สำนักงานการบินพลเรือนแห่งประเทศไทย
The Civil Aviation Authority of Thailand

The Establishment and Temporary Take-off and Landing Area on Water Standards

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Approved by

Air Chief Marshal

Manat Chavanaprayoon

Director General

The Civil Aviation Authority of Thailand

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Foreword

The Director General of The Civil Aviation Authority of Thailand is responsible under Article 4 and 53 of the Air Navigation Act B.E. 2497 has developed this Regulation.

The Establishment and Temporary Take-off and Landing Area on Water Standards (hereinafter referred to as “TTLAWS”) shall come into force in June 2025. The definitions of terms and abbreviations used in this Regulation, unless the context indicates otherwise, are provided in the Civil Aviation Authority of Thailand (CAAT) document titled "Definitions and Abbreviations.

The TTLAWS is issued and amended under the authority of the Director General of the Civil Aviation Authority of Thailand.

Record of Revision

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00	00	1 July 2025	AGA (AD)	Initial Issue

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SECTION 1. GENERAL

The purpose of this regulation is to prescribe minimum requirements for site selection, seaplane platform construction and installation, required facilities, rescue equipment at seaplane platform in order to meet the licensing requirements.

1.1 Applicability

1.1.1 This TTLAWS shall be applicable to:

a) Seaplanes of a maximum certified take-off weight of 5,700 kg or less.

b) Specifications stated in this directive are only for flights conducted by day light hours and under Visual Flight Rules (VFR).

1.2 Definitions

1.2.1 For the definitions of this TTLAWS, refer to R2CAAT No. 37 on Aerodrome Standards accordingly. Additional definitions applicable to this TTLAWS are as follows:

Aerodrome – A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and movement of aircraft.

Aeroplane – A power-driven heavier than air aircraft deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.

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 of passengers, loading and unloading of cargo, or refuelling or parking of seaplanes.

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

Goods – Anything taken on a seaplane as personal belongings, baggage or cargo;

Licensee – means license holder.

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 lower low 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.

Mooring buoy – 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 the temporary take-off and landing area on water to be used for take- off, landing and taxiing of seaplanes, consisting of the manoeuvring area and platforms.

Nature Reserved Designated Area – are marine areas that are environmentally protected and preserved as reserves.

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

Rapid Response Area – is the area bounded by 300 meter from the end of water runway and 150 meter laterally on each side of water runway.

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

Seaplane – An aeroplane on floats (amphibious or non-amphibious) or a flying boat (water-only or amphibious).

Seaplane Handling Agent – Person provided by the operator who will be responsible for communication on arrival/ departure of the seaplane with the operator, handling of passengers, preparing a passenger manifest and load sheet and providing assistance during emergency evacuation of the seaplane and other related emergency scenarios.

Seaplane Platform – a platform used for the purpose of embarkation and disembarkation of passengers or cargo by seaplane.

Seaplane Platform License – a license issued under this regulation for the purpose of landing, take-off of a seaplane and embarkation and disembarkation of passengers or cargo by seaplane.

Taxi channel – A defined path on a temporary take-off and landing area on water, intended for the use of taxiing seaplanes.

Temporary Take-off and Landing Area for Aircraft – according to the Air Navigation Act B.E. 2497 and its amendments.

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

Water runway – A defined area on water, intended for the landing and take-off run of seaplane along its length.

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SECTION 2. APPLICATION PROCEDURES

2.1 Application Procedures

2.1.1 All applications for licensing of temporary take-off and landing areas for aircraft on water and water runways shall be forwarded to the Civil Aviation Authority of Thailand (CAAT) using the application form. Upon making an application for the grant of a license, the applicant shall pay all requisite charges.

2.1.2 If the temporary take-off and landing area for aircraft on water is intended to accommodate aircraft for the purpose of embarkation and disembarkation of passengers baggage or cargo, the applicant shall provide the seaplane platform.

2.1.3 The coordinates for platform shall be listed in the application form.

2.1.4 If there is an intention of moving the platform to other locations due to seasonal requirements then these should be included in the application documentation.

2.1.5 The applicant shall provide the following when applying for a temporary take-off and landing area on water license:

a) Application Form
b) No objection letter for site selection and platform and/or buoy location from the Marine Department (MD).
c) Approval from Office of Natural Resources and Environmental Policy and Planning (ONEP).
d) License from the Department of National Park Wildlife and Plant Conservation (DNP), where applicable.
e) No objection letter from the Department of Local Administration (DLA).
f) No objection letter from the Local Administrative Organization or Municipality.
g) No objection letter from the Department of Marine and Coastal Resources (DMCR), where applicable.
h) No objection letter from the Department of Fisheries (DoF), where applicable.
i) No objection letter from the landlord owner/management, where applicable.
j) Training records of Seaplane Handling Agents.
k) A risk assessment for the temporary take-off and landing area on water.
l) An airspace assessment from the Air Navigation Service Provider.
m) Aerial Chart depicting the seaplane platforms and water runways.

n) If the applicant is not the owner/ legal possessor of the proposed area then the application shall be forwarded with a no objection letter or agreement copy from the landlord of the proposed area to use the intended lagoon/reef or protected water.

2.2 Aerial Chart

2.2.1 An aerial chart shall be produced as shown in Appendix I, including the following:

a) A clear image of the location showing, reefs, lagoons and island.
b) Name of the Temporary take-off and landing area on water and Seaplane platform.
c) Reference Point (RP) with coordinates.
d) Landing and take-off runways with directions, dimensions, with coordinates.
e) Location of platforms with coordinates.
f) If mooring, is provided, location of mooring buoy and its coordinates.
g) Fixed obstacles and hazardous areas in the vicinity of the movement area.
h) A legend showing the icons used and their meaning.
i) A horizontal linear scale showing in meters.
j) Approach/Take-off surface with allowable heights.
k) Symbol showing the direction of north.
l) Production date.

Note: RP is normally taken from the geometric center of boundary enclosing all the water runways.

2.3 Suspension or Revocation of a Temporary Take-off and Landing Area for Seaplane on Water License

2.3.1 CAAT may suspend or revoke a temporary take- off and landing area on water license if there are reasonable grounds to believe that:

a) a condition to which the temporary take-off and landing area on water license was subjected has been breached or not complied with;
b) the facilities, operations or maintenance are not up to the standards required in the interests of the safety of air navigation.

2.3.2 Before suspending or revoking a temporary take-off and landing area on water license, CAAT must give to the licensee a notice that describes the non-compliance with this regulation and invites the holder to submit a corrective action plan acceptable to the CAAT.

2.3.3 CAAT may take into account any reasons the licensee within the time allowed, prior to making a decision about suspension or revocation.

2.3.4 If the licensee wishes to surrender the license, the licensee shall give not less than 30 days, a written notice to the CAAT of the date on which the holder will surrender the license.

2.3.5 CAAT will revoke the temporary take-off and landing area on water license on the date specified by the licensee for surrender of the license.

2.3.6 If CAAT revoke a temporary take-off and landing area on water license, licensee shall return the license to CAAT within 7 days.

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SECTION 3. SEAPLANE PLATFORM LICENSE

3.1 Issue of a Seaplane Platform License

3.1.1 A seaplane platform license is issued when Marine Department (MD) is satisfied that the seaplane platform is compliant with the requirements contained in Marine Department Regulations. The seaplane platform license shall be valid for no more than 12 months from the date it is granted.

3.2 Removal of the Seaplane Platform

3.2.1 The seaplane platform and anchoring blocks shall be removed and notified to CAAT within 30 days from the date of cancellation of the seaplane platform license.

3.2.2 In case of monsoon or temporary pause of the operations the seaplane platform shall be relocated and notified to Marine Department (MD) and CAAT at least 30 days in advance of the date of relocation of the seaplane platform.

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SECTION 4. OPERATIONAL REQUIREMENTS

4.1 The seaplane platform facilities shall be made available for seaplane operators with the permission of the licensee. In case of emergencies the seaplane platform and facilities shall be made available without permission.

4.2 The licensee shall be made available the Seaplane Handling Agent, Transfer Vessel and all Equipment, including emergency services during such operations.

4.3 The licensee shall ensure a passenger transfer vessel (PTV) made available for the purpose of transferring passengers to and from the seaplane platforms.

The PTV must be complied with the Thai Vessel Act, B.E. 2481 (1938) and Navigation in the Thai Water Act, B.E. 2456 (1913).

4.4 The PTV shall be at least 200 m away from the seaplane platform and the landing area when the seaplane is ready to land or at take-off and shall not obstruct the water runway.

4.5 The licensee shall ensure that instructions are given to the PTV vessel drivers about the direction of water runway, and the movements of the seaplane for taxi and the specific time of its arrivals.

4.6 Day Operations under VMC conditions.

4.7 When two aircraft or an aircraft and a vessel are approaching one another and there is a risk of collision, the aircraft shall proceed with careful regard to existing circumstances and conditions including the limitations of the respective craft.

4.7.1 *Converging.* - An aircraft which has another aircraft or a vessel on its right shall give way so as to keep well clear.

4.7.2 *Approaching head-on.* - An aircraft approaching another aircraft or a vessel head-on, or approximately so, shall alter its heading to the right to keep well clear.

4.7.3 *Overtaking.* - The aircraft or vessel which is being overtaken has the right of way, and the one overtaking shall alter its heading to keep well clear.

4.7.4 *Landing and taking off.* - Aircraft landing on or taking off from the water shall, in so far as practicable, keep well clear of all vessels and avoid impeding their navigation.

Note. — In addition to the provisions of 4.7 of this TTLAWS*, rules set forth in the International Regulations for Preventing Collisions at Sea, developed by the International Conference on Revision of the International Regulations for Preventing Collisions at Sea (London, 1972) may be applicable in certain cases.*

4.8 *Lights to be displayed by aircraft on the water.* - Between sunset and sunrise or such other period between sunset and sunrise as may be prescribed by the Director General of the Civil Aviation Authority of Thailand, all aircraft on the water shall display lights as required by the Prevention of Collisions at Sea Act, B.E. 2522 (1979) and its amendments, or the International Regulations for Preventing Collisions at Sea (revised 1972) unless it is impractical for them to do so, in which case they shall display lights as closely similar as possible in characteristics and position to those required by the Prevention of Collisions at Sea Act, B.E. 2522 (1979) and its amendments, or the International Regulations.

Note I. — Specifications for lights to be shown by aeroplanes on the water are contained in the Appendices to CAAT Regulations.

Note II. — The International Regulations for Preventing Collisions at Sea specify that the rules concerning lights shall be complied with from sunset to sunrise. Any lesser period between sunset and sunrise established in accordance with 4.8 cannot, therefore, be applied in areas where the International Regulations for Preventing Collisions at Sea apply, e.g. on the high seas.

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SECTION 5. GENERAL REQUIREMENTS FOR SITE SELECTION

5.1 When selecting a site for a water runways or installation of seaplane platform, the following shall be taken into consideration:

a) Depth of sea bed in the proposed area of operation and the size of seaplane intended to be operated;
b) Maritime movements in the location;
c) Navigable airspace;
d) Environmental effects on the surrounding community;
e) Available length of clear and safe water runway strip with respect to the size and type of seaplane intended for use.
f) The cross wind operations are kept to a minimum and tailwind operations should be avoided.
g) Landing and take-off areas shall be oriented to permit operations into wind.
h) Nature reserved designated marine areas and fishing grounds shall not be used unless permission has been received from the relevant government agency.
i) Water runway strip be free from large obstructing coral rubbles to a definite depth.

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SECTION 6. PHYSICAL CHARACTERISTICS AND SAFETY EQUIPMENT

6.1 Physical Characteristics

6.1.1 Number and orientation of water runways

6.1.1.1 Water conditions are affected by factors such as tides, currents, and weather conditions. The orientation and location of water runways shall be determined based on the surrounding water conditions and wind patterns.

6.1.1.2 Multiple potential water runway configurations maybe be used at a location to minimize the negative effects of surrounding water conditions and cross winds. Where multiple runway configurations exist, the boundary and the coordinates of the runways shall be depicted on the aerial chart.

6.1.2 Length of water runways

The length of the water runway to be provided shall be adequate to meet the operational requirements of the critical seaplane for which the runway is intended and shall 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.

6.1.3 Width of water runways

The width of the water runway shall be not less than 60 m.

6.1.4 Depth of water runways

6.1.4.1 The depth of the water measured at low tide level in the water runway shall not be less than 1.8 m (6 ft.) or less than 0.3 m (1 ft.) below the hull or floats when the seaplane is stationary and loaded to maximum take-off weight (MTOW).

6.1.5 Water runway strip

6.1.5.1 Wherever practicable, a protective buffer from obstacles should extend on each side from the edge of the water runway to a distance of not less than 30 m (100 ft.) and on each end of the water runway to a distance of 60 m.

6.1.6 Taxi channels

6.1.6.1 Taxi channels shall be provided to permit the safe and expeditious handling of traffic.

6.1.6.2 Wingtip to wingtip clearance for passing seaplanes (dual directional taxi channels) shall be not less than 5 m (16.4 ft.). However, avoiding the ship should be in accordance with maritime rules.

6.1.6.3 The depth of the water measured at low water level in the taxi channel shall not be less than 1.8 m (6 ft.) or less than 0.3 m (1 ft.) below the hull or floats when the seaplane is stationary and loaded to maximum take-off weight.

6.1.7 Mooring areas

6.1.7.1 Mooring areas shall be provided, whenever necessary, for the mooring of seaplane and to permit the embarkation and disembarkation of passengers, loading and unloading of cargo.

6.1.7.2 When mooring areas are provided:

a) The size of the mooring areas shall be adequate to permit expeditious handling of the peak hour traffic.
b) The depth of the water measured at low tide level in the mooring areas shall not be less than 1.8 m (6 ft.) or less than 0.3 m (1 ft.) below the hull or floats when the seaplane is stationary and loaded to maximum take-off weight
c) The mooring area shall be designed in such a manner as to provide a minimum clearance of 5 m (16.4 ft.) between any part of the seaplane and any object it could come into contact with depending on water level.

6.1.8 Shore facilities

6.1.8.1 A seaplane platform (fixed or floating), ramp shall be provided to permit the embarking and disembarking of passengers and crew, loading and unloading of cargo and refueling.

6.1.8.2 Where a platform is provided it shall:

a) be designed and maintained in such a way that permits constant use without causing injury to persons or damage to seaplane;
b) be attached or anchored in a manner that prevents it from shifting position or becoming detached;
c) have access from the shore that provides for the safe movement of crew and passengers; and
d) have at least two bull rails or provision for appropriate number of tie-down cleats at each seaplane parking position to secure the seaplane. If applicable.

6.1.8.3 When a seaplane is normally secured in a position where any seaplane component overhangs the platform and constitutes a hazard to the movement of crew and passengers, the hazard shall be clearly indicated:

a) by means of cones; and/ or
b) by means of hashed red and white markings; and
c) in a manner easily identifiable to crew and passengers.

6.1.8.4 Where a ramp is provided it shall be:

a) built 1.5 times the width of floats of the largest seaplane intended to use the facility;
b) located in such a manner as to provide a minimum clearance of 1.8 m (6 ft.) between a seaplane wing and any object it could come into contact with; and
c) constructed with a slope not steeper than 8:1.

6.2 Safety Equipment

6.2.1 In the interest of passenger safety, the operator shall provide at least the following equipment on the seaplane platform:

a) 30 m life line rope

b) 1 life buoy

c) 1 flashing yellow light/beacon (if located outside the house reef and in open water);

Note: The flashing yellow/beacon when provided its height shall not be more than one (1) meter above the level of the platform. The beacon and its fixing strut shall be made out of frangible material. The beacon shall be ON from dusk to dawn.

6.2.2 In the interest of passenger safety, the operator shall provide at least the following equipment on the passenger transfer vessel:

a) An Emergency Box with the following minimum safety equipment.

- 1 Axe;
- 1 Crow Bar;
- 1 Tin snipper;
- 1 Harness cutting tool.

6.3 Platform Buoyancy

6.3.1 Seaplane platforms shall provide adequate support and buoyancy for the loads imposed by the proposed operations.

Note: Guidance material for the design of seaplane platform is in Appendix II.

6.4 Sign

6.4.1 A no smoking signage shall be fixed on the seaplane platform that is visible to passengers and crew.

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SECTION 7. LIMITATION AND MARKING OF OBSTACLES

7.1 Obstacle limitation surfaces

7.1.1 A take-off climb/approach surface shall be established for the water runways as shown in Appendix III;

Take-off climb /approach Surface

7.1.2 Description – The take-off climb/approach surface shall be either straight or curved and established at the end/beginning of the water runway.

7.1.3 Characteristics – The limit of the take-off climb /approach surface:

a) The width of the inner edge shall not be less than that of the associated water runway or total width of water runway and protective buffer whichever is greater;
b) The inner edge shall start at 60 m from threshold of water runway;
c) The length of the take-off climb /approach surface shall not be less than 2500 m (8200 ft.) from the inner edge;
d) The slope of the take-off climb/approach surface shall be a minimum of 4 % (1:25);

Table 1 - Dimensions and slopes of obstacle limitation surfaces

Approach type – Non-instrument	
Take-off climb/approach surface	
Width of inner edge	Refer 7.1.3 (a)
Location of inner edge	60 m from end/beginning of water runway
Divergence take-off climb/approach surface	10 %
Length (minimum)	2500 m
Slope of take-off climb/approach surface (maximum)	4% (1:25)

7.2 Objects and obstacles

7.2.1 No fixed object shall be permitted on a water runway.

7.2.2 Fixed objects or structures that are located within the movement area shall not penetrate OLS unless:

a) those structures are for air navigation purposes; or
b) are essential to the safety of aircraft operation;
c) are frangible.

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

7.3 Other objects

7.3.1 Where a 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 movement area, it shall be:

a) removed; or
b) marked; and/or
c) lighted in accordance with R2CAAT No.37 on Aerodrome Standards.

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SECTION 8. EMERGENCY RESPONSE PLANNING

8.1 Emergency Response Plan

8.1.1 The licensee shall prepare an Emergency Response Plan (ERP) for the water runway or seaplane platform and shall submit the ERP to CAAT. ERP shall include by minimum the following:

a) A general location chart showing facilities with details of emergency facilities.
b) Categories of seaplane accidents/ incidents and the procedures for dealing with such emergencies.
c) Emergency response facilities.
d) Post-Emergency recovery procedures.
e) Key telephone numbers.

8.2 Response time

8.2.1 The operational objective of the rescue service shall be to achieve a response time as soon as possible to the Rapid Response Area in optimum visibility and surface conditions.

8.2.2 The Seaplane Handling Agent(s) shall be in attendance on the transfer vessel at take-off and landing and shall monitor the take- off in case there is an emergency related with the aircraft taking- off. During bad weather conditions, a standby vessel can be deployed near landing and take-off sites of the seaplane.

8.3 Emergency exercises

8.3.1 The licensee shall ensure that an operational emergency exercise that depicts a water rescue scenario is conducted at least once every 12 months, and no more than every 18 months, according to the ERP.

8.3.2 Emergency exercise schedules shall be made available to the CAAT and MD. The CAAT and MD may choose to observe these exercises.

8.4 Training of seaplane handling agents

8.4.1 The licensee shall ensure that the Seaplane Handling Agent shall have undergone CAAT training Programme (once every 12 months, and no more than every 18 months) to take operational responsibilities and shall be trained for firefighting, emergency rescue scenarios and other safety matters.

8.4.2 The Seaplane Handling Agent must meet the following requirements and complete the necessary training. This training may be conducted after the application process and before the license is issued for the platform.

The Seaplane Handling Agent shall perform the following:

a) Must pass the cabin crew swimming test, which includes putting on a life jacket, and assisting a passenger back to the platform.
b) Must be able to use a fire extinguisher on either the platform or the PTV.
c) Must be able to fill out the passenger manifest in English, communicate with pilots in English, and provide emergency briefings in both English and Thai.
d) Must be proficient in speaking, reading, and writing the Thai language.
e) Must be able to use emergency equipment on the PTV or platform (optional).
f) Must be able to use hand signals for communication with pilots.
g) Must know, understand, and be able to apply mooring and docking procedures for seaplane operations at floating or fixed platforms.
h) Must know how to properly load and unload the aircraft.

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APPENDIX 1 — SAMPLE AERIAL CHART

APPENDIX 2 — SAMPLE FOR DESIGN OF SEAPLANE PLATFORMS

1. Fixed Platforms

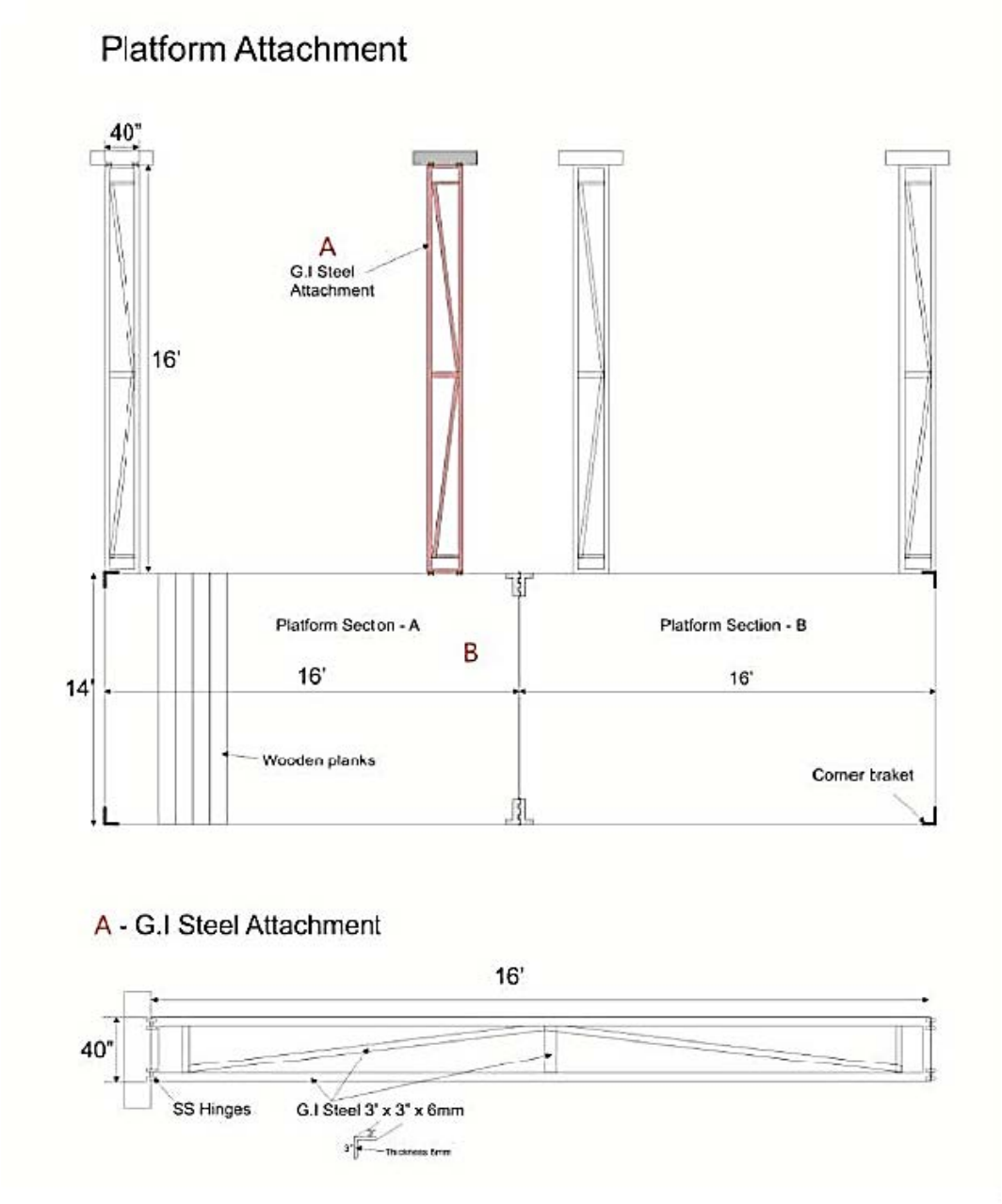


Figure 1

2. Floating Platforms

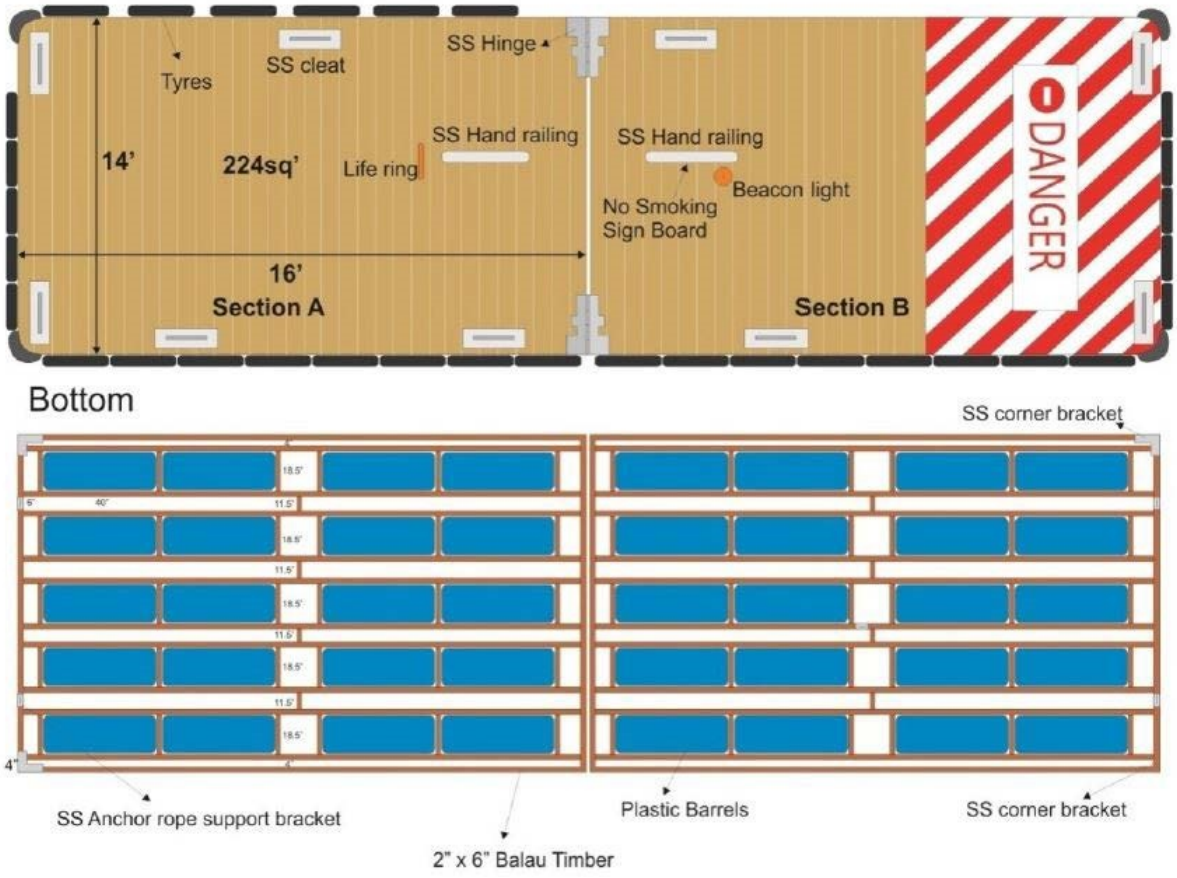


Figure 2

3. Anchoring and mooring system

The typical anchoring system is shown in the figure below. The operator shall ensure that the anchoring is system is capable of handling adverse weather conditions.

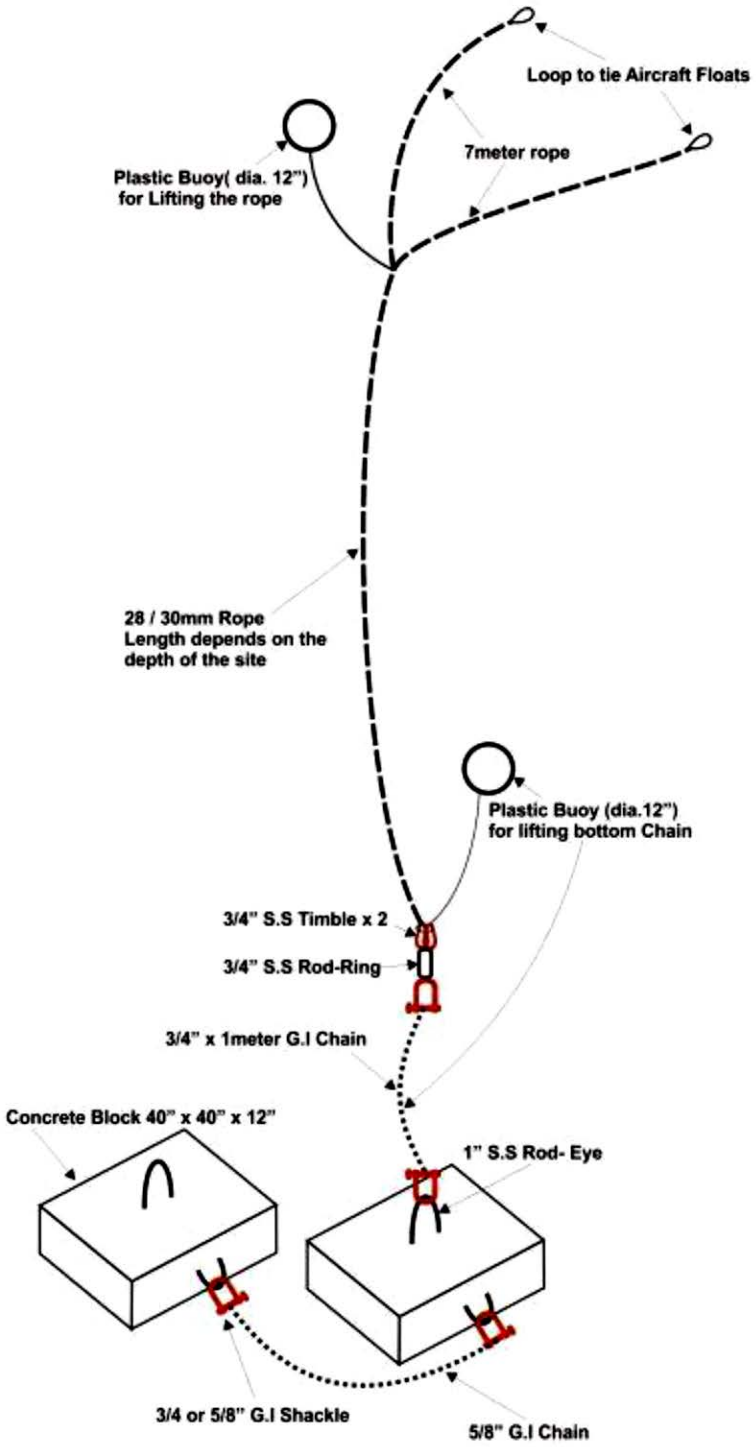


Figure 3

4. Mooring Bollards

Mooring bollards are stainless steel posts installed as a deck-fitting on the platforms which is used to secure seaplanes. Please refer to the dock drawings (Figure 2) for location of the bollards.

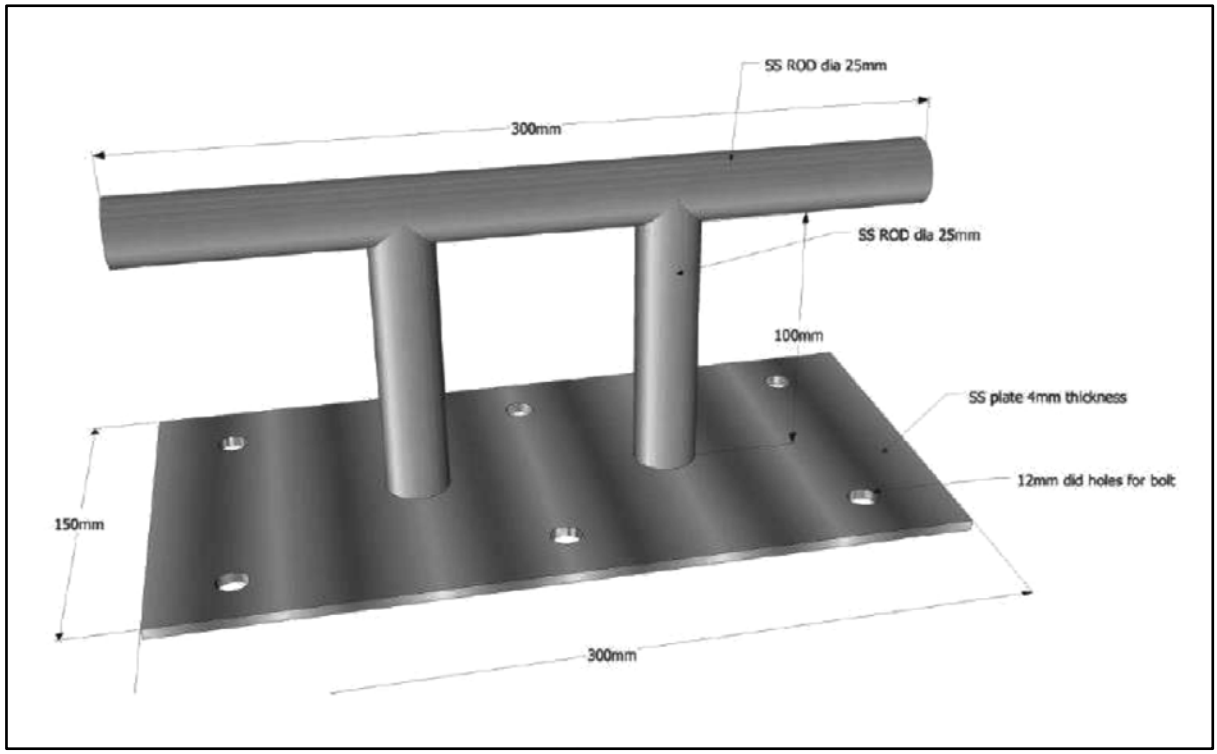


Figure 4

5. Signage and Other Notices

No Smoking Sign

The following signage shall be fixed on the dock that is visibly accessible to passengers and staff.

Figure 5

6. Dock Markings

The dock markings should be painted as shown in the figure below.

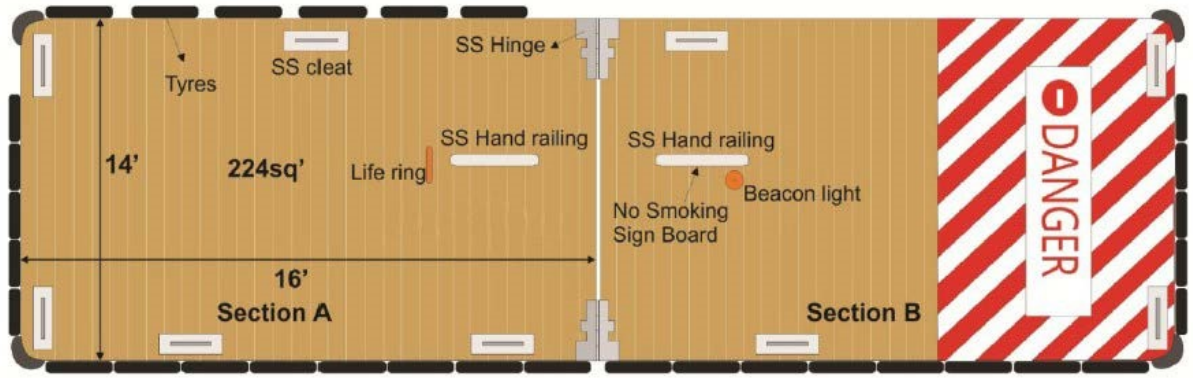


Figure 6

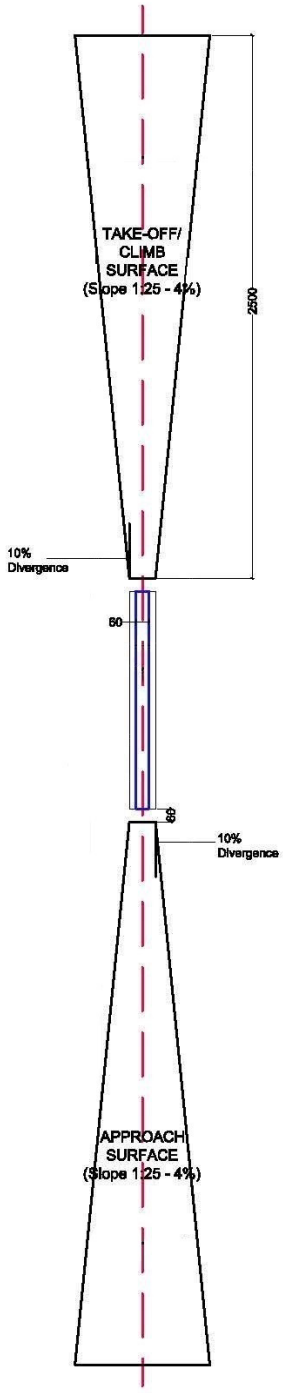
7. Safety Buoy

The quality of the plastic should be inspected monthly for cracks and if cracks are visible the lifebuoy should be replaced with a new one.

Figure 7

APPENDIX 3 — OBSTACLE LIMITATION SURFACES

TAKE-OFF CLIMB/APPROACH SURFACE



PLAN VIEW

Dimensions are given in Meters

0 0.5 1.0 1.5 2.0 2.5 3.0 km