



Sir Seewoosagur Ramgoolam International Airport
AIRPORTS OF MAURITIUS Co. Ltd

Airside works

Edition 4 – Version 02

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RECORD OF AMENDMENTS

ISSUE	DATE	LEVEL	Reason for amendment	Total pages of the document
Ed.4 – v01	Nov. 2017	MAJOR	Complete re-issue of the document	24
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DISTRIBUTION LIST

No	Designation	Organisation
1	Senior Manager Airfield Safety & Operations	Airports of Mauritius
2	Aerodrome Systems & Implementation Coordinator	Airports of Mauritius
3	Ground Maintenance Coordinator	Airports of Mauritius
4	Airside Safety Training Coordinator	Airports of Mauritius
5	Airfield Operations Office	Airports of Mauritius
6	Director Safety & Security Services	Airports of Mauritius
7	Director	Department of Civil Aviation
8	Station Manager	Air Mauritius
9	Airport Manager	Ground2Air

FOREWORD

To maintain an aerodrome infrastructure at an acceptable operational level or to expand the aerodrome to meet traffic and passenger demand, civil engineering works are required on an aerodrome. Aircraft and ground operations and construction works often cannot be dissociated. To maintain safety in such environment, specific procedures and restrictions have to be implemented to allow simultaneous progress of construction works and aerodrome operations.

The Procedure for Airside Works 4th edition has been developed in line with the requirements of Aerodrome Licensing Manual chapter 4.4 and highlights all the key procedures and safety requirements for a safe conduct of Airside works.



Prakash Mahabirsingh

Senior Manager Airfield Safety & Operations

July 2019

1. Introduction

These conditions of works is a requirement to any airport organization which intends to carry out works or engages contractors to do works within the airside (except taxiways and runways).

The organisation or contractor concerned shall ensure that their personnel besides having to comply with the Rules and Regulations governing the airside shall also adhere strictly to the following general conditions of work.

2. General conditions

2.1. Seeking approval

The organization or contractor intending to carry out works airside shall first request for an approval from the Manager Airfield Operations at least two weeks prior to the commencement of work.

AML has established a method of work plan including procedures and precautions to ensure that any works carried out on the aerodrome do not endanger aircraft operations or prejudice aerodrome security. The method of work plan shall be approved by the Authority before start of works. The method of work plan shall be submitted at least 10 days to the Authority before start of works.

The application shall include the following details:

(a) Introduction

The introduction shall clearly specify the:

- (i) name of the aerodrome;
- (ii) short description of the project; and
- (iii) date of issue of the method of work plan.

(b) Works information

1. The works information shall outline:
 - (i) the scope of the works;
 - (ii) the details of facilities affected;
 - (iii) the planned date of commencement and completion of the work; and
 - (iv) the duration of each stage, and the date and time of their
2. The method of work plan shall contain the statement that “The actual date and time of work commencement will be advised by NOTAM, to be issued by the Aeronautical Information Service unit”. The intended text of all planned NOTAM with procedures for its issue associated with the aerodrome works shall be included.

(c) Restrictions to aircraft operations

This section of the method of work plan shall detail the restrictions to aircraft operations and shall allow all concerned stakeholders to have easy reference and details of the restrictions as they affect them.

1. Work stages

For convenience and better work control, particularly on operational areas, the works shall be categorised in various stages and:

- (i) Any restrictions to aircraft operations on the manoeuvring area, or in the approach and take-off areas that is to be listed in the method of work plan, shall be shown on drawings of each stage of the works;

- (ii) When complex works are being undertaken, a table showing the restrictions applicable to each stage of the works and for each type of aircraft operations shall be included; and
- (iii) The table shall outline the various work stages with start and completion dates and have a remarks column to list details of special restrictions and instruction for issue of NOTAM for the information of pilots.

2. Emergencies

The procedures shall detail special arrangements to be made during works if emergencies arise or adverse weather conditions occur.

(d) Restrictions of work organisations

This part of the method of work plan shall provide details of any restrictions on carrying out of aerodrome works and requirements for restoration of normal safety standards.

1. Personnel and equipment

The specific mention shall be made when personnel and equipment are required to vacate the movement area for aircraft movements. This shall include the withdrawal line or area for personnel and equipment, and the limitation on stockpiling of material, excavations and the like.

2. Access

The method of work plan shall identify the routes to and from the work areas and the procedures for entering any work areas within the movement area. Particulars of routes to and from the work areas shall be shown in drawing attached to the method of work plan.

3. Aerodrome markers, markings and lights

Details of arrangements for the installation, alteration, or removal of aerodrome markers and lights in work areas affected by the aerodrome works shall be shown on drawing attached to the method of work plan.

4. Protection of nav aids and electrical services

Set out the procedures for protecting and ensuring the safe operations of the facilities, utilities and transport services dependent on nav aids and electrical services.

5. Management and Control

AML shall ensure that procedures are established to guarantee that:

- (a) a project manager is appointed or designated to co- ordinate the works at the aerodrome. The project manager shall make arrangements and establish procedures for the safety of aircraft operations while the works are in progress. These arrangements and procedures shall be documented in the method of work plan;
- (b) aerodrome works are carried out according to the method of work plan;
- (c) advance notification with relevant information is provided to the Aeronautical Information Service unit and the NOTAM are issued well in time to give notice of the works; and
- (d) a Works Safety Officer shall be appointed to carry out the following functions to ensure the safety of aircraft operations on the aerodrome.

- 1. ensure the safety of aircraft operations in accordance with the directions issued and the method of work plan;

2. ensure that, where applicable, the aerodrome works are notified by issue of a NOTAM by AIS and maintain close communication with the Aeronautical Information Service to ensure that the NOTAM provide current information and is at set out in the applicable method of work plan;
3. discuss, daily, with the project manager any matters necessary for the safety of aircraft operations and advise, where applicable, the aerodrome air traffic control unit of whatever information is necessary for the safety of aircraft operations;
4. ensure that unserviceable portions of the movement area, temporary obstructions, and the limits of the works area are correctly marked and lit in accordance with the applicable method of work plan;
5. ensure that vehicles, plant and equipment carrying out aerodrome works are properly marked, lit and operates within properly marked and lit work areas;
6. ensure that all other requirements in the method of work plan relating to vehicles, plant and equipment and materials are complied with;
7. ensure that access routes to work areas are in accordance with the applicable method of work plan, are clearly identified and that access is restricted to those routes;
8. ensure that excavation is carried out in accordance with the method of work plan to avoid damage to any utility or transport service, or loss of calibration associated with a precision approach and landing system or any other navigational aid;
9. ensure that the aerodrome air traffic control unit is kept informed of the radio call signs of the vehicles used during the works;
10. ensure the immediate removal of vehicles, plant and personnel from the movement area where necessary for the safety of aircraft operations or if instructed by air traffic control unit;
11. ensure that the movement area is safe for normal aircraft operations before it is cleared for aircraft operations following removal of personnel, vehicles, plant, equipment, and rubbish, from the works area;
12. ensure that floodlighting or any other lighting required to carry out aerodrome works do not present any glare to pilots;
13. report immediately, to the aerodrome air traffic control unit and AML, any incident, or damage to facilities; likely to affect air traffic services or the safety of aircraft;
14. remain on duty at the works area while work is in progress and the aerodrome is open to aircraft operations; and
15. any other function required by the Authority or AML to ensure operation safety.

6. Liaison

Before the commencement of any substantial work on the aerodrome, AML shall ensure that:

- (a) a liaison process is established between representatives of AML, the air traffic control unit, the major aerodrome users, aerodrome security, works consultant and if applicable the contractor who is to do the work;

A committee is set up, composed of representatives of those concerned with the works, including the contractors. This committee shall have as its primary concern the identification of interface problems between the various organisations involved; and

- (b) The committee shall meet as often as considered necessary to review progress and consider the need for any change in working practice to meet operational requirements.

7. Isolation of Work Area

As far as practicable, working areas shall be isolated from the active movement by physical barriers:

- (a) These barriers serve to warn pilots and to preclude work vehicles inadvertently straying onto each other's active movement areas;
- (b) The barriers shall be marked for day use and adequately lit for night use;
- (c) The lights of taxiways leading into working areas shall be made permanently off during the work period; and
- (d) The unserviceable areas shall be marked properly as per requirements (CANRM).

8. General Working Rules

Before work commences, agreement shall be established on:

- (a) the hours allowed to be worked;
- (b) the authorised vehicle routes;
- (c) the control of work personnel and vehicles;
- (d) the communication equipment to be used and the associated procedures;
- (e) the permitted heights of vehicles and equipment, and the limitations to be placed on operating heights of crane jibs and the like; and
- (f) any limitation of the use of electrical to prevent interference with navigation facilities or aircraft communications.

9. Safety

Construction personnel shall be warned, in writing, of possible hazards to personnel working on the operational aerodromes, in particular the jet-blast problems and noise. Where necessary, the contractor shall be advised to provide look-out persons wearing distinctive jacket.

10. Paved Area Cleanliness

Where work is conducted on, or involves traversing, paved areas the paving shall be thoroughly inspected before being opened for aircraft use. The particular attention shall be given to the presence of debris and the general cleanliness of the surface. Where aircraft are constantly using areas open to the construction activity, inspection shall be regular to ensure that the necessary cleaning has been carried out.

11. Marking and Lighting

Tall equipment such as crane jibs shall be marked and, if the aerodrome is open for night operations, lit. If work is of prolonged duration, a constant watch shall be maintained to ensure that the marking and lighting, of obstacles and unserviceable areas, are serviceable. This is particularly important for marking and lighting arrangements to indicate a displaced threshold and runway end.

12. Effect on Operating Limits

The effect of tall equipment, such as crane jibs, on nav aids etc will need to be considered, in conjunction with those responsible for electronic landing aids, and steps taken to reduce interference to the minimum. Construction equipment may have adverse effects on obstacle clearance limits and shall be considered when working plans are being formulated.

13. Operation Safety Considerations

The following is a partial list of safety considerations which will need attention during aerodrome works and shall be included in the method of work plan. There may be others in a particular situation that will need attention and shall be considered.

- (a) minimum disruption of standard operating procedures for aircraft operations;
- (b) clear routes from rescue and firefighting stations to active aerodrome movement areas;
- (c) a procedure for notification, and authority to change safety-oriented aspects of the method of work plan or construction plan;
- (d) initiation, currency, and cancellation of NOTAM;
- (e) suspension, or restriction, of aircraft activity on aerodrome movement areas;
- (f) runway end or threshold displacement, or both, and appropriate temporary lighting and marking;
- (g) installation and maintenance of temporary lighting and marking for closed, or diverted, aircraft routes on the aerodrome movement areas;
- (h) revised vehicular control procedures, or additional equipment and personnel;
- (i) marking and lighting of construction equipment and construction areas;
- (j) parking of construction equipment and storage of material, when not in use;

- (k) conspicuous identification of construction personnel, equipment and location for construction personnel vehicle parking, and their transportation to and from the work site;
- (l) designation of responsible representatives of all involved parties, and their availability;
- (m) location of the construction offices, contractor plants and utilities;
- (n) designation of waste areas and disposal of waste;
- (o) debris cleanup responsibilities and schedule;
- (p) security control of temporary gates and relocated fences;
- (q) dust, smoke, steam, and vapour controls;
- (r) additional security measures necessary, if it is a security designated aerodrome;
- (s) marking and lighting of closed aerodrome movement areas;
- (t) phasing of the work to be executed;
- (u) shutdown or protection, or both, of aerodrome electronic visual navigation aids;
- (v) the need to notify the rescue and firefighting unit when working on water lines; and
- (w) contractor personnel are provided with safety and security briefings.

14. Hazardous and Marginal Conditions

Analysis of past accidents and incidents has identified many contributory hazards and conditions. Some examples of such conditions that shall be watched carefully. Procedures and mitigating measures shall be included in the method of work plan for the following hazardous and marginal conditions:

- (a) excavation adjacent to runways, taxiways, and aprons;
- (b) stockpiles of earth, construction material, temporary structures, and other obstacles in proximity to aerodrome movement areas and runway approach and take-off surfaces;
- (c) runway projects resulting in lips between old and new surfaces at runway edges and ends;
- (d) heavy equipment operating or idle near aerodrome movement areas;
- (e) proximity of equipment or material which may degrade radiated signals from, or impair monitoring of, navigation aids;
- (f) tall but relatively inconspicuous objects, such as cranes, drills, and the like, in critical areas such as safety areas and runway approach and take-off surfaces;

- (g) improper or malfunctioning lights or unlighted aerodrome hazards;
- (h) holes, obstacles, loose pavement, rubbish, or other debris, on or near aerodrome movement areas;

- (i) failure to maintain barriers, such as fences, during construction to prevent unauthorised access;
- (j) improper marking or lighting of runways, taxiways, and displaced thresholds;
- (k) attractions for birds such as exposed earth works, rubbish, grass seeding, or ponded water on or near aerodromes;
- (l) inadequate or improper methods of marking temporarily closed movements areas including improper and unsecure barricades;
- (m) obliterated markings on active movement areas;
- (n) effects of reduced visibility, adverse weather conditions, and strong winds etc;
- (o) trenching works

15. Inspection

AML establishes a special inspection programme during the work to ensure that the movement area is safe for aircraft operations. Frequent inspections shall be made by AML or a representative during critical phases of the work to ensure that the contractor is following the prescribed safety procedures and that there is an effective litter control programme.

16. Administration

- (i) Provide the name of the project manager and works safety officer appointed or designated and the means of contact, including the means outside normal working hours; and
- (ii) The method of work plan shall contain the statement that "All works shall be carried out in accordance with the method of work plan". Each method of work plan shall require compliance with these statements.

17. Drawings

The drawings which provide a visual reference for each state of the work shall be attached with the method of work plan. The drawings shall contain specific details such as work areas, restrictions to aircraft, location of the radio navigation aids, exact location of visual aids and markings, details of the height and location of critical obstacles, location of temporary taxiways, access routes, storage areas for material and equipment, and the location of utilities and transport services which may be disturbed during the works.

18. Distribution list:

The distribution list of the method of work plan shall include at least the following persons and organizations:

- (i) the project manager;
- (ii) the works safety officer(s);
- (iii) the aerodrome security service;
- (iv) the aerodrome air traffic control unit;
- (v) the aerodrome licensing authority;
- (vi) air transports operators who might be affected by the works;

- (vii) aircraft operators based at the aerodrome;
- (viii) the rescue & firefighting service; and
- (ix) the contractors and subcontractors.

2.2. Aerodrome works safety

The organization or contractor shall

- (a) Establish procedures and precautions to ensure that any works carried out on the aerodrome do not endanger aircraft operations or prejudice aerodrome security.
- (b) Co-ordinate and take approval from AML before carrying out or allowing any work on the aerodrome.
- (c) Submit a method of work plan accordingly where all safety measures and arrangements are listed.
- (d) Have a distribution list for the work plans.
- (e) Make arrangements for communicating with air traffic control during the progress of the work.
- (f) Ensure that construction sites near the paved areas are conspicuously marked and lighted with a yellow flashing beacon.
- (g) Check that the level of safety is maintained under construction activities on the airport.
- (h) Check that stockpiled materials and construction materials are properly stored to keep them from being moved by wind, jet blast or propeller wash.
- (i) Ensure that heavy construction equipment such as bulldozers and cranes, are marked and lighted and parked clear of the safety areas.
- (j) Check that debris and foreign objects are continuously being picked up around the construction site.
- (k) Ensure that stockpiles and equipment are not left in the safety area.
- (l) Ensure that all vehicles having access to construction sites near the paved areas shall have two-way communication facilities and fitted with a flashing beacon.
- (m) Designate a Works Safety Officer responsible for ensuring that all safety measures are met.
- (n) Maintain a list of contact details of persons and organizations responsible for planning and carrying out the works.
- (o) Should not keep or park their construction equipment in the proximity of the navigational aids.
- (p) Ensure that airside/security/buffer/landside areas are clearly demarcated for the construction/extension of any building. Provisions for necessary security measures and access procedures shall be clearly defined as required per the respective area.

2.3. Signage

The project title of works shall be displayed on the hoarding of work sites. In the absence of hoarding, a signboard shall be used and placed at a strategic location. The name of Contractor's company and associated works title shall also be displayed on all site offices and at designated access points other than the normal entry/exit points.

Standard signage for roadways is at Appendix A.

2.4. Before and after work duration

After approval is granted, the Contractors should obtain clearance from Airfield Operations prior to commencement of work. The Contractor shall inform the same division on completion of the work. This exercise of seeking clearance and informing the Airfield Operations shall be made on a daily basis after each work session.

All works should be executed within the approved duration daily. Contractors would not be allowed to continue work beyond the approved duration unless further approval is sought from the Operations Department.

2.5. Airfield Driving Permit

All drivers operating in the aircraft movement area shall possess an airfield driving permit and comply with the instruction issued by the authority.

2.6. Airfield Vehicle Permit

Vehicles operating in the aircraft movement area shall possess an airfield vehicle permit and comply with the requirements of the Airports of Mauritius Co. Ltd.

Vehicles shall be adequately insured to operate within the airside.

Works vehicle shall be parked within the designated parking areas in the vicinity of the work site.

2.7. Personnel

Contracted staff must obtain entry permits relevant to the areas of work issued by the authority and should in no way move in unauthorized areas.

2.8. Training

All personnel working on the airside (including contractors) must be trained about aerodrome works prior to the beginning of works.

AML training programme on aerodrome works is established in coordination with AML ATC and is submitted to Department of Civil Aviation (DCA) for approval.

2.9. Roadway Closures

Where approved for closure of one traffic lane for either short or long term, the Contractor shall provide road marshallers with GO/STOP signs to regulate vehicular traffic and also, provide appropriate signs and markings to ease traffic flow.

3. Conditions of works

3.1. Movement of workers and Equipment

The Airfield Operations Unit shall define the routes or access to the work site. Entrance / Exit shall be via the 'E' Gate unless otherwise specified.

3.2. Obstruction markings

The work area shall be clearly defined by obstruction markers in the day and shall be lit during the hours of darkness.

Blinker lights shall be placed at every two-metre interval on diversion road.

An approved type marker board 3 x 1 x 0.5 metre shall be placed on the aircraft parking stand centreline near the edge of the stand, at safe distance, when the aircraft stands are closed for the approved works.

During hours of darkness, this marker board shall be identified with 2 blinker lights on top at the two extremes.

When works are carried out on the Passenger Boarding Bridge (PBB), the Contractor is to display in addition to the marker cones, the following signage:-

- (i) Appropriate signs on the PLB control panels to indicate the closure of the PBB; and
- (ii) Obstruction tapes to cordon off both the service and emergency stairs to the PBB.

Sketches of the Obstruction Markings are at Appendix B.

3.3. Safety and Cleanliness

All safety and security requirements as laid down by AML shall be complied with all throughout the duration of the works.

All precautions shall be taken by the Contractor to prevent any spillage or dropping of materials in transit, on the movement areas. Any spillage or dropping of materials must be immediately removed.

Debris from the movement area shall be disposed of in the proper manner after completion of works.

All tools and equipment when not in use shall be removed from the work area and securely locked up.

The Contractor shall ensure the persons employed do not bring in and consume food and drinks in the movement areas.

The Contractor shall ensure that all temporary markings and street lighting are in working condition as required.

The Contractor shall ensure that no welding activities are carried within 50 metres of a parked aircraft. Special arrangements shall be made with the Director Safety and Security Services and Rescue and Fire Fighting Services to this effect.

3.4. Security

The Contractor shall ensure that no work is carried out or structures built adjacent to the security fencing gates, which may jeopardise the security of the airport, without prior permission from the Director Safety and Security Services.

3.5. Facility Disruption

The Contractor shall as far as possible, do not interfere with electrical installations and other equipment attached to facilities and shall liaise with the appropriate authorities before commencing work.

It shall be the responsibility of the Contractor to devise ways and means to provide alternatives whenever there is facility disruption due to negligence from the part of the Contractor or any person in his/her employment.

Depending on the areas of work, damage to any service/facility that may affect the operational status of the airport or safety of aircraft shall be reported immediately to Airfield Operations.

In the event that electrical power supply to essential function of apron tarmac operations could be abruptly interrupted, contingency shall be arranged prior to commencement of work.

The Contractor shall be responsible to bring to normal operations, on his own expense, for any damage caused by a staff in his/her employment.

3.6. Lifting Machine/Crane

The Contractor shall seek approval from the Airfield Operations division whenever works require the use of lifting machine and/or crane.

Lifting machines/cranes etc. shall be operated by persons trained and competent to operate that machine.

3.7. Additional Conditions

The Contractor shall comply with any direction or verbal instruction given by the Airfield Operations staff. During work in progress, the Airfield Operations may call the Contractor to stop work where necessary. The Contractor shall stop the work immediately upon advice from Airfield Operations.

The Contractor shall ensure that stray animals e.g. cats, dogs, etc., which compromise safe aircraft operations, do not enter through the work site gates into the airfield.

4. Appendices

4.1. Appendix A - Signage

* Proper signage must be placed at appropriate locations to guide and warn all drivers and other airport users of the work.



TRAFFIC SIGNAL
AHEAD SIGN



ROAD NARROW
AHEAD SIGN



LANE CLOSURE
AHEAD SIGN



STOP SIGN



BEND SIGN



DANGER SIGN



KEEP LEFT SIGN



SHARP DEVIATION PLATES



NO ENTRY SIGN



NO SMOKING



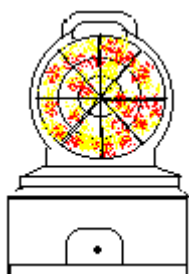
NO WAITING

4.2. Appendix B – Obstruction markings

* The work area shall be clearly defined by obstruction markers in the day and shall be lighted during the hours of darkness or low visibility conditions.



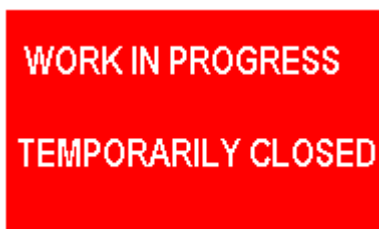
OSCILLATING LIGHT



BLINKER LIGHT



TRAFFIC CONE



MARKER BOARD



TO BE PLACED ON CONTROL PANEL



OBSTRUCTION TAPE

Note: Notwithstanding the above, the Agency or its Contractor/s should use other obstruction markings and security barriers contained in the agreed methodology.