

# Pan American Games 2023

## Hockey competition & training facilities

### Venue infra-structure requirements

**PAHF**

**FIH**

**VERSION 1.0**

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# Table of Contents

<b>1. GENERAL</b>	2
<b>2. DEFINITIONS</b>	2
<b>3. FACILITY REQUIREMENTS</b>	3
3.1. Field dimensions and layouts	3
3.2. Field orientation	3
3.3. Hockey Turf playing surface	3
3.4. Field watering	3
3.4.1 Above-field irrigation	4
3.4.2 Sub-field irrigation	4
3.4.3 Ancillary watering	4
3.5. Field Drainage	4
3.6. Field Profile	5
3.7. Sports Equipment	5
3.7.1 Goals	5
3.7.2 Corner flags	5
3.7.3 Team benches	6
3.8. Perimeter fencing	6
3.8.1 Fencing heights	6
3.8.2 Gates	6
3.9. FIH Field certification required	6
3.10. Sports lighting	7
3.10.1 Requirements	7
3.10.2 Lighting certification	7
3.11. Hockey turf maintenance equipment	7
<b>4. ADDITIONAL INFRASTRUCTURE REQUIRED FOR THE EVENT</b>	7
4.1. Technical Officials' booth - competition field	7
4.2. Suspended player seats - competition field	8
4.3. Video Umpire's booth	8
4.4. Video tower	8
<b>5. FIELD SUPPLIERS/CONTRACTORS</b>	8

## 1. GENERAL

The Pan American Games organised by the Panam Sports Organization, and recognised by the International Olympic Committee, are the multi-sports event of the Americas. The 2023 Games will be held in Santiago, Chile.

Hockey is one of the sports played at the Games, with the tournament being a qualification route to the FIH World Cups. Matches played at the Pan American Games also allow nations to win FIH World Ranking points. It is therefore important that the hockey facilities provided for the Games are of the qualities and performance athletes competing at this level of event require.

This document has been prepared by the FIH, at the request of PAHF, to enable the Local Organising Committee to provide the necessary hockey facilities to the standards required.

Two field facilities are required:

- 1 **Competition field:** an 11 a-side hockey field designed for international competitions (FIH Global Elite category)
- 2 **Warm-up/training facility:** an 11 a-side hockey field (FIH Global category)

PAHF and FIH reserves the right to amend, delete or add to these requirements at any time.

## 2. DEFINITIONS

TERM / ACRONYM	EXPLANATION
Competition field	a field used for competitive games during the Event
Event	the hockey tournament that forms part of the Games
FIH Hockey Turf and Field Standards	all parts of the <i>FIH Hockey Turf and Field Standards</i> <sup>1</sup> .
FIH TV Lighting Guide	<i>FIH Facilities Guide - Sports Lighting for Broadcasting 11 a-side Hockey, Outdoors</i> <sup>1</sup> .
FIH Lighting Guide (non-televised matches)	<i>FIH Facilities Guide - Sports Lighting for Non-televised Outdoor Hockey</i> <sup>1</sup> .
Field (also known as the Pitch)	the full area comprising the FoP and run-offs
Field of play (FoP)	the playing area contained within the side lines and back (goal) lines
Hockey turf	a synthetic turf surface specifically designed for the game of hockey
Global category hockey turf	Hockey Turf meeting the requirements of a global category product as defined in Part 2 of the <i>FIH Hockey Turf and Field Standards</i>
LOC	Local Organising Committee
Media and operational zone	a margin outside the run-offs that is used by event management.
Run-offs	margins around the perimeter of the FoP that form safety zones for players
Warm-up / training field	a supplementary facility provided to allow teams to warm-up and train

<sup>1</sup> Available at [www.fih.ch/facilities](http://www.fih.ch/facilities)

### 3. FACILITY REQUIREMENTS

#### 3.1. Field dimensions and layouts

The competition field and warmup/training facility shall comply with the layouts shown in Drawings 1 and 2, as appropriate.

#### 3.2. Field orientation

**Competition field:** Unless otherwise agreed the facilities shall be aligned North/South, with a maximum deviation from north of  $\pm 15^\circ$ .

**Warm-up/training facilities:** The warmup facilities should preferably be aligned North/South, with a maximum deviation from north of  $\pm 15^\circ$ .

#### 3.3. Hockey Turf playing surface

The Hockey Turf on each facility shall be a FIH Approved Hockey Turf <sup>2</sup>, Global category. To minimise water usage, it is recommended a Hockey Turf that requires irrigating at a rate of no more than 1 l/m<sup>2</sup> is selected <sup>3</sup>.

The field of play and run-offs shall be an FIH approved shade of Blue in colour.

Line markings shall be 75mm wide, white in colour and preferably be in-laid or tufted into the hockey turf carpet, not painted

No commercial logos shall be present on the FoP or run-offs without PAHF's prior approval. Venue, event, PAFH and FIH logos may be sited on the side run-offs providing they are positioned at least 1m from the side lines.

**Competition field:** The field shall be marked in accordance with the current Rules of Hockey, applicable at the time of the Event. 5m dashed circle lines are required. No additional line markings shall be present on the field. This includes cross pitch hockey training markings.

**Warm-up/training facilities:** The field shall be marked in accordance with the current Rules of Hockey at the time of the Event. 5m dashed circle lines are required.

#### 3.4. Field watering

The method of irrigation shall provide a uniformly wet playing surface in accordance with *FIH Hockey Turf and Field Standards*. Irrigation may be provided by:

- above-field sprinklers
- rain-guns
- sub-field irrigation

In locations where any of the conditions listed below could occur, the irrigation system shall be designed to ensure the risk of water borne bacterial infection of players or spectators from diseases such as Legionnaires Disease is eliminated:

- The water temperature in all or some parts of the system is between 20 °C and 45 °C;
- Water is stored in an open loop system;

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<sup>2</sup> A list of FIH approved hockey turfs is available at [www.fih.ch/hockeyturf](http://www.fih.ch/hockeyturf)

<sup>3</sup> The irrigation requirements of each FIH Approved Hockey Turf is detailed on the FIH Certificate of Approval

- Water is re-circulated;
- There are sources of nutrients such as rust, sludge, scale, organic matter or biofilms within the irrigation or storage system;
- Local climatic conditions are likely to encourage bacteria to multiply.

#### 3.4.1 Above-field irrigation

If above-field irrigation is to be used there should be no sprinklers located within the FoP or within 2m of a goal or side-line. Rain-guns shall not be located within the run-offs. The design of the irrigation system should consider prevailing wind directions and minimise water spray drift onto spectators.

The minimum quantity of water applied to the playing surface shall be in accordance with the requirements of the installed Hockey Turf and shall be applied within 10 minutes.

The irrigation control system should allow varying cycles and individual programmes to ensure the entire playing area and surrounds can be watered. It should allow the following cycles:

- 8 minutes;
- 3-4 minutes;
- Single station activation.

Adequate water storage shall be provided to ensure the field(s) can be fully watered in accordance with the projected schedules of play during the Event.

The sprinklers or rain guns shall be capable of sectoring to 90° or 180°. The discharge rate shall be such that an irrigation cycle of all six emitters (operating in matched arc pairs) shall achieve an even precipitation over the FoP as specified in the *FIH Hockey Turf and Field Standards*.

#### 3.4.2 Sub-field irrigation

The irrigation control system shall ensure water levels are uniformly maintained throughout a game with the ability to top-up during breaks in play as required.

The control mechanism shall ensure that optimum playing conditions are retained at all times and that ponding of water within the Hockey Turf surface does not occur. The system should be sufficiently responsive so that it can self-adjust to any rain-fall event occurring during a game, so there is no adverse effect on play.

#### 3.4.3 Ancillary watering

Back-up large bore hoses with a suitable supply shall be provided for additional manual watering of the field as necessary. These should be stored close to the field (not on the Run-Offs) to enable rapid deployment and should be stored safely to avoid tripping hazards.

### 3.5. Field Drainage

The facilities shall be designed to incorporate a sub-surface drainage systems (vertical or horizontal) that is designed to cater for a rain-fall event of at least 150mm/hr, or a one in ten year's rain-fall event, whichever is greater.

### 3.6. Field Profile

Ideally the facilities will be built with a profile that satisfies FIH's Preferred Gradient requirements detailed below:

Longitudinal gradient along the length of the field	≤ 0.2%
Lateral gradient across the field	0.4%

A number of different field profiles may be used including single planes (end-to-end, side-to-side and diagonal falls), envelope and ridge profile. Irrespective of which is chosen the profile should be symmetrical around the central axis of the field and it should not cause the hockey turf to dry inconsistently across the field.

If an envelope or ridge profiles are used, the change in grade shall not adversely affect the consistency of the ball roll or exceed the specified requirements for surface regularity.

In locations where climatic or geographic considerations mean fields meeting the preferred gradients may not have adequate surface drainage (i.e. in areas subjected to intense rain-fall events or where free draining sub-base aggregates are not available), a field profile that complies with the FIH's maximum gradient requirements of 1% in any direction may be used providing the profile does not adversely affect the ability of the field to satisfy the Global category ball roll consistency requirements as specified in the *FIH Hockey Turf and Field Standards*.

### 3.7. Sports Equipment

#### 3.7.1 Goals

Goals shall be aluminium with an integral weight system that conform to the Rules of Hockey and European Standard EN 750. The front wall on the uprights and cross bar shall be reinforced to prevent ball impact damage. The backboard panels shall be reinforced and fitted with impact and noise absorbing panels on all inside faces to a height of 460mm.

The nets shall be hung from the back bar in a way that allows them to hang freely to eliminate ball rebounds. They shall be held firmly in place with an integral net retaining system (not net hooks). The nets shall be the same colour as the Field of Play. They shall be fixed so that the ball does not pass between the goal-posts and the net or between the cross-bar and the net. The nets shall be fixed at the back of the side-boards and back-boards so that the ball cannot pass beyond the net.

<b>Number required:</b>	
Competition field:	Three (one set and one spare)
Warm-up/training facilities:	Three (one set and one spare)

#### 3.7.2 Corner flags

Corner flags shall be mounted on flexible (22mm diameter) posts and be fitted into surface mounted base plates or ground sockets.

<b>Number required:</b>	
Competition field:	Six (one set and two spare)
Warm-up/training facilities:	Six (one set and two spare)

### 3.7.3 Team benches

Team benches shall be provided to each facility, each bench shall include:

- Seating for 12 people per bench
- Protection from the weather and water spray during above-ground watering
- Stick storage box

The benches shall be positioned either side and within 10 m of the centre line. They shall not be positioned on the run-off of the fields but must allow immediate access to the fields. Ideally, they will be positioned on the same side of the field as the players' access to the field and be separated from the field by a 1 m high fence (with top rail) to provide player protection.

<b>Number required:</b>	
Competition field:	Two
Warm-up/training facilities:	Two

### 3.8. Perimeter fencing

Each facility shall be fenced to ensure hockey balls are contained with the field or court. Fencing mesh may either be ball catch netting suspended from tensioned cables and fixed to prevent it billowing in the wind, weldmesh/chainlink panels or a combination of panels and netting. The fencing mesh (normally 50mm) shall not allow hockey balls to pass through, but it shall allow spectator visibility.

#### 3.8.1 Fencing heights

Fencing heights shall be determined by assessing the risk of balls leaving the facilities and striking spectators, players, event officials, etc. The minimum fencing heights shall be:

- along side-line boundaries: minimum of 1.2 m
- along back-line boundaries where spectator seating or access is located: 7 m
- along back-line boundaries where spectator seating or access is not allowed: 4.5 m

#### 3.8.2 Gates

Player and match officials' access gates to the field shall be at least 1.0m wide. They should be provided adjacent to the point of access from the changing accommodation.

At least one set of double gates shall be provided to allow maintenance and emergency vehicle access to the field(s).

### 3.9. FIH Field certification required

Prior to the Event each facility shall be tested by an FIH accredited test institute and the facility certified by the FIH as follows. The certification shall remain valid for the duration of the Event.

<b>Category of FIH field certification required:</b>	
Competition field:	Global Elite
Warm-up/training facilities:	Global

### 3.10. Sports lighting

#### 3.10.1 Requirements

Sports lighting shall be provided to each facility. It may either be a permanent lighting system, or permanent lighting system augmented by temporary lighting to satisfy the following requirements:

Category of lighting required:	
Competition field:	TV2 - as specified in the FIH TV Lighting Guide
Warm-up/training facilities:	Class II, as specified in the FIH Lighting Guide for non-televised matches

#### 3.10.2 Lighting certification

If the lighting system is a permanent installation, lighting tests to verify performance should be undertaken no more than six and no less than two months in advance of the Event.

If a temporary lighting system is being provided to light (or augment an existing lighting system) lighting tests should be undertaken, and the results submitted to PAHF for approval no more than five days in advance of the Event.

### 3.11. Hockey turf maintenance equipment

The LOC shall ensure that all necessary maintenance equipment, as recommended by the Hockey Turf manufacturer, is available to enable the Hockey Turf on each Field to be fully maintained in accordance with the manufacturer's instructions.

They shall also ensure an adequate number of trained maintenance staff are available throughout the Event. If intensive rainfall (thunderstorms, etc.) may be anticipated during the Event suitable squeegees to remove any excess water ponding on the Hockey Turf shall be provided.

If painted lines are to be used the LOC shall ensure that suitable maintenance equipment and paint is available throughout the Event to allow the remarking of lines as required.

## 4. ADDITIONAL INFRASTRUCTURE REQUIRED FOR THE EVENT

### 4.1. Technical Officials' booth - competition field

A Technical Officials' booth measuring a minimum of 6m by 3m and containing a table and seating for four people shall be provided. The structure shall have solid walls and a roof that provide match officials with protection from any hockey balls leaving the FoP and shelter from the weather and any irrigation wind drift. The design of the booth shall allow match officials a clear view of the whole field.

The location of the booth shall allow easy access to the FoP by match officials. It shall be positioned so it is aligned with the centre-line of the field. It may be positioned adjacent to the team benches or within a spectator stand on the same side of the field as the team benches (subject to PAHF approval). If located at field level, the booth shall contain a platform to raise the technical table 300 mm.

The booth shall contain a minimum of six waterproof mains electrical power outlets and LAN internet connection.



#### **4.2. Suspended player seats - competition field**

Seating for suspended players (2 per team) shall be provided. When the Technical Officials' booth is located at field-level the seats shall be provided either side or in front of the booth, but not within the field run-off.

If the Technical Officials' booth is in a spectator stand the seats shall be positioned at field level, in a position approved by PAHF, that allows immediate access to the field. Seats at field level shall ideally be positioned behind a 1 m high fence to provide protection to players from balls leaving the FoP.

#### **4.3. Video Umpire's booth**

A booth to accommodate the Video Umpire shall be provided at a convenient location, as agreed with PAHF. It shall have a floor area of at least 10m<sup>2</sup> to accommodate four people. The booth should be in a closed off area from spectators and be covered and enclosed. It should ideally be located centrally to the FOP, with a clear view of the entire field.

Within the booth the LOC shall provide 4 x chairs and tables to accommodate the electronic equipment required.

#### **4.4. Video tower**

If matches are being filmed for broadcasting (TV or on-line streaming) a live feed shall be provided to a centralized position in the spectator stands, as agreed with PAHF, for use by each team's video analysts. If there is no provision for broadcasting a video tower shall be provided to allow the analysts from each team to film matches.

The tower should be located behind one goal, positioned as centrally as possible, at a distance far enough behind the goal and of adequate height to ensure the operators can clearly film the entire FoP, but be safe from any hockey balls leaving the field. It should be located separately to any broadcast tower.

The tower should have a platform measuring at least 3.0m by 3.0m deep and have a roof height of 2.5m high. The platform shall be covered on the roof, back and sides and there should not be any fencing mesh in the camera lines. The platform shall include a safety railing to a height of approximately 1.2m to ensure a safe working environment and include netting across the front to prevent objects falling off the tower.

One small table and two chairs per competing team should be provided on the platform.

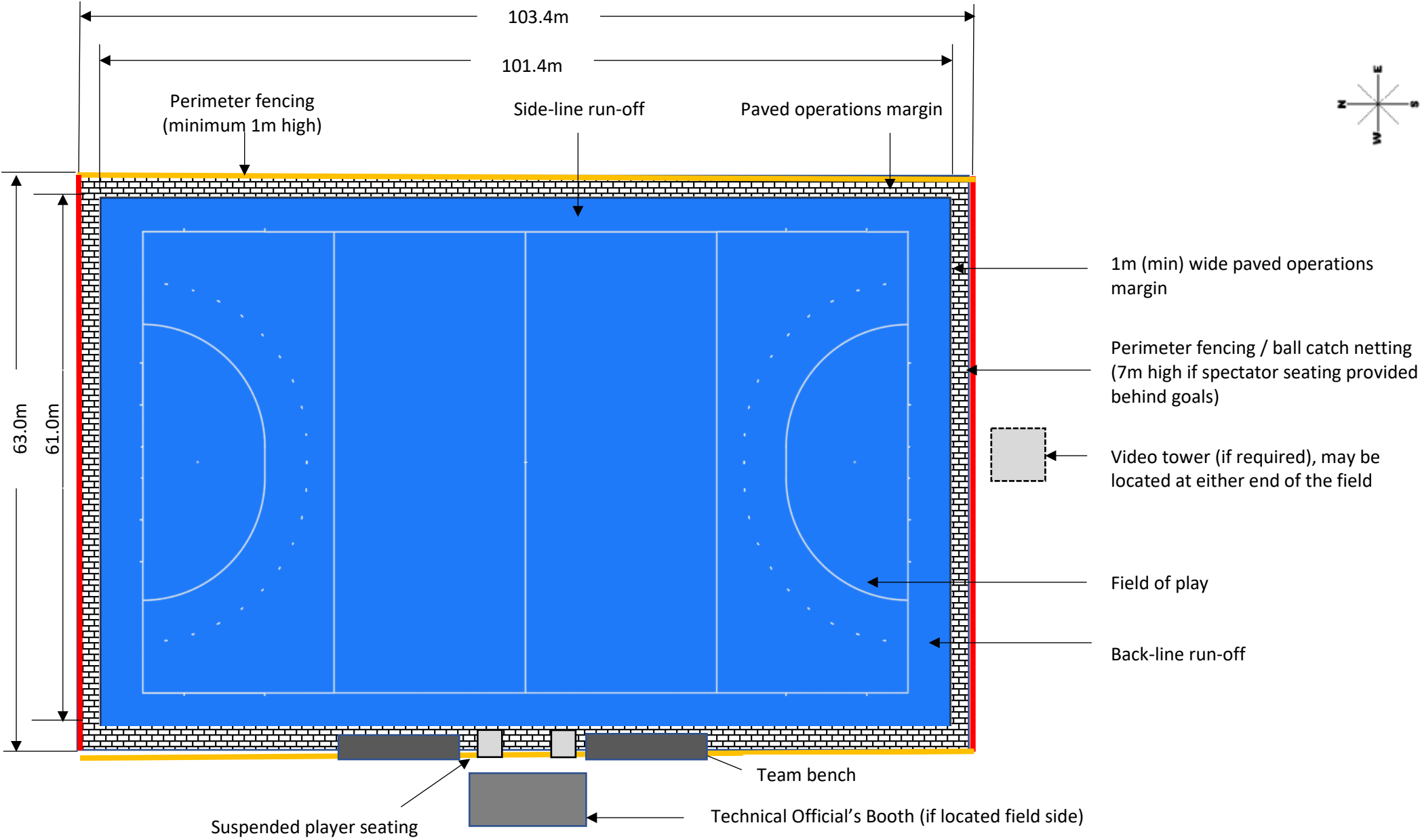
## **5. FIELD SUPPLIERS/CONTRACTORS**

It is recommended that the hockey facilities are designed and built by an FIH Preferred Supplier<sup>4</sup>. FIH Preferred Suppliers are companies that manufacture hockey turf products and build hockey fields allowing customers to benefit from a one-stop approach to the construction of their new hockey field. In addition to meeting all the criteria of FIH Certified Manufacturers and Field Builders, FIH Preferred Suppliers have also demonstrated a global commitment to working with the FIH to provide high-quality hockey fields suitable for international hockey.

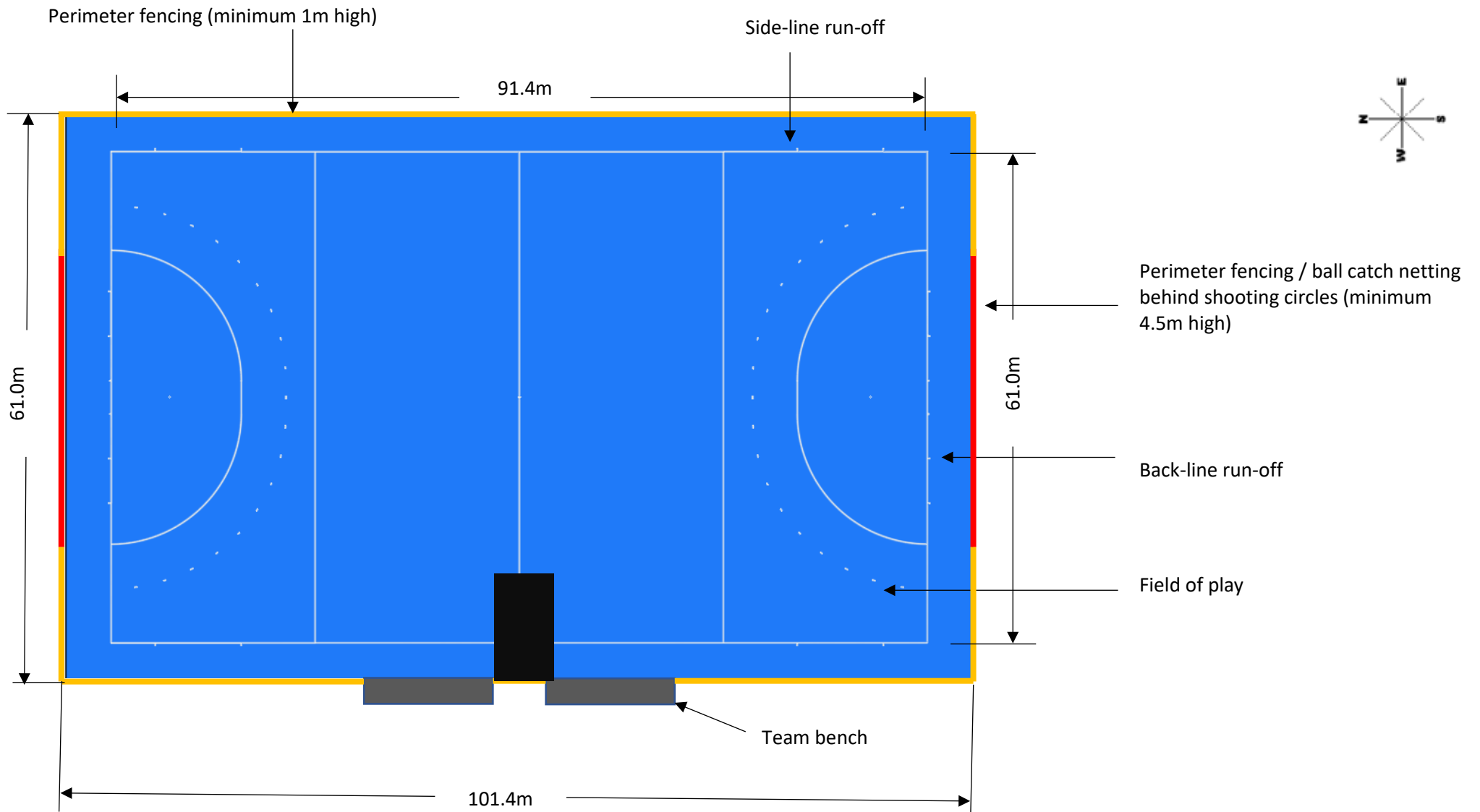
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<sup>4</sup> see [www.fih.hockeyturf](http://www.fih.hockeyturf) for details

**Drawing 1: Competition field**



## Drawing 2: warmup / training field





Example of Technical Official's booth – positioned at field level



Example of Technical Official's booth – positioned within grandstand



Example of team bench



Example of suspended player seats



Example of stick rack