FACTSHEET – DEFENCE AERODROME OBSTACLE MANAGEMENT

AIM

The aim of this factsheet is to support Defence Aerodrome Operator (AD OPR) organisations[1] to:

- comply with *DASR 139 – Aerodromes*
- understand their obligations related to management of aerodrome obstacles and the Obstacle Limitation Surface (OLS).

This Factsheet does not cover design requirements for OLS—information regarding design elements are contained in Section 6 of the *Defence Aviation Safety Design Requirements Manual* (DASDRM).[2]

INTRODUCTION

Air Navigation Service Providers, such as AIS-AF, use obstacle data to determine safety tolerances for aeronautical products.[3] Unmitigated obstacles in the vicinity of aerodromes may pose hazards to safe flight operations. As such, and IAW *DASR 139*[4], the AD OPR has an obligation to monitor, manage and report obstacles on and around the aerodrome.

DEFINITIONS

The following definitions aid understanding of the technical aspects of this Factsheet.

Term	Definition
Obstacle	All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft; or extend above a defined surface intended to protect aircraft in flight; or stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.[5]
Obstacle Limitation Surface (OLS)	A series of planes, associated with each runway at an aerodrome that defines the desirable limits to which objects or structures may project into the airspace around the aerodrome so that aircraft operations at the aerodrome may be conducted safely.[6] See Figure 1 below for a visual representation. The OLS is usually lower than the PANS-OPS surface (defined below) but not always. The design requirements of the OLS for a given runway corresponds with the Aerodrome Certification Basis and associated requirements outlined in *DASDRM* Section 6—which refers to design requirements in CASA's *Part 139 MOS* Chapter 7. For example, the physical dimensions for a Code 4 non-instrument approach runway are in Table 7.15 (1).

[1] The AD OPR Organisation, used in the context of *DASR 139* and this Factsheet, is defined as any organisation, operator or its representative with responsibilities for compliance to *DASR 139*.
[2] *DASDRM* Section 6 Chapter 2 covers land based aerodromes, and Chapter 3 land based heliports.
[3] Aeronautical products such as Terminal Instrument Flight Procedures used by pilots for navigation. See Definitions table.
[4] Specifically DASR GM 139.20
[5] Definition from *DASP Glossary*
[6] Definition from CASA *Part 139 MOS 2019*

Term	Definition
PANS-OPS surface (also referred to as 'PANS-OPS airspace')	The 3D surfaces (imaginary) around the runway determined by design requirements for Instrument Flight Procedures (IFP) defined in the *Procedures for Air Navigation Services – Aircraft Operations* (PANS-OPS) promulgated by the International Civil Aviation Organization (ICAO) in *Doc 8168*. The PANS-OPS surface is usually (but not always)[7] above the OLS and is designed to safeguard an aircraft from collision with obstacles when the aircraft's flight may be guided solely by instruments, in conditions of poor visibility, by ensuring the minimum obstacle clearance height to aircraft is maintained.[8]
Terminal Instrument Flight Procedure (TIFP) (also referred to as 'IFP')	A flight procedure designed for aircraft flying IAW instrument flight rules (ie flight by reference to navigation instruments) to provide safe and efficient aircraft operations. TIFP by design, provide protection from obstacles during the approach or departure phase of flight to a specified altitude.[9]
Critical obstacle	An obstacle within the take-off climb area, or within the approach area, or within both areas, which subtends the greatest vertical angle when measured from the inner edge of the take-off climb surface and/or the approach surface. TIFP designers provide AD OPRs with locations of critical obstacles taken into account in the TIFP design.[10]
Type A Chart	Type A chart contains information on all significant obstacles within the take-off area of an aerodrome up to 10 km from the end of the runway.[11] The Type A Chart depicts data necessary to enable an aircraft operator to comply with stated ICAO limitations. Such limitations are intended to ensure that for each flight, accurate take-off performance calculations are made and in the event of an engine failure an aircraft can either abandon the take-off run and stop safely or become airborne and clear obstacles by the required margins.
OLS Survey	An assessment of the physical obstructions around an aerodrome, such as buildings, trees, and terrain, with reference to the OLS at that aerodrome. This survey is to validate known obstacles around the aerodrome, and identify any new obstacles that may infringe the OLS.
Vertical Obstacle Data (VOD)	The database of vertical obstacles across Australia. Airservices Australia collects, holds, and publishes data/information on vertical obstructions in the interest of aviation safety. Airservices Australian maintains the VOD and updates the information monthly.[12]
Terminal Australia (TERMA)	TERMA is a publication containing TIFP and other relevant charts for Australian military aerodromes. The TIFP contained in TERMA are for use only by military aircraft operators. AIS-AF is responsible for compiling and publishing TERMA, and designing the TIFP contained within.
Departure and Approach Procedures (DAP)	DAP is a publication containing aerodrome charts, TIFP, noise abatement procedures and associated information for Australian aerodromes (both military and civil). The TIFP contained in DAP are for use by both civil and military aircraft operators. Airservices Australia is responsible for compiling and publishing DAP. Products within DAP are designed by approved design organisations, including Airservices and other approved third parties. The name of the designer is annotated if not designed by Airservices.

[7] For example, PANS-OPS surface for an IFP approach into RAAF Base Point Cook (YMPC) from Port Phillip Bay is below the OLS
[8] Definition adapted from CASA AC 139.E-02v1.0 *Plume rise assessments*
[9] Definition adapted from *PANSOPS Vol II – ICAO Doc 8168*
[10] Definition adapted from CASA *Part 139 MOS 2019*
[11] Definition from CASA *Part 139 MOS 2019*
[12] Definition adapted from Airservices Australia website

Term	Definition
Defence Aviation Areas (DAA)	Part 11A of the *Defence Regulation 2016* provides a legal framework for controlling activities that may be dangerous to aviation. A declared DAA covers an area within a 15km radius of the aerodrome. DAA declarations define the heights at which proposed structures (or activities) require Defence approval. Further information, locations and maps of DAA are available via the hyperlink.
Plume rise	A rise in an air mass due to the temperature difference between the point of release (from a vent, chimney or stack) and the ambient air. The resultant energy may pose a hazard for aircraft.[13]

Table 1: Definitions

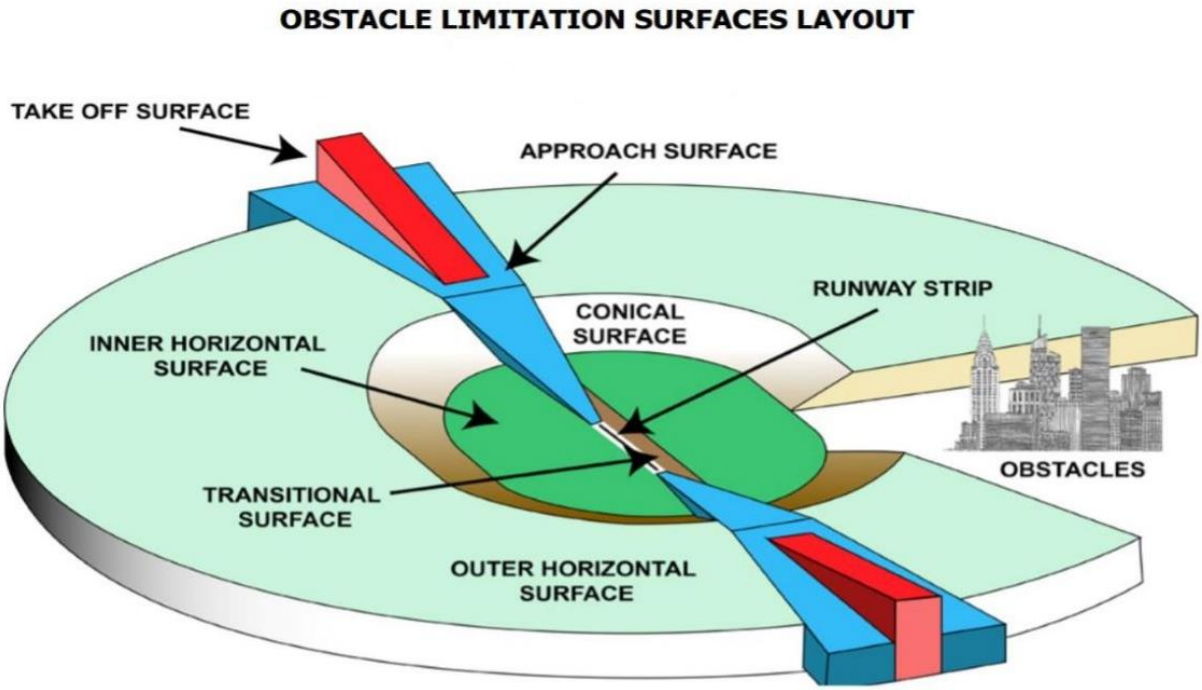

Figure 1: Schematic illustration of OLS layout for fixed wing aircraft

STAKEHOLDERS, ROLES AND RESPONSIBILITIES

The AD OPR has sole responsibility to monitor the OLS. The AD OPR and the procedure designer/s should work in partnership to monitor PANS-OPS airspace. The procedure designer is responsible for the integrity of the technical data related to the IFP design, but cannot directly monitor for any new or proposed obstacles that present at the relevant aerodrome. Therefore, AD OPR is responsible to monitor any new or proposed obstacles at their aerodrome and in doing so support the TIFP designer to maintain the integrity of any published IFP.[14]

The following entities are stakeholders in the aerodrome obstacle context:

- **AD OPR.** In accordance with DASR 139.50, the AD OPR of a certified aerodrome must have an aerodrome manual (ADMAN) that describes all relevant information and procedures that underpin the safe and effective use of the aerodrome. The ADMAN provides a means to establish data integrity compliance of relevant Aeronautical Information, so that other products that draw from the manual's information receive accurate

[13] Definition adapted from CASA AC 139.E-01 v1.0 *Reporting of Tall Structures*

[14] Adapted from CASA AC 139-21 *VSS: Monitoring Requirements and the Reporting of Obstacles v1.0*

information.[15] This includes data related to obstacles around the aerodrome that informs TIFP design and is published as Aeronautical Information, such as Type A Charts. The AD OPR must:

- understand the known obstacles on and around their certified aerodrome to effectively monitor them and ensure the integrity of obstacle data[16]
- develop and maintain specific resources (maps, charts, approved digital tools) as the basis for known obstacles at their certified aerodrome(s) (and may seek assistance from Security & Estate Group Directorate of Land Planning & Regulation Airspace Protection Section (SEG DLPR) or IFP designers to do so)
- ensure that proposed structures (fixed or temporary) in the vicinity of the aerodrome that could infringe the OLS are assessed, and seek assistance from SEG DLPR if required
- request obstacle assessments[17] from AIS-AF, Airservices Australia and/or third party designers for obstacles that may infringe PANS-OPS surfaces associated with TIFPs published in TERMA and DAP, respectively
- for new permanent obstacles, (ie the obstacle affects the certification basis) the AD OPR must notify DASA, and
  - conduct a risk assessment before permitting[18] the construction of a permanent obstacle
  - identify marking and lighting risk controls as part of the risk management process
  - submit updates to ERSA and relevant aerodrome charts
- report to Airservices Australia new or changes to permanent obstacles in the vicinity of the aerodrome greater than 30m above ground level via the VOD Form ATS-FORM-0085
- monitor, and report on, any object or structure that may infringe the aerodrome's OLS and PANS-OPS surfaces associated with instrument approach procedures, IAW arrangements made between the relevant TIFP designer and the Defence AD OPR[19]
- consult Civilian AD OPR at Joint User Aerodromes[20] to enable reporting to CASA (if required) and the sharing of obstacle related responsibilities as defined by Joint User Deed arrangements.

- **SEG DLPR.** SEG DLPR holds the OLS data for Defence aerodromes. SEG DLPR[21]:
  - is responsible for assessing new structures against *Part 139 MOS*[22] fixed wing OLS requirements
  - performs assessment of potential obstacles arising from development (infrastructure works) within the Defence aerodrome boundary, through SEG's Site Selection Board (SSB) process[23], as well as temporary structures outside the aerodrome boundary (such as cranes)
  - is responsible for educating state/territory and local governments on the DAA Regulations and assessing applications for development outside the Defence aerodrome boundary. This includes urban developments such as apartment towers and telecommunications infrastructure

[15] DASR GM 139.50
[16] *Part 139 MOS* Chapter 12 para 12.03(6) and 12.04(1)
[17] *Part 139 MOS* Chapter 11 para 11.06 (1)(d)(ii)
[18] That is, the AD OPR permitting the construction of an obstacle within the AD boundary after considering advice from SEG DLPR and the TIFP designers. Noting, SEG DLPR determines permission for construction of an obstacle outside the Defence aerodrome boundary.
[19] As required by *CASA 68/24—Terminal Instrument Flight Procedures (Military Aerodromes) Instrument 2024*, of 29 Nov 24
[20] RAAF Darwin (YPDN) and RAAF Townsville (YBTL).
[21] SEG DLPR roles and responsibilities as per email 231212 - [Murray, Adam MR 3]-[Newton-Hoare, Loretta FLTLT] Review of updated DASA Factsheet - Info Guide on Interpretation of CASA Part 139 MOS (BP42241807)
[22] Invoked by *DASDRM* Section 6 Chapter 2 para 2.9 Design element: Obstacle restrictions and limitations, in turn called out in DASR AMC 139.80.A(1).
[23] For further information regarding the SSB process see the Site Selection Handbook on SEG ERIK Estate Planning webpage

- may assist the AD OPR with technical assessment of obstacle height against the OLS to inform decision making and management action, and liaison with obstacle owners and civilian entities for issues outside the Defence boundary.

To conduct an obstacle assessment, SEG DLPR requires the applicant to supply technical data including accurate obstacle location coordinates, elevation drawings, site plans, and maximum height of obstacle in meters.

- **AIS-AF.** AIS-AF are responsible for the provision of Aeronautical Information for Defence, including designing military-use TIFP for Defence aerodromes and producing other Aeronautical Information products to support Defence aviation, eg TERMA. AIS-AF utilises Airservices Australia's VOD to inform their TIFP designs. Upon receiving notification from the relevant AD OPR, AIS-AF must conduct an obstacle assessment for any cranes/buildings/structures that may infringe PANS-OPS surfaces associated with AIS-AF designed TIFP (published in TERMA). To initiate an obstacle assessment, the AD OPR must raise an AIS-AF Obstacle Assessment Form, which AIS-AF will process within 10 business days. It is important to note that many Defence aerodromes also have TIFP published in DAP, for which Airservices Australia (or the applicable contracted procedure designer) must conduct a separate obstacle assessment (further information below).

- **Airservices Australia.** Airservices Australia (Airservices) are the government agency responsible for providing Aeronautical Information, including design of civilian TIFP for civil and military aerodromes. Airservices conduct obstacle assessments against Airservices' designed TIFP (published in DAP). Defence AD OPR must initiate an obstacle assessment for Airservices' designed TIFP by emailing Airport.Developments@AirservicesAustralia.com. Airservices requires a lead-time of six-weeks to conduct obstacle assessments—therefore early engagement is essential. Further information, including the application submission form is available on the Airservices website. Airservices also maintain the VOD—used to inform TIFP designs—and makes this data available to other users (such as AIS-AF and civil/military AD OPR). Airservices is responsible for processing updates to the VOD based on submissions made via the VOD Form ATS-FORM-0085.

- **Civil Aviation Safety Authority (CASA).** CASA requires civilian AD OPR to report actual or proposed OLS penetrations to CASA for a hazard assessment, including assessment of plume rises that may pose a hazard for aircraft in flight. In Defence, SEG DLPR hold the expertise to conduct obstacle and plume rise assessments—Defence AD OPR must refer to SEG DLPR to conduct obstacle assessments for Defence aerodromes (as discussed above). For joint military-civil user aerodromes, obstacle reporting to CASA may be appropriate in addition to requesting an obstacle assessment from SEG DLPR (and reporting to AIS-AF and Airservices Australia for assessment against TIFP).[24]

- **Military Air Operator (MAO).** DASR GM ORO.05.A(6) states 'it is the responsibility of the MAO to determine which aerodromes are safe and suitable for the operation of their aircraft.' To ensure the MAO has the information necessary to make an informed judgement of aerodrome safety and suitability, the AD OPR must ensure any hazards to flight safety (such as obstacles) are effectively communicated to aerodrome users (including civilian users if applicable).

- **Defence Air Traffic Control (ATC).** While Defence ATC observe obstacles on and around the aerodrome, they have no direct responsibility for obstacle management or reporting. An AD OPR may seek a local agreement with ATC personnel to observe and report obstacle changes to aerodrome management staff. ATC also manage access to Building Restricted Areas (BRA) associated with Communications, Navigation and Surveillance (CNS) facilities, further detailed in this Factsheet on page 8.

- **Defence Aviation Safety Authority (DASA).** DASA can provide advice to the AD OPR on the credibility and defensibility of risk assessments to support decision-making, and provide guidance related to *DASR 139* regulatory compliance. DASA does not conduct obstacle assessments.

OBSTACLE AND OLS MANAGEMENT AT DASR 139 CERTIFIED AERODROMES

DASR 139 Aerodromes assigns accountability for obstacle management to the approved AD OPR Accountable Manager (AM) for certified Defence aerodromes. The DASR 139 AD OPR AM may assign SEG certain responsibilities for obstacle and OLS management through contractual arrangements. Regardless of any such

[24] Further information on reporting tall structures to CASA is contained in CASA AC 139.E-01 v1.0 *Reporting of Tall Structures*

delegations, the AD OPR AM retains accountability for compliance with *DASR 139*. The AD OPR must inform themselves of the existing obstacles at their aerodrome and the airspace and surfaces they are required to monitor.[25] *Part 139 MOS* Chapter 7 — Obstacle Restriction and Limitation[26] details the AD OPR requirements for monitoring obstacles (see 7.20). Of note, *CASA 68/24—Terminal Instrument Flight Procedures (Military Aerodromes) Instrument 2024* places requirements on TIFP designers in relation to the design of TIFP for use by civilian aircraft at Defence aerodromes—including an obligation on TIFP designers to enter into arrangements with relevant Defence AD OPR. Such arrangements may infer further requirements on AD OPRs regarding OLS management.

When considering approval for an obstacle that infringes the OLS, the obstacle approval authority[27] should consider as the first option either:

- lowering the obstacle below the OLS
- moving the obstacle to a non-infringing location.

The obstacle approval authority should only consider other options if an operational imperative exists and it is not reasonably practicable to lower or move the obstacle.

The following table, in conjunction with *DASA Factsheet – Information Guide on Interpretation of CASA Part 139 MOS*, provides guidance for interpretation of *DASR 139*, relevant *Part 139 MOS* references and *CASA 68/2024—Terminal Instrument Flight Procedures (Military Aerodromes) Instrument 2024*:

Regulation Reference	Guidance on interpretation
DASR AMC 139.50.11 Obstacle Data Coverage *(a) Obstacle master database for the aerodrome should be documented, retained and reviewed regularly to ensure safe operations*	The AD OPR must have documented procedures to regularly monitor, manage and report obstacles at their certified aerodromes. AD OPR must also have documented procedures detailing when to seek advice from SEG DLPR as the Defence fixed-wing OLS SME (as required).
DASR AMC 139.50.11 Obstacle Data Coverage *(b) An obstacle is defined as any fixed or mobile object (whether temporary or permanent) that may:* *i. be located on an area intended for the surface movement of aircraft*	Any obstacle on a movement area or that presents a hazard to aircraft ground movements (eg objects that pose wingtip clearance issues or objects inside a runway strip).
DASR AMC 139.50.11 Obstacle Data Coverage *ii. extend above a defined surface intended to protect aircraft in flight*	The coverage of obstacle data must include any obstacle that penetrates the OLS.
DASR AMC 139.50.11 Obstacle Data Coverage *iii. Stand outside those defined surfaces and have been assessed as being a hazard to air navigation*	The coverage of obstacle data must include any obstacle that, while not infringing a defined surface, is identified as hazardous, such as a plume rise.

[25] See Table 1.
[26] Invoked by *DASDRM* Section 6 Chapter 2 para 2.9 Design element: Obstacle restrictions and limitations
[27] AD OPR organisation for obstacles within the Defence boundary, SEG DLPR for obstacles outside of the Defence boundary

Regulation Reference	Guidance on interpretation
Part 139 MOS Chapter 7 Div 2 Para 7.20 *(1) An aerodrome operator must monitor any object or structure that may infringe the aerodrome's OLS and PANS-OPS airspace associated with instrument approach procedures.* *(2) An aerodrome operator must:* *(a) establish procedures to monitor:* *(i) the OLS; and* *(ii) such obstacles, associated with the aerodrome's terminal instrument flight procedures, as are determined by the instrument flight procedure designer to be critical obstacles; and* *(b) include the procedures in the aerodrome manual.* *(3) The aerodrome operator must inform the designer of a terminal instrument flight procedure at the aerodrome of the following:* *(a) any change in the status of an existing critical obstacle;* *(b) any proposed development that is to be higher than the critical obstacles within the area depicted by the designer;* *(c) any new object or structure that is higher than the critical obstacles within the area depicted by the designer.*	The AD OPR must monitor the OLS and PANS-OPS airspace, and must advise the following agencies to allow assessment of any actual or proposed penetration of the OLS and/or PANS-OPS airspace: 1. AIS-AF (for TIFP published in TERMA) 2. Airservices Australia (for TIFP published in DAP) 3. Any third party designer responsible for TIFP published in DAP[28] 4. SEG DLPR (for obstacle assessment against OLS if assistance with this task is required). The AD OPR must utilise appropriate resources (such as maps, charts, or approved digital tools) to accurately identify and report changes to obstacles that affect the OLS and/or PANS-OPS airspace. This paragraph of *Part 139 MOS* is particularly relevant for AD OPRs regarding their obligations under any arrangements with civil TIFP designers for monitoring and reporting on critical obstacles, IAW *CASA 68/24—Terminal Instrument Flight Procedures (Military Aerodromes) Instrument 2024* (discussed further below).
DASR AMC 139.50.13.d. Aerodrome Technical Inspection (ATI) content and periodicity: *i. For Defence Aerodromes that have a volume of at least 10 000 civilian passenger movements, and / or at least 20 000 aircraft movements (combined military and civilian), Aerodrome Technical Inspections should be established and implemented in accordance with the Manual of Standards – Part 139 Aerodromes Chapter 12 Division 2; or* *ii. For other Defence Certified Aerodromes, an Aerodrome Operator may propose to the Authority a periodicity of ATI that takes into account the risk to safe operations and unique military context (example context may include solely helicopter operations, light aircraft only operations, possible impact due to significant weather events or poor initial construction); or* *iii. When directed to do so by the Authority.*	Many *DASR 139* certified aerodromes will meet the criteria requiring an annual ATI, and will therefore have an obstacle validation conducted annually as part of the ATI. The AD OPR must use a risk assessment to support the determination of ATI periodicity (and included obstacle and OLS validation) for *DASR 139* certified aerodromes that do not meet the threshold for an annual ATI. The risk assessment must address the risk held by all relevant stakeholders.[29]

[28] Third party designers, such as Global Airspace Solutions (GAS), may have published TIFP in DAP. (The TERMA/DAP published procedure identifies the TIFP designer.)

[29] For example, AIS-AF is responsible for the integrity and accuracy of TIFP in TERMA, and therefore requires accurate and validated obstacle data (in the VOD; or for a temporary obstacle, the AD OPR must advise the TIFP designer directly) to ensure that ongoing integrity of published TIFP is maintained.

Regulation Reference	Guidance on interpretation
Part 139 MOS Chapter 12 Div 2 para 12.09 Inspection requirements *(1) A technical inspection must include the following:* *(a) An instrument survey of the approach, the take-off and the transitional surfaces;* *(b) A check of other applicable surfaces associated with the OLS; Note for applicable surfaces, see Chapter 7 of this MOS* *(c) A check of the aerodrome operator's monitoring of the instrument approach procedure-critical obstacles nominated by the procedure designer for any terminal instrument flight procedures published for the aerodrome.*	This section describes the requirements of an ATI in the context of aerodrome obstacles. It complements *Part 139 MOS* Chapter 7[30] in defining the actions required of the AD OPR to complete technical validation of obstacles on a periodic basis.
Part 139 MOS Chapter 7 Div 3 Aerodrome obstacle and terrain charts *7.21 (8) The currency and accuracy of the following must be confirmed as part of the aerodrome technical inspection:* *(a) the Type A chart;* *(b) the aerodrome operator's obstacle monitoring procedures;* *(c) the distribution list of current Type A chart holders.*	The obstacle and OLS validation component of the ATI must also validate obstacle data published in the certified aerodrome's Type A chart.
CASA 68/2024—Terminal Instrument Flight Procedures (Military Aerodromes) Instrument 2024 *Section 13 Arrangements—monitoring of obstacles associated with instrument runways* *(2) … the arrangements … must include an arrangement the relevant designer makes with an aerodrome operator of a listed military aerodrome, under which the aerodrome operator monitors any object or structure that may infringe the aerodrome's obstacle limitation surfaces (**OLS**) and PANS-OPS surfaces associated with instrument approach procedures.* *(3) For the purposes of subsection (2), the monitoring of obstacles should include a check of:* *(a) the approach, take-off, and transitional surfaces to ensure published aerodrome information is accurate to within 0.05% of the published gradient in the AIP-ERSA; and* *(b) the other surfaces associated with the OLS; and* *(c) the critical obstacles nominated by the designer for any terminal instrument flight procedures published for the aerodrome.* *(4) The arrangement must require the aerodrome operator to notify the designer of any change in relation to obstacles, in accordance with the requirements of subsection 7.20(3) of the Part 139 Manual of Standards.*	Designers of civil TIFP at Defence aerodromes listed in *CASA 68/2024—Terminal Instrument Flight Procedures (Military Aerodromes) Instrument 2024* must provide Defence AD OPRs with summary IFP design reports to nominate critical obstacles for any TIFP published for the relevant aerodrome. AIS-AF—as the TIFP designer for military TIFP at Defence aerodromes—must also provide critical obstacle lists for military TIFP to align with civil requirements and ensure safe practices. TIFP designers must establish formal arrangements with Defence AD OPRs to specify the obstacle monitoring requirements, which must include notification requirements for any changes to critical obstacles. This can involve multiple critical obstacles per TIFP, and multiple TIFP designers per aerodrome—necessitating robust, documented procedures to ensure the AD OPR meets their respective obstacle monitoring and reporting requirements.

Table 2: Guidance on interpretation of regulation

[30] Invoked by *DASDRM* Section 6 Chapter 2 para 2.9 Design element: Obstacle restrictions and limitations

PERIODICITY OF OBSTACLE VALIDATION AT DASR 139 CERTIFIED AERODROMES

The AD OPR must establish data integrity compliance of relevant Aeronautical Information, including aerodrome and obstacle data.[31] *DASR ANSP* requires AIS-AF to only accept data from authoritative sources. The AD OPR must provide this authorisation in the ADMAN. Defence AD OPR organisations should use the requirements for aeronautical data originators—contained in *CASR Part 175 Aeronautical Information Management*—as a blueprint for good practice. For example, CASR Part 175.D sets requirements for annual review of aeronautical data and information in the Aeronautical Information Package (AIP, which includes DAP) and on aeronautical charts for which the data originator is responsible. DASR 139 AD OPRs should apply the same standard (ie annual review of obstacle data)[32] or determine an alternative review period based on a risk assessment conducted with relevant stakeholder input. Refer to Table 2 for ATI periodicity, in which obstacle validation is a component.

OBSTACLE MANAGEMENT FOR NON-CERTIFIED AERODROMES

While there are no DASA-prescribed regulatory requirements for Non-Certified Aerodromes, operators of Non-Certified Aerodromes must meet their obligations under the Work Health and Safety Act 2011. *DASR 139* provides a guide to good practice for Non-Certified Aerodrome management, including the monitoring and management of obstacles. This is particularly relevant for Non-Certified Aerodromes that have TIFP (ie Bening Field, Sam Hill and Williamson aerodromes). See the Guidance for Non-Certified Aerodromes section on the DASA website for more information.

TEMPORARY OBSTACLES

The AD OPR must have documented processes in place at each aerodrome to receive, process and approve/reject requests for temporary obstacles. The AD OPR must refer temporary obstacles[33] that infringe the OLS and/or PANS-OPS surfaces to the relevant TIFP designer[34] for assessment, NOTAM action[35], and/or specific mitigation measures including displacing a threshold. Temporary obstacles—eg cranes—can be necessary to facilitate works on or around aerodromes; and may be acceptable, providing hazards to flight safety are eliminated so far as is reasonably practicable (SFARP) or mitigated SFARP.[36] Unknown or unmitigated obstacles can pose hazard to safe flight operations. See worked examples section below.

SHIELDING

SEG DLPR, as the Defence SME for OLS assessment, may assess an infringing obstacle to determine if the obstacle shields another infringing obstacle, and in doing so may draw on *Part 139 MOS* Chapter 7 Div 4 Principles of shielding. The AD OPR may use this information to inform risk management.

COMMUNICATIONS, NAVIGATION AND SURVEILLANCE (CNS) FACILITIES AND BUILDING RESTRICTED AREAS (BRA)

BRAs may have associated specific restrictions regarding obstacles, access and buildings to protect CNS facilities from interference. AD OPRs must have awareness of BRAs associated with CNS facilities at their aerodromes. Restrictions associated with BRAs can apply over large areas. AAP 7081.002 - *Radar, Communications and Navigation Aid Siting Manual* refers. The ADMAN should document procedures for contacting ATC for information regarding access and any other limiting requirements associated with BRAs.[37]

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[31] DASR GM 139.50.2
[32] DASR AMC 139.50.13.d.
[33] *Part 139 MOS* Chapter 7 Div 2 para 7.19 refers.
[34] Note, the AD OPR must contact AIS-AF, Airservices Australia and third party design organisations responsible for TIFP at the same aerodrome.
[35] Refer to Airservices Australia *NOTAM Data Quality Requirements For Aerodrome Operators* for guidance on NOTAM duration (to notify longer term temporary obstacles)
[36] For example, SEG DLPR may provide advice on lighting and marking requirements from *Part 139 MOS* Chapter 8 Visual Aids Provided By Aerodrome Markings, Markers, Signals, Signs, Wind Direction Indicators Etc; & Chapter 9 Visual Aids Provided By Aerodrome Lighting
[37] DASR AMC 139.50.14

OBSTACLE MANAGEMENT WORKED EXAMPLES[38]

The following worked examples illustrate the process for an AD OPR to effectively monitor and manage the OLS and obstacles in accordance with *DASR 139*:

1. Temporary obstacle

The SEG Base Management Team (SEG BMT) informed the Base Airfield Engineering Officer (BAEO)[39] at 23SQN that a construction project office (the Project) at RAAF Amberley (inside the Defence boundary) requires the use of a large crane for the period of one week.

- The BAEO advises the SEG BMT to follow the Temporary Obstacle Notification Form procedure, as detailed in the Amberley ADMAN. The Project is responsible for providing all details of the proposed crane operations (exact location coordinates in the requested format, maximum operating height of the crane, start and end time and date, site contact details for crane operator etc).
- On receipt of the details of the proposed crane operations, the BAEO submits the details to the SEG DLPR for technical OLS evaluation and topography assessment.
- The SEG DLPR assesses that the crane will infringe the transitional surface of the OLS when operating at maximum height. They provide advice to the BAEO on the proposed crane operation, including obstacle mitigations outlined in *Part 139 MOS*, that the crane should be lowered when not in use and for aircraft arrivals and departures if requested.
- The BAEO refers the matter to both AIS-AF and Airservices Australia for assessment against published TIFP, respecting applicable lead times on assessments by those agencies. The BAEO must send the details of the proposed crane operation to both agencies because there are TIFP published in both TERMA and DAP for Amberley.
- After receiving responses from both agencies, the BAEO follows the process outlined in the Amberley ADMAN to ensure risk assessment is conducted on the hazard to flight safety of the proposed crane operation—taking into consideration the assessments provided by SEG DLPR, AIS-AF and Airservices Australia. The AD OPR (or delegate) may then:
    - approve the crane operation and notify the Project of any mitigations imposed on their crane operations
    - ensure all aerodrome stakeholders are reasonably informed of the resultant hazard
    - submit a request for a temporary obstacle NOTAM in accordance with the Airservices Australia *NOTAM Data Quality Requirements for Aerodrome Operators* and Airservices Australia *NOTAM Data Quality Requirements for the Australian Defence Force*.
- The crane operation occurs with oversight conducted by the SEG BMT and the Project, ensuring that it is consistent with the approval provided and compliant with any mitigations imposed.

2. Urban development application

The SEG DLPR received a development application for an apartment tower as it falls within the DAA for RAAF Edinburgh.

- SEG DLPR conducts an obstacle height assessment against the applicable OLS for Edinburgh.
- They determine that the top of the apartment tower, if constructed in accordance with the plans provided in the proposal, would infringe the Inner Horizontal Surface of the Edinburgh Runway 18/36 OLS by 3m.

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[38] While these worked examples illustrate how to successfully manage aerodrome obstacles, in providing them DASA is not mandating that AD OPRs replace existing suitable and functioning procedures to match these worked examples.
[39] While the BAEO is used to demonstrate how this process is coordinated, the AD OPR may assign these duties to another member of the aerodrome staff, ensuring they are competent, qualified, authorised and promulgated to conduct those duties IAW DASR 139.100 and DASR AMC 139.50.

- They also request an assessment from AIS-AF and Airservices against TIFP at Edinburgh and both responses indicate that associated PANS-OPS surfaces are not impacted.
- SEG DLPR responds to the application and imposes limitations on the proponent that the height of the apartment tower is reduced by at least 3 metres, to ensure it is below the height of the OLS in that location.

3. Project to build a new hangar with a roof mounted antenna

There is a project to build a new hangar at RAAF Townsville adjacent to Taxiway Alpha and Runway 01/19. The project plan features an antenna mounted on the hangar roof, which is essential to the equipment operated inside the hangar.

- As part of the SSB undertaken by SEG to confirm site suitability, SEG DLPR assesses the new hangar and its impact to the OLS, including height of any installations on the roof of the new hangar.
- The location of the hangar[40] is in the transitional surface of Runway 01/19. The top of the proposed antenna is 37m Australian Height Datum (AHD), while the OLS at that location is 39m AHD.
- As the antenna height is below the OLS height in this location, SEG DLPR advises that no infringement will occur if built in this location (see Figure 2 below).

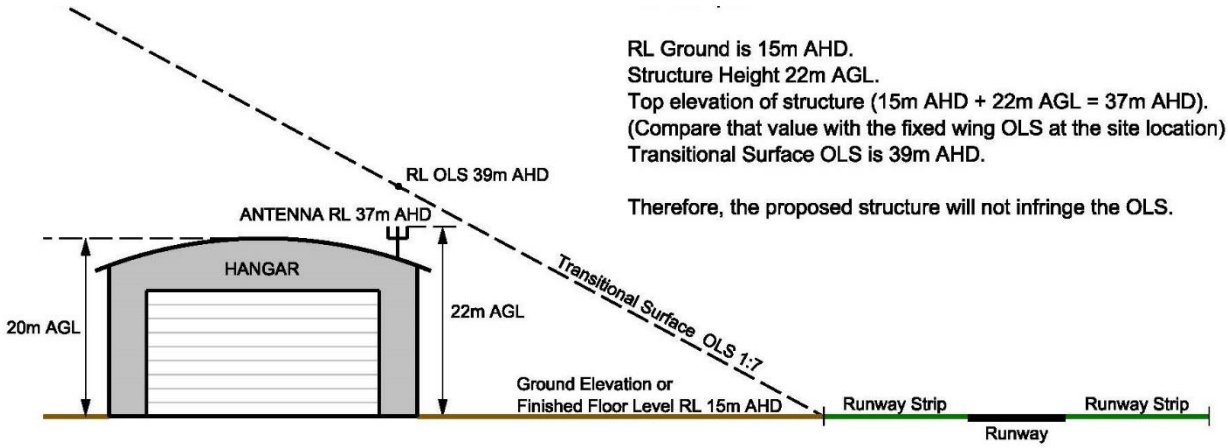

Figure 2. Diagram illustrating Worked Example 3

4. Tree within the Defence boundary infringing the OLS

CSG has initiated the conduct of validation of obstacles and OLS at RAAF Tindal—as part of ATI requirements under *DASR 139*. The report shows that vegetation growth within the aerodrome boundary is infringing the approach surface of Runway 32 by a maximum of 1.85m.

- The AD OPR must ensure they communicate the hazard immediately via NOTAM to inform aircraft operators of the hazard.
- The AD OPR must submit a works request to remove the vegetation as soon as practicable.
- The AD OPR may consider other interim risk mitigations, such as displacing the Runway 32 threshold, until removal of infringing vegetation.
- The AD OPR must formally track the hazard until removal of the infringing trees.

[40] The SSB process also requires consideration of windshear for any buildings which fall within the windshear assessment zone as per NASF Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports (link in References section)

REFERENCES

- Airservices Australia website – Development at and around airports
- AIS-AF website – Obstacle Assessments
- CASA 68/24—Terminal Instrument Flight Procedures (Military Aerodromes) Instrument 2024
- CASA AC 139-21 Visual segment surface: monitoring requirements and the reporting of obstacles v1.0
- CASA AC 139.C-05 v1.1 Aeronautical Information Reporting and Validation
- CASA AC 139.E-01 v1.0 Reporting of Tall Structures
- CASA AC 139.E-02 v1.0 Plume Rise Assessments
- CASR Part 175 – Aeronautical information management
- CASR Part 139 (Aerodromes) Manual Of Standards 2019
- DASR 139 - Aerodromes
- DASA Factsheet – Aerodrome Design Requirements and Certification Basis
- DASA Factsheet – Information Guide on Interpretation of CASA Part 139 MOS
- DASA Website – Guidance for Non-Certified Aerodromes
- Defence aviation areas regulation
- Defence Aviation Safety Design Requirements Manual, Section 6 – Aerodrome Design Requirements
- Defence Aviation Safety Program (DASP) Policy and Guidance Portal
- National Airports Safeguarding Framework principles and guidelines
    - Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports
    - Guideline F: Managing the Risk of Intrusions into the protected Airspace of Airports