



Aerodrome Obligations for Safeguarding

Session 1.3: Aerodrome Safeguarding Implementation
4 December 2017

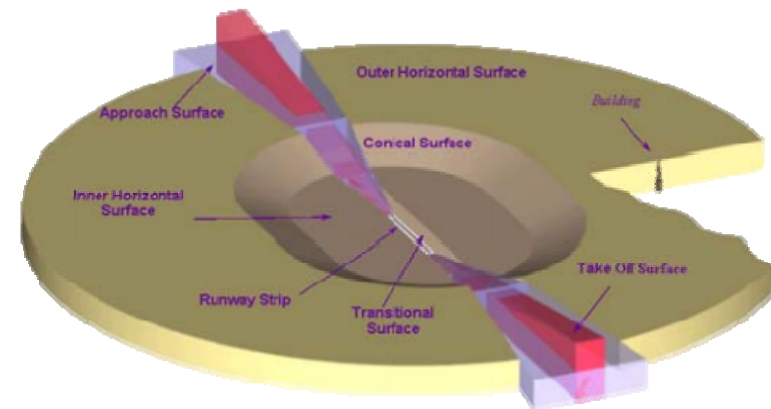
AERODROME SAFEGUARDING WORKSHOP
(Cairo, Egypt, 4-6 December 2017)

Presented by:
Michelle Soliman, Aerodrome Ops Inspector
General Civil Aviation Authority, United Arab Emirates



Obstacle Limitation Surfaces (OLS)

The OLS represents the lower limit of the blocks of protected airspace around an aerodrome. It is a complex set of 3-dimensional surfaces, which extend upwards and outwards from the runway(s) encompassing the critical airspace in which key air traffic and flight procedures associated with the aerodrome are conducted.





APPROACH RUNWAYS

Surface and dimensions ^a (1)	RUNWAY CLASSIFICATION									
	Non-instrument Code number				Non-precision approach Code number			Precision approach category		
	1 (2)	2 (3)	3 (4)	4 (5)	1,2 (6)	3 (7)	4 (8)	I Code number 1,2 (9)	II or III Code number 3,4 (10)	II or III Code number 3,4 (11)
INNER APPROACH										
Width	—	—	—	—	—	—	—	90 m	120 m ^a	120 m ^a
Distance from threshold	—	—	—	—	—	—	—	60 m	60 m	60 m
Length	—	—	—	—	—	—	—	900 m	900 m	900 m
Slope	—	—	—	—	—	—	—	2.5%	2%	2%
APPROACH										
Length of inner edge	60 m	80 m	150 m	150 m	150 m	300 m	300 m	150 m	300 m	300 m
Distance from threshold	30 m	60 m	60 m	60 m	60 m	60 m	60 m	60 m	60 m	60 m
Divergence (each side)	10%	10%	10%	10%	15%	15%	15%	15%	15%	15%
First section										
Length	1 600 m	2 500 m	3 000 m	3 000 m	2 500 m	3 000 m	3 000 m	3 000 m	3 000 m	3 000 m
Slope	5%	4%	3.33%	2.5%	3.33%	2%	2%	2.5%	2%	2%
Second section										
Length	—	—	—	—	—	3 600 m ^b	3 600 m ^b	12 000 m	3 600 m ^b	3 600 m ^b
Slope	—	—	—	—	—	2.5%	2.5%	3%	2.5%	2.5%
Horizontal section										
Length	—	—	—	—	—	8 400 m ^b	8 400 m ^b	—	8 400 m ^b	8 400 m ^b
Total length	—	—	—	—	—	15 000 m	15 000 m	15 000 m	15 000 m	15 000 m



APPROACH RUNWAYS

Surface and dimensions ^a	RUNWAY CLASSIFICATION									
	Non-instrument				Non-precision approach			Precision approach category		
	Code number	Code number		Code number	Code number		I	II or III		
(1)	1	2	3	4	1,2	3	4	Code number	Code number	Code number
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
CONICAL										
Slope	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Height	35 m	55 m	75 m	100 m	60 m	75 m	100 m	60 m	100 m	100 m
TRANSITIONAL										
Slope	20%	20%	14.3%	14.3%	20%	14.3%	14.3%	14.3%	14.3%	14.3%
INNER TRANSITIONAL										
Slope	—	—	—	—	—	—	—	40%	33.3%	33.3%
BALKED LANDING SURFACE										
Length of inner edge	—	—	—	—	—	—	—	90 m	120 m ^e	120 m ^e
Distance from threshold	—	—	—	—	—	—	—	c	1 800 m ^d	1 800 m ^d
Divergence (each side)	—	—	—	—	—	—	—	10%	10%	10%
Slope	—	—	—	—	—	—	—	4%	3.33%	3.33%

- a. All dimensions are measured horizontally unless specified otherwise.
 b. Variable length (see 4.2.9 or 4.2.17).
 c. Distance to the end of strip.
 d. Or end of runway whichever is less.

- e. Where the code letter is F (Column (3) of Table 1-1), the width is increased to 155 m. For information on code letter F aeroplanes equipped with digital avionics that provide steering commands to maintain an established track during the go-around manoeuvre, see Circular 301 — *New Larger Aeroplanes — Infringement of the Obstacle Free Zone: Operational Measures and Aeronautical Study*.



Precision Approach Runways

- 4.2.18 Fixed objects shall not be permitted above the inner approach surface, the inner transitional surface or the balked landing surface, except for frangible objects which because of their function must be located on the strip. Mobile objects shall not be permitted above these surfaces during the use of the runway for landing.
- 4.2.19 New objects or extensions of existing objects shall not be permitted above an approach surface or a transitional surface except when, in the opinion of the appropriate authority, the new object or extension would be shielded by an existing immovable object.
- 4.2.20 **Recommendation.**— *New objects or extensions of existing objects should not be permitted above the conical surface and the inner horizontal surface except when, in the opinion of the appropriate authority, an object would be shielded by an existing immovable object, or after aeronautical study it is determined that the object would not adversely affect the safety or significantly affect the regularity of operations of aeroplanes.*
- 4.2.21 **Recommendation.**— *Existing objects above an approach surface, a transitional surface, the conical surface and inner horizontal surface should as far as practicable be removed except when, in the opinion of the appropriate authority, an object is shielded by an existing immovable object, or after aeronautical study it is determined that the object would not adversely affect the safety or significantly affect the regularity of operations of aeroplanes.*



Radar & Other Electronic Aids to Air Navigation

Radio frequency interference from other sources of radio emissions.

Radio signal reflections or diffractions caused by physical objects, such as buildings / structures, cranes or wind turbines.



...radio frequency interference
...through renewable energy sources such as wind turbines and solar installations.



Aeronautical Lighting

Any aeronautical lighting is not obscured

Any proposed lighting cannot be confused with aeronautical lighting, for example replicating the same patterns or colours

Developments must not contain a high level of background lighting which could diminish the effectiveness of aeronautical lighting

Proposed lighting must not have the potential for glare or dazzle to pilots



Wildlife Hazard Management

Birds and other wildlife may be attracted to the vicinity of an aerodrome by various types of development, including; waste management sites, sewage works, mineral workings, water bodies, nature reserves, large landscaping schemes, and large areas of flat/shallow pitched or green roofs, large catering outlets and large buildings with perching/roosting opportunities for birds.



Construction Management

...addressing the use of cranes or other tall construction equipment, activities likely to produce dust or smoke, temporary lighting or impact on radar or other navigational aids, storage of materials in compliance with height limitations and site management and dispersal of waste to prevent the attraction of birds.



Lighting of Obstacles

The addition of warning lights to obstacles is intended to indicate the presence of hazards to aircraft operating visually at low levels while taking off or landing at an aerodrome, particularly at night or in conditions of poor daylight visibility. The aerodrome safeguarding process will determine whether a proposed development requires to be fitted with one or more obstacle lights. This is applicable to temporary obstacles, such as cranes, as well as to permanent structures.



Pre Planning Application Advice With Regard to Aerodrome Safeguarding

...contacting the Aerodrome Operator concerned for informal advice on how to comply with the aerodrome safeguarding requirements. If it believes a detailed study is required in relation to specialist aspects such as potential impact on radar, wildlife hazard management, it may advise that a suitable consultant be engaged so that their reports can be included with any subsequent planning application.



Integrity of the Physical Boundary

Maintenance of the physical boundary of the aerodrome....



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**WHEN IS THE AERODROME
OPERATOR SOLELY RESPONSIBLE?**



The **term appropriate authority**, as used in the International Civil **Aviation** Organization (**ICAO**) Technical Instructions, has the same **meaning** as competent authority.

A **competent authority** is any person or organization that has the legally delegated or invested authority, capacity, or power to perform a designated function. Similarly, once an authority is delegated to perform a certain act, only the competent authority is entitled to take accounts therefrom and no one else.



Example UK – Areas of Responsibility

- Civil aerodromes deemed to be of sufficient interest are officially safeguarded by legislation;
- Other aerodromes are urged to lodge unofficial safeguarding requirements with their respective planning authorities, noting that this requires that aerodromes are proactive in terms of contacting their planning authority and having pragmatic and measured discussions with the relevant planning officers so that their operations and associated requirements are well understood. It is also incumbent upon aerodromes to ensure that they are balanced in their requests.



Aerodrome Operator

The aerodrome operator should have procedures to monitor the changes in the obstacle environment, marking and lighting, and in human activities or land use on the aerodrome and the areas around the aerodrome, as defined in coordination with the Competent Authority. The scope, limits, tasks and responsibilities for the monitoring should be defined in coordination with the relevant air traffic services providers, and with the Competent Authority and other relevant authorities.



Aerodrome Operator

The limits of the aerodrome surroundings that should be monitored by the aerodrome operator are defined in coordination with the Competent Authority and should include the areas that can be visually monitored during the inspections of the manoeuvring area.



Aerodrome Operator

The aerodrome operator should have procedures to mitigate the risks associated with changes on the aerodrome and its surroundings identified with the monitoring procedures. The scope, limits, tasks, and responsibilities for the mitigation of risks associated to obstacles or hazards outside the perimeter fence of the aerodrome should be defined in coordination with the relevant air traffic services providers, and with the Competent Authority and other relevant authorities.



Risks Caused By Human Activities & Land Use

- obstacles and the possibility of induced turbulence;
- the use of hazardous, confusing, and misleading lights;
- the dazzling caused by large and highly reflective surfaces;
- sources of non-visible radiation, or the presence of moving, or fixed objects which may interfere with, or adversely affect, the performance of aeronautical communications, navigation and surveillance systems; and
- non-aeronautical ground light near an aerodrome which may endanger the safety of aircraft and which should be extinguished, screened, or otherwise modified so as to eliminate the source of danger.

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AERODROME OPERATOR RESPONSIBILITIES



Aerodromes may....

- Master Plan
 - Future development instrument runways*
- Baseline Obstacles (through survey)
- Monitor, Track and Verify
- Conduct Awareness and Education Sessions
- Change Management

- Enter into Agreements with Local Authorities
(example)



Aerodrome / Local Planning Authority Agreement....

LRST Resources

*Title: Sample MOU for Safeguarding:
Aerodrome Operator and Municipality*

*Attention To: Aerodrome
Operations/Appropriate Authorities*

Ref Number:
NRST-CIR-SEI-xx-xx-x

Date: xx December 2017

1. PURPOSE

This circular contains a sample memorandum of understanding (MOU) between Aerodrome Operators or Appropriate Authorities that are responsible for aerodrome safe guarding and their local municipalities within the UAE.

This circular does not address all elements or regulatory requirements for Aerodrome Operators and readers must use these materials within the context of applicable UAE Civil Aviation Regulation.

2. APPLICABILITY

Aerodrome Operators are encouraged to review their safeguarding arrangements against the materials in this circular.

The content of this circular is not intended to form part of UAE Civil Aviation Regulation. To the extent of any inconsistency between the materials proposed by members of the NRST Work Group and UAE Regulation - the requirements of the UAE Regulation shall prevail.

3. SAMPLE MOU

*Please see content of attached document in **Appendix A***

4. BACKGROUND

These materials have been developed further to best practices within the UAE as evaluated and compiled by the GCAA's Aerodrome & Air Navigation Department.

5. ADMINISTRATION

A copy of this circular and any updates will be available on the NRST Web Board available at www.qcaa.gov.ae/en/pages/nrst.aspx.

If required, access details for the NRST Web Board may be obtained by e-mailing NRST@qcaa.gov.ae.

Any feedback on the Sample MOU contained in this Circular should be sent to NRST@qcaa.gov.ae.

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OVERSIGHT OF RESPONSIBILITIES



Oversight of Aerodrome Activities....

- See Oversight Checklist (*example*)...

Note: reference shall be made to GTP-08

Aerodrome Obstacle Management	
Date:	
CAR PART VIII, Subpart 2 Issue/Date:	

Aim:

To confirm that the Aerodromes meet the regulatory requirements related to Obstacles management and control.

Present:

GCAA			
Inspector	Name:	Job Title:	
Inspector	Name:	Job Title:	
Aerodrome			
Accountable Manager	Name:	Job Title:	
Aerodrome - Responsible Persons			
Safety and Quality Assurance	Name:	Job Title:	
Aerodrome Safeguarding	Name:	Job Title:	
	Name:	Job Title:	

Documents / evidence required to be available. BRP = Best Recommended Practices

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THANK YOU