Image courtesy of Gabba

GUIDANCE NOTE 02

PLAYING PITCHES

CRICKET
AUSTRALIA

GUIDANCE NOTE 02

PLAYING PITCHES

Introduction

Cricket pitches are the fundamental element to facilitating the game of cricket. The standards for the size and related dimensions for full size cricket pitches are guided by the Laws of Cricket as determined by The Marylebone Cricket Club (MCC) in England.

Other evolutions or modified formats of the game accommodate changes in dimensions for cricket pitches. These are predominately focused around the adopted national junior cricket formats, aimed at making cricket more accessible to all players of any age and ensuring that participation opportunities and player development aspects are both considered.

This Guidance Note provides information and recommendations regarding the following aspects related to cricket pitches:

- Pitch provision
- Surface grading
- Line marking
- Natural turf pitches
- Synthetic turf pitches

Throughout this Guidance Note, design and planning tips and references to ESD considerations and maintenance recommendations are also provided.

Pitch provision

The following table identifies the preferred pitch type for the relevant level of competition.

LEVEL OF COMPETITION	PITCH TYPE
CRICKET BLAST GAME	Flexible [1]
JUNIOR CRICKET – STAGE 1	Synthetic [2]
JUNIOR CRICKET – STAGE 2	Synthetic
JUNIOR CRICKET – STAGE 3	Synthetic or Turf
OPEN AGE – COMMUNITY CLUB	Synthetic or Turf
PREMIER	Turf

[1] Cricket Blast games are typically played on the outfield of a cricket ground (mowing a dedicated pitch area in the outfield will provide a better experience for players). Permanent or roll out synthetic pitches are also a suitable option if available for use.

[2] While synthetic pitches are preferable for Stage 1 Junior Cricket, using one of the outer turf pitches of a centre wicket table, or in some cases a mown area of the outfield are also acceptable alternatives.

AGE RANGE (INDICATIVE ONLY)		
Junior Format	Boys/Mixed Competition	All Girls Competition
Stage 1	**U/11**	**U/13**
Stage 2	**U/13**	**U/15**
Stage 3	**U/18**	**U/18**

Number of Pitches

The following table provides a guide for the recommended number of pitches and centre wicket areas for the relevant level of competition. Refer to Guidance Note 3: Outdoor Training Facilities for the number of pitches recommended for practice enclosures.

LEVEL OF COMPETITION	PITCH TYPE/NUMBER	COMMENTS
CRICKET BLAST GAME	Synthetic or mown area of outfield: 1	A single oval may have multiple games playing at the same time
JUNIOR CRICKET - STAGE 1	Synthetic: 1[1]	One pitch per playing field
JUNIOR CRICKET - STAGE 2	Synthetic: 1	One pitch per playing field
JUNIOR CRICKET - STAGE 3	Synthetic or Turf: 1	One pitch per playing field
OPEN AGE - CLUB HOME OR CLUB SATELLITE	Synthetic: 1 Turf: 4–6	To accommodate weekly Country, Metropolitan and/or Junior Association fixtures. Turf management practices and affordability of preparation is likely to impact on the number of pitches that can be provided at this level of venue.
PREMIER CRICKET	Turf: 6–10	Dependent upon whether the venue is used for a range of State, Regional, Country, Metropolitan and/or Junior Association representative matches, in addition to regular weekly competition fixtures.

[1] While synthetic pitches are preferable for Stage 1 Junior Cricket, using one of the outer turf pitches of a centre wicket table, on in some cases a mown area of the outfield are also acceptable alternatives.

When determining the appropriate number of turf pitches for a site, it is recommended advice be sought from your State/Territory Cricket Association.

Dual turf and synthetic pitches

Dual turf and synthetic cricket pitch configurations are becoming more common in community cricket, particularly for landlocked communities with little green space to develop additional grounds.

Dual turf-synthetic pitch arrangements maximise facility usage whereby grounds previously used solely for turf competitions in the afternoon, can also be utilised for junior matches in the morning and weekday evenings. This enables not only optimum usage of the ground and a greater return on investment for landowners, but also promotes greater connectivity between junior and senior cricket and strengthens the player development pathway.

The flexibility of both turf and synthetic pitches allows use for centre pitch practice (match simulation) during mid-week training sessions, as well as a pre-match warm up facility for bowlers.

Before opting for a dual pitch arrangement, ensure communication and a healthy relationship exists between curator, club/s and other users of both turf and synthetic pitches. Dual turf-synthetic pitch configurations are most successful where pitch management programs are strong and incidences of pitch preparation or inclement weather (where covers must remain on) do not impact too adversely on the ability to use the synthetic pitch.

Surface grades

Pitches should not have a grade (or gradient) steeper than 1% in any direction and should be constructed on a single plane. The playing field geometry will often dictate the allowable surfacae grade for the pitch/es.

The centre square/pitch should be elevated above the level of the outfield to allow for surface drainage off the pitch, and to protect the pitch from surface water run-off in a high rain fall event. The elevation should be gradual to ensure it is not a tripping hazard for users of the playing field (relevant for synthetic pitches only).

When designing playing field geometry, the following minimum and desired grades for pitches should be considered:

DIRECTION	GRADE	COMMENT
Cross-fall	1% (maximum)	Turf wickets can be constructed flatter (i.e. 0.5%) but would rely heavily on wicket covers to protect the surface in rain events. Synthetic wickets, unless constructed on a free-draining base pavement, should always have a 1% grade.
Longitudinal fall	Flat	Unless site constraints dictate a need for longitudinal fall, cricket pitches should have no fall in the longitudinal direction.

Note: Diagonal grades for pitches are accepted as long as the resultant gradient is not steeper than 1%.

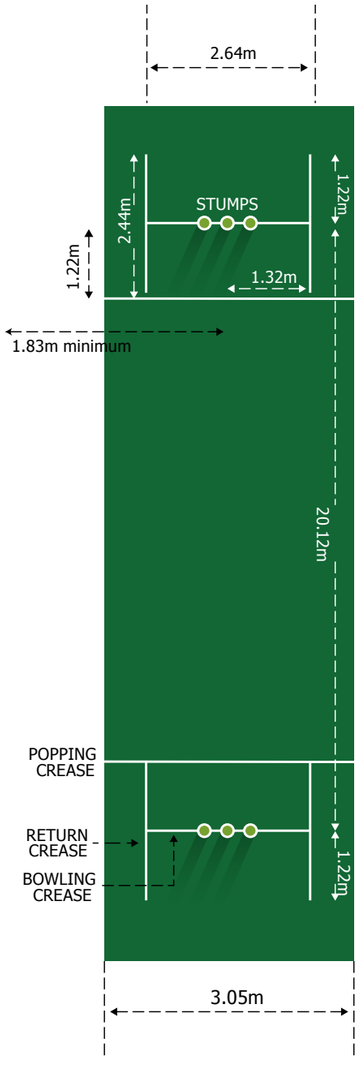
Where the outfield grades towards the wicket, look to locally raise the wicket block to protect it from surface run-off in heavy rain events. It is recommended the wicket block is not raised greater than 50mm and it is blended into the surrounding outfield so that it is not noticeable by a bowler.

Guidance Note 02: Playing Pitches

Line marking

PITCH AREA	DESCRIPTION
BOWLING CREASE	The bowling crease is the line through the centre of the three stumps at the relevant end. It is 2.64m in length with stumps in the centre.
POPPING CREASE	The popping crease is in front of and parallel to the bowling crease. It is 1.22m from the bowling crease. The popping crease is marked to a minimum of 1.83m on either side of the centre of the middle stumps and is unlimited in length.
RETURN CREASE	The return crease is at right angles to the popping crease at a distance of 1.32m either side from the middle of the stumps. The return crease must extend to a minimum 2.44m behind the popping crease but may be unlimited in length.

Source: Line marking details sourced via the WA Sports Dimensions Guide for Playing Areas.



Natural turf pitches

Geometry

The following table details the minimum and desired dimensions for natural turf pitches.

GEOMETRIC ELEMENT	DIMENSION	COMMENT
LENGTH	22.56m (minimum) 25.00m — 28.00m (desired)	An increased length of 25m-28m allows the bowler to have multiple strides on the same wicket surface prior to delivery.
WIDTH	3.05m	Overall footprint of the turf table will be dependent of the level of competition being played and the number of turf pitches provided.

If designing a five pitch turf table, you will require a minimum area of 15.25m (width) by 22.56m (length) — not including extended bowler run-ups.

Composition

Turf used for a natural turf pitch is typically a dense, low-growing and highly resilient grass species that is able to withstand the wear and tear of regular use for cricket. When choosing a turf species it is important that the climate of the location is considered. In hotter and drier Australian climates warm-season couch grass varieties are preferred, however in colder Southern climates (e.g. Tasmania), Rye grass varieties can be used as an alternative. Some common characteristics of such turf include:

- Fine-bladed (e.g couch grass/rye grass)
- Low mowing height tolerance (e.g couch grass/rye grass)
- Resilience (e.g couch grass/rye grass)
- Drought tolerant
- Rapid recovery
- Disease resistance

Profile

Natural turf pitches are to be constructed from wicket soil which have a proven track record in the local area to produce high performing pitches.

- Typical characteristics of wicket soil are:
- High clay content (50–70%)
- Coarse sand <10%
- pH (water) = 5–7
- Linear shrinkage ratio = 0.08–0.15
- Soil texture (Emerson class) >4
- Total soluble salts (ppm) <1,000.

Prior to procuring wicket soil, it is recommended that a sample of the preferred or available soil type is tested to ensure it is fit for purpose and site conditions.

Maintenance

All natural turf pitches / squares will require regular ongoing annual turf maintenance, as well as additional weekly pitch preparation during the playing season. It is important that cricket pitches are prepared hard and flat to produce a good playing surface for matches. The main activities undertaken to achieve this include, but are not limited to:

- Rolling
- Mowing at low heights
- Marking
- Scarifying
- Vacuuming
- Watering

Preparing and maintaining natural turf pitches to ensure greater longevity and optimal performance requires specialist skills developed from an appropriate level of training and education. It is recommended that venue managers and operators of natural turf pitches engage with specialists to prepare and maintain pitches and/or seek an appropriate level of education in order to facilitate general maintenance and preparation activities (e.g. rolling, mowing, scarifying, irrigating).

Image courtesy of SportEng

Turf pitch covers, as well as a designated storage area for the covers are an important consideration when preparing and maintaining natural turf pitches.

When not in use, storing the covers on some synthetic grass (outside the field of play and run off area) is an option to prevent potential damage to natural turf (resulting from heavy rolled up pitch covers being placed directly onto the playing field surface).

ESD considerations

ESD considerations when designing and maintaining a natural turf surface include:

- Ongoing maintenance is required to keep the natural turf pitch fit for purpose.
- In order to keep the natural turf pitch in a longer service life, pitch rotation for games is recommended to allow a used pitch to recover.
- Recycled water or rainwater can be used for irrigation purposes to reduce water usage, however ensure the water quality is tested first to ensure suitability for the turf.

Guidance Note 02: Playing Pitches

Synthetic grass pitches

Geometry

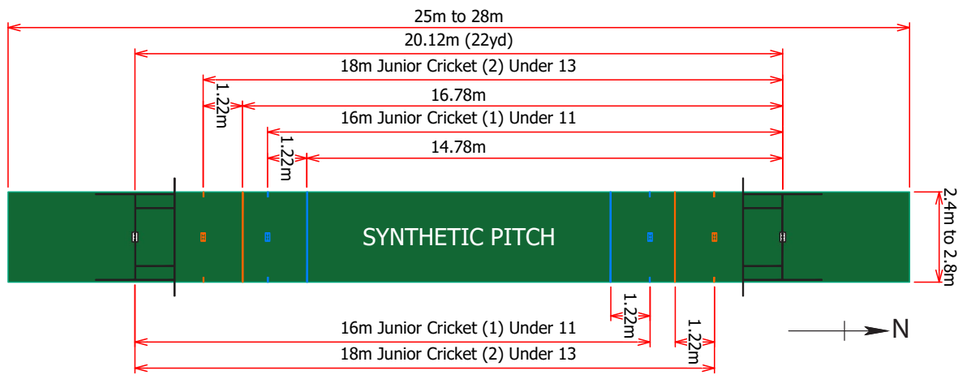
The following table details the minimum and desired dimensions for synthetic turf centre pitches.

GEOMETRIC ELEMENT	DIMENSION	COMMENT
LENGTH	25m (minimum) 28m (desirable)	An increased length of 28m allows the bowler to have multiple strides on the same wicket surface prior to delivery.
WIDTH	2.4m (minimum) 2.8m (desirable)	Providing a pitch of adequate width is particularly important for junior development (promotes greater enjoyment if juniors are able to land the ball on the pitch) and also encourages the art of spin bowling with players able to pitch the ball wide on the pitch and spin it into or away from the batter.

Stage 1 and Stage 2 Junior Cricket formats call for pitches that are shorter than the minimum recommended full-size pitches (16m and 18m stump-to-stump respectively). It is recommended that all synthetic pitches are developed to the dimensions listed in the above table in order to maximise their use for all forms of cricket. Refer to the pitch marking diagrams below for recommendations on how pitches can be marked to provide for a full range of junior and senior cricket.

Should the site or ground conditions prevent their use for full sized pitches or grounds, reduced sized pitches may be considered. In this instance, please contact your relevant State or Territory Association to discuss the relevant options. Refer to Appendices for relevant contacts.

Note: Stage 3 Junior Cricket is played on a standard pitch length (20.12m) and does not require unique pitch markings.



Synthetic grass materials

Current synthetic grass products on the Australian market used for most cricket pitch applications have a pile height that range from 9mm-13mm without any sand or crumbed rubber filling.

While there are a range of products available for use as synthetic pitches, Cricket Australia recommends that the proposed system is researched to ensure it has a proven track record and addresses the key functions of:

- Suitable playability for the intended level of use
- High durability

Below is a selection of technical properties for synthetic grass products that identify both minimum requirements and increased properties to improve durability.

PROPERTY	MINIMUM REQUIREMENTS	IMPROVED DURABILITY
UV STABILISATION UV stabilisation helps prevent the synthetic grass from fading, discoloration, or degradation caused by prolonged exposure to sunlight.	Suited and proven for Australian climate	
YARN MATERIAL	Polypropylene	Polyethylene
INDIVIDUAL YARN WEIGHT Measurement of the mass or thickness of the individual fibres that make up a synthetic grass product.	1,200gm/m2	1,500gm/m2
YARN WEIGHT (DTEX) Unit of measurement used to express the linear density of fibres.	8000–8800	>8800
YARN PROFILE Shape or cross-sectional structure of the individual fibres.	Fibrillated tape	Texturised monofilament

Products that meet the improved durability properties can result in double the durability than a product that only meets the minimum requirements.

If regularly maintained, the life cycle of synthetic grass matting is approximately 6–8 years. This is dependent on how the grass is covered during the off-season (synthetic cover or soil) and usage levels.

Pavement / profile

Synthetic cricket pitches comprise of a base pavement with a short pile height synthetic grass pitch matting glued to the pavement. The cricket pitch base pavement should be designed to cater for the relevant site's subgrade conditions and maintain the level tolerance of the surface for a minimum design life of 20 years.

Synthetic pitch pavement bases are typically a rigid pavement i.e. concrete. Concrete pavements are generally easy to construct and have a proven track record in Australia.

Flexible pavements (i.e. asphalt and granular materials) are used in areas outside Australia with some level of success. While these are not widespread methods used across Australia, Cricket Australia is committed to researching alternative techniques and methodologies over time.

Pitch covers

Synthetic cricket pitches may need to be covered during the off season to both protect the surface and for the safety of other sport participants. Two options are recommended for synthetic cricket pitch covering, both of which should be conducted with consideration given to Work Health and Safety, risk management and playability for non-cricket users. Alternate season use of playing fields and the compatibility of synthetic pitch covering methods with other sporting codes needs to be considered when deciding on the most appropriate pitch covering option.

PITCH COVERING METHOD	IMPACTS AND CONSIDERATIONS
SYNTHETIC PITCH COVERS	Synthetic pitch covers can be placed over synthetic pitches during the winter season. When using synthetic pitch covers it is important to ensure that covers used meet AFL–Cricket Australia approved synthetic grass product performance and testing standards. Synthetic covers require the brooming in of rubber granules when laid and the vacuuming of them out prior to lifting them off. Storage of covers over the off-season is a key consideration. Issues can arise if these covers are stored whilst still wet as the moisture is unable to escape and can damage the cover. Achieving integration of synthetic surface and natural grass interface can be challenging. Installation and removal of synthetic pitch covers can be labour intensive, and Work Health and Safety provisions should be adhered to.
COVER WITH SOIL	Covering synthetic pitches with soil during the off season is another pitch covering method and is generally managed by the relevant Council or cricket club. Heavy duty industrial plastic should be laid over the synthetic pitch surface prior to soil being spread. Issues with using soil include the potential injury to untrained club volunteers attempting to cover/uncover cricket pitches and potential injury risk due to change in surface level around the pitch. Damage to pitch as a result of machinery/tools tearing sections of the synthetic grass are also common and an uneven and raised surface surrounding the pitch can result in either an unpredictable deviation of the ball once in play or a 'swimming pool' effect whereby rainfall is unable to escape the pitch and can impact on the ability to commence play.

Consider where the cricket pitch cover will be stored during the season.

Synthetic grass maintenance

Synthetic cricket pitches require regular maintenance to ensure their quality, playability and integrity is maintained. Regular sweeping is required, and pitches should be water blasted every two years (minimum) to promote and refresh the synthetic pile.

To assist with the maintenance of synthetic cricket pitches, pitch surrounds and to provide safe and consistent run-ups for bowlers, the installation of hybrid turf surrounds to synthetic pitches could be considered.

ESD considerations

ESD considerations when designing and maintaining a synthetic grass surface include:

- Increased CO^2 omissions during the production, transportation and end of life disposal phases.
- Synthetic grass does not decompose, meaning unless it is repurposed, it will end up in landfill (Note: Research continues into future synthetic grass recycling opportunities, with planning underway for Australia's first purpose built synthetic grass recycling hub).
- Pending condition, synthetic grass may be repurposed, in-turn delaying disposal to landfill.
- Compared to natural turf pitches, synthetic grass pitches require less maintenance and need no watering for play.

Guidance Note 02: Playing Pitches