GACAR PART 137 – CERTIFICATION, AUTHORIZATION AND OPERATION OF WATER AERODROMES

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SUBPART A – CERTIFICATION AND AUTHORIZATION

§137.101 General

(a) This part is promulgated in accordance with Article 33 of the Civil Aviation Law of the Kingdom of Saudi Arabia, which states that no civil aerodromes or airfields may be constructed, used, or invested in, in the Kingdom of Saudi Arabia without approval of the President.

(b) The civil water aerodrome design specifications, operation and management requirements for certification or authorization must be as prescribed in this part

§137.103 Applicability

(a) This part is applicable to all civil water aerodromes and certified or authorized water aerodrome operators. These requirements are also applicable to all person employed or used by the water aerodrome operator.

(b) Each water aerodrome operator seeking certification or authorisation or establishment of water aerodromes must comply with the requirements of this part.

(c) All water aerodromes either in the water bodies on land or in the national sea waters of Saudi Arabia must comply with the requirements of this part effected from the date of promulgation of this GACAR.

§ 137.105 Water Aerodromes Classification; and Certification and Authorization Requirements

(a) For the purpose this part, water aerodromes are classified as follows:

(1) **Civil/Public Water Aerodromes:** A water aerodrome which is open to the public and serves seaplane operations offering scheduled or non-scheduled commercial air services. All civil/public water aerodromes in KSA must be certificated under the provisions of this part.

(2) **General Aviation Water Aerodromes:** A General Aviation water aerodrome must be authorized under provisions of this part, is any water aerodrome used to serve seaplane operations for any purpose other than those listed in § 137.105 (a) (1). General Aviation water aerodromes include but not limited to the following:

(i) Private Water aerodrome: A water aerodrome used for operation of sea planes for use by the owner or operator and not open to the public.

(ii) Flight Training Water aerodrome: A water aerodrome used by flight training schools for providing pilot training and used by the flight instructors, pilots, flight crews and trainees only.

(iii) General Purpose Water aerodrome: A water aerodrome used for recreation, aerial work, or airshows, or to conduct the specified business of an organization other than the classified water aerodromes mention in § 137.105 (a) (1).

(b) Each water aerodrome operator must establish necessary infrastructure, facilities, install equipment, appoint personnel for managerial and operational functions and develop documented procedures and manuals as per the requirements given in this part.

(c) Public water aerodrome operators applying for certification must nominate a suitable person to act as the Water Acrodrome Accountable Executive in accordance with GACAR Part-§ (§ 5.25(a) and (b)) in addition to nominating suitable personnel, who must be accepted by the President, for the following functional positions:

(1) Persons reporting directly to the Water Aerodrome Accountable Executive:

i. Person In charge of the Water Aerodrome.

ii. Person In-charge of Safety in accordance with GACAR Part-5 (§ 5.25(c)).

(2) Persons reporting directly to Person In-Charge of the Water Acrodrome:

i. Person In-charge of Operations.

ii. Person In-charge of Maintenance.

iii. Person In-Charge of Rescue and Firefighting Services (RFFS).

(d) The water aerodrome operators requiring certification must submit develop

(e) Following documents and procedures manuals relevant to the water aerodrome. The operators applying for certification are required to submit at least the following documents and procedures manuals:

(1) Water Aerodrome Operation Manual (WAOM);

(2) Safety Management System Manual (SMSM);

(3) Water Aerodrome Emergency Manual (WAEM); and

(4) Water Aerodrome Security plan (WASP).

(f) The water aerodrome operators applying for authorization under § 137 Sub Part C are required to nominate at least a suitable person to function as Accountable Executive and a person to function as Person In-charge for the rescue and firefighting services.

(g) The applicant seeking authorization under § 137 Sub Part C may submit separate procedures or a customized procedures manual for Water Aerodrome Operations Procedures, Emergency Procedures, Safety Management, and Security Procedures.

(h) The number of managerial positions mentioned in § 137.105 (c) and (e) to be nominated may depend upon the size, nature and complexity of the operations of water aerodrome, and the function responsibilities of one or more management personnel may be combined where reasonability is justified and acceptable to the President.

§ 137.107 Person in Charge of the Water Aerodrome

(a) The Person in Charge of the Water Aerodrome assumes the responsibility for the overall compliance of the certificated water aerodrome with regulatory requirements of this part, assumes the direct supervision of the Person In-charge of Operations, Person In-charge of Maintenance, and Person In-charge of Rescue and Firefighting Services (RFFS) in the certificated water aerodrome, and reports to the Water Aerodrome Accountable Executive.

(b) Depending on the size and complexity of the water aerodrome and the suitability of the nominated person, the President may accept the Water Aerodrome Accountable Executive to hold the position of the Person in-charge of the water aerodrome.

(c) Depending on the size and complexity of the water aerodrome and the suitability of the nominated person, the president may accept one person to hold the position of the Person in Charge of the Water Aerodrome while holding any of the other positions in § 137.105.

§ 137.109 Water Aerodrome Management Personnel

(a) Each water aerodrome certificate or authorization holder must nominate adequately qualified management person or group of persons as specified in § 137.105 (c) and (e), whose responsibilities are to ensure that the organization complies with the requirements of the water aerodrome management, operation, maintenance, and safety functions.

(b) The certificate or authorization holder must appoint at least the minimum number of management personnel as specified in § 137.105 (c) and (e).

(c) The person in-charge of water aerodrome maintenance is responsible for ensuring that the water aerodrome's maintenance program is carried out in compliance with this part.

(d) The Person in-charge of the water aerodrome safety must satisfy the requirements of GACAR Part-5 (§ 5.25(c)) and reports to the Water Aerodrome Accountable Executive.

(e) Except for the Water Aerodrome Accountable Executive and the Person In-charge of Safety, who must be appointed in accordance with GACAR Part-5, the management personnel specified in § 138.105 (c) and (e) must be appropriately qualified, experienced, and trained as acceptable to the President and all such details are to be described in the Water Aerodrome Manual.

(f) The water aerodrome management personnel must have relevant knowledge and skill to perform the duties and responsibilities, including adequate knowledge in the following subject areas:

(1) Civil aviation Law and relevant GACARs;

(2) Water Aerodrome Operation Manual, Operation Procedures and Safety Management; and

(3) The theoretical and practical elements of the subject related to the functions and responsibilities of post holders.

(g) The President may authorize any management person in the organization, including the Accountable Executive to oversee additional management functions, depending upon the size and complexity of water aerodrome operations and suitability of the person.

(h) The names and titles of the management personnel including additional responsibilities with organizational chart must be listed in water aerodrome operation manual.

(i) The water aerodrome operator must identify an alternate person to each position to deputize that the management functions are smoothly continued during leave or absence of a management personnel. The names of deputizing personnel in each function are to be listed in the water aerodrome operation manual.

(j) The water aerodrome operator must inform the President in writing that if any management personnel is on leave or absent for a period of exceeding 30 days, and an alternate person is assigned to ensure continued operation of the water aerodrome.

(k) All water aerodrome operators, must have minimum number of personal required for operation, safety, maintenance, and rescue and firefighting which must be determined based on a task resource analysis to determine minimum required manpower for each functional area.

§ 137.111 Prohibition of the Problematic use of Psychoactive Substances

(a) The requirements prescribed in GACAR Part 7 are applicable to all water aerodrome operators certified or authorized under this part.

(b) No person on the maneuvering area, movement area, or dock/anchoring area of a water aerodrome will be under the influence of any psychoactive substance, by reason of which human performance is impaired.

(c) No water aerodrome operator allows a person who appears to be or conducts by manner or physical indications that the individual is under the influence of psychoactive substances (except patients under medical care) on the maneuvering area, movement area, docking area or anchoring area of the water aerodrome.

(d) Whenever the President has a reasonable basis to believe that a person is under the influence of psychoactive substances, the President may seek the person to undergo necessary examination or tests at

the authorized medical center or lab to confirm whether the person is under the influence of any psychoactive substances and take action.

§ 137.113 Specific Procedures for Helicopters and New Seaplane Operations on Water Aerodrome

(a) The certificated and authorized water aerodrome must allow operations of seaplanes, and the helicopters which are certified for operations on water aerodrome for which the design of physical and operational characteristics of water aerodrome is suitable.

(b) When operational parameters of a new model/type of seaplane exceed the certified physical and operational characteristics of the water aerodrome, the water aerodrome operator must carry out a compatibility study and take suitable actions to confirm the acceptable level of safety in operation, prior to permitting such seaplane operations.

(c) When helicopter operations are permitted on water aerodromes, the water aerodrome operator must ensure suitability of required physical and operational infrastructure of water aerodrome and carryout a compatibility study before permitting such helicopter operations on water aerodrome. Procedures for compatibility study to assess impact of helicopter operations and new type of seaplane described in Appendix 4 of this part.

(d) Information concerning change of operational procedures and operating restrictions implemented at a water aerodrome and any granted regulatory exemptions to water aerodrome operations must be published in the water aerodrome manual and where ever required in AIP of KSA.

§ 137.115 Maintenance Service Provider Acceptance

(a) No water aerodrome certificate holder may outsource water aerodrome maintenance services unless otherwise accepted by the President.

(b) For acceptance of maintenance Services, the water aerodrome operator must apply in a form and manner acceptable to the president.

§ 137.117 Inspection Authority

(a) The President or his authorized representative has the authority to conduct planned inspections, unannounced inspections, audits, surveillance and onsite verifications of facilities, documents, and records to determine the compliance with the regulatory requirements.

(b) The water aerodrome operator must allow the President or his representative to have unrestricted access to all the areas of the water aerodrome.

(c) Legal enforcement action may be taken as per the provisions of GACAR Part 13, where the President determines that a violation has occurred. The president may decide the circumstances or conditions under which the water aerodrome certification or authorisation holder deal with violation found during the internal process of audits and inspections.

§ 137.119 Exemptions

(a) In case of any deviation from any water aerodrome specification that is permitted under the regulations in this part, an applicant must conduct an aeronautical study as acceptable to the President and provide mitigation measures for safe operation.

(b) Exemptions from the regulatory requirements or standards of this part must be processed as per the regulations stipulated in GACAR Part 11 in addition to requiring the applicant to prepare an aeronautical study to provide an equivalent level of safety to the regulation from which to be exempted.

(c) A list of all granted deviations and regulatory exemptions must be included in the water aerodrome operation manual as stipulated in Appendix A-1 to this part.

(Note- Aeronautical studies are covered in Appendix D to this part.)

§ 137.121 Classification of Audit Findings

(a) A level 1 finding is any significant non-compliance with the GACAR Part 137 requirements which lowers the safety standard and hazards seriously the flight safety.

(b) A level 2 finding is any non-compliance with the GACAR Part 137 requirements which could lower the safety standard and possibly hazard the flight safety.

(c) Level 3 finding is an observation or recommendation to improve safety standards and/or achieve a better practice by addressing deficiencies that may lead to potential findings of Level 2 if not corrected.

(d) On receipt of notification of findings, water aerodrome operator must develop a corrective action plan and demonstrate corrective action to the satisfaction of the President within a period agreed.

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SUBPART B – CERTIFICATION OF WATER AERODROMES

§ 137.125 Water aerodrome certification requirement

(a) The issuance of water aerodrome certificate is applicable to the water aerodromes open to the public and to serve seaplane operations offering schedule or non-schedule commercial air operations.

(b) No water aerodrome operators are permited to operate public water aerodrome unless certified as per the provisions of this part.

§ 137.127 Application for Certification

(a) The application for certification of water aerodrome must be submitted in a form and manner acceptable to the President.

(b) The applicant must ensure that the water aerodrome physical characteristics, facilities, services, procedures, and equipment installed meet the requirements of this part.

(c) The application for the water aerodrome certification must be submitted in a prescribed form along with the following documents, manuals, approvals, agreements, and reports:

(1) Statement of regulations compliance in a prescribed form with completed compliance checklist.

(2) List of management personnel along with curriculum vitae and relevant testimonials;

(3) Water Aerodrome Operation Manual (WAOM);

(4) Safety Management System Manual (SMSM);

(5) Water Aerodrome Emergency Manual (WAEM);

(6) Water Aerodrome Security Plan (WASP);

(7) Aeronautical Study Reports, if applicable;

(8) Approvals for operation of water aerodrome from Principality/Port Authority;

(9) Agreement for Providing Air Navigation Services for water aerodrome;

(10) Water Aerodrome Land Ownership proof or Lease Agreement; and

(11) Any other relevant documents as required by the President.

§ 137.129 Issuance of Water Aerodrome Certificate

(a) An applicant may be issued with a Water Aerodrome Certificate upon confirming that the applicant meets the provisions of this part and no findings or deviations are reported or once the corrective action plans are accepted and mitigation measures are agreed upon for the findings.

§ 137.131 Validity of the Certificate

(a) The water aerodrome certificate is issued or renewed for a maximum period of three years and it remains valid subject to the condition that:

(1) The water aerodrome operator is in compliance with requirements of this part;

(2) The certificate is not being surrendered by the water aerodrome operator; or

(3) The President suspends or cancels the certificate.

(b) Upon surrender or revocation, the certificate must be returned to the GACA.

§ 137.133 Renewal and Amendment to the Certificate

(a) The water aerodrome certificate holder must apply to the President for renewal or reissuance of the certificate at least three months in advance to the expiry of validity of the certificate or commencement of operation. The application must be submitted along with the updated documents and duly completed checklists as per requirements given in §137.127.

(b) The certificate holder must have procedures in water aerodrome operation manual to notify the President of any changes in the organization's activities or approvals or locations or personnel.

(c) No water aerodrome certificate holder may implement any major changes as mentioned in § 137.133 (b) without prior acceptance of the President. Major changes are those that have direct or indirect influence in the safety of the operation including:

(1) The physical characteristics of the water aerodrome;

(2) The location of the principal base of operations of the certificate holder;

(3) Change of management personnel; or

(4) The water aerodrome operation manual, operating procedures, facilities, systems, any work that may affect the safety of the water aerodrome operations.

(d) The certificate holder must apply in a form and manner acceptable to the president for acceptance of any major changes that affect the scope of certification and require revisions to the water aerodrome operation manual.

§ 137.135 Cerificate Holder Responsibilities

(a) The water aerodrome Certificate holder is responsible:

(1) To maintain the water aerodrome in accordance with requirements specified in the accepted water aerodrome operation manual and requirement of this part;

(2) To update and distribute the water aerodrome operation manual to all post holders, concerned staff and organizations and GACA;

(3) To appoint suitably qualified, trained, and experienced management personnel as required in §137.107 and §137.109 of this part;

(4) To prepare, implement and monitor standards of the service levels in the outsourced service contracts, in case any of the water aerodrome services are outsourced;

(5) To report the President whenever there is any occurrence of non-compliance or compliance fall below the requirements prescribed in the water aerodrome operation manual;

(6) To be responsible for effective change management whenever any changes in water aerodrome design or operational manual are approved;

(7) To choose and appoint the appropriate consultant based on ability to demonstrate proven related experience, adequacy of competent personnel, an effective quality and safety management system, and any other requirements depending to the consultant's areas of involvement in design, construction and/or supervisory functions at aerodrome;

(8) To take the overall responsibility of water aerodrome maintenance that are to be performed as per the approved standards;

(9) To report safety occurrences including any incidents, serious incidents, and accidents to the President in accordance with the requirements stipulated in GACAR Part 4;

(10) To implement SMS in accordance with the requirement of GACAR Part 5; and

(11) To coordinate with Port Authority/SANS for any specific requirements.

(b) Any other responsibility assigned by the President.

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§ 137.137 Water Aerodrome Operation Manual

(a) Water aerodrome operators, intend to apply for certification, must develop and submit the Water Aerodrome Operation Manual (WAOM) for acceptance by the President.

(b) The water aerodrome operation manual must be developed as per provisions prescribed in Appendix A-2 of this part.

(c) The water aerodrome operation manual must be signed by the operator (Accountable Executive) and submitted to the GACA in a print form for acceptance of the President.

(d) Granted regulatory exemptions must be published in the AIP.

(e) Maintain at least one copy of updated Water Aerodrome Operation Manual at the Water Aerodrome and one copy at the operator's principal place of business, if the place of business is located other than the water aerodrome.

(f) Ensure that the appropriate portions of the Water Aerodrome Operation Manual are readily accessible to water aerodrome operating personnel for reference on day-to-day activities.

(g) Any proposed amendment to the Water Aerodrome Operation Manual must be submitted to the President at least 30 working days before the proposed effective date unless a shorter filing period is accepted by the president. Only the portion of the water aerodrome operation manual that requires amendment must be submitted.

(h) Once the amendments are accepted by the President, the water aerodrome operation manual must be appended with the revised amended pages and the manual amendment list page is updated accordingly.

(i) The certified water aerodrome operator must describe the competency requirements for the management personnel in the water aerodrome operation manual and ensure that the persons possess the continued competence with regard to:

(i) Relevant knowledge, skills and experience in the respective functional field of specialization;

(ii) Attitude towards safety and observance of procedures; and

(iii) Knowledge of the operation manual and associated procedures of the certificate holders.

§ 137.139 Safety Management Systems

(a) The water aerodrome certificate holder must develop and implement Safety Management System as per the provisions of GACAR Part 5 for acceptance of the President.

(b) The Safety Management System Manual (SMSM), for the purpose of implementing the water aerodrome SMS requirements as mentioned in § 137.135 (a) (9), must be developed in accordance with contents stipulated in the GACAR Part 5 and submitted to the President for acceptance.

§ 137.141 Training Requirements of Personnel

(a) The certified water aerodrome operator must plan and provide training to the personnel to ensure continued competency.

(b) The training must be in accordance with the job function, adequate, initial and recurrent to ensure that the continued competence is maintained throughout the duration of employment or contract.

(c) The training program must be developed so as to ensure that each employee assigned to perform the functions including operation, safety, rescue and firefighting, and maintenance function is capable to perform the assigned task.

(d) The certificate holder must maintain the training records of all the personnel who have attended the training.

(e) Each person in the organization must be assessed in accordance with the procedures established by the water aerodrome operator to ensure that personnel competency is satisfactory for the assigned functions to be performed.

(f) Each technical person working in specialized function areas such as operation, firefighting and rescue, maintenance and safety must undergo refresher training at least once in two years.

(g) Training program must be developed taking into account the requirements of relevant GACARs.

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SUBPART C – AUTHORIZATION OF WATER AERODROMES

§137.145 Authorization of Water Aerodromes

(a) The issuance of water aerodrome authorization is applicable to water aerodromes as per the classification of water aerodromes stipulated in §137.105.

(b) No water aerodrome operator is permitted to operate water aerodrome or provide services without obtaining prior authorization from the President.

§137.147 Application for Water Aerodrome Authorization

(a) The application for authorization of water aerodrome must be submitted in a form and manner acceptable to the President.

(b) The applicant must ensure that the water aerodrome physical characteristics, facilities, services and equipment installed meet the requirements of this part.

(c) The application for the water aerodrome authorization must be submitted in a prescribed form along with the following documents, approvals, agreements, and reports:

(1) Statement of regulatory compliance along with completed compliance checklist;

(2) List of management personnel along with curriculum vitae and relevant testimonials;

(3) Water Aerodrome Operation Procedures (WAOP);

(4) Safety Management Systems (SMS);

(5) Water Aerodrome Emergency Procedures (WAEP);

(6) Water Aerodrome Security Plan (WASP);

(7) Aeronautical Study Report, if applicable;

(8) Approvals for operations of water aerodrome from Principality/Port Authority;

(9) No objection certificate for operations of water aerodrome from Saudi Air Navigation Services (SANS);

(10) Water Aerodrome Land Ownership proof or Lease Agreement; and

(11) Any other relevant documents as required by the President.

(d) The applicant or operator for water aerodrome may decide to have a separate document for 137.147 (c) - (3), (4) and (5) or a customized manual for operation, safety management system and emergency procedures depending on the size, physical characteristics, air traffic requirements and complexity of the water aerodrome operations.

§137.149 Issuance of Authorization

An applicant may be issued a water aerodrome authorization upon confirming that the applicant meets the requirements of this part and no findings or deviations are reported or once the corrective action plans are accepted and mitigation measures are agreed upon for the findings.

§137.151 Continued Validity of the Authorization

(a) The water aerodrome authorization issued will remain valid, subject to:

(1) The organization is remaining in compliance with this part;

(2) Provide unhindered access of water aerodrome to GACA Inspectors to determine continued compliance with the requirements;

(3) The authorization is not being surrendered or revoked; and

(4) The President does not suspend or cancel the authorization.

(b) Upon surrender or revocation, the authorization must be returned to the President.

§ 137.153 Amendment to the Authorization

(a) The water aerodrome authorization holder must describe provisions for an amendment in water aerodrome operation procedures manual as how to notify the President of any changes in the organization's activities or approvals or locations or personnel.

(b) No water aerodrome authorization holder implements any major changes as mentioned in § 137.153 (a) without obtaining prior approval from the President. Major changes are those changes in the organization that affects the standards stipulated in this part or have direct or indirect influence on the safety of the operation including:

(1) The physical characteristics of the water aerodrome;

(2) The location of the principal base of operations of the authorization holder;

(3) Change of management personnel; or

(4) The water aerodrome operation manual, operating procedures, facilities, systems, and any work that may affect the safety of the water aerodrome operations.

§ 137.155 Responsibilities of the Authorization Holder

An authorization holder of a water aerodrome must:

(a) Have a single point of responsibility for the authorized water aerodrome for its management, safe operations, maintenance, and security as per the provisions of this part.

(b) Conduct water aerodrome operations which meet the safety management system requirements in accordance with GACAR Part 5 as appropriate to the size and complexity of the operation.

(c) Report safety occurrences to the President in accordance with requirements stipulated in GACAR Part 4.

(d) Provide initial training to all technical personnel prior to assigning them tasks independently, and conduct refresher training at least once in two years to ensure that continued competence is maintained throughout the duration of their employment and maintain the training records.

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SUBPART D – WATER AERODROME DESIGN AND ESTABLISHMENT

§137.161 Water Aerodromes Location and Design

(a) The water aerodrome operator must give due consideration to the design of water aerodromes taking into account the land, water body or sea area use, wind, water current, water depth of sea base and environmental impact control measures.

(b) Water aerodrome design and location must be selected such that the downwind operations are avoided and cross wind operations are kept to a minimum. The weather data must be from an authentic source and be considered preferably at least for last five year and on location or of nearby aerodrome.

(c) The water aerodrome usability factor and the orientation for approach and take-off direction, water currents and tidal areas must be considered during the project feasibility and design stage so that water aerodrome is available for maximum time for operations. The usability factor must be at least 95 percent for public water aerodrome for their intended operations.

§137.163 Permission for Design and Establishment of Water Aerodromes

(a) Any person or organization intending to establish a water aerodrome, must apply in a form and manner acceptable to the president for prior permission.

(b) The applicant must be the legal owner of the land, water body or Sea area or hold valid lease agreement or legal rights to use the land, water body or sea area for the purpose of establishment of the water aerodrome.

(c) Notwithstanding the permission granted to establish water aerodrome, the water aerodrome operator must obtain certification or authorization prior to commence operations of water aerodrome.

§137.165 Consultant Entity and Acceptance

(a) A water aerodrome consultant is a legal entity that has the expertise in discharging the functions of designing, constructing and/or carrying out the supervisory functions.

(b) The water aerodrome certificate holder/operator is fully responsible to choose and appoint the appropriate consultant based on ability to demonstrate proven related experience, adequacy of competent personnel, an effective quality management system, and any other requirements depending to the consultant's areas of involvement in design, construction and/or supervisory functions at aerodrome.

(c) The water aerodrome certificate holder/operator must obtain prior permission from the President before appointing the consultant for design, construction or supervisory functions and start of water aerodrome establishment project by submitting the details of the consultant in prescribed form acceptable to the President.

§137.167 Application for Establishing of Water Aerodrome

(a) The applicant must submit the following documents for the grant of permission:

(1) Application for establishment of water aerodrome in the prescribed form;

(2) Statement of Regulations Compliance in the prescribed form;

(3) Proof of Ownership or Lease or Lease Rights of the land, water body or Sea Area;

(4) Water Aerodrome Technical Feasibility Study Report (including site selection, weather data of at least last 5 years, tabulated wind data, wind rose analysis, water currents and tidal analysis, approach and take-off climb surfaces, transitional surfaces, orientation, obstacle limitation surfaces survey, topographical area map, critical/design seaplane details and master plan with drawings showing detail of dimensions of runways, taxi lane, mooring, anchoring, platforms etc. for establishment permission);

(5) Aeronautical Study Report, if applicable;

(6) Environment Impact Assessment Report;

(7) Approvals for establishment of water aerodrome from Principality/Port Authority;

(8) No objection certificate for establishment of water aerodrome from Saudi Air Navigation Services;

(9) Details of Consultant Entity, if appointed.

(b) Any other relevant document(s) required by the President.

§137.169 Grant of Permission

(a) An applicant may be granted permission to establish a water aerodrome, if the President considers that the applicant meets the requirements of this part;

(b) The President may stipulate additional requirements or conditions that are necessary to be included to ensure aviation safety; and

(c) President may suspend or cancel the establishment permission, if convinced that applicant has violated the provisions of the permission or the GACARs that may affect the safety of operations.

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§137.171 Construction of Water Aerodrome

(a) The applicant, once granted the establishment permission, must develop and submit detailed design project report for the acceptance of the President prior to start of the project and construct the water aerodrome as per provisions of the permission, requirements of this part and regulations of the relevant authorities for construction and safety.

(b) The applicant must allow unhindered access to GACA Inspectors to inspect the water aerodrome to ensure that the water aerodrome has been constructed as per provisions of the establishment permission and meets the requirements of this part.

(c) The applicant, once completed the water aerodrome establishment, must inform the President.

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SUBPART E - WATER AERODROME DATA

(Note—This Part contains specifications for the provision of data relating to the water aerodrome that is to be determined and recorded in the Water Aerodrome Operations Manual (WAOM). This Part is also used to define the characteristics of water aerodrome that are to be made available through the aeronautical information publications and/or disseminated through an aeronautical information service.)

§137.201 Common reference systems

(a) Horizontal reference system

World Geodetic System—1984 (WGS-84) must be used as the horizontal (geodetic) reference system. Reported aeronautical geographical coordinates (indicating latitude and longitude) must be expressed in terms of the WGS-84 geodetic reference datum.

(b) Vertical reference system

Mean sea level (MSL) datum, which gives the relationship of gravity-related height (elevation) to a surface known as the geoid, must be used as the vertical reference system in case of water aerodromes other than sea.

(c) Temporal reference system

The Gregorian calendar and Coordinated Universal Time (UTC) must be used as the temporal reference system.

§137.203 Water aerodrome data quality requirements

(a) Except as specified, the determination and reporting of water aerodrome-related aeronautical data must be in accordance with the accuracy requirements set forth below taking into account the established quality system procedures:

(1) The water aerodrome elevation must be measured to the accuracy and rounded up to the next higher of one half metre;

(2) Linear dimensions must be measured to the nearest one-half metre;

(3) Aeronautical geographical co-ordinates (indicating latitude and longitude) must be expressed in terms of the WGS-84 reference datum;

(4) True bearings must be measured to the nearest degree;

(5) Water depths must be measured and rounded down to the nearest one tenth of metre; and

(6) Tides must be measured with respect to lowest tides recorded for the location.

§137.205 Geographic data

(a) Geometric centre

(1) The geometric center of a water aerodrome must be determined and given to the nearest 1/10th second.

(b) Water aerodrome elevation

(1) Average highest elevation of the water runway must be measured with reference to mean sea level and for water aerodrome other than on sea with reference to mean sea level.

(2) Water aerodrome reference elevation (WRE) must be determined at the water aerodrome reference point (WRP). This elevation must be determined from the Chart Height, or the lowest recorded water level, converted to an elevation in meters above Means Sea Level.

(c) Water aerodrome magnetic variation

(1) The magnetic variation for the water aerodrome geometric centre must be determined and given to the nearest degree from magnetic north.

(d) Navigation aids

(1) Where navigation aids are installed for use at water aerodromes, the following information must be determined and given:

(i) The bearing, geographic co-ordinates of the antenna or radiating center to the nearest 1/10th second; and

(ii) The elevation of the antenna or radiating center.

§137.207 Water aerodrome dimensions and related information

(a) The following data must be measured or described and given for each facility provided on a water aerodrome:

(1) Water runway(s):

(i) True bearing;

(ii) Length;

(iii) Width;

(iv) Depth of water; and

(v) Water current.

(2) Turning basins:

(i) Llocation;

(ii) Dimension; and

(iii) Depth of water.

(3) Taxi channel:

(i) Width; and

(ii) Depth of water.

(4) Shore facility:

(i) Type; and

(ii) Depth at shore.

(5) Significant obstacles on and in the vicinity of the water aerodrome:

(i) Location;

(ii) Top elevation to the nearest (next higher) meter; and

(iii) Type.

(6) Marking:

(i) Water runways;

(ii) Taxi channels; and

(iii) Hazardous areas.

(7) Lighting:

(i) Water runway;

(ii) Taxi channel;

(iii) Dock area; and

(iv) Hazardous areas.

§137.209 Provision of operational information

(a) Movement area and related facilities:

(1) Information on the condition of the movement area and the operational status of related facilities must be given to the appropriate aeronautical information service; and

(i) Information of operational significance must be given to the appropriate air traffic services units; and
(ii) The information must be kept up to date.

(b) The condition of the movement area and the operational status of related facilities must be monitored and reports of operational significance or affecting seaplane performance must be given to the appropriate air traffic services units in respect of:

(1) Damage to shore facility;

(2) Floating debris in the movement area;

(3) Temporary hazards to include log booms, surface vessels or any other surface or below surface hazard;

(4) Abnormally high/low water depth;

(5) Water currents;

(6) Tidal areas, depth of water at high and low tides or seasonal changes; and

(7) Any other information that may have safety impact on seaplaneoperations.

(c) Information on water runway(s) must consist of:

(1) The tidal range;

(2) The times of high and low tide; and

(3) The approximate speed and direction of the water current.

§137.211 Declared Distances

(a) The following distances to the nearest meter must be declared for a water aerodrome:

(1) Take-off distance available;

(2) Rejected take-off distance available;

(3) Landing distance available; and

(4) Water depth in landing, take-off, taxing, docks and anchoring areas.

§137.213 Aeronautical Information and Data

(a) The certified water aerodrome operator responsible for the provision of raw aeronautical information/data to the aeronautical information services must do that while taking into account accuracy and integrity requirements for aeronautical data.

§ 137.215 Rescue and Firefighting

(a) Information concerning the level of protection provided at certified water aerodrome for seaplanerescue and firefighting purposes must be made available in water aerodrome operation manual and the AIP.

(b) The level of protection normally available at a water aerodrome must be expressed in terms of the category of the rescue and firefighting service as described in Subpart-L of this part and in accordance with the types and amounts of extinguishing agents normally available at the water aerodrome.

(c) Changes in the level of protection normally available at a water aerodrome for rescue and firefighting must be notified to the appropriate aeronautical information services units and, where applicable, air traffic units to enable them to provide the necessary information to arriving and departing sea plane. When such a change has been corrected, the above units must be advised accordingly.

(d) A change must be expressed in terms of the new category of the rescue and firefighting service available at the water aerodrome.

(*Note. — Changes in the level of protection from that normally available at the water aerodrome could result from, but may not be limited to, a change in the availability of extinguishing agent or equipment used to deliver agents, or of personnel used to operate the equipment.)*

GACAR PART 137 – CERTIFICATION, AUTHORIZATION AND OPERATION OF WATER AERODROMES

SUBPART F - PHYSICAL CHARACTERISTICS

§137.301 Water runway

(a) Number and orientation of water runways

(1) The number of water runways at a public water aerodrome and their orientation must be such that for a large percentage of time as practicable but for not less than 95 percent there is atleast one water runway for which the surface wind velocity component at right angles to its longitudinal axis must not preclude the landing or taking off of seaplane that the water aerodrome is intended to serve.

(b) Length of water runways

(1) The length of the water runway to be provided must be adequate to meet the operational requirements of the critical seaplane for which the water runway is intended to be used and must be not less than the longest length determined by applying the corrections for local conditions to the operations and performance characteristics of the relevant seaplanes.

(c) Width of water runways

(1) The width of the water runway must be not less than 60 m as illustrated in Figure F-1.

(d) Water depth

(1) The depth of the water measured at low water level in the water runway must not be less than 1.8 m or less than 0.3 m below the hull or floats when the seaplane is stationary and loaded to maximum take off weight.

(e) Water runway strip

(1) A protective buffer must extend on each side from the edge of the water runway to a distance of not less than 30 m and on each end of the water runway to a distance of 60 m, wherever practicable.

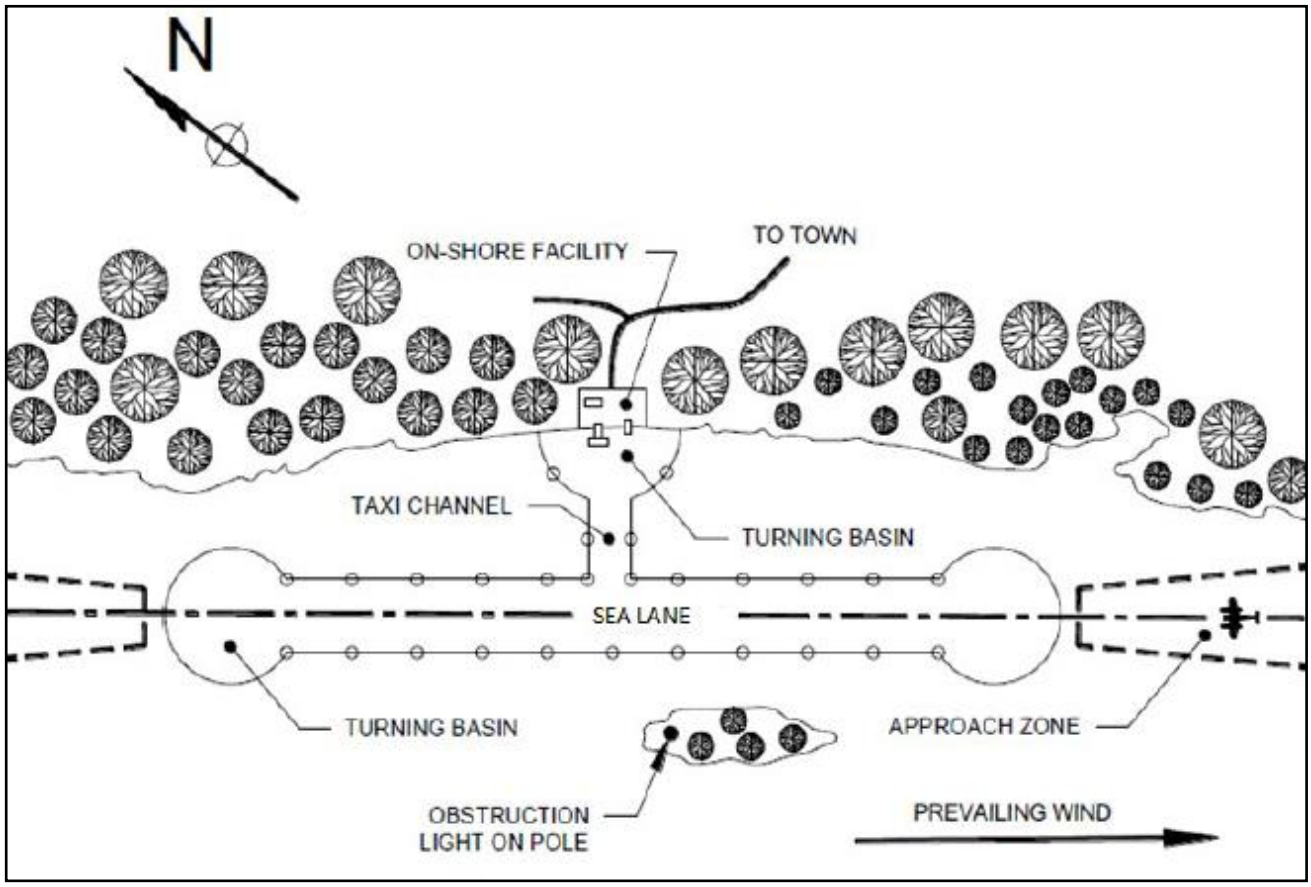

Figure F-1. Locations of water runway and turning basins

§137.303 Turning basins

(Note- Turning basin, as shown in figure F-1, are extra wide water maneuvering area at end/beginning of the water runway to facilitate water taxiing turn maneuvers, and to accommodate periods of changing wind and current conditions)

(a) Turning basins must be provided at the end of the water runway, as illustrated in Figure F-1.

(b) Turning basins provided must have:

(1) A diameter measured at low water level must be not less than twice the specified minimum width of the corresponding water runway;

(2) The depth of turning basins measured at low water level must be at least that of the corresponding water runway; and

(3) A horizontal obstruction clearance between the edge of the turning basin and the nearest obstacle must be not less than 15 m.

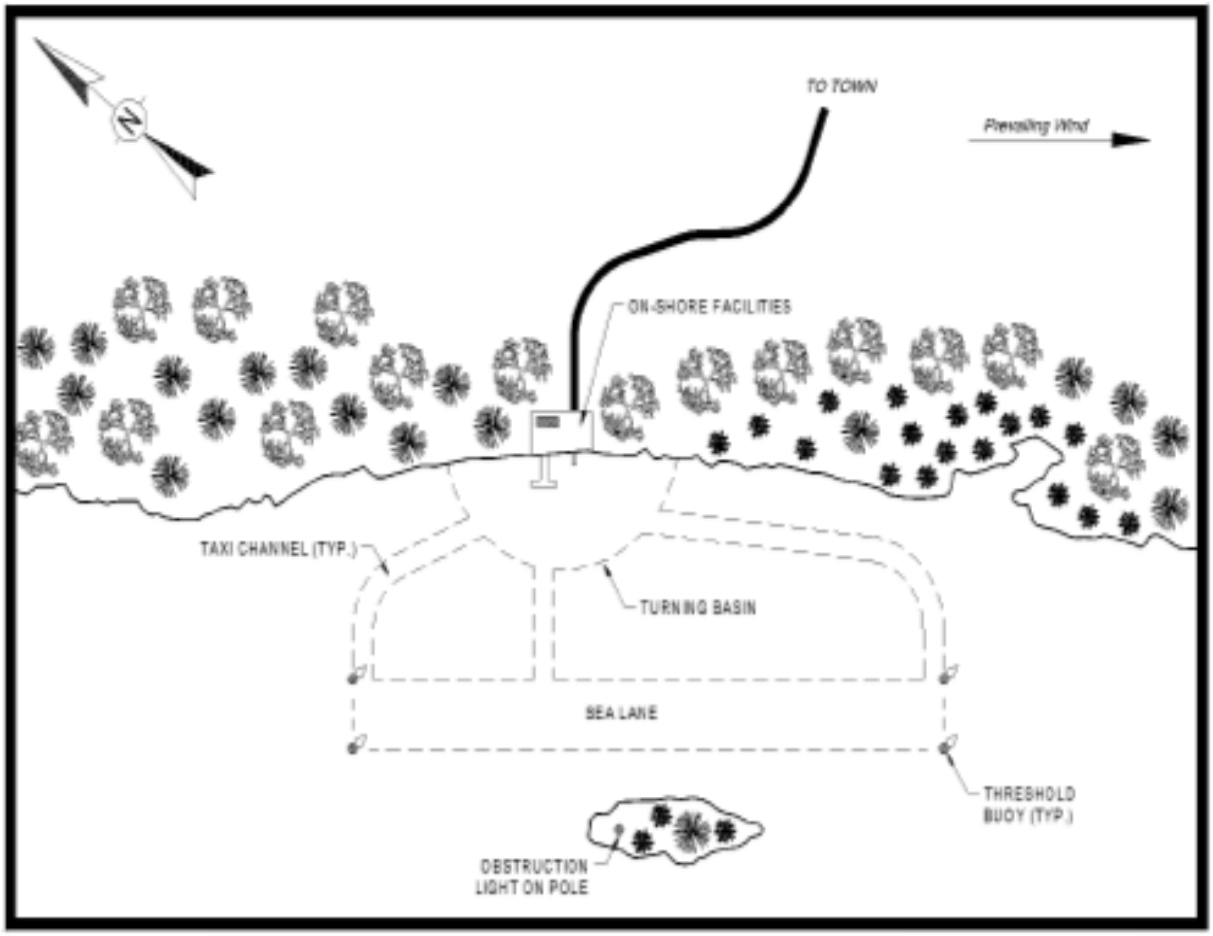

Figure F-2. Locations of taxiways and turning basins

§137.305 Taxi channels

(a) Taxi channels must be provided to permit the safe and expeditious handling of aerodrome traffic as dipicted in figure F-2. When the water operating area permits, the taxi channel must be oriented so that approach to shoreline, anchoring are, ramp and onshore facilities is into the prevailing wind or water current.

(b) The taxi channels must have a width of not less than 45m.

(c) Wing tip to wing tip clearance for passing seaplanes (dual directional taxi channels) must be not less than 15m.

(d) The depth of the water measured at low water level in the taxi channel must not be less than 1.8 m or less than 0.3 m below the hull or floats when the seaplane is stationary and loaded to maximum take-off weight.

§137.307 Mooring areas

(a) Mooring areas must be provided, whenever necessary, for the mooring of seaplane and to permit the embarkation and disembarkation of passengers, loading and unloading of cargo without interfering with the aerodrome traffic as illustrated in Figure F-3.

(b) When mooring are provided:

(1) The size of the mooring areas must be adequate to permit expeditious handling of the peak hour traffic.

(2) The depth of water at the mooring area measured at low water level must be at least that of the corresponding taxi channel.

(3) The mooring area must be designed in such a manner as to provide a minimum clearance of 15 m between seaplanes or any part of the seaplane and any object it could come into contact with depending on water level.

§137.309 Shore facilities

(a) A platform (fixed or floating), ramp or beach must be provided to permit the embarking and disembarking of passengers and crew, loading and unloading of cargo and the refueling of seaplanes.

(b) Where a platform is provided it must:

(1) Be in a condition that permits constant use without causing injury to persons or damage to seaplane;

(2) Be attached or anchored in a manner that prevents it from shifting position or becoming detached;

(3) Have access from the shore that provides for the safe movement of crew, passengers and cargo; and

(4) Have at least two bull rails or provision for appropriate number of tie-down cleats at each seaplane parking position to secure the seaplane.

(c) When a seaplane is normally secured in a position where any seaplane component over hangs the platform and constitutes a hazard to the movement of crew and passengers, the hazard must be clearly indicated by means of:

(1) Cones; and/or

(2) Hashed red and white markings; and

(3) In a manner easily identifiable to crew and passengers.

(d) Where a ramp or beach is provided it must be:

(1) Built 1.5 times the width of floats or landing gear of the largest seaplane intended to use the facility;

(2) Located in such a manner as to provide a minimum clearance of 1.8 m between a seaplane wing and any object it could come into contact with; and

(3) Constructed with a slope not steeper than 8:1.

§137.311 Anchorage Areas

(a) Seaplane base has a dedicated anchorage area along the shoreline for securing seaplanes. Anchoring must be provided to secure a seaplane near the shoreline as per requirements of the seaplanes.

(b) The design, dimensions, weight and strength of the anchor and anchor line must be as per the requirements of the seaplane and bottom of the sea base for safe anchoring.

(c) The length of the anchor line "A" as shown in Figure F-3 must be six times the maximum depth at mean high water. Where seaplanes weather vanning swing is limited, the length of anchor line may be shortened to not less than three times the water depth, provided the normal anchor weight or holding capacity is doubled thereby avoiding dragging of the anchor.

(d) Center-to-center spacing of “B” as shown in Figure F-3, where small twin-float seaplanes are to be moored, must not be less than twice the length of the longest anchor line plus 40 m to allow for weather waning, fuselage and wingspan parameters. For larger types of seaplanes, including flying boats and amphibians this spacing must be increased by an additional 30 m.

(Note: Anchoring is low-cost method for securing the seaplane while parked. Appropriate anchorage selection (weight and shape) depends on intended use and the holding characteristics of the bottom

of sea base and size of seaplane. The length of the anchor line must be about seven times the depth of the water.)

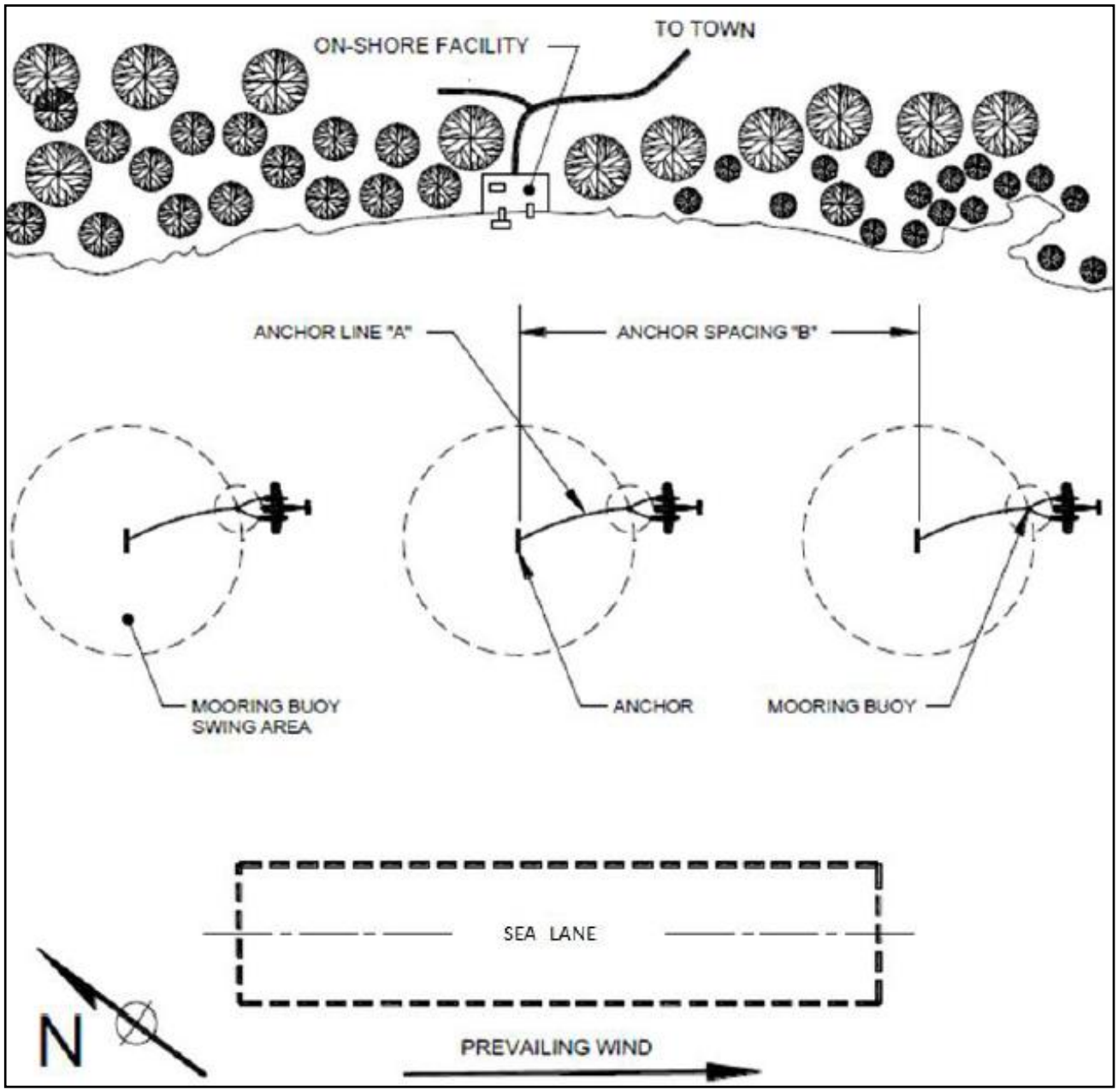

Figure F-3. Illustration of an anchorage area with permanent mooring buoys swing areas

GACAR PART 137 – CERTIFICATION, AUTHORIZATION AND OPERATION OF WATER AERODROMES

SUBPART G - OBSTACLE RESTRICTION AND REMOVAL

(Note.— This Part establishes a series of Obstacle Limitation Surfaces (OLS) that define the limits to which objects may project into airspace in order to minimize dangers presented by the obstacles, either during take-off or approach of seaplanes at water aerodromes.)

§137.401 Obstacle limitation surfaces

(a) The following OLS must be established for non-instrument water aerodromes as shown in Figure G-1(A) Plan View and Figure G-1(B) Elevation View:

(1) A take-off climb/approach surface;

(2) A transitional surface; and

(3) An inner horizontal surface.

I. Take-off climb/approach Surface

(a) Description –The take-off climb/approach surface must be either straight or curved and established at the end/beginning of the water runway strip.

(b) Characteristics–The limit of the take-off climb/approach surface must be:

(1) The width of the inner edge must not be less than that of associated water runway strip;

(2) The inner edge must start at 60 m from threshold of water runway;

(3) The elevation of the inner edge must be the elevation of the water aerodrome;

(4) The length of the take-off climb/approach surface must not be less than 2500 m from the inner edge;

(5) The slope of the take-off climb/approach surface must be a minimum of 4% (1:25);

(6) The centreline of the take-off climb/approach surface must define the approach path and be:

(i) A straight line; or

(ii) An arc of constant radius; or

(iii) A combination of a straight line and an arc of constant radius.

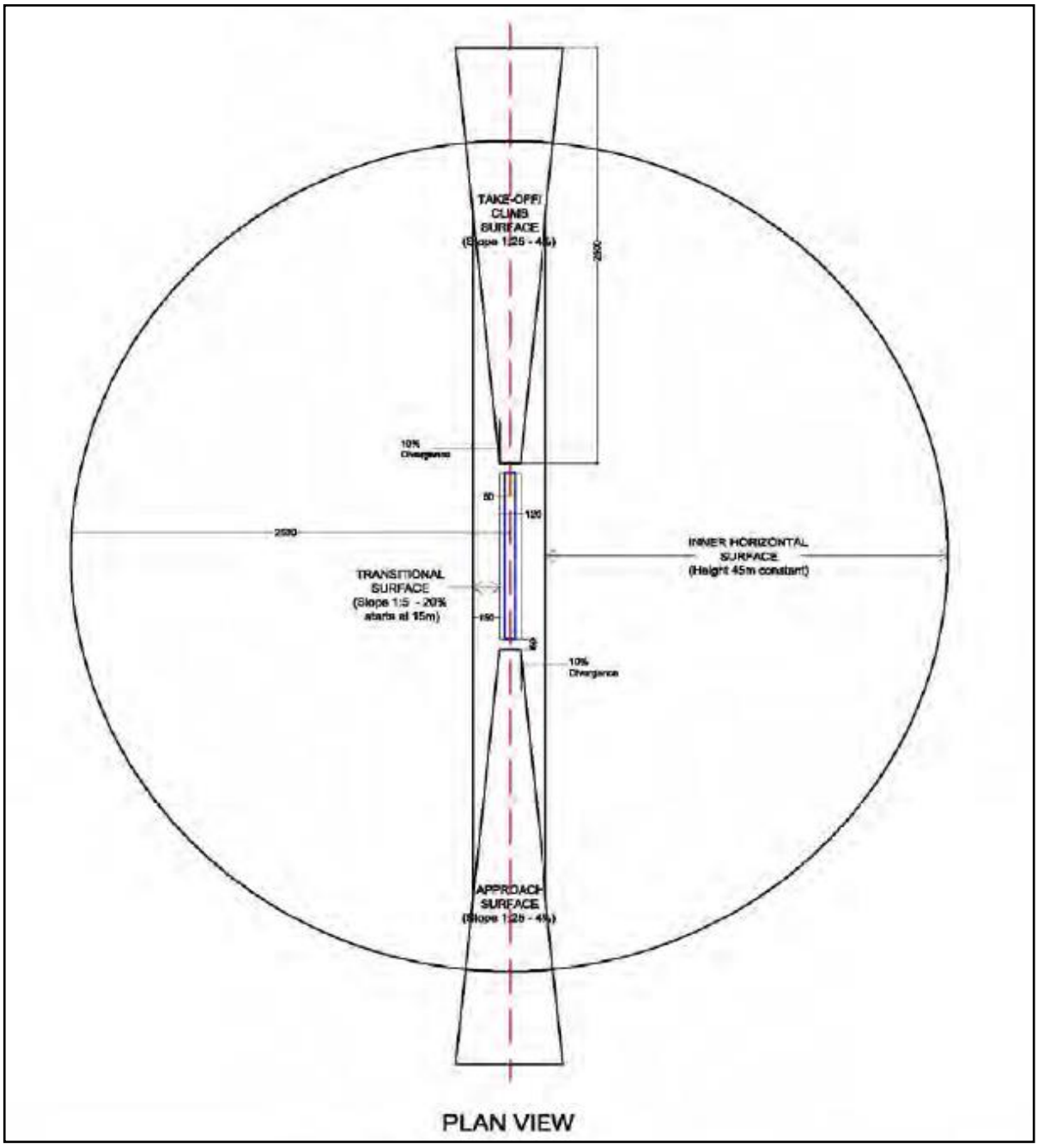

Figure G-1(A) Water Aerodrome Obstacle Limitation Surface

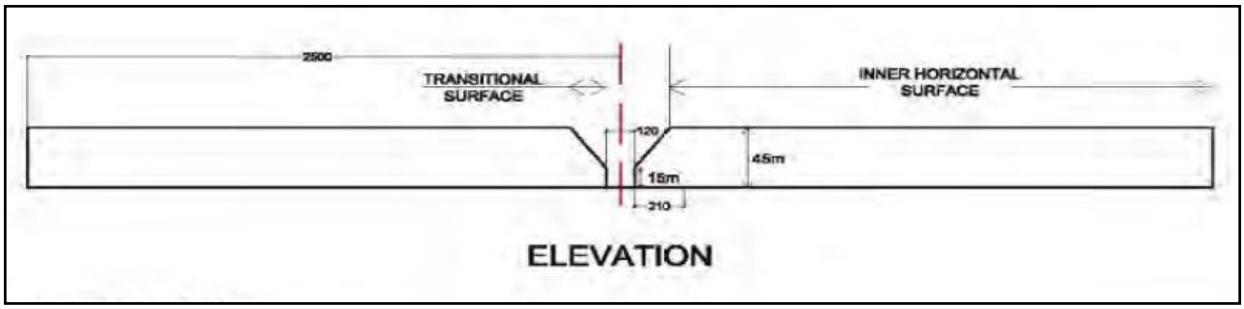

Figure G-1(B) Water Aerodrome Obstacle Limitation Surface

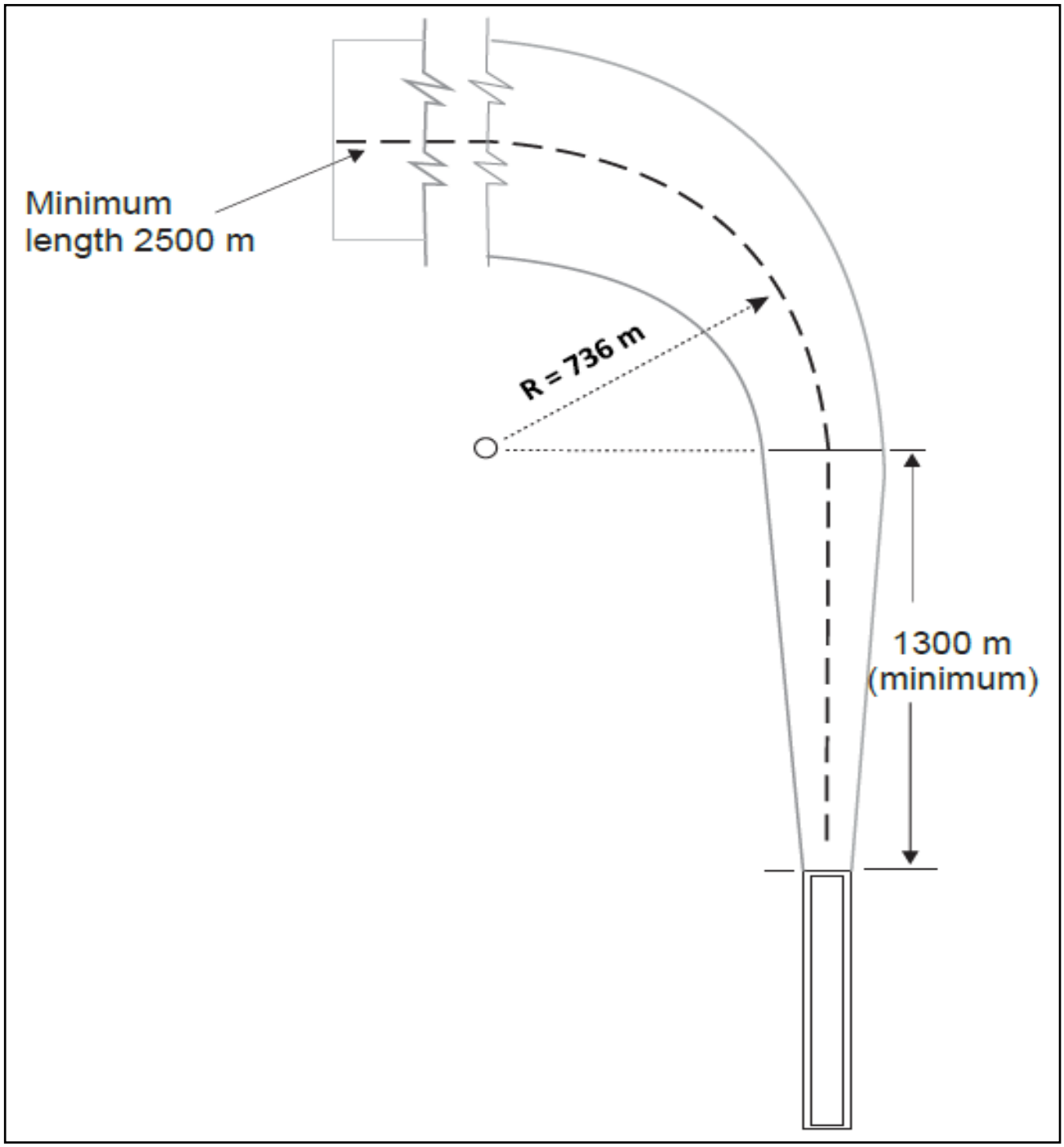

Figure G-2 – Curved Take-Off Climb/Approach Surface

II. Straight-in take-off climb/Approach Surface

(a) Where the slope is designed for a straight-in approach the divergence of the take-off climb/approach surface must be set at 10% starting from the inner edge.

III. Curved take-off climb/approach Surfaces

(a) Where established, a curved take-off climb/approach surface must not contain more than one curved portion.

(b) A curved portion of a take-off climb/approach surface must not allow a change of direction greater than 90 degrees.

(c) Where a curved portion of take-off climb/approach surface is provided:

(1) The straight portion originating at the inner edge must not be less than 1300 m; and

(2) The radius of arc defining the center line of the take-off climb/approach surface must not in any portion of the take-off climb/approach surface be less than 736 m in accordance with Figure G-2.

(d) A take-off climb/approach surface incorporating a curved portion must be established only where guidance, such as, geographical points or other visual references are available.

(Note. — A curved approach is normally established at a non-instrument water runway where it is necessary to avoid obstacles, terrain, noise sensitive areas, or to utilize the airspace above public lands (e.g., freeways, rivers, hotels, resorts, reserved wildlife, prohibited areas).

§137.403 Displaced threshold

(a) Where the integrity of the approach surface cannot be maintained due to fixed or mobile obstacles, a landing threshold must be displaced from the normal threshold.

(b) This displacement must be established so that the new approach surface, starting at the displacement, will clear all obstacles.

(c) Where a threshold has been displaced, the inner edge of approach surface must be located at 60 m from the point of displacement.

Table G-1-Dimensions and slopes of obstacle limitation surfaces-water aerodromes

Approach type–Non-instrument	
Take-off climb/approach surface	
Width of inner edge	Width of water runway strip (120 m minimum)
Location of inner edge	60 m from the threshold
Divergence take-off climb/approach	10 %
Length (minimum)	2500 m
Slope of take-off climb/approach surface (maximum)	4% (1:25)
TransitionalSurface:	
Slope (maximum)	Vertical to 15 m then 1:5 (20%)
Inner Horizontal Surface:	
Height	45 m
Radius	2,500 m

§137.405 Objects and obstacles

(a) No fixed object must be permitted on a water runway or on a water runway strip.

(b) Fixed objects or structures that are located within the water aerodrome boundary must not penetrate OLS unless:

(1) Those structures are for air navigation purposes; or

(2) Are essential to the safety of seaplane aircraft operation;

(3) Are marked, in accordance with this part; and

(4) Are frangible.

(c) A mobile object must not penetrate take-off climb/approach surfaces, unless procedures are in place to ensure the object is removed during approach and departure operations.

§137.407 Other objects

(a) Where an aeronautical study (safety risk assessment) indicates that an object is hazardous to seaplane located on the movement area or in the air in the immediate vicinity of the water aerodrome, it must be:

(1) Removed; or

(2) Marked; and/or

(3) Lighted in accordance with this part.

(b) The water aerodrome operator must conduct a safety risk assessment to establish the required clearances to be used above waterways, lagoons, or harbour.

GACAR PART 137 – CERTIFICATION, AUTHORIZATION AND OPERATION OF WATER AERODROMES

SUBPART H - VISUAL AIDS FOR NAVIGATION

§137.501 Wind direction indicator

(1) Unless the direction of the wind can be obtained by radio, at least one wind direction indicator must be installed.

(2) Where a wind direction indicator is installed, it must be:

(1) Of an international orange, orange and white or red and white colour; and

(2) In the form of a truncated cone.

(3) The wind direction indicator must be:

(1) Location - A wind direction indicator must be located so as to be visible from seaplane aircraft in flight or on the movement area and in such a way as to be free from the effects of air disturbances caused by nearby objects.

(2) Visible at a height of 300 m (1000 ft.) above the water runway; and

(3) Visible from any portion of the manoeuvring area.

(4) The characteristics of the wind direction indicator:

(1) Characteristics - The wind direction indicator must be in the form of a truncated cone made of fabric and must have a length of not less than 3.6 m and a diameter, at the larger end, of not less than 0.9 m. It must be constructed so that it gives a clear indication of the direction of the surface wind and a general indication of the wind speed.

(2) Provision must be made for illuminating the wind indicator at water aerodrome intended for use at night.

§137.503 Markings

(a) Dock identification marking

Characteristics

(1) Dock identification markings must consist of:

(i) A triangle;

(ii) Painted bullrails as specified in (b) (1).

(2) Both markings must be affixed to the upper surface of the dock so as to be visible from 300m above the water runway.

(b) Bullrails

(1) Where bullrails are installed they must be painted in alternated bands of international orange and white stripes.

(c) Gangways

(1) Gangways must be painted red or signage provided indicating seaplane access only.

§137.505 Markerbuoys

Characteristics

(1) Marker buoys must be visible to seaplane:

(i) Manoeuvring on the surface of water; and

(ii) 300 m above the water runway.

(a) Water runway markers

(1) Except as specified in (a)(2) at water aerodromes where there is no conflict with marine traffic or marine regulations:

(i) Both ends of the take-off and landing area must be marked with floating markers.

(ii) The markers must be visible from a distance greater than 2 nautical miles.

(iii) Each marker must be:

(A) Of international orange in color; or

(B) Alternating international orange and white.

(2) Where it is impracticable to mark the water runway as specified in (a)(1):

(i) Guidance such as geographical points and/or other visual references must be provided to designate the take-off and landing area; and

(ii) These visual references must be identified and published.

(b) Displaced threshold markers

(1) Where a threshold is displaced permanently or temporarily:

(i) The threshold displacement must be marked with floating markers;

(ii) The markers must be visible from a distance of at least 2 nauticalmiles; and

(iii) Each marker must be international orange or the markers must be alternating international orange and white.

(c) Hazardous areas markers

(1) Where shoals or other hazards could endanger a seaplane, marker buoys must be installed to clearly indicate the hazardous area.

(2) Marker buoys for delineating hazardous area must be distinctly marked from water runway markers in colour and shapes.

§137.507 Signages

(a) Prohibitionsigns

(1) A sign must be provided and displayed on the dock restricting the dock to seaplane operations only.

(2) A sign must be displayed on the dock restricting passengers from the docking area until all seaplanes and propeller shave come to a complete stop.

§137.509 Strobe Lights

(a) Strobe lights must be installed to delineate water aerodrome facilities wherever necessary. Where installed, the strobe lights must be:

(1) white, quick flashing; and

(2) located in an area that is easily and constantly seen by both marine and air traffic.

GACAR PART 137 – CERTIFICATION, AUTHORIZATION AND OPERATION OF WATER AERODROMES

SUBPART I - VISUAL AIDS FOR DENOTING OBSTACLES

(Note. – The marking and lighting on the obstacles in or near vicinity of water aerodrome must be provided wherever necessary. The characteristics and other parameters of the markings and lights must be same as defined in this sub part and appendix I).

§137.601 Objects to be marked and/or lighted

(a) Fixed objects

(1) Objects that are conspicuous by their shape, size or colour need not be marked.

(2) Objects that are below the take-off/landing approach surfaces and do not penetrate OLS, must be marked and/or lighted.

(3) Except as covered under the Marine Act, objects must be marked in accordance with paragraph §137.603.

§137.603 Marking of objects

(a) General

(1) Except as specified in paragraph §137.601(1) all fixed objects must be marked in a conspicuous colour.

(2) Where it is not possible to colour the objects, markers or flags must be displayed on or above the objects.

(b) Use of colours

(3) The colour and form of marking displayed on objects must be of international orange and white checkered/strips in accordance as described in this Part.

(c) Use of markers

(4) Markers displayed on or adjacent to objects must be:

(i) Located in conspicuous positions so as to retain the general definition of the object; and

(ii) Recognizable in clear weather from adistance of:

(A) 1000 m for an object to be viewed from the air; and

(B) 300 m for an object to be viewed from the ground in all directions in which a seaplane is likely to approach the object.

(5) The shape of the markers must be:

(i) Distinctive to the extent necessary to ensure that they are not mistaken for markers employed to convey other information; and

(ii) Such that the hazard presented by the object they mark is not increased.

(6) The colour selected for flag must contrast with the background against which it will be seen and prefrably be of red color.

GACAR PART 137 – CERTIFICATION, AUTHORIZATION AND OPERATION OF WATER AERODROMES

SUBPART J - WILDLIFE STRIKE AND SEA LIFE HAZARD REDUCTION

(Note.—The presence of wildlife on and in the water aerodrome vicinity consists of land and water which may poses a serious threat to seaplane operational safety.)

§137.701 General Requirements

(a) The wildlife strike hazard on, or in the vicinity of, the water aerodrome must be accessed by the water aerodrome operator through:

(1) The collection of information from nearby water aerodromes, seaplane operators, area community personnel and mariners, maritime authorities etc. on the presence of wildlife on or around the water aerodrome constituting a potential hazard to seaplane operations;

(2) An ongoing evaluation process of the wildlife hazard by competent personnel; and

(3) Develop a wildlife and aquatic life management program for the water aerodrome if required as per provision in §137.703.

(b) Wildlife strike reports must be collected by the water aerodrome operator and forwarded to President.

(c) The water aerodrome operator must take action to decrease and prevent the risk to seaplane operations by adopting measures prescribed in wildlife management program to minimize the likelihood of collisions between wildlife and seaplanes.

(d) The water aerodrome operator must take action to assess and eliminate or prevent the establishment of garbage disposal dumps or any other source which may attracts wildlife to the water aerodrome, or its vicinity, unless an appropriate wildlife assessment indicates that they are unlikely to create conditions conducive to a bird hazard or sea aquatic animal problem. Where the elimination of existing sites is not possible, the water aerodrome operator must ensure that any risk to the seaplanes posed by these sites is assessed and reduced to as low as reasonably practicable.

(e) Water aerodrome operator must coordinate with marine authorities and considered the information while accessing the wild life hazards at water aerodrome.

(f) Water aerodrome operator must give due consideration to needs and concerns related to land and sea developments that may attract wildlife or harm aquatic life.

(g) Water aerodrome operator must take immediate action to alleviate wildlife hazards whenever they are detected.

(h) The wildlife hazard assessment required in paragraph (a) of this section must be conducted by a wildlife management biologist who has professional training and/or experience in wildlife hazard

management at water aerodromes, heliports or airports. The wildlife hazard assessment must cover and the program must contain at least the following:

(1) An analysis of the events or circumstances that prompted the assessment.

(2) Identification of the wildlife species observed on land or in the associated sea area and their numbers, locations, local movements, and daily and seasonal occurrences.

(3) Identification and location of features on and near the water aerodrome that attract wildlife.

(4) A description of wildlife hazards to air transport operations.

(5) Recommended actions for reducing identified wildlife hazards to air transport operations.

(i) The wildlife hazard assessment required under paragraph (a) of this section must be submitted to the President for acceptance and determination of the need for a wildlife hazard management program. In reaching this determination, the President will consider:

(1) The wildlife hazard assessment;

(2) Actions recommended in the wildlife hazard assessment to reduce wildlife hazards;

(3) The aeronautical activity at the water aerodrome, including the frequency and size of air carrier seaplane; and

(4) Any other known factors relating to the wildlife hazard on land and associated sea area of which the President is aware.

§137.703 Wildlife and Sealife Hazard Management Program

(a) When the President determines that a wildlife hazard management program is needed, the water aerodrome operator must formulate and implement the program using the wildlife hazard assessment as a basis. The program must:

(1) Provide measures to alleviate or eliminate wildlife and aquatic life hazards to seaplane operations;

(2) Be submitted to, and accepted by, the president prior to implementation; and

(3) Become a part of the Water Aerodrome Operation Manual.

(b) A training program conducted by a qualified wildlife hazard management biologist to provide water aerodrome personnel with the knowledge and skills needed to successfully carry out the wildlife and aquatic life hazard management program required by this section.

GACAR PART 137 – CERTIFICATION, AUTHORIZATION AND OPERATION OF WATER AERODROMES

SUB PART K - LIGHTING OF MOVEMENT AREA

(Note. – The lighting on the movement area of water aerodrome must be provided wherever necessary. The characteristics and other parameters of the lights must be same as defined in in this Sub Part and appendix K.)

§137.801 General Requirements

(a) Water aerodrome identification and maneuvering area lighting must be provided for reduced visibility conditions wherever necessary.

(b) A water aerodrome must be provided to be identified by a beacon alternating white and yellow flashes at the rate of 12 to 30 flashes per minute.

(c) In water traffic congested areas, a radio activated strobe beacon must be used to alert mariners and other airman that a seaplane will be arriving or departing within a short time.

(d) Flood lights or spot lights must be installed on the shore to illuminate deck area, floats, ramps, and piers to produce a luminance of least 10 cd/m2. Care must be taken in locating and aiming flood lights to preclude affecting the vision of pilot's landing or taking off or creating distracting reflections.

GACAR PART 137 – CERTIFICATION, AUTHORIZATION AND OPERATION OF WATER AERODROMES

SUBPART L - RESCUE AND FIRE FIGHTING

(Note.— Water aerodrome emergency planning is the process of preparing the aerodrome to cope with an emergency occurring at the water aerodrome or in its vicinity. The objective of the water aerodrome emergency planning is to minimize the effects of an emergency, particularly in respect of saving lives and maintaining seaplanes operations. The water aerodrome emergency plan sets forth the procedures for coordinating the response of different agencies (or services) and of those agencies in the surrounding community that could be of assistance in responding to the emergency.The requirements are considered taking in account the largest available size of seaplane in operation.)

§137.901 General

(a) The principal objective of a rescue and firefighting service is to save lives in the event of seaplane accident or incident occurring at, or in the immediate vicinity of a water aerodrome.

(b) The rescue and firefighting service is provided to create and maintain survivable conditions, to provide egress routes for occupants and to initiate the rescue of those occupants unable to make their escape without direct aid. The rescue may require the use of equipment and personnel other than those assessed primarily for rescue and firefighting purposes.

§137.903 Level of protection to be provided

(a) The level of protection provided at a water aerodrome for rescue and fire-fighting must be appropriate to the requirements of the water aerodrome. The aerodrome category must be determined from Table L-1 and must be based on the longest seaplane normally using the water aerodrome and their fuselage width.

(b) If, after selecting the category appropriate to the longest airplane’s overall length, that airplane’s fuselage width is greater than the maximum width in Table L-1, column 3 for that category, then the category for that seaplane must actually be one category higher.

Water Aerodrome Category (1)	Seaplane overall length (2)	Maximum fuselage width (3)
1	0 m up to but not including 9 m	2 m
2	9 m up to but not including 12 m	2 m
3	12 m up to but not including 18 m	3 m
4	18 m up to but not including 24 m	4 m
5	24 m up to but not including 28 m	4 m
6	28 m up to but not including 39 m	5 m
7	39 m up to but not including 49 m	5 m

Table L-1. Water Aerodrome Category for Rescue and fire fighting

§137.905 Exinguishing agents

(a) Types of extinguishing agents and the amount of water for foam production and complimentary agents must be provided on the rescue and fire-fighting vessel(s) in accordance with the aerodrome category for rescue and fire-fighting determined under Table L-1 and Table L-2.

(b) The extinguishing agents and the amount of water for foam production and complimentary agents must be able to be used with air-aspirating and non-air-aspirating turrets and nozzles; with fresh or sea water.

(c) A reserve supply of foam concentrate, equivalent to 200 per cent of the quantities identified in Table L-2, must be maintained on the water aerodrome for vessel(s) replenishment purposes.

(d) A reserve supply of complementary agent, equivalent to 100 per cent of the quantity identified in Table L-2, must be maintained on the water aerodrome for vessel(s) replenishment purposes. Sufficient propellant gas must be included to utilize this reserve complementary agent.

	Foam meeting performance level A		Foam meeting performance level B		Foam meeting performance level C		Complementary agents	
Aerodrome category	Water (L)	Discharge rate foam solution/ minute (L)	Water (L)	Discharge rate foam solution/ minute (L)	Water (L)	Discharge rate foam solution/ minute (L)	Dry chemical powders (kg)	Discharge Rate (kg/second)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	350	350	230	230	160	160	45	2.25
2	1 000	800	670	550	460	360	90	2.25
3	1 800	1 300	1 200	900	820	630	135	2.25
4	3 600	2 600	2 400	1 800	1 700	1 100	135	2.25
5	8 100	4 500	5 400	3 000	3 900	2 200	180	2.25
6	11 800	6 000	7 900	4 000	5 800	2 900	225	2.25
7	18 200	7 900	12 100	5 300	8 800	3 800	225	2.25

Note. — The quantities of water shown in columns 2, 4 and 6 are based on the average overall length of seaplanes in a given category.

Table L-2. Minimum usable amounts of extinguishing agents

(e) The discharge rate of the foam solution must not be less than the rates shown in Table L-2.

(f) The complementary agents must comply with the appropriate specifications of the International Organization for Standardization (ISO).

(g) The discharge rate of complementary agents must be no less than the values shown in Table L-2.

(h) Where a major delay in the replenishment of the supplies is anticipated, the amount of reserve supply prescribed in §137.905 (c), (d) must be increased as determined by a risk assessment.

§137.907 Response time

(a) For water aerodromes the operational objective of the RFFS must be to achieve a response time not exceeding three (03) minutes to any point of each operational water runway, in optimum visibility and surface conditions.

(b) The RFFS must be available from minimum 30 minutes before until 30 minutes after the operation hours published for water aerodrome. Where the hours of operation are not notified, the RFFS must be available prior to the engine start of the first departing seaplane, or to the first arriving seaplane commencing its final approach; and until the last arrival is moored, or 15 minutes after take-off of the final seaplane whichever is later.

§137.909 Fire and Rescue Vessel(s)

(a) At water aerodromes the rescue and fire-fighting vessel(s) must be provided appropriate to the level of protection required.

(b) The rescue vessels must be of a design and size that would allow survivors to be brought aboard, or it must be equipped with an adequate number of floatation devices of a design that would enable survivors to remove themselves from the water.

(c) Adequate two-way radio equipment should be provided in all rescue vessels in order to permit communications with other rescue units.

(d) The following minimum equipment, but not limited, must be available in rescue and firefighting vessels:

(i) Area Maps
(ii) Navigational Charts
(iii) Bailing Buckets
(iv) Water Pumps
(v) Wool Blankets (for passengers and crew)
(vi) portable horn speaker
(vii) Emergency Lights
(viii) Flares
(ix) Forcible Entry Tools
(x) Marine Night Vision Binoculars
(xi) Life rafts (with paddles or oars)
(xii) Medical Kit
(xiii) Navigational Equipment
(xiv) Portable Resuscitation Equipment
(xv) Flood Lights (500 watts or greater)
(xvi) Rescue Nets
(xvii) Stretchers and Litters
(xviii) Rescue Throwing Bags and Anchors

§137.911 Communication and alerting systems

(a) A communication system must be provided linking the water aerodrome fire station, control tower (if available), fire and rescue vessel(s), fire and rescue vehicles and any other fire station (if available) in the vicinity.

(b) An alerting system for rescue and fire-fighting personnel, capable of being operated by fire station, control tower (if available) must be provided at a fire station.

§137.913 Rescue Equipment

(a) The rescue equipment must commensurate with the level of seaplane operations and must be provided on the rescue and firefighting vessel(s).

§137.915 Rescue and Firfighting Personnel

(a) All personnel involved in rescue and firefighting duties must receive appropriate regular training in the use of equipment provided at the water aerodrome. This must include an operational exercise.

(b) The rescue and firefighting personnel training program must include training in human performance, including team coordination.

(c) All responding rescue and firefighting personnel must be provided with protective clothing and respiratory equipment to enable them to perform their duties in an effective manner.

(d) In determining the minimum number personal required for rescue and firefighting, a task resource analysis must be completed and the level of staffing is documented in the water aerodrome operation manual.

§137.917 Rescue and Firefighting Department Standard Operating Procedures

(a) The water aerodrome operator must develop and submit for acceptance as part of water aerodrome operation manual, the RFF department Standard Operating Procedures (SOPs) for all activities of seaplane firefighting and rescue procedures.

§137.919 General Requirements

(a) The operator must provide minimum following safety equipment on the floating platforms, dock and ramps:

(1) Lifeline ropes–adequate length to cater for number of seaplanes docking positions;

(2) Life Rings - adequate to cater for the number of seaplanes docking positions;

(3) Fire extinguishers – for each seaplane docking position one extinguisher;

(4) First aids medical kits; and

(5) All vessels must be at least 200 m away from the floating platform and the manoeuvring area when the seaplane is on final for landing or ready for take-off.

(b) The equipment and information sufficient to navigate to and from the incident site, communicate with survivors and rescue personnel, effect entry and fire-fighting and provide medical assistance must be provided in rescue and fire-fighting vessels.

(c) A communication system must be provided linking the water aerodrome fire station, control tower (if available), fire and rescue vessel(s), fire and rescue vehicles and any other fire station (if available) in the vicinity.

(d) An alerting system for rescue and fire-fighting personnel, capable of being operated by that station, must be provided at a fire station, any other fire station in the vicinity and the aerodrome control tower.

(e) Procedures for the enhancement of passenger and crew post-accident survival must be developed and facilities in terms of staff and equipment, appropriate to the type of seaplane operations anticipated at the water aerodrome, must be provided.

(f) The rescue vessels must be of a design and size that would allow survivors to be brought aboard, or it must be equipped with an adequate number of floatation devices of a design that would enable survivors to remove themselves from water.

(g) The rescue vessel(s) provided must be appropriate for the environment involved and they must be capable or must carry equipment capable of accommodating twice the maximum number of passengers carried by the largest type of seaplane serving the water aerodrome.

GACAR PART 137 – CERTIFICATION, AUTHORIZATION AND OPERATION OF WATER AERODROMES

SUBPART M - WATER AERODROME EMERGENCY PLANNING

§137.1001 General Requirements

(a) The water aerodrome operator must prepare and submit a Water Aerodrome Emergency Plan (WAEP) along with application for certification or authorization for the particular water aerodrome for acceptance by the President of GACA. This can be provided as part of the water aerodrome operation manual.

(b) Water aerodrome emergency plan must be established at an aerodrome, commensurate with the seaplane operations and other activities conducted at the water aerodrome.

(c) The water aerodrome certificate holder must establish an aerodrome emergency planning committee (AEPC). All assigned members from both internal and external (off water aerodrome) agencies will be participants in the development, review and exercising of the water aerodrome emergency plan. The water aerodrome authorization holder must have similar arrangement and be responsible for emergency plans for the authrised water aerodrome.

(d) The water aerodrome emergency plan must provide for the coordination of the actions to be taken in an emergency occurring at a water aerodrome

(e) The water aerodrome emergency plan must coordinate the response or participation of all existing agencies which, in the opinion of the water aerodrome operator, could be of assistance in responding to an emergency.

(f) The water aerodrome emergency plan document must include at least the following:

(i) Types of emergencies planned;

(ii) Agencies involved in the plan;

(iii) Responsibility and role of each agency, the emergency operations center and the command post, for each type of emergency;

(iv) Information on names and telephone numbers of offices or people to be contacted in the case of a particular emergency; and

(v) A water aerodrome grid map.

(g) The water aerodrome emergency plan must also consider the particular hazards associated with seaplane operations, including:

(i) Passenger evacuation into a further life-threatening environment, e.g. deep water;

(ii) The onset of hypothermia, and its associated effects, during and following prolonged immersion in cold water; and

(iii) The immediate toxicity and respiratory effects on survivors in the water following the ingestion offloating fuel and oils and their associated vapours, and fire suppressant foams, powders and gases.

(h) The water aerodrome emergency plan must contain provisions for:

(i) Water rescue;

(ii) Fire response;

(iii) Fuel spillages response;

(iv) Low visibility condition;

(v) Seaplane accident (Full emergency);

(vi) Local standby;

(vii) Non-Seaplane accident related water aerodrome emergencies;

(viii) Occurrences involving dangerous goods;

(ix) Natural disaster;

(x) Triage and Medical Care;

(xi) Preservation of Evidence for Accident Investigations;

(xii) Mutual aid agreements; and

(xiii) Recovery of disabled saeplane from the movement area.

(i) The water aerodrome emergency plan must contain procedures for periodic testing of the adequacy of the plan and for reviewing the results in order to improve its effectiveness and:

(i) The plan must be tested by conducting a full-scale aerodrome emergency exercise at intervals not exceeding two years and partial emergency exercises in the intervening year

to ensure that any deficiencies found during the full-scale aerodrome emergency exercise have been corrected;

(ii) The aerodrome certificate holder must hold a meeting of all emergency planning committee at least 120 days prior to the scheduled full-scale emergency exercise. At this time, the aims of the exercise must be outlined, a scenario formulated, work tasks assigned, and duties of all agencies and personnel defined. And Notify GACA concern department in formats and manner accepted to the President; and

(iii) And review the plan, thereafter, or after an actual emergency, so as to correct any deficiency found during such exercises or actual emergency.

(j) Sufficient medical services and supplies must be available at the water aerodrome facility to deal with routine medical emergencies (which normally occur at the aerodrome such as on-the-job injuries, heart attacks, etc.) and medical emergencies during possible seaplane accidents, medical services and supplies shall include all contents specified in appendix M.

(k) The water aerodrome emergnecy plan must contain procedures for diving units/use of divers, when available, all divers who may be called for this type of service should be highly trained in both scuba diving and underwater search and recovery techniques, agreements may be made.

(l) The water aerodrome emergnecy plan must include procedures for Emergency operations center and command post.

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SUBPART N - WATER AERODROME OPERATING REQUIREMENTS

§137.1101 General Operating Requirements

(a) The water aerodrome operator must ascertain that water aerodrome is either authorised of certificated, depending on the classification given in subhead A and meets the requirements of this part before any seaplane aircraft operations on water aerodrome.

(b) The water aerodrome operator must take all reasonable measures to ensure that obstacles at or within the vicinity of the water aerodrome are detected and reported to the President of GACA and other relevant regulatory authority as quickly as possible.

(c) No person will operate any such device or equipment on any water aerodrome to which these regulations apply which may cause interference to communication between seaplane and ground.

(d) During operational hours, the water aerodrome operator must ensure that the movement area is free of hazards.

(e) The water aerodrome operator must take all reasonable actions to remove any object or vessel anchored, moored or otherwise within any water aerodrome in contravention of this regulation.

(f) The water aerodrome operator is responsible for ensuring that no unauthorized person may enter or remain in a water aerodrome to which these regulations apply to promote the safety of all seaplane and their passengers, cargo and crew during operational hours.

(g) If a water aerodrome is available for seaplanes to land or take-off at night or in less than Visual Meteorological Condition (VMC) during the day, the operator of the water aerodrome must provide and maintain a lighting system for the movement area of the water aerodrome.

(h) Water aerodrome operation ensure that all manuals and operating procedures are approved/accepted by relevant authorities and are available on water aerodrome.

(i) Information relating to the certified water aerodromes must be published in the Aeronautical Information Publication.

§137.1103 Provisions of Water Aerodrome Operation Manual

(a) The operator of a certified water aerodrome must develop a water aerodrome operation manual (WAOM), which must contain required details and information as given in Appendix A-2 of this part.

(b) The operator of a certified water aerodrome must submit water aerodrome operation manual for acceptance of the President of GACA before starting any operation or while applying for certification of the water aerodrome.

§137.1105 Safety Management System

(a) The operator of a certified water aerodrome must ensure that the aerodrome has an acceptable Safety Management System (SMS) that must:

(1) Be established in accordance with the framework elements contained in GACAR Part 5;

(2) Be acceptable to the President of GACA; and

(3) Be commensurate with the size of the aerodrome operator and the complexity of the water aerodrome.

§137.1107 Water Aerodrome Operation Procedures

(a) The operator of a water aerodrome must operate and maintain the water aerodrome in accordance with the procedures set out for the water aerodrome in manual

(b) President, GACA may direct the operator of a water aerodrome to change the procedures set out, if the President, GACA considers such changes are necessary in the interests of the safety of air navigation.

§137.1109 Maintenance of Water Aerodrome

(a) The water aerodrome operator must ensure that the aerodrome is operated and maintained with a reasonable degree of care, diligence, serviceability and safety.

(b) The water aerodrome operator must implement a maintenance program at the aerodrome. Such a maintenance program must comply with the requirements specified in the water aerodromes operation manual and must include preventive maintenance work as well as routine inspections and corrective maintenance work.

(c) The water aerodrome operators, who intends to outsource the maintenance services, must obtain acceptance of the President for the service provider.

§137.1111 Water Aerodrome Condition Notification

(a) This regulation applies if a deviation from a procedure set out in the water aerodrome operation manual for a certified water aerodrome is made to ensure the safety of seaplane.

(b) The operator of a water aerodrome must inform the President of GACA in writing of the deviation.

(c) Notice of Change in Physical Condition of Aerodrome - the water aerodrome operator must inform President and take prior acceptance of:

(1) Any temporary or permanent change in the physical condition of the aerodrome that may affect the safety of seaplanes; and

(2) Any other occurrence relating to the operation or maintenance of the aerodrome that may affect the safety of seaplanes.

(3) If the water aerodrome is a controlled aerodrome, the notice must also be given to air traffic control (SANS).

(d) Notice of Changes in Information Published in the AIP - To maintain accuracy of the information published in Aeronautical Information Publications (AIP) relating to a certified water aerodrome, the operator of the aerodrome must inform the President in writing, as soon as practicable of any change required to that information.

(e) Aerodrome Condition Notification - the operator of a certified water aerodrome must:

(1) Notify the Aeronautical Information Service (AIS), as soon as practicable (for the issue of a Notice to Airmen [NOTAM]), of any aerodrome operational condition or defect at the aerodrome that may affect the safe operation of seaplanes.

(2) Establish procedures for restricting seaplane operations where an unsafe condition exists on the water aerodrome. The procedures must ensure that operations are not conducted on portions of the aerodrome where such an unsafe condition exists

§137.1113 Wildlife and Aquatic life hazard management

(a) The operator of a certified water aerodrome must develop a wildlife and aquatic life hazard management plan that includes the identification of the risk and hazards that may exist, and suitable mitigation measures as provisions prescribed in Sub Head J of this part.

§137.1115 Security requirements

(a) The operator of a certified water aerodrome must develop and implement a water aerodrome security plan in coordination with relevant agencies, national regulation and ensure that aerodrome operations are safe.

§137.1117 Dangerous goods

(a) The operator of a certified water aerodrome must make arrangements for special areas on the water aerodrome to be set up for the storage of dangerous goods. The procedures must be explained in Water Aerodrome Operation Manual with defined responsibilities. The RFF personnel must be trained to handle the dangerous goods.

§ 137.1119 Disabled seaplane removal

(a) A plan for the removal of seaplane disabled on, or adjacent to, the movement area must be established for a water aerodrome, and a coordinator designated to implement the plan, when necessary.

(b) The disabled seaplane removal plan must be based on the characteristics of the seaplane that may normally be expected to operate at the water aerodrome, and include among other things:

(1) A list of equipment and personnel on, or in the vicinity of, the water aerodrome which must be available for such purpose; and

(2) Arrangements for the rapid receipt of seaplane recovery equipment kits available from other water aerodromes.

§ 137.1121 Dock/Anchorage area management service

(a) When warranted by the volume of seaplane traffic and operating conditions, an appropriate dock/anchorage area management service must be provided on movement area by the water aerodrome operator in order to:

(1) Regulate movement with the objective of preventing collisions between seaplanes, and between seaplanes and vessels/boats and obstacles; and

(2) Ensure safe and expeditious movement of boats and vessels and appropriate regulation of other movement activities.

§ 137.1123 Ground Servicing of seaplane

(a) Fire extinguishing equipment suitable for at least initial intervention in the event of fuel fire and personnel trained in its use must be readily available during the ground servicing of seaplane and there must be a means of quickly summoning the rescue and firefighting service in the event of a fire or major fuel spill.

(b) When seaplane refueling operations take place while passengers are embarking, on board or disembarking, ground equipment must be positioned so as to allow:

(1) The use of a sufficient number of exits for expeditious evacuation; and

(2) A ready escape route from each of the exits to be used in an emergency.

(c) Ground servicing facilities and equipment required for public and cargo handling must be provided at certified water aerodromes.

§ 137.1125 Vehicle/Boats/Vessels Operations on Water Aerodrome

(a) A vehicle/boats/vessels must be operated on movement, dock and anchorage area only as authorized by the water aerodrome operator.

(b) The driver of a vehicle/boats/vessels on the movement area must comply with all mandatory instructions conveyed by marking and signs unless otherwise authorized by the water aerodrome in-charge or water aerodrome control tower.

(c) The driver of a vehicle/boats/vessels on the movement area must comply with all mandatory instructions conveyed by lights during nights/low visibility.

(d) The driver of a vehicle/boats/vessels on movement area must be trained for the tasks to be performed and must comply with the instructions issued by the water aerodrome in-charge

(e) When on water aerodrome, where water aerodrome control is provided, the driver of a radio-equipped vehicle must establish satisfactory two-way radio communication with the water aerodrome control tower before entering the maneuvering area. The driver must maintain a continuous listening watch on the assigned frequency when on the movement area.

§ 137.1127 Sitting of equipment and installations on operational areas

(a) Unless its function requires any equipment to be there for air navigation or for seaplane safety purposes, no equipment or installation must be provided on water runways, taxiways and safety area. If such equipment is need to be provided, then must be done as described in relevant subparts of this part.

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APPENDIX A TO C – GENERAL

APPENDIX A-1: DEFINITIONS FOR THIS PART

(Note - The definitions, used in this part for the water aerodromes regulations are in addition to definitions defined in GACAR Part I. If there is any difference in interpretation of these definitions, the definition given in GACAR Part 1 shall prevail.)

The definitions in this part will have the following meanings:

Amphibian plane – An amphibian is an aircraft that can take off and land on both land and water.

Anchorage Area – An area of a water aerodrome designed specifically for the parking of seaplanes.

Authorization – Authorization testify that water aerodrome meets the requirement of GACAR Part 137 for a classified type of use of water aerodrome.

Authorization Holder – An operator of a water aerodrome who has been issued with the authorization of the water aerodrome by President of GACA.

Certification Holder – An operator of a water aerodrome who has been issued with the certification of the water aerodrome by President of GACA.

Establishment Permission – Establishment permission means that applicant is permitted by the President to establish a water aerodrome as per the provisions of GACAR Part 137.

Docking Area – A defined area on a water aerodrome either fixed or floating, intended to accommodate seaplanes for the purpose of loading passengers, cargo, refueling, parking, or maintenance.

Fixed Platform – A platform extending from the shore, on water and supported by pillars to hold it in position, intended to align alongside seaplanes for the purposes of embarkation and disembarkation passengers, cargo, fueling or parking.

Floating Platform – A platform placed on open water authorized for the purpose of embarkation and disembarkation of passengers or cargo by seaplane.

Gangway – A movable walkway where people board and disembark i.e. platforms, piers, barges.

Low water level –The average low level during that month of the year when levels are lowest or in the case of tidal waters, the average level of low water springs or lowest waters, depending on the type of tide.

Mooring – A fixed permanent installation on the water surface used to secure seaplanes. The seaplane may be moored to a floating buoy, a pier, platforms etc.

Mooringbuoy – A buoy connected by chain or cable to a permanent unmovable anchor sunk deeply into the bottom of a body of water.

Movement Area – The part of a water aerodrome to be used for take-off, landing and taxiing of seaplane aircraft, consisting of the maneuvering area and platforms.

Maneuvering Area – The part of a water aerodrome to be used for take-off, landing and taxiing of seaplane aircraft, excluding the platform.

Protected area – An area which is protected from large waves. The structure providing protection can be natural or constructed.

Response time – Response time is the time between the initial call to the Rescue and Firefighting Services and first effective intervention at the accident site by a rescue and firefighting vessel.

Seaplane – A fixed winged aeroplane which is designed for taking off and landing on water and includes amphibian's operation as seaplanes.

Taxi channel – A defined path on a water aerodrome, intended for the use of taxing seaplanes.

Turning basin – A water area used for the water taxi maneuvering of sea planes along shore line facilities and at the ends of an arrow water runway.

Waterways – A river, canal or other water body serving as a route or way of travel or transport.

Water Aerodrome – A defined area, primarily on water, intended to be used either wholly or in part for the arrival, departure and movement of seaplane aircraft, and any building and equipment on ground or water.

Water aerodrome operator – Any organization or person incharge of a water aerodrome including accontable employee or other authorized representative.

Water current – is rate of flow of the water.

Water Runway or Sea Lane – A defined rectangular area on a water aerodrome, intended for the landing and take-off of seaplane aircraft along its length.

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APPENDIX A-2: WATER AERODROME OPERATION MANUAL

The particulars to be provided in Water Aerodrome Operation Manual (WAOM)

(a) The Water Aerodrome Operation Manual is applicable for certified water aerodromes. The certificate holder of a water aerodrome must develop the water aerodrome operation manual for the certified water aerodrome. (The Water Aerodrome Operation Manual must be submitted along with application for certification as defined in Sub Part B of this Part).

(b) The water aerodrome operation manual, once accepted by the President, must be maintained including up to date amendments by the water aerodrome operator.

(c) The water aerodrome operation manual must contain the following:

Part 1.0 Introduction

1.1 This section must contain a short explanation of the general terms used in the water aerodrome operation manual including, organization chart, job titles and abbreviations.

1.1.1 Purpose of the water aerodrome operation manual.

1.1.2 Legal position regarding water aerodrome certification as contained in the applicable regulation.

1.1.3 Distribution of the water aerodrome operation manual.

1.1.4 Procedures for amending the water aerodrome operation manual.

1.1.5 Checklist of pages.

1.1.6 Preface by certificate holder.

1.1.7 Table of contents.

1.1.8 Glossary of terms.

Part 2.0 Technical Administration

2.1 Name and address of the water aerodrome.

2.2 Name and address of the water aerodrome operator.

2.3 The name and contact details of the accountable executive and water aerodrome management personnel.

2.4 Organizational Chart of Water Aerodrome Operator.

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Part 3.0 Description of the water aerodrome

3.1 Details of the following:

3.1.1 Latitude and longitude of the water aerodrome reference point in World Geodetic System —1984 (WGS-84) format.

3.1.2 Type and frequency of tides – low tide and high tide.

3.1.3 Elevations of Dock(s).

3.2 Layout Plans showing the position of the water aerodrome reference point, dimensions of the water aerodrome, water runway, taxi channel, dock and anchoring area etc.; including the markers, markings and lightings.

3.3 Description, height and location of obstacles that infringe upon the standard protection surfaces, whether they are lighted and if they are promulgated in the aeronautical publications.

3.4 Procedures for ensuring that the water aerodrome plans are up to date and accurate.

3.5 Data and the method used to calculate, declared distances, water depth, water currents and tide elevations at the beginning and end of each declared distance.

3.6 Details of the water surfaces, dimensions and classification of various parameters such as water current, tide timings - low tides and high tides etc.

Part 4.0 List of authorized deviations, if any.

Part 5.0 Water Aerodrome Operational Procedures:

5.1 The applicant or water aerodrome operator must develop operation procedures and include as part of water aerodrome operation manual. This section must contain a policy explanation, personnel responsibilities and operation procedures for the following as applicable.

5.1.1 Promulgation of aeronautical information
5.1.2 Control of access
5.1.3 Emergency planning
5.1.4 Rescue and firefighting (RFF) services
5.1.5 Inspections of the movement area
5.1.6 Maintenance of the movement area
5.1.7 Low tide, high tide status, and other hazardous meteorological conditions
5.1.8 Visual aids
5.1.9 Dock and Anchoring area safety management
5.1.10 Seaplane Anchoring Procedures
5.1.11 Vessels on the movement area
5.1.12 Wildlife and Sea life hazard management
5.1.13 Obstacles

5.1.14 Removal of a disabled seaplane
5.1.15 Dangerous goods
5.1.16 Low visibility operations
5.1.17 Protection of sites for radar, navigation aids and meteorological equipment, if any.

5.2 The applicants or water aerodrome authorization holders must develop operation procedures as given in 5.1 and not required to develop the water aerodrome operation manual. The procedures may be developed as separate documents or as a combined procedures manual depending on size, seaplane traffic and complexity of water aerodrome operations as prescribed in sub part C of this part. The water aerodrome operation procedures must include detailed particulars and responsibility of accountable executive and other management personnel, if provided, and procedures for at least 5.1.2, 5.1.3, 5.1.4, 5.1.5, 5.1.6, 5.1.7, 5.1.8, 5.1.9, 5.1.10, 5.1.11, 5.1.12, 5.1.13, and 5.1.16 as prescribed above in this part.)

Part 6.0 Safety management system (SMS)

6.1 The water aerodrome operator must establish a safety management system at certified water aerodrome and safety management manual must be developed as per provisions in GACAR Part 5 and at least includes the following:

6.1.1 Safety policy.
6.1.2 Operator's structure and responsibility.
6.1.3 Training.
6.1.4 Complying with regulatory requirements relating to accidents, incidents and mandatory occurrence reporting.
6.1.5 Hazard analysis and risk assessment.
6.1.6 Management of change.
6.1.7 Safety criteria and indicators.
6.1.8 Safety audits.
6.1.9 Documentation.
6.1.10 Safety related committees.
6.1.11 Safety promotion

(d) Particulars to be included in Standard Operating Procedures

Name of the Standard Operating Procedure: _____

1. Purpose

2. Document Control

(i) Approving authority
(ii) Responsible department and official for SOP implementation.

(iii) Relevant stake holders
(iv) Revision history, if any.

3. Regulatory and other references

(i) Applicable regulation(s)
(ii) External documents, if any.
(iii) Reference of associated SOP(s)

4. Implementation

(i) Description
(ii) Flow chart (optional)
(iii) Responsible

5. Support

(i) Internal department interface
(ii) External interfaces, if any.
(iii) System, Material and equipment
(iv) Related internal documents (Check lists/Forms)

6. Glossary and abbreviation

APPENDIX A-3: SITING AND ORIENTATION OF WATER AERODROMES

1.0 Siting and orientation of Water Aerodrome Runways

1.1 Many factors are considered in the determination of the siting and orientation of water aerodrome runways. Without attempting to provide an exhaustive list of these factors nor an analysis of their effects, it appears useful to indicate those which most frequently require study. These factors are classified under four headings as given below. The weather and wind data analysis should be conducted for consideration of orientation and dimensions of water runways as prescribed in ICAO Doc 9157 Part I and ICAO Doc 9184 Part I.

1.1.1 Type of operation

Type of operations and type of seaplane must be paid attention in particular to whether the water aerodrome is to be used in all meteorological conditions or only in visual meteorological conditions, and whether it is intended for use by day and night, or only by day.

1.1.2 Climatological conditions

A study of the wind distribution, water currents, frequency of high and low tides must be made to determine the usability factor. In this regard, the following must be taken into consideration:

(a) Wind statistics used for the orientation of water runway and calculation of the usability factor are normally available in ranges of speed and direction, and the accuracy of the results obtained depends, to a large extent, on the assumed distribution of observations within these ranges. In the absence of any sure information as to the true distribution, it is usual to assume a uniform distribution since, in relation to the most favorable orientations, this generally results in a slightly conservative usability factor.

(b) The selection of data to be used for the calculation of the usability factor must be based on reliable wind distribution statistics, water currents, high and low tide analysis that extend over as long a period as possible, preferably of not less than five years. Authenticity of weather data and marine data must be established and should be from a reliable approved organization.

(c) There are some factors which may require to be considered at a particular water aerodrome. These include:

(i) The wide variations which may exist, in handling characteristics and maximum permissible crosswind components, among diverse types of seaplanes (including future types) within various range groups of maximum permissible crosswind components;

(ii) Prevalence and nature of gusts;

(iii) Prevalence and nature of turbulence;

(iv) The dimensions of water runways;

(v) The water surface conditions — high-low tides, snow and ice on the water surface materially reduce the allowable crosswind component; and

(vi) The strength of the wind associated with the limiting crosswind component.

(d) A study should also be made of the occurrence of high-low tides, poor visibility and/or low cloud base. Account must be taken of their frequency as well as the accompanying wind direction and speed. Detailed information on this topic is provided in Airport Planning Manual (Doc 9184), Part 1 and other relevant provisions on the subject.

1.1.3 Topography of the site, its approaches, and surroundings, particularly:

(a) Compliance with the obstacle limitation surfaces;

(b) Current and future land use. The orientation and layout should be selected so as to protect as far as possible the particularly sensitive areas such as residential, school and hospital zones from the discomfort caused by seaplane noise. Detailed information on this topic is provided in the Airport Planning Manual (Doc 9184), Part 2;

(c) Future expansion plans to be provided;

(d) Construction costs; and

(e) Possibility of installing suitable non-visual and visual aids.

1.1.4 Air traffic in the vicinity of the water aerodrome, particularly:

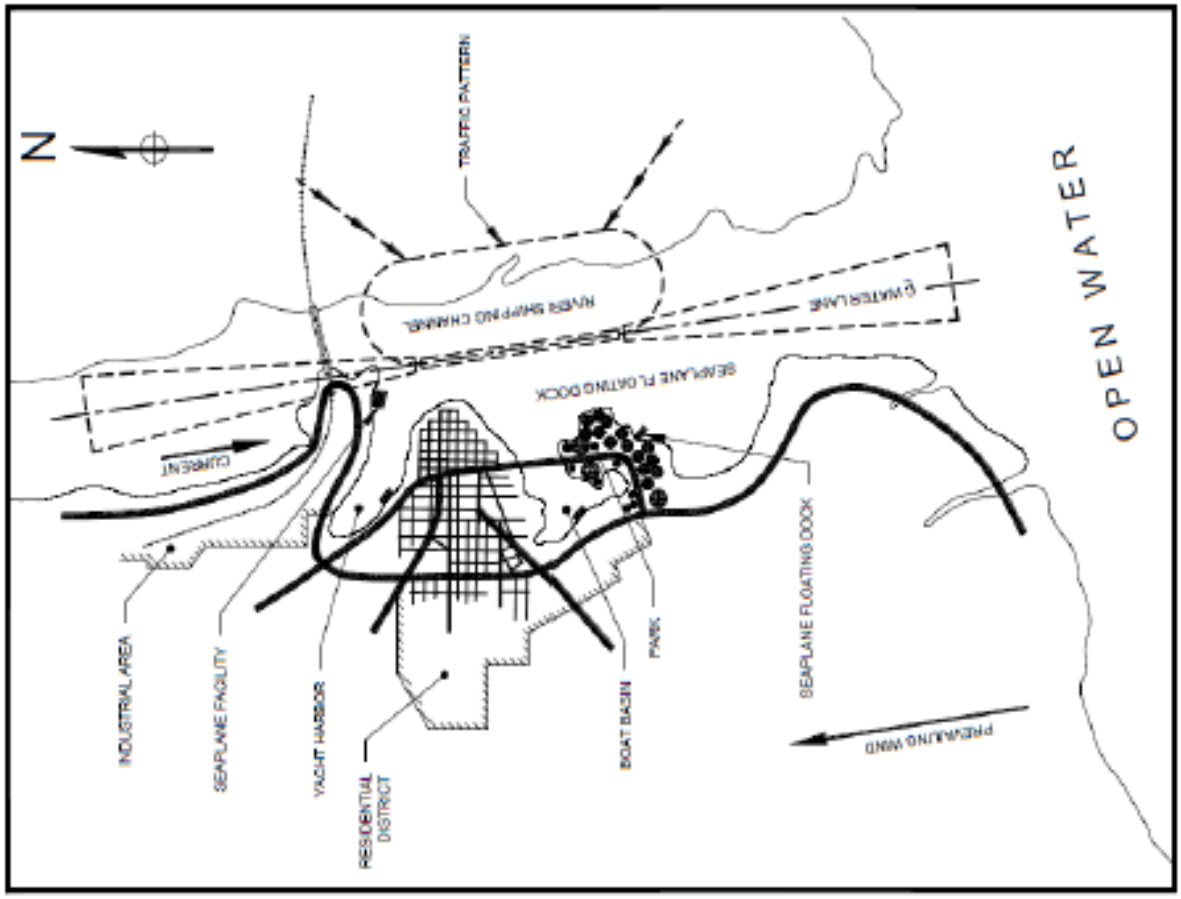
(a) Proximity of other aerodromes or ATS routes;

(b) Traffic density; and

(c) Air traffic control and missed approach procedures.

2.0 Methodology for determination of orientation of approach and take-off climb surfaces

Methodology for determination of orientation of approach and take-off climb surfaces given in ICAO Airport Planning Manual (Doc 9184) are considered acceptable and must be followed while planning establishment of new water aerodromes or operationalization of the existing water aerodromes for type of use prescribed in sub part A of this part.



(Fig Appendix: A3-1 Example of location of water aerodrome and water runway

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APPENDIX A-4: COMPATIBILITY STUDY OF WATER AERODROMES

1.0 Procedures for compatibility study to assess impact of new type/model of seaplane and helicopters, which are certified for operations on water, on certified water aerodrome

1.1 Purpose

The procedures are for the guidance of water aerodrome operators for assessment of the compatibility of the certified water aerodrome infrastructure and operation requirements when water aerodrome require to accommodate or plan to accommodate a seaplane that exceeds the certificated characteristics of the water aerodrome and/or helicopters, which are certified for operations on water.

1.2 Requirement of the study

The GACA Regulations Part 137 contains requirements, standards and specifications applicable to water aerodromes and GACA Regulation Part 138 applicable to heliports, as well as certain facilities and technical services. To a great extent, the specifications for individual facilities have been interrelated by a reference category/code/type as described in the regulations, in accordance with the characteristics of the seaplane for which an aerodrome is intended. It is not intended that those specifications limit the operation of a seaplane or helicopter, which are certified for operation on water, on the certified or authorized water aerodromes.

In matters related to the possible use of the water aerodrome by more demanding seaplanes or helicopters which are certified for operations on water, the related applicable approvals are left to the certified water aerodrome operator to evaluate and take into account appropriate measures to be implemented as necessary for each particular water aerodrome in order to maintain an acceptable level of safety before allowing such seaplane or helicopter operations. It is for this reason that water aerodrome operator is required to conduct compatibility study when required or encounter such a situation. A compatibility study shall be undertaken by the water aerodrome operator to address the impact of introducing a seaplane type/model new to the water aerodrome or helicopter operations on the water aerodrome and may include one or several safety assessments such as aeronautical studies, risk assessment processes and required physical and operational infrastructure suitability.

A compatibility study shall be performed collaboratively between affected stakeholders who include the water aerodrome operator, the seaplane operator or helicopter operator, ground handling agencies as well as the air navigation service providers (SANS).

1.3 Procedure for conducting water aerodrome compatibility study

The following steps describe the arrangement, to be appropriately documented, between the seaplane operator or helicopter operator and water aerodrome operator for the introduction of a seaplane type/subtype new to the water aerodrome or permitting operation of helicopters on water aerodrome:

(a) the seaplane operator or helicopter operator submits a request to the water aerodrome operator to operate a seaplane type/subtype new to the water aerodrome or helicopters, certified for operations on water;

(b) the water aerodrome operator identifies possible means of accommodating the seaplane type/subtype or permitting helicopter including access to movement areas and, if necessary, considers the feasibility and economic viability of upgrading the water aerodrome infrastructure; and

(c) the water aerodrome operator and seaplane operator or helicopter operator discuss the water aerodrome assessment, and whether operations of the seaplane type/subtype or helicopters can be accommodated and, if permitted, under what conditions.

The following procedures must be included in the water aerodrome compatibility study:

(a) identify the seaplane's physical and operational characteristics;

(b) identify the applicable regulatory requirements or alternative means of compliance;

(c) establish the adequacy of the water aerodrome infrastructure and facilities vis-à-vis the requirements of the new seaplane or type of helicopters;

(d) identify the changes required to the water aerodrome and its facilities;

(e) document the compatibility study; and

(f) perform the required safety assessments identified during the compatibility study.

2.0 Applicability of information from the compatibility study

The result of the compatibility study will enable decisions to be made and should provide:

(a) the water aerodrome operator with the necessary information in order to make a decision on allowing the operation of the specific seaplane or helicopter at the given water aerodrome;

(b) the water aerodrome operator with the necessary information in order to make a decision

on the changes required to the water aerodrome infrastructure, facilities, operation procedures and regulatory approvals to ensure safe operations at the water aerodrome and with due consideration to the harmonious future development of the water aerodrome; and

(c) the GACA with the information which is necessary for its safety oversight and the continued monitoring of the conditions specified in the water aerodrome certification.

3.0 References

(a) ICAO Doc 9981 – PANS Aerodrome

(b) ICAO Doc 9974 - Manual of Aerodrome Certification

(c) ICAO Sample Regulation for Water Aerodromes - 2015

(d) GACA Regulations – GACAR 139, 138 and GACAR 137

(e) GACA Regulations – GACAR Part 5

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APPENDIX D: AERONAUTICAL STUDY OF WATER AERODROMES

1.0 Purpose

An aeronautical study is conducted to assess the impact of deviations from the standards specified in GACAR Part 137 and the national regulations to present alternative means of ensuring the safety of seaplane operations to estimate the effectiveness of each alternative and to recommend procedures to compensate for the deviation.

2.0 Applicability

An aeronautical study may be carried out when water aerodrome standards cannot be met as a result of any development. Such a study is most frequently undertaken during the planning of a new water aerodrome or during the authorization or certification of an existing water aerodrome.

3.0 Definition

An aeronautical study is a study of an aeronautical problem to identify possible solutions and select a solution that is acceptable without degrading safety.

4.0 Technical Analysis

Technical analysis will provide justification for a deviation on the grounds that an equivalent level of safety can be attained by other means. It is generally applicable in situations where the cost of correcting a problem that violates a standard is highly excessive or non-implementable but where the unsafe effects of the problem can be overcome by some procedural means which offers both practical and reasonable solutions. The applicant or operators may also consult specialists in relevant areas.

When considering alternative procedures in the deviation approval process, it is essential to bear in mind the safety objective of the relevant regulations and the applicable standards so that the intent of the regulations is not circumvented.

5.0 Approval of Deviations

In some instances, the only reasonable means of providing an equivalent level of safety is to adopt suitable procedures and to require, as a condition of authorization or certification, that cautionary advice must be published in the appropriate AIS publications. The determination to require caution will be primarily dependent on two considerations:

(a) a pilot's need to be made aware of potentially hazardous conditions; and

(b) the responsibility of the operator to publish deviations from standards that would otherwise be assumed under certificate status.

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APPENDIX E – WATER AERODROME DATA

Reserved.

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APPENDIX F – PHYSICAL CHARACTERISTICS

Reserved.

APPENDIX G – OBSTACLE RESTRICTION AND REMOVAL

(Note – Characteristics, Chromaticity's, Colors and Isocandela of the water aerodrome visual aids for denoting obstacles markings and lighting systems must be the same as prescribed in GACAR Part 139; unless otherwise specified in this Part elsewhere and till then such parameters are separately defined in this part in respect of water aerodromes).

Reserved.

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APPENDIX H – VISUAL AIDS FOR NAVIGATION

(Note – Characteristics, Chromaticity's, Colors and Isocandela of the water aerodromes visual aids for navigations, markings, signs, panels and lighting systems must be as prescribed in subpart H and for any addition information as prescribed in GACAR 139; unless otherwise specified in this Part elsewhere and till then such parameters are separately defined in this part in respect of water aerodromes.)

Reserved.

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APPENDIX I – VISUAL AIDS FOR DENOTING OBSTACLES

(Note – Characteristics, Chromaticity's, Colors and Isocandela of the water aerodromes visual aids for navigations, markings, signs, panels and lighting systems must be as prescribed in subpart H and for any addition information as prescribed in GACAR 139; unless otherwise specified in this Part elsewhere and till then such parameters are separately defined in this part in respect of water aerodromes.)

Reserved.

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APPENDIX J – WILDLIFE STRIKE AND SEALIFE HAZARD REDUCTION

Reserved.

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APPENDIX K – LIGHTING OF MOVEMENT AREA

Reserved.

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APPENDIX L – RESCUE AND FIRE FIGHTING

The water aerodrome certificate holder must comply with the following requirements;

(a) The Water Aerodrome certificate holder must submit annual training program for acceptance that cover at least the following subjects:

1. Water aerodrome familiarization;
2. Seaplane familiarization;
3. Rescue and firefighting personnel safety;
4. Emergency communications systems on the water aerodrome, including seaplane aircraft fire-related alarms;
5. Use of the fire hoses, nozzles, turrets and other appliances required for compliance with subpart L.
6. Application of the types of extinguishing agents required for compliance with subpart L,
7. Emergency seaplane aircraft evacuation assistance;
8. Firefighting operations;
9. Adaptation and use of rescue and firefighting equipment for seaplane rescue and firefighting;
10. Dangerous goods;
11. Familiarization with firefighters' duties under the water aerodrome emergency plan; and
12. Protective clothing and respiratory protection.

(b) All Rescue and Firefighting (RFF) personnel must participate in at least one-live-fire drill prior to initial performance of rescue and firefighting duties and every 3 consecutive calendar months thereafter.

(c) Water aerodrome certificate holder must submit for acceptance, RFF department Standard Operating Procedures (SOPs) for all activities of seaplane Aircraft Firefighting and Rescue Procedures, including but not limited to the following:

1. RFF routine activities.
2. All Emergency Pre-Plan Responses
3. Fighting Seaplane aircraft Fires Tactic and Strategy.
4. Accidents Involving Dangerous Goods
5. Medical Response
6. Mutual Aid Response / Support Activities
7. Minimum and optimum "Operation Staffing Levels"
8. Occupational Safety and Health Program
9. Storage and management of fire extinguishing agents

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APPENDIX M – WATER AERODROME EMERGENCY PLANNING

The following **First Aid Kit (FAK)** are required in water aerodrome for sea planes engaged in commercial passengers carrying operations:

- For 0-50 passenger seats, 2 x FAK is required.
- For more than 50 passenger seats, 3 x FAK is required.

	ITEM	QTY	REMARKS
1	Bandage white-cotton 3mx8cm (9'x3")	3	
2	Bandage white-cotton 3mx8cm (9'x2")	3	
3	Bandage white-cotton 3mx8cm (9'x1")	3	
4	Bandage – crepe 3mx8cm (9'x3")	2	
5	Bandage – crepe 3mx8cm (9'x2")	2	
6	Burns – dressing pads – large	12	
7	Wound dressing pads – large	12	
8	Adhesive elastic tape 3mx8cm (9'x3")	1 roll	
9	Adhesive elastic tape 3mx8cm (9'x2")	1 roll	
10	Safety pins – assorted sizes	24	Stainless steel type
11	Scissors – small or medium	1	Stainless steel type
12	Dressings – adhesive – small/medium/large	24	e.g., sticking plasters/band Aid
13	Antiseptic fluid (e.g.: Dettol)	bottle 125ml	
14	Burn ointment	1 tube	
15	An Artificial Plastic Airway	1	
16	Analgesic tablet	100	e.g., Cinnarizine or equivalent
17	Anti-emetic-tablet	25	e.g. Paracetamol 500mg
18	Nasal de-congesting fluid	1 bottle	e.g. Afrin or Sinutex
19	Gastro intestinal antarid tablet	25	e.g. Maalox/Actan
20	Anti-diarrhoeal medication	1 bottle or 25 tablets	e.g. Ioderamide
21	Ground to air Visual Code booklet	1	For use by survivors
22	Disposable Rubber Gloves	1 pair	
23	Mosquito Repellent cream	1 bottle	e.g. Autan or Johnson's OFF
24	Splints	set	Suitable for upper & lower limb use
25	Emollient Eye Drop	1 bottle	
26	Handbook on First Aid		

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APPENDIX N – WATER AERODROME OPERATING REQUIREMENTS

Reserved.

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APPENDIX O – REFERENCES AND GUIDANCE MATERIALS

(Note: The GACAR Regulations are developed under references and guidance available in the following ICAO documents and references available in GACAR Part I, Part 4 and Part 5)

1. ICAO Annex 14 Volume – I (Aerodromes) and II (Heliports)
2. ICAO Aerodromes – Procedures for Air Navigation Services (Doc 9981)
3. ICAO Manual on Certification of Aerodromes (Doc 9774)
4. ICAO Aeronautical Information Services Manual (Doc 8126)
5. ICAO Safety Management Manual (Doc 9859)
6. ICAO Doc Airport Planning Manual (Doc 9184)
7. ICAO Doc Aerodrome Design Manual (Doc 9157)
8. ICAO Doc Heliport Manual (Doc 9261)
9. ICAO Airport Services Manual (Doc 9137)
   (i) Part 1 — Rescue and Fire Fighting
   (ii) Part 2 — Pavement Surface Conditions
   (iii) Part 3 — Wildlife Control and Reduction
   (iv) Part 5 — Removal of Disabled Aircraft
   (v) Part 6 — Control of Obstacles
   (vi) Part 7 — Airport Emergency Planning
   (vii) Part 8 — Airport Operational Services
   (viii) Part 9 — Airport Maintenance Practices
10. ICAO guidance on requirements for the design and operations of Water Aerodromes for seaplane.
11. ICAO Sample Regulations for Water Aerodromes-First Edition, March 2015.