AERODROME CERTIFICATION THREE STAGE PROCESS

ICAO ASIA/PACIFIC FIFTH AERODROME ASSISTANCE WORKING GROUP

AP-AA/WG/5

13-16 MARCH 2023

KURUMBA RESORT, MALDIVES

PRESENTED BY MALDIVES

MCAA requirement on Aerodrome Certification

139.01 Use of Aerodrome

An aircraft shall not take off or land at any place in the Republic unless the place has been certified as an aerodrome under this Regulation

139.05 Requirement for an Aerodrome Certificate

(a) The operator of an aerodrome intended for public use, and

(b) The passenger-seating capacity of the aircraft employed in the operations exceeds 30 seats shall in accordance with the national requirement be in possession of an aerodrome certificate.

What does Certification Assure?

When an aerodrome is granted a certificate, it signifies to aircraft operators and other organizations operating on the aerodrome;

1. the aerodrome **meets the specifications** regarding the facility and its operations, and

2. the operator has the **capability to maintain these specifications** for the period of validity of the certificate

The certification process also establishes the baseline for continued monitoring of compliance with the specification.

MCAA regulations related to Aerodrome certification

MCAR 139	Aerodrome Rules
MCAR 100	Integrated Safety Management Systems
ASC 139-5	Aerodrome Standards
ASC 139-3	Maldives Runway Safety Programme
ASC 139-4	Formation of Local Runway Safety Teams
ASC 139-6	Wildlife Control Programme
ASC139-7	Notification of Changes to aerodromes
ASC139-8	Assessment of runway surface friction characteristics
ASC139-9	Procedure for reporting of tall structures
ASC 139-11	Guidance on Aerodrome Certification for prospective Aerodrome Certificate Holders

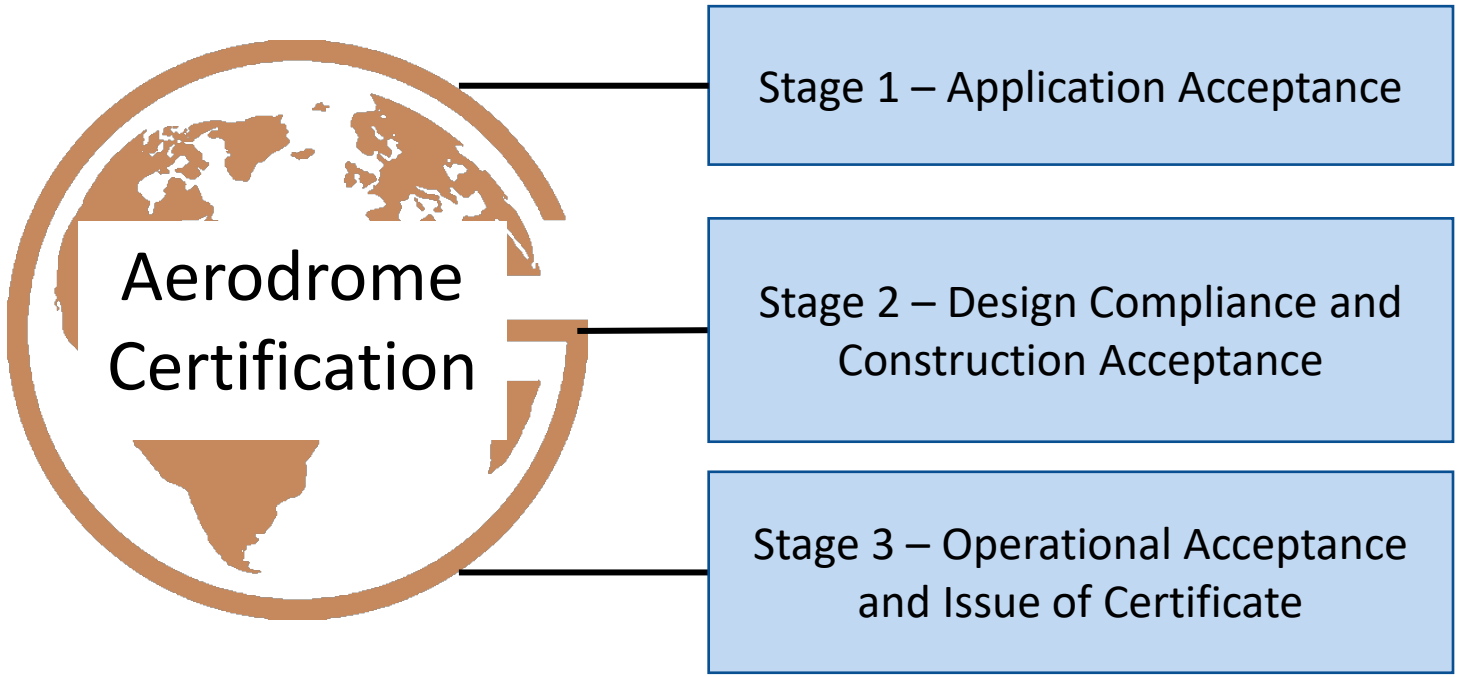
MCAR 139 Aerodrome Rules & ASC 139-5 Aerodrome Standards

- MCAR 139 prescribes the primary requirements for aerodrome certificate.

- ASC 139-5 has technical specifications and requirements associated with:
  - Design of Aerodrome Facilities
  - Aerodrome Operational Services
  - Aerodrome Operational Safety Issues

- ASC 139-11 - Guidance on Aerodrome Certification for prospective Aerodrome Certificate Holders
  - describes in depth the three stages of Certification

Aerodrome Certification - A three-stage process



Why?

- Ensure compliance at earlier stages
- Provide technical guidance for the aerodrome certification process
- Multiple stakeholders involved in airport development process. This process brings developers and operators work together with CAA.
- A formal process to assist operators/developers with the queries during earlier stages
- Avoid unnecessary costs incurring at last minute for rectifications
- To tackle short durations certification timelines

Stage 1 | Application Acceptance

The purpose of the Stage 1 acceptance is to allow the applicant to commence detailed planning for a new aerodrome or compliance assessment for introducing changes to an existing aerodrome.

During this stage:

1) intended scope of operations is identified
    a) type of aircraft intended for the operation (Design Aircraft);
    b) Proposed routes
    c) instrument approach procedures,
    d) navigation and communications facilities;
    e) Nature of operations passenger/cargo/mail, day, night, VFR or IFR, Intl' operations/domestic operations;
2) A thorough review of passenger terminal is conducted
3) Aerodrome reference code is established
4) A compliance review of aerodrome physical characteristic is conducted
5) An initial obstacle assessment is conducted
6) Level of Air Traffic Service to be provided is identified
7) A concept acceptance for the overall concept design is issued

Stage 1 | Application Acceptance

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MALDIVES CIVIL AVIATION AUTHORITY
Velaanaage Office Building, 2nd Floor
Male' 20096
Republic of Maldives

Aerodrome Concept Approval Application Form

Section 1 | Applicant details

Legal name of Applicant: Ministry of National Planning, Housing and Infrastructure

Organization: Ministry of National Planning, Housing and Infrastructure

Address: Ameenee Magu, Maafannu, Male', 20392, Republic of Maldives

Telephone: +(960) 4004-753 Fax: +(960)4004-700

Email: secretariat@planning.gov.mv Website: www.planning.gov.mv

Section 2 | Nature of Development

New Development ☐ Change to an exisitng aerodrome ☑

Desired date of commencement: ..... Aerodrome Name: Maafaru International Airport

Proposed Aerodrome Name: ..... ICAO 4 Letter Code: VRDA

Location of Aerodrome: .....

Section 3 | Contact Focal Point

Name: Ibrahim Shihan Contact Number: +(960)7850909

Designation: Engineer Email : ibrahim.shihan@planning.gov.mv

Section 4 | Ownership of the Aerodrome Land

This section is mandatory for new airport developments.

Are you the owner of the aerodrome site? Yes ☐ No ☑

If NO- please state:

Details of the rights you hold over the site: Development rights

The period for which these rights, including terminating date: December 2023

The name and address of the owner or the tenant whose permission has been obtained for the site to be used as an aerodrome: Island Aviation Services Limited

Section 5 | Nature of Operations

International	☑	Domestic	☐	Passenger Service	☑
Day Use Only	☐	Day/Night Use	☑	Air Freight or Mail	☐
IFR Traffic	☑	VFR Traffic	☐	Maintenance or Positioning	☐

Passenger terminal capacity: 100 Pax/ Hour

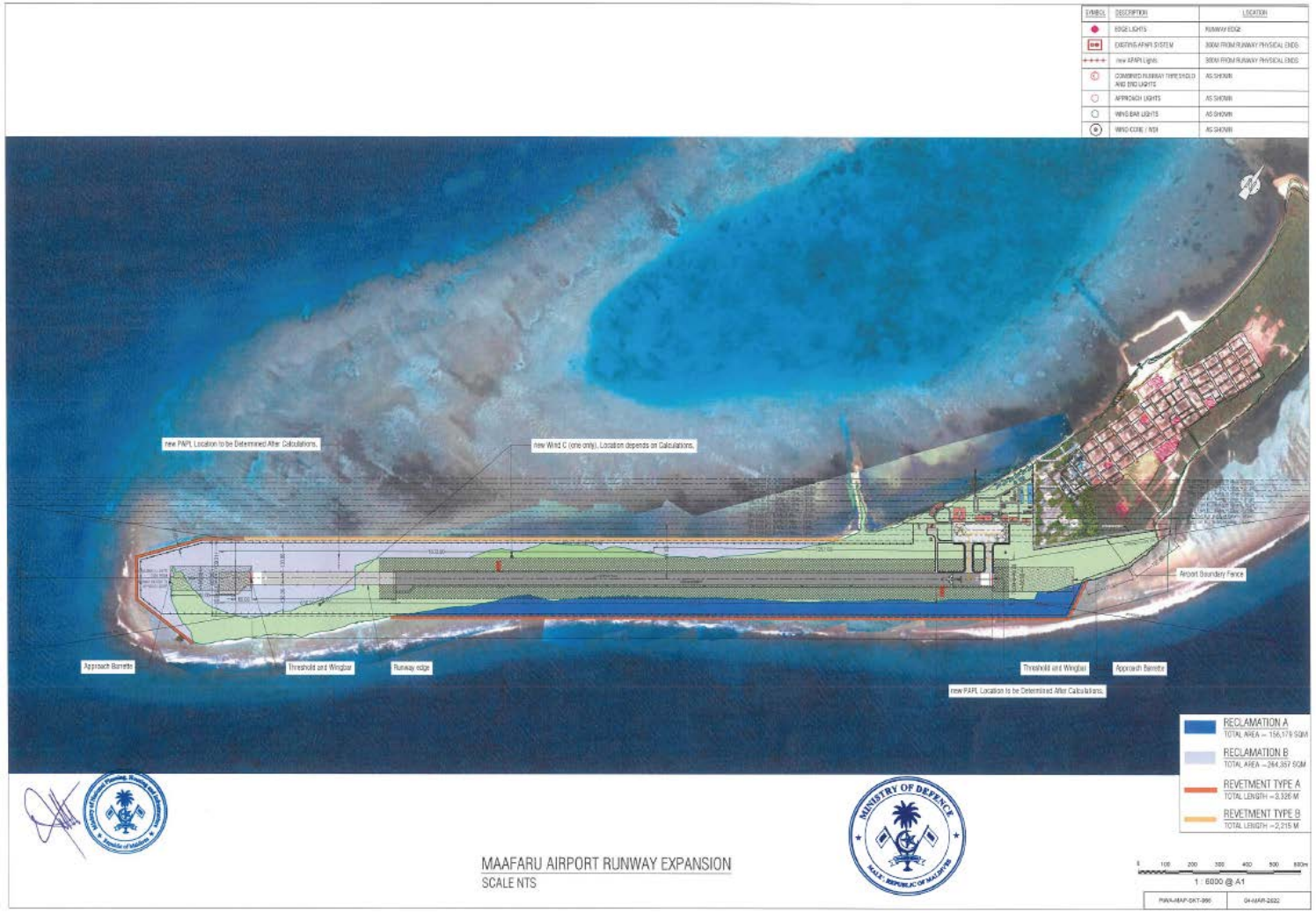
Is the terminal designed to accommodate Persons with reduced mobility? Yes ☑ No ☐

Customs, Immigration & Quarantine (CIQ) YES ☑ NO ☐

1

AIRPORT BASIC CONCEPT & BUILDING HEIGHT APPROVALS				
BASIC INFORMATION				
1	Name of Aerodrome	Maafaru International Airport		
2	Location	N.Maafaru		
OPERATIONAL REQUIREMENTS				
1	Critical Aircraft	Boeing 777-300ER		
2	Aerodrome Reference Code	4E		
3	Higher Code Aircrafts to be Operated			
PHYSICAL CHARACTERISTICS				
1	Runway Length:	2780m		
2	Runway Width:	45 m		
3	Strip Length:	2850 m		
4	Strip Width:	280 m (140 m either side of the centreline)		
5	Taxiway Length:	112.5m or as agreed		
6	Taxiway Width:	23 m		
7	Apron Length:	201.6 m or as agreed.		
8	Apron Width:	70 m or as agreed		
9	Stopway Length:	-		
10	Stopway Width:	-		
11	Runway End Safety Area (RESA) Length:	240 m		
12	Runway End Safety Area (RESA) Width:	90 m		
13	Transverse gradient:	1.5% for Runway & Taxiway, 0.75% for Apron		
14	Transitional surface:	1:5 slope		
15	Approach slope:	2.00%		
16	Approach Divergence angle:	15%		
17	Take off Climb Slope:	2%		
18	Pavement Classification (PCN):	To be determined after pavement design		
19	Designation no:	24/06		
20	Subgrade Strength Category	To be determined after pavement design		
PROPOSED BUILDING HEIGHT				
Buildg. No.	**Building Name**	**Distance from RWY CL to the edge of the building (meters)**	**Height of the Building (meters)**	**Building Height Allowed (meters)**
	Proposed Buildings			
1	NA	NA	NA	NA
2				
3				
4				
5				
6				
7				
8				
DECLARED DISTANCES				
1	TORA (in meters)	2850		
2	TODA (in meters)	2850+300 (clearway) = 3150m		
3	ASDA (in meters)	2850		
4	LDA (in meters)	2850		
PREPARED BY				
1	Ibrahim Shihan		Engineer Ministry of National Planning, Housing and Infrastructure	
2	Date: 23.08.2022			
CHECKED & APPROVED				
1	Fathmath Ramiza / MCAA	(Signature)	Director Air Navigation and Aerodromes	
2	Date:			

Stage 1 | Application Acceptance



Stage 2 | Design Compliance and Construction

The purpose of the Stage 2 acceptance is to allow the applicant to commence actual construction or remedial works. The Stage 2 submission will provide the information on the detail design of the aerodrome.

During this stage:

1) A review the detailed design of aerodrome (Markings, Lightings, Electrical Systems)
2) A comprehensive assessment of obstacle limitation surface is conducted
3) Environmental clearances obtained
4) Independent consultant engineer is appointed by developer to oversee the construction
5) Design compliance and construction acceptance is issued

Stage 2 | Design Compliance and Construction

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MALDIVES CIVIL AVIATION AUTHORITY
Velaanaage Office Building, 2nd Floor
Male' 20096
Republic of Maldives

Aerodrome Design and Construction Acceptance Application Form

Important: This form is used;
1) to request "Stage 2- Design Compliance and Construction Acceptance" for new aerodromes in accordance with ASC 139-11
2) to submit "Part 1 and Part 2" outlined in ASC 139-7 (certified aerodromes)

Section 1 | Preamble

Name of the Aerodrome: .....

Aerodrome Concept Acceptance Reference/ Date: .....

Section 2 | Independent Engineer

Name: ..... Contact: .....

Designation: ..... Organization: .....

Email Address: ..... Engineer License Number: .....

Section 3 | Supporting Documents

- ☐ EIA Decision Statement
- ☐ Compliance Matrix
  Matrix must demonstrate compliance with design and construction standards for an aerodrome prescribed in ASC 139-5 appropriate to the scope and scale of the of the proposed operations.
- ☐ Drawings to support the compliance matrix
- ☐ Obstacle Limitation Surface Assessment

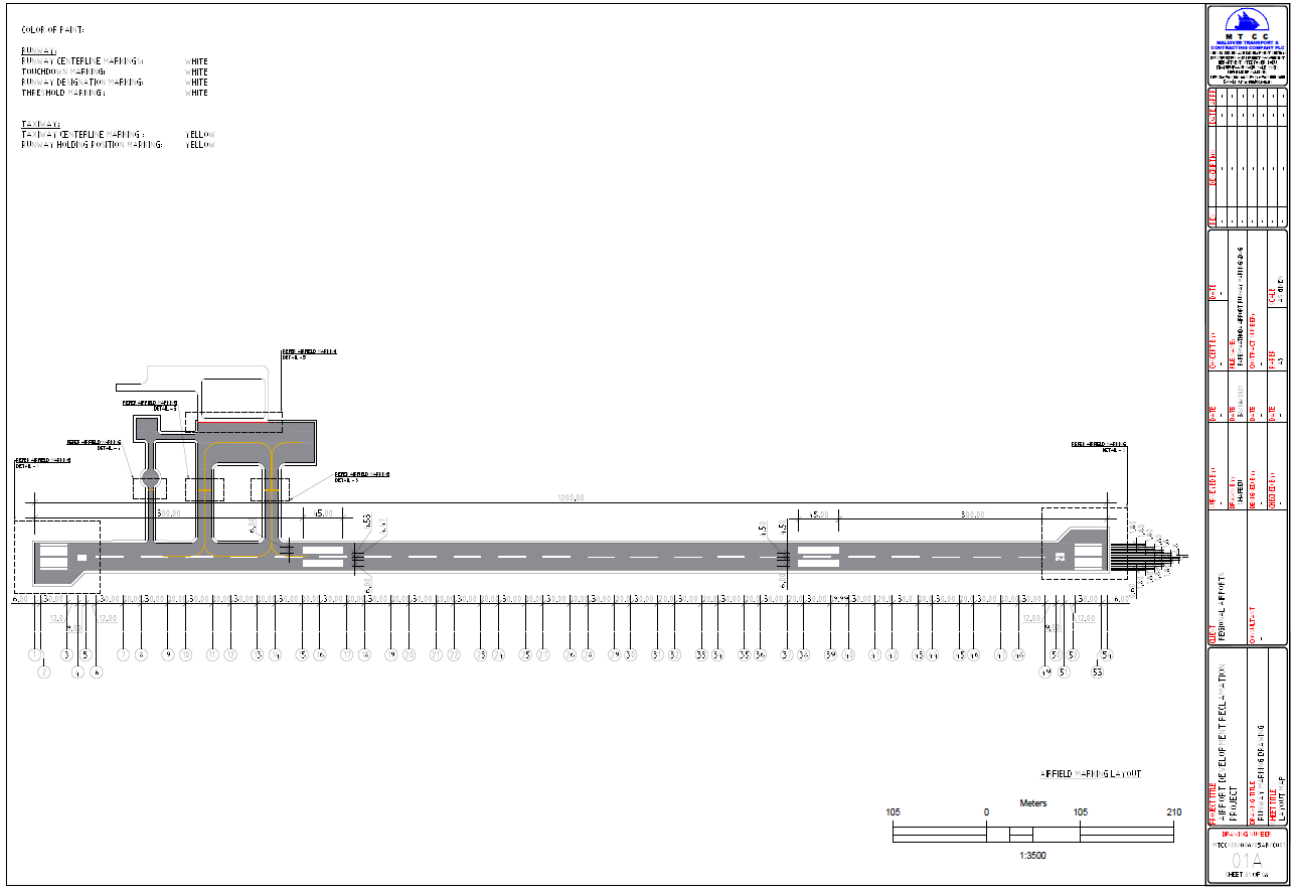
Certified aerodromes submitting the application under ASC 139-7, depending on the nature of change, may not be required to submit EIA and OLS Assesment.

Certified aerodromes notifying changes to CAA under ASC 139-7 shall submit:

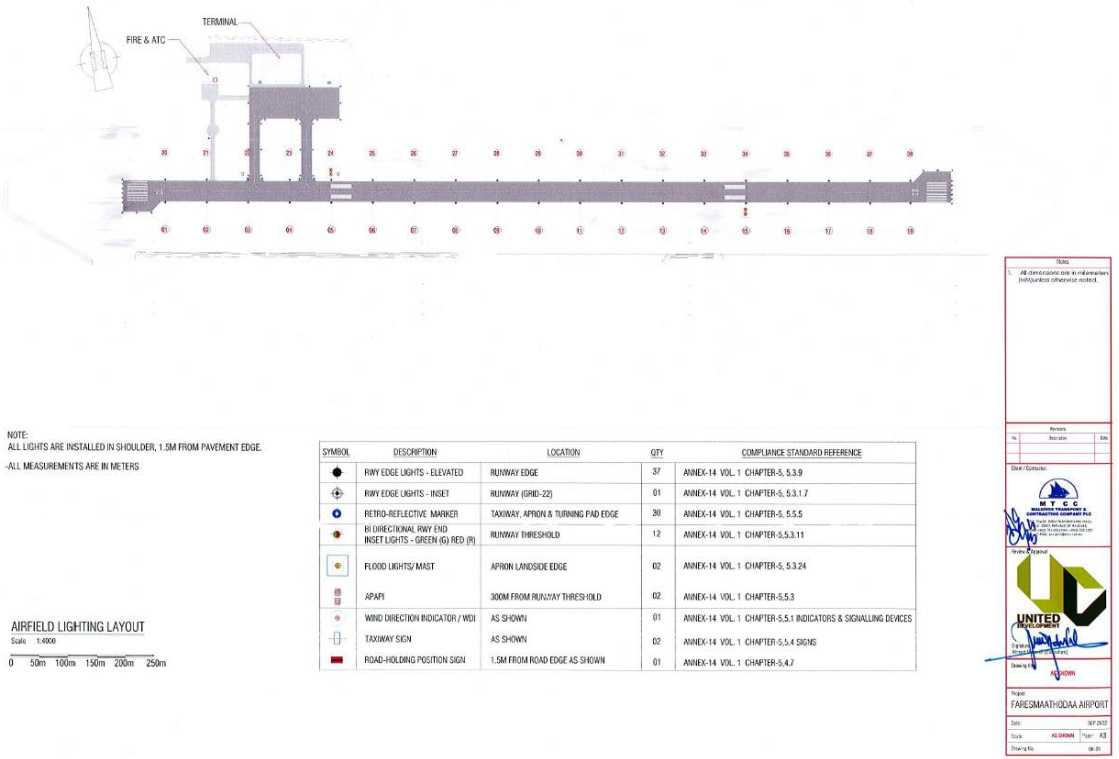
- ☐ Safety assurance documentation (transition period)

Documents required during construction

Monthly photographic progess report.



Stage 2 | Design Compliance and Construction



Stage 3 | Operational Approval and Grant of certificate

The purpose of the Stage 3 is to provide the applicant with an operational acceptance of the aerodrome and for aircraft operations to commence.

The Stage 3 submission provides information on the completed aerodrome along with the Aerodrome Manual, final compliance matrix and other supporting documentation.

During this stage:

1) Aerodrome Manual, Emergency Plan & SMS is reviewed and approved
2) Surveyed aerodrome data is verified and sent for publication
3) A technical inspection of aerodrome facilities and equipment is conducted by CAA
4) On-site audit is conducted to:
    1) A technical inspection of aerodrome facilities
    2) Verify the aerodrome manual and its procedures
    3) Check training and competency of the personnel
    4) Verify the coordination arrangements with other service providers (ATS, AIS, Security)
5) Findings are generated by CAA for the non-compliances
6) Corrective Action Plan (CAP) submitted by the operator
7) Aerodrome certificate is issued based on the corrective action plan

Stage 3 | Operational Approval and Grant of certificate

MALDIVES CIVIL AVIATION AUTHORITY
Velaanaage Office Building, 11th Floor
Male' 20096
Republic of Maldives

AERODROME CERTIFICATE APPLICATION FORM

1. Applicant details

Name of applicant: Faresmaathodaa Airport
Organization: Regional Airports Co Ltd
Address: H.Suez, Seventh Floor
Telephone: 3306969 Fax: -
Email: info@airports.mv Website: www.airports.mv

2. Aerodrome details

Name of aerodrome: Faresmaathodaa Airport
Address of Aerodrome: G.dh Faresmaathodaa,
WGS84 Latitude and Longitude of Aerodrome: 0° 11' 33.06" N 73° 11' 49.97" E
Bearing and distance from nearest city or populous area: Approximately 760.8m / 105°3'1" Magnetic bearing - from Gdh Faresmaathodaa
Does any public or private right of way exist on or near the proposed aerodrome? **Yes** ☐ **No** ☑
If there is a risk of interference with private rights, please give details of any agreement made with the holder of the rights for the use of the site as an aerodrome.

3. Details to be shown in the certificate

Aerodrome name: Faresmaathodaa Airport
Aerodrome operator: Regional Airports Co Ltd

4. is the applicant the Owner of the Aerodrome site: **Yes** ☑ **No** ☐

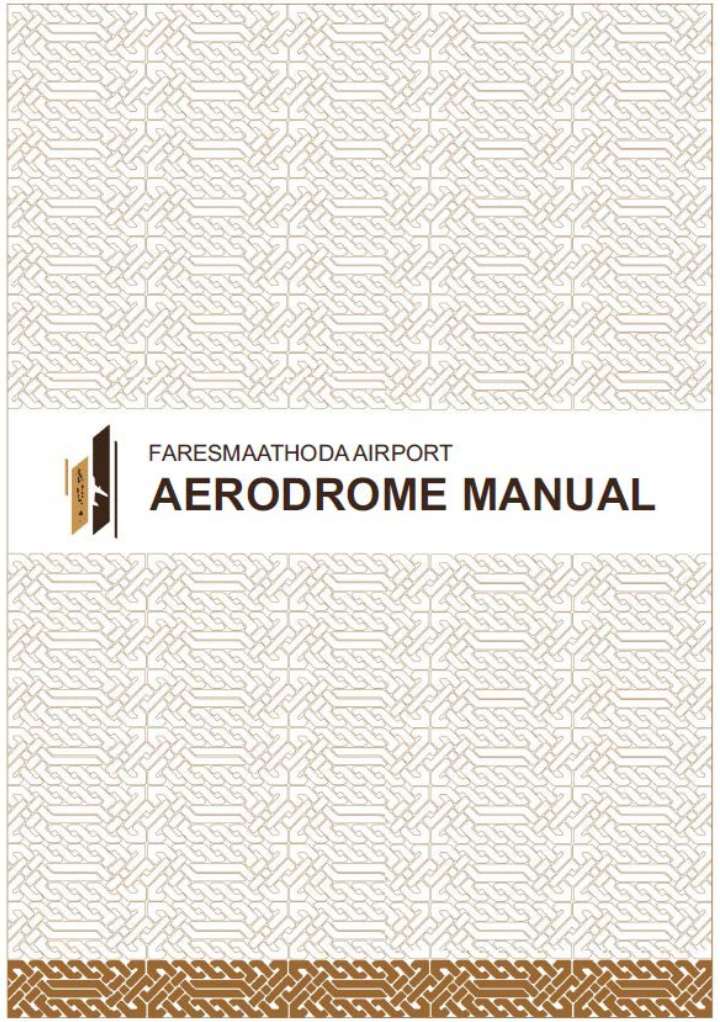
You are required to provide with:

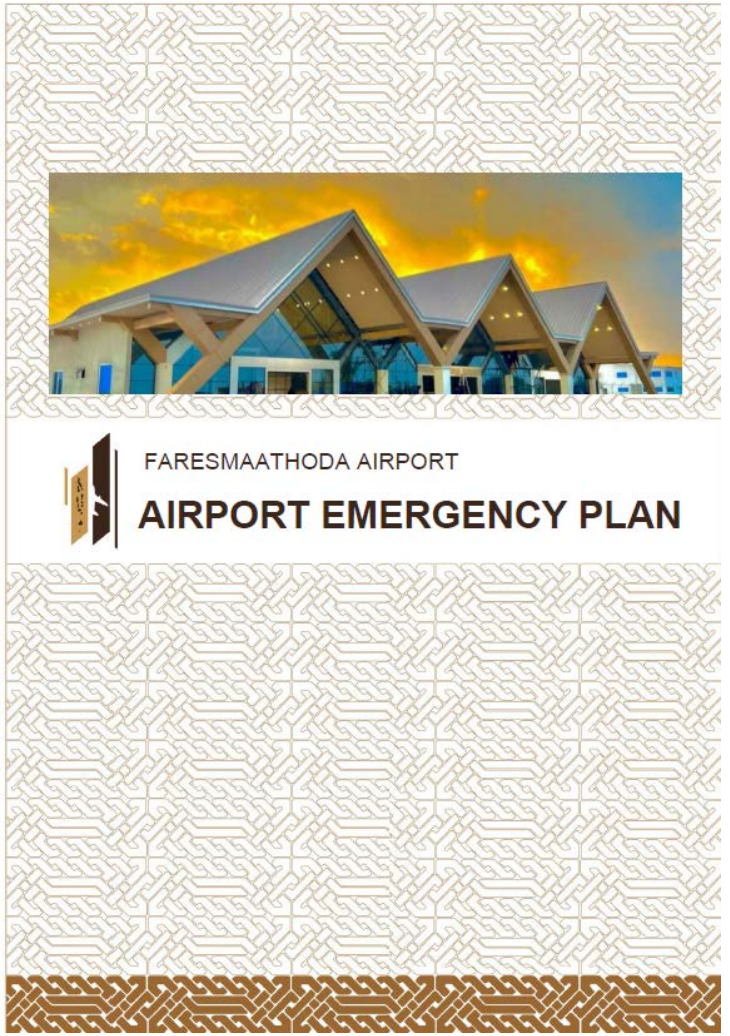
a) Details of rights held in relation to the site; and
b) Name and address of the owner of the site and written evidence to show that permission has been obtained for the site to be used by the applicant as an aerodrome.

5. Reason for certification

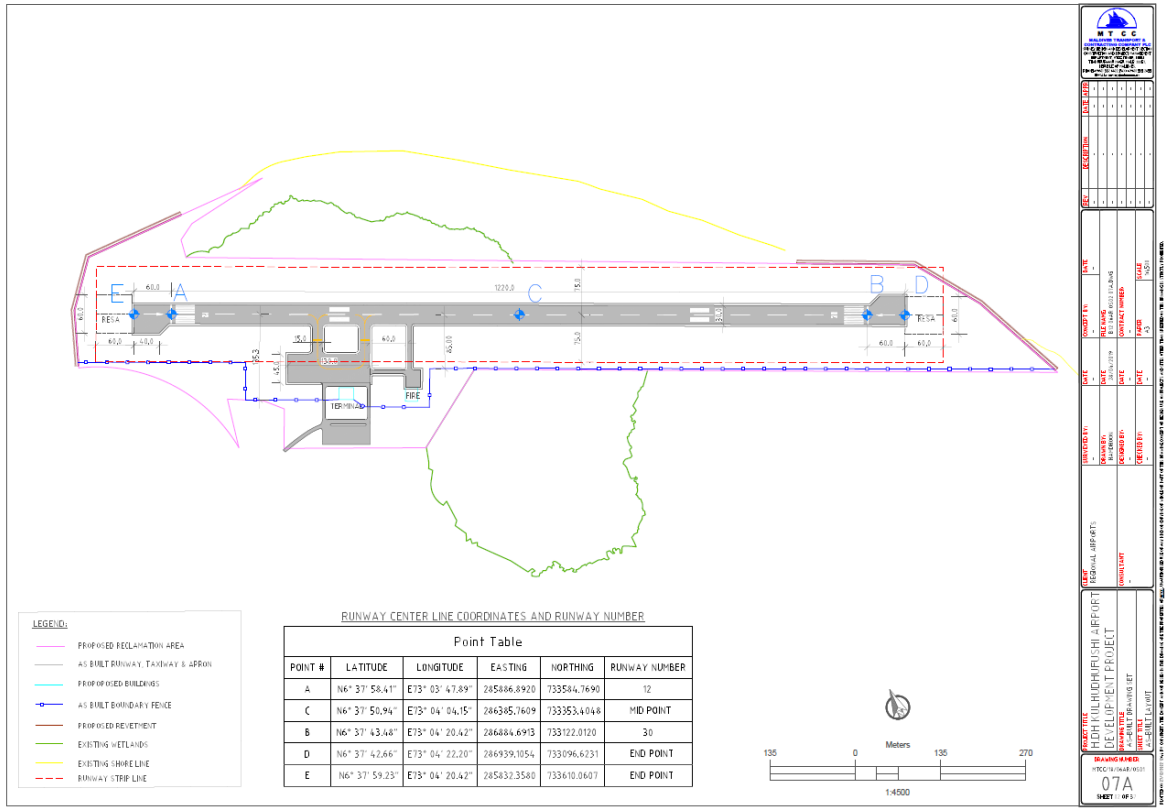
International flights: ☐ Commercial Air Transport ☑
Flight Training ☐ Others ☐

Page 1 *Form No: MCAA/AD/01*





Stage 3 | Operational Approval and Grant of certificate



METHOD OF PCN CALCULATION: ACN-PCN METHOD

ACN	t2/1000			
	(0.878/CBR)	-0.01249		
t	= thickness designed	pavement in cm	55	cm
CBR	= Designed subgrade CBR value		10	%
	= 3.025/0.07531	41.00		

FINAL CONCULTION:

In consideration of the structural behavior of the pavement the Pavement Classification Number (PCN) is calculated as 41. The above calculation is for the standard materials specified in the design code. In the design, the local material also can be used for proposed construction. Based on the material test results and the past experience of domestic airport pavements it is safe to allow the PCN value to be considered as 36.90 Therefore, take PCN as 37.

Therefore,

Pavement Classification Number PCN / 37 / F / B / X / T

NOTE: This design is checked with CBR test results received from the from the contractor's (BUCG) lab.

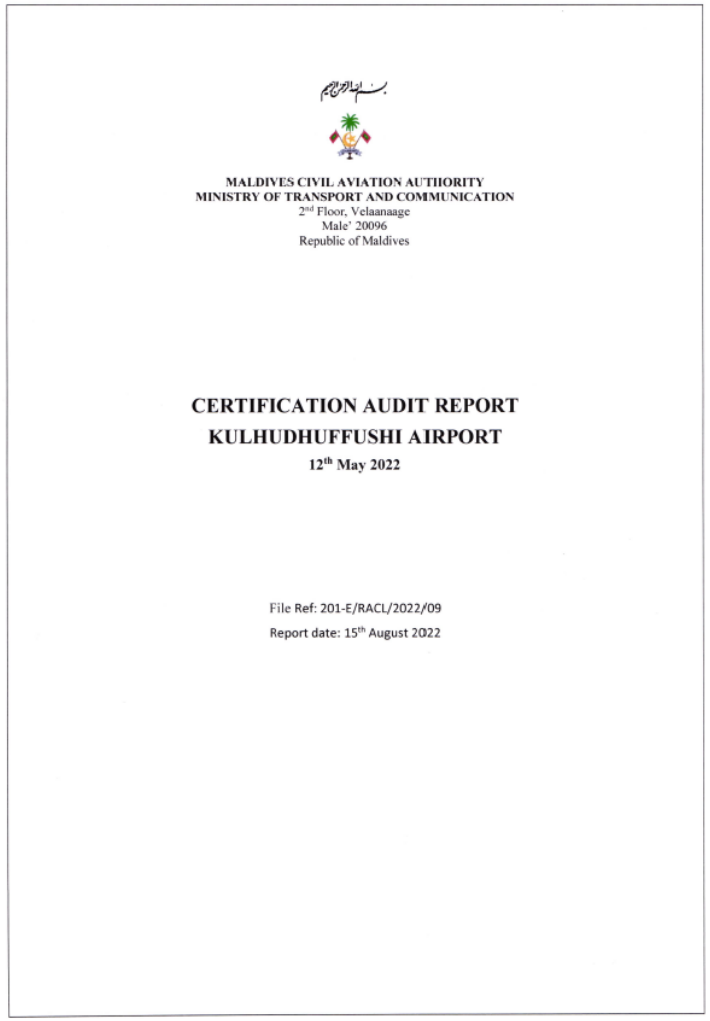
REFERNCES:

[1]. International Civil Aviation Organization, *"AERODROME DESIGN MANUAL – PART 3: PAVEMENTS"*, 2nd Edition, 1983, pp. 3-143 to 3-163

[2]. International Civil Aviation Organization, *"AERODROME DESIGN MANUAL – PART 2: TAXIWAYS, APRONS and HOLDINGBAYS"*, 3rd Edition, 1991

[3]. International Aviation and Technical Programs of Transport Canada, *"AIRCRAFT LOAD RATINGS"*, June 2004

Stage 3 | Operational Approval and Grant of certificate



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MALDIVES CIVIL AVIATION AUTHORITY
MINISTRY OF TRANSPORT AND COMMUNICATION
2nd Floor, Velaanaage
Male' 20096
Republic of Maldives

CERTIFICATION AUDIT REPORT
KULHUDHUFFUSHI AIRPORT
12th May 2022

File Ref: 201-E/RACL/2022/09
Report date: 15th August 2022

Finding		Severity	Respond By Date	Status	Close By	Phase
01	No preventive maintenance programme	2 - Significant	30/08/2022	Accepted	01/09/2022	Closed
02	RFFS operational manual not developed	2 - Significant	30/08/2022	Accepted	01/09/2022	Closed
03	Aerodrome operator does not have an adequate hazard identification system	2 - Significant	30/08/2022	Accepted	31/10/2022	Closed
04	No SLA with AIS	2 - Significant	30/08/2022	Accepted	15/02/2023	Closed
05	No procedure for friction testing	2 - Significant	30/08/2022	Accepted	01/09/2022	Closed
06	Aerodrome Reporting officer, Works safety officer is not properly trained	2 - Significant	30/08/2022	Accepted	01/09/2022	Closed
07	Wildlife officer is not properly trained	2 - Significant	30/08/2022	Accepted	28/02/2023	Closed
08	No procedure to conduct technical inspections	2 - Significant	30/08/2022	Accepted	01/09/2022	Closed
09	Markings faded	2 - Significant	30/08/2022	Accepted	30/11/2022	Closed
10	Loose stones and aggregates	2 - Significant	30/08/2022	Accepted	31/07/2023	Response Accepted
11	Runway strip is not maintained free from obstacles	2 - Significant	30/10/2022	Accepted	30/06/2023	Response Accepted
12	Airside Fence is damaged and not secured	2 - Significant	30/08/2022	Accepted	31/12/2022	Response Accepted
13	Critical RFFS equipment missing	2 - Significant	30/08/2022	-	15/08/2022	Released
OBS-1	Airport Security Programme is not approved	Observation	30/08/2022	Accepted	15/02/2023	Response Accepted

Stage 3 | Operational Approval and Grant of certificate

Number:
ADC/02/2023

Date of Issue:
25 February 2023

Maldives Civil Aviation Authority
Republic of Maldives

Aerodrome Certificate

This Certificate Authorizes

Regional Airports Company Ltd.

To Operate

Funadhoo Airport (Code 2C)

Aerodrome Location Indicator: VRCF
Latitude: **N 06°09'45.31"**
Longitude: **E 73°17'15.15"**

This certificate is issued by the Director under provision of Maldives Civil Aviation Regulation MCAR 139. The operation and use of the aerodrome is subject to the Civil Aviation Act, the Civil Aviation Regulations, and any relevant directions issued by the Maldives Civil Aviation Authority, including the conditions specified in Attachment I (general conditions) and Attachment II (special conditions) of this certificate.

The Director may suspend or cancel this certificate at any time where the airport operator fails to comply with the provisions as set forth in the Act, the Civil Aviation Regulations and any relevant directions issued by the Maldives Civil Aviation Authority.

The Certificate is subject to any conditions established and set out in the approved Aerodrome Manual of Funadhoo Airport.

This Certificate is valid till 24th February 2024 or until transferred, surrendered, suspended or cancelled.

Issuing Authority

Hussain Jaleel
Chief Executive
Maldives Civil Aviation Authority

Thank you