

Youth Olympic Games

Hockey5s court specifications & technical requirements

July 2016 edition

1 General

This document has been prepared to enable the OCYOG to provide Hockey5s courts to the standards required for the Youth Olympic Games. This document should be read in conjunction with other FIH documentation. The FIH reserve the right to amend, delete or add to these requirements at any time. For clarification or further information on the FIH's Court, lighting and sports equipment requirements please visit www.fih.ch/hockeyturf or contact facilities@fih.ch.

It is understood that the OCYOG are planning to temporarily locate the courts on temporarily two new 11 a-side hockey fields. The Competitions Court (playing surface, surround fencing, grandstands, etc) is to be located on the asphalt base of one field; following the YOG the court and its infra-structure will be removed and playing surface for the 11 a-side field laid. The warm-up and training courts are to be temporarily marked out onto a new hockey-turf playing surface on the second field. This Specification has been prepared to reflect the OCYOG's plans. If alternative plans need to be considered the FIH should be asked to revise this document as necessary.

2 Definitions

Event – the Youth Olympic Games (YOG)

OCYOG – Organising Committee for the Youth Olympic Games

Court - the area comprising the field of play, run-offs and any operational margin.

Field of Play - the playing area contained within the side-lines and back-lines.

Run-offs - margins around the perimeter of the field of play that form deceleration and safety margins for players.

Operational margin - a margin outside the run-offs that is used by event management for TV camera positions etc.

Competition Court – a Hockey5s court used for competitive games during the Event.

Warm-up court– a Hockey5s court provided at the event venue and used by teams to warm-up prior to competition

Training court – a supplementary Hockey5s court provided to allow teams to train prior to and during competition.

Hockey-turf - a synthetic turf surface specifically designed for the game of hockey and complying with the FIH Quality Programme.

FIH Quality Programme for Hockey Turf – all parts of the FIH Quality Programme for Hockey Turf including the *FIH Handbook of Performance, Durability and Construction Requirements for Synthetic Turf Hockey Pitches*. Unless otherwise specified by the FIH, this shall be the edition current 24 months in advance of the YOG.

FIH Lighting Guide - *FIH Guide to Artificial Lighting of Hockey Pitches*. Unless otherwise specified by the FIH, this shall be the edition current 24 months in advance of the YOG.

Table 1 - Summary of Court requirements

Court designation		Competition courts		Warm-up courts		Training courts		See guidance note
Number of Courts required		1		1		1		
Court dimensions & minimum run-offs	Length	Length	Width	Length	Width	Length	Width	
	Field of play	48.0m	31.76m	48.0m	31.76m	48.0m	31.76m	5.1
	Run-off	3.0m	2.0m	3.0m	2.0m	3.0m	2.0m	5.2
	Operational margin	1.0m	1.0m	-	-	-	-	5.3
	Total size	56.0m	37.76m	54.0m	35.76m	54.0m	35.76m	
Court orientation		North / South		See note 6		See note 6		6
Hockey Turf	Type	Non-filled, Wet		Non-filled, Wet		Non-filled, Wet		10
FIH Product Approval Category		Global		Global		Global		10
Same Hockey Turf product as Competition Court		-		Yes		Yes		
Age of Hockey Turf at time of the Games		Less than 18 months		Less than 18 months		Less than 18 months		4.4
Colour of field of play		Blue		Blue		Blue or green		10.1
Colour of run-off		As agreed with FIH		N/A		N/A		10

Court designation		Competition courts	Warm-up courts	Training courts	See guidance note
Recommended manufacturer / Court builder		FIH Preferred Supplier	FIH Preferred Supplier	FIH Preferred Supplier	
Markings	Line markings	As per Rules of Hockey5s and Drawing in Appendix A	As per Rules of Hockey5s and Drawing in Appendix A	As per Rules of Hockey5s and Drawing in Appendix A	10.2
	Additional line markings	No additional line markings	No additional line markings	No additional line markings	
Court watering		Required	Required	Required	11
Category of FIH Court certification required		Global	Global	Global	15
Sports equipment per court	Goals	Three (one set of 2 goals and one spare)	Three (one set of 2 goals and one spare)	Two (one set of 2 goals)	12
	Nets	Three (one set of 2 nets and one spare)	Three (one set of 2 nets and one spare)	Two (one set of 2 nets)	12
	Rebound boards	One complete set Replacement boards for 20m length	One complete set Replacement boards for 20m length	One complete set	12
Perimeter fencing	Side Line boundaries	Minimum 1.0m high (see note 13.1)	See note 13.3	See note 13.3	13
	Back Line boundaries	Minimum 7.0m high	Minimum 3.0m high	Minimum 3.0m high	13
Sports Lighting requirements		FIH International Televised Standard	FIH Class I non-televised	FIH Class I non-televised	16

3 Information to be provided

3.1 No less than 24 months before the Event:

The OCYOG shall provide the following information to the FIH:

Table 1 – information required	Tick list
Detailed plans (full CAD drawings including vertical elevation drawings) of the courts to include:	
1. Court orientation with north point indicated	
2. Overall Court dimensions (field of play and run-offs)	
3. Operational margins on competition court	
4. Position of any permanent rain guns or irrigation sprinklers	
5. Position of auxiliary water supply points (hose points)	
6. Height and positions of perimeter fencing, including any temporary ball stop netting	
7. Proposed location of team benches and technical table on competition court	
8. Maintenance and emergency vehicle access to each court	

3.2 No less than 18 months prior to the Event:

The OCYOG shall seek FIH approval of the proposed (installed) Hockey Turf product and colours (Field of Play and run-offs) no later than 18 months prior to start of the YOG. On approval, these details will be announced on the FIH website. They will also be reconfirmed to Competing Teams in the Team Briefing.

4 Number and types of court

4.1 Competition court

The OCYOG shall provide one dedicated Hockey5s competition court as detailed in this Specification. The layout of the court shall be as shown in the drawing in Appendices A and B.

4.2 Warm-up court

The OCOG shall provide one warm-up court as detailed in this Specification. The layout of the court shall be as shown on the drawings in Appendices A and B. The court shall be located at the tournament venue, as close to the competition court as possible.

4.3 Training courts

The OCYOG shall provide one training court as detailed in this Specification. It shall be located adjacent to the warm-up court as shown on the drawings in Appendices A and B.

4.4 Court design and construction

The courts should be designed and constructed to ensure they can be certified to the specified requirements of the *FIH Quality Programme for Hockey Turf*. The design and construction should be based on the principles of the IOC's *Guide to Sport, Environment and Sustainable Development*. A typical construction will comprise a stabilised formation, sub-court drainage system (vertical or horizontal) compacted aggregate sub-base, engineered (asphalt) base, shockpad and synthetic turf playing surface, all designed and constructed in accordance with sports field engineering best practice.

To reduce the detrimental effects of use on the performance and consistency of the courts, the maximum age of the hockey turf surface at the time of the Games shall be as specified in the *Summary of Court Requirements* of this Specification. The competition and warm-up courts should be subjected to similar levels of use and maintenance prior to the Games.

5 Court dimensions

5.1 Field of Play

The dimensions of the Field of Play shall be as detailed in the Rules of Hockey5s and the *Summary of Court Requirements* section of this Specification.

5.2 Run-offs

Beyond the Field of Play and rebound boards are the run-offs. These are provided to ensure player welfare and form part of the total playing area. The run-offs shall be kept clear of all permanent or temporary fixtures, (including advertising boards, TV cameras, etc) at all times.

The full run-off shall be surfaced with the same quality of Hockey Turf (other than colour) as the Field of Play.

Run-off dimensions are minimums. Larger run-offs are acceptable.

5.3 Operational margin

An operational margin is required outside the run-offs. The margin may be surfaced with Hockey Turf or an alternative surface such as asphalt, concrete pavers, etc. The transition from the run-off to the operational margin shall be smooth and not form a potential trip point.

6 Court orientation

Unless otherwise agreed with the FIH the Competition Court shall be aligned North / South, with a maximum deviation from north of no more than $\pm 15^\circ$.

If the warm-up and training courts are to be aligned in an East/West orientation (to allow the main 11 a-side field to be aligned North/South), an assessment of the potential risks of players suffering glare problems from the rising or setting sun during the YOG shall be undertaken. If problems are envisaged, suitable screening shall be provided. Full details of the risk assessment and design solution shall be provided to the FIH for approval.

7 Design considerations

7.1 Competition Court

As the Competition Court is to be located on the asphalt base of a new 11 a-side hockey field the design and construction of the base must take into account the additional loadings it will need to accommodate due to the temporary seating and support infra-structure required by YOG Hockey5s Competition.

As the Hockey5s playing surface is to be removed after the YOG to allow a full size field to be laid, the type of hockey-turf surfacing selected should allow it to be lifted and relocated to a new venue (as a legacy benefit) with ease.

The hockey-turf carpet may either be bonded to an insitu rubber shockpad or be loose laid over some form of foam shockpad. If the hockey-turf carpet is a loose laid some form of temporary anchoring system will be

required to tension the carpet to prevent thermal expansion, rucking or movement during the YOG.

7.2 Warm-up and training courts

The warm-up and training courts are to be located adjacent to each other on a new 11 a-side hockey field; the courts lying across the 11 a-side field, as generally shown in the drawing in Appendix B.

The playing surface on the field shall be same FIH Approved hockey-turf as that being used for the Competition Court.

There shall be no markings other than the official Hockey5s line markings on either the warm-up or training courts for the duration of the YOG.

Note: the perimeter 11 a-side line markings may be installed when the hockey-turf carpet is manufactured/laid, with just the circle-lines, dashed 5m lines outside the circle-lines and the 23m lines being retro-fitted after the YOG.

8 Court drainage

Unless otherwise agreed with the FIH the Courts shall be designed to incorporate a sub-surface drainage system (vertical or horizontal) that is designed to cater for a rain-fall event of at least 150mm/hr or a one in ten years' rain-fall event, whichever is greater.

The hockey turf surface shall be designed to ensure water is able to drain vertically into the underlying sub-surface drainage system.

9 Court profile

Unless otherwise agreed in advance with the FIH the courts shall be built with profiles that satisfies the FIH's Preferred Gradient requirements detailed in Table 2.

As the warm-up and training courts are to run-across an 11 a-side field this field should be built with a single lateral plane (i.e. with no central ridge along the length of the field).

Table 2 –court gradients			
Longitudinal gradient		Lateral gradient	
Preferred	Maximum	Preferred	Maximum
≤ 0.2%	≤ 0.6%	< 0.4%	< 1.0%

10 Playing Surface

10.1 Type and colour of hockey turf

All three courts shall be surfaced with the same FIH Approved Product. The Field of Play on the Competition Court shall be coloured Blue (RAL Classic Colour 5002 or RAL Classic Colour 5005) and the run-offs shall be a contrasting colour to the Field of Play, as agreed with the FIH.

The Training Courts shall be coloured Blue (RAL Classic Colour 5002 or RAL Classic Colour 5005). It is not necessary to have contrasting coloured run-offs on the warm-up and training courts (i.e. they can be the same colour as the field of play).

10.2 Line markings

Each court shall be marked in accordance with the *Rules of Hockey5s* applicable at the time of the Event. Line markings shall be 75mm wide, white in colour.

On the Competition Court the line markings shall be permanent in-laid or tufted into the hockey turf carpet, using the same specification of hockey turf as the main playing surface.

On the warm-up and training courts the line markings may be permanent or painted using a suitable line marking paint.

No other marking (lines or advertising) shall be placed on the competition Court without the FIH's prior approval.

11 Court irrigation

The method of court irrigation shall provide a uniformly wet playing surfaces in accordance with FIH requirements across the whole of the Field of Play. Irrigation may be provided by above-court sprinklers, rain-guns, other means such as portable hose-fed portable sprinklers, as agreed with the FIH, or by sub-court irrigation.

The minimum quantity of water applied to the playing surface shall be in accordance with the wetting procedure used when the Hockey Turf system was tested and Product Approved.

11.1 Above-Court irrigation

If above-court irrigation is to be used there shall be no fixed sprinklers located within the Field of Play 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 shall take into account the position of the rebound boards, prevailing wind directions and minimise water spray drift onto spectators.

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

- 5 minutes
- 2 minutes
- 1 minutes
- Single station activation

Adequate water storage shall be provided to ensure the Court(s) can be fully watered as required for 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 emitters (operating in matched arc pairs) shall achieve an even precipitation over the Field of Play as specified in the FIH Quality Programme.

For 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
- 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

11.2 Sub-Court 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 shall 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.

11.3 Ancillary watering

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

12 Sports equipment

At least one month prior to the start of the competition, the OCYOG shall install the specified sports equipment. All equipment shall be free of any commercial branding unless otherwise agreed by the FIH.

12.1 Goals

Goals shall be aluminium goals with an integral weight system that conform to the *Rules of Hockey5s* 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 posts and cross-bar shall be white (or another colour subject to FIH approval). 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 or a colour to be agreed with FIH. 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.

12.2 Rebound board

Socketed resilient rebound boards shall comply with the *Rules of Hockey5s* and as detailed below:

Board height	250 ± 10mm
Angle to playing surface	90 ± 1° from vertical
Colour	White
Inner board material	Resilient foam (COR of 0.65 ± 0.05 when measured with a ball having an in-bound velocity of 7 ± 0.5 m/s)

Spare boards shall be available at the Games venue to allow for replacement of any damaged boards during the Games.

12.2.1 Competition courts

Unless otherwise agreed with the FIH the rebound boards shall be fixed in ground sockets and be connected to goals to prevent movement during normal use.

12.2.2 Warm-up and training courts

Portable or socketed rebound boards shall be provided to each court. When installed they should be adequately anchored to prevent movement during normal use. The method of anchoring shall not form a trip or safety hazard to players stepping over the boards in normal play.

13 Court fencing

Each court shall be fenced as follows and as specified in the *Summary of Court Requirements*.

Fencing above 3m in height may be ball catch netting suspended from tensions cables providing such netting is fully attached to prevent it billowing in the wind.

Player and match officials' access gates to each court shall be at least 1.2m wide.

At least one set of double gates shall be provided to the Competition Court and the warm-up and training courts to allow maintenance and emergency vehicle access to each court.

13.1 Competition court

The court shall be fully enclosed by perimeter fencing. The fencing mesh (normally 50mm) shall not allow hockey balls to pass through it, but it shall allow spectator visibility.

Behind the goals the fencing height shall be as specified in the *Summary of Court Requirements* for the full width of the boundary.

The height of fencing on side boundaries fencing shall be determined by undertaking risk assessment of the potential risk of injury to people

immediately outside the court area (the proximity of spectator seating, access ways, etc). Low level fencing shall incorporate an upper hand rail.

13.2 Warm-up and training courts

Each court area shall be fully enclosed by perimeter fencing. The fencing mesh (normally 50mm) shall not allow hockey balls to pass through it. On the external boundaries to each court the fencing may be the 11 a-side field fencing, providing each court has its own direct access gate. The two courts shall be separated by an internal division net. The internal boundary between the two courts shall be a 3.0m high 50mm heavy-duty ball catch net hung from a tensioned cable running across the 11 a-side field. The bottom of the net shall either include a lead-line or it shall be strung through a tensioned cable to stop it billowing in the wind.

14 Maintenance equipment

The OCYOG shall ensure that all necessary maintenance equipment, as recommended by the hockey turf manufacturer, is available to enable the hockey turf on each Court 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 (thunder storms, etc.) may be anticipated during the Games suitable squeegees to remove any excess water ponding on the hockey turf shall be provided.

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

15 FIH Court Certification

15.1 Competition & warm-up courts

The competition court and warm-up courts shall be certified to the FIH Global category no less than three months in advance of the Games and the certification shall remain valid throughout the period of the Olympic Games.

15.2 Training courts

The training courts or the full size field on which temporary courts are located shall be certified to the FIH Global category no less than three months in advance of the Games and the certification shall remain valid throughout the period of the Games.

New courts should be used prior to the certification test to ensure the hockey turf reaches its optimum condition prior to test. This will require several weeks' play and an adequate allowance should be made in the commissioning programme for this.

FIH Court certification includes an assessment of the effectiveness of the Court's irrigation system and this needs to be fully compliant and operational at the time of the court test.

The tests shall be undertaken by an FIH accredited test institute appointed by the OCYOG (see www.fih.ch/hockeyturf for details of FIH Accredited Test Institutes). To ensure impartiality the test institute should not have been involved in the design or procurement of the Court.

If help is required to organise a Court and or lighting tests please contact facilities@fih.ch.

16 Sports lighting

The Courts shall be illuminated to satisfy the relevant performance requirements as specified in the *Summary of Court Requirements* and defined in the current FIH Lighting Guide.

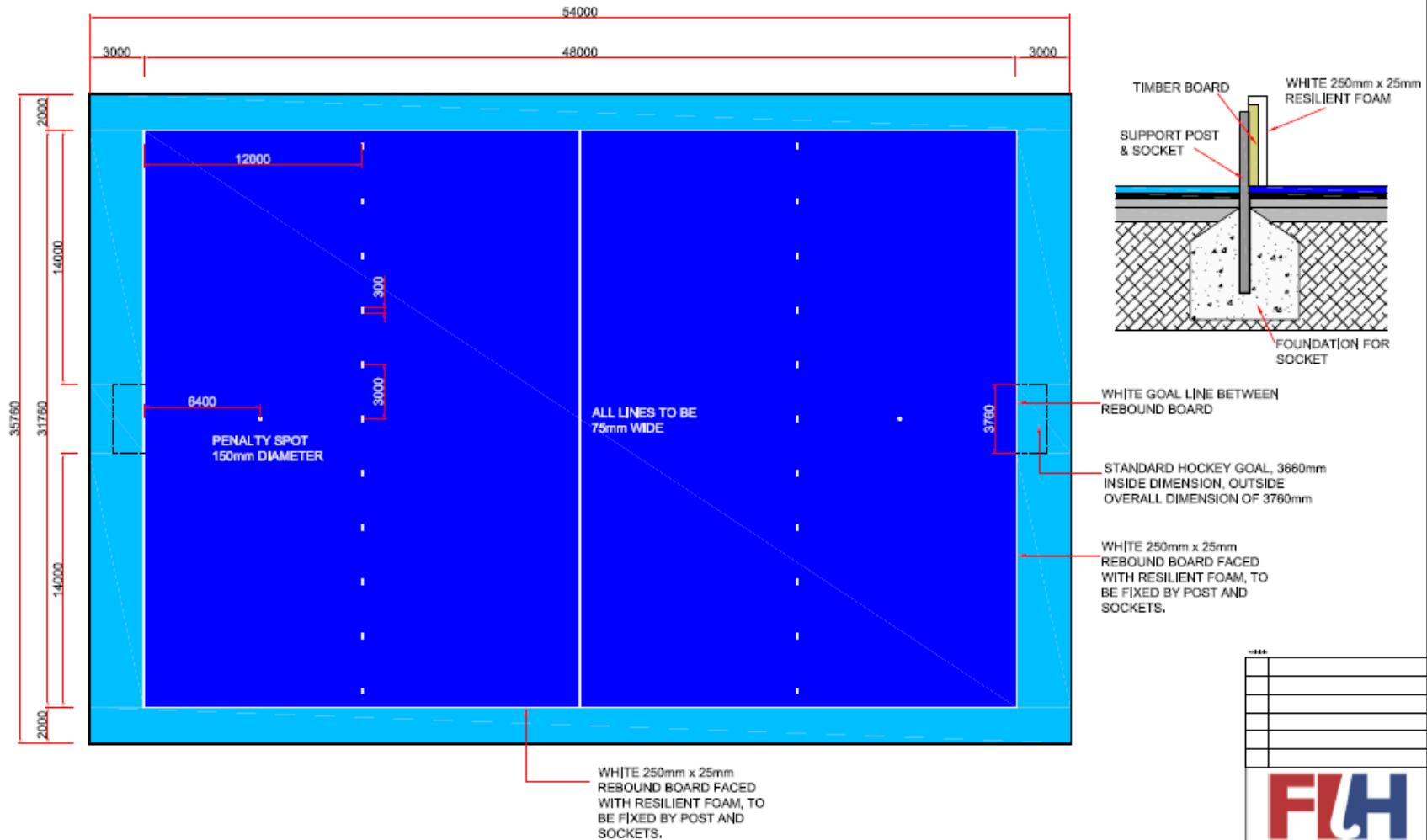
The lighting system shall be tested after at least 10 hours use (to ensure consistency). The tests shall be undertaken by an independent lighting engineer, as agreed with the FIH or a FIH accredited test institute appointed by the OCYOG. The test institute/lighting engineer should not have been involved in the design or procurement of the lighting system.

If the lighting system is a permanent installation the lighting test shall be undertaken no more than six and no less than two months in advance of the Event.

If a temporary lighting system is to be used to fully light or augment an existing lighting system, the lighting tests shall be undertaken and the results submitted to the FIH for approval no more than five days in advance of the Event.

Wherever possible the FIH encourage the OCYOG to use sports lighting manufactured by the FIH's Preferred Lighting Supplier (see www.fih.ch for details).

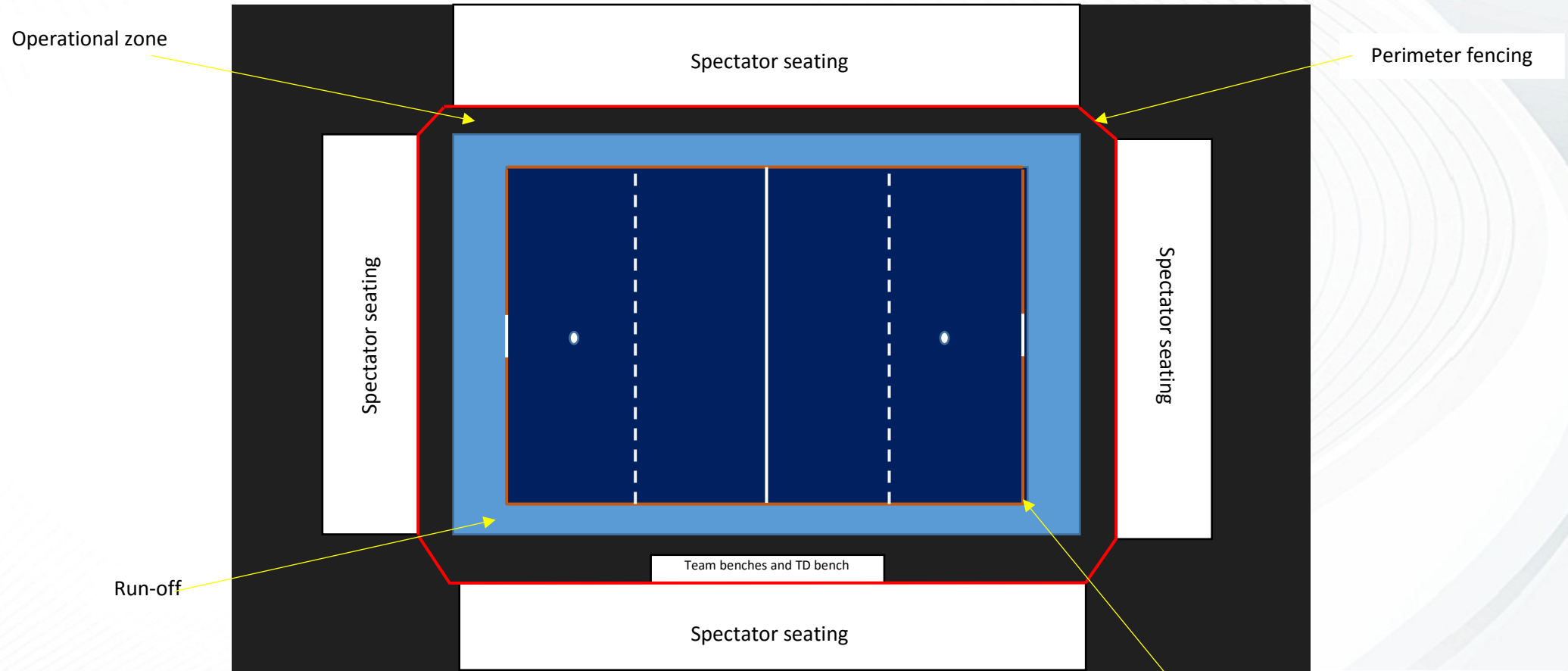
Appendix A – elite level competition court layout



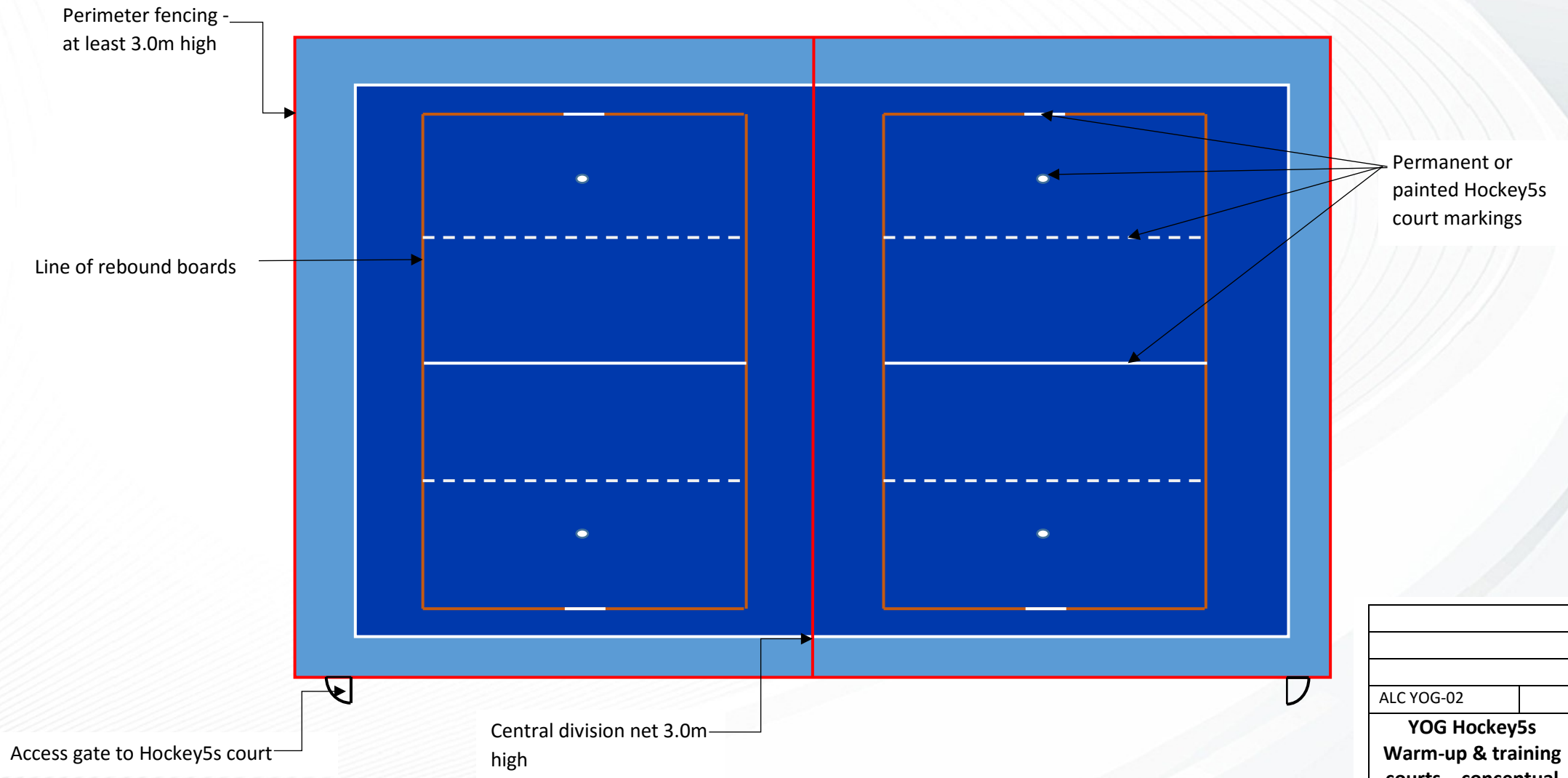
HOCKEY5s COMPETITION COURT LAYOUT

STANDARD LAYOUTS		PROJECT NUMBER
TITLE		
HOCKEY5s COMPETITION COURT LAYOUT		
ISSUED BY	REV	DATE
FIH-SSFL-02	A	
DESIGNED BY	CHECKED BY	DATE
ASAD FALAH	KEVIN LEE	

Appendix B –proposed court layouts based on use of 11–a-side field facilities



FIH YOG-01	
YOG Hockey5s Competition Court – conceptual layout	
ALC	28/7/16



ALC YOG-02	
YOG Hockey5s Warm-up & training courts – conceptual layout	
ALC	28/7/16