‘Acceptable means of Compliance (AMC) and Guidance Material (GM) to Authority, Organisation and Operations Requirements for Aerodromes — Issue 1, Amendment X’

The Annex to ED Decision 202X/0XX/R is amended as follows:

The text of the amendment is arranged to show deleted, new or amended, and unchanged text as follows:

— deleted text is ~~struck through~~;

— new or amended text is highlighted in blue;

— an ellipsis ‘[…]’ indicates that the rest of the text is unchanged.

Disclaimer

This document is provided for information purposes only. No quality control has been performed.

GM1 to Annex I Definitions

DEFINITIONS FOR TERMS USED IN THE ACCEPTABLE MEANS OF COMPLIANCE AND GUIDANCE MATERIAL

For the purpose of the Acceptable Means of Compliance and Guidance Material to Regulation (EU) No 139/2014, the following definitions apply:

[…]

'Aircraft classification rating (ACR)' means the number expressing the relative effect of an aircraft on a pavement for a specified standard subgrade category. The ACR is calculated with respect to the centre of gravity (CG) position which yields the critical loading on the critical gear. Normally the aft-most CG position appropriate to the maximum gross apron (ramp) mass is used to calculate the ACR. In exceptional cases the forward-most CG position may result in the nose gear loading being more critical.

'Modulus of elasticity (E) of a material' means a measure of its stiffness. It is equal to the stress applied to it divided by the resulting elastic strain.

'Pavement classification rating (PCR)' means a number expressing the bearing strength of a pavement.

AMC1 ADR.AR.A.025(b) Information to the Agency

EXCHANGE OF SAFETY-SIGNIFICANT INFORMATION WITH THE AGENCY

Each competent authority should appoint a coordinator to act as the contact point for the exchange of safety-significant information between the competent authority and the Agency.

~~GM1 ADR.AR.B.010 Allocation of tasks to qualified entities~~

~~**CERTIFICATION TASKS**~~

~~The tasks that may be performed by qualified entities on behalf of the Competent Authority may include any tasks related to the initial certification and continuing oversight of aerodromes and aerodrome operators, as well as of organisations responsible for the provision of AMS, with the exclusion of the issuance of certificates or approvals.~~

AMC1 ADR.AR.C.015(b) Initiation of the certification process

AERODROME OPERATION DURING THE CERTIFICATION PROCESS

When deciding on the conditions under which the aerodrome will operate during the certification process, the competent authority should also consider:

(a) the extent and depth of the organisational changes (e.g. new nominated persons, level of changes to management positions, restructuring of the organisational structure); and
(b) possible changes to the type of operations at the aerodrome, or the aerodrome itself.

GM1 ADR.AR.C.035(d) Issuance of certificates

SCOPE OF AIRCRAFT OPERATIONS EXCEEDING THE CERTIFIED DESIGN CHARACTERISTICS OF THE AERODROME ~~WITH A HIGHER AERODROME REFERENCE CODE LETTER~~

Any restrictions or mitigation measures for the use of aircraft type/s at the aerodrome should only be mentioned in the aerodrome manual. Notably any limitations arising from the assessment to be undertaken for the use of the aerodrome by aircraft exceeding the certified design characteristics of the aerodrome ~~higher code letter aircraft~~ according to ADR.OPS.B.090 should be included there.

GM1 ADR.AR.C.035(e) Issuance of certificates

MODEL FOR THE TERMS OF THE CERTIFICATE TO BE ATTACHED TO THE CERTIFICATES

TERMS OF THE CERTIFICATE	
Certificate reference: [STATE CODE][1]:	
Aerodrome name — ICAO location indicator[2]:	
Conditions to operate[3]:	
Operations on specially prepared winter runways[4]	
Runway — declared distances[5]:	
Types of approaches[6]:	
Aerodrome reference code[7]:	
Scope of aircraft operations exceeding the certified design characteristics of the aerodrome ~~with a higher aerodrome reference code letter~~ [8]:	
Provision of apron management services[9]:	
Rescue and firefighting level of protection[10]:	

1 The certificate must be given the State Code [The two-letter ISO code should be used (ISO 3166 alpha-2), except for Greece and the United Kingdom, for which the abbreviations EL and UK are recommended] and a unique ascending number. Example: EL – 001

2 To be specified: the official name of the aerodrome and the ICAO location indicator for the aerodrome.

3 To be specified: day/ night and IFR/ VFR.

4 To be specified: (yes/no). See ADR.OPS.B.036.

5 To be specified: ASDA, LDA, TODA, TORA in metres for each direction of each runway, including intersection take-off if applicable.

6 To be specified: approval of the runway for non-instrument, instrument, non-precision approach. In case of precision approach(-es), it is to be indicated, which of the following precision approach(-es) is (are) approved:

— EFVS 200 operation;

— EFVS-A operation;

— EFVS-L operation;

— Standard Category I;

— Special authorisation category I;

— Precision approach category II;

— Special authorisation category II;

— Precision approach category III.

[7] To be specified: Aerodrome Reference Code (Code number/Code letter).

[8] To be specified: the approved type of aeroplanes that exceed the code letter and/or outer main gear wheel span of the certified design characteristics of the aerodrome according to ADR.OPS.B.090 ~~with a higher code letter than indicated in point 7 above~~.

[9] To be specified: the name of the service provider, both in case such services are ~~t~~ or are not provided by the aerodrome operator.

[10] To be specified: the rescue and firefighting level of protection as per Annex IV (Part-ADR.OPS) to this Regulation.

GM1 ADR.OR.B.040(a);(b) Changes

CHANGES REQUIRING PRIOR APPROVAL

[…]

(i) Operation of aircraft that exceed the certified design characteristics of the aerodrome ~~with higher code letter~~ as required by ADR.OPS.B.090(a) ~~Use of the aerodrome by higher code letter aircraft~~.

[…]

AMC1 ADR.OR.C.030 Occurrence reporting

~~**GENERAL**~~

~~The aerodrome operator should establish procedures to be used for reporting to the Competent Authority and to any other organisation, as required, which include:~~

~~(a) the description of the applicable requirements for the purpose of reporting;~~

~~(b) the description of the reporting mechanism, including reporting forms, means, and deadlines;~~

~~(c) the personnel responsible for reporting; and~~

~~(d) the description of the mechanism and personnel responsibilities for identifying root causes, and the actions that may be needed to be taken to prevent similar occurrences from happening in the future, as appropriate.~~

MANDATORY REPORTING - GENERAL

(a) Regulation (EU) 2015/1018 lays down a list classifying occurrences in civil aviation to be mandatorily reported according to Regulation (EU) No 376/2014. This list should not be

understood as being an exhaustive collection of all issues that may pose a significant risk to aviation safety and therefore reporting should not be limited to items listed in that Regulation and the additional items referred to in point (c) of ADR.OR.C.030.

(b) The aerodrome operator should establish procedures to be used for reporting to the competent authority and any other organisation required to report to, which should include:

(1) a description of the applicable requirements for reporting;

(2) a description of the reporting mechanism, including reporting forms, means, and deadlines;

(3) safeguards to ensure confidentiality of the reporter and protection of personal data; and

(4) responsibilities of the organisations and personnel responsible for reporting.

(c) Such procedures should be included in the aerodrome manual and the respective manual of the apron management services provider.

AMC2 ADR.OR.C.030 (a) Occurrence reporting

GENERAL

(a) Where the aerodrome operator is also certified to provide additional services within the scope of Regulation (EU) 2018/1139 and the delegated and implementing acts adopted on the basis thereof:

(1) the aerodrome operator may establish an integrated occurrence reporting system covering all certificates held; and

(2) single reports for occurrences covering all certificates held should only be provided if the following conditions are met:

(i) the report includes all relevant information from the perspective of the different organisation certificates held;

(ii) the report addresses all relevant specific mandatory data fields and clearly identifies all certificate holders for which the report is made; and

(iii) the competent authority for all certificates is the same and such single reporting was agreed with that competent authority.

(b) The aerodrome operator should assign responsibility to one or more suitably qualified persons with clearly defined authority, for coordinating action on occurrences and for initiating any necessary further investigation and follow-up activity.

(c) If more than one person is assigned such responsibility, the aerodrome operator should identify a single person to act as the main focal point for ensuring a single reporting channel is established to the accountable manager. This should in particular apply to aerodrome operators holding one or more additional organisation certificates within the scope of Regulation (EU) 2018/1139 and the delegated and implementing acts adopted on the basis thereof, where the occurrence reporting system is fully integrated with that required under the additional certificate(s) held.

AMC1 ADR.OR.D.005(b)(2) Management system

SAFETY POLICY

(a) The safety policy should:

(1) be endorsed by the accountable manager;

(2) clearly identify safety as the highest organisational priority over commercial, operational, environmental, or social pressures;

(3) reflect organisational commitments regarding safety and its proactive and systematic management;

(4) be communicated, with visible endorsement, throughout the organisation;

(5) include safety reporting principles; and

(6) be periodically reviewed to ensure it remains relevant and appropriate to the organisation.

(b) The safety policy should:

(1) include a commitment:

(i) to improve towards the highest safety standards;

(ii) to comply with all applicable legal requirements, meet all applicable standards, and consider best practices;

(iii) to provide appropriate resources;

(iv) to enforce safety as one primary responsibility of all managers and staff; and

(v) to apply 'just culture' principles in accordance with Regulation (EU) No 376/2014, and, in particular, not to make available or use the information on occurrences:

(A) to attribute blame or liability to front line personnel or other persons for actions, omissions or decisions taken by them that are commensurate with their experience and training; or

(B) for any purpose other than the maintenance or improvement of aviation safety;

(2) include the safety-reporting procedures;

(3) with reference to a `just culture´, clearly indicate which types of operational behaviours are unacceptable, and include the conditions under which disciplinary action would not apply; and

(4) be periodically reviewed to ensure it remains relevant and appropriate.

(c) Senior management should:

(1) continually promote the safety policy to all personnel, and demonstrate their commitment to it;

(2) provide necessary human and financial resources for its implementation; and

(3) establish safety objectives and performance standards.

AMC1 ADR.OR.D.005(b)(11) Management system

COMPLIANCE MONITORING

(a) Compliance monitoring

(1) The implementation and use of a compliance monitoring ~~process~~ function should enable the aerodrome operator to monitor compliance with the relevant requirements of this Part, Part-ADR.OPS, as well as any other applicable regulatory requirements, or requirements established by the aerodrome operator.

The aerodrome operator should specify the basic structure of the compliance monitoring applicable to the activities conducted.

The compliance monitoring should be properly implemented, maintained and continually reviewed and improved as necessary.

Compliance monitoring should be structured according to the size of organisation and the complexity of the activities to be monitored, including those which have been subcontracted.

~~Compliance monitoring should include a feedback system of findings to the accountable manager to ensure effective implementation of corrective actions as necessary.~~

[…]

AMC2 ADR.OR.D.005(b)(11) Management system

RESPONSIBILITY FOR COMPLIANCE MONITORING

(a) The responsibility for the compliance monitoring should:

(1) be with a person who has direct access to, and is responsible to the accountable manager;

(2) not be with one of the persons referred to in ADR.OR.D.015(b) ~~or ADR.OR.D.015(c)~~, except that in less complex aerodrome organisations/operations, it may also be with the accountable manager ~~or the person referred to in ADR.OR.D.015(c)~~.

[…]

GM1 ADR.OR.D.005(b)(2) Management system

SAFETY POLICY

~~(a)~~ Safety policy — General

The safety policy is the means whereby the aerodrome operator states its intention to maintain and, where practicable, improve safety levels in all its activities, and to minimise its contribution to the risk of an aircraft accident as far as reasonably practicable. It reflects the management's commitment to safety and demonstrates the aerodrome operator's philosophy of safety management, as well as become the foundation on which the aerodrome operator's management system is built. It serves as a reminder of 'how we do business here'. The creation of a positive safety culture begins with the issuance of a clear and unequivocal direction.

~~The safety policy should state that the purpose of safety reporting, and internal investigations is to improve safety, not to apportion blame to individuals.~~

The commitment to apply 'just culture' principles forms the basis for the aerodrome operator's internal rules describing how 'just culture' principles are guaranteed and implemented, as required by Article 16(11) of Regulation (EU) No 376/2014.

~~(b) Safety policy — Just culture~~

~~The safety policy should actively encourage effective safety reporting and, by defining the line between acceptable performance (often unintended errors) and unacceptable performance (such as negligence, recklessness, violations, or sabotage), provide fair protection to reporters. A safety or just culture may not, however, preclude the 'criminalisation of error', which is legally, ethically, and morally within the sovereign rights of any Member State, provided European Union law and established international agreements are observed. A judicial investigation, and consequences of some form, may be expected following an accident or serious incident especially if a failure resulted in lives lost or property damaged, even if no negligence or ill intent existed. A potential issue could, therefore, exist if voluntary hazard reports, which relate to latent deficiencies of a system or its performance, are treated in the same way as those concerning accident, and serious incident investigations. The intent of protecting hazard reports should not challenge the legitimacy of a judicial investigation, or demand undue immunity. However, legal argument does usually take precedence over any technical or safety-related argument.~~

AMC1 ADR.OR.D.015(c) Personnel requirements

SAFETY MANAGER

[…]

(c) The safety manager should have:

(1) adequate practical experience and expertise in aerodrome operations, or aerodrome maintenance, or similar area;

(2) adequate knowledge of safety and quality management;

(3) adequate knowledge of the aerodrome manual; and

(4) comprehensive knowledge of the applicable requirements in the area of aerodromes.

(d) The safety manager should not be one of the persons referred to in ADR.OR.D.015(b) ~~or AMC2 ADR.OR.D.005(b)(11)~~. However, in the case of less complex aerodrome organisations/operations, the safety manager may be the accountable manager, ~~or one of the persons referred to in ADR.OR.D.015(b), or AMC2 ADR.OR.D.005(b)(11),~~ or any other person at appropriate management level (including the persons referred to in ADR.OR.D.015(b)), provided that he/she can act independently of other managers within the organisation of the aerodrome operator, has adequate knowledge and experience in accordance with point (b) above, and has direct access to the accountable manager and to appropriate management for safety matters.

AMC1 ADR.OR.D.017(h) Training and proficiency check programmes

INSTRUCTORS — ASSESSORS

(a) The aerodrome operator should nominate instructors and assessors to be used for the implementation of the training and proficiency check programmes. The personnel to be nominated may also include contracted instructors or organisations for individual subjects.

The aerodrome operator may also nominate personnel proposed by organisations operating or providing services at the aerodrome to be used as instructors and assessors for the implementation of the respective part of the training and proficiency check programmes of these organisations' personnel. Irrespective of the solution chosen, the aerodrome operator remains responsible for the proper implementation of the training programme and the proficiency check programme in a consistent manner, and according to the relevant procedures and standards established by the aerodrome operator.

(b) A person may be qualified and nominated both as an instructor and as an assessor by the aerodrome operator. ~~However, such~~ Such a person may ~~not~~ provide assessment for own instruction, courses, or material, provided that the compliance monitoring function of the aerodrome operator ensures that assessments or tests are based on objective evidence and apply pre-defined criteria that need to be met by the trainee under assessment.

[…]

GM1 ADR.OR.D.017(h) Training and proficiency check programmes

COMBINING THE ROLE OF INSTRUCTOR AND ASSESSORS – ASSESSMENTS

A method to ensure the objective evaluation of the trainee in case the instructor and the assessor is the same person, is the use of multiple-choice questionnaires to avoid any risk of interpretation of the answers given. For an assessment, which is done directly by the instructor, e.g. a practical test, the use of a standard checklist with clear evaluation criteria can support an objective evaluation.

~~AMC1 ADR.OR.D.027 Safety programmes~~

~~**SAFETY PROGRAMMES — AERODROME SAFETY COMMITTEES**~~

~~(a) The aerodrome operator should:~~

~~(1) organise, coordinate and implement programmes to promote safety at the aerodrome. Such programmes should include, but are not limited to:~~

~~(i) runway safety, including runway incursion and excursion prevention;~~

~~(ii) apron safety; and~~

~~(iii) FOD prevention;~~

~~(2) coordinate and promote the exchange of information, and the joint investigation of occurrences, serious incidents, and accidents.~~

~~(b) The aerodrome operator should establish, coordinate, and lead local aerodrome safety committees, and a Local Runway Safety Team, dealing with runway safety, apron safety, and the safety of the operations at the aerodrome in general. All relevant organisations operating or providing services at the aerodrome should participate to such aerodrome safety committees and the Local Runway Safety Team.~~

~~The local aerodrome safety committees and the Local Runway Safety Team should convene regularly, identify and review local safety issues, and examine possible solutions, and need for action. Minutes of such meetings should be kept. Procedures relevant to the functioning of local aerodrome safety committees and the Local Runway Safety Team should be included in the aerodrome manual.~~

AMC1 ADR.OR.D.027(a);(b)(2) Safety programmes and aerodrome safety committees

COMPOSITION OF THE LOCAL RUNWAY SAFETY TEAM

Participation should include representatives with direct involvement in runway operations at the aerodrome, including, but not limited to:

(a) aerodrome operations;
(b) aerodrome engineering and maintenance;
(c) air traffic services;
(d) representation of aircraft operators that operate at the aerodrome;
(e) aerodrome rescue and firefighting services;
(f) aerodrome wildlife management
(g) organisation(s) responsible for the provision of AMS, if established.

AMC2 ADR.OR.D.027(a);(b)(2) Safety programmes and aerodrome safety committees

AERODROME SAFETY COMMITTEES

(a) The aerodrome operator should establish (a) Manoeuvring area/Apron Safety Committee(s);
(b) Participation should include, but not limited to representatives of:
    (1) representation of aerodrome users active in flight operations;
    (2) groundhandling service providers;
    (3) aerodrome rescue and firefighting services;
    (4) aerodrome operations;
    (5) aerodrome wildlife management;
    (6) aerodrome maintenance;
    (7) air traffic services provider(s); and
    (8) organisation(s) responsible for the provision of AMS, if established.

AMC1 ADR.OR.D.027(d)(1);(d)(2) Safety programmes and aerodrome safety committees

TASKS OF THE LOCAL RUNWAY SAFETY TEAM

(a) The local runway safety team should support the aerodrome operator to reduce the safety risk of issues related to runway safety, including but not limited to the following:
    (1) runway incursion;

(2) runway excursion;
(3) runway confusion;
(4) suspension or closure of runway operations; and
(5) infringements of the lower airspace inside the aerodrome or in the vicinity of the aerodrome perimeter by unauthorised UAS.

(b) The local runway safety team should support the aerodrome operator to assess the need for the establishment of hot spots at the aerodrome and the review of the relevant entries of the aeronautical information publication (AIP) for accuracy.

(c) The local runway safety team should:
(1) monitor the number, type, and the severity of runway safety occurrences,
(2) support the aerodrome operator to disseminate safety recommendations delivered from accident and incident investigations as well as other relevant lessons learnt e.g. from operational experience and best risk mitigation practices; and
(3) ensure sharing of good practices to prevent runway safety events;

(d) The local runway safety team should assist the aerodrome operator:
(1) in verifying that the communications between air traffic controllers or other air traffic services personnel, pilots, and vehicle drivers are satisfactory, or if any improvements are required.
(2) to assess on a regular basis in different weather and light conditions whether at all runway entrances visual aids are adequate, correctly located, and understandable by all parties concerned, with no possible ambiguity of their meaning or identify potential aerodrome design issues.

(e) The local runway team should provide advice to the aerodrome operator, prior to the implementation of changes to the aerodrome movement area, new practices, and procedures to identify any potential for runway safety events.

AMC2 ADR.OR.D.027(d)(1);(d)(2) Safety programmes and aerodrome safety committees

TASKS OF THE AERODROME SAFETY COMMITTEES

The tasks of the Manoeuvring area/Apron Safety Committee(s) should be:

(a) to receive and evaluate reports on operational safety issues;

(b) to receive reports and statistical information on accidents and incidents, and propose solutions;

(c) to advise on manoeuvring area/apron safety issues such as:
(1) promotion of apron safety discipline;
(2) FOD prevention;
(3) developing measures for safe operations;
(4) considering actions to resolve manoeuvring area/apron safety problems;
(5) apron equipment issues;
(6) adherence to airside driving rules;
(7) new and/or updated safety instructions;
(8) methods to develop and promote apron safety awareness initiatives;
(9) snow and ice control issues;

(10) proposed aerodrome works;

(11) proposed changes/developments to the movement area;

(12) standard operating procedures, etc.

~~GM1 ADR.OR.D.027 Safety programmes~~

~~**AERODROME SAFETY COMMITTEES**~~

~~(a) Manoeuvring area/Apron Safety Committee~~

~~(1) The aerodrome operator should establish (a) Manoeuvring area/Apron Safety Committee(s);~~

~~(2) The Manoeuvring area/Apron Safety Committee(s) should have an advisory role to the aerodrome operator;~~

~~(b) Management of Manoeuvring area /Apron Safety Committee(s)~~

~~(1) The Manoeuvring area /Apron Safety Committee(s) should be chaired by an aerodrome operator's official, responsible for aerodrome operations; and~~

~~(2) The aerodrome operator's safety manager should act as the secretary of the Committee(s).~~

~~(c) Composition of Manoeuvring area /Apron Safety Committee(s)~~

~~Participation should include, but not limited to representatives of:~~

~~(1) aerodrome users active in flight operations;~~

~~(2) aircraft ground handling services providers;~~

~~(3) aerodrome rescue and firefighting services;~~

~~(4) aerodrome operations;~~

~~(5) aerodrome wildlife management;~~

~~(6) aerodrome maintenance; and~~

~~(7) air navigation service provider(s).~~

~~(d) Tasks~~

~~The tasks of the Manoeuvring area /Apron Safety Committee(s) should be:~~

~~(1) to receive and evaluate reports on operational safety issues;~~

~~(2) to receive reports and statistical information on accidents and incidents, and propose solutions;~~

~~(3) to advise on manoeuvring area/apron safety issues such as:~~

~~(i) promotion of apron safety discipline;~~

~~(ii) FOD prevention;~~

~~(iii) developing measures for safe operations;~~

~~(iv) considering actions to resolve manoeuvring area/apron safety problems;~~

~~(v) apron equipment issues;~~

~~(vi) adherence to vehicle traffic issues;~~

~~(vii) new and/or updated safety instructions;~~

(viii) personal protective clothing/equipment issues;

(ix) methods to develop and promote apron safety awareness initiatives,

(x) snow and ice clearance issues;

(xi) proposed aerodrome works;

(xii) proposed changes/developments to the movement area;

(xiii) standard operating procedures, etc.

GM2 ADR.OR.D.027 Safety programmes

LOCAL RUNWAY SAFETY TEAM

(a) Context

As part of its runway safety programme, the aerodrome operator should establish and lead a Local Runway Safety Team and act on local runway safety issues, including runway incursion (including runway confusion) and excursion prevention.

A runway incursion is defined as 'Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take-off of aircraft[1].'

A runway excursion occurs when 'An aircraft veers off or overruns the runway surface during either take-off or landing'.

(b) Local Runway Safety Team composition

Participation should include representatives from all interested parties with direct involvement in runway operations at the aerodrome, including, but is not limited, to:

(1) aerodrome operations;

(2) aerodrome engineering and maintenance;

(3) air navigation service providers;

(4) aircraft operators that operate of the aerodrome;

(5) aerodrome rescue and firefighting services;

(6) drivers having access on the manoeuvring area.

(c) Role

The role of the Local Runway Safety Team should be to advise the appropriate management on potential runway safety issues, and to recommend mitigating measures.

(d) Tasks

The Local Runway Safety Team may have the following tasks:

(1) identification of potential runway safety issues, including the need for establishment of hot spots or other problem areas at the aerodrome and the review of the relevant entries of the AIP for accuracy;

[1] The 'protected area of a surface designated for the landing and take-off of aircraft' is to be interpreted as the physical surface of a runway, from the centreline to the holding point appropriate to the type of runway. Where operations are being conducted during low visibility operations this should be the holding point appropriate to the procedures in force. The 'protected surface' includes the ILS glide path and localiser critical areas at all times, and the ILS sensitive areas during low visibility procedures.

(2) developing and running local awareness campaigns, at suitable periods, including at the start of a busy season or before an unusual event, that focus on local issues, for example, producing and distributing local hot spot maps, or other guidance material considered as necessary; local awareness campaigns should be periodically refreshed to maintain interest and operational awareness of the relevant personnel;

(3) monitoring the number, type and, the severity of runway incursions; disseminating safety recommendations delivered from accident and incident investigation findings as well as other relevant lessons learned e.g. from operational experience and best risk mitigation practices; sharing good practices to prevent runway incursions or excursions;

(4) assisting in verifying that communications between air traffic controllers, or other Air Traffic Services personnel, pilots, and vehicle drivers are satisfactory, or if any improvements could be suggested;

(5) making observations on a regular basis in different weather and light conditions to assess whether all runway entrances and visual aids are adequate, correctly located and understandable by all parties concerned, with no possible ambiguity of their meaning, or identify potential aerodrome design issues;

(6) understanding the operating difficulties of personnel working in other areas, and recommending areas for improvement; when reviewing operating procedures it is necessary to ensure that the procedures employed by different companies at the aerodrome are integrated and effective, so as to minimise the risk of runway incursions. Care should be taken when examining existing or proposed runway capacity enhancing procedures or noise abatement schemes involving runway preferential systems;

(7) development of joint, initial and recurrent, training programmes and familiarisation on runway incursion and excursion prevention, for all relevant personnel (vehicle drivers and other personnel operating on the manoeuvring area, pilots, Air Traffic Services personnel); this may include visits to the manoeuvring area to increase awareness of the aerodrome layout, markings, signs, position of anemometers etc., where this is considered necessary;

(8) providing advice prior to the implementation of changes to the aerodrome, practices and procedures to identify potential for runway incursion or excursion; and

(9) assessing the effectiveness of implemented operational solutions periodically.

AMC2 ADR.OR.D.027 Safety programmes

HOT SPOTS

Once hot spots have been identified at an aerodrome, suitable strategies should be implemented to remove the hazard and, when this is not immediately possible, to manage and mitigate the risk, including the publication of HOT SPOT charts in the Aeronautical Information Publication.

GM3 ADR.OR.D.027 Safety programmes

HOT SPOTS

A hot spot is defined as 'a location on an aerodrome movement area with a history, or potential risk of collision, or runway incursion, and where heightened attention by pilots/drivers is necessary.'

Strategies to manage and mitigate the risk from hot spots, depending on the case, may include, but are not limited to:

(a) awareness campaigns;

(b) additional visual aids (signs, markings, and lighting);

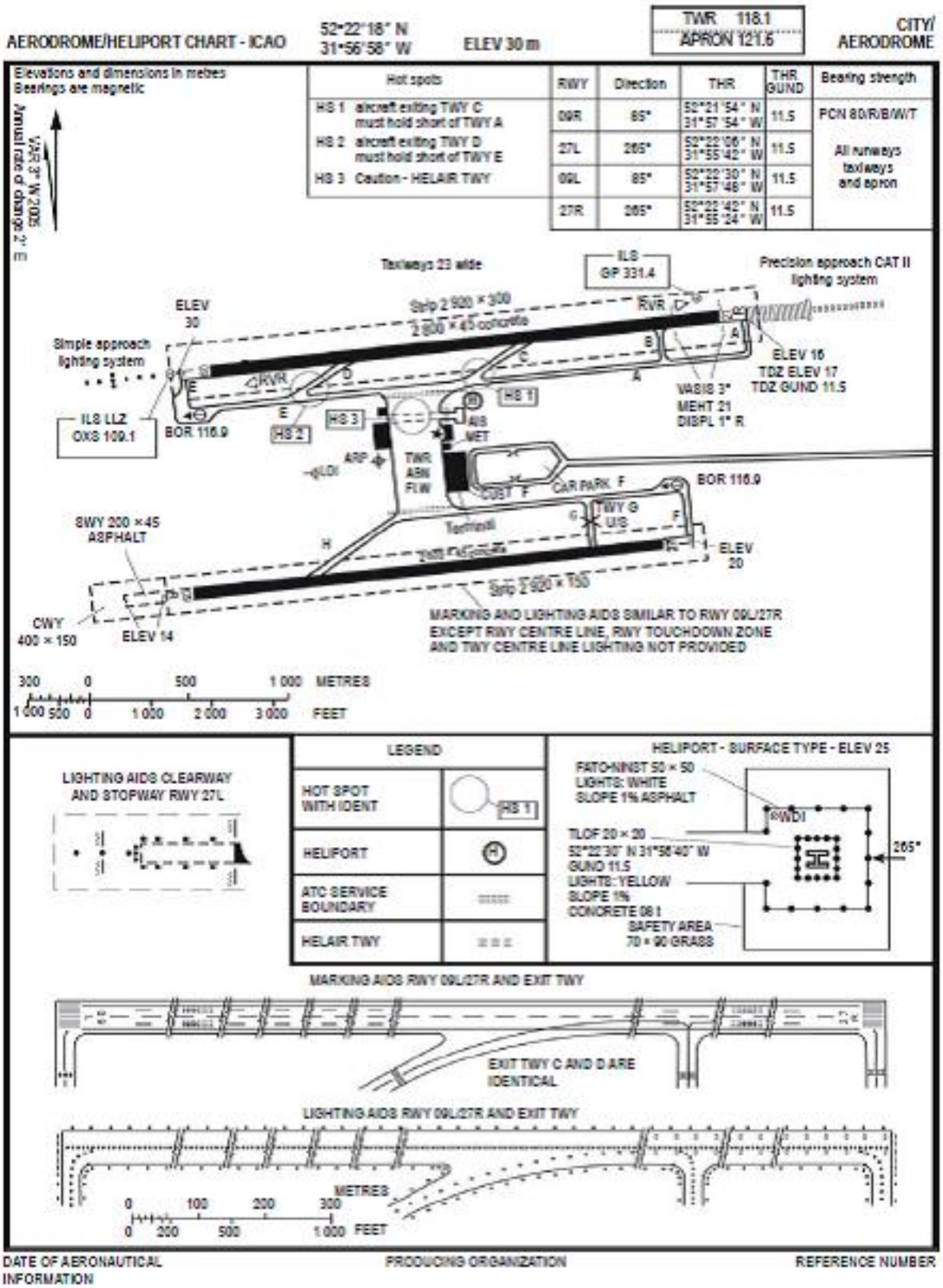
(c) establishment of alternative routings;

(d) introducing changes to the design of parts of the aerodrome; and

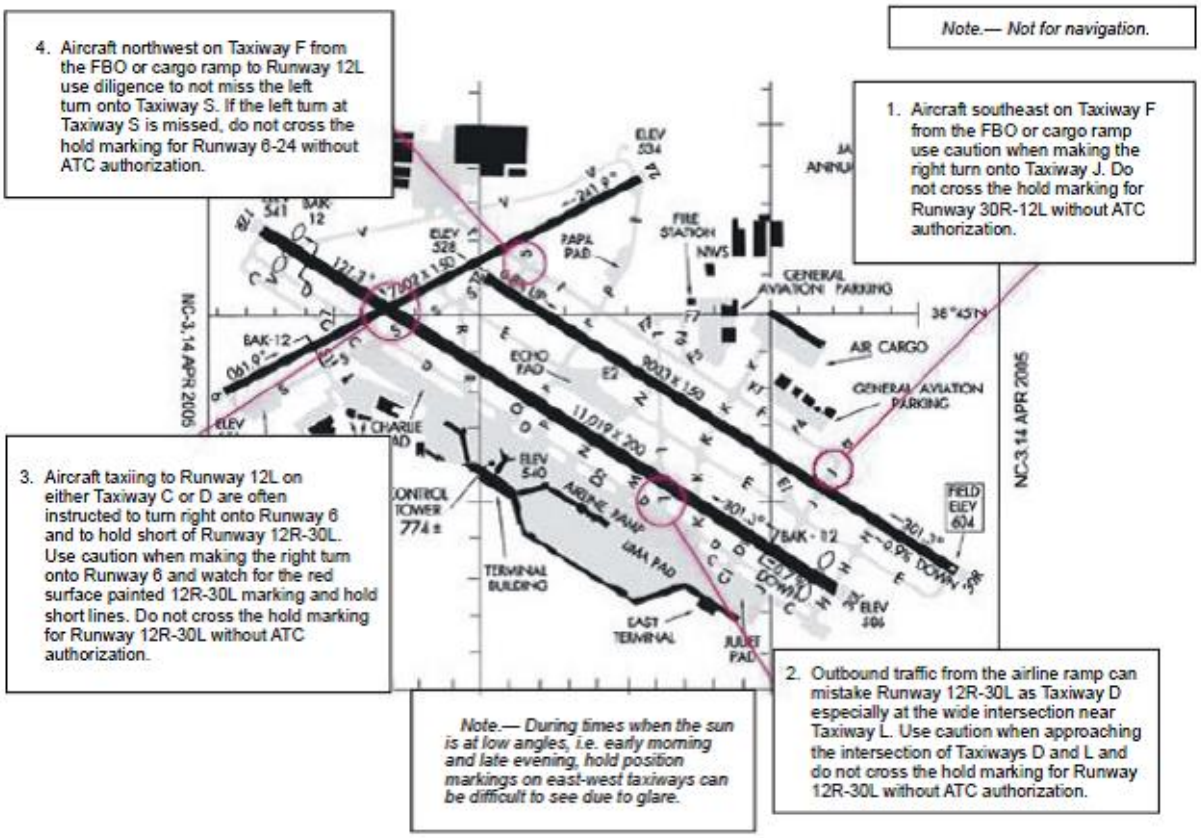
(e) the mitigation of blind spots in the aerodrome control tower.

Aerodrome charts showing hot spots should be produced locally, checked regularly for accuracy, revised as needed, distributed locally, and published in the AIP. The criteria used to establish and chart a hot spot are contained in the PANS-ATM (Chapter 7) and Annex 4 — Aeronautical Charts (Chapters 13, 14 and 15).

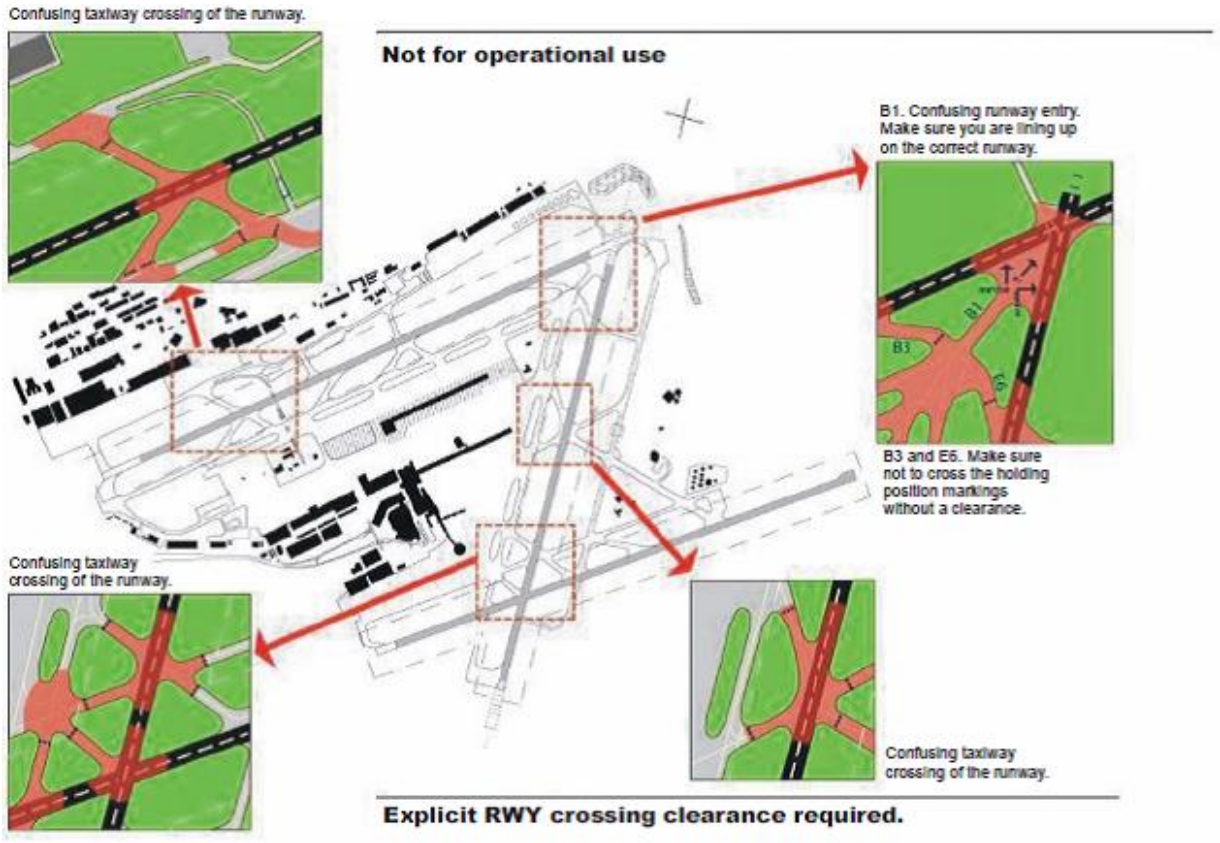
Examples of how hot spots are shown on charts are provided in Figures 1, 2, and 3 below.



~~*Figure 1*~~



~~Figure 2~~



~~*Figure 3*~~

AMC1 ADR.OR.D.030 Safety-reporting system

SAFETY-REPORTING SYSTEM

(a) Safety-reporting system — General

(1) An effective safety-reporting system should, apart from aerodrome operator's personnel, include aircraft operators, ground handling service providers, organisations responsible for the provision of apron management services, air navigation service providers, and any other organisation operating on the aerodrome, or providing services at the aerodrome, also include organisations contracted in accordance with ADR.OR.D.010.

(2) The safety-reporting system should include voluntary reporting possibilities intended for safety hazards identified by the reporter, and that may have potential safety consequences.

~~(4) The aerodrome operator should provide the means and the format for reporting which should be such that meets the existing reporting requirements foreseen in the applicable legislation in terms of time, format, and required information to be reported.~~

(4) The aerodrome operator should provide sufficient means for reporting, including forms that may be used for this purpose.

(5) The safety-reporting system should include an acknowledgement to the reporter for the submission of the report.

(6) The reporting process should be as simple as possible, and well documented, including details as to what, how, where, whom, and when to report.~~;~~

(7) Regardless of the source or method of submission, once the information is received, it should be stored in a manner suitable for easy retrieval and analysis.~~;~~

(8) Access to the submitted reports should be restricted to persons responsible for storing and analysing them.~~;~~

(9) Protection of the identity of the reporter should be ensured, and the procedures established by the aerodrome operator to gather additional information for analyses, or investigations should respect this principle.~~;~~

(10) The safety-reporting system should include a feedback system to the reporting person, on the outcome of the occurrence analysis.

AMC1 ADR.OR.D.030(b);(c)(1) Safety-reporting system

REPORTING OF ANY RELEVANT ACCIDENT, SERIOUS INCIDENT, AND OTHER OCCURRENCE UNDER THE SAFETY-REPORTING SYSTEM OF THE AERODROME OPERATOR

(a) The aerodrome operator should identify a list of occurrences to be reported to itself by the personnel of the organisations referred in point (a)(1) of AMC1 ADR.OR.D.030. The list should include as a minimum occurreneces relevant for the aerodrome safety:

(1) mandatory occurrences reported in accordance with Regulation (EU) 2018/1139 and Regulation (EU) 376/2014;

(2) occurrences not captured by the mandatory reporting system of Regulation (EU) 376/2014;

(3) other safety-related information which is perceived by the reporter as an actual or potential hazard to aviation safety.

(b) Wildlife hazard reporting

(1) The aerodrome operator should ensure that its safety reporting system specifically addresses the requirement for all third parties (aircraft operators, aircraft mechanics, air traffic controllers, and other Air Traffic Services personnel, etc.) and all aerodrome personnel, to report to the aerodrome operator wildlife strikes, and relevant identified hazards.

(2) The reporting of such third parties should be done irrespectively of any other requirements, defined in Regulation (EU) 2018/1139, Regulation (EU) No 376/2014, the delegated and implementing acts adopted on the basis of those Regulations, as well as in Regulation (EU) No 996/2010, according to which they have to report to the ~~C~~competent ~~A~~authority of the aerodrome, the relevant safety investigation authority or the state of registry of the aircraft involved.~~, or any other Competent Authority in the context of the national occurrence reporting programme.~~

AMC3 ADR.OR.E.005 Aerodrome manual

AERODROME MANUAL

(a) The aerodrome manual should have the following structure, and include, at least, the following information; if an item is not applicable, the indication 'Not applicable' or 'Intentionally blank' should be inserted, along with the relevant reason:

[…]

2. A description of the management system, including the following:

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.

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

2.2. A description of the safety management system, including:

2.2.1 scope of the safety management system;

2.2.2 safety policy and objectives;

2.2.3 safety responsibilities of key safety personnel;

2.2.4 documentation control procedures;

2.2.5 safety risk management process, including hazard identification and risk assessment schemes;

2.2.6 monitoring of implementation and effectiveness of safety actions, and risk mitigation measures;

2.2.7 safety performance monitoring;

2.2.8 ~~safety reporting (including hazard reporting) and investigation;~~ safety-reporting (including mandatory and voluntary reporting/ reporting of safety hazards), related arrangements with organisations operating or providing services at the aerodrome, and safety investigation;

2.2.9 emergency response planning;

2.2.10 management of change (including organisational changes with regard to safety responsibilities);

2.2.11 safety promotion; and

2.2.12 safety management system outputs.

2.3 A description of the compliance monitoring and related procedures.

2.4 A 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.

2.5 Procedures for reporting to the Competent Authority including handling, notifying and reporting accidents, serious incidents, and other occurrences. This section should include, at least, the following:

[…]

D. PART D — PARTICULARS OF THE AERODROME REQUIRED TO BE REPORTED TO THE AERONAUTICAL INFORMATION SERVICE

[…]

6. Aerodrome dimensions and related information, inducing the following:

[…]

6.8 pavement surface type and bearing strength using the Aircraft Classification ~~Number~~ Rating — Pavement Classification ~~Number~~ Rating (AC~~N~~R-PC~~N~~R) method;

[…]

E. PART E — PARTICULARS OF OPERATING PROCEDURES OF THE AERODROME, ITS EQUIPMENT, AND SAFETY MEASURES

[…]

28. Procedures for the operation of aircraft that exceed the certified design characteristics of the aerodrome ~~with higher code letter at the aerodrome~~, including taxiing routes in accordance with ADR.OPS.B.090.

[…]

[…]

AMC1 ADR.OR.F.045(b)(2) Management system

SAFETY POLICY

(a) The safety policy should:

(1) be endorsed by the accountable manager;

(2) clearly identify safety as the highest organisational priority;

(3) reflect organisational commitments regarding safety and its proactive and systematic management;

(4) be communicated, with visible endorsement, throughout the organisation;

(5) include safety reporting principles; and

(6) be periodically reviewed to ensure it remains relevant and appropriate to the organisation.

(b) The safety policy should:

(1) include a commitment to:

(i) improve towards the highest safety standards;

(ii) comply with all applicable legal requirements, meet all applicable standards, and consider best practices;

(iii) provide appropriate resources;

(iv) enforce safety as the primary responsibility of all managers and personnel; and

(v) to apply 'just culture' principles in accordance with Regulation (EU) No 376/2014, and, in particular, not to make available or use the information on occurrences:

(A) to attribute blame or liability to front line personnel or other persons for actions, omissions or decisions taken by them that are commensurate with their experience and training; or

(B) for any purpose other than the maintenance or improvement of aviation safety;

(2) include safety-reporting procedures;

(3) with reference to ´just culture´, clearly indicate which types of operational behaviours are unacceptable, and include the conditions under which disciplinary action would not apply; and

(4) be periodically reviewed to ensure it remains relevant and appropriate to the organisation.

(c) Senior management should:

(1) continually promote the safety policy to all personnel, and demonstrate their commitment to it;

(2) provide the necessary human and financial resources for its implementation; and

(3) establish safety objectives and performance standards.

GM1 ADR.OR.F.045(b)(2) Management system

SAFETY POLICY

~~(a)~~ Safety policy — General

The safety policy is the means whereby the organisation states its intention to maintain and, where practicable, improve the level of safety in all its activities, and to minimise the risk of an aircraft accident as far as reasonably practicable. It reflects the management‘s commitment to safety, and demonstrates the organisation´s philosophy of safety management, as well as become the foundation on which the organisation´s management system is built. It serves as a reminder of ‘how we do business here‘. The creation of a positive safety culture begins with the issuance of a clear and unequivocal direction.

~~The safety policy states that the purpose of safety reporting and internal investigations is to improve safety, and not to apportion blame to individuals.~~

The commitment to apply ‘just culture’ principles forms the basis for the organisation´s internal rules describing how ‘just culture’ principles are guaranteed and implemented, as required by Article 16(11) of Regulation (EU) No 376/2014.

~~(b) Safety policy — Just culture~~

~~The safety policy actively encourages effective safety reporting and, by defining the line between acceptable performance (often unintended errors) and unacceptable performance (such as negligence, recklessness, violations, or sabotage), provides fair protection to reporters. A safety or just culture may not, however, preclude the ‘criminalisation of error’, which is legally, ethically, and morally within the sovereign rights of any Member State, provided European Union law and established international agreements are observed. A judicial investigation, and consequences of some form, may be expected following an accident or serious incident especially if a failure resulted in lives lost or property damaged, even if no negligence or ill intent existed. A potential issue could, therefore, exist if voluntary hazard reports, which relate to latent deficiencies of a system or its performance, are treated in the same way as those concerning accident and serious incident investigations. The intent of protecting hazard reports will not be to challenge the legitimacy of a judicial investigation, or demand undue immunity. However, legal argument does usually take precedence over any technical- or safety-related argument.~~

AMC2 ADR.OR.F.095 Management system manual

CONTENT AND STRUCTURE

(a) The management system manual should have the following structure and should include, at least, the following information (*if an item is not applicable, 'Not applicable' or 'Intentionally left blank' should be indicated, along with the relevant justification*):

(..)

B. PART B — MANAGEMENT SYSTEM, AMS PERSONNEL QUALIFICATIONS AND TRAINING REQUIREMENTS

2. A description of the management system, including the following:

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

Names, authority, responsibilities and duties of management, nominated persons, operational staff and safety committees should also be included.

2.2. A description of the safety management system, including:

2.2.1. the scope of the safety management system;

2.2.2. the safety policy and its objectives;

2.2.3. the safety responsibilities of key safety personnel;

2.2.4. the documentation control procedures;

2.2.5. the safety risk management process, including hazard identification and risk assessment schemes;

2.2.6. monitoring of the implementation and the effectiveness of the safety actions and risk-mitigation measures;

2.2.7. safety performance monitoring;

2.2.8. ~~safety reporting (including hazard reporting) and investigation;~~ safety-reporting (including mandatory and voluntary reporting/reporting of safety hazards), related arrangements with organisations operating or providing services at the aerodrome, and safety investigation;

2.2.9. change management (including organisational changes with regard to safety responsibilities);

2.2.10. safety promotion; and

2.2.11. safety management system outputs.

2.3. A description of compliance monitoring and the related procedures.

2.4. Procedures for reporting to the Competent Authority and the aerodrome operator, including procedures for handling, notifying and reporting accidents, serious incidents and other occurrences. This section should include, at least, the following:

2.4.1. the definition of ‘accident’, ‘serious incident’ and ‘occurrence’, as well as the definition of the relevant responsibilities for all persons involved;

2.4.2. illustrations of the forms (or copies of the forms) to be used, instructions on how they are to be completed, the addresses (postal or electronic) to which they should be sent, and the time allowed for this to be done; and

2.4.3. procedures and arrangements for retaining evidence, including recordings, following a reportable event.

2.5. Procedures related to the use of alcohol, psychoactive substances and medicines by personnel involved in the provision of AMS.

2.6. Procedures with regard to:

2.6.1. compliance with safety directives;

2.6.2. reaction to safety problems; and

2.6.3. the handling of safety recommendations issued by safety investigation authorities.

3. Required qualifications and responsibilities for AMS personnel.

GM1 ADR.OPS.A.005 Aerodrome data

[…]

STRENGTH OF PAVEMENTS

(a) The bearing strength of a pavement intended for aircraft of apron (ramp) mass greater than 5 700 kg should be made available using the aircraft classification — pavement classification ~~number~~ rating (AC~~N~~R–PC~~N~~R) method, by reporting all of the following information:

(1) the pavement classification ~~number~~ rating (PC~~N~~R) and numerical value;

(2) pavement type for AC~~N~~R–PC~~N~~R determination;

(3) subgrade strength category;

(4) maximum allowable ty~~i~~re pressure category or maximum allowable ty~~i~~re pressure value; and

(5) evaluation method.

(b) The PCR reported indicates that aircraft with an aircraft classification rating (ACR) equal to or less than the reported PCR may operate on the pavement subject to any limitation on the tyre pressure or aircraft all-up mass for specified aircraft type(s). Different PCRs may be reported if the strength of the pavement is subject to significant seasonal variation.

(c) The ACR of an aircraft is determined in accordance with the standard procedures associated with the ACR-PCR method.

(~~b~~d) For the purposes of determining the AC~~N~~R, the behaviour of a pavement should be classified as equivalent to a rigid or flexible construction;

(~~c~~e) Information on pavement type for AC~~N~~R–PC~~N~~R determination, subgrade strength category, maximum allowable ty~~i~~re pressure category and evaluation method, should be reported using the following codes:

(1) Pavement type for AC~~N~~R–PC~~N~~R determination:

(i) Rigid pavement: Code R;

(ii) Flexible pavement: Code F;

If the actual construction is composite or non-standard, include a note as in Example 2 below).

(2) Subgrade strength category:

(i) High strength: characterised by ~~K~~E = ~~150 MN/m²~~ 200 MPa and representing all ~~K~~E values equal to or above ~~120 MN/m²~~ 150 MPa, for rigid ~~pavements,~~ and ~~by CBR = 15 and representing all CBR values above 13 for~~ flexible pavements — Code A;

(ii) Medium strength: characterised by ~~K~~E = ~~80 MN/m²~~ 120 MPa and representing a range in ~~K~~E ~~of 60 to 120 MN/m²~~ values equal to or above 100 MPa and strictly less than 150 MPa, for rigid ~~pavements,~~ and ~~by CBR = 10 and representing a range in CBR of 8 to 13 for~~ flexible pavements — Code B;

(iii) Low strength: characterised by ~~K~~E = ~~40 MN/m²~~ 80 MPa and representing a range in ~~K~~E ~~of 25 to 60 MN/m²~~ values equal to or above 60 MPa and strictly less than 100 MPa, for rigid ~~pavements,~~ and ~~by CBR = 6 and representing a range in CBR of 4 to 8 for~~ flexible pavements — Code C;

(iv) Ultra low strength: characterised by ~~K~~E = ~~20 MN/m²~~ 50 MPa and representing all ~~K~~E values ~~below 25 MN/m²~~ strictly less than 60 MPa, for rigid ~~pavements,~~ and ~~by CBR = 3 and representing all CBR values below 4 for~~ flexible pavements — Code D;

By adopting the layered elastic analysis (LEA) within the pavement rating system, the subgrade strength categories are designated with the modulus of elasticity (E modulus).

(3) Maximum allowable ty~~i~~re pressure category:

(i) Unlimited: no pressure limit — Code W;

(ii) High: pressure limited to 1.75 MPa — Code X;

(iii) Medium: pressure limited to 1.25 MPa — Code Y;

(iv) Low: pressure limited to 0.50 MPa — Code Z;

(4) Evaluation method:

(i) Technical evaluation: representing a specific study of the pavement characteristics and ~~application of pavement behaviour technology~~ the types of aircraft which the pavement is intended to serve — Code T;

(ii) Using aircraft experience: representing a knowledge of the specific type and mass of aircraft satisfactorily being supported under regular use — Code U;

(f) The following examples illustrate how pavement strength data are reported under the ACR-PCR method.

Example 1: If the bearing strength of a rigid pavement, resting on a medium-strength subgrade, has been assessed by technical evaluation to be PCR 760 and there is no tyre pressure limitation, then the reported information would be:

PCR 760 / R / B / W / T

Example 2: If the bearing strength of a composite pavement, behaving like a flexible pavement and resting on a high-strength subgrade, has been assessed by using aircraft experience to be PCR 550 and the maximum allowable tyre pressure is 1.25 MPa, then the reported information would be:

PCR 550 / F / A / Y / U

Note: Composite construction.

(~~d~~g) The bearing strength of a pavement intended for aircraft of apron (ramp) mass equal to or less than 5 700 kg, should be reported by reporting the following information:

(1) maximum allowable aircraft mass; and

(2) maximum allowable ty~~i~~re pressure.

Example: 4 800 kg/0.60 MPa.

(h) Guidance on the determination of the PCR values is provided in ICAO Document 9157, Part 3, Pavements. ACR values can be found in the 'Airport Planning Manuals' published by the aircraft manufacturers or can be computed using the ICAO-ACR software.

[…]

~~GM5 ADR.OPS.B.005(a) Aerodrome emergency planning~~

~~**DISABLED AIRCRAFT REMOVAL**~~

~~(a) The aerodrome operator should establish a plan for the removal of an aircraft disabled on, or adjacent to, the movement area, and a coordinator designated to implement the plan, when necessary.~~

~~(b) The disabled aircraft removal plan should be based on the characteristics of the aircraft that may normally be expected to operate at the aerodrome, and include among other things:~~

~~(1) a list of equipment and personnel on, or in the surroundings of, the aerodrome which would be available for such purpose; and~~

~~(2) arrangements for the rapid receipt of aircraft recovery equipment kits available from other aerodromes;~~

AMC1 ADR.OPS.B.011(a) Removal of disabled aircraft

DISABLED AIRCRAFT REMOVAL PLAN

The aerodrome operator should ensure that the disabled aircraft removal plan is based on the characteristics of the aircraft that are normally expected to operate at the aerodrome.

AMC2 ADR.OPS.B.011(b) Removal of disabled aircraft

ORGANISATIONS INVOLVED IN THE REMOVAL OF DISABLED AIRCRAFT

The following main organisations should be involved in the overall aircraft removal operation:

(a) aerodrome operator;

(b) aircraft operator or its representative;

(c) air traffic services providers.

RESPOSIBILITIES AND ACTIONS

The disabled aircraft removal plan should include defined responsibilities and the actions to be taken by the involved organisations with regards to the:

(a) removal of a disabled aircraft or parts thereof;

(b) notification of the aircraft accident to the safety investigation authority; and

(c) preservation of aircraft, mail, cargo, and records.

AVAILABLE EQUIPMENT AND PERSONNEL

The list of equipment and personnel available for the removal operation at, or in the vicinity, of the aerodrome should be up to date and contain:

(a) contact details (names, telephone numbers and e-mail address) of the personnel; and

(b) type and location of equipment and the average time it will take to bring them to the aerodrome if located elsewhere.

GM1 ADR.OPS.B.011 Removal of disabled aircraft

PURPOSE OF THE DISABLED AIRCRAFT REMOVAL PLAN

An aircraft removal incident can occur at any time and in any weather conditions with varying degrees of magnitude. The removal incidents can range from minor de-bogging to major events including damaged or missing landing gear. The recovery process may take from a few hours to many days depending on the severity of the occurrence. While recovery incidents cannot be predicted, they can be anticipated and prepared for.

Disabled aircraft can interfere with the normal operations at an aerodrome, resulting in restrictions, closure of the movement area or parts of it or even the entire aerodrome.

It is therefore necessary to remove the disabled aircraft in a timely and efficient manner, taking into account safety and operational requirements (e.g. number of movements, single runway operation and other considerations), subject to the approval of the safety investigation authority.

Generally, the aerodrome operator will play a support role by assisting the aircraft owner or operator with acquiring local resources and coordinating activities on the airport. The aircraft owner or operator is ultimately responsible for removing the disabled aircraft.

GM2 ADR.OPS.B.011 Removal of disabled aircraft

OUTLINE OF THE DISABLED AIRCRAFT REMOVAL PLAN DOCUMENT

For an aircraft removal operation to begin and be completed as quickly as possible, all parties must be expeditiously facilitated and already have the proper procedures in place. An efficient removal operation requires sufficient planning and readily accessible recovery equipment.

An outline of a disabled aircraft removal plan is provided below. This material is intended as a guide for basic matters to be covered in the plan as well as on action to be taken by the main parties responsible for the overall aircraft removal operation.

(a) Responsibilities:

(1) Removal of a disabled aircraft or parts thereof. Identify the person or organisation (normally the aircraft owner or operator) responsible for the removal of the aircraft and define the procedures to follow in the event of failure to comply with such directions.

(2) Notification of the aircraft accident to the safety investigation authority. Identify the person or organisation (normally the aircraft owner or operator or, when this is not

possible, the appropriate authority) responsible for notifying the accident to the safety investigation authority (see Regulation (EU) No 376/2014).

(3) Preservation of aircraft, mail, cargo, and records. Identify the person or organisation (normally the aircraft owner or operator) responsible for preserving, to the extent possible, the aircraft and parts thereof, cargo, mail, and all records. Define the procedures to be followed when it is necessary to disturb or move the aircraft or parts thereof, i.e. photographs, marks on the ground and a diagram of the accident site(see Regulation (EU) No 996/2010).

(b) Actions by main responsible parties:

(1) Aerodrome operator. List the actions to be taken by the aerodrome operator when implementing the plan such as:

(i) issue the required NOTAM, as appropriate;

(ii) coordinate all aerodrome operations with the air traffic services units for continuation of aircraft operations, when possible;

(iii) determine any obstacles in accordance with clearance criteria found in CS-ADR-DSN, and, as a result, consider whether any part of the movement area should be closed;

(iv) provide for security of the accident site and coordinate with the safety investigation authority on measures to be taken before the aircraft removal operation is initiated;

(v) provide advance vehicles and personnel to escort airline equipment to the site;

(vi) establish a removal command post at the site, if considered necessary;

(vii) inspect all areas prior to resumption of normal aircraft operations;

(viii) convene a removal operation debriefing of all interested parties. The debriefing may include a review of safety investigation authority requirements, the coordinator's chronological report, and a discussion of the procedures and equipment used during the recovery operation. It may be desirable that all aircraft operators, especially those operating the same type of equipment, be invited to attend; and

(ix) amend the disabled aircraft removal plan to overcome problems identified from the above paragraph.

(2) Aerodrome coordinator of disabled aircraft removal operations. List the actions that are expected to be taken by the aerodrome coordinator when implementing the plan such as:

(i) convene a meeting with the aircraft operator representative, safety investigation authority, representatives of resident oil companies, heavy equipment contractors and other parties, as necessary, to discuss the most appropriate removal operation and agree upon a broad plan of actions:

— escort routes between the aircraft operator's area and the accident site;

— defueling to lighten the mass of the aircraft;

— requirements and availability of equipment for the removal of the aircraft;

— use of the aerodrome and aircraft operator's equipment;

— dispatch of aircraft operator ancillary support devices to the scene;

— weather conditions, particularly when a crane-lifting or pneumatic lifting-bag operation is necessary;

— lighting of the site;

— a contingency plan, should difficulties develop in the initial plan; and

(ii) provide for a rescue and fire fighting vehicle, when necessary;

(iii) supervise the aerodrome personnel and equipment assigned to the removal operation;

(iv) make decisions on behalf of the aerodrome operator, as necessary, to expedite the removal of the disabled aircraft;

(v) report further penetrations of the obstacle limitation surfaces due to the manoeuvring of cranes or other equipment during the lifting of the aircraft;

(vi) monitor weather forecasts;

(vii) maintain a chronological summary of the removal operation;

(viii) have photographs of the removal operation taken where possible;

(ix) where excavations are necessary, check with the appropriate aerodrome maintenance services for underground utilities;

(x) keep the aerodrome operator and other aircraft operators informed of the progress of the aircraft removal operations; and

(xi) participate in the removal operation debriefing.

(3) Aircraft operator. List the actions that are expected to be taken by the aircraft operator when implementing the plan such as:

(i) arrange for portable stairs and removal of mail, baggage and cargo; it being understood that authority to remove these items must be secured from the safety investigation authority;

(ii) designate one representative with the authority to make all technical and financial decisions necessary to remove the aircraft;

(iii) consider designating of a representative to answer any questions from the press and to issue press releases as may be appropriate; and

(iv) participate in the removal operation debriefing.

(4) Aircraft operator's representative. List the action to be taken by the aircraft operator's representative when implementing the plan such as:

(i) implement the aircraft operator's removal plan for such an emergency;

(ii) meet with the aerodrome coordinator, safety investigation authority and other parties, as necessary, to develop a comprehensive plan for the removal of the aircraft;

(iii) decide on the need for consultation with aircraft airframe and engine manufacturers or other aircraft operator representatives experienced in such accidents; and

(iv) participate in the removal operation debriefing.

(c) Equipment, personnel, and facilities

(1) Equipment and personnel available.

List the equipment (including information on the type and location of heavy equipment or special units needed and the average time it will take to get them to the airport) and the contact details of the personnel on or in the surrounding of the airport that would be available for the removal operation.

Most airports find it economically impossible to store all the equipment necessary for the removal of a disabled aircraft. It has been generally agreed that the most feasible approach to the problem is to prepare a plan for the removal of a disabled aircraft and to make arrangements with other aerodromes for pooling the required specialised equipment. Aircraft operators have made arrangements so as to make specialised equipment available on short notice on a worldwide basis, and kits have been strategically placed around the world.

In addition to the contact details, include information on the availability of human resources for road-making and other duties. The personnel involved in the removal of disabled aircraft possess a level of proficiency that allows them to control a safe aircraft removal operation aircraft.

(2) Access routes. Include information on access routes to any part of the aerodrome including, if required, special routes for cranes to avoid power lines. A grid map may be useful for this purpose.

(3) Security. Define a means of maintaining security for the aircraft removal operation.

(4) Serviceable aircraft removal equipment kits. Describe arrangements for the rapid receipt of aircraft removal equipment kits available from other airports.

(5) Aircraft data. Describe arrangements to make available, at the aerodrome, manufacturer's data pertaining to aircraft removal for the various types of aircraft that normally use the aerodrome.

(6) Aircraft defueling. Describe arrangements with the resident oil companies to ensure that the defueling, storage, and disposal of the aircraft fuel, including contaminated fuel, can be done at short notice.

(7) Responsible representatives. List names, addresses, and telephone numbers of responsible representatives of each aircraft operator, as well as of the nearest representatives of aircraft and engine manufacturers.

GM3 ADR.OPS.B.011 Removal of disabled aircraft

TESTING OF THE DISABLED AIRCRAFT REMOVAL PLAN

The disabled aircraft removal plan may be tested as part of the emergency plan training cycle according to ADR.OPS.B.005, in the form of a partial and/or tabletop exercise.

AMC1 ADR.OPS.B.070(c)(1) Aerodrome works safety

WORK PLANNING PROCEDURE

(a) The aerodrome operator should ensure that the work planning procedure provides for the planning and coordination of works on the movement area;

(b) The aerodrome operator, during the planning process, should involve, where appropriate, affected stakeholders such as air traffic services providers, organisations responsible for the provision of AMS, if established, aircraft operators and organisations responsible for the

provision of groundhandling services to review the requirements for the safe operations of the aerodrome during the proposed works.

AMC1 ADR.OPS.B.070(c)(2) Aerodrome works safety

SAFETY ASSESSMENT OF PLANNED CHANGES

(a) The aerodrome operator should:

(1) complete beforehand, in coordination with the affected organisations, a safety assessment of all planned works to ensure that the risks to the safe operation of aircraft have been identified and appropriate measures are introduced to keep risks as low as reasonably practicable;

(2) document and make available to all affected organisations involved in the works or affected by any change in operations, the relevant procedures, actions, and decisions; and

(3) verify, before implementation, that draft operational procedures, instructions, or other information to be promulgated are appropriate and correct.

(b) Regular maintenance works may be covered by a general safety assessment that covers the respective maintenance.

AMC1 ADR.OPS.B.070(c)(3) Aerodrome works safety

WORKS AUTHORISATION

(a) The aerodrome operator, prior to the commencement of works, should provide a works authorisation document to the party conducting the works.

(b) The authorisation document should contain specific permissions and conditions, which are already agreed between the aerodrome operator and the involved organisations. The party conducting the works should communicate the document to any sub-contractors involved.

GM1 ADR.OPS.B.070(c)(3) Aerodrome works safety

WORKS AUTHORISATION

The works authorisation procedure refers to the aerodrome operator approval for the commencement of works.

AMC1 ADR.OPS.B.070(c)(5) Aerodrome works safety

PROCEDURE FOR WORKSITE ESTABLISHMENT AND RETURN TO AIRCRAFT OPERATIONS

MARKING AND LIGHTING OF UNSERVICEABLE AREAS

(a) The aerodrome operator should ensure that:

(1) unserviceability markers are displayed whenever any portion of a taxiway, apron, or holding bay is unfit for the movement of aircraft but it is still possible for aircraft to bypass the area safely;

(2) on a movement area used at night, unserviceability lights should be used;

(3) unserviceability markers and lights are placed at intervals sufficiently close so as to delineate the unserviceable area. When lights are used to mark temporary unserviceable

areas at night or during reduced visibility conditions, these lights should mark the extremities of the area. A minimum of four such lights should be used, except where the area is triangular in shape where a minimum of three lights may be used. The number of lights should be increased when the area is large or of unusual configuration. At least one light should be installed for each 7.5 m of peripheral distance of the area. If the lights are directional, they should be orientated so that, as far as possible, their beams are aligned in the direction from which aircraft or vehicles will approach. Where aircraft or vehicles will normally approach from several directions, consideration should be given to adding extra lights or using omnidirectional lights to show the area from these directions.

(4) unserviceability markers consist of conspicuous upstanding devices such as flags, cones, or marker boards;

(5) unserviceability markers and lights meet the specifications described in CS ADR.DSN.R.870;

(6) existing markings leading into a worksite are masked or the route is closed; and

(7) existing aeronautical ground lighting and signs leading into the worksite are extinguished or masked on the movement area when used at night or low visibility.

WORKSITE RETURN TO OPERATIONAL USE

(b) The procedure for returning the worksite to operational use should include at least the following:

(1) the removal from the worksite of personnel, vehicles, plants and unserviceability lights and markers;

(2) the inspection of the affected areas for operational serviceability including the condition of pavements, signs, lights and markings, presence of FOD or surface contaminants such as dirt, sand, or loose objects; and

(3) the notification of relevant authorities or affected organisations, using suitable means of communication, including the cancellation of relevant NOTAMs.

(4) the use of appropriate checklists to record relevant actions.

RUNWAY PAVEMENT OVERLAYS

(c) The aerodrome operator should ensure that:

(1) when a runway is to be returned temporarily to an operational status before resurfacing is complete, the longitudinal slope of the temporary ramp, measured with reference to the existing runway surface or previous overlay course, should be:

(i) 0.5 to 1.0 %for overlays up to and including 5 cm in thickness; and

(ii) not more than 0.5 % for overlays more than 5 cm in thickness.

(2) Before a runway being overlaid is returned to a temporary operational status, a runway centre line marking, conforming to the applicable specifications included in the aerodrome certification basis of the aerodrome, should be provided.

(3) The location of any temporary threshold should be identified by a 3.6-m wide transverse stripe.

AMC1 ADR.OPS.B.070(c)(6) Aerodrome works safety

MONITORING, OVERSIGHT AND CONTROL OF WORKS

(a) The aerodrome operator should hold prior to start-up and during the works, regular site meetings to ensure that safety requirements are met and possible conflicts between the works and operations are resolved. Meetings should be documented. The following points should be considered:

(1) safety awareness in relation to work on the movement area;

(2) protection of construction workers from aerodrome hazards, including jet blast;

(3) procedure for quickly summoning emergency responders in case of a fire, spill, accident, or similar event; and

(4) operational briefings on the interaction of the works with the aerodrome operations (e.g. runway(s) in use, expected visibility conditions, meteorological conditions, safety issues).

(b) The worksite control procedure established by the aerodrome operator should include, but not limited, the following:

(1) all contractor's drivers should be escorted by a qualified vehicle operator or undergo appropriate driver training and testing in accordance with ADR.OPS.B.024;

(2) access routes should be agreed upon in advance and clearly identified to minimise interference with operations on the aerodrome;

(3) possible changes to the existing road layout depending on the vehicle traffic levels;

(4) designation of staff access routes and if such routes do not exist, then a safety risk assessment should be conducted to ensure that access can be safely achieved;

(5) hours of operation of the works;

(6) any service clearance checks (underground location of services) that needs to be undertaken before work commences to ensure that cables or pipes are not damaged;

(7) smoking restrictions;

(8) description, monitoring and enforcement of hot work restrictions (possibly involving a separate hot works permit);

(9) the requirement to use of lookouts and/or listening watch on the appropriate ATS frequency, if required;

(10) if cranes are used, appropriate lighting and operating height restrictions to avoid infringement of obstacle limitation surfaces, obstacle protection surfaces, interference with radio navigation aids, surface movement radar and line of sight of ATS tower;

(11) procedures for crossing taxiways, if required;

(12) adequate FOD and dust control measures that should be taken by all contractors to cover all eventualities;

(13) requirement for vehicles entering or leaving the worksite to be cleaned to prevent mud or debris being deposited in the movement area;

(14) provision of an appropriate alerting mechanism to suspend work activities, in case of possible adverse meteorological conditions (e.g. lightning strikes, strong winds, snow, low visibility) or aircraft emergencies;

(15) measures to ensure that worksite floodlighting (light direction and/or height) does not affect aircraft and ATS operation.

(c) Where significant changes to markings or lightings are being made, the aerodrome operator should conduct a preliminary check to ensure that the changes have been correctly implemented and are functioning as intended.

(d) The aerodrome operator should obtain feedback from the parties involved to ensure the implementation of corrective actions, if necessary.

(e) The aerodrome operator should ensure that contractors have made available a point-of-contact outside normal working hours.

~~AMC1 ADR.OPS.B.070 Aerodrome works safety~~

~~**GENERAL**~~

~~(a) The procedures should be appropriate to the volume and nature of operations at the aerodrome.~~

~~(b) Construction or maintenance work on the movement area, or work affecting aerodrome operations should be planned, established, implemented, or approved by the aerodrome operator.~~

~~(c) The scope of work, physical extent, and time period should be notified to the relevant parties concerned. If such work will render limitations to the use of a particular runway, additional measures should be implemented to ensure safety. In case the works necessitate the temporary change of the declared distances of the runway, a recalculation of the declared distances should be performed, in accordance with an established procedure, and the relevant information should be provided to the Competent Authority, the air traffic services and aeronautical information services unit, before the implementation of the new declared distances. The aerodrome operator should also request the broadcast of relevant information via the local ATIS. (d) Roles and responsibilities for operations and tasks associated with the reduction of runway length available and the work in progress (WIP) are clearly understood and complied with.~~

~~(e) The aerodrome operator should put in place appropriate measures to monitor the safety of the aerodrome and aircraft operations during aerodrome works such that timely corrective action is taken when necessary to assure continued safe operations.~~

~~(f) The aerodrome operator should ensure the works site is returned to operational use in a safe and timely manner by ensuring:~~

~~(1) the works site is cleared of personnel, vehicles, and plant in a safe and timely manner;~~

~~(2) The works-affected area is inspected for operational serviceability in accordance with the hand-back procedures; and~~

~~(3) relevant authorities or organisations are notified of the restoration of aerodrome serviceability in accordance with procedures, using suitable means of communication.~~

~~AMC2 ADR.OPS.B.070 Aerodrome works safety~~

~~**RUNWAY PAVEMENT OVERLAYS**~~

~~The aerodrome operator should ensure that:~~

~~(a) when a runway is to be returned temporarily to an operational status before resurfacing is complete, the longitudinal slope of the temporary ramp, measured with reference to the existing runway surface or previous overlay course, should be:~~

~~(1) 0.5 to 1.0 %for overlays up to and including 5 cm in thickness; and~~

~~(2) not more than 0.5 % for overlays more than 5 cm in thickness.~~

~~(b) Runway overlaying proceeds from one end of the runway towards the other end so that based on runway utilisation, most aircraft operations will experience a down ram~~

~~(c) The entire width of the runway is overlaid during each work sess~~

(d) Before a runway being overlaid is returned to a temporary operational status, a runway centre line marking, conforming to the applicable specifications included in the aerodrome certification basis of the aerodrome, should be provided.

(e) The location of any temporary threshold should be identified by a 3.6 m wide transverse stripe.

AMC3 ADR.OPS.B.070 Aerodrome works safety

MARKING AND LIGHTING OF UNSERVICEABLE AREAS

(a) The aerodrome operator should ensure that:

(1) unserviceability markers are displayed whenever any portion of a taxiway, apron, or holding bay is unfit for the movement of aircraft but it is still possible for aircraft to bypass the area safely;

(2) on a movement area used at night, unserviceability lights should be used; and

(3) Unserviceability markers and lights are placed at intervals sufficiently close so as to delineate the unserviceable area.

(b) Unserviceability markers should consist of conspicuous upstanding devices such as flags, cones, or marker boards.

(c) Unserviceability markers and lights should meet the specifications described in CS ADR.DSN.R.870.

AMC4 ADR.OPS.B.070 Aerodrome works safety

CLOSED RUNWAYS AND TAXIWAYS, OR PARTS THEREOF

The aerodrome operator should ensure that:

(a) a closed marking as defined in CS ADR-DSN.R.855(c) is displayed on a temporarily closed runway, or taxiway, or a portion thereof, except that such a marking may be omitted when the closing is of short duration and adequate warning by air traffic services is provided;

(b) lighting on a closed runway or taxiway, or a portion thereof is not operated, except as required for maintenance purposes; and

(c) in addition to closed markings, when the runway, taxiway, or portion thereof is closed and is intercepted by a usable runway or taxiway which is used at night, unserviceability lights as defined in CS ADR-DSN.R.870(c) should be placed across the entrance to the closed area at intervals not exceeding 3 m; and

(d) a closed runway or taxiway marking as defined in CS ADR-DSN.R.855(c), or a portion thereof, is displayed on new runways and taxiways that are still under construction.

GM1 ADR.OPS.B.070 Aerodrome works safety

MAINTENANCE WORKS

(a) Persons or sections entering the movement area to perform maintenance should have a written approval by the aerodrome operator.

(b) Entrance to the movement area should be subject to clearance by the unit responsible for that area (ATC, apron management, aerodrome operator, etc.) using appropriate means (R/T, telephone, etc.).

(c) Individuals carrying out maintenance works should comply with local rules concerning the control and operation of vehicles in the movement area.

GM2 ADR.OPS.B.070 Aerodrome works safety

MINOR CONSTRUCTION/MAINTENANCE WORK

(a) A system of work permits should be established for minor works on the movement area.

(b) The objectives of the work permits should be such that:

(1) no work is taking place on the movement area without the knowledge of aerodrome operator's staff and air traffic services;

(2) permitted times of work are strictly followed; and

(3) all individuals taking part in the work are briefed in detail on the following:

(i) precise areas in which work may be done;

(ii) the routes to be followed to and from the working area;

(iii) the R/T procedures to be used;

(iv) the safety precautions to be observed , the maintenance of a listening watch and the use of look-outs; and

(v) the reporting procedure to be followed on completion of work.

(c) At the conclusion of work, aerodrome operator's staff, or other appropriate staff, should inspect the working area to ensure that it has been left in a satisfactory condition.

GM3 ADR.OPS.B.070 Aerodrome works safety

MAJOR CONSTRUCTION/MAINTENANCE WORK

(a) Before the commencement of any substantial work on the movement area, a liaison group comprising representatives from the aerodrome operator, air traffic services, apron management services, if applicable, and subcontractors' agents should be established.

(b) The group could meet, as often as considered necessary, to review progress, and consider the need for any change in working practices to meet operational requirements.

(c) As far as practicable, working areas should be blocked off from the active parts of the movement area by the erection of physical barriers.

(d) Consideration should be given to the marking and lighting of barriers.

(e) The lights of taxiways leading into working areas should be permanently 'off'.

(f) Before works commence, the following should be established:

(1) the hours of work;

(2) the authorised routes;

(3) the communications facilities to be used;

(4) the permitted heights of vehicles and equipment, and the limitations to be placed on operating heights of cranes; and

(5) any limitation to be placed on use of electrical equipment which might cause interference with navigational facilities or aircraft communications.

~~(g) Contractors should be briefed for possible hazards to personnel working on aerodromes, in particular the jet blast problem and noise.~~

~~(h) Where contractors work on or traverse aircraft pavement areas, these areas should be inspected thoroughly before they are opened again for aircraft use, with particular attention to the presence of debris and the general cleanliness of the surface.~~

~~(i) Where aircraft are constantly using areas open to contractors, inspections at frequent intervals are required to ensure the continuing operational safety of the aerodrome.~~

~~(j) Adequate marking arrangements should be provided for crane jibs when extra conspicuity is considered desirable.~~

~~(k) If work is of prolonged duration, a constant watch is required to ensure that the marking and lighting of obstacles and unserviceable areas does not degrade below acceptable limits.~~

~~(l) The effect of tall cranes on ILS and radar, in conjunction with those responsible for electronic landing aids and steps taken to reduce limitations to the minimum, should be considered.~~

~~GM4 ADR.OPS.B.070 Aerodromes works safety~~

~~**USE OF UNSERVICEABILITY LIGHTS**~~

~~When lights are used to mark temporary unserviceable areas at night or during reduced visibility conditions, these lights mark the most potentially dangerous extremities of the area. A minimum of four such lights could be used, except where the area is triangular in shape where a minimum of three lights may be employed. The number of lights may be increased when the area is large or of unusual configuration. At least one light should be installed for each 7.5 m of peripheral distance of the area. If the lights are directional, they should be orientated so that, as far as possible, their beams are aligned in the direction from which aircraft or vehicles will approach. Where aircraft or vehicles will normally approach from several directions, consideration should be given to adding extra lights or using omnidirectional lights to show the area from these directions. Unserviceable area lights should be frangible. Their height should be sufficiently low to preserve clearance for propellers and for engine pods of jet aircraft.~~

GM~~5~~1 ADR.OPS.B.070(c)(5) Aerodrome works safety

USE OF TEMPORARY RUNWAY MARKINGS

(a) Circumstances may occur when it is not practicable to install permanent markings, for example during runway resurfacing. ~~In order t~~To provide sufficient visual guidance to aircraft, the following markings ~~should be~~ are considered:

(1) runway centre line;

(2) taxiway centre line lead on/off;

(3) runway edge line;

(4) runway threshold; and

(5) touchdown zone and aiming point markings.

(b) Centre line and edge marking widths can be replaced by temporary markings of reduced width from 0.9 m to 0.6 m, if required.

(c) Touchdown zone and aiming point markings ~~should be~~ are painted as soon as possible after the resurface of the runway.

(d) Threshold markings ~~should be~~ are painted as soon as possible, using temporary materials before making them permanent.

~~GM6 ADR.OPS.B.070 Aerodrome works safety~~

~~CLOSED RUNWAY AND TAXIWAY MARKINGS — AVOIDING THE LACK OF CONTRAST~~

~~(a) In certain circumstances, e.g. due to the colour of the material used during construction works, there may be insufficient contrast between the colour of the surface of the runway or taxiway and the colour of the respective closed runway or taxiway marking, even though the latter conforms to the applicable specifications.~~

~~This may result in the closed runway or taxiway markings not fulfilling their purpose. To avoid the lack of contrast, the closed runway or taxiway markings need to be included in an appropriate border, whose colour is black.~~

~~(b) At aerodromes where operations take place at night, the closed runway or taxiway markings would be made with reflective materials designed to enhance their visibility. Guidance on reflective materials is given in Part 4 'Visual Aids' of ICAO Doc 9157 'Aerodrome Design Manual'.~~

AMC1 ADR.OPS.B.070(d) Aerodrome works safety

PROCEDURE FOR REDUCED RUNWAY LENGTH OPERATIONS

(a) The procedure for reduced runway length operations, when works require the reduction of the declared distances should include the following:

(1) the identification of potential hazards and assessment and mitigation of the associated risks, as necessary, before, during, and on cessation of operations with reduced declared distances available and works-in-progress to ensure the safety of aircraft operations;

(2) the calculation and establishment, where necessary, of a revised runway strip, runway safety area (RESA) and obstacle limitation surfaces, such as the approach and take-off climb surfaces;

(3) the establishment of a safety zone between the area of the runway that is in use and the worksite or unusable runway;

(4) the promulgation of the details of the reduced declared distances in accordance with ADR.OPS.A.057 and, when possible, the broadcast of the information on automatic terminal information service (ATIS); and

(5) the assessment and mitigation of the impact on the ability of rescue and firefighting and emergency services to perform their functions.

(b) The aerodrome operator, in cooperation with air traffic services, should be responsible to coordinate and manage the opening and closing of the runway and other parts of the movement area, as necessary, and the worksite.

(c) The aerodrome operator should coordinate and approve any tactical decision concerning aircraft operations, which deviate from the agreed operational procedures, with the exception of an urgent safety nature.

(d) The aerodrome operator should be responsible to monitor the safety of aerodrome and aircraft operations in the proximity of the worksite, to ensure that timely and corrective action is taken, when necessary.

GM1 ADR.OPS.B.070(d) Aerodrome works safety

RISKS RELATED TO REDUCED RUNWAY LENGTH OPERATIONS

Risks may result from inappropriate or potentially misleading display of visual aids, inappropriate or potentially misleading navigational aids, adverse environmental conditions or unusual meteorological conditions, and from restricted obstacle clearance and wingtip separation distances. Identified hazards may cover a wide range of topics, including those that do not pose a risk only to aircraft but also to personnel, e.g. the potential risk from jet blast.

GM2 ADR.OPS.B.070(d) Aerodrome works safety

SAFETY ZONES

The location, size, and shape of the safety zone depends on the temporary configuration of the runway, to provide for items such as RESA, jet blast protection and abbreviated or simple approach lighting system.

AMC1 ADR.OPS.B.071(a) Closed runways and taxiways, or parts thereof

CLOSED MARKING

(a) The closed marking should be in accordance with CS ADR-DSN.R.855.

(b) On a runway, a closed marking should be placed at each end of the runway, or portion thereof, declared closed and additional markings should be so placed that the maximum interval between markings does not exceed 300 m.

(c) On a taxiway, a closed marking should be placed at least at each end of the taxiway or portion thereof closed.

GM1 ADR.OPS.B.071(a)(2) Closed runways and taxiways, or parts thereof

CLOSED RUNWAY AND TAXIWAY MARKINGS — AVOIDING THE LACK OF CONTRAST

(a) In certain circumstances, e.g. due to the colour of the material used during construction works, there may be insufficient contrast between the colour of the surface of the runway or taxiway and the colour of the respective closed runway or taxiway marking, even though the latter conforms to the applicable specifications.

This may result in the closed runway or taxiway markings not fulfilling their purpose. To avoid the lack of contrast, the closed runway or taxiway markings need to be included in an appropriate border, whose colour is black.

(b) At aerodromes where operations take place at night, the closed runway or taxiway markings would be made with reflective materials designed to enhance their visibility. Guidance on reflective materials is given in Part 4 'Visual Aids' of ICAO Doc 9157 'Aerodrome Design Manual'.

AMC1 ADR.OPS.B.071(d) Closed runway and taxiways, or parts thereof

UNSERVICEABILITY LIGHTS AT ENTRANCES OF CLOSED RUNWAYS AND TAXIWAYS OR PARTS THEREOF

Unserviceability lights should be in accordance with CS ADR-DSN.R.870 and should be placed across the entrance to the closed area at intervals not exceeding 3 m.

AMC1 ADR.OPS.B.090(c) Use of the aerodrome by ~~higher code letter~~ aircraft exceeding the certified design characteristics of the aerodrome

ELEMENTS TO BE ASSESSED

(a) The aerodrome operator should assess the characteristics of the aircraft that exceed the code letter and/or outer main gear wheel span and their related impact as follows:

(1) Wingspan

(i) taxiway/taxilane separation distances (including runway/taxiway separation distances);

(ii) the dimensions of the OFZ;

(iii) the location of the runway-holding position (due to the impact of the wingspan on OFZ dimensions);

(iv) the dimensions of aprons and holding bays;

(v) shoulder dimensions.

(2) Outer main gear wheel span

(i) runway width;

(ii) the dimensions of turn pads;

(iii) taxiway width;

(iv) taxiway fillets;

(v) the dimensions of aprons and holding bays.

(3) Wheel base

(i) the dimensions of turn pads;

(ii) taxiway fillets;

(iii) the dimensions of aprons and holding bays; and

(iv) aeroplane stands.

(4) Fuselage length

(i) the dimensions of the movement area (taxiway, holding bays, and aprons);

(ii) the aerodrome category for RFFS;

(iii) ground movement and control (e.g. reduced clearance behind a longer aeroplane holding at an apron or a runway/intermediate holding position to permit the passing of another aeroplane);

(iv) de-icing facilities; and

(v) clearances at the aircraft stand.

(5) Fuselage width

(i) aerodrome category for RFFS.

(6) Fuselage height

(i) location of the runway-holding position. The fuselage height is one of the criteria used to determine the location of the runway holding position (including the tail height and the distance from the nose to the highest part of the tail) of the critical aeroplane which shall be clear of the runway obstacle free zone (OFZ).

(7) Nose geometry

(i) location of the runway-holding position.

(8) Tail height

(i) the location of the runway-holding position;

(ii) ILS critical and sensitive areas: In addition to the tail height of the critical aeroplane, tail composition, tail position, fuselage height and length can have an effect on ILS critical and sensitive areas;

(iii) de-icing/anti-icing facilities;

(iv) aeroplane parking position (in relation to aerodrome OLS);

(v) runway/parallel taxiway separation distances; and

(vi) the clearance of any aerodrome infrastructure or facilities built over stationary or moving aeroplanes.

(9) Wing tip vertical clearance

(i) taxiway separation distances with height-limited objects;

(ii) apron and holding bay clearances with height-limited objects;

(iii) aerodrome signage clearances;

(iv) service road locations; and

(v) aerodrome maintenance services (e.g. snow removal).

(10) Cockpit view (cockpit height, cockpit cut-off angle and the corresponding obscured segment)

(i) runway visual references (aiming point);

(ii) runway sight distance;

(iii) taxiing operations on straight and curved sections;

(iv) markings and signs on runways, turn pads, taxiways, aprons and holding bays;

(v) lights: in low visibility conditions, the number and spacing of visible lights when taxiing may depend on the cockpit view; and

(vi) calibration of PAPI (pilot eye height above wheel height on approach).

(11) Distance from the pilot's eye position to the nose landing gear

(i) taxiway fillets (wheel track);

(ii) the dimensions of aprons and holding bays; and

(iii) the dimensions of turn pads.

(12) Main landing gear layout

(i) aerodrome pavement system.

(13) Gear steering system

(i) dimensions of turn pads and the dimensions of aprons and holding bays.

(14) Maximum aeroplane mass;

(i) the mass limitation on existing bridges, tunnels, culverts and other structures under runways and taxiways;

(ii) disabled aeroplane removal; and

(iii) arresting systems when provided as an element of kinetic energy.

(15) Landing gear geometry, tyre pressure and aircraft classification values

(i) aerodrome pavement and associated shoulders.

(16) Engine characteristics

(i) runway shoulder width and composition (jet blast and ingestion issues during take-off and landing);

(ii) shoulder width and composition of runway turn pads;

(iii) taxiway shoulder width and composition (jet blast and ingestion issues during taxiing);

(iv) bridge width (jet blast under the bridge);

(v) dimensions and location of blast protection fences;

(vi) location and structural strength of signs;

(vii) characteristics of runway and taxiway edge lights;

(viii) separation between aeroplanes and adjacent ground service personnel, vehicles or passengers;

(ix) design of engine run-up areas and holding bays;

(x) design and use of functional areas adjacent to the manoeuvring area;

(xi) snow removal procedures;

(xii) engine geometry

(A) number of engines;

(B) location of engines (span and length);

(C) vertical clearance of engines;

(D) vertical and horizontal extent of possible jet blast or propeller wash.

(xiii) engine airflow

(A) idle, breakaway and take-off thrust exhaust velocities;

(B) thrust reverser fitment and flow patterns;

(C) inlet suction effects at ground level.

(17) Maximum passenger and fuel carrying capacity

(i) aerodrome emergency planning;

(ii) aerodrome rescue and fire fighting.

(18) Flight performance;

(i) runway width;

(ii) runway length;

(iii) the OFZ;

(iv) runway/taxiway separation;

(v) aiming point marking.

~~When assessing the possibility of operation of aircraft whose code letter is higher than the code letter of the aerodrome reference code, the aerodrome operator should, amongst other issues, assess the impact of the characteristics of the aircraft on the aerodrome, its facilities, equipment and its operation, and vice versa.~~

~~Aircraft characteristics to be assessed include, but are not limited to:~~

~~(a) fuselage length;~~

~~(b) fuselage width;~~

~~(c) fuselage height;~~

~~(d) tail height;~~

~~(e) wingspan;~~

~~(f) wing tip vertical clearance;~~

~~(g) cockpit view;~~

~~(h) distance from the pilot's eye position to the nose landing gear and to the main landing gear;~~

~~(i) outer main gear wheel span;~~

~~(j) wheelbase;~~

~~(k) main gear steering system;~~

~~(l) landing gear geometry;~~

~~(m) engine data;~~

~~(n) flight performance; and~~

~~(o) technology evolution.~~

GM1 ADR.OPS.B.090 Use of the aerodrome by aircraft exceeding the certified design characteristics of the aerodrome

CERTIFIED AERODROME DESIGN CHARACTERISTICS

In accordance with ADR.AR.C.035 the certificate is considered to include the aerodrome's certification basis, the aerodrome manual, and, if relevant, any other operating conditions or limitations prescribed by the Competent Authority and any Deviation Acceptance and Action Documents (DAAD).

GM2 ADR.OPS.B.090 Use of the aerodrome by aircraft exceeding the certified aerodrome design characteristics

WHEEL BASE

The clearance distance on a runway turn pad or on a taxiway is determined with regard to the dimensions of the outer main gear wheel span (OMGWS). For aeroplanes with an OMGWS between 6 m up to but not including 9 m, the clearance distance on a runway turn pad or on a curved portion of a taxiway is determined with regards to the OMGWS but with a further differentiation in reference to the wheel base (see CS ADR-DSN.B.095, CS ADR-DSN.D.240, and additionally CS ADR-DSN.D.250 and CS ADR-DSN.D.255). ADR.OPS.B.090 is also applicable in this case.

GM~~1~~3 ADR.OPS.B.090 Use of the aerodrome by ~~higher code letter~~ aircraft exceeding the certified design characteristics of the aerodrome

ELEMENTS TO BE ASSESSED – AIRCRAFT CHARACTERISTICS

(1) Wingspan
- (i) wake turbulence;
- (ii) gate selection;
- (iii) aerodrome maintenance services around the aeroplane;
- (iv) equipment for disabled aeroplane removal; and
- (v) de-icing;
- (vi) the dimensions of aeroplane maintenance facilities.

(2) Wheel base
- (i) terminal areas.

(3) Fuselage length
- (i) passenger gates and terminal areas;
- (ii) the dimensions of aeroplane maintenance facilities.

(4) Fuselage height, in particular door sill height and wing height
- (i) the operational limits of the air bridges;
- (ii) mobile steps;
- (iii) catering trucks;
- (iv) persons with reduced mobility;
- (v) dimensions of the apron;
- (vi) door longitudinal position;
- (vii) potential obstacles closed to the door (e.g. probes);
- (viii) fuelling; and
- (ix) de-icing.

(5) Tail height
- (i) the dimensions of aeroplane maintenance facilities.

(6) Maximum aeroplane mass
- (i) wake turbulence.

(7) Engine characteristics
- (i) design of air bridges; and

(ii) location of refuelling pits on the aircraft stand.

The engine characteristics include engine geometry and engine airflow characteristics, which may affect the aerodrome infrastructure as well as ground handling of the aeroplane and operations in adjacent areas which are likely to become affected by jet blast.

(8) Maximum passenger and fuel carrying capacity

(i) terminal facilities;

(ii) fuel storage and distribution;

(iii) air bridge loading configuration.

(9) Flight performance

(i) wake turbulence;

(ii) noise.

ADDITIONAL ELEMENTS TO BE ASSESSED - AIRCRAFT GROUND SERVICING REQUIREMENTS

The following non-exhaustive list of aircraft ground servicing characteristics and requirements may affect the available aerodrome infrastructure:

(a) ground power;

(b) passengers embarking and disembarking;

(c) cargo loading and unloading;

(d) fuelling;

(e) pushback and towing;

(f) de-icing;

(g) taxiing and marshalling;

(h) aeroplane maintenance;

(i) RFFS;

(j) equipment areas;

(k) stand allocation; and

(l) disabled aircraft removal.

Each assessment is specific to a particular type of aircraft and to a particular operational context. The assessment may require a review of the obstacle limitation surfaces at an aerodrome as described in Chapter H and J of CS-ADR-DSN. At aerodromes where low visibility operations are implemented, additional procedures may be implemented to safeguard the operation of aircraft. Additional processes that ensure suitable measures are in place to protect the signal produced by the ground-based radio navigation equipment may be necessary at aerodromes with precision instrument approaches.

Further guidance on this issue is contained in ICAO Circular 305-AN/177 and ICAO Circular 301-AN/174.

In any case, the elements that have to be taken into account for the safety assessment are, without prejudice to other assessments that may have to be conducted, in accordance with other applicable requirements contained in Part-ADR.OPS.

~~Such assessments should include, but are not limited to:~~

~~(a) the aircraft mass, tire pressure and ACN values — with regard to overload operations; and~~

~~(b) maximum passenger and fuel carrying capacity — with regard to level of RFFS protection to be provided and the aerodrome emergency planning.~~

GM1 ADR.OPS.B.095(b) Hot spots

STRATEGIES TO MITIGATE THE RISK OF HOT SPOT(S)

Strategies to manage and mitigate the risk from hot spots, depending on the case, include, but are not limited to the following:

(a) construction of new taxiways;

(b) additional visual aids (signs, markings, and lighting);

(c) establishment of alternative routings;

(d) the mitigation of blind spots in the aerodrome control tower;

(e) awareness campaigns; and

(f) publishing the hot spot in the AIP.

GM1 ADR.OPS.B.095(c) Hot spots

EXAMPLES OF HOT SPOT(S) CHARTS

Examples of how hot spots are shown on charts are provided in Figures 1, 2, and 3 below.

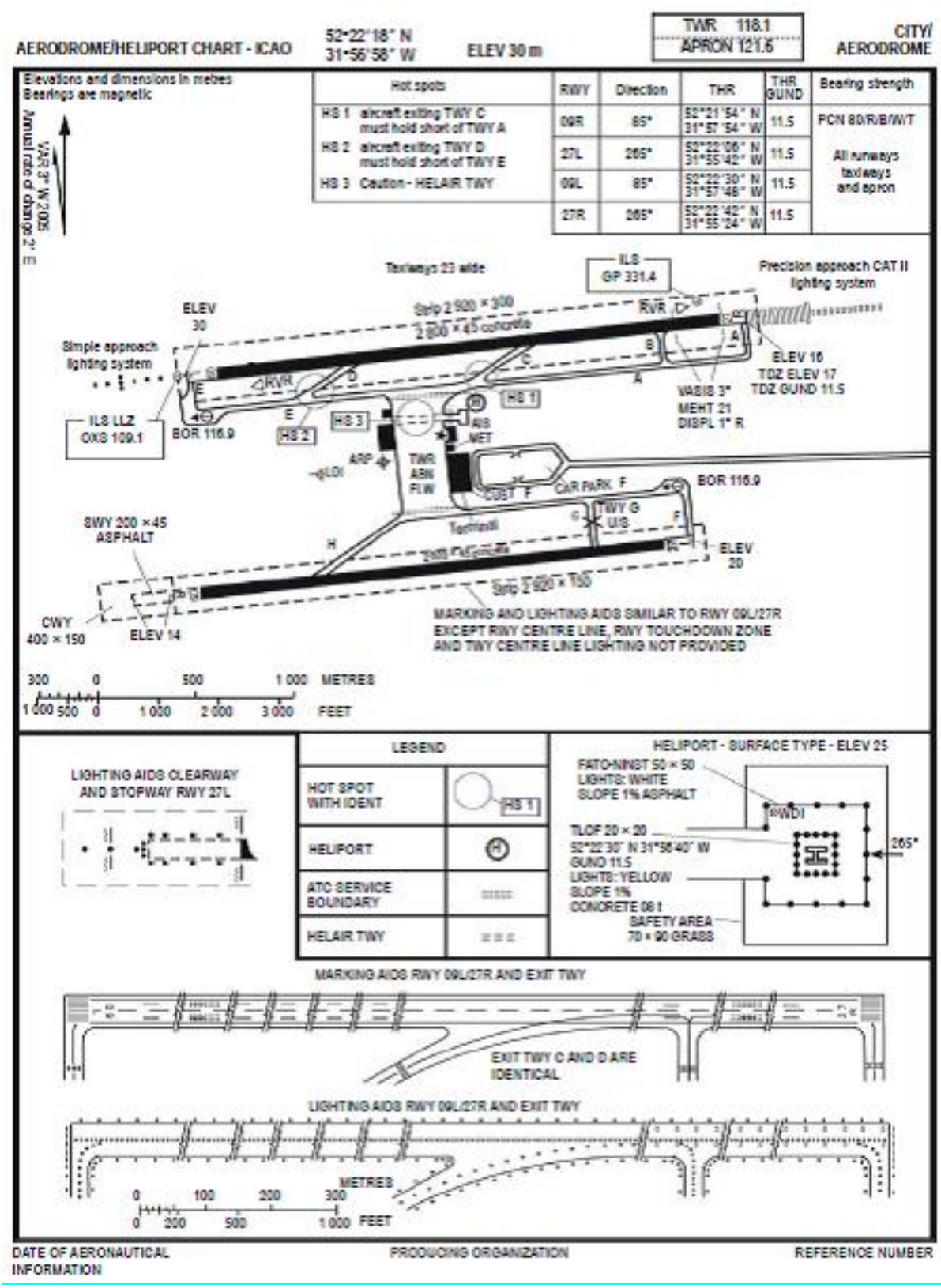


Figure 1

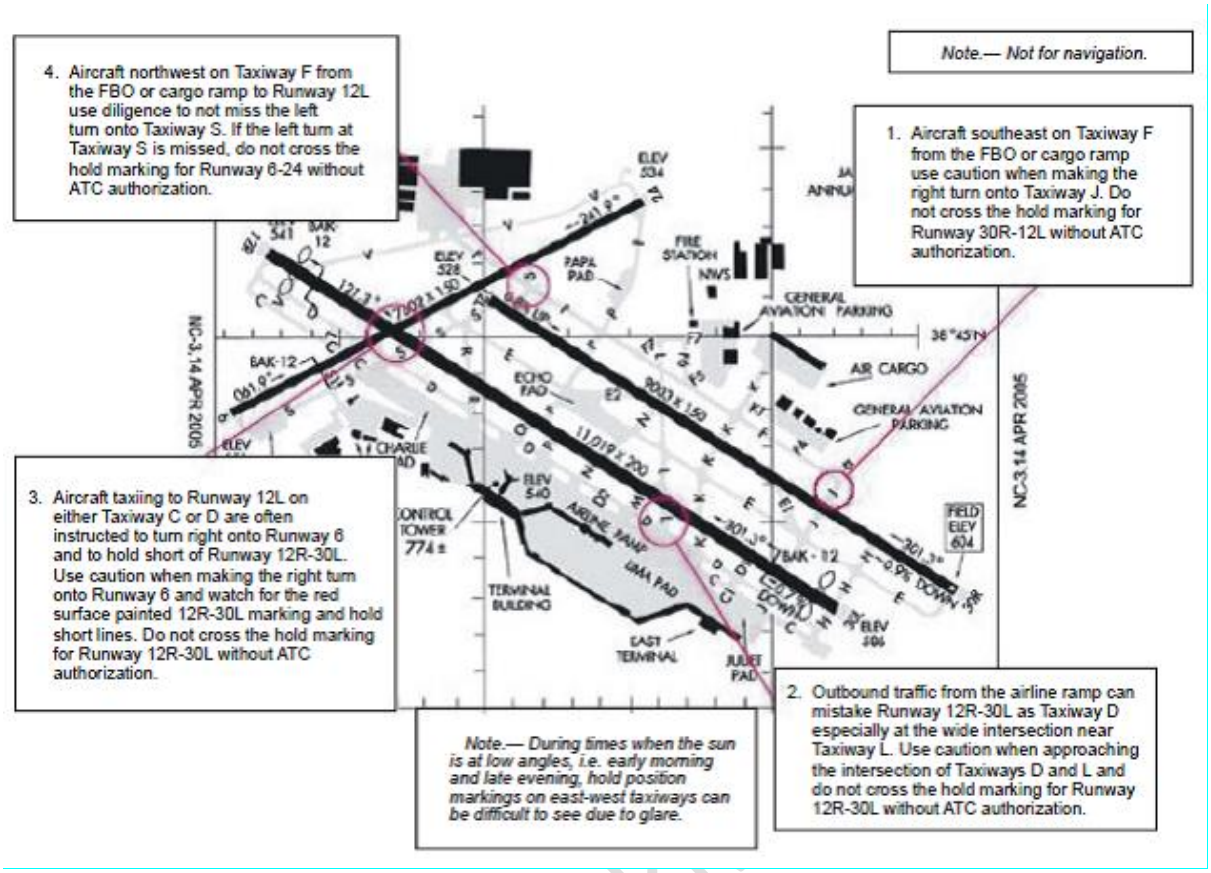


Figure 2

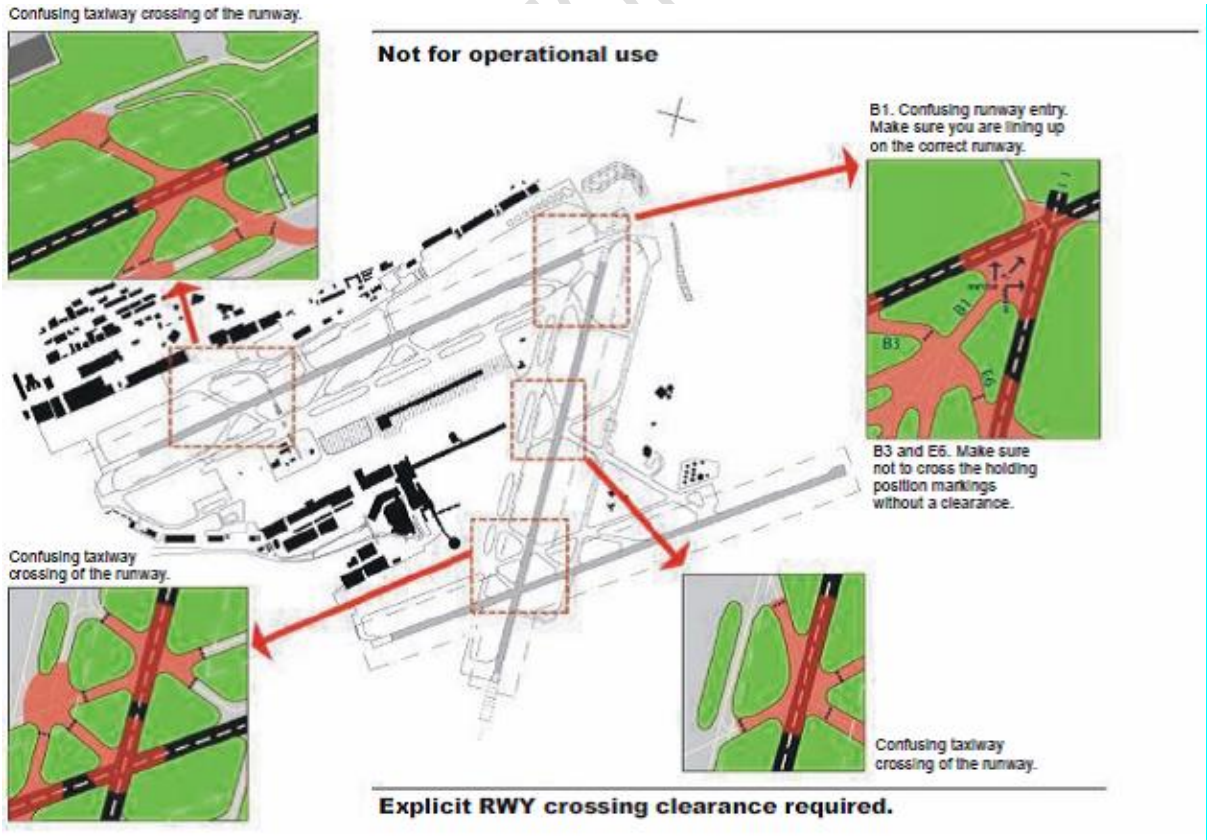


Figure 3

GM1 ADR.OPS.B.100(a) Suspension of runway operations and runway closure

SUSPENSION OF RUNWAY OPERATIONS

(a) Planned and unplanned events on an aerodrome can necessitate the temporary suspension of runway operations for a short period of time or for a longer period of time.

(b) In the majority of cases, reasons for suspending runway operations are unplanned. Examples may include:

(1) short-term removal of disabled aircraft or vehicle from the runway;

(2) presence of FOD on the runway;

(3) significant wildlife strikes on the runway;

(4) presence of an unauthorised UAS in the runway system;

(5) significant failure of runway lighting;

(6) ice control and snow removal operations;

(7) aircraft incident, e.g. tail strike , aborted take-off, tyre burst, etc.;

(8) full emergency or local stand-by.

GM2 ADR.OPS.B.100(a) Suspension of runway operations and runway closure

CLOSURE OF RUNWAY OPERATIONS

Examples of runway closure may include:

(a) removal of disabled aircraft or heavy vehicles from the runway which is expected to take significant time;

(b) significant deterioration of runway surface; and

(c) planned maintenance (e.g. rubber removal, repainting of markings, runway lighting maintenance/replacement/cleaning, surface repairs, etc.)

AMC1 ADR.OPS.B.100(b)(5) Suspension of runway operations and runway closure

ACTIONS BEFORE RECOMMENCEMENT OF RUNWAY OPERATIONS

The following actions should be completed if runway operations are recommenced following a suspension or closure of runway operations:

(a) remedial works is completed, e.g. clearance of FOD, wildlife remains, runway lighting repair, removal of disabled aircraft;

(b) all vehicles and personnel have vacated the runway and report to the air traffic services;

(c) a runway inspection under the authorisation of air traffic services is conducted;

(d) runway availability is confirmed to air traffic services;

(e) relevant NOTAM, if published, is cancelled;

(f) runway availability is promulgated by air traffic services using ATIS and radiotelephony.

AMC1 ADR.OPS.C.011 Overload operations

CRITERIA FOR OVERLOAD OPERATIONS

(a) For those operations in which the magnitude of overload and/or the frequency of use do not justify a detailed analysis, the aerodrome operator should use the following criteria, in order not to adversely affect the pavement:

(1) for flexible and rigid pavements, occasional movements by aircraft with ACR not exceeding 10 % above the reported PCR may be allowed; and

(2) the annual number of overload movements should not exceed approximately 5 % of the total annual movements excluding light aircraft.

(b) The aerodrome operator should not permit overload operations on pavements exhibiting signs of distress or failure. Furthermore, overload operations should be avoided during any periods of thaw following frost penetration, or when the strength of the pavement or its subgrade could be weakened by water. Where overload operations are conducted, the aerodrome operator should review the relevant pavement condition regularly, and should review the criteria for overload operations periodically, since repetition of overloads can cause severe shortening of pavement life or require major rehabilitation of pavement.

GM1 ADR.OPS.C.011 ~~010(b)(1) Pavements, other ground surfaces, and drainage~~ Overload operations

~~OVERLOAD OPERATIONS~~ **GENERAL**

Overloading of pavements can result ~~either~~ from loads too large, or from substantially increased application rate, or both. Loads larger than the defined (design or evaluation) load shorten the design life, whilst smaller loads extend it. With the exception of massive overloading, pavements in their structural behaviour are not subject to a particular limiting load above which they suddenly or catastrophically fail. Behaviour is such that a pavement can sustain a definable load for an expected number of repetitions during its design life. As a result, occasional minor overloading is acceptable, when expedient with only limited loss of pavement life expectancy and relatively small acceleration of pavement deterioration.

~~(a) Overloading of pavements can result either from loads too large, or from a substantially increased application rate, or both. Loads larger than the defined (design or evaluation) load shorten the design life, whilst smaller loads extend it. With the exception of massive overloading, pavements in their structural behaviour are not subject to a particular limiting load above which they suddenly or catastrophically fail. Behaviour is such that a pavement can sustain a definable load for an expected number of repetitions during its design life. As a result, occasional minor overloading is acceptable, when expedient, with only limited loss in pavement life expectancy, and relatively small acceleration of pavement deterioration. For those operations in which magnitude of overload and/or the frequency of use do not justify a detailed analysis, the following criteria are suggested:~~

~~(1) for flexible pavements, occasional movements by aircraft with ACN not exceeding 10 % above the reported PCN should not adversely affect the pavement;~~

~~(2) for rigid or composite pavements, in which a rigid pavement layer provides a primary element of the structure, occasional movements by aircraft with ACN not exceeding 5 % above the reported PCN should not adversely affect the pavement;~~

~~(3) if the pavement structure is unknown, the 5 % limitation should apply; and~~

(4) the annual number of overload movements should not exceed approximately 5 % of the total annual aircraft movements.

(b) Such overload movements should not normally be permitted on pavements exhibiting signs of distress or failure. Furthermore, overloading should be avoided during any periods of thaw following frost penetration, or when the strength of the pavement or its subgrade could be weakened by water. Where overload operations are conducted, the aerodrome operator should review the relevant pavement condition regularly, and should also review the criteria for overload operations periodically since excessive repetition of overloads can cause severe shortening of pavement life, or require major rehabilitation of pavement.