within **multiple aerodromes crane and tall equipment notification areas as shown on the map**, obtain permission from **all aerodromes** before commencing operations. When permission to operate is given from multiple aerodromes, the operator is to operate at the **lowest permitted height from all permissions given**, as some aerodromes may have **lower protection surfaces than the adjacent aerodrome**.

Important Note:

The Crane or Tall Equipment Hirer is responsible for:

- **identifying whether the crane or tall equipment is located within a CONA;**
- **notifying all affected aerodromes and obtaining the necessary permissions prior to operation; and**
- **notifying the CAA via ACOMS where the crane or tall equipment is outside a CONA and has a height of 100 metres AGL or greater.**

Crane or Tall Equipment Owner (supplier) should ensure that Crane or Tall Equipment Hirer are aware of these responsibilities. Crane or Tall Equipment Hirer should liaise directly with affected aerodrome operators and the CAA, as required.

2.2.4 The notification process for cranes and tall equipment is summarised below:

a) Within a CONA

- The crane hirer/user must notify the affected aerodrome(s) and obtain approval prior to commencing operations.
- Following assessment of the proposal, the aerodrome operator is responsible for determining any safeguarding requirements and for any subsequent aeronautical information actions, including publication through NOTAM, AIP, and/or ACOMS, as applicable.

b) Outside a CONA

- Where a crane or tall equipment operation is outside a CONA and is 100 metres AGL or greater, the crane hirer/user must notify the CAA via ACOMS.
- Where a crane or tall equipment operation is outside a CONA and below 100 metres AGL, no notification is required. However, to ensure the safety of airspace users operating below 100m / 328 ft above the surface (such as military, police, air ambulance, coastguard/search and rescue low flying activity), the Military Airspace Management Cell – Low Flying (MAMC LF) and DGC have an interest in lower structures. Operators/developers are strongly advised to engage with MAMC LF (swk-mamclftp@mod.gov.uk) and DGC (dvof@mod.gov.uk) to determine if details of a structure below 100m / 328 ft above the surface should be submitted for NOTAM action and subsequent inclusion in DVOF.

2.3 Planning Application Cranes

2.3.1 Cranes and tall equipment mentioned in planning applications must still be notified to the aerodrome/s and, if applicable, the CAA via ACOMS by the Crane or Tall Equipment Hirer (see Chapter 6 for details on ACOMS).

2.3.2 The responsibility to identify and notify relevant aerodromes rests with the Crane or Tall Equipment Hirer. While Local Planning Authorities (LPAs) may provide aerodrome contact details as part of the planning process, this should not be relied upon.

2.4 Operational Considerations

2.4.1 Operate cranes and tall equipment at the lowest practicable height necessary to complete the operation safely. Where possible, use cranes with jibs or booms set to the minimum height above ground level required for the task, while maintaining compliance with safety standards and operational requirements.

2.4.2 Where practicable, use cranes or tall equipment that can be lowered when not in use or during periods of low visibility. For crane and tall equipment types that cannot be lowered (e.g., tower cranes), additional mitigation measures must be implemented to manage residual risk. These may include enhanced lighting, conspicuity improvements, operational restrictions, or other measures proportionate to the level of aviation risk, in addition to standard notification and safeguarding

requirements.

2.4.3 Cranes and tall equipment should be left in the correct out-of-service configuration in accordance with the manufacturer's instructions. When specifying any control measures, the aerodrome should agree with the safe method for leaving cranes or tall equipment out of service to avoid additional risks associated with an unattended crane or tall equipment. Where necessary, a discussion with the aerodrome should take place to ensure all safety mitigations are addressed. Note: tower cranes are usually left to slew freely when out of service, whereas other cranes may be fully folded or have the boom/jib lowered to the ground.

2.4.4 Ensure **lighting and marking** requirements are met as stated in chapter 3.

2.5 Emergency Crane or Tall Equipment Operations

2.5.1 The CONA map shows crane or tall equipment operators where equipment can be positioned at the lowest safe surface level when responding to an emergency. At locations where emergency call-outs are frequent (for example, sewage pumping stations, utilities infrastructure, or gas works sites located within safeguarded areas), it is recommended that operators establish pre-agreed "call-on / call-off" permit arrangements with the aerodrome operator. These arrangements should:

- define agreed equipment positioning areas and maximum operating heights;
- set out notification and approval procedures prior to mobilisation;
- identify any conditions under which operations must be suspended or modified; and
- ensure clear communication channels between the Crane or Tall Equipment Operator, site owner, and aerodrome (including ATC where applicable).

Pre-agreed arrangements of this nature are intended to minimise delays during emergency response while maintaining compliance with aerodrome safeguarding and safety requirements.

2.6 Aeronautical Data Quality (ADQ) Requirements

2.6.1 Crane and tall equipment operators play an important role in supporting the accuracy and integrity of aeronautical data used for safeguarding, airspace management and flight safety. To fulfil the UK's Aeronautical Data Quality (ADQ) requirements, it is essential that all information provided to aerodromes and the CAA relating to crane and tall equipment operations is complete, accurate and submitted in a timely manner.

2.6.2 Crane and tall equipment operators are expected to ensure the reliability of all data supplied, including but not limited to:

- crane or tall equipment location

- maximum operating height,
- dates and duration of use, and
- any subsequent amendments throughout the activity.

2.6.3 Inaccurate or incomplete data can lead to incorrect safeguarding assessments, delays in processing crane or tall equipment permits, or impacts on aerodrome and airspace operations.

2.6.4 Crane or tall equipment operators should therefore have appropriate internal processes to verify the accuracy of the information they submit and to promptly communicate any amendments. Adhering to these ADQ expectations supports the safe and efficient integration of crane and tall equipment activity into the aerodrome environment and wider UK aviation system.

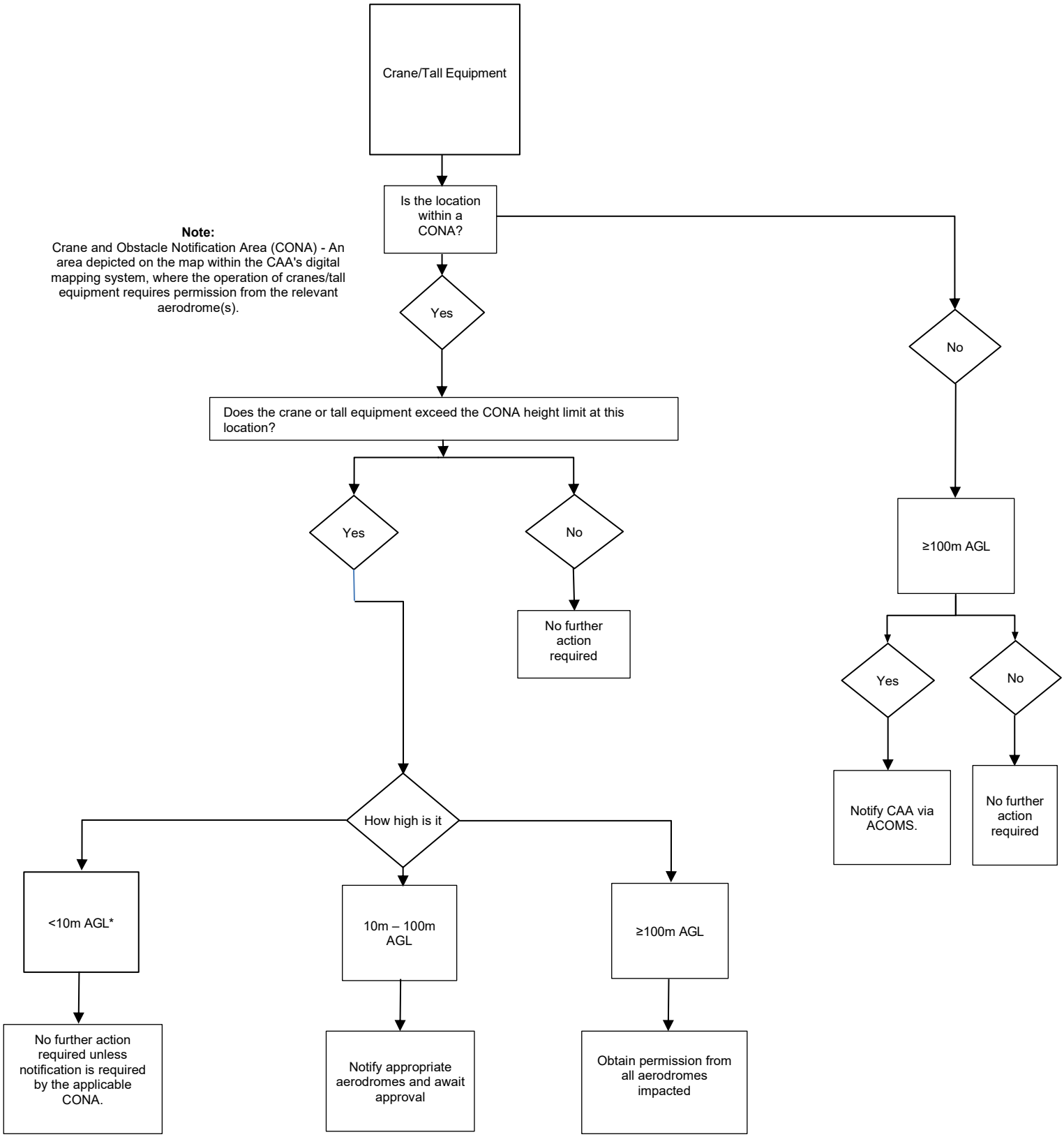
2.7 Crane and Tall Equipment Permit Timescales

2.7.1 Crane and tall equipment permit timescales depend on the level of safeguarding assessment required. Crane or tall equipment operators who work regularly with an aerodrome are encouraged to establish a Service Level Agreement (SLA) to set clear expectations on timings and processes.

2.8 Crane and Tall Equipment Operator Permission Process

2.8.1 See Figure 1 for the Crane and Tall Equipment Operator Permission Process

Figure 1: Crane and Tall Equipment Operator Permission Process



*Within a CONA, notification requirements are determined by the applicable CONA criteria. In some locations, notification may be required regardless of height.

CHAPTER 3

Lighting and marking requirements

3.1 Requirements

3.1.1 The marking and/or lighting of obstacles aims to ensure they are clearly identifiable to pilots, thereby reducing the potential safety risk to aircraft. The crane and tall equipment should be lit and marked in accordance with the aerodrome operator's instructions and the applicable regulatory requirements. This includes complying with the lighting and marking provisions for temporary obstacles set out in ICAO Annex 14, Volume I (Aerodrome Design and Operations), the guidance and specifications for obstacle lighting and marking in CAP 168 (Licensing of Aerodromes), and the obstacle management and notification obligations defined in UK Regulation (EU) No. 139/2014, ADR.OPS.B.075 and ADR.OPS.B.080. Further detail on these requirements are provided below.

3.2 Lighting

3.2.1 When cranes or high structures are planned within a CONA the crane or tall equipment must be fitted with the required type and level of obstacle lighting:

- <45 m - low intensity (32 candela) steady red lights recommended, except that medium intensity steady red lights should be used to light such obstacles as an elongated structure, an obstacle in the outer area of the approach or high ground adjacent to the aerodrome circuit.
- 45 -150 m - medium intensity lights (2000 candela) steady red lights must be used at night and are recommended during the day recommended.

3.2.2 En-Route (≥150 m AGL) the crane or tall equipment must be lit as follows;

- Medium intensity lights, steady red lights must be used at night and are recommended during the day.

3.2.3 The lighting system selected to enhance obstacle visibility must operate effectively at all times. This requires a high degree of reliability and availability, ensuring the lighting's performance can be consistently maintained over extended periods. Where feasible, a secondary power supply is recommended to further support continuous and dependable operation.

3.3 Placement

3.3.1 Obstacle lights must be placed at the highest practicable point of the crane or equipment to clearly define its maximum height.

3.3.2 For cranes exceeding 45 m above ground level, intermediate obstacle lights should be installed between the top light and ground level. These lights should be spaced as evenly as practicable, with no interval greater than 52 m.

3.3.3 Lighting must highlight both the vertical and horizontal limits of the crane to ensure its full extent is identifiable.

3.4 Markings

3.4.1 Cranes and tall equipment should be marked unless one of the following applies:

- marking may be omitted where the obstacle is equipped with medium-intensity Type A lights during the day and its height does not exceed 150 m above the surrounding ground;
- marking may be omitted when the obstacle is fitted with high-intensity lights during the day. Cranes and tall equipment should be painted in a manner that ensures they are clearly distinguishable from their surroundings.

3.4.2 The chosen color pattern must ensure adequate contrast with its surroundings to avoid visual blending and support safe identification. Although these measures provide high conspicuity in most cases, their effectiveness can be limited under certain environmental conditions.

3.5 Operational Considerations

3.5.1 Cranes and tall equipment should be operated as low as possible for the task.

3.5.2 Use crane and tall equipment types that can be lowered when not in use or during low visibility conditions.

3.5.3 Aerodrome operators may request specific jib parking directions.

3.5.4 Cranes and tall equipment mentioned in planning applications must still be notified to the CAA and / or the relevant aerodrome.

CHAPTER 4

Aerodrome operators

4.1 Safeguarding responsibilities

4.1.1 Aerodrome operators are responsible for protecting obstacle limitation surfaces (OLS) and other aerodrome surfaces, including those associated with instrument flight procedures (IFPs), and must assess the impact of crane and tall equipment operations against;

- Runway use
- Visibility conditions
- IFPs and other protected surfaces
- Communication, Navigation, and Surveillance (CNS)

4.1.2 Assess and monitor crane and tall equipment operations within **safeguarding areas**.

4.1.3 Issue permissions and communicate any **conditions or restrictions**.

4.1.4 Where a crane or tall equipment operation has been assessed and approved, the aerodrome operator must determine the appropriate publication method in accordance with Section 4.2.

4.1.5 Aerodrome operators should define bespoke CONAs where the default 6 km CONA does not adequately reflect their operational, safeguarding or obstacle assessment requirements. Bespoke CONAs should be developed using the aerodrome's safeguarding requirements, operational environment, published flight procedures (where applicable), and existing safeguarding maps.

4.1.6 Aerodrome operators are responsible for defining, maintaining and reviewing any bespoke CONAs applicable to their aerodrome. They are also responsible for ensuring that bespoke CONAs remain accurate and reflect current aerodrome operations and safeguarding needs. Where changes are required, aerodrome operators should update their CONA data in a timely manner.

Note: CONAs are represented on the CAA Digital Mapping System through ACOMS and associated digital notification processes. While the CAA provides and maintains the platform through which CONAs are published and made accessible to stakeholders, responsibility for the content, accuracy and ongoing maintenance of bespoke CONAs remains with the aerodrome operator.

4.2 Notification and Publication Responsibilities

4.2.1 For all crane and tall equipment operations within a Crane and Obstacle Notification Area (CONA), the aerodrome operator is responsible for assessing the safeguarding impact and determining any aeronautical information publication requirements.

4.2.2 Where a crane or tall equipment operation is expected to remain in place for 90 days or less, the aerodrome operator should issue a NOTAM where required.

4.2.3 Where a NOTAM is not issued and the crane or tall equipment is 100 metres AGL or greater, the aerodrome operator must ensure the obstacle information is submitted through ACOMS.

4.2.4 Where a crane or tall equipment operation is expected to remain in place for more than 90 days, the aerodrome operator must ensure that the obstacle is published in the Aeronautical Information Publication (AIP), where required.

4.3 Amendments and Extensions

4.3.1 Follow the **same notification process as above** for any updates or extensions.

4.3.2 Clearly indicate that the submission is an **update or extension** to an existing permission.

4.4 Emergency Cranes or Tall Equipment

4.4.1 Aerodromes are encouraged to establish a process within their SMS to manage urgent crane or tall equipment notifications received within 24 hours.

4.5 Assessment Responsibilities

4.5.1 Assess and manage the crane and tall equipment notification area for your aerodrome in line with the notification criteria stated in chapter 2.

4.5.2 Where deemed necessary through the planning process, the inclusion of conditions relating to crane and tall equipment operations within a planning application is the responsibility of the aerodrome operator

4.5.3 Ensure all data transfer complies with **Aeronautical Data Quality (ADQ)** requirements.

4.6 Additional Actions

4.6.1 May include surveys, lighting requirements, height/time restrictions, and issuing NOTAMs.

4.6.2 Will initiate crane and tall equipment permit procedures and apply restrictions after assessments if required, to protect flight safety

CHAPTER 5

UK Civil Aviation Authority (CAA)

5.1 Responsibilities

5.1.1 The CAAs role in the notification process is as follows;

1. CAA receives and processes crane notifications 100m AGL and above.
2. CAA identifies and informs affected parties, including:
    a) Defence Geographic Centre (DGC)

5.1.2 Notification requirements

1. The crane or tall equipment position must be provided in WGS-84 (and OSGB36 if required).
2. The location height must be given in AGL and AMSL.

5.1.3 Support and Guidance

1. The CAA offers case-by-case advice to crane users.

   Contact: arops@caa.co.uk
2. For IFP safeguarding queries: ifp.policy@caa.co.uk

5.2 Enforcement

5.2.1 Cranes or tall equipment erected without aerodrome approval may be considered a hazard to air navigation.

5.2.2 False declarations are an offence under the UK Air Navigation Order and may result in prosecution.

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CHAPTER 6

ACOMS

6.1 Purpose

6.1.1 ACOMS is designed to be easy to use, simplifying the crane and tall equipment notification process enables the CAA to deliver a higher level of service.

6.1.2 As with any tall structure, the presence of a single crane or tall equipment or number of cranes and tall equipment has the potential to affect aviation activities. Crane and tall equipment-related issues are usually considered and managed in much the same way as any tall structure.6.1.3 To submit a crane and tall equipment notification to the CAA, register via the CAA customer portal to access the new Airspace Coordination and Obstacle Management Service (ACOMS) and refer to the ACOMS Portal Registration User Guide for assistance. The CAA are no longer accepting AVOKA online submissions or DAP1924 forms for crane notifications.

6.2 When to Notify the CAA

6.2.1 If the crane is 100m or higher above ground level, you need to notify the CAA, as described below. To submit a notification to the CAA please register for ACOMS via the CAA customer portal.

6.2.2 Where a crane or tall lifting equipment is 100m or higher above ground level and outside of a CONA, the user shall notify the CAA via ACOMS prior to erection.

6.2.3 Notifications submitted via ACOMS will be shared with relevant stakeholders, including the Defence Geographic Centre (DGC), for inclusion in the Digital Vertical Obstruction File (DVOF), where applicable.

6.2.4 Where an aerodrome has notified via a NOTAM, they must notify the CAA via ACOMS prior to erection.