FAI Sporting Code

Section 9 – Rotorcraft

Event handbook
Competition checklists
Equipment specifications

January 2020 Edition

Effective 2020

Fédération Aéronautique Internationale

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The CIG Guide to Helicopter Championship Organisation Edition 1/20.

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1.1 Championship checklists

1.1.1. This section gives details of the people that are involved in the organisation of an event. It lists a full schedule of items required for the operation of an event along with the key stages that are required to present a course ready for each discipline.

Below is a list of the organising team and the championship management. This consists of but is not limited to:

1. Event Director
2. Deputy Event Director
3. International Jury
4. Chief Judge
5. Deputy chief judge
6. Judging personnel
7. Scorer
8. Scoring personnel
9. Courses manager and ground crew
10. Technical team manager
11. Navigation course designer
12. Safety Officer
13. Weather official
14. Technical Official and engineering team
15. Airfield Manager
16. Administration staff
17. Transportation staff
18. On site catering staff
19. Commentator
20. Media & PR Manager
21. Any other as appointed by Event Director

1.1.2 Authorities (local and international) required either to be co-operated with or informed of the event. Some may require to be present at the event:

NAC; National, Regional, Local Government, CAA, Police, Military etc.

1.1.3 NAC delegations are made up of several categories as listed in the entry form and are as follows:

1. Chief delegate.
2. Team manager.
3. FAI approved judges and assistant judges, a maximum of 10 people.
4. Pilots and crews. A maximum of 7 crews plus 3 all female crews.
5. Mechanics/engineers.
6. Interpreter.
7. Additional people can attend if the category is specified on the entry form such as observer.
8. A country can enter an unlimited amount of entrants to the Freestyle event, this event is flown solo.

Each person can only act in one capacity and this must be declared at the time entry is made to the competition. The only exception is the Chief delegate and the Team manager can be the same person.

Defending overall world champions and the defending female world champions are regarded as additional to their country allocation.

Countries with less than two crews cannot enter the team event and are scored as individual crews.

1.1.4 General public

Must be contained in designated areas.

1.1.5 Facilities/services to be provided either on or off site as required for the duration of the event:

1. Accommodation and off site catering
2. Provision of on site catering
3. Provision of off site lunches for navigation judges
4. Availability of drinking water at all times
5. Welfare facilities at the airfield, sufficient for all individuals at all times
6. Transport (to and from accommodation)
7. Transport - Chief & Deputy Chief judges and Jury (independent)
8. Transport - for off site judging positions for navigation
9. On site services safety such as fuel and fire/ambulance
10. Miscellaneous on site services such as WIFI and sufficient seating.

1.1.6 On site requirements:

1. Main office
   Must always be open for general enquiries.
2. Registration point
3. Customs point
   If not on site, competitors must be advised where to clear customs
4. Judges office

Must be provided for the Chief Judge, the Deputy Chief Judge, the scoring and judging personnel. There must be WIFI and adequate seating and desks to contain the function of the office.

5. Jury office
   Must be available for the sole use of the Jury members.
6. Briefing tent/room for all briefings
   Of sufficient size to hold all participants for all briefings. Adequate seating must be provided. Must have WIFI. Must have a loud speaker system to ensure the briefings can be heard throughout the briefing area.
7. Official notice board
   Of suitable size to display the following:
   - The variables of the competition after they are announced at the general briefing.
   - List of competitors.
   - Master clock
   - Event running orders
   - Additional information - briefing times, transportation times, contact numbers, etc.
8. Quarantine facility to hold all returning competitors from the navigation event. Lunch and refreshments to be available all day.
9. Toilet and welfare facilities for all attendees.
10. On site facility to play national anthems at prize giving i.e. suitable PA system.
11. Suitable on site facility to fly the flags of participating nations and FAI.
12. Press office
    A separate office style room to be available for the press to use with seating and desk space. WIFI is essential.
13. WADA (if notified)
    Provision of separate room with WC facilities to be provided.

1.1.6.1 Off site locations will also be required for the positioning of panels and other items for the navigation exercise.

1.1.7 Competition equipment

All equipment as detailed in the Section 9, Chapter 8, Rules and Regulations must be present at the competition site three days before the event to allow the International Jury to inspect the equipment.
All equipment must be prepared in line with the Standards of Performance Section for equipment specification in the CIG Handbook.
Competition maps are classed as equipment.

Competition numbers shall be supplied to the competitors and must be clearly visible on the left & right hand side of the helicopter for the duration of the Championship. Numbers will 30 x 30cms (or as large as is reasonably possible). The numbers must be black on a white or yellow background.

1.1.8 Weather minima

Events 1 and 5: Minimum cloud height of 300 metres and minimum horizontal visibility 2 kilometres or the minimum legal flying conditions of the host country whichever is the greater.
Events 2, 3 and 4: maximum wind speed of 15 knots (unless all team managers unanimously agree otherwise at the event briefing).
Event 5: maximum wind speed of 8 knots.

1.1.9 Task allocation

Specific tasks must be completed by the nominated individuals in preparation of each event. There are checklists in sections 1.3.2 and 1.3.3 this document. Following these procedures will ensure the correctly laid out course is delivered on time to the Event Director to ensure smooth and efficient running of the event.

1.2 Competition checking sequence for each event

1.2.1 The navigation event

Each crew must have their own logger for the event, the type to be a FlywithCe flight recorder FR300 or any logger as approved on the FAI IGC list.

Logger sharing will not be permitted.

Before flying commences, the setting and checking of the course is carried out as follows:

Event briefing carried out the day prior.
Aircraft prepared by technical team.
The course is set by the navigation course designer.
The course is laid out by the course manager and ground staff.
The course is checked by the designer and the course manager and signed off as completed and handed to the Event Director to commence the discipline at least one hour before the first aircraft take off time.
All judges and assistant judges have been allocated to their judging points and issued with relevant judging sheets.
The running order is completed by the Event Director taking aircraft sharing in to consideration.
The locations of MFO 1 and MFO 2 will be published at the general briefing.
All equipment for competitors to be at the preparation line.
Loggers already installed in aircraft and technical team ready to remove at completion of the event and taken for analysis.

Flying the event.

During the navigation, judging sheets can be collected and delivered to the scorers before the completion of the event.

End of flying.

Prior to leaving the designated ten metre landing area, each crew will hand over their envelope to an official.
The official will not in any way check or open the envelope but seal it in a further envelope to be transported to the scoring room
After landing, crews are escorted from their aircraft to the quarantine position without contact with any other crews.
Loggers removed from the aircraft by the technical team to take for download.
Competition seals inspected to ensure they are intact.
Illegal or barred equipment check.
10% of competitors randomly inspected.

Scoring

Scores sheets collected from judges and given to the event scorers with the logger download to determine the score for each crew.
Scoring information stored in preparation of any complaint or protest.
Preliminary scores issued no later than three hours of the event finishing and signed by the Chief Judge and a time is printed on the document, the complaint one hour window commences at this time.

Complaints/protests

Complaints are handled by the Chief Judge.
An unsatisfied complaint changes to an official protest.
A protest and the protest fee will be delivered to the Jury as soon as it is received by the Event Director.
A check will be made to ensure the protest has been received prior to the expiry deadline. It will be signed, dated and a time printed on it.

Final scores

Final scores are put up on the event notice board (subject to any outstanding protests)
Scores must be declared final by the Chief Judge with date, time and signature.

End of event

Course manager and ground crew to ensure all equipment is collected and returned to the airfield to be stored.
All judging personnel accounted for.

1.2.2 The precision event

Before flying commences, the setting and checking of the course is carried out as follows:

Event briefing carried out the day prior.
The course is laid out by the course manager and ground staff.
The course is checked by the course manager and signed off as completed and handed to the Event Director to commence the discipline at least one hour before the first take off time.
All judges and assistant judges have been allocated to their judging points and issued with relevant judging sheets.
The running order is completed by the Event Director taking aircraft sharing in to consideration.
The direction of the turning points has been issued.
All equipment for competitors to be at the preparation line.

Flying the event.

Ensure all judges and officials are in place.

End of flying.

Competitors return to their parking place unless handing the aircraft over to another competitor. The procedure for shared aircraft and refuelling will be briefed.

Scoring, complaints and final scores

Same as navigation event.

1.2.3 The fender event

Before flying commences, the setting and checking the course is carried out as follows:

Event briefing carried out the day prior.
The course is laid out by the course manager and ground staff.
The course is checked the course manager and signed off as completed and handed to the Event Director to commence the discipline at least one hour before the first take off time.
All judges and assistant judges have been allocated to their judging points and issued with relevant judging sheets.
The running order is completed by the Event Director taking aircraft sharing in to consideration.
The direction of flight through gates has been issued.
All equipment for competitors to be at the preparation line.

Flying the event.

Ensure all judges and officials are in place.

End of flying.

Competitors return to their parking place unless handing the aircraft over to another competitor. The procedure for shared aircraft and refuelling will be briefed.

Scoring, complaints and final scores

Same as navigation event.

1.2.4 The slalom event

Before flying commences, the setting and checking of the course is carried out as follows:

Event briefing carried out the day prior.
The course is laid out by the course manager and ground staff.
The course is checked the course manager and signed off as completed and handed to the Event Director to commence the discipline at least one hour before the first take off time.
All judges and assistant judges have been allocated to their judging point and issued with relevant judging sheets.
The running order is completed by the Event Director taking aircraft sharing in to consideration.
The direction of flight and position of gates has been issued.
All equipment for competitors to be at the preparation line.

Flying the event.

Ensure all judges and officials are in place.

End of flying.

Competitors return to their parking place unless handing the aircraft over to another competitor. The procedure for shared aircraft and refuelling will be briefed.

Scoring, complaints and final scores

Same as navigation event.

1.2.5 The freestyle event

Before flying commences, the setting and checking of the course is carried out as follows:

The course is laid out by the course manager and ground staff.
The course is checked the course manager and signed off as completed and handed to the Event Director to commence the discipline at least one hour before the first take off time.
All judges and assistant judges have been allocated to their judging points and issued with relevant judging sheets.
The running order is completed by the Event Director taking aircraft sharing in to consideration.

48 before flying, each competitor will submit their proposed routine to the specially selected judging panel.

Not later than 24 hours before the event commences, the judging panel will inform the competitor if any of the proposed manoeuvres required to be eliminated or altered for safety reasons.

Flying the event.

Ensure all judges and officials are in place.

End of flying.

Competitors return to their parking place unless handing the aircraft over to another competitor. The procedure for shared aircraft and refuelling will be briefed.

Scoring, complaints and final scores

Same as navigation event.

1.2.6 Parallel Slalom Heli-Race event

Before flying commences, the setting and checking the course is carried out as follows:

Event briefing carried out same day.
The course is laid out by the course manager and ground staff.
The course is checked the course manager and signed off as completed and handed to the Chief Judge to commence the discipline at least one hour before the first take off time.
All judges and assistant judges have been allocated to their judging points and issued with flags.
The running order is completed by the Chief Scorer taking aircraft sharing in to consideration.
The direction of flight through gates has been issued.
All equipment for competitors to be at the preparation line.

Flying the event.

Ensure all judges and officials are in place.

End of flying.

Competitors return to their parking place unless handing the aircraft over to another competitor. The procedure for shared aircraft and refuelling will be briefed.

Scoring, complaints and scores

Any complaints must be instant and made at the time of flying the heat to be dealt with on the spot.
Chief Judge and Jury on the field at all time to give instant decision.
Scores are compiled on the course and winners indicated by a flag being waved to the winning crew of each heat.

1.2.7 Parallel Fender Heli-Race

Before flying commences, the setting and checking the course is carried out as follows:

Event briefing carried out same day.
The course is laid out by the course manager and ground staff.
The course is checked the course manager and signed off as completed and handed to the Chief Judge to commence the discipline at least one hour before the first take off time.
All judges and assistant judges have been allocated to their judging points and issued with flags.
The running order is completed by the Chief Scorer taking aircraft sharing in to consideration.
The direction of flight through gates has been issued.
All equipment for competitors to be at the preparation line.

Flying the event.

Ensure all judges and officials are in place.

End of flying.

Competitors return to their parking place unless handing the aircraft over to another competitor. The procedure for shared aircraft and refuelling will be briefed.

Scoring, complaints and scores

Any complaints must be instant and made at the time of flying the heat to be dealt with on the spot.
Chief Judge and Jury on the field at all time to give instant decision.
Scores are compiled on the course and winners indicated by a flag being waved to the winning crew of each heat.

1.2.8 World Air Games

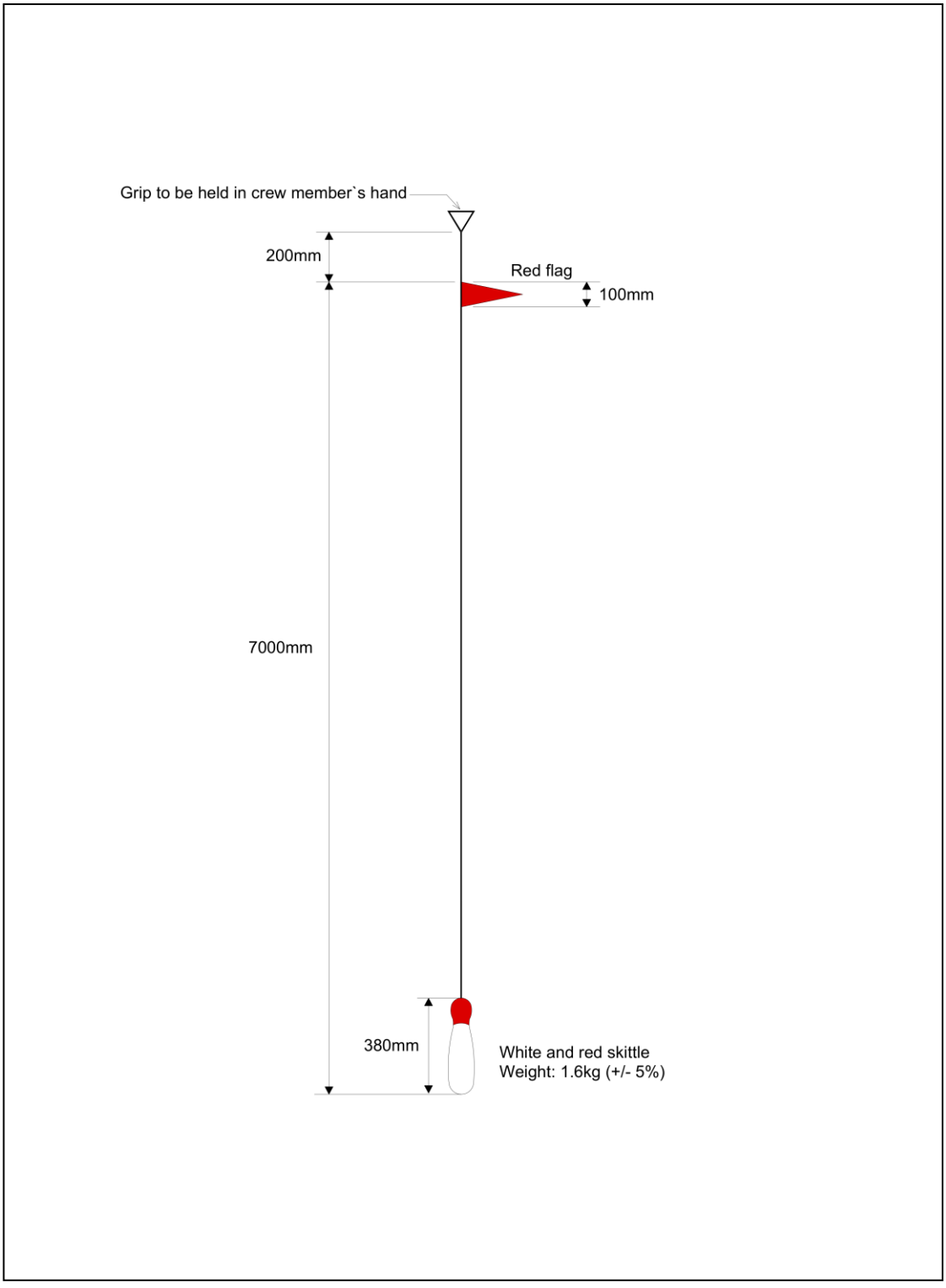
to follow

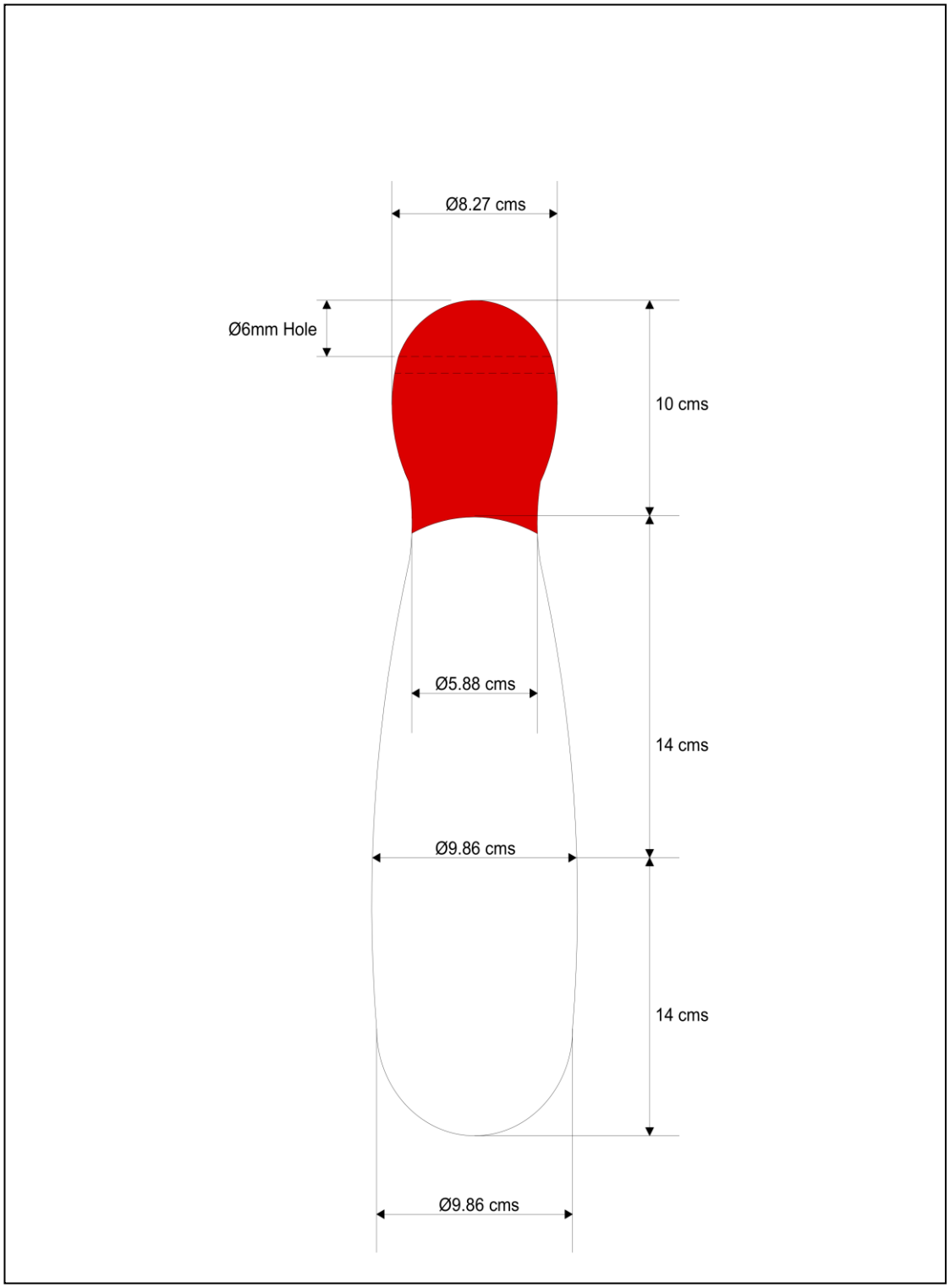
1.3 Checklists for all events.

1.3.1 Equipment specifications

1.3.1.1 Equipment specification - Competition skittle

1.3.1.1.1 Photographic or schematic representation of the item



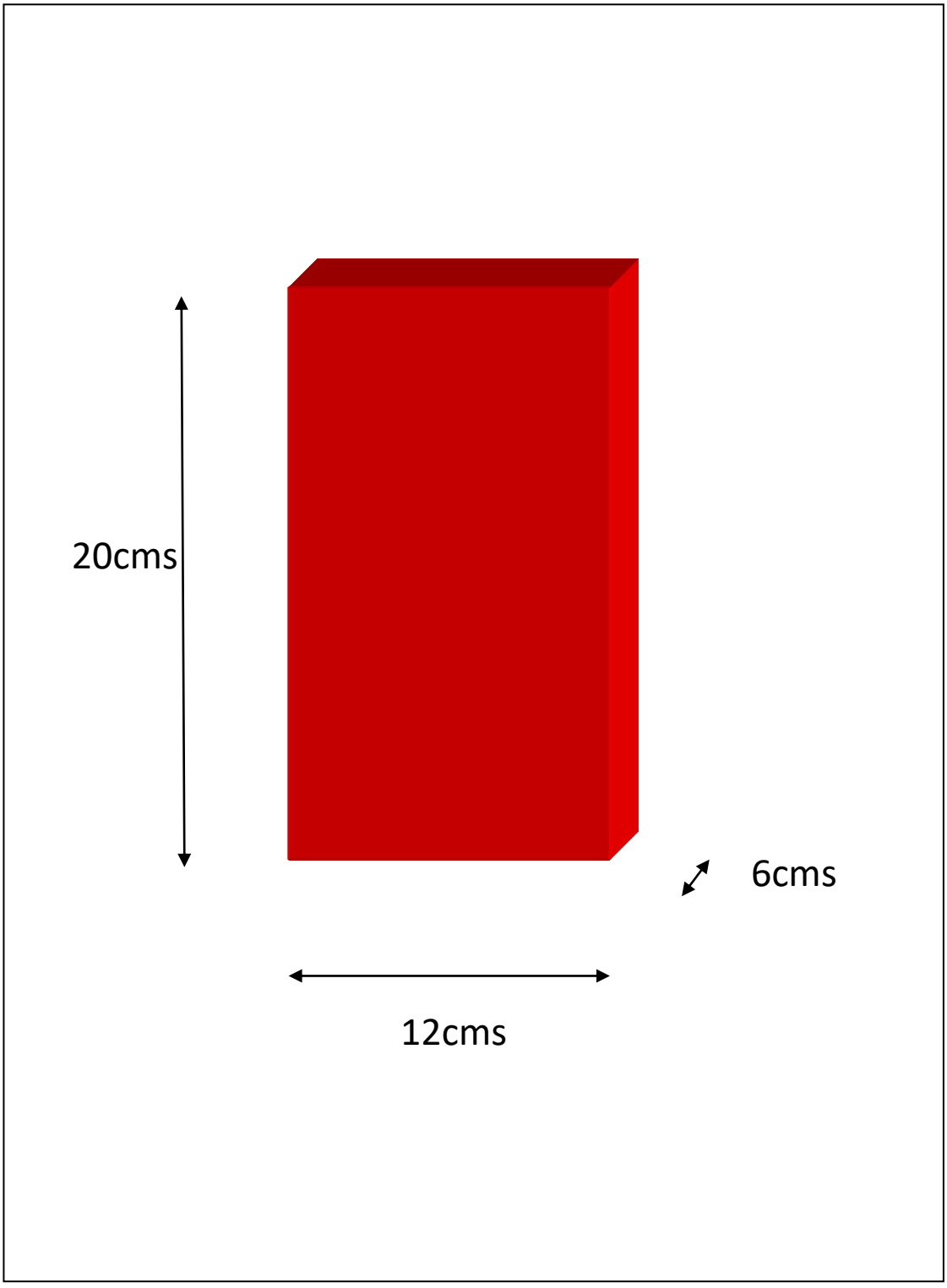

Ø8.27 cms
Ø6mm Hole
10 cms
Ø5.88 cms
14 cms
Ø9.86 cms
14 cms
Ø9.86 cms

1.3.1.1.2 Components required and method

Components required	Method
1 x grip - wooden, plastic or metal Handle length 12cms +/-10% Handle circumference 8cm +/- 10%	1. Take the rope and attach the grip to one end and the skittle to the other as denoted in the graphic. Skittle to be attached via hole in the skittle or by a hook.
1 x red equilateral triangular flag, red in colour and made from red fabric. Flag length side 10cms	2. The top of the red flag is to be placed 20cms from the base of the grip. The flag is to be attached to the rope by stitching.
1 x rope measuring 7 metres in length to achieve the overall length of 6.82metres when constructed. Braided 5mm rope.	3. The skittle will be attached to the rope via a hole in the top of the skittle or via a hook attached to the top of the skittle to give an overall length of 7 metres from the bottom of the position denoted by the red flag to the bottom of the skittle. Rope will be 5mm, braided rope.
1 x red and white skittle 38cm in height, 1.6kgs in weight. Skittle to be made from wood or plastic to Achieve competition weight.	4. The skittle will weigh 1.6kgs (+/- 5% meaning the lightest acceptable weight is 1.52kgs and 1.68kgs the heaviest acceptable weight).
	5. The overall length from the bottom of the grip to the bottom of the skittle is 7 metres 20cms.

1.3.1.2 Equipment specification - Competition rice bag

1.3.1.2.1 Photographic or schematic representation of the item

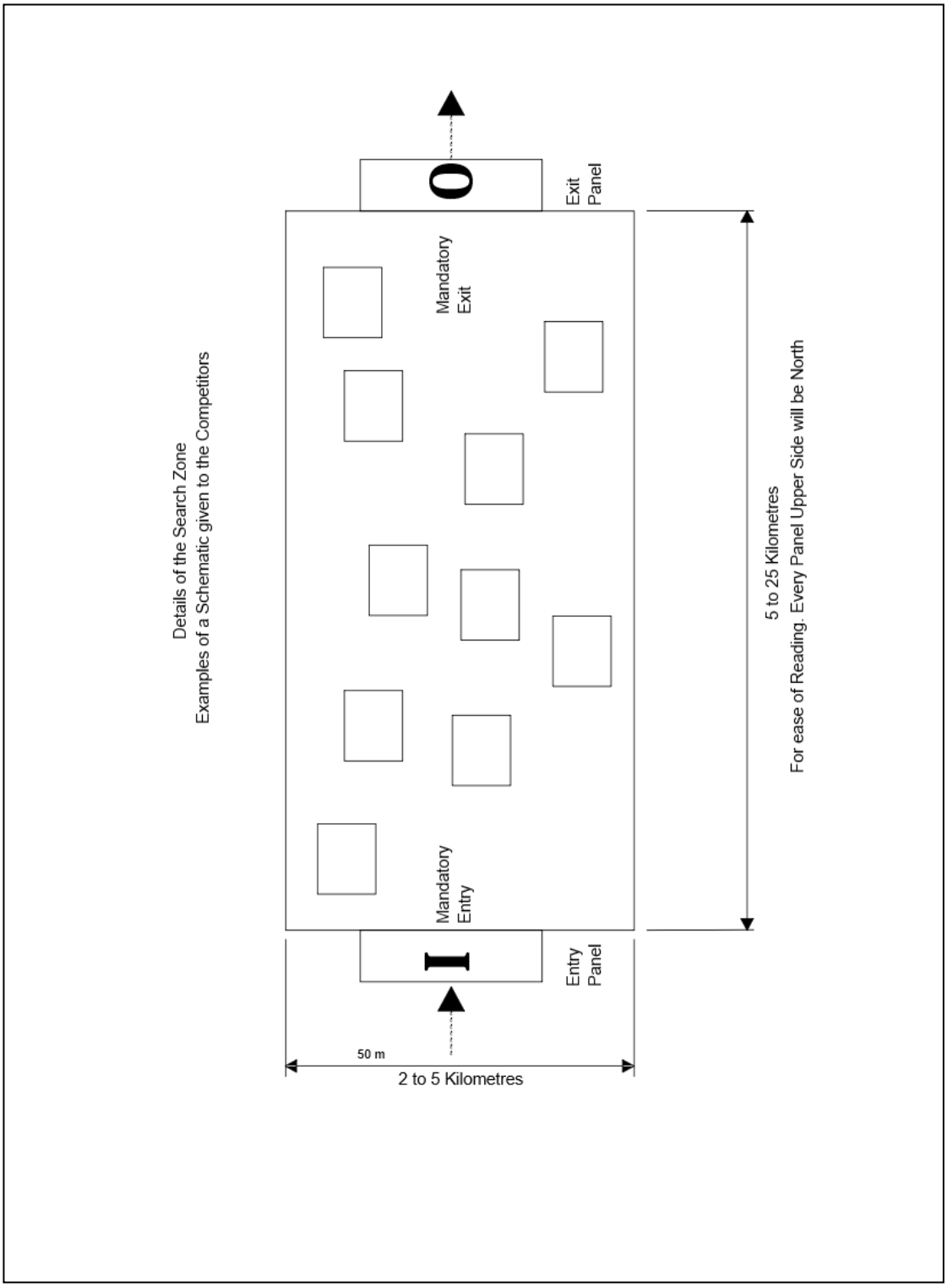


1.3.1.2.2 Components required and method

Components required	**Method**
Cotton fabric bag sown to give a finished Measurement of 20cms x 12cms x 6cms +/- 10%	1. Fabric bag of the correct measurement to be filled with 1 Kg of raw rice
Filled with rice	2. The bag will be formed from cotton like material with the rice sealed in the bag by stitching
Each weighing 1 kilogram +/- 2%	

1.3.1.3 Equipment specification - Search box entry and exit gates

1.3.1.3.1 Photographic or schematic representation of the item



1.3.1.3.2 Components required and method

Components required	**Method**
2 x 15 metre by 1 metre white fabric/vinyl panels. 1 x orange fabric/vinyl panel 3 metres by 2 metres with the letter "I" marked in black in the centre. The thickness of the lines denoting the symbol 0.3m 300mm metal pegs to secure the panels to the ground at a minimum distance of 500mm Hammer or mallet.	1. Construct entry gate by 2 x 15 metre by 1 metre white panels and 1 x orange panel in the centre of the 5 metre space to form one 35 metre line.
2 x 15 metre by 1 metre white fabric/vinyl panels. 1 x orange fabric/vinyl panel 3 metres by 2 metres with the letter "O" marked in black in the centre. The thickness of the lines denoting the symbol 0.3m. 300mm metal pegs to secure the panels to the ground at a minimum distance of 500mm Hammer or mallet.	2. Construct exit gate by 2 x 15 metre by 1 metre white panels and 1 x orange panel in the centre of the 5 metre space to form a 35 metre line.
10 x orange vinyl panels measuring 3 metres by 2 metres on which letters or symbols will be painted. The width of the lines making the letter or number will be 0.30m 300mm metal pegs to secure the panels to the ground at a minimum distance of 500mm Hammer or mallet.	3. Panels to be selected placed in accordance with the navigation course designers instruction.

1.3.1.4 Equipment specification - Search box panels

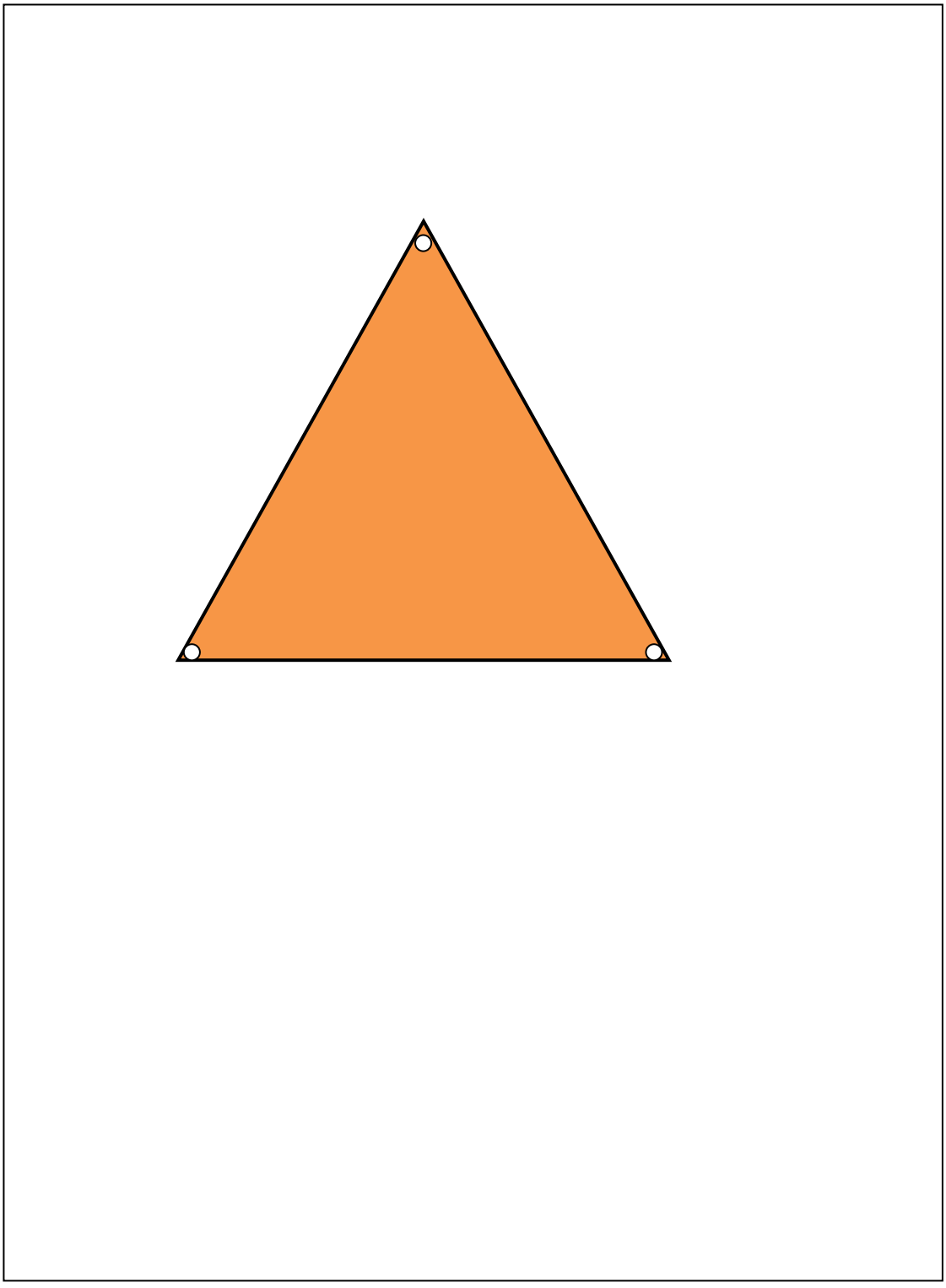
1.3.1.4.1 Photographic or schematic representation of the item

1.3.1.4.2 Components required and method

Components required	Method
26 x orange fabric/ vinyl panels measuring 3 metres by 2 metres Black paint or tape to make the letters or symbols.	1. The 26 symbols as specified by the rules must be painted one per panel with black weatherproof paint 2. Symbols are 1.5 metres in height 3. Symbols are 0.3 metres in width +/-10%
150mm pegs to attach the symbols to the ground One peg for each of the four corners (minimum) Hammer	Panels to be ground mounted as required by the navigation course designer in designated positions and altered at a pre-agreed frequency.

1.3.1.5 Equipment specification - Turning point triangles

1.3.1.5.1 Photographic or schematic representation of the item

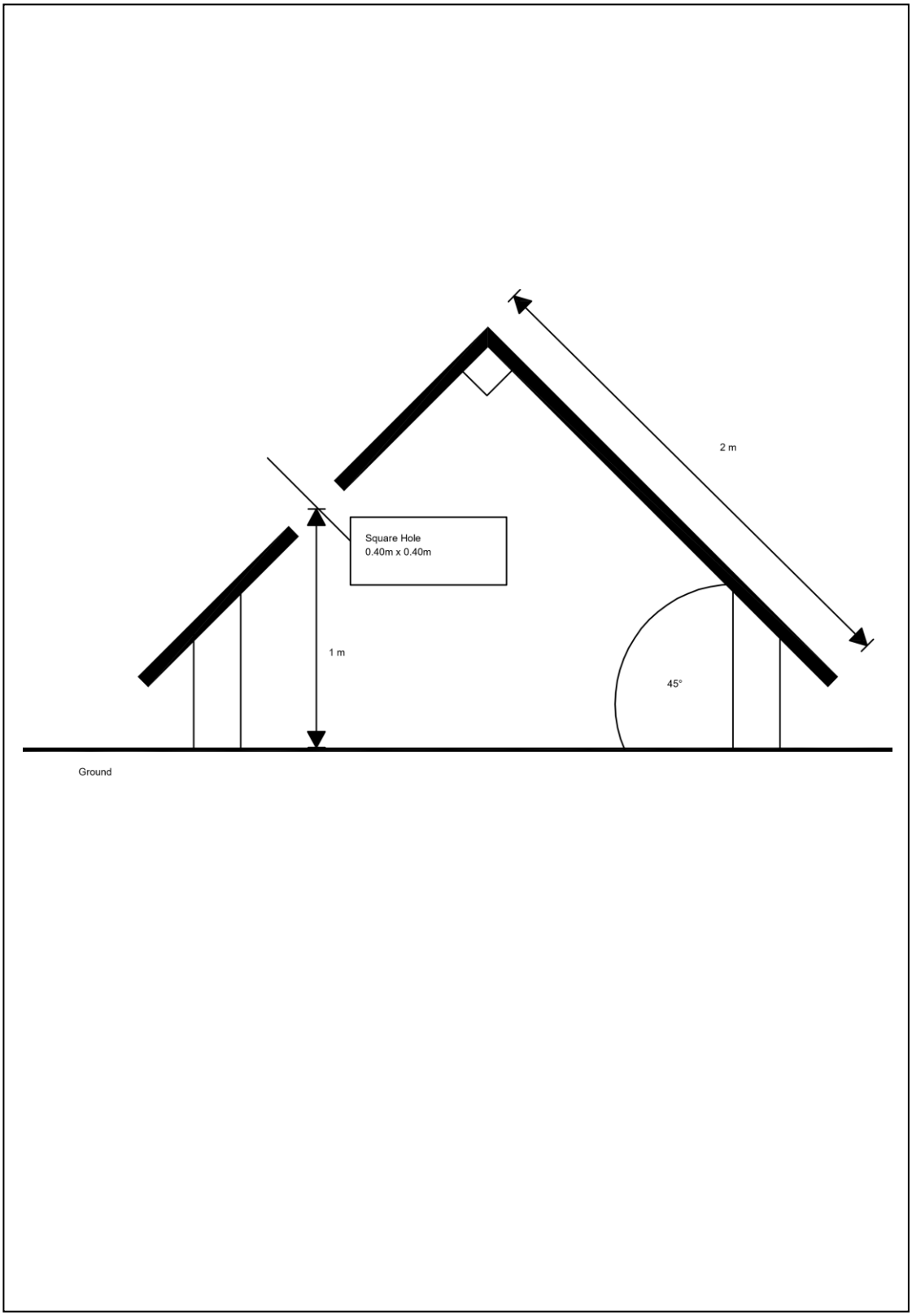


1.3.1.5.2 Components required and method

Components required	**Method**
3 x 3metres by 3 metres by 3 metres orange vinyl/fabric equilateral triangles with black letters or symbols with line width of 0.30m	1. Triangles to be ground mounted as directed by navigation course designer.
Minimum peg size 150mm Peg fixing to each corner Hammer	2. Triangles to be fixed to the ground with metal pegs.

1.3.1.6 Equipment specification - Competition doghouse

1.3.1.6.1 Photographic or schematic representation of the item

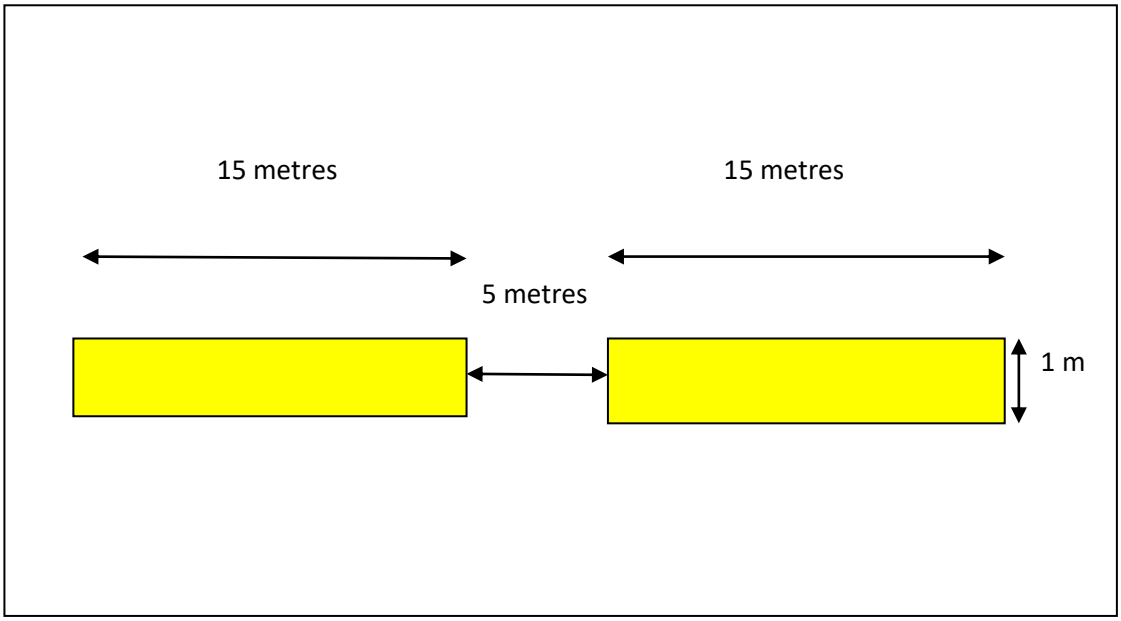


1.3.1.6.2 Components required and method

Components required	**Method**
2 or 4 x legs or supports of suitable rigidity to withstand down draught of the largest competing aircraft	Legs to be weighted or spiked to the ground to withstand down draught of the largest competing helicopter.
2 x panels of 2 x 2 metres to form a "roof" structure made with suitable rigidity to withstand down draught of the largest competing aircraft.	Panels to be hinged/bracket and/or glued/screwed to each other at a joining angle at apex 90°with legs resting on the ground. Structure to be at an angle of 45° to the ground. Structure to be weighted or attached to the ground by tethered spikes.
1 x load receiving hole in panel in the centre of the facing panel. The hole is one metre above the ground at its Centre. The hole measuring 0.40cm x 0.40cm and is in a central position.	

1.3.1.7 Equipment specification - Navigation arrival line and navigation finish lines

1.3.1.7.1 Photographic or schematic representation of the item

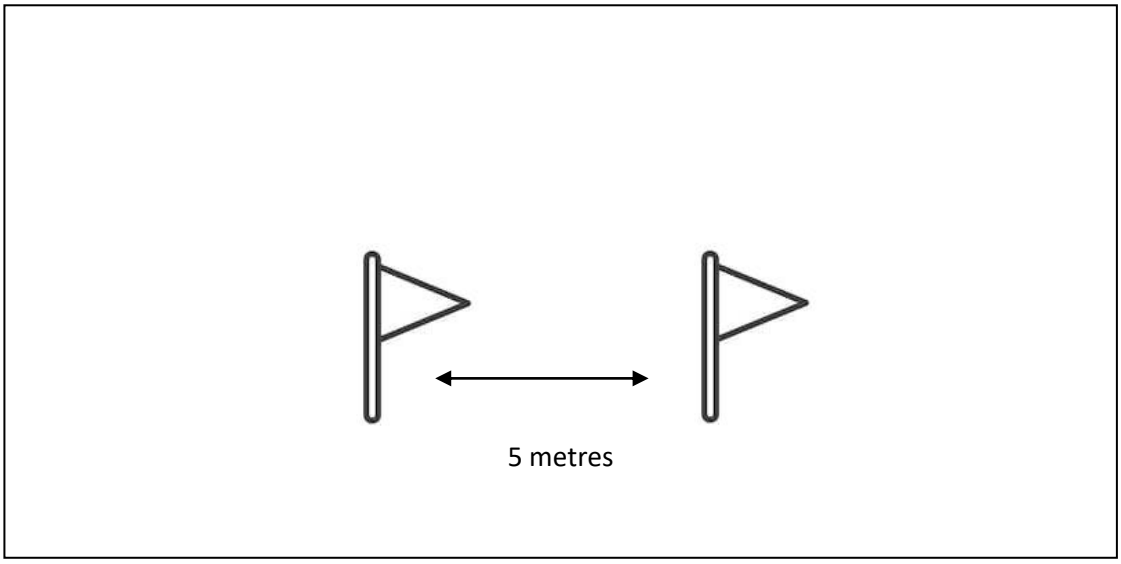


1.3.1.7.2 Components required and method

Components required	Method
2 x 15 metre long and one metre wide yellow vinyl strips.	Panels to be placed five metres apart to form the 35 metre Arrival line or Finish line
Minimum peg length 300mm Minimum fixing distance 500mm Hammer	Panels to be attached to be secured to the ground with metal pegs.

1.3.1.8 Equipment specification - Navigation departure line, navigation preparation line & events preparation line

1.3.1.8.1 Photographic or schematic representation of the item

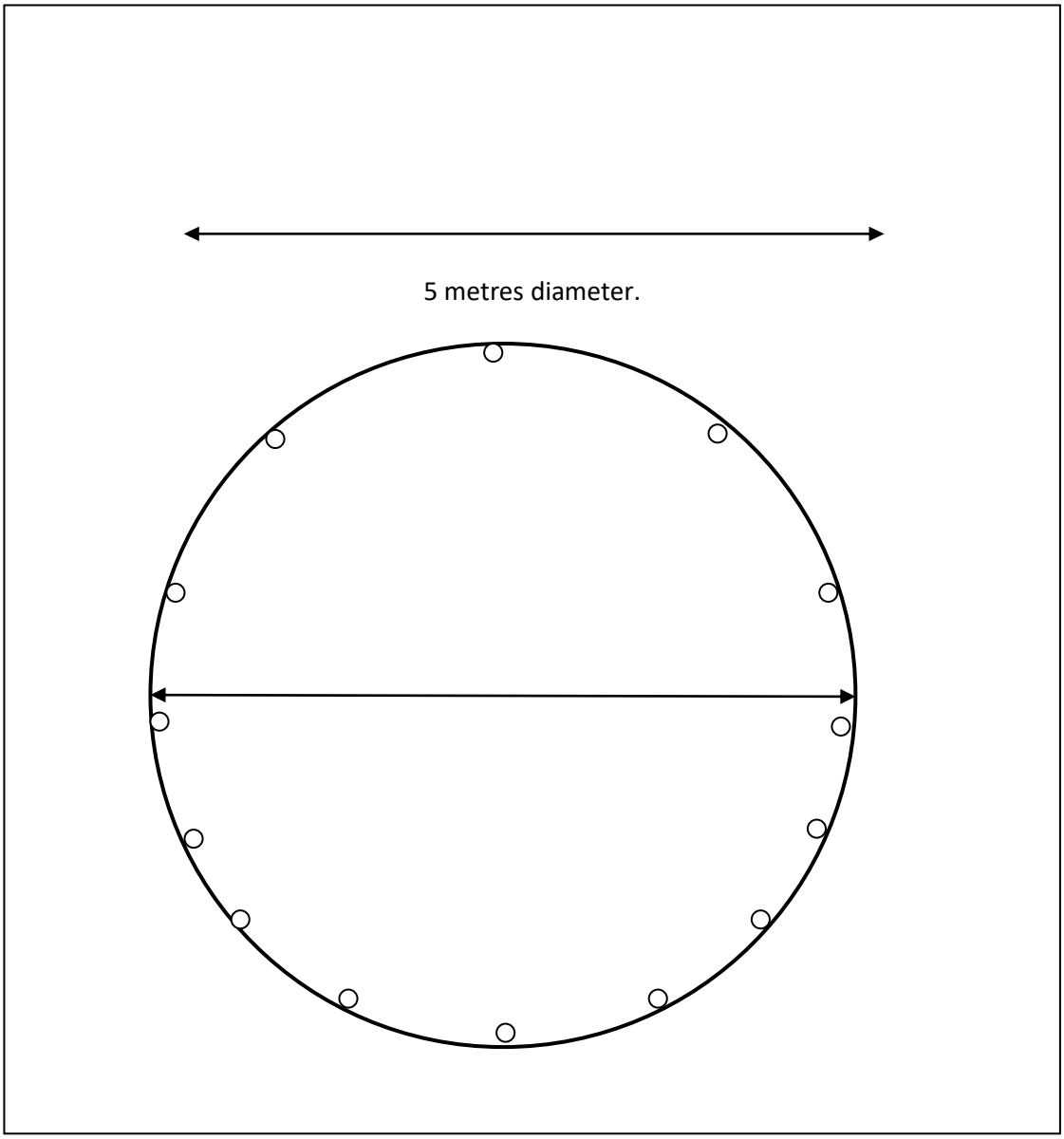


1.3.1.8.2 Components required and method

Components required	Method
2 x wooden or metal flag poles with flag made from colour cotton fabric	1. Position flags five metres apart as instructed by the navigation course designer
Flag pole height maximum 600mm	
Flag measurement to be minimum of 200mm by 200mm by 200mm	
Flag colour for category one events to be uniform	
Flags to be hammered in to the ground with at least 300mm visible above ground level.	
Hammer	

1.3.1.9 Equipment specification - Navigation rice bag targets

1.3.1.9.1 Photographic or schematic representation of the item

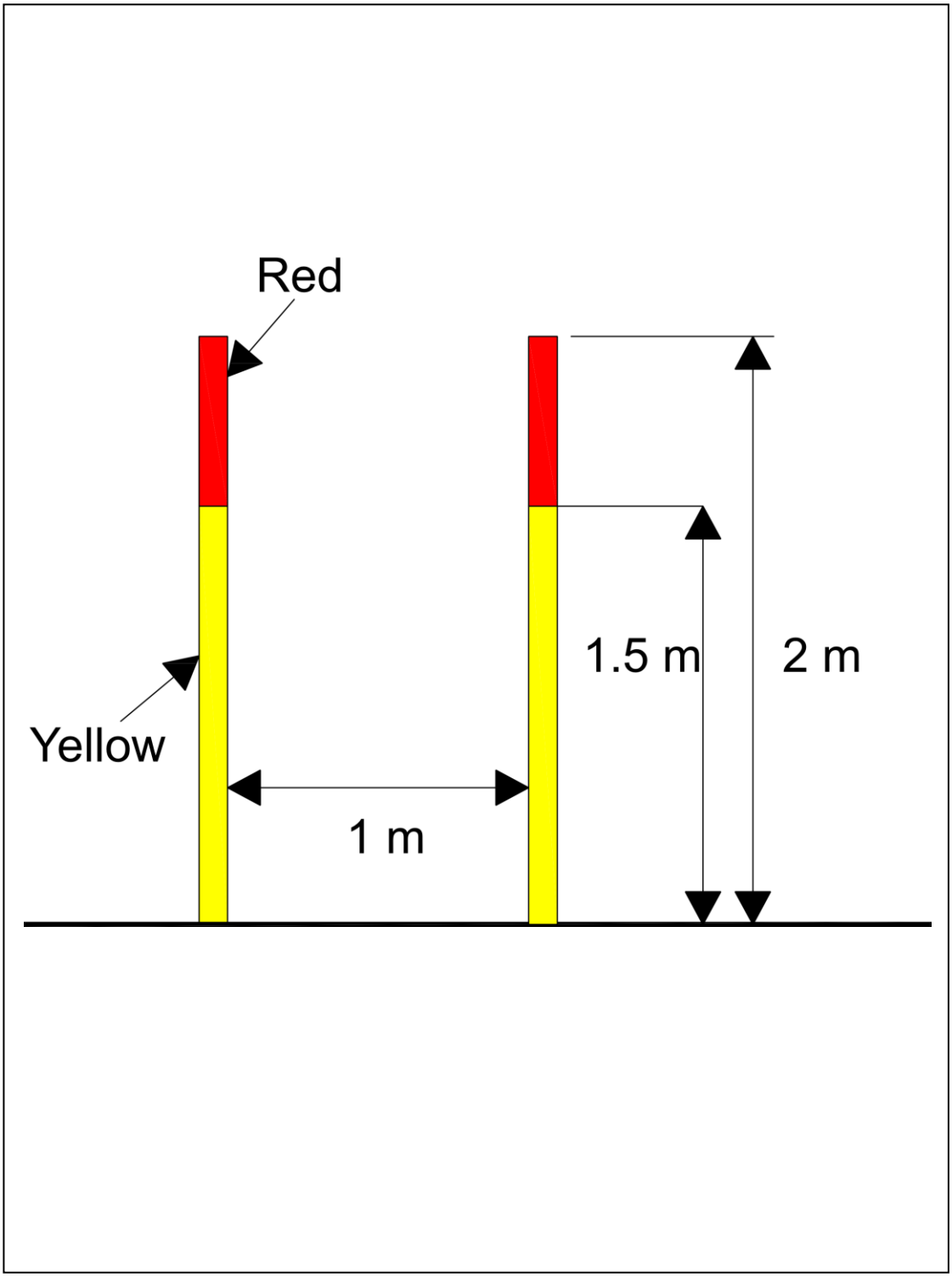


1.3.1.9.2 Components required and method

Components required	Method
2 x 2 metre diameter white vinyl/fabric panels	1. Position panels as instructed by navigation course designer
Minimum peg length 300mm	2. Ground mount the panels with pegs
Minimum pegging distance 500mm	
Hammer	

1.3.1.10 Equipment specification - Competition gates (inc parallel event course gates and entrance gates)

1.3.1.10.1 Photographic or schematic representation of the item

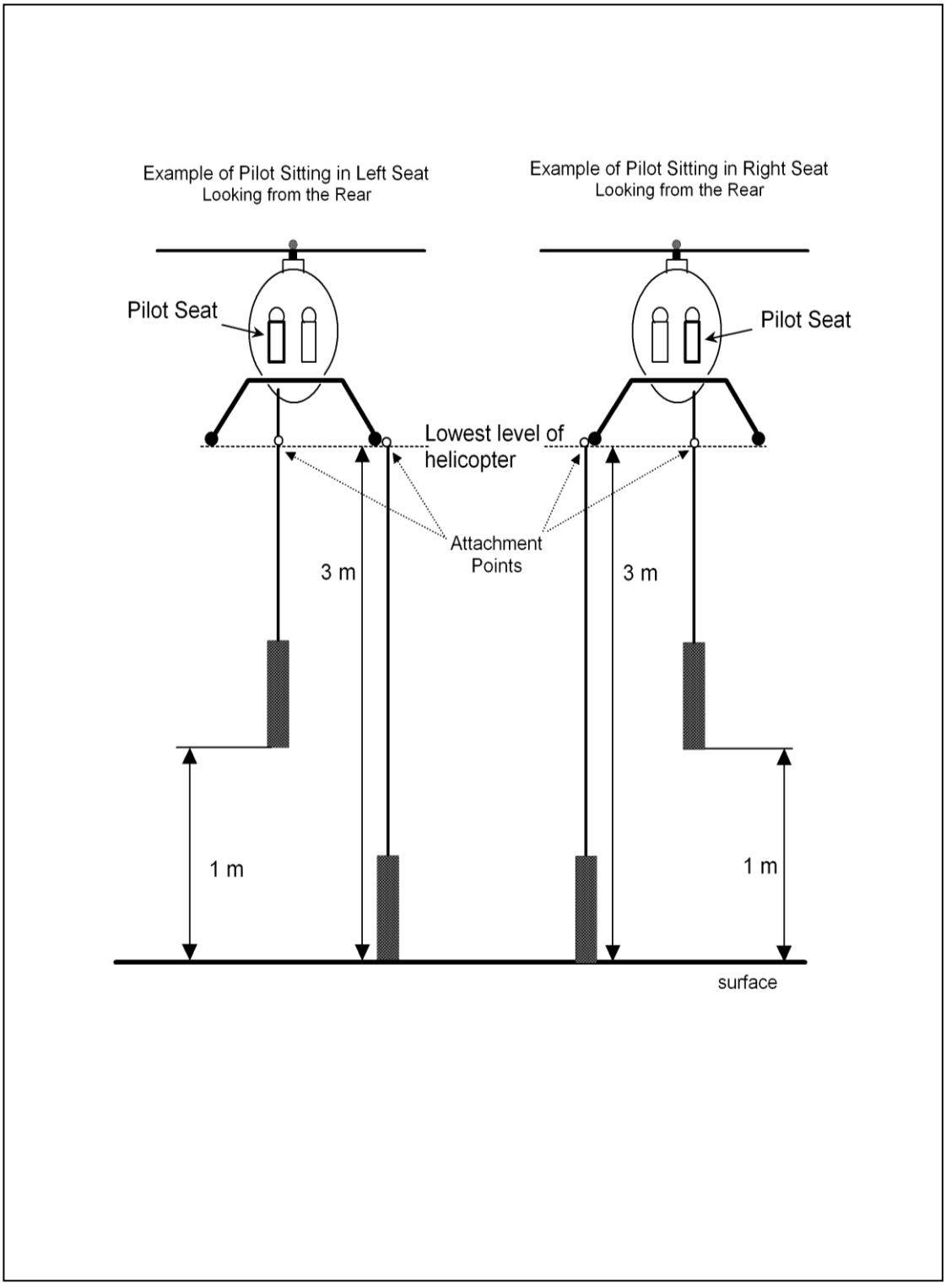


1.3.1.10.2 Components required and method

Components required	Method
Poles to be made from hollow rigid plastic tubing conduit 32mm - 40mm outside diameter	1. Two identical poles.
2 poles two metres high when above the ground. Poles to be painted red 500mm from the pole top. The remainder to be painted yellow.	2. Poles to be placed one metre apart.
Poles to be fixed to the ground via 20mm reinforced bar rod. Rod to be half a metre in to the ground with a hammer or mallet	3. Poles to be two metres in total height above ground level

1.3.1.11 Equipment specification - Competition chains

1.3.1.11.1 Photographic or schematic representation of the item

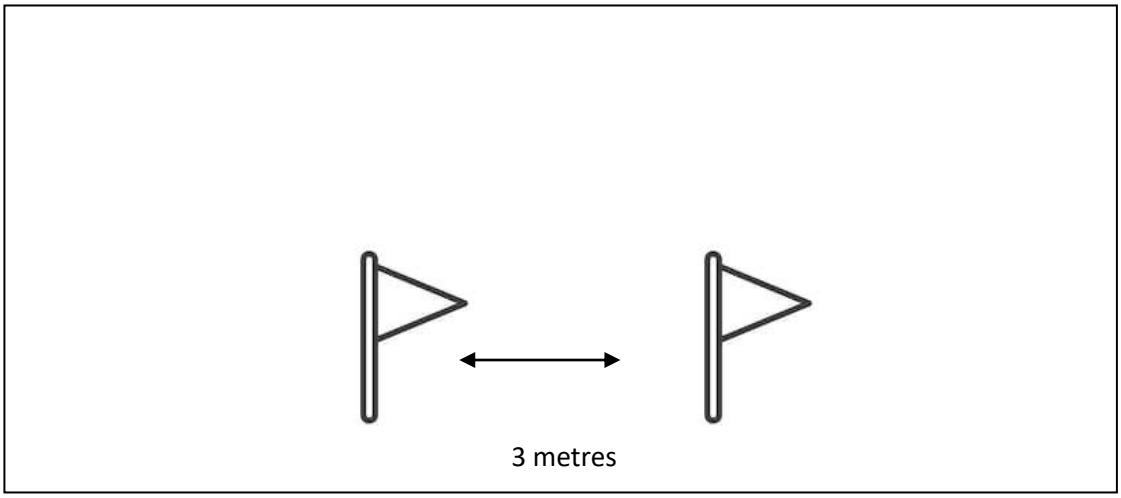


1.3.1.11.2 Components required and method

Components required	**Method**
2 x chains of length 500mm 2 x 8mm braided ropes to give an overall length of rope and chain of two metres and three metres 2 x 60mm carabiner	Rope1 is 8mm braided rope finished length 2 metres including chains
	Rope 2 is 8mm braided rope finished length 3 metres including chains.
	The rope is attached to the chain with knots and reinforced with tape
	Each chain has a carabiner attachment 60mm long for attachment to the aircraft. Each attachment capable of holding 5 kg

1.3.1.12 Equipment specification - Events departure line

1.3.1.12.1 Photographic or schematic representation of the item

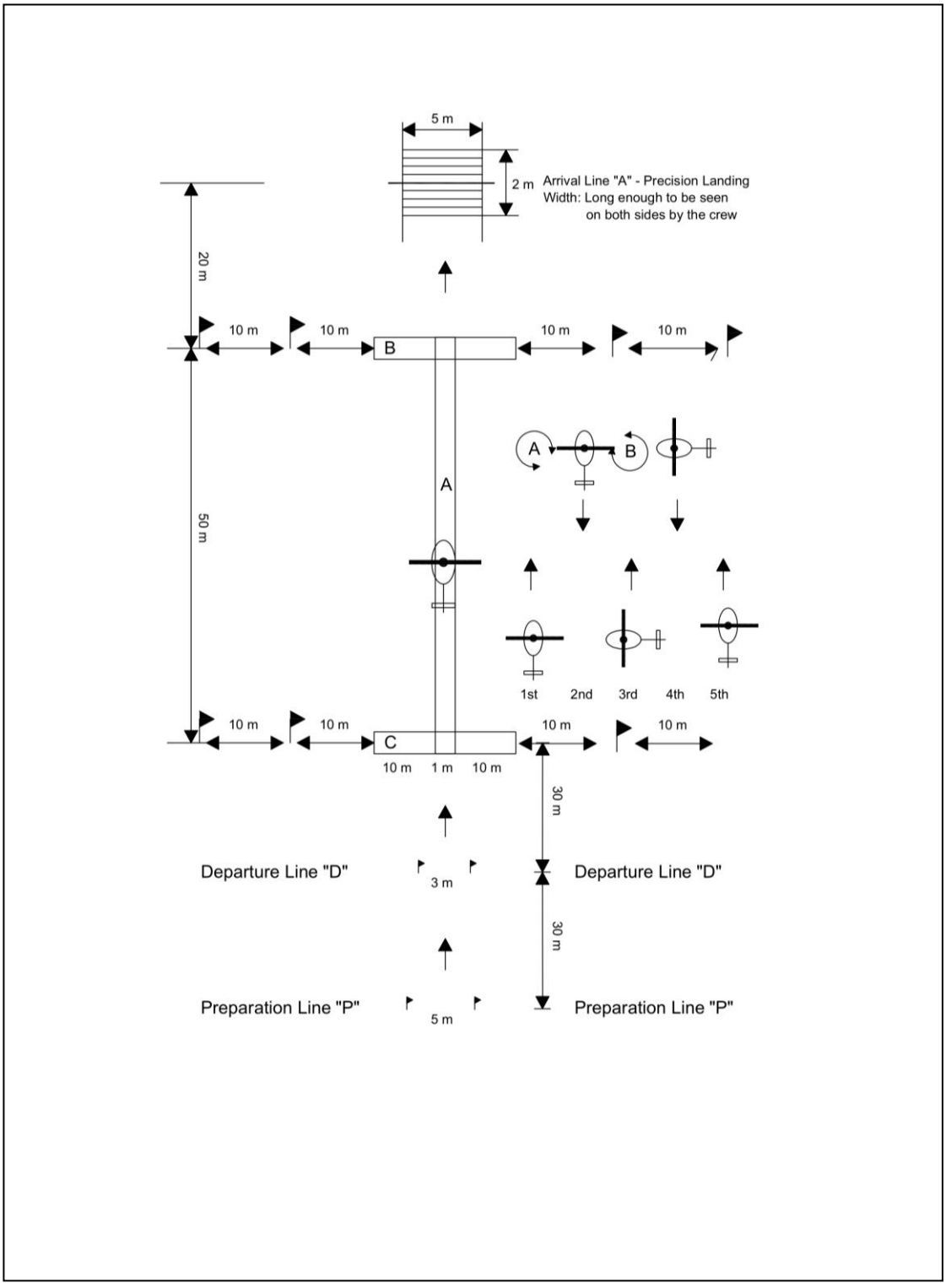


1.3.1.12.2 Components required and method

Components required	Method
2 x wooden or metal flag poles with flag made from colour cotton fabric	1. Position flags three metres apart as instructed by the navigation course designer
Flag pole height maximum 600mm	
Flag measurement to be minimum of 200mm by 200mm by 200mm	
Flag colour for category one events to be uniform	
Flags to be hammered in to the ground with at least 300mm visible above ground level.	

1.3.1.13 Equipment specification - Precision competition corridor

1.3.1.13.1 Photographic or schematic representation of the item

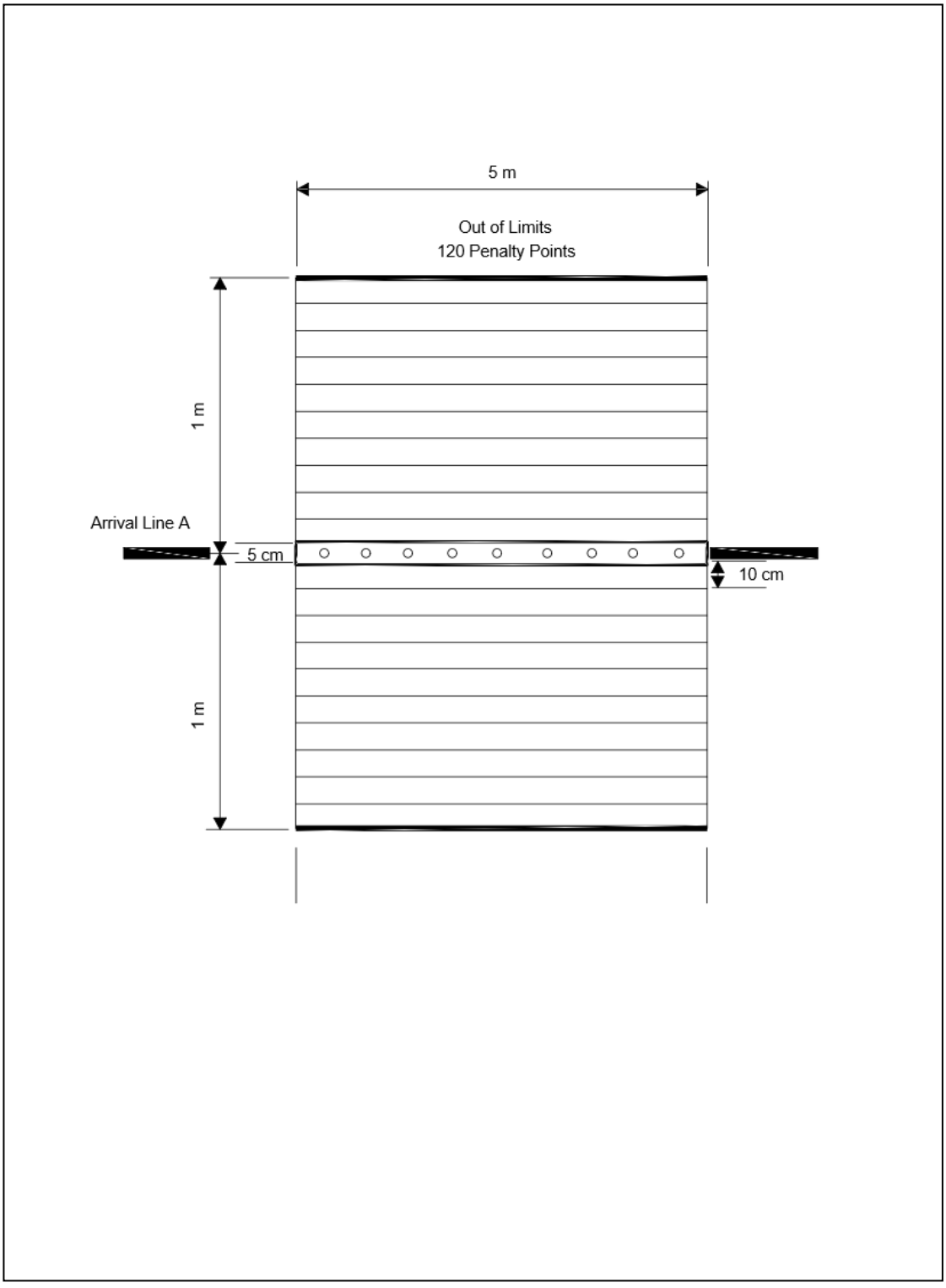


1.3.1.13.2 Components required and method

Components required	**Method**
Corridor B & C Nylon tape/ribbon 45mm minimum width +/-5% to form the hollow rectangle forming corridors B & C the corridors measure 21 metres per side and is one metre wide requiring 44 metres of tape to form each line. 4 required	Tape to be pegged to the ground with 300mm nails or pegs at an internal of 500mm
Corridor A Nylon tape/ribbon 45mm minimum width +/-5% to form the hollow rectangle forming corridor A, each corridor is 50 metres long and one metre wide requiring 102 metres of tape to each A line. 2 required	Tape to be pegged to the ground with 300mm nails or pegs at an internal of 500mm
11 course flags	As specified in 1.3.1.12

1.3.1.14 Equipment specification - Precision landing area

1.3.1.14.1 Photographic or schematic representation of the item



1.3.1.14.2 Components required and method

Components required	Method
Grid: Consisting of 18 lines 5 metres in length per line at 10cm intervals made from cloth/fabric tape plus a top and bottom line to form the grid and a central line (arrival line) measuring 5cms wide	
Grid measures 5 metres wide and 2metres in length	
300mm pegs to secure the ground mounted grid	Secure grid to ground in a manner to withstand the down draught from the largest competing helicopter

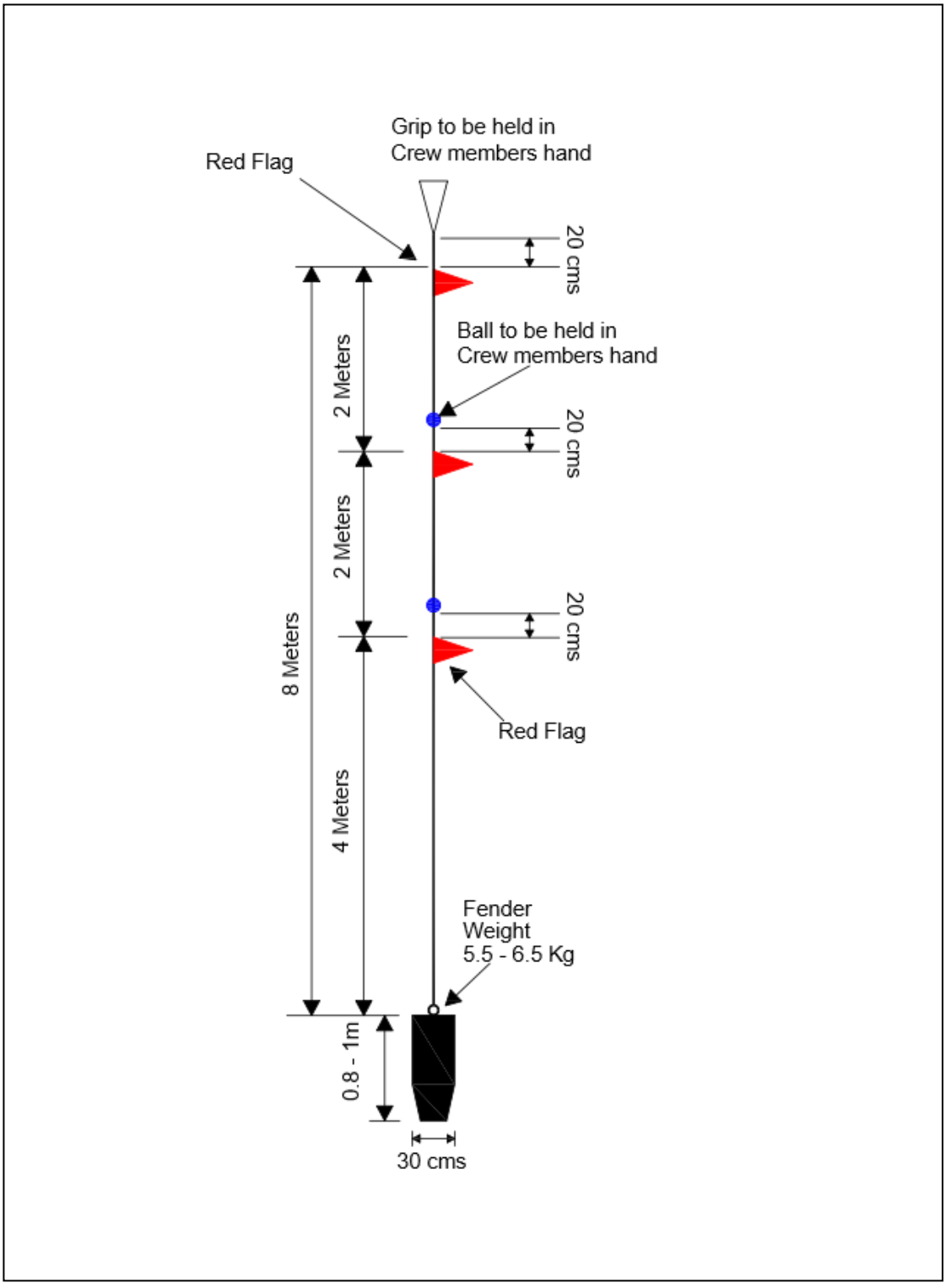
NOTES:

Elastic fabric not acceptable due to its expansion properties.

Whole grid may be preformed and must be attached to the ground with suitable measures to ensure the down draught of the largest aircraft does not move or destroy it.

1.3.1.15 Equipment specification - Competition fender

1.3.1.15.1 Photographic or schematic representation of the item

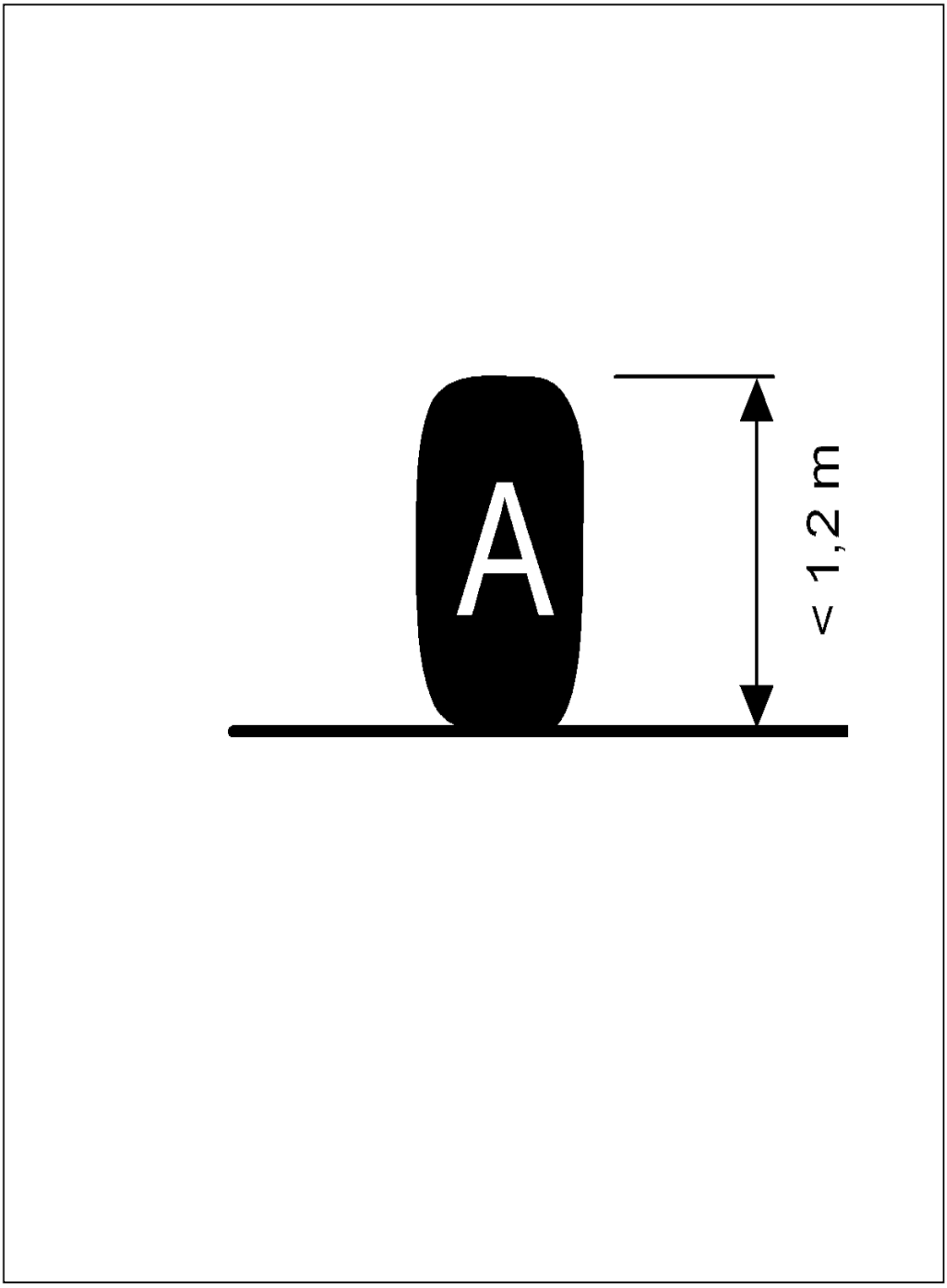


1.3.1.15.2 Components required and method

Components required	Method
1 x grip - wooden, plastic or metal Handle length 12cms +/-10% Handle circumference 8cm +/- 10%	1. Take the rope and attach the grip to one end and the fender to the other as denoted in the graphic. Fender to be attached via the eye of the fender
3 x red equilateral triangular flag, red in colour and made from red fabric. Flag length side 10cms	2. The top of the 1st red flag is to be placed 20cms from the base of the grip. The second flag is attached 2 metres below the top of the 1st flag. The 3rd flag is attached 2 metres below the top of the second flag. The flags are to be attached to the rope by stitching.
2 x ball shape handling aids with a diameter of 6 - 10 cms	3. The first handling aid is placed is attached to the rope 20cms above the 2nd red flag. The 2nd handling aid is attached to the rope 20cms above the 3rd red flag. Balls are attached to the rope to ensure they do not move, knots are not a suitable method.
1 x rope measuring 8.20 metres in finished Length. Rope will be 8mm, blue fleck, braid on braid polyester rope.	4. The fender will be attached to the rope via the eye attached to the fender with rope. It may be secured with knots, tape or cable ties. The overall length from the bottom of the grip to the top of the is 8.20 metres plus the length of the fender
1 x Majoni Size 5 boat fender (30cm x 90cm) 90cm in height, to be filed with sand or water to achieve a weight of 5.5 - 6.5 kgs	5. The fender will weigh 5.5 - 6.5 kgs
	6. The overall length from the bottom of the grip to include the fender is 9 metres 20cms maximum length.

1.3.1.16 Equipment specification - Fender container

1.3.1.16.1 Photographic or schematic representation of the item

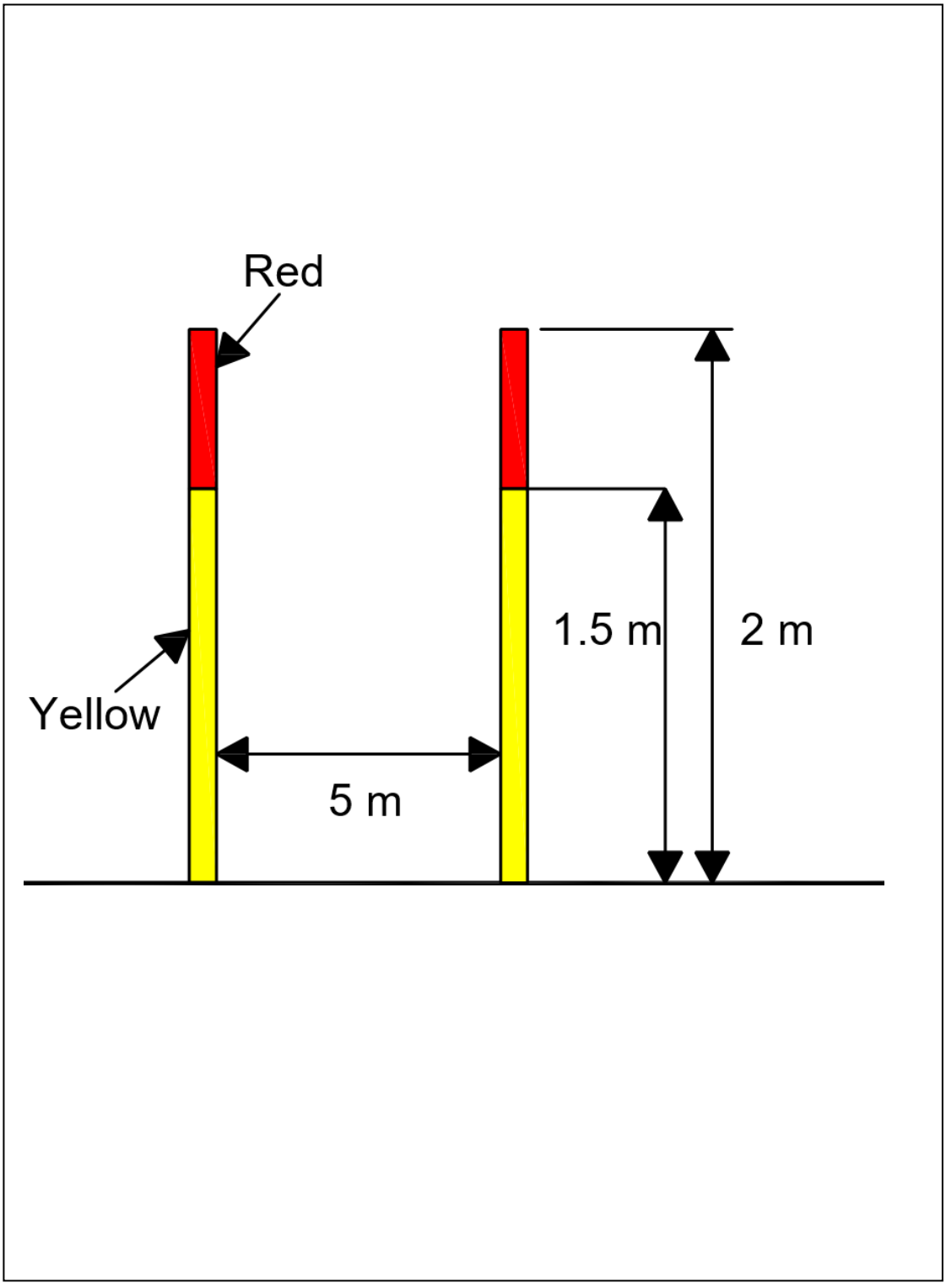


1.3.1.16.2 Components required and method

Components required (per course)	**Method**
3 identical containers at a height of less than 1.20 metres made from any material but all three must be the same material and colour	
Container diameter to be 48cms +/- 2cms	
Container to be weighted with water to prevent it from moving during competition.	
Container to be denoted with letters "A", "B" and "C" in white/black lettering in colour. Letters to be minimum height of 500mm	

1.3.1.17. Equipment specification - Fender exit gate

1.3.1.17.1 Photographic or schematic representation of the item

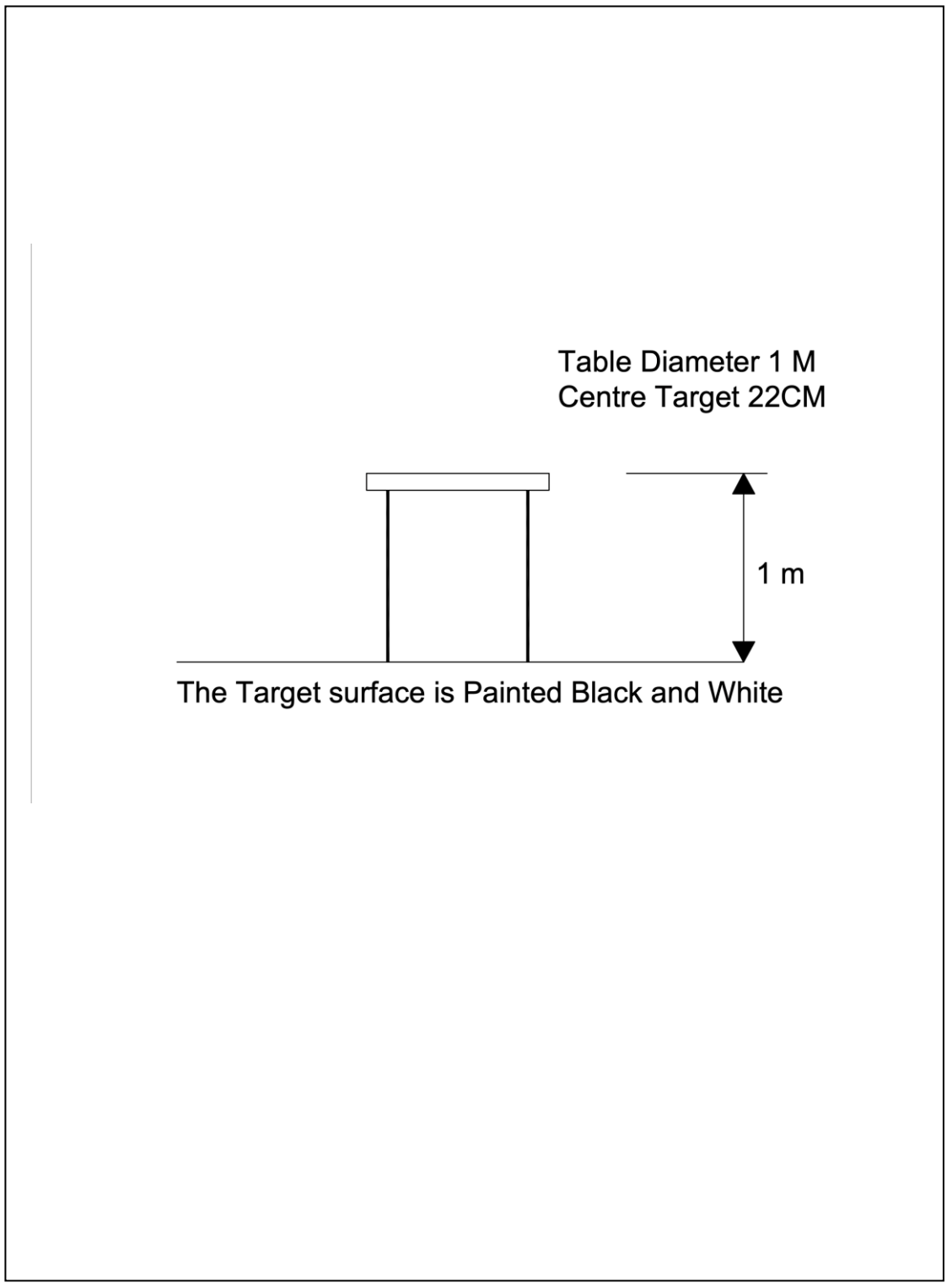


1.3.1.17.2 Components required and method

Components required	Method
Poles to be made from hollow rigid plastic tubing, conduit 32mm - 40mm outside diameter	1. Two identical poles.
2 poles two metres high when above the ground. Poles to be painted red 500mm from the pole top. The remainder to be painted yellow.	2. Poles to be placed five metres apart.
Poles to be fixed to the ground via 20mm reinforced bar rod. Rod to be half a metre in to the ground	3. Poles to be two metres in total height above ground level

1.3.1.18 Equipment specification - Slalom table with target

1.3.1.18.1 Photographic or schematic representation of the item

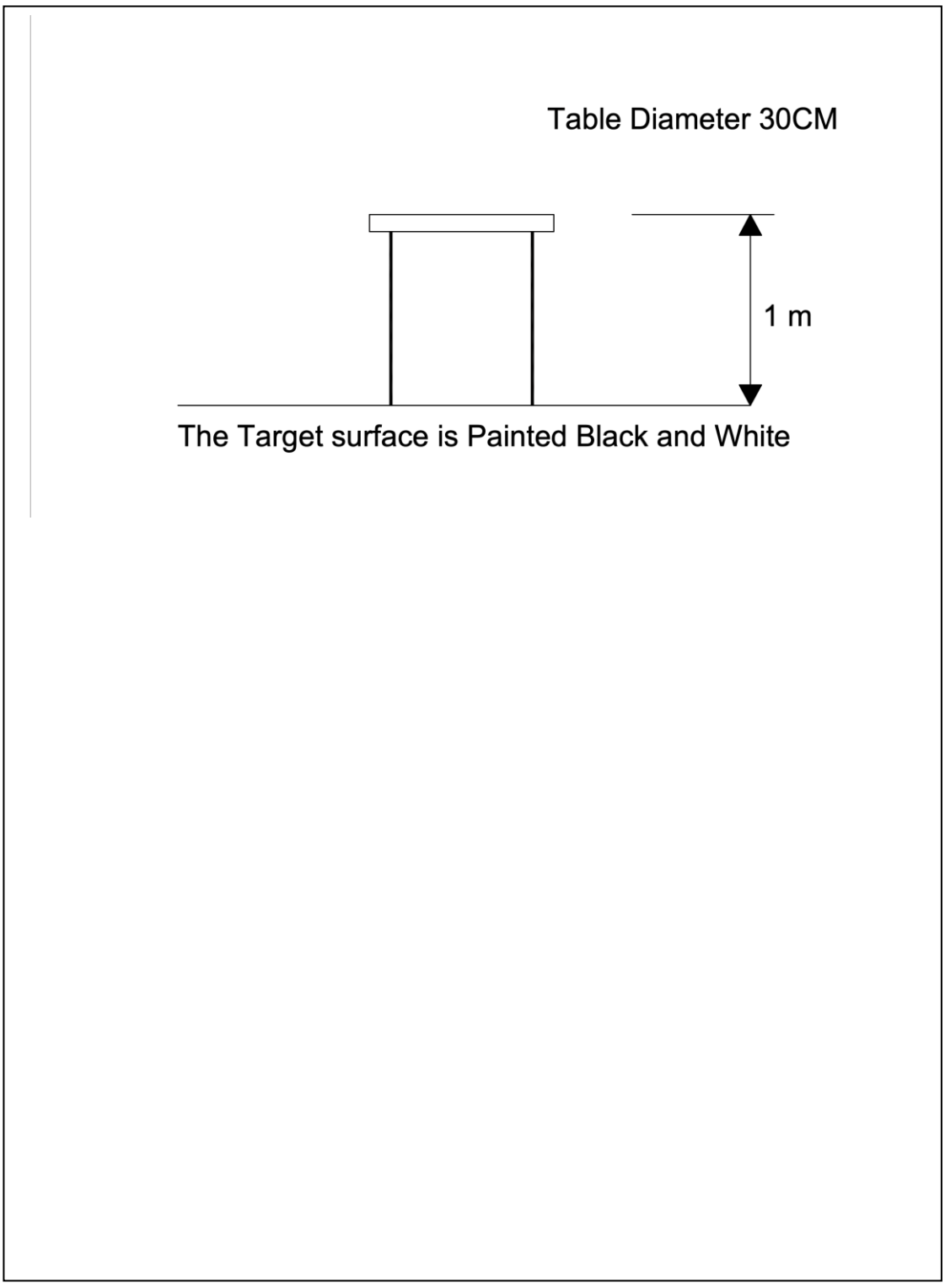


1.3.1.18.2 Components required and method

Components required	**Method**
4 x legs or supports of suitable rigidity to withstand down draught of the largest competing aircraft.	Legs to be weighted or spiked to the ground to withstand down draught of the largest competing helicopter.
One circular table top of diameter of one metre and thickness of 20mm - 50mm.	Table top to be attached to leg/support with fixings. Table to be attached to the ground with spikes or weights to withstand down draught of the largest competing helicopter.
Table to be painted in target style of one black and one white concentric ring of size 30cms.	Table top finish to be smooth with no holes.
Remaining table area to be painted red.	
Table centre colour to be black.	

1.3.1.19 Equipment specification - Slalom table with target

1.3.1.19.1 Photographic or schematic representation of the item

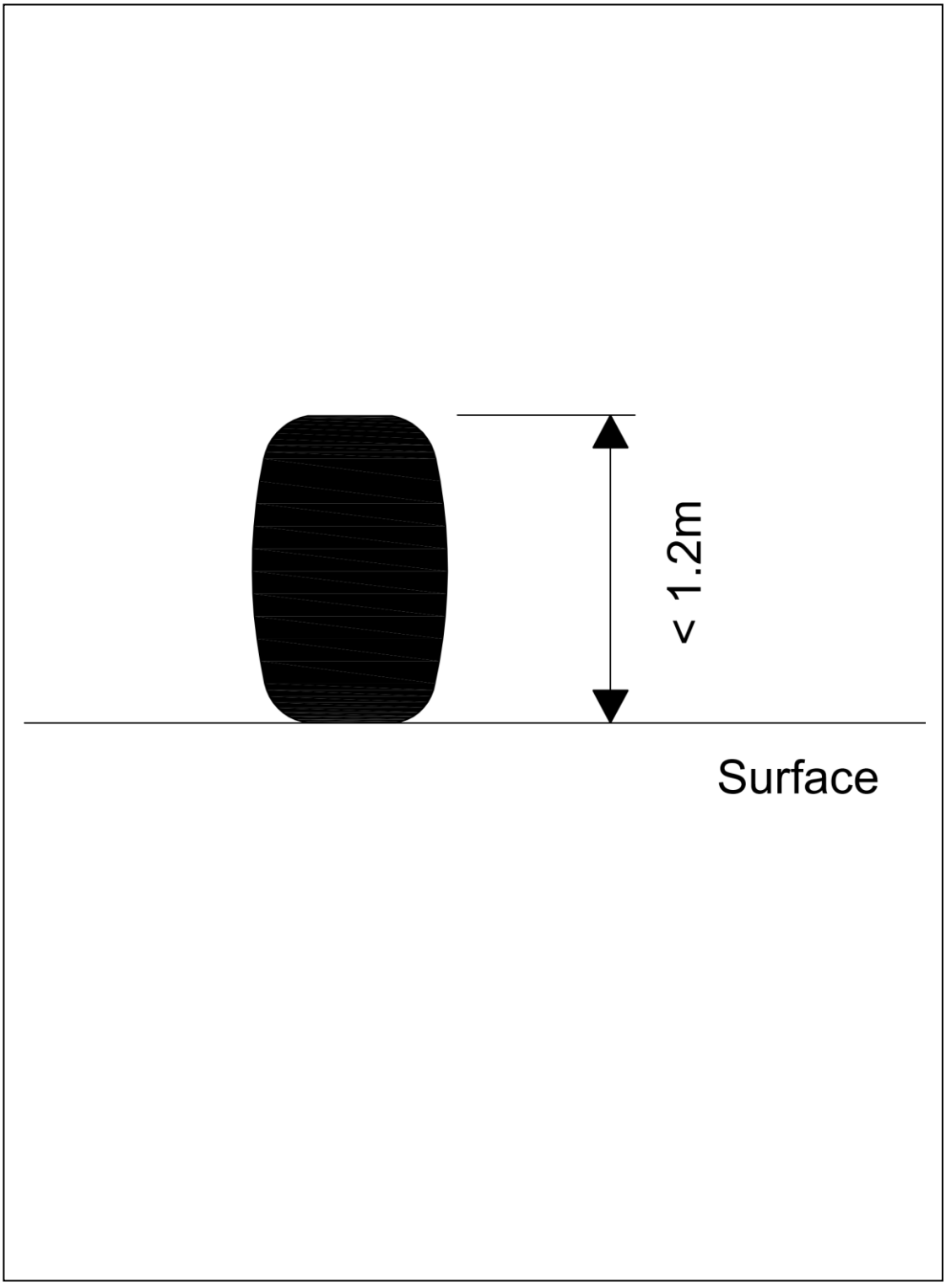


1.3.1.19.2 Components required and method

Components required	**Method**
4 x legs or supports of suitable rigidity to withstand down draught of the largest competing aircraft.	Legs to be weighted or spiked to the ground to withstand down draught of the largest competing helicopter.
One circular table top of diameter of 30cms and thickness of 20mm - 50mm.	Table top to be attached to leg/support with fixings. Table to be attached to the ground with spikes or weights to withstand down draught of the largest competing helicopter.
Table to be painted in target style of one black and one white concentric ring.	Table top finish to be smooth with no holes.
Table centre colour to be black.	

1.3.1.20 Equipment specification - Slalom water container

1.3.1.20.1 Photographic or schematic representation of the item

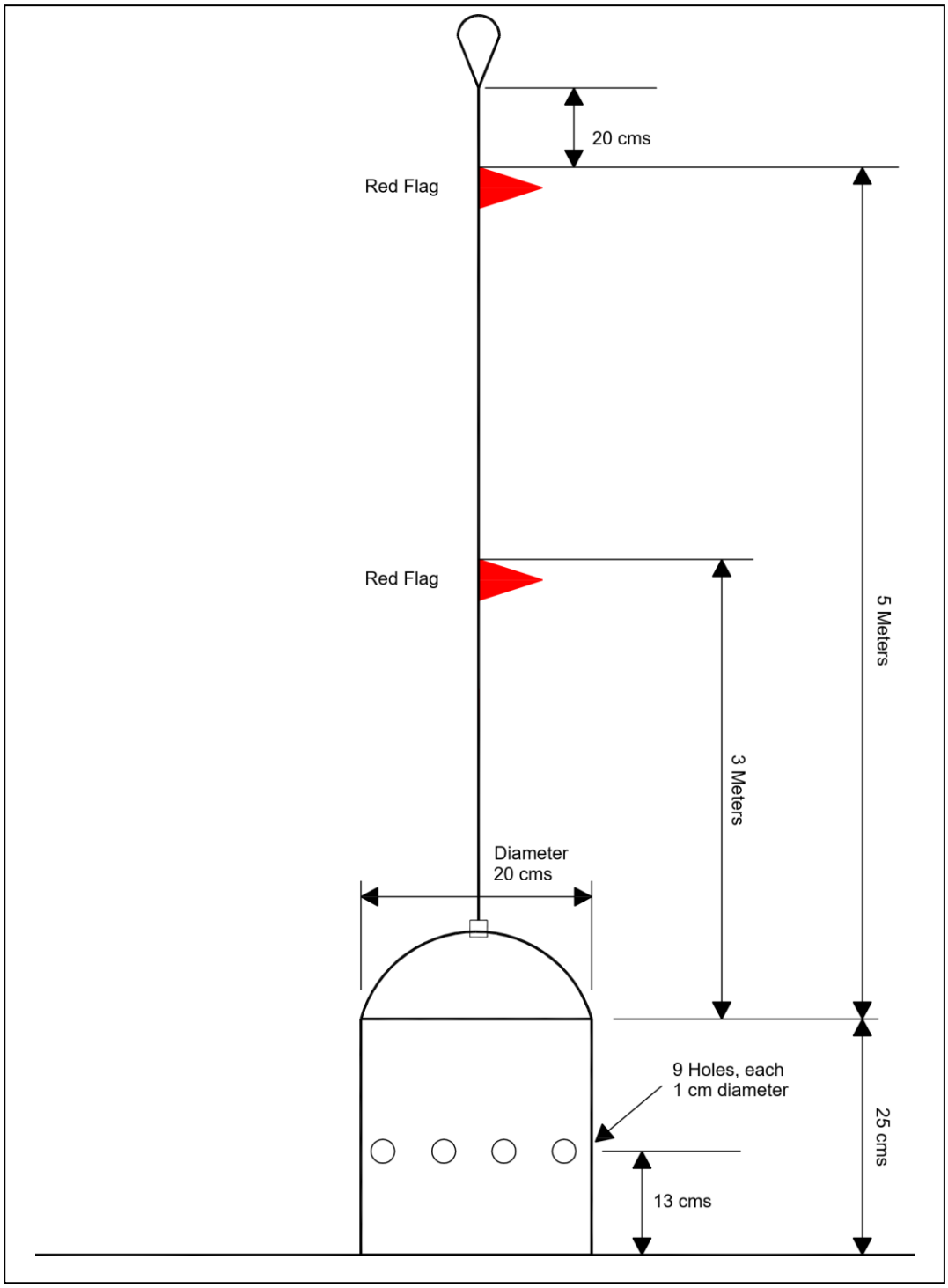


1.3.1.20.2 Components required and method

Components required	Method
Container at height of 80 to 100cms capable of holding 200 litres of water.	
Container must be uniform in size and colour of identical material.	
Container opening to be 55 to 70cms in diameter.	
Container must have inner marking 10cms from the top to indicate water level.	

1.3.1.21 Equipment specification - Competition bucket

1.3.1.21.1 Photographic or schematic representation of the item



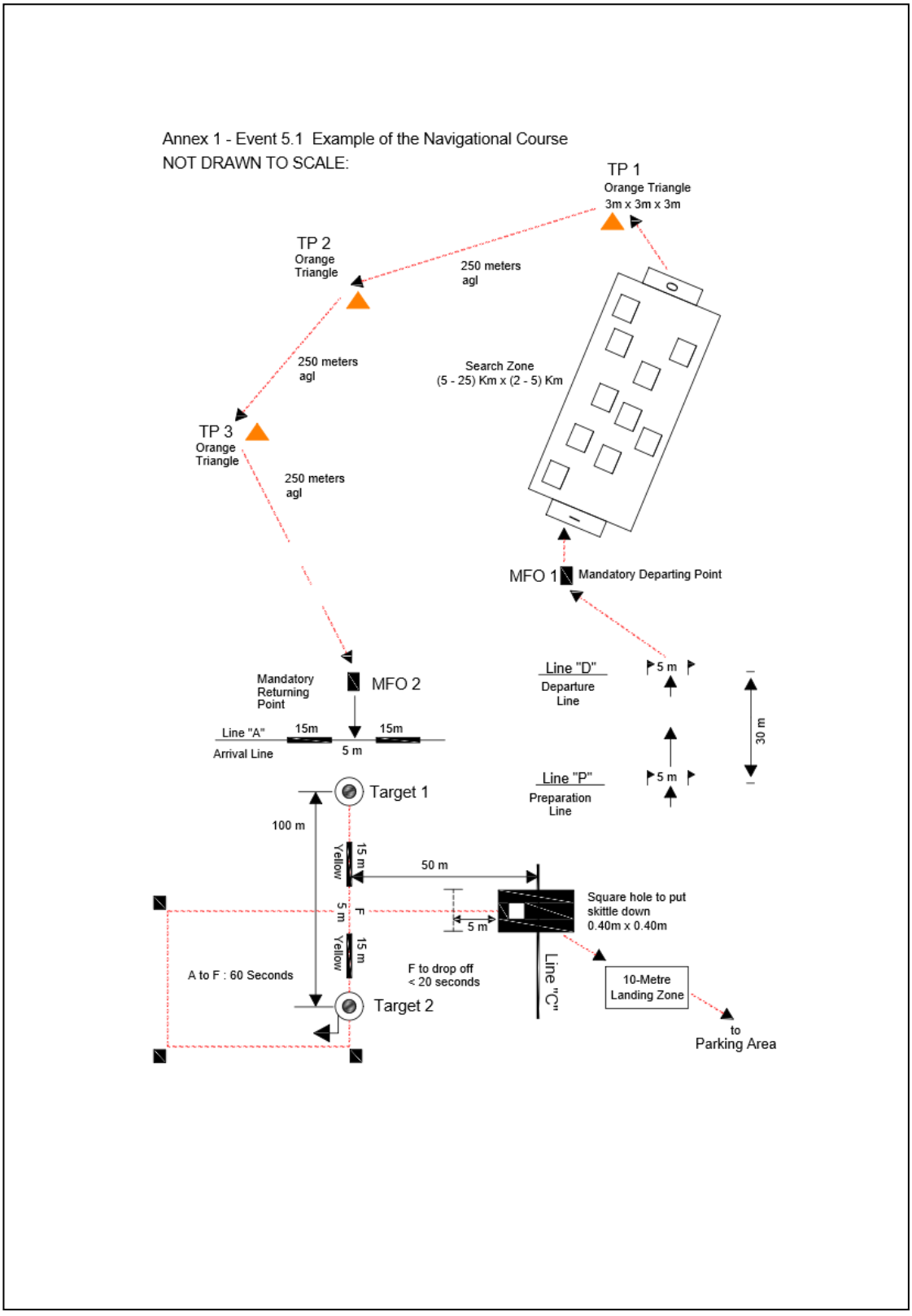
1.3.1.21.2 Components required and method

Components required	**Method**
1 x grip - wooden, plastic or metal Handle length 12cms +/-10% Handle circumference 8cm +/- 10%	1. Take the rope and attach the grip to one end and the bucket via the attachment on the handle. Tape/cable ties may be used to secure the rope.
2 x red equilateral triangular flag, red in colour and made from red fabric. Flag length side 10cms	2. The top of the 1st red flag is to be placed 20cms below the base of the grip. The second red flag is to be placed 5 metres above the top of the buckets rim. The flags are to be attached to the rope by stitching.
1 x rope length to achieve the overall length of 5.45 metres from the bottom of the grip to the bottom of the bucket when constructed. Rope will be 8mm, blue fleck, braid on braid polyester rope.	4. The bucket will be attached to the rope via the attachment on the handle to give an overall length of 5.45 metres from the bottom of the handling aid to the bottom of the bucket.
1 x bucket, cylindrical in form with 9 equally spaced holes of 1cm in diameter capable of containing 4 litres of water +/- 2% (bucket material to be specified)	4. The bucket will weigh 7kgs with water
	5. The overall length from the bottom of the grip to include the bucket is 5.45 metres

1.3.2 Competition course layout checklists

1.3.2.1 Course layout specification - Navigation course layout

1.3.2.2 Schematic representation of the course



1.3.2.3 Components required to complete the course and method

Navigation course set up description
1. The navigation event will have been set by a nominated person, this person is called the navigation course designer. The ground crew will be given a plan to set out the course as prescribed. The individual setting the course will assist the ground crew.
2. Standard of performance sheets required: 1.3.1.3 Navigation search box entry and exit gates 1.3.1.4 Navigation search box panels 1.3.1.5 Navigation turning point triangles 1.3.1.6 Navigation doghouse 1.3.1.7 Navigation arrival and finish line 1.3.1.8 Navigation preparation and departure line 1.3.1.9 Navigation rice bag targets Event equipment standard of performance sheets required: 1.3.1.1 Navigation skittle 1.3.1.2 Navigation rice bag
3. Identify the positions of line "P" and line "D" prior to competition lines being installed. Check for accuracy. The lines "P" and "D" should be installed in accordance with 1.3.1.8
4. Identify the positions of lines "A" and "F" prior to competition lines being installed. Check for accuracy. The lines "A" and "F" should be installed in accordance with 1.3.1.7
5. Identify the position of "C" line and Dog House. Check for accuracy. The line "C" and the five metre Dog House lines should be installed. Site the Dog House in line with the standard 1.3.1.6.
6. Identify the position of the 10 metre landing zone. Check for accuracy and mark out the ten metre box with tape to form the box.
7. If targets are sited on the first leg of the manoeuvring box, after line "A", identify positions. Check for accuracy. Install the two five metre target circles in accordance with 1.3.1.9. **OR** If targets are between the "D" line and MFO 1, repeat as above and install the two five target circles in accordance with 1.3.1.9
8. The turning points are required to be sited in accordance with the navigation event designer course design. A Google map or equivalent image and co-ordinates will be given for the location of each turning point (TPs 1, 2 & 3). In the absence of a current mapping image, co-ordinates will be relied upon using GPS. Check for accuracy and mark each one with the TP triangle marker as denoted in 1.3.1.5.
9. The search box to be sited in accordance with the navigation event designer course design. A Google map or equivalent image and co-ordinates will be given for the location of each search box panel (SOP 1.3.1.4), the entrance gate and the exit gate (SOP 1.3.1.3). The lines of the search box entry and exit must be aligned with the search box orientation.

NOTES:

Marker flags are the preferred method used in setting out before definite positions are decided upon.

A measuring wheel must be used by the ground crew to ensure accuracy.

Any differences between the map image given and the geography of the landscape must be immediately brought to the attention of the Navigation Course Manager who will determine the exact course to be set.

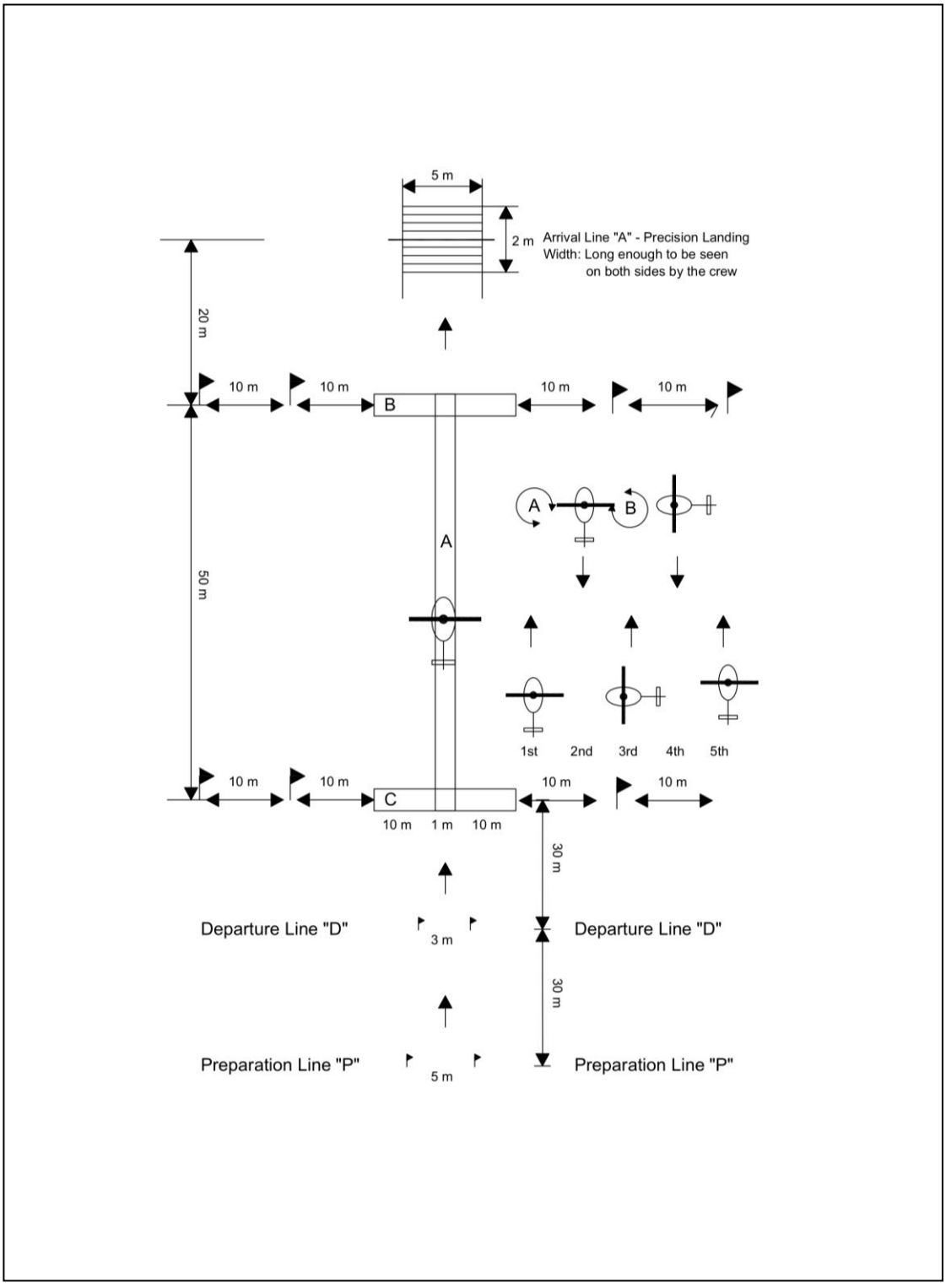
Lines "P" and "D" must be parallel.

Lines "A" and "F" must be perpendicular.

The lines of the search box entry and exit must be aligned with the search box orientation.

1.3.2.2 Course layout specification - Precision course layout

1.3.2.2.1 Schematic representation of the course

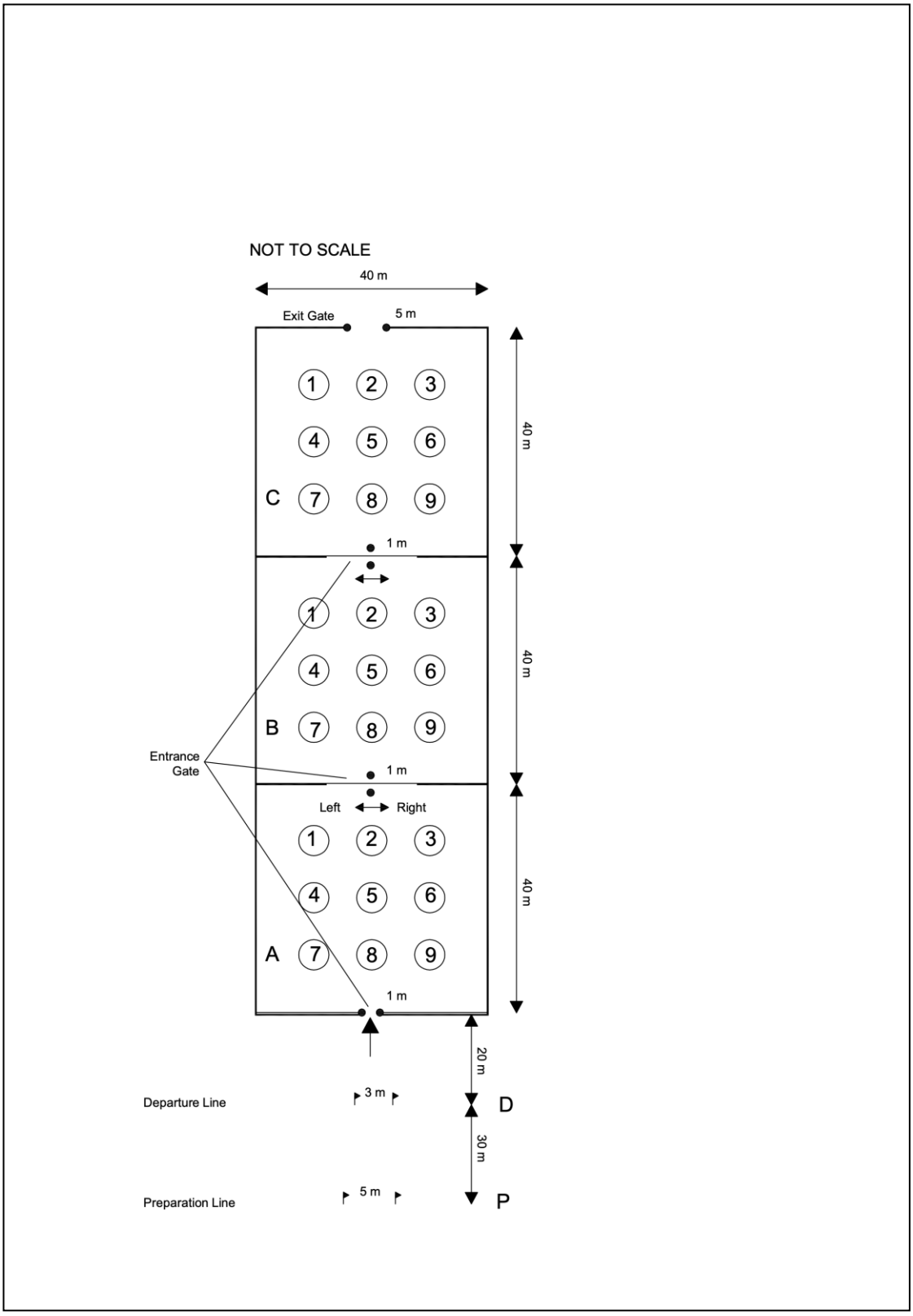


1.3.2.2.2 Components required to complete the course and method

Precision course set up
1. The precision course will be laid out by the ground crew as prescribed in the event rules to the standard below.
2. Standard of performance sheets required: 1.3.1.8 Navigation dep & prep lines & events prep lines 1.3.1.12 Events departure line 1.3.1.13 Precision competition corridors 1.3.1.14 Precision landing area Event equipment standard of performance sheets required : 1.3.1.11 Precision chains
3. Identify the position of line "P" and line "D" prior to competition lines being installed. Check for accuracy. The lines "P" and "D" are installed in accordance with 1.3.1.8
4. Identify the positions of the competition corridors. Check for accuracy. Install the corridors in accordance with 1.3.1.13
5. Identify the position of the arrival line "A" and the landing area. Check for accuracy. Install the "A" line and the precision landing area in accordance with 1.3.1.14.

1.3.2.3 Course layout specification - Fender course layout

1.3.2.3.1 Schematic representation of the course



1.3.2.3.2 Components required to complete the course and method

Fender course set up description
1. The fender course will be laid out by the ground crew as prescribed in the event rules to the standard below.
2. Standard of performance sheets required: 1.3.1.8 Navigation prep and dep lines & parallel events prep lines 1.3.1.10 Competition gates 1.3.1.16 Fender containers 1.3.1.17 Fender exit gate (Cat 1) Event equipment standard of performance sheets required: 1.3.1.15 Competition fender
3. Identify the positions of the lines "P" and "D" prior to course being installed. Check for accuracy. The lines "P" and "D" are installed in accordance with 1.3.1.7
4. Identify the position of the course. Identify the boundary position of each course and mark each with a marker flag. The installation of the marker flags should be installed.
5. Within the course, identify the position of the three entrance gates. Check for accuracy. Install the three entrance gates in accordance with 1.3.1.10.
6. In the first container square and place the container marked "A". Repeat this for the second and third container squares. Install containers marked "A" "B" and "C" in accordance with 1.3.1.16
7. Identify the position of the exit gate. Check for accuracy. Install exit gate in accordance with 1.3.1.17

NOTES:

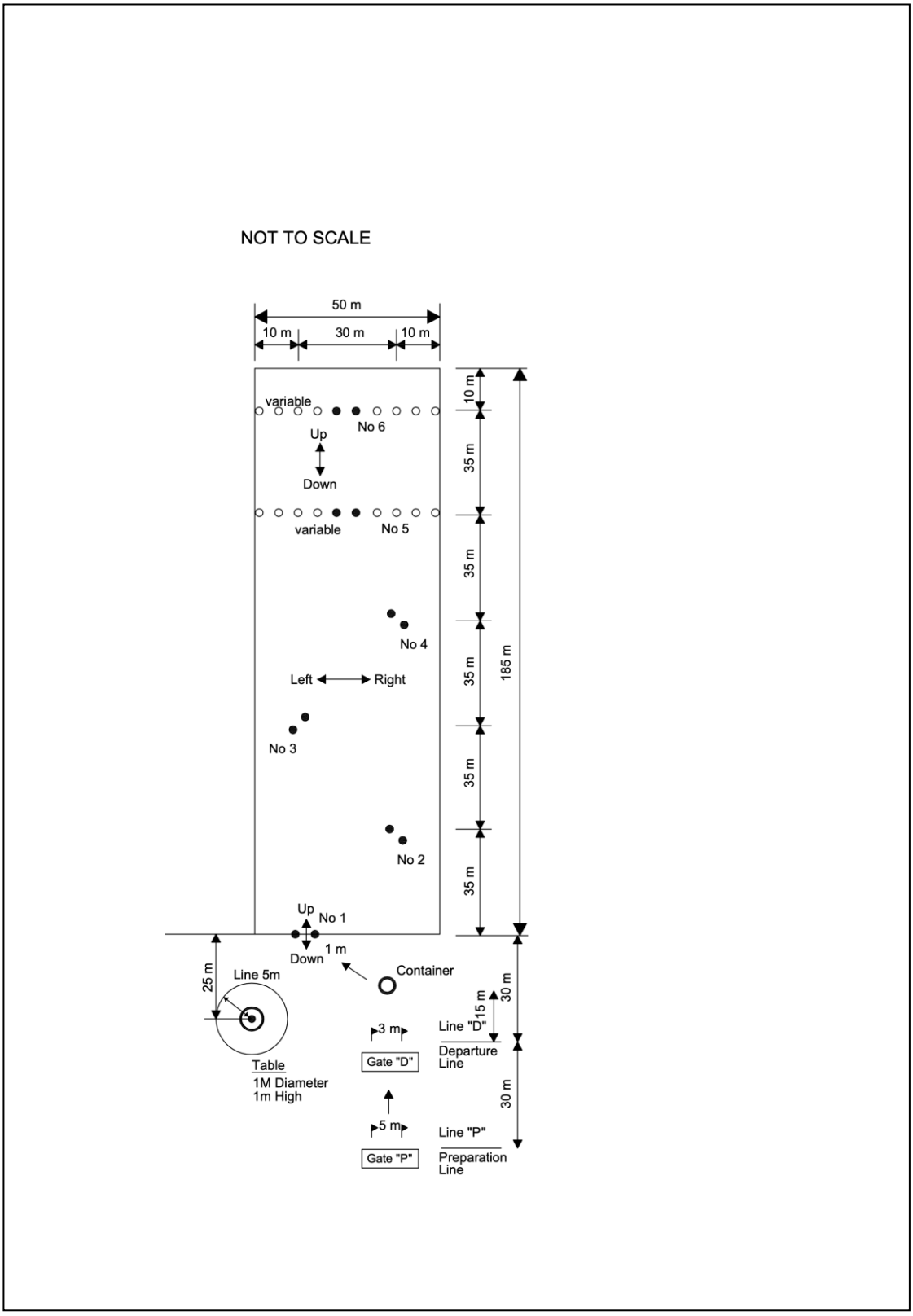
Flat ground must be used for the course to be laid out.

Marker flags are the preferred method used in setting out before definite positions are decided upon.

A measuring wheel must be used by the ground crew to ensure accuracy.

1.3.2.4 Course layout specification - Slalom course layout

1.3.2.4.1 Schematic representation of the course



1.3.2.4.1 Components required to complete the course and method

Slalom course set up description
1. The slalom course will be laid out by the ground crew as prescribed in the event rules to the standard below.
2. Standard of performance sheets required: 1.3.1.8 Navigation prep & dep line 1.3.1.10 Competition gates 1.3.1.18 Slalom table 1.3.1.20 Slalom water container Event equipment standard of performance sheets required: 1.3.1.21 Slalom bucket.
3. Identify the positions of the lines "P" and "D" prior to course being installed. Check for accuracy. The lines "P" and "D" are installed in accordance with 1.3.1.8.
4. Identify the position of the course. Identify the boundary position of each course and mark each with a marker flag. The installation of the marker flags should be installed. In addition to this, mark the location of the ten metre markers on each course to facilitate with further items being installed on the course.
5. Identify the position of the boundary of each course. Check for accuracy. Install marker flags to identify the positions
6. Identify the locations of the gates. Check for accuracy. Install gates in accordance with 1.3.1.10
7. Identify the location of the water container. Install the water container.
8. Identify the location of the table with target. Check for accuracy. Install the table.

NOTES:

Flat ground must be used for the courses to be laid out.

Marker flags are the preferred method used in setting out before definite positions are decided upon.

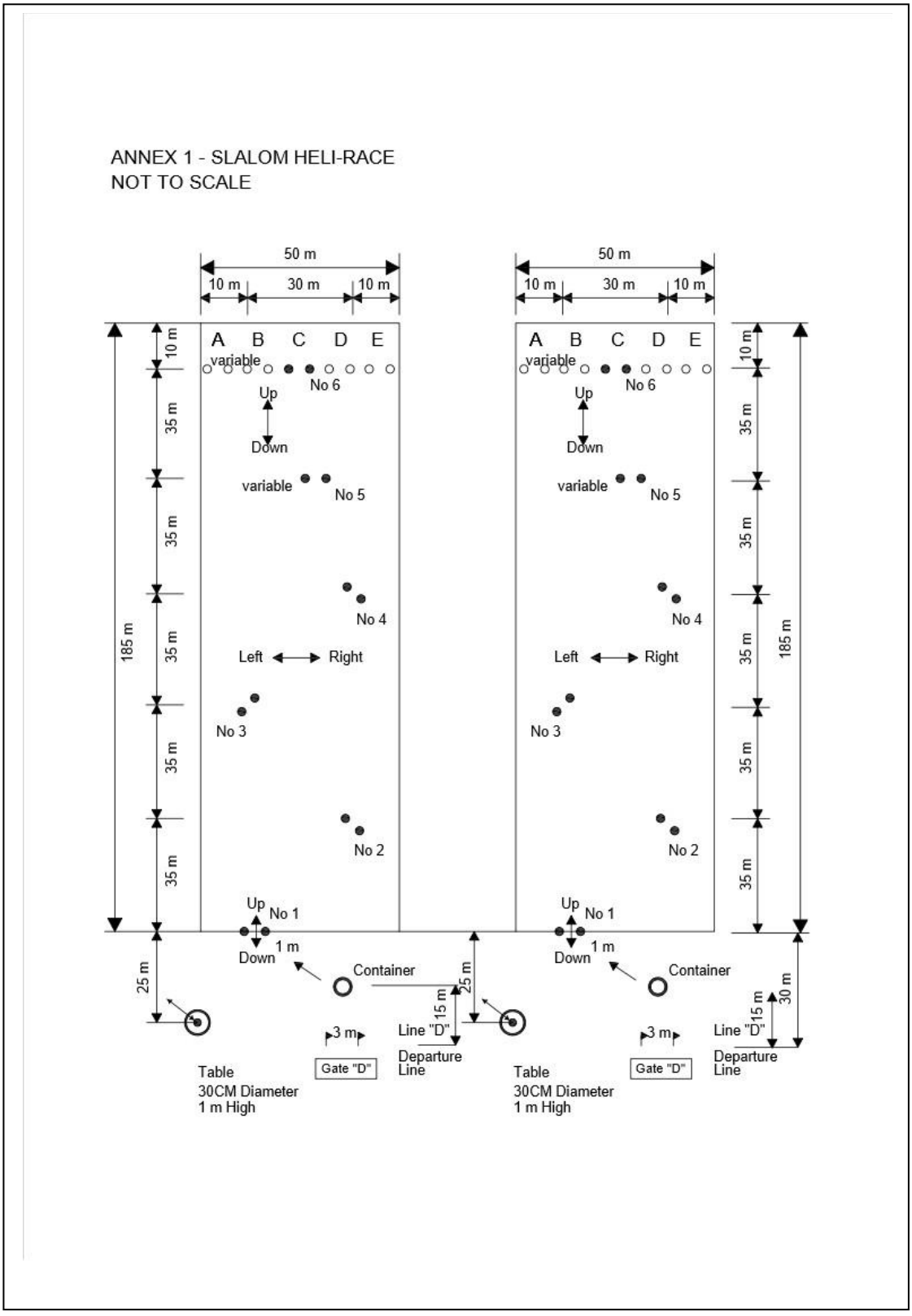
A measuring wheel must be used by the ground crew to ensure accuracy.

1.3.2.5 Course layout specification - Freestyle course layout

To follow

1.3.2.6 Course layout specification - Parallel slalom course layout

1.3.2.6.1 Schematic representation of the course



1.3.2.6.1 Components required to complete the course and method

Parallel slalom course set up description
1. The parallel slalom course will be laid out by the ground crew as prescribed in the event rules to the standard below
2. Standard of performance sheets required: 1.3.1.8 Navigation prep & dep line and parallel events prep line 1.3.1.10 Competition gates 1.3.1.19 Slalom table 1.3.1.20 Slalom water container Event equipment standard of performance sheets required: 1.3.1.21 slalom bucket
3. Identify the positions of the lines "P" and "D" prior to course being installed. Check for accuracy. The lines "P" and "D" are installed in accordance with 1.3.1.8.
4. Identify the position of two courses. Identify the boundary position of each course and mark each with a marker flag. The installation of the marker flags should be installed. In addition to this, mark the location of the ten metre markers on each course to facilitate with further items being installed on the course.
5. Identify the position of the boundary of each course. Check for accuracy. Install marker flags to identify the positions
6. Identify the locations of the gates. Check for accuracy. Install gates in accordance with 1.3.1.10
7. Identify the location of the water container. Install the water container.
8. Identify the location of the table with target. Check for accuracy. Install the table.

NOTES:

Flat ground must be used for the courses to be laid out.

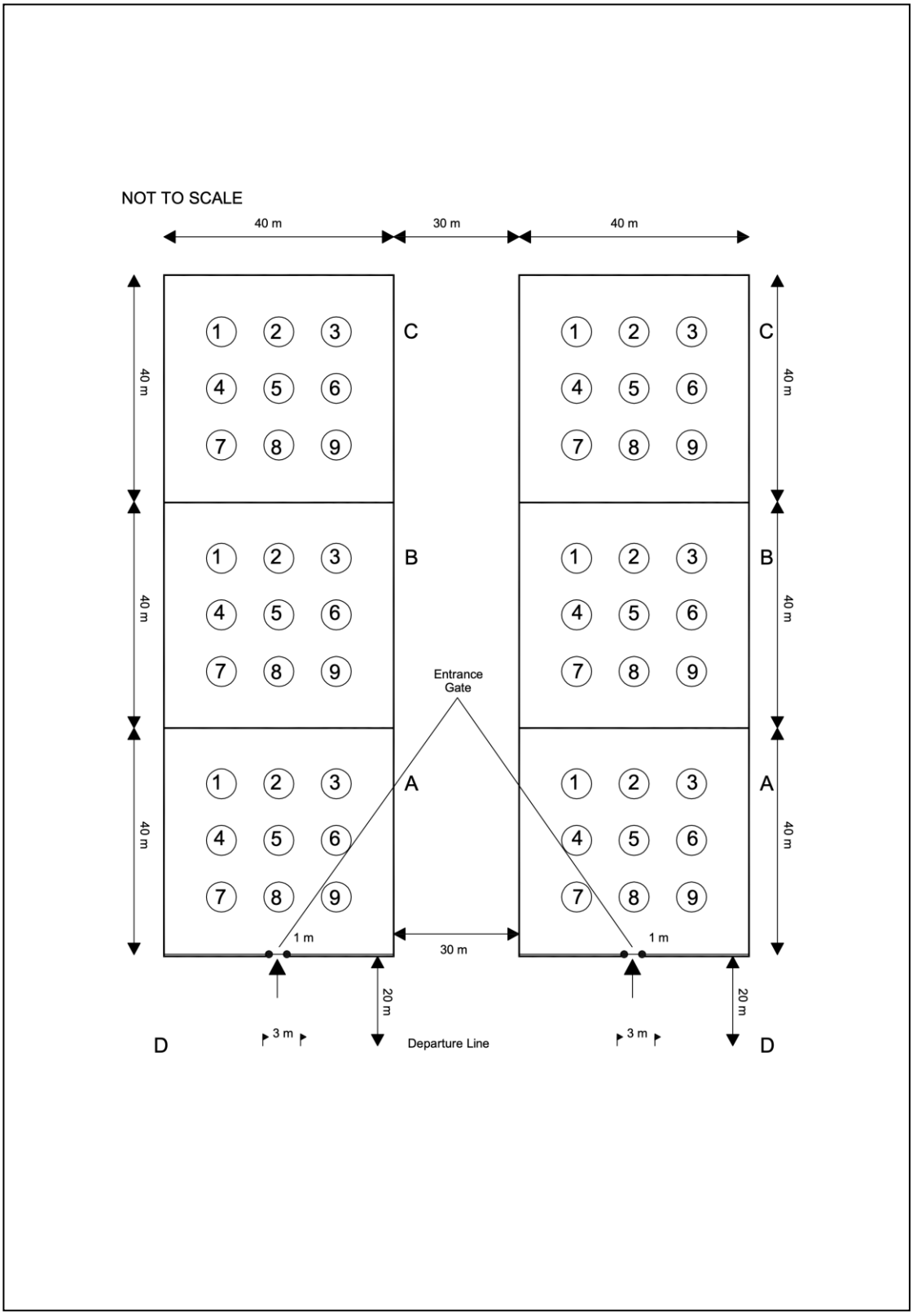
Both courses are identical with identical variables.

Marker flags are the preferred method used in setting out before definite positions are decided upon.

A measuring wheel must be used by the ground crew to ensure accuracy.

1.3.2.7 Course layout specification - Parallel fender course layout

1.3.2.7.1 Schematic representation of the course



1.3.2.7.2 Components required to complete the course and method

Parallel fender course set up description
1. The fender course will be laid out by the ground crew as prescribed in the event rules to the standard below.
2. Standard of performance sheets required: 1.3.1.8 Navigation prep and dep lines & parallel events prep lines 1.3.1.10 Competition gates 1.3.1.16 Fender containers Event equipment standard of performance sheets required: 1.3.1.15 Competition fender
3. Identify the positions of the lines "P" and "D" prior to course being installed. Check for accuracy. The lines "P" and "D" are installed in accordance with 1.3.1.8
4. Identify the position of the course. Identify the boundary position of each course and mark each with a marker flag. The installation of the marker flags should be installed.
5. Within the course, identify the position of the three entrance gates. Check for accuracy. Install the three entrance gates in accordance with 1.3.1.10.
6. In the first container square and place the container marked "A". Repeat this for the second and third container squares. Install containers marked "A" "B" and "C" in accordance with 1.3.1.16
7. Identify the position of the exit gate. Check for accuracy. Install exit gate in accordance with 1.3.1.17

NOTES:

Flat ground must be used for the course to be laid out.

Both courses are identical with identical variables.

Marker flags are the preferred method used in setting out before definite positions are decided upon.

A measuring wheel must be used by the ground crew to ensure accuracy.

1.3.3 Competition course checklists

1.3.3.1 Navigation event checklist

Event: **Navigation**

Course Manager: (name)

Event Judge: (name)

Course to be handed over: (time)

Time of briefing:(time)

First take off scheduled:(time)

Task	Completed by	Signature	Comments
1. Completion of Lines "D" & "P"			
2. Completion of Lines "A", "F" and C. Installation of Dog House and 5 metre line. Installation of 10 metre landing zone.			
3. Installation of Targets 1 & 2.			
4. TP1 positioned.			
5. TP2 positioned.			
6. TP3 positioned.			
7. Search box entrance positioned			
8. Search box panels positioned			
9. Search box exit positioned			
10. MFO 1 & 2 identified			
11. Check adequate competition skittles (1) and rice bags (2) for each crew. Equipment positioned at departure line.			
12. Judges positions allocated and score sheets issued			

Course ready for competition: **(handed to Event Director)**	**Signature:** **Time:**
Course accepted by Event Director: **(handed to Chief Judge)**	**Signature:** **Time:**
Course accepted by Chief Judge: **(ready for competition)**	**Signature:** **Time:**

1.3.3.2 Precision event checklist

Event: **Precision**

Course Manager: (name)

Event Judge: (name)

Course to be handed over: (time)

Time of briefing:(time)

First take off scheduled:(time)

Task	Completed by	Signature	Comments
1. Completion of Lines "D" & "P"			
2. Completion of competition corridors			
3. Completion of "A" line			
4. Installation of landing area			
5. Judges positions allocated and score sheets issued			

Course ready for competition: **Signature:**

(handed to Event Director)

Time:

Course accepted by Event Director: **Signature:**

(handed to Chief Judge)

Time:

Course accepted by Chief Judge: **Signature:**

(ready for competition)

Time:

1.3.3.3 Fender event checklist

Event: **Fender**

Course Manager: (name)

Event Judge: (name)

Course to be handed over: (time)

Time of briefing:(time)

First take off scheduled:(time)

Task	Completed by	Signature	Comments
1. Completion of Lines "D" & "P"			
2. Completion of installation of containers			
3. Completion of competition gates			
4. Installation of departure gates			
5. Judges positions allocated and score sheets issued			

Course ready for competition: **Signature:**

(handed to Event Director)

Time:

Course accepted by Event Director: **Signature:**

(handed to Chief Judge)

Time:

Course accepted by Chief Judge: **Signature:**

(ready for competition)

Time:

1.3.3.4 Slalom event checklist

Event: **Slalom**

Course Manager: (name)

Event Judge: (name)

Course to be handed over: (time)

Time of briefing:(time)

First take off scheduled:(time)

Task	Completed by	Signature	Comments
1. Completion of Lines "D" & "P"			
2. Completion of gates positions			
3. Completion of entrance gate			
4. Installation of table			
5. Judges positions allocated and score sheets issued			

Course ready for competition: **Signature:**

(handed to Event Director)

Time:

Course accepted by Event Director: **Signature:**

(handed to Chief Judge)

Time:

Course accepted by Chief Judge: **Signature:**

(ready for competition)

Time:

1.3.3.5 Freestyle event checklist

to follow

1.3.3.6 Parallel slalom event checklist

Event: **Parallel slalom**

Course Manager: (name)

Event Judge: (name)

Course to be handed over: (time)

Time of briefing:(time)

First take off scheduled:(time)

Task	Completed by	Signature	Comments
1. Completion of Lines "P"			
2. Completion of water container installation			
2. Completion of gates positions			
3. Completion of entrance gate			
4. Installation of table			
5. Judges positions allocated and score sheets issued			

Course ready for competition: **Signature**

(handed to Event Director)

Time

Course accepted by Event Director: **Signature**

(handed to Chief Judge)

Time

Course accepted by Chief Judge: **Signature**

(ready for competition)

Time.

1.3.3.7 Parallel fender event checklist

Event: **Parallel fender**

Course Manager: (name)

Event Judge: (name)

Course to be handed over: (time)

Time of briefing:(time)

First take off scheduled:(time)

Task	Completed by	Signature	Comments
1. Completion of Lines "D" & "P"			
2. Completion of installation of containers			
3. Completion of competition gates			
4. Installation of departure gates			
5. Judges positions allocated and score sheets issued			

Course ready for competition: **Signature:**

(handed to Event Director)

Time:

Course accepted by Event Director: **Signature:**

(handed to Chief Judge)

Time:

Course accepted by Chief Judge: **Signature:**

(ready for competition)

Time:

1.4 Measuring equipment

1.4.1 General:

The judgements in the competition that may require the use of equipment are calculating:

- speed
- height
- distance
- direction
- time (measured by a clock or watch)

The organiser may use technical equipment in addition to the judgement of the judges.

If equipment is being used for a particular measurement, it must be described in full to the FAI - CIG at the annual CIG meeting prior to the Championship for approval in accordance with 12.6, Chapter 2.

Navigation:

Mandatory Equipment

Master Clock, Start Line Clock, Search Box Exit Clock, Gate A Clock.
(The Organiser must demonstrate that the timepieces are of sufficient quality and that they can be synchronized to the Master Clock to an accuracy of 0.01 seconds).

GPS-based Data Loggers for measurement of the track, times and speed on the course. Loggers will be provided by the competitor.

Optional Equipment

For measurement of height at targets in the dropping zone and at Line A and F.
For measurement of speed and 30 degree variation on final leg.
To avoid potential complaints and protests, the organiser should ensure that there is some clear indication of the last 2 km to the judges.

TP1 Clock, TP2 Clock, TP3 Clock

Event 2

Plumb bob and tape measure

Event 3

No specialist equipment

Event 4

Tape measure

1.4.2 Timing

All times are to be measured to an accuracy of at least one tenth of a second and to one hundredth of a second where possible. The personnel responsible for calculating and collating scores will round the scores to the nearest tenth of a second before allocating penalty points. Times from 0.01 to 0.04 of a second will be rounded down to the previous tenth of a second whereas times from 0.05 to 0.09 of a second will be rounded up to the next tenth of a second.

1.4.3 Judges sheets

3.6.1	To follow - Judges scoring sheets for navigation event
3.6.2	To follow - Judges scoring sheets for precision event
3.6.3	To follow - Judges scoring sheets for fender event
3.6.4	To follow - Judges scoring sheets for slalom event
3.6.5	To follow - Judges scoring sheets for freestyle
3.6.6	To follow - Judges scoring sheets for parallel fender event
3.6.7	To follow - Judges scoring sheets for parallel slalom event

1.5 Ceremonies

Opening events Category 1

to follow

Category 1 events

Before any ceremony can begin, all final scores will be published and all outstanding protests are satisfied.

The final action of the jury is to verify and approve the competition results of the event. The Jury must present the Event Director with the "Jury Final Report Form" (see International Jury Members Handbook, Appendix A).

At First Category Events, the FAI flag must be flown and the FAI Anthem played. The flags of the countries of the competitors placed first, second and third in each class must be flown and the national anthem of the countries of the champions must be played.

Sufficient medals and diplomas as well as any Organisers gifts to be purchased by the Organiser for the prize giving in line with the FAI requirements as laid down the General Section (Section 4) and the Section 9, Chapter 8, Rules and Regulations of the Sporting Code (Section 7).

Opening events Category 2

to follow

Category 2 events

At 2nd Category Events, the FAI flag must be flown and the FAI Anthem played.

It is optional to play the country national anthems of the winners and fly their flags.

Sufficient medals and diplomas to be purchased by CIG for the prize giving in line with the FAI requirements as laid down in Section 9, Chapter 8, Rules (Heli Races 6.3 Section B).