

Gibraltar Director of Civil Aviation

# Physical Safeguarding

Procedure 08

## Contents

Revision History .....	2
Introduction .....	3
Matters for Consideration .....	3
Obstacle Limitation Surfaces (OLS) .....	3
Use of Mobile and Fixed Cranes .....	4
Bird Risk Management .....	4
Foreign Object Debris (FOD) .....	5
Lighting.....	5
Obstruction Lighting .....	6
Wind and Turbulence.....	6
Reflectivity .....	6
Summary .....	6
Appendix A – OLS at Gibraltar Airport Bespoke Solution .....	7
Introduction.....	7
Purpose.....	7
Scope .....	7
Assumptions and Criteria .....	7
Aerodrome Safeguarding Map (Scale 1:50,000) .....	7
Inner Horizontal Surface – South of the Airport .....	8
Implementation and Conclusions .....	8
Appendix B – Mobile Crane Operations in the Vicinity of the Airport .....	9
Introduction.....	9
Purpose.....	9
Notification Procedure .....	9
Vicinity of the Airport.....	10
Appendix C - Lighting in the Vicinity of the Airport .....	11
Introduction.....	11
Safeguarding Consideration .....	11
Confusing Lighting.....	11

## Revision History

Version	Item	Date
1	Initial Issue	06/12/2022

## Introduction

1. The purpose of this document is to set out the Director of Civil Aviation (DCA) procedures with regards physical safeguarding, which must be followed by developers in order to achieve compliance with the legislation set out in DCA Policy 08.
2. All aspects concerning the physical safeguarding of Gibraltar Airport (the Airport) must be taken into consideration during the planning and construction phase of developments in order to ensure that any impact on the safety of civil aviation operating at the Airport is considered and any risks are understood and kept as low as reasonably possible.
3. It should be noted that activities other than construction and development can have an impact on aircraft operations at the airport and this procedure may still be applicable to such activity.
4. The DCA and the Aerodrome Authority (AA), on behalf of the MoD, will be consulted on any proposals for development that may affect aviation activity at the Airport. They will provide specialist advice to the Development and Planning Commission (DPC) accordingly.

## Matters for Consideration

5. Although not an exhaustive list as each development will be taken on its own merits, applicants to the DPC will normally be expected to demonstrate consideration of the following matters:
  - a) Obstacle Limitation Surfaces
  - b) Use of Fixed or Mobile Cranes
  - c) Bird Strike Hazard
  - d) Foreign Object Debris
  - e) Lighting
  - f) Obstruction Lighting
  - g) Wind and Turbulence
  - h) Reflectivity
6. An accurate site plan showing the site boundary with latitude and longitudinal references as well as the heights of the proposed developments within the site must be submitted.

## Obstacle Limitation Surfaces (OLS)

7. The OLS is a surface that defines the limits to which objects may project into the airspace. They take the form of a complex set of 3-dimensional surfaces which extend upwards and outwards from the runway encompassing the critical airspace in which key air traffic and flight procedures associated with the Airport are conducted. The conceptual safeguarding surfaces as defined in the Regulatory Article 3512 are applicable at Gibraltar with revisions as set out in Appendix A.
8. Objects are not permitted to penetrate the surfaces of the OLS although exceptions may be made for temporary obstacles with the approval of the DCA and the AA.
9. The DCA will require that all development proposals comply with the OLS standards applicable in Gibraltar. It should be noted that these differ from the international standards in order to deal with the peculiarities of Gibraltar topography and the maximum height permitted for any building in any particular location can be viewed using the safeguarding overlay tool on the

Gibraltar Geoportal website Department of the Environment (geoportal.gov.gi). This site provides a “How to Use” section which should be understood prior to using the overlay facility.

10. The overlay provides a vertical accuracy to within  $\pm 3\text{m}$ , for information on greater accuracy the DCA should be contacted. Full details of the OLS, as they apply to Gibraltar, are available from the DCA.

## Use of Mobile and Fixed Cranes

11. The use of cranes near the airport may not always be related to construction projects and as such this information is applicable to the use of any crane in the vicinity of the Airport.
12. The use of cranes can be expected to lead to infringements of the OLS. As such obstructions are considered temporary they may be approved, but may also be subjected management controls to avoid conflict with aircraft operations at the Airport. It should not be assumed that all such temporary infringements will be acceptable. The use of fixed cranes in a development, including their location and height must be included in any planning application.
13. Note that while cranes are cited in this section, other tall plant can also infringe the OLS, particularly when works are taking place close to the Airport perimeter and similar parameters are applicable to such plant as for cranes.
14. Advice can be sought from the DCA as to whether a crane management plan is required and, if required, such a plan should be developed in conjunction with the AA and must be approved by the Airport Authority. Further guidance on the use of mobile cranes near the airport can be found in Appendix B.

## Bird Risk Management

15. All birds, but particularly in Gibraltar the Yellow Legged Herring Gull, present a considerable risk to aviation due to bird strike. The primary aim is to guard against new or increased hazards caused by development. Any features of a development, during any part of the construction phase and after completion, that could provide an attractive environment to birds for any reason must as far as possible be mitigated.
16. For the construction phase, a management plan to prevent the attraction of birds should be included in any construction method statement submitted. The plans submitted for any development should also clearly show any methods applied to mitigate the risk of bird attractants in the final construction.
17. Numerous features are likely to attract birds and the following list should not be considered exhaustive:
  - a) **Standing Water.** Standing water arising from any means, including rain and damping down for dust suppression or swimming pools in completed developments, will attract large numbers of Yellow Legged Gulls in high concentrations. When allowed to accumulate on a site and subsequently startled, these birds will constitute a risk to aviation. Efforts must be made to avoid accumulations of standing water and where this cannot be achieved for justified reasons, means must be deployed to prevent birds from being attracted to such areas of standing water.
  - b) **Food Sources.** Birds will be attracted to supplies of food, again the Yellow Legged Gull is a particular nuisance in this respect. Similar to standing water, high concentrations of birds

can accumulate around a source of food which when they are startled will constitute a risk to aviation. Food, and in particular areas where food is discarded are known to attract birds and must be managed in such a way as to mitigate this risk. Good site education, covered bins and bin stores during both construction and in the final development are known to be effective in mitigating bird activity.

- c) **Roosting and Loafing.** Roosting tends to occur overnight where birds will find a safe area on the ground or roof tops to sleep, the lack of overnight activity in any area will further encourage birds to use that area to roost. Loafing is where birds are simply resting during the daytime. Areas which allow for either can see the high accumulations of birds which when startled can constitute a risk to aviation. Consideration must be given to how potential roosting and loafing areas will be managed both on an active construction site and in the final development.
- d) **Nesting.** Similar to roosting and loafing, birds must be discouraged from nesting, this can be a particular problem in a completed construction, aspects of which will inevitably provide opportunities to birds. Mitigation should be taken to discourage nesting wherever possible and nothing should be added to a development in the vicinity of the Airport which will encourage birds of any species to nest.

## Foreign Object Debris (FOD)

- 18. FOD which can be any loose articles - for example small metal bolts, plastic bags, cardboard boxes but also much larger objects which might become airborne due to strong wind - constitutes a potential hazard to aviation. A plan for FOD management both during and post construction of any development in the vicinity of the Airport must be included in the construction method statements. This plan should include activities such as the covering of skips and other waste receptacles as well as the covering of open topped vehicles and the use of fencing to minimise the risk of FOD being blown off-site.

## Lighting

- 19. The restrictions on the use of lights in the vicinity of the Airport is covered in the Civil Aviation (Air Navigation) Regulations, Regulations 89 and 89A. Pilot distraction and confusion caused by lighting in the vicinity of the Airport, as well as similar distraction and confusion which might be caused to Air Traffic Controllers in the Visual Control Room of the control tower, constitutes a hazard to the safety of aircraft operations.
- 20. It is important that lighting in or around a building/development/structure is designed to avoid strong beams of light being directed towards the Airport and along the approach and departure routes of flights operating at the Airport. In general, all lighting should be capped and the use of uplighters on building facades is discouraged. If floodlights are to be used during construction, management practices to avoid light being directed towards the Airport and flight paths must be included in construction method statements.
- 21. Plans submitted for any development in the vicinity of the Airport must take into account the potential for lights within the development to cause distraction as described above and implement measures to mitigate such a possibility. For more detailed guidance see Appendix C.

## Obstruction Lighting

22. The United Kingdom Civil Aviation Authority Civil Aviation Publication 168 (Licencing of Aerodromes) and the Military Aviation Regulatory Article 3518 define the requirements for the lighting of obstructions (including fixed or mobile cranes) in the vicinity of airfields and these documents are applicable to activity in the vicinity of the Airport.
23. The information provided for obstruction lighting includes the type of light, luminescence, configuration and requirements based on the height of the obstruction. Close liaison will be required with the AA for the installation of obstruction lights on any structure where lighting is required and must be included in any construction method statement.
24. Plans submitted for any development in the vicinity of the Airport must include plans for the provision of obstruction lights in accordance with the requirements set out in the documents described in paragraph 22.

## Wind and Turbulence

25. Given the prominence of the Rock and the wind conditions in the local area, wind and associated turbulence are known to have a significant effect on aircraft operations at the Airport. Any new structures can further influence the effects of the wind. When planning the location and design of a building or structure, developers must take into consideration wind and turbulence effects on aircraft flight paths and in particular, aircraft approach paths which are particularly prone to the effects of wind and turbulence. If considered necessary by the DCA, a developer must demonstrate that their development will not impact the flight paths by means of a wind study.

## Reflectivity

26. Pilot distraction caused by reflection of sunlight from building surfaces in the vicinity of the Airport constitutes a hazard to flight operations. Developers are to demonstrate that the surface materials used in a building or structure will not adversely impact operations at the Airport throughout the year.
27. In addition to the impact on pilots both in the air in the vicinity of the Airport and on the ground, the Developer must show that there is no potential for reflections from a development affecting the staff in the Visual Control Room at Air Traffic Control. Indeed the impact on Air Traffic Controllers is in some way more serious in that the impact will last longer than on an aircraft that can fly through the area of reflective glare.
28. Developers should consider the use of non-reflective glass (or similar), the angles that windows open, etc. when designing structures in the vicinity of the Airport.

## Summary

29. Flight safety and the mitigation of identified hazards in the vicinity of the airfield is of paramount concern to both the DCA and the AA and as such, all opportunities to reduce potential risks from new developments close to the airport both during and post construction must be considered.
30. Applicants are advised to seek early discussions with the DCA to enable early identification of potential issues arising from a development proposal.

## Appendix A – OLS at Gibraltar Airport Bespoke Solution

### Introduction

31. Gibraltar Airport constitutes the Civil Airport and RAF Gibraltar as defined in the Civil Aviation Act 2009. The Airport is not licenced in accordance with civil requirements as the manoeuvring area, that is the runway and taxiways, is operated by the RAF to military regulations.
32. The conceptual safeguarding surfaces as defined in the Regulatory Article 3512 are applicable at Gibraltar. However, the proximity of the Rock of Gibraltar, approximately 450m south of the runway, which rises to a height of 432m above mean sea level (AMSL) has required the development of a bespoke physical safeguarding regime endorsed by both the DCA and MAA to provide assurance regarding the area affected by the infringement of the Rock.

### Purpose

33. The purpose of this appendix is to describe the bespoke solution for the safeguarding of the traditional **Inner Horizontal Surface** to the south of the Airport.

### Scope

34. The inner horizontal surface to the south of the Airport described in this appendix supersedes the same surface as described in Regulatory Article 3512. All other requirements specified in that document remain applicable.

### Assumptions and Criteria

35. The following assumptions and criteria are to be used:
  - The inner horizontal surface safeguarding area extends to 4km from the mid-point of the runway.
  - The elevation datum of 3.27m (the elevation of the lowest landing threshold) is to be used for all calculations detailed below.
  - Any height limitations imposed by the Gibraltar Town Planning Act 2018 and subsidiary legislation take precedence over the relaxations offered in this appendix. Therefore, these relaxations only apply up to the maximum building heights above ground level permitted by the Town Planning Act 2018.

### Aerodrome Safeguarding Map (Scale 1:50,000)

36. In accordance with the criteria detailed in this appendix, the Airport has produced an Aerodrome Safeguarding Map (figure 1).
37. It should be noted that the safeguarding map does not indicate the height of the safeguarded surfaces or any height limitations that may be imposed. It is used only as a means of determining whether the DCA and AA need to be consulted on a planning application. Further guidance can be found in paragraphs 8-10 above.



### Inner Horizontal Surface – South of the Airport

- 38. The rationale for creating a bespoke physical safeguarding scheme in Gibraltar is to allow a pragmatic approach to development projects which can be considered to be in the shadow of the Rock.
- 39. A computer model has been developed based on the bespoke scheme that allows the DCA to identify the maximum permitted height, for aviation purposes, of a development in any part of Gibraltar. This is available through the Gibraltar Geoportal website described in paragraphs 9 and 10.

### Implementation and Conclusions

- 40. Despite pressures to maximise building opportunities to develop Gibraltar, it is vital that the OLS surrounding the Airport are protected in order to ensure safe aircraft operations to and from the Airport.
- 41. Should a proposed development infringe any of the OLS, including the modified inner horizontal surface, an assessment of the potential impact of that development will be required. Should an assessment indicate an impact on aircraft operations, then an “objection on aeronautical safety grounds” will be raised with the DPC by the AA.
- 42. Further information can be sought from the office of the DCA.

Figure 1



## Appendix B – Mobile Crane Operations in the Vicinity of the Airport

### Introduction

43. The sudden and unplanned appearance of a mobile crane or other plant (referred to jointly here as cranes) in the vicinity of the airport represents a hazard to flight operations and can lead to delays and even diversions to flights operating into and out of the Airport.

### Purpose

44. The purpose of this appendix is to set out for crane operators the requirements for the use of cranes in the vicinity of the Airport and provide guidance as to what constitutes the vicinity where restrictions apply (figure 2).

### Notification Procedure

45. The AA must be notified in writing of the intended use of a crane in the vicinity of the Airport. The request should be submitted to [Alaister.Nurse261@mod.gov.uk](mailto:Alaister.Nurse261@mod.gov.uk) and to [dean.orchard@nats.co.uk](mailto:dean.orchard@nats.co.uk). Notice, including the following information, should be given as early as possible, and at least 5 days in advance of the planned commencement date, in order for the request to be facilitated with the least possible delay:

- Contact details for the company or individual intending to use the crane.
- Date of commencement of crane operations.
- Duration of crane operations.
- Times that the crane is expected to operate.
- Location of the crane activity – position in latitude and longitude required.
- Type of crane to be utilised.
- Maximum height that the crane will operate to – this should be referenced to the aerodrome elevation (at time of publishing this is 12ft above Alicante Datum, the latest information is available on the UK Military AIP Aerodrome Section [LXGB-Gibraltar-Combined.pdf \(mod.uk\)](#)
- Area of Operation – the total area to be used by the crane including the area occupied by the jib while rotating, this should be shown on a map which also shows the runway.
- Contact details of the crane operator or person who will be responsible for the crane, the person must be fluent in English.

46. Once the initial submission has been made a request for further information by the AA might follow.

47. Where a crane is not expected to breach the OLS, it is the responsibility of the crane operator to demonstrate that the crane will be operating beneath the level of the OLS and how the crane operator will be briefed of any applicable restrictions to ensure compliance with the OLS levels. The AA, having satisfied itself that the OLS will not be infringed and indicate that it is content for the crane operation to proceed.

48. Where a crane is expected to breach the OLS, then a draft crane management plan will need to be provided to the AA with the notification. The AA will review this and usually

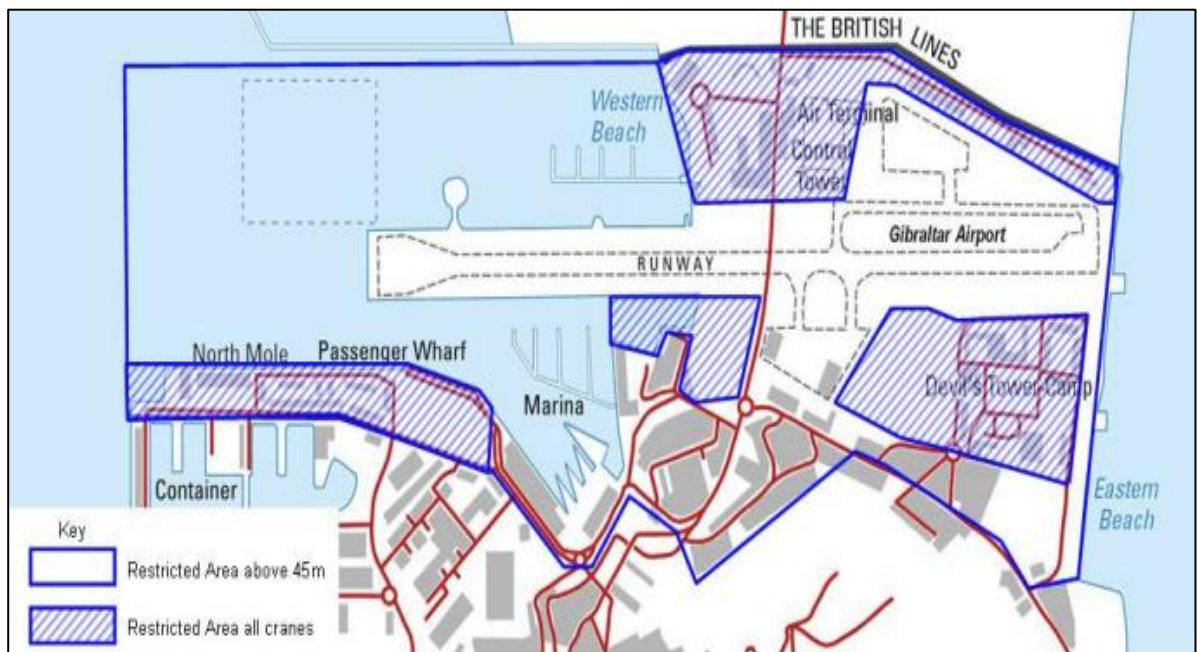
arrange a meeting with the requesting organisation to discuss the draft plan to confirm the details and articulate any amendments which may be required.

49. When drafting a crane management plan the requesting organisation should consider that the use of cranes in breach of the OLS within the sensitive areas shown in figure 2 will not normally be permitted and spatial and temporal limits will be imposed while aircraft operations are in progress.
50. For these purposes, aircraft operations are considered to be in progress from 30 minutes before the estimated time of arrival of any aircraft until it lands and from the time an aircraft starts its engines for departure until 15 minutes after its actual time of departure as recorded by Air Traffic Control. For all timings, Air Traffic Control shall be the only source for information.
51. It should be noted that a crane management plan may require additional orders to have to be drafted for Air Traffic Control which in themselves will require separate approvals and this may take an additional 28 days.

#### Vicinity of the Airport

52. Figure 2 shows those areas particularly sensitive to crane operations. These include Devil's Tower Camp, North Front Cemetery, Victoria Stadium, the North Mole (north of North Mole Road) or anywhere in Gibraltar north of the Runway. These are the blue hashed areas in figure 2.

Figure 2



## Appendix C - Lighting in the Vicinity of the Airport

### Introduction

53. At night and in periods of poor visibility during the day pilots rely on aeronautical ground lighting, the respective Simple Approach Light systems and Precision Approach Path Indicators to assist in lining up with the runway when approaching to land, any proposed developments will be assessed to ensure that lighting does not interfere with this function either during construction or on completion of the development.

### Safeguarding Consideration

54. As a general rule, the closer that a development is to the Airport, the more restrictions that are likely to be imposed on proposed lighting. In particular, when either temporary or permanent lighting in the vicinity of the Airport is proposed, the following needs to be taken into consideration:

- Any aeronautical ground light is not obscured from the pilot's view.
- Any proposed light cannot be confused with aeronautical lighting.
- Any proposed development should not contain high levels of background lighting which might diminish the effectiveness of aeronautical lighting
- Any proposed lighting must not have the potential to dazzle pilots or those working in the Visual Control Room of the Air Traffic Control Tower or the contingency Air Traffic Control Tower.

### Confusing Lighting

55. In order to minimise the risk of confusion with aeronautical lights, it is recommended that lights, especially street lights, are mounted in such a way that no light is emitted above the horizontal plane.

56. Ambient lighting in any development or during construction should not be so bright as to distract from and reduce the effectiveness of aeronautical lighting. Patterns which might appear similar to aeronautical lights, such as long straight lines parallel with the Airport should be avoided.

57. The use of red, white or green lights in the vicinity of the Airport should be avoided unless they serve a specific function, for example, obstruction lighting.

58. The use of lasers, searchlights or other forms of light show in the vicinity of the airfield can constitute a hazard to aviation and consultation is required with both the DCA and the AA prior to any such displays.