CIVIL AVIATION AUTHORITY
OF NEW ZEALAND
Te Mana Rererangi Tūmatanui o Aotearoa

Advisory Circular AC139-05

Revision 4

5 November 2026

Operational Safety During Works on Aerodromes

General

Civil Aviation Authority (CAA) Advisory Circulars (ACs) contain information about standards, practices, and procedures that the Director has found to be an **acceptable means of compliance** with the associated rule.

Consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices, or procedures are found to be acceptable they will be added to the appropriate AC.

Purpose

This AC describes an acceptable means of compliance with the requirements relating to operational safety during works on aerodromes under Civil Aviation Rule Part 139, *Aerodromes—Certification, Operation and Use*.

Related Rules

This AC relates to Part 139 - specifically rules 139.76A and 139.413, *Works on aerodromes.*

Change Notice

Revision 4 adds section 2.7 on work activity during low visibility.

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Version History

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Revision No.	Effective Date	Summary of Changes
AC139-05, Rev. 1	20 September 1993	Initial issue
AC139-05, Rev. 2	30 October 2015	Updated the content to align with the latest amendment to Part 139 and made editorial and formatting changes.
AC139-05, Rev. 3	5 April 2025	Clarified some points. Fixed a broken hyperlink. Updated format and style in line with other ACs. Added a Version History.
AC139-05, Rev. 4	5 November 2026	Adds section 2.7, Work activity during low visibility.

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1. CONTROL OF WORK

1.1 Introduction

1.1.1 The aerodrome operator is responsible for establishing safety requirements and procedures for works on the aerodrome, including controlling any work in progress, to ensure those works do not endanger aircraft operations. This AC provides guidance for compliance with these responsibilities. Further guidance is contained in AC139-10, *Control of Obstacles*.

Safety issues addressed in this AC are primarily related to aerodrome operations. They are not intended to cover general workplace health and safety requirements for personnel. *Worksafe New Zealand* is New Zealand's workplace health and safety regulator, and all work on aerodromes must comply with their requirements. Part 139 refers to requirements the applicant must meet before a certificate is issued. This AC may refer to the certificate holder, not the applicant as stated in the rule, because the holder must continue to comply with the same requirements that were met before the certificate was issued.

1.1.2 There are a number of matters that need to be considered to ensure adequate control of works on an aerodrome. These include:

(a) developing a work programme, and

(b) scheduling work for minimal disruption to aerodrome operations, and

(c) identifying potential safety issues and developing mitigation plans, and

(d) developing a programme to monitor work activities, and

(e) ensuring continuous compliance with developed work programme and implementing remedial actions where necessary, and

(f) reviewing plans and processes periodically for effectiveness, and

(g) inspecting the work and worksite to verify completion, and to ensure no hazards exist.

1.1.3 The scope and extent of works on aerodromes can vary from major (e.g. runway re-construction), to minor (e.g. grass cutting), and application of the requirements may be less formal for smaller activities.

1.1.4 Regardless of the size and complexity of the work, it must always be carried out safely and with minimal disruption to operations.

1.2 Minor construction and maintenance work

1.2.1 The aerodrome operator should develop procedures to control access to active parts of the aerodrome movement area, and all personnel entering these areas should be required to comply with these procedures.

1.2.2 All personnel involved in minor construction or maintenance work should be fully briefed on the aerodrome operator's requirements that control working and driving on the aerodrome, including obtaining clearance from an aerodrome air traffic services (ATS) unit, if present.

1.2.3 The aerodrome operator can authorise personnel regularly carrying out routine maintenance (e.g. grass cutting), to work on the aerodrome without further briefing, subject to continuing compliance with the work control requirements/procedures.

1.2.4 The aerodrome operator's work control system should be developed to ensure that:

(a) no work takes place on the active movement area without the knowledge of either the aerodrome operator and, where applicable, the aerodrome ATS unit, and

(b) permitted times of work are strictly followed, and

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

(i) precise areas in which the work may be done, and

(ii) the routes to be followed to and from the work area, and

(iii) the radiotelephone or other control procedures to be used, the maintenance of a radio listening watch, and the use of lookouts, and

(iv) the safety precautions to be observed, and

(v) the reporting procedure to be followed when safety hazards or risks are observed, and

(vi) the notification procedure on completion of the work, and

(d) at the conclusion of the work, the aerodrome operator inspects the work area to ensure that it has been left in a safe condition.

1.3 Major construction and maintenance work

1.3.1 Before commencing any major construction or maintenance work on the aerodrome, the aerodrome operator should:

(a) establish a method of work plan (MOWP), and

(b) appoint a project manager with overall responsibility for maintaining the MOWP and ensuring the work is carried in accordance with its requirements.

1.3.2 When preparing a MOWP, major aerodrome users, the aerodrome ATS unit if provided, contractors, and other involved or affected parties as necessary should be consulted.

1.3.3 The work plan should address the items detailed in Appendix A.

1.4 Management and control of major works

1.4.1 The project manager has responsibility to coordinate all works and should:

(a) make arrangements and establish procedures for the safety of aircraft operations while the works are in progress, and

(b) ensure these arrangements and procedures are published in the MOWP, and

(c) ensure the works are carried out according to the MOWP, and

(d) ensure NOTAMs are issued to give notice of the works where necessary, and

(e) appoint a person (or persons) as works safety officer to carry out the functions set out in Appendix B, and

(f) periodically review the MOWP, and adjust when necessary to maintain its effectiveness.

1.5 Liaison

1.5.1 Before beginning any substantial work on the aerodrome, a liaison process should be established between representatives of:

(a) the aerodrome operator, and

(b) major aerodrome users, and

(c) the aerodrome ATS unit, if provided, and

(d) contractors, and

(e) other involved or affected parties as necessary.

1.5.2 A committee of representatives from the various parties should be considered. Its primary focus should be on the identification and resolution of communication problems between the parties.

1.6 General working rules

1.6.1 Before work begins, aerodrome operators and all parties involved should agree general rules for working on the aerodrome, such as:

(a) the permitted times of work, and

(b) the routes to be followed to and from work areas, and

(c) the areas in which work may be done, and

(d) the control of vehicles, and

(e) the permitted heights of vehicles and equipment, and the limitations to be placed on operating heights of tall equipment such as crane jibs, etc, and

(f) any limitation on the use of electrical or other equipment that might interfere with navigation facilities or aircraft communications or pose any other risk to aircraft safety.

2. OPERATIONAL ISSUES

2.1 Introduction

2.1.1 When planning any work on an aerodrome a number of matters need to be considered to ensure the work can be completed with minimal disruption to aerodrome operations. The issues considered below should generally cover most work, but further items may be identified during the detailed planning process.

2.2 Isolation of work area

2.2.1 As far as practicable work areas should be blocked off from the active movement areas by physical barriers. These barriers warn pilots and prevent work vehicles and personnel from inadvertently straying onto active movement areas.

2.2.2 The barriers should be marked for day use and adequately lit for night use. The lights of taxiways leading into work areas should be permanently **off** during the work period.

2.2.3 Guidance on the marking of unserviceable areas is contained in AC139-6*, Aerodrome Design Requirements (All Aeroplanes Conducting Air Transport Operations, All Aeroplanes above 5700 kg MCTOW),* and AC139-7*, Aerodrome Standards and Requirements— Aeroplanes at or below 5700 kg MCTOW Non-Air Transport Operations.*

2.3 Paved area cleanliness

2.3.1 Where work is conducted on, or involves traversing paved areas, the paving should be thoroughly inspected before being opened for aircraft use. Particular attention should be given to ensuring the general cleanliness of the surface and to the removal of debris.

2.3.2 Where aircraft are constantly using areas open to construction activity, regular inspection should be carried out to ensure that those areas are always clean for aircraft use.

2.4 Obstacle surfaces

2.4.1 Construction equipment, particularly tall equipment such as cranes, may breach obstacle clearance limits and the effects of this should be considered when working plans are being formulated.

2.5 Marking and lighting

2.5.1 Tall equipment such as crane jibs should be marked and, if the aerodrome is opened for night operations, lit.

2.5.2 Guidance on the marking and lighting on obstacles is contained in AC139-6.

2.5.3 If work is of prolonged duration, ongoing monitoring should be maintained to ensure that the marking and lighting of obstacles and unserviceable areas remain fully functional. This is particularly important for marking and lighting indicating a displaced threshold.

2.6 Electronic facilities

2.6.1 Equipment in the vicinity of electronic facilities, for example instrument landing systems and radars, can adversely affect the performance of these facilities.

2.6.2 Close cooperation between the aerodrome operator, the facility operator and contractors should be established and maintained to ensure that, if entry to critical protected

areas around these facilities is necessary, measures are in place to maintain the integrity of the service or to remove the facility from service.

2.7 Work activity during low visibility

2.7.1 During low visibility procedures, aerodrome operators should assess whether construction and maintenance activities can continue safely. Activities that could affect aerodrome lighting systems, navigational aids, communication systems, power supplies, or other infrastructure necessary for low visibility operations should be subject to additional controls.

2.8 Work activity on or adjacent to aerodrome movement areas

2.8.1 Suggested procedures for dealing with temporary hazards on or adjacent to aerodrome movement areas are given in Appendix C. It provides guidance material that should be used when preparing plans and specifications for work activities to be conducted in areas which may interfere with aircraft operations.

2.9 Reduction of runway distances

2.9.1 Work activity off the end of any runway, stopway, and clearway or safety area could reduce the runway distance available for aeroplane operations if the equipment used penetrates the obstacle free surfaces.

2.9.2 Affected aircraft operators must be provided with accurate revised runway effective operational lengths, and if the runway serves Group A aeroplanes (most aircraft in excess of 5700 kg MCTOW), the height and location of the temporary obstructions associated with the work should also be provided.

2.10 Notification of work

2.10.1 If the work restricts the availability of a runway or reduces the runway length available, advance notice should be given to the aerodrome's regular air transport operators. These aeroplane operators plan their schedules well ahead and need sufficient time to study the effect of reduced runway distances, or restrictions on the use of the runway, on their loading and schedule of operations.

2.10.2 The Aeronautical Information Service (AIS) should be provided with details of any work referred to above, including any limitations and restrictions applicable to aircraft operations. This will allow early promulgation of an AIP supplement, giving at least three months' notice to aircraft operators.

3. OPERATIONAL SAFETY

3.1 Introduction

3.1.1 Safety issues addressed in this AC are primarily related to aerodrome operations. They are not intended to cover workplace health and safety requirements for personnel.

3.1.2 Worksafe New Zealand is New Zealand's workplace health and safety regulator, and all work on aerodromes must comply with health and safety legislation administered by Worksafe.

3.2 Personnel safety

3.2.1 Construction personnel should be warned, in writing, of possible hazards when working on aerodromes. Jet-blast and noise are two of many aerodrome-specific hazards to be taken into account for managing personal safety. If necessary, signs should be posted to warn personnel to look out for approaching aircraft.

3.2.2 Protective equipment including high visibility clothing must be worn by all personnel.

3.3 Safety considerations

3.3.1 The following is a list of some, but not all the things that could affect operational safety during aerodrome works. These, plus any other issues and hazards that may be identified, should be considered when planning and carrying out the work:

(a) Minimum disruption of standard operating procedures for aircraft operations.

(b) Clear routes for rescue and firefighting to all active aerodrome movement areas.

(c) Procedures for notification, and authority to change safety-oriented aspects of the construction plan.

(d) Initiation, currency, and cancellation of NOTAM.

(e) Suspension or restriction of aircraft activity on aerodrome movement areas.

(f) Runway end and threshold displacement, 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, including additional equipment and personnel.

(i) Marking and lighting of construction equipment.

(j) Parking of construction equipment, and storage of material when not in use.

(k) Designation of responsible representatives for all involved parties, and their availability.

(l) Location for construction personnel vehicle parking, and their transportation to and from the work site.

(m) Marking and lighting of construction areas and temporary obstructions.

(n) Location of the construction offices.

(o) Location of the contractor plant.

(p) Designation of waste areas and disposal of waste.

(q) Debris clean-up responsibilities and schedule.

(r) Conspicuous identification of construction personnel and equipment.

(s) Location of haulage roads.

(t) Security control of temporary gates and relocated fences.

(u) Noise pollution.

(v) Regulation and control of explosives.

(w) Dust, smoke, steam, and vapour controls.

(x) Location and protection of utilities.

(y) Provision of temporary services or immediate repairs in the event of disruption to established utilities.

(z) Location of power and control lines for electronic and visual aids to navigation.

(aa) Additional security measures at a security designated aerodrome.

(bb) Marking and lighting of closed aerodrome movement areas.

(cc) Phasing of work.

(dd) Protection or shutdown of electronic and visual aids to navigation.

(ee) Notification to rescue and firefighting unit when working on water supplies.

(ff) Provision of traffic directors, aircraft marshallers, wing walkers, etc. to assure clearance in construction areas.

(gg) Provision of escort with “Follow Me” vehicles for route guidance.

4. OVERSIGHT OF WORK

4.1 Introduction

4.1.1 An oversight inspection programme for all aerodrome works should be implemented to:

(a) provide continuous monitoring to ensure ongoing compliance with established safety and other requirements, and

(b) identify any safety hazards, or deviations from requirements, and

(c) ensure remedial actions to maintain safety and compliance with requirements are implemented.

4.2 Inspections

4.2.1 Frequent inspections should be made by the aerodrome operator or a representative during all phases of the work to ensure that the work is being carried out in accordance with the prescribed MOWP.

4.2.2 The inspections should also ensure that no foreign object debris (FOD) is present on operational areas.

4.2.3 Any potential hazard should be brought to the attention of the responsible parties for immediate rectification. Where appropriate, the aerodrome ATS unit, if provided, or aircraft operators should be notified of the hazard.

4.3 Examples of hazardous and marginal conditions

4.3.1 Analysis of past accidents and incidents has identified many contributory hazards and conditions. The most recurring threats to safety during construction are:

(a) safety encroachments, and

(b) improper ground vehicle operations, and

(c) unmarked or uncovered holes and trenches in the vicinity of aircraft movement surfaces.

4.3.2 Some of the more commonly occurring conditions are:

(a) excavation adjacent to runways, taxiways, and aprons, and

(b) stockpiles of earth, construction material, temporary structures, and other obstacles in proximity to aerodrome movement areas and runway approach and take-off surfaces, and

(c) runway work resulting in lips greater than 25 mm on the runway surface, and greater than 76 mm between old and new surfaces at runway edges and ends, and

(d) heavy equipment operating or idle near aerodrome movement areas, and

(e) equipment or material that may degrade the performance or integrity of radio navigation aids near the facility, and

(f) tall but relatively inconspicuous objects, such as cranes, drills, etc. in critical areas, for example safety areas and runway approach and take-off surfaces, and

(g) improper or malfunctioning lights or unlighted aerodrome hazards, and

(h) holes, obstacles, loose pavement, rubbish, or other debris, on or near movement areas, and

(i) failure to maintain barriers and fences to prevent unauthorised access during construction, and

(j) improper marking or lighting of runways, taxiways, and displaced thresholds, and

(k) attractions for birds from exposed earthworks, rubbish, grass seeding, ponded water, etc. on or near the aerodrome, and

(l) inadequate or improper methods for marking temporarily closed movement areas including improper and unsecured barricades, and

(m) obliterated markings on active movement areas.

APPENDIX A – METHOD OF WORK PLAN (MOWP)

A.1 Introduction

A.1.1 The MOWP should be a written document, properly controlled and authorised, and made available to all parties involved with the works. The contents and level of detail should be adjusted as necessary to properly reflect the requirements for each project.

Somebody's Aerodrome

Project Title

Contents

1. Title Page
2. Works Information
3. Restrictions to Aircraft Operations
4. Restrictions to Works Organisation
5. Administration
6. Authority
7. Drawings
8. Distribution List

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A.2 Title page

A.2.1 The title should include:

(a) the aerodrome name, and

(b) the title of the works, and

(c) a brief description of the works if required, and

(d) the MOWP issue date and, if necessary, its amendment status.

A.3 Works information

A.3.1 Works information should include:

(a) an outline of the full scope of the works, and

(b) which facilities are affected, and

(c) the planned date and time of commencement, and

(d) the duration of each stage, and

(e) the date and time of completion, and

(f) the following statement:

"The actual date and time of commencement will be advised by NOTAM, to be issued no less than 48 hours before the work commences."

A.4 Restrictions to aircraft operations and the issue of NOTAMs

A.4.1 This section of the MOWP should be in a form that allows its separate issue to aircraft operators to permit those operators to have easy reference to the information that affects them.

Work stages

A.4.2 Any restrictions to aircraft operations on the manoeuvring area, or in the approach and take-off areas that are to be listed in the MOWP and should be shown in drawings of each stage of the works. When appropriate, show wing tip clearances so that works safety officers can readily identify risk areas during works.

A.4.3 When complex works are underway, a table showing the restrictions applicable to each stage of the works and for each type of aircraft operation should be included.

A.4.4 The table should outline the various work stages with start and completion dates and have a remark column to list details of special restrictions and the issue of NOTAMs for the information of pilots before flight.

Emergencies and adverse weather

A.4.5 Outline details, if any, of special arrangements to be made during works if emergencies arise or adverse weather conditions occur.

NOTAMs

A.4.6 The intended text of all planned NOTAMs associated with the aerodrome works should be included.

A.5 Restrictions of works organisation

General

A.5.1 Provide details of any restrictions on the carrying out of aerodrome works and requirements for the restoration of normal safety standards.

Personnel and equipment

A.5.2 When personnel and equipment are required to vacate the movement area for aircraft movements, specific mention of this fact should be made. This should include the withdrawal line or area for personnel and equipment, and the limitations on stockpiling of material, excavations and other relevant matters.

Access

A.5.3 The MOWP should identify the routes to and from the work areas and the procedures for entering any work areas within the movement area.

A.5.4 Particulars of routes to and from the work areas should be shown in drawings attached to the MOWP.

Aerodrome markers, markings and lights

A.5.5 Details of arrangements for the installation, alteration, or removal of aerodrome markers and lights in work areas and other areas affected by the aerodrome works should be shown on drawings attached to the MOWP.

Protection of electrical services

A.5.6 Set out the procedures for identifying dependencies and ensuring that utilities and transport services dependent on electrical services are not damaged.

Special requirements

A.5.7 Provide details of any special requirements arising during or on completion of aerodrome works. Examples include: arrangements for leaving paved surfaces swept and clean before leaving the works area, leaving bare soil compacted or protected from erosion, etc.

A.6 Administration

A.6.1 Provide the name of the project manager and works safety officers appointed by the aerodrome operator and the means of contact, including contact outside normal working hours.

A.7 Authority

A.7.1 Each MOWP should contain the following statement:

"This MOWP is authorised by [… aerodrome operator...] and all works will be carried out in compliance with these requirements."

A.7.2 The MOWP should be signed by the aerodrome operator or the project manager.

A.8 Drawings

A.8.1 Attach drawings which provide a visual reference for each stage of the work. The drawings should contain specific details including:

(a) work areas, and

(b) restrictions to aircraft; location of radio navigation aids and critical areas around these; and

(c) exact location of visual aids and markings, and

(d) details of the height and location of critical obstacles, and

(e) location of temporary taxiways, and

(f) access routes, and

(g) storage areas for material and equipment, and

(h) the location of utilities and other services which may be disturbed during the works.

A.9 Distribution list

A.9.1 The distribution list of the MOWP should include at least the following persons and organisations:

(a) the project manager, and

(b) the works safety officer(s), and

(c) the aerodrome security service, if any, and

(d) the aerodrome ATS unit, if any, and

(e) regular air transport operators who might be affected by the works, and

(f) aircraft operators based at the aerodrome, and

(g) the rescue fire service, if any, and

(h) contractors and subcontractors, if any.

APPENDIX B – WORKS SAFETY OFFICER

B.1 Introduction

B.1.1 The works safety officer is responsible for monitoring all activities on and around the works area, identifying issues or potential issues for safe aircraft operations, and initiating effective corrective actions.

B.2 Functions

B.2.1 The functions of the works safety officer are to:

(a) ensure the safety of aircraft operations in accordance with these directions and the MOWP; and

(b) ensure that, where applicable, the aerodrome works are notified by issue of a NOTAM and that the text of the NOTAM is as set out in the applicable MOWP, and

(c) where applicable, daily, advise the aerodrome ATS unit of updated works information necessary for the safety of aircraft operations, and

(d) discuss, daily, with the project manager any matters necessary for the safety of aircraft operations, and

(e) 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 MOWP, and

(f) ensure that vehicles, plant and equipment carrying out aerodrome works are properly marked and lit or are under works safety officer supervision or within properly marked and lit work areas, and

(g) ensure that all other requirements in the MOWP relating to vehicles, plant and equipment and materials are complied with, and

(h) ensure that access routes to work areas are in accordance with the applicable MOWP, are clearly identified, and that access is restricted to those routes, and

(i) ensure that excavation is carried out in accordance with the MOWP to:

  (i) avoid damage to any utility or other service

  (ii) avoid loss of calibration of any precision approach or landing system, or any other aid to navigation, and

(j) report immediately, to the aerodrome ATS unit and the aerodrome operator, any incident, or damage to facilities that may affect the ATS or the safety of aircraft, and

(k) remain on duty at the works area while work is in progress and the aerodrome is open to aircraft operations, and

(l) ensure that the aerodrome ATS unit is kept informed of the radio call signs of the vehicles used by the works safety officer, and

(m) require the immediate removal of vehicles, plant and personnel from the movement area where necessary for the safety of aircraft operations, and

(n) ensure that the movement area is safe for normal aircraft operations following removal of personnel, vehicles, plant, equipment, and rubbish from the works area, and

(o) ensure that floodlighting or any other lighting required to carry out aerodrome works is shielded so as not to cause glare for pilots.

APPENDIX C –TEMPORARY HAZARDS

C.1 Introduction

C.1.1 This appendix contains requirements for dealing with temporary hazards on or adjacent to aerodrome movement areas.

C.1.2 The term *temporary hazard* includes construction and maintenance work in progress adjacent to aerodrome movement areas and any plant, machinery and material associated with such work. It also includes aircraft immobilised near runways and works associated with their recovery.

C.1.3 The following guidelines can be adapted to the needs of a particular project and not incorporated verbatim into project specifications.

C.2 Responsibility

C.2.1 The aerodrome operator holds the prime responsibility for determining the degree of the hazard and the extent of acceptable obstacles, so should consider the:

(a) available runway length and the associated obstacle limitation surfaces.

(b) types of aircraft using the aerodrome and distribution of aircraft movements.

(c) whether or not alternative runways are available.

(d) the possibility of cross-wind operations, bearing in mind seasonal variations.

(e) the weather conditions likely to prevail at the time, such as visibility and precipitation, such as rain or hail. Precipitation can also have significantly adverse effects on the braking coefficient of the runway, and thus an aircraft's controllability during ground run.

(f) the possibility of a compromise between a reduction in runway length and some degree of obstacle infringement in the established take-off climb and approach surface.

C.2.2 Significant obstacles in the take-off flight path area and any reduction in the runway effective operational lengths must be promulgated by NOTAM.

C.2.3 All temporary hazards should be marked and lit as specified in AC139-6 *Aerodrome Design*.

C.3 Work zones

C.3.1 The following work zones are established around runways, when use of the runway is permitted to continue while works are carried out. Outside the zones no restrictions need to be applied other than maintaining the normally required obstacle-free surfaces.

Zone 1. This zone is rectangular. It symmetrically surrounds the runway. Its sides are 45 m from the runway centreline and its ends 60 m beyond the runway ends.

Zone 2. The ends coincide with the ends of Zone 1, except that where there is a clearway the end is extended to include it. The sides are 75 m from the runway centreline.

Zone 3. This zone is only required at aerodromes having a runway strip wider than 150 m. It extends to the edge of the runway strip, either 110 m or 150 m from the runway centreline where appropriate.

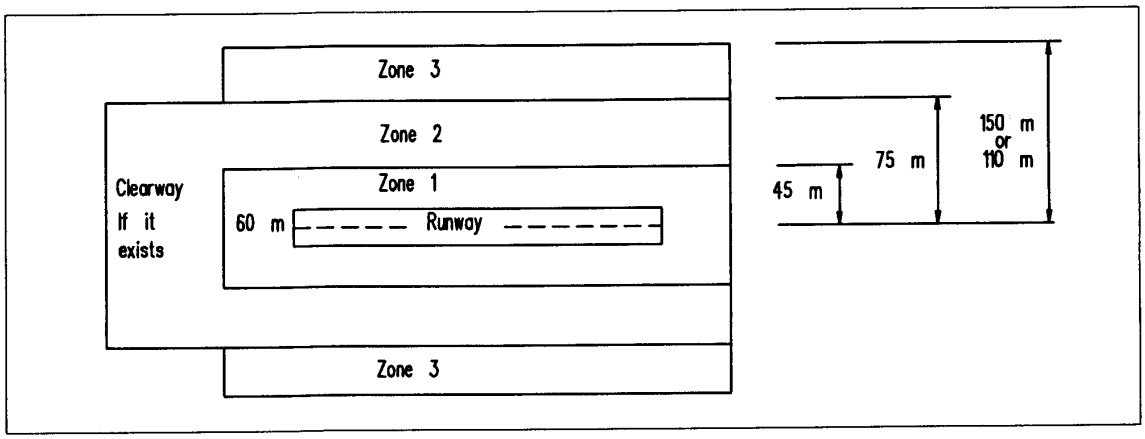


Figure 1. Zones surrounding a runway

C.4 Control of personnel, equipment and vehicles

C.4.1 All drivers and works personnel should be briefed on their responsibilities, and the procedures that must be followed. Consider whether it is appropriate to escort with "Follow Me" vehicles as an option.

C.4.2 Vehicles carrying gravel should not be permitted on runways or taxiways without permission, and anything dropped should be immediately swept up.

C.4.3 Vehicles should be suitably marked or lit. Refer to AC139-6.

C.4.4 ATS, if any, should advise pilots on approach, or before take-off, when personnel will be working at a particular location within the runway strip area. This is in addition to normal NOTAM action.

C.5 Work on runways or runway strips

C.5.1 The following criteria relate to work on the runway and runway strip.

Zone 1. Personnel and light-weight frangible equipment used in the calibration of landing aids may be left in position clear of any aircraft movements. Vehicles and equipment should be moved to one side of the runway:

(a) For turbojet movements, to the outer edge, or clear of, Zone 2.

(b) For other aircraft movements, to the outer edge, or clear of, Zone 1.

Zone 2. All equipment and personnel should be at the outer edge or clear of Zone 2 except that work may continue without interruption during the movement of aircraft other than turbojets when the crosswind is less than 10 kts.

Zone 3. The only consideration in this zone is to identify whether the presence of work equipment and vehicles could interfere with the integrity of the electronic approach aids. If such an area is identified, equipment and vehicles should be cleared from the area when the aids are being used by an approaching aircraft.

C.6 Work on taxiway or taxiway strips

C.6.1 When the taxiway is in use, vehicles, equipment, and personnel should be moved to give a wingtip clearance of at least 10 m. The distance from a taxiway for wingtip clearance will vary significantly depending on aircraft type. For example, a Boeing 747 has a wingspan of 60 m while a commuter aircraft may be 25 m. When practical and appropriate, wingtip clearance (of expected aircraft) near works can be marked on site, or on plans, sufficient for works staff to be aware of the clearance required.

C.7 Work on approach lighting area

C.7.1 The procedures for work in Zones 1 and 2 detailed in section C.5 apply for work on approach lighting in those areas.

C.7.2 For work outside the zones, vehicles and equipment should not intrude above the plane of the approach lights. Any equipment intruding above the plane should be withdrawn when the runway is in use, unless the runway threshold has been displaced to allow for its height.

C.8 Trenching work

C.8.1 The following requirements for trenching work are in addition to those detailed in section C.5.

Zone 1. Work should be limited to one side of the runway at a time, and excavation of any trench should be limited as follows:

(a) A trench may be open with a maximum width of 300 mm but the open area of the trench should not exceed 9 m^2, for example 300 mm x 30 m or 200 mm x 45 m.

(b) When the trench lies almost parallel with a runway, or is within 10º either side of runway alignment, a second trench at right angles to, and extending from the first trench to Zone 2, may be open to a maximum width of 200 mm.

(c) During aircraft movements any open trenches within 10 m of the runway edge should be covered with load bearing steel plates. They should be adequately held on the ground and marked by securely fixed cones at a maximum spacing of 6 m. The plate covering should exceed the dimensions of the excavation by a minimum of 150 mm on all sides. If this cannot be done the runway should be closed.

The following additional conditions apply if there are night operations:

(d) Any trench should be backfilled and consolidated before ceasing work for the day. A maximum length of 3 m may be left unfilled but covered overnight as provided in paragraph (c) above, and marked with red obstruction lights.

(e) Any materials not associated directly with the work in progress should be removed from the zone during the period of aircraft operations.

(f) Spoil removed from a trench should be located on the side away from the runway and the maximum height should not exceed 200 mm. For trenches at right angles to the runway centre line the spoil should be placed on the side remote from the nearest landing threshold. If it is necessary to place the spoil on both sides of the trench the maximum height should not exceed 200 mm.

At the runway end:

(a) Any trench across the end of the runway should not exceed 300 mm in width. During daylight hours only, a maximum length of 3 m may be left unfilled during an aircraft movement but should be covered with load bearing steel plates adequately held on the ground and marked by securely fixed cones at a maximum spacing of 6 m. The plate covering should exceed the dimensions of the excavation by a minimum of 150 mm on all sides. If this cannot be done, then the runway should be closed.

(b) Spoil removed from a threshold trench should be removed to a point at least 10 m clear of the runway or a displaced landing threshold should be declared by NOTAM and marked.

Zone 2. For a Code Number 4 runway which is dry with not more than 15 kt crosswind component, or for other runways with 10 kt crosswind component, the excavation of trenches in this zone should be limited to:

(a) A trench parallel to the runway may be open with a maximum width of 300 mm and a length not exceeding 100 m:

(b) Two trenches at right angles to the runway may be open with a maximum width of 300 mm and a total length of 100 m provided that the trenches are at the same end and same side of the runway, and

(c) Spoil removed from a trench should be located on the side away from the runway, its maximum height should not exceed approximately 500 mm, and

(d) For trenches at right angles to the runway centreline, the spoil should be located on the side remote from the closer landing threshold and the maximum height should not exceed approximately 300 mm. If it is necessary to place the spoil on both sides of the trench, then the maximum height should not exceed approximately 300 mm.

C.9 Work on rapid exit or normal taxiways

C.9.1 Work on or close to any taxiways should conform to the requirements relating to the zone in which that part of the taxiway lies.

C.9.2 Where practicable, until work is complete, the taxiway should be closed to aircraft movements and pilots advised by radio and NOTAM.

C.9.3 If it is not practicable to close the taxiway while work is being carried out, pilots should be advised by NOTAM and radio to reduce taxiing to walking speeds within 50 m of the works.

C.9.4 The work should be carried out as follows—

(a) A trench, with a maximum width of 300 mm, may be open on one side only to the edge of the taxiway, and the open area of the trench should not exceed 9 m^2, for example 300 mm x 30 m or 200 mm x 45 m.

(b) If trenching is required on both sides of the taxiway, the trench on one side should be covered with load bearing steel plates which are adequately held on the ground and marked by securely fixed cones at a maximum spacing of 6 m. Where the trench is at right angles to the taxiway and its width is 300 mm or

less, the trenches on both sides of the taxiway can remain open. The plate covering should exceed the dimensions of the excavation by a minimum of 150 mm on all sides.

The following additional conditions apply if there are night operations:

(c) Any trench should be backfilled and consolidated before ceasing work for the day except that a maximum length of 3 m can be left unfilled and covered overnight as provided in paragraph (b) above, and marked with red obstruction lights.

(d) Any materials not associated directly with the work in progress should be removed from the taxiway strip area during the period of aircraft operations.

(e) Spoil removed from a trench in Zone 1 should be located on the side away from the runway and the maximum height should not exceed 200 mm. For trenches at right angles to the taxiway centre line, the spoil should be placed on the side furthest away from the nearest landing threshold. If it is necessary to place the spoil on both sides of the trench, the maximum height should not exceed 200 mm.

C.10 Work on visual approach slope systems

C.10.1 These requirements when working on visual approach slope systems are additional to those in section C.5.

C.10.2 During some aircraft operations VASIS or PAPI may be deactivated, however—

(a) for all international arrivals, the normally available VASIS or PAPI should be provided, and

(b) for domestic operations by turbojet aeroplanes, one side of a VASIS or PAPI or T-VASIS should be provided.

C.10.3 The installation of light bases for VASIS and PAPI should be carried out as follows:

Zone 1

(a) Only one base excavation, with a maximum area of 9 m^2, should be opened at any one time.

(b) If the work is within 10 m of the runway edge, then the concrete should be cast on the day that the excavation is made, and covered with steel plates until it can withstand an aircraft running over it. A cover-plate should then be placed and bolted in position. A further excavation may then be made.

(c) Spoil within 10 m of the runway edge should be removed. Spoil beyond this distance should be placed on the side away from the runway to a maximum height not exceeding 200 mm.

The following additional conditions apply if there are night operations:

(d) Any excavation should be backfilled and consolidated before ceasing work for the day except that a maximum excavation area of 3 m^2 may be left unfilled but covered overnight as in paragraph (b) above and marked with red obstruction lights.

(e) Any materials not associated directly with the work in progress should be removed from the strip area during periods of aeroplane movements.

(f) Spoil removed from an excavation in Zone 1 should be located on the side away from the runway and the height should not exceed 200 mm. If it is necessary to place spoil on both sides, or at the ends of the excavation, the maximum height should not exceed 200 mm.

Zone 2

(a) Only one base excavation, with a maximum area of 9 m^2, should be opened at any one time.

(b) Spoil removed from the excavation should be placed on the side away from the runway, to a height not exceeding 500 mm. If it is necessary to place spoil on both sides, or at the ends of the excavation, the maximum height should not exceed 300 mm.

C.10.4 Work on runway lights should be carried out as follows:

(a) Excavations for not more than two bases should be made at any one time. During aeroplane movements, any holes within 10 m of the runway edge should be covered by load-bearing steel plates which are adequately held on the ground and marked by securely fixed cone markers spaced at intervals of 6 m. The plate covering should exceed the dimensions of the excavations by 150 mm on all sides.

(b) Concrete should be cast on the day that the excavation is made, and covered with steel plates until it can withstand an aircraft running over it. A cover plate should then be placed and bolted in position. A further excavation may then be made.

C.11 Crashed or immobilised aircraft

C.11.1 In the event of a crashed or immobilised aircraft the following criteria should be used.

Zone 1. The runway should be closed when any part of a crashed or immobilised aircraft is in Zone 1.

Zone 2. When any part of a crashed or immobilised aircraft is in Zone 2 the runway may be in use during daylight hours in visual flight rule weather conditions provided the runway is dry and the crosswind does not exceed 10 kts.

The runway should be closed to all movements at night and in instrument flight rule weather conditions.

If the clearway is infringed by an obstruction, then the new effective operating length (EOL) will need to be calculated using the appropriate obstacle-free gradient over the immobilised aircraft.

Zone 3. When any part of a crashed or immobilised aircraft is in Zone 3, instrument approaches should be limited to non-precision approach minima.

C.11.2 If the runway strip area infringement is such that a reduced runway can be used, the new EOL will need to be calculated.

C.11.3 The EOL which can be declared will depend on the location of the immobilised aircraft within the runway strip area and the residual portion of the runway that can be considered available.

C.11.4 The type and size of aircraft which would use the remaining runway should be considered. For example, a crashed aircraft 100 m from the end of a 3000 m runway could leave an adequate operational length for many aeroplanes.

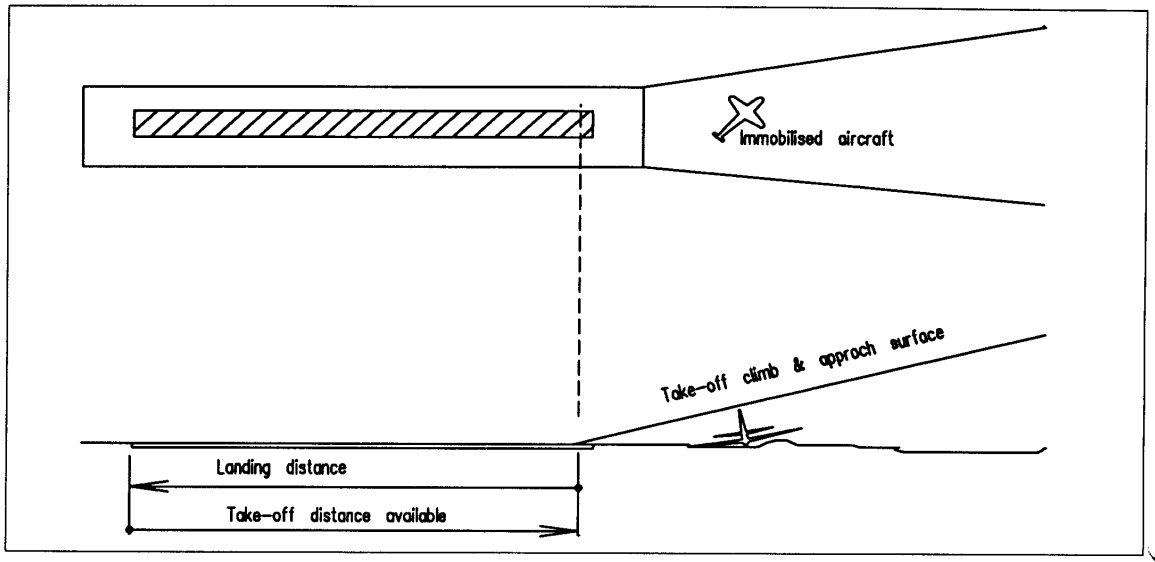


Figure 2. Immobilised aircraft off the end of the runway

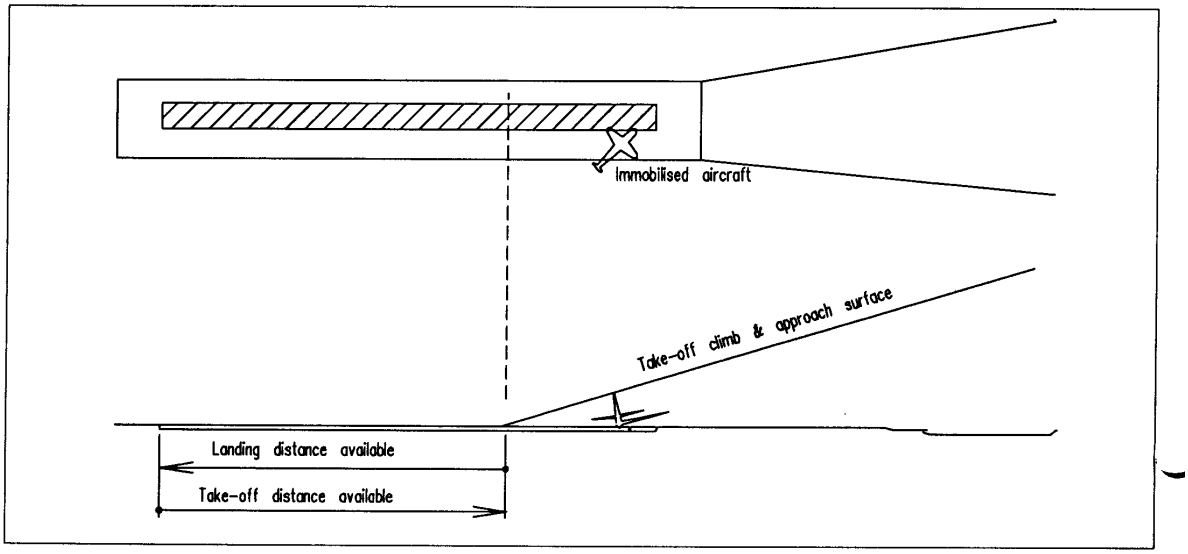


Figure 3. Immobilised aircraft in the strip

C.12 Grass mowing in runway strip

C.12.1 Mowing should be done in the upwind half of the runway strip. When the swaths nearest the runway are being cut, the mowing circuit should be towards the aircraft landing or taking off so that the driver can see the moving aircraft.

Zone 1. Mowing should not take place in Zone 1 when the runway is in use.

Zone 2. Mowing may be carried out in daylight hours during the operation of Code A, Code B or Code C aeroplanes provided that the crosswind component does not exceed

10 kts and the runway is dry. Codes are explained in AC139-6 *Aerodrome Design Requirements.*

The mower should move to the outer edge or clear of the zone for movements by larger aircraft, when the crosswind is greater than 10 kts, or the runway is wet.

Mowing in the area beyond the approach end of the runway should not be permitted during aircraft landings.

Mowing in the area beyond the take-off end of the runway should not be permitted during aircraft take-offs.

APPENDIX D – RELATED INFORMATION

D.1 Documents

ICAO

Annex 14 - Part 1 - Aerodrome Design and Operations

Doc 9137 - Airport Services Manual - Part 8 - Airport Operational Services

CAA

Civil Aviation Rule Part 139*, Aerodromes - Certification, Operation and Use*

AC139-6, *Aerodrome Design Requirements: All Aeroplanes Conducting Air Transport Operations All Aeroplanes Above 5700 kg MCTOW*

AC139-7, *Aerodrome Standards and Requirements - Aeroplanes at or below 5700 kg MCTOW Non-Air Transport Operations*

AC139-10, *Control of Obstacles*

D.2 Other references

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