MACQUARIE POINT MULTIPURPOSE STADIUM

Stadium Design Description
May 2025

MACQUARIE POINT
DEVELOPMENT CORPORATION

COX CUMULUS

COX+Cumulus and the wider Stadium Design Team acknowledge the traditional owners of this land, the muwinina people, and pay respect to those that have passed before us.

We acknowledge today's Tasmanian Aboriginal people, the palawa, their Elders, and their enduring custodianship of lutruwita/Tasmania.

Revision History

Rev.	Revision Date	Details	Checked		Approved	
			Name	Signature	Name	Signature
L1	08 May 2025	Issued for Legislation	Mark McKenna **Cox Architecture**		Stuart Harper **Cox Architecture**	

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INTRODUCTION

PURPOSE OF REPORT

COX Architecture and Cumulus Studio (COX + Cumulus) have prepared this document on behalf of the Macquarie Point Development Corporation.

The purpose of this report is to address the requirements relating to the architectural and functional design.

This report is intended to be read in conjunction with the accompanying architectural plans, sections, and elevations.

COX has been engaged by the Macquarie Point Development Corporation as Lead Design Consultant to oversee the design of the new Multipurpose Stadium. The Stadium is proposed on the Macquarie Point site that is subject to the Mac Point Precinct Plan (August 2024) which provides a blueprint for the future development of a mixed-use precinct.

This report focusses specifically on the Stadium building, the associated external concourse, and the historic Goods Shed which will be relocated to facilitate the development. Careful consideration has been given to the surrounding precinct and the sensitive interfaces that it presents, and more broadly, to the Sullivans Cove region and the Hobart waterfront.

We believe that the architectural response as represented in this report carefully balances the requirements of the Project Brief to deliver a highly functional, Multipurpose Stadium that demonstrates design excellence whilst respecting the heritage qualities of the adjacent streetscapes and waterfront, as well as the historic Cenotaph lookout.

COX Architecture and Cumulus Studio


THE GOODS SHED
GATE 3

01 | ARCHITECTURAL DESIGN

This chapter describes the architectural design proposed for the Multipurpose Stadium as part of an integrated response to the Macquarie Point Precinct.

DESCRIPTION OF PROPOSED PROJECT

The new Multipurpose Stadium will be the drawcard attraction at the future Macquarie Point. It will be the landmark destination north of Constitution Dock and will introduce public activation to a site that has previously been characterised by industrial uses.

The development of the Multipurpose Stadium will be a catalyst for future events in Tasmania. With a 23,000 seated capacity, the Stadium will offer all the hallmarks of a major city arena, whilst supporting a 'boutique' crowd experience that preserves atmosphere for a variety of events at a range of scales.

Without question, the defining feature of the new Stadium is the roof shell that bridges over the playing field. A feat of engineering, the 190-metre clear-span structure is believed to be the largest fixed roof over a natural grass oval anywhere in the world, and certain to draw international attention. This presents an incredibly exciting opportunity to pioneer a public building type that is ideally suited to host a broad range of sporting, cultural, and community events.

This proposal to deliver a new stadium at Macquarie Point will happen alongside the introduction of the Tasmania Devils Football Club to the Australian Football League (AFL). The granting of the 19th AFL license recognised the dedication of a footy-loving community that has long fought for the State's representation in the league. The announcement of the new Tassie Devils Footy Club has been met with great enthusiasm, and it's fitting that the new Club have an exemplary home ground that represents the latest innovation in sports architecture while being *Unmistakably Tasmanian*.

Whilst AFL football will be the anchor event throughout the winter season, the functional design has been developed purposefully to support the broadest possible suite of uses.

These include;

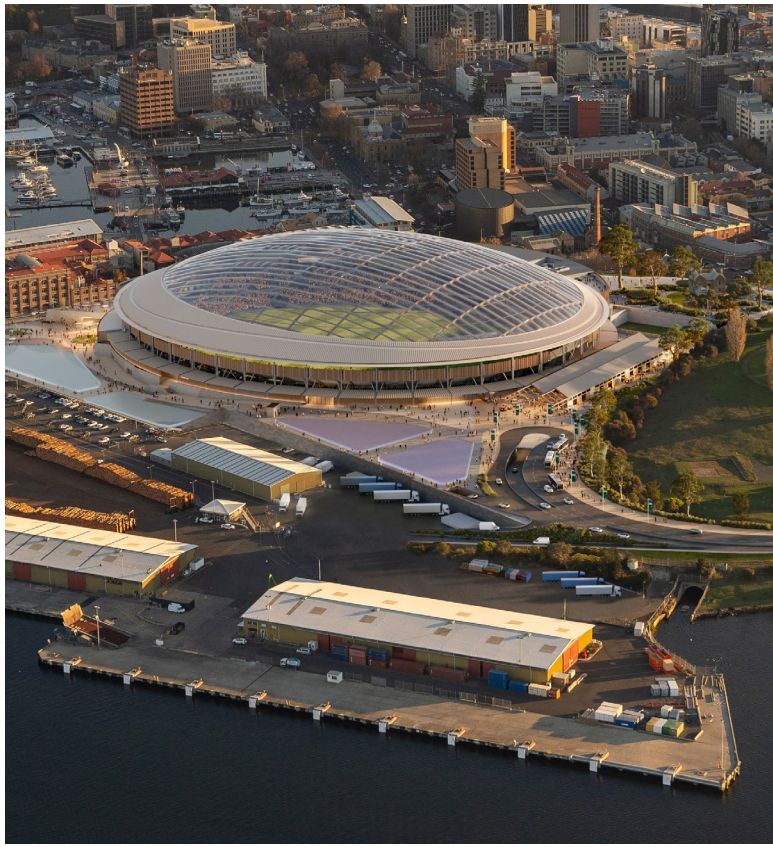
- Cricket (ICC and Cricket Australia)
- Rugby (World Rugby/ NRL)
- Football (FIFA/ Football Australia)
- Concerts
- Festivals
- Conferences and business events
- Functions and hospitality

The proposal to develop an enclosed stadium ensures the venue's ability to attract events and activities that might otherwise be deterred by a weather-exposed arena.

Made for Tasmania

Our new Stadium will be tailor-made for Tasmania with the following key design features:

- 23,000 seated venue with up to 1,500 additional standing for major sports events
- 31,500 patron capacity for major concert events
- 1,500 person Function Room with views toward kunanyi and the Wellington Range
- 159.5m x 128.5m oval field of play
- Fixed dome-shaped roof providing full overall coverage and engineered to incorporate locally grown and sourced timber
- At the centre of the dome, a maximum roof height externally at RL 54.0, and at RL 25.5 at the perimeter
- Translucent roof cladding
- Elevated 360 degree internal concourse with service zones underneath
- An intimate seating bowl that will bring crowds closer to the action
- A serviced grandstand on the western side with three (3) levels of functional space above the field
- Fully accessible external concourse with landscape treatments at entries



FORM AND SCALE SUMMARY

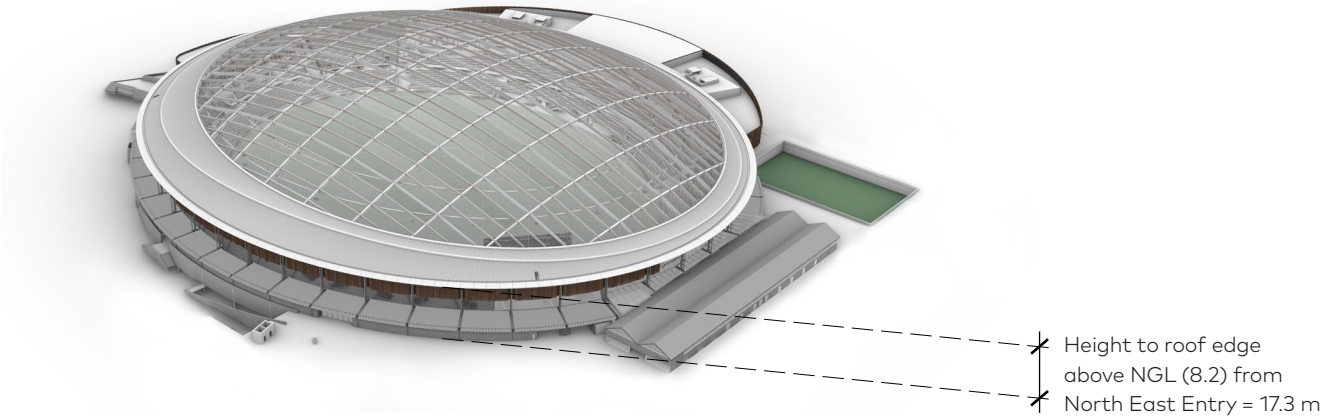
Form and Scale

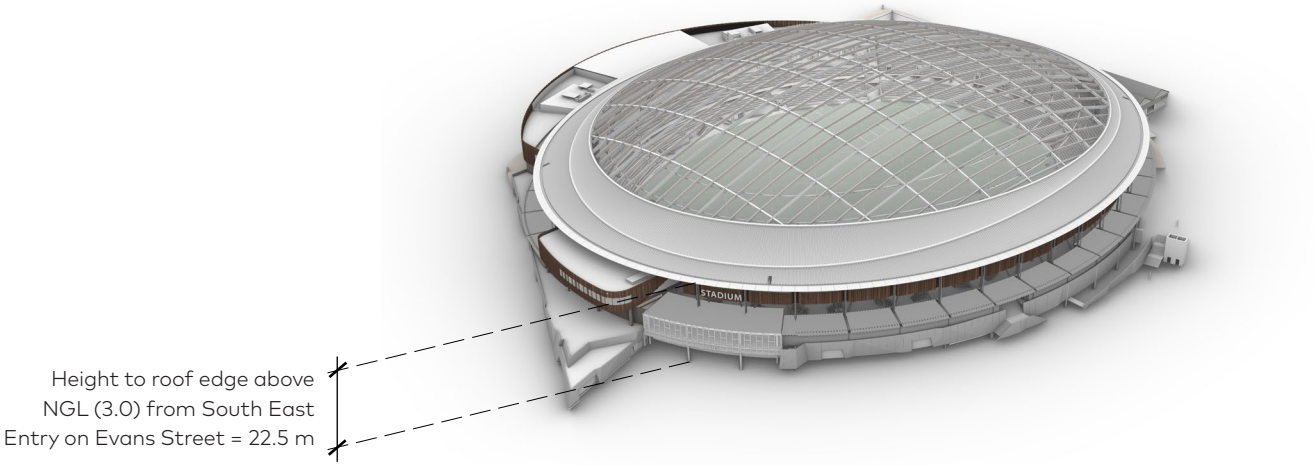
The defining element of the new Stadium is the expansive roof that is required to span 190 metres across the field to safeguard the venue for events in all weather. The development of the roof has undergone an extensive options evaluation process to assess the various roof typologies against a range of design criteria. These criteria address both performance-based requirements as well as site considerations, and these needs in concert have driven an innovative engineering solution.

The design requirements include:

- A form and scale that respects views and vistas across Sullivans Cove, as well as sensitive interfaces with adjacent landmarks including the Cenotaph and historic Evans Street;
- 190 metre clear span over the field and seating areas;
- Minimum clear height over the centre of the field to accommodate international cricket competitions;
- Transparency of the roof system to admit filtered sunlight to support the natural grass surface;
- Impact of shadows cast on the field;
- Structural capability to support loads for suspended lighting and speakers;
- Mechanical and passive ventilation for thermal comfort;
- A design that can be all or partially delivered in Tasmania with consideration for local industry capability.

The design approach has adopted a dome-like, torus form. This allows the maximum height to be achieved at a central point from which the roof surface falls in every direction. The result is an overall form that minimises height where it's not required, and establishes a height at street interfaces that is comparable to the scale of existing buildings.





KEY DESIGN FEATURES

Capacity

23,000 seats plus
standing room for 1,500
patrons at major sports events

31,500 patron capacity
for major concert events

Hospitality

1,500 person Function Room
with views toward kunanyi and
the Wellington Range

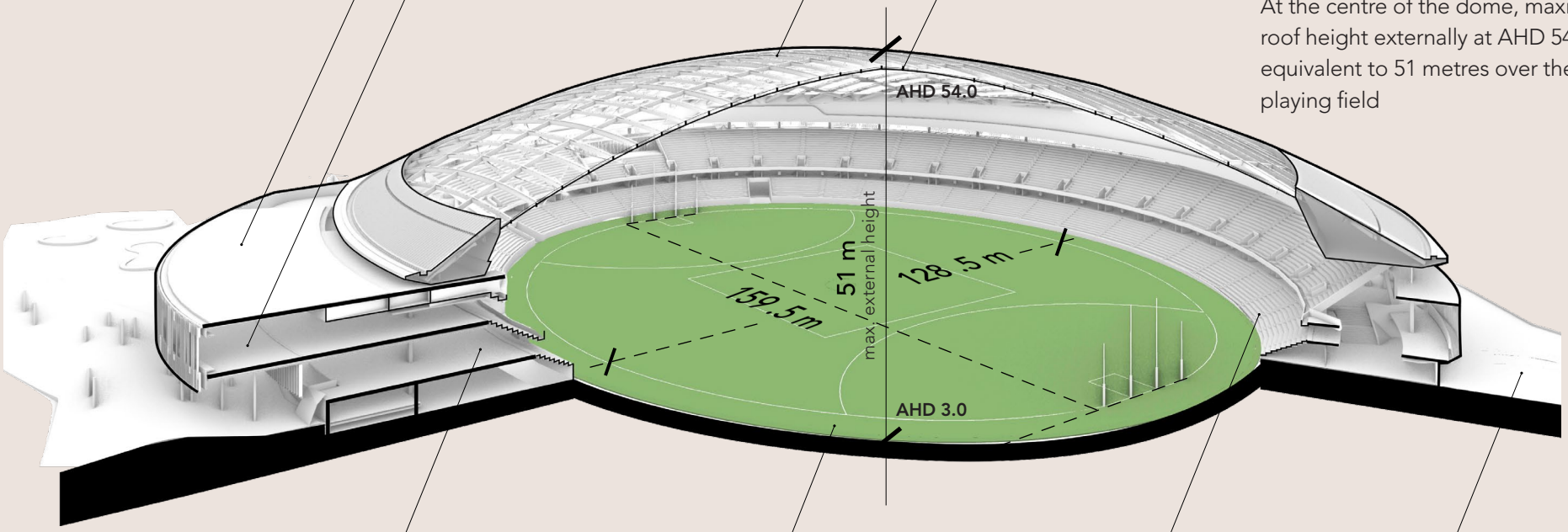
A serviced grandstand with
four levels of public, hospitality,
media and back-of-house space

Hybrid Timber and Steel Roof

Fixed dome-shaped roof that provides
full oval coverage to safeguard events
in all-weather

Translucent ETFE pillows over a hybrid frame of
steel and locally grown and sourced timber

At the centre of the dome, maximum
roof height externally at AHD 54.0,
equivalent to 51 metres over the
playing field



360° Internal Concourse

Elevated internal concourse
with **views over the field** and
service zones beneath

Multi-Sport Field

159.5m x 128.5m
Field boundary for AFL

Intimate Seating Bowl

Fans are **closer to the action**

External Concourse

Open concourse supporting
easy access and movement

UNMISTAKABLY TASMANIAN

Our design approach is focused on crafting a distinctly Tasmanian Multipurpose Stadium that will be the pride of the island, and will showcase timber technology to the world.

Tasmanians are known for their resilience, for being innovative, for growing and crafting quality products, and for creating welcoming places in their *quiet pursuit of the extraordinary*.

We approach the design development in full acknowledgement that the requirements of a contemporary Stadium must translate to a scale and form that is neither diminutive nor passive. In the words of community...

"if we're going to have a Stadium, it better be bloody good!"

Leveraging off this vision, the *continued* pursuit of the extraordinary will be a beacon to inspire a high-quality design that extends above and beyond the ordinary, and reaches to the remarkable.

View toward Gate 1 (South East Entry)

VISION
DESIGN PILLARS

The architectural response has drawn upon a series of pillars to guide the development of the design. These pillars articulate the qualities of place that will characterise the Project, beyond the requirements of the Brief. The intent is to drive a design outcome that is Unmistakably Tasmanian.

Culturally Informed

In addition to specific consultancies, consultation with the Tasmanian Aboriginal community, and cultural heritage investigations completed and underway, the concept design for the Multipurpose Stadium and surrounding landscape designs are being informed by Palawa community members Dean Greeno and Theresa Sainty to support the development of culturally informed designs.
This will continue to be a focus during the detailed design process, including identifying opportunities for Tasmanian Aboriginal people to contribute artworks, opportunities to potentially highlight cultural practices and share stories, and to culturally inform the detailed design process as guided by consultation with community, and continuing to work directly with community members during implementation, including Theresa and Dean.

The new Stadium is first and foremost a gathering place where community can come together – around sport, music, entertainment, or reflection – to enjoy a collective experience in a venue for all Tasmanians. Overtime, new rituals will form around events at the Stadium… maybe through the arrival sequence, a shared walk, a shared song, or a common activity celebrated after the game. This tradition of gathering together has deep meaning in First Nations culture, and for all people, is intrinsic to our humanity.

Grounded in Place

The guiding principle for the Macquarie Point Multipurpose Stadium is that it will be *Unmistakably Tasmanian*. How does this inspire an architectural response? From the outset, the form of the building is intended to accommodate all the functional requirements of a contemporary Stadium whilst being distinctly grounded in place. This means drawing on the built traditions of Sullivans Cove where buildings are expressed as legible forms on the Cove Floor and can be experienced from every aspect.

This principle also guides a design outcome that references the surrounding maritime uses as well as the industrial legacy of the site. The former Round House associated with the old Hobart Rail Yards established a precedent for round buildings at Macquarie Point from which to draw inspiration

The design of the Stadium has thoughtfully considered the placement of openings to introduce glimpses to the context beyond. Moreover, translucent cladding to the roof will allow kunanyi and the Cenotaph to be viewed from within the Stadium. This way, visitors in the stands will remain visually connected to their place, and will have an experience that can be nowhere other than Hobart.

Experience and Discovery

On listening to community, a recurring theme is an appreciation for places that are accessible and inviting. This may take the form of an architectural response that provokes intrigue, and beckons passers-by to come in and explore. Conversely, the prospect of a predictable, uniform Stadium building has been met with resistance. A commercial sameness in the presentation of the building is to be avoided, and instead, a range of authentic places and experiences is to be pursued.

The architecture will express a variety of distinctive spaces within and around the Stadium… some will be open and expansive; others will be intimate and characterful. The intent is to inspire a sense of discovery, as well as an unrivalled experience for fans inside a world-first Stadium where atmosphere is rich and resonant.

A Tasmanian Timber Story

The opportunity to celebrate Tasmania's renowned timber technology in this project is unmissable. The use of hardwood in the structural elements of the 190-metre clear-span roof will place locally grown and sourced timber prominently 'on show' and in the very heart of the Stadium. The intent is to use timber in such a way that is elemental to the working of the Stadium, and not simply decorative or trite.

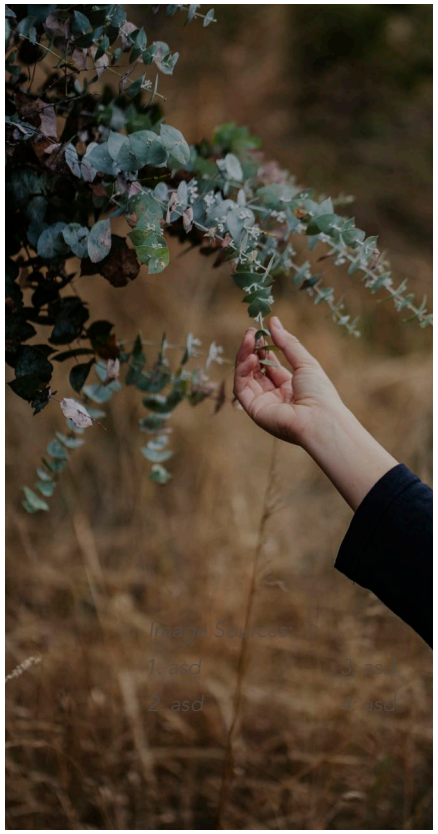
The use of a material that is both prized for its quality and is locally available will enable the supply chain to remain within Tasmania and promote local industry and expertise. Harnessing a natural resource for a complex engineering brief will demonstrate the capability of our technology and drive innovation.

A Welcoming Design

Our commitment to a welcoming design will inform many of our design choices; from the placement of entries and movement pathways, to the selection of materials and finishes that feel warm and inviting. Our preference is for materials and construction techniques that are raw and honest and reflective of our Tasmanian character. Creative and unassuming resonates with who we are and what we like.

More particularly, the design intent for our new Stadium is to express an architecture that will be timeless and age well. A building that looks harmonious in its context and amongst natural elements… the escarpment, the river, the sky. The use of natural materials will characterise the building, and the expression of textures and finishes that will patina with time will convey a sense of permanence and belonging to its place.

TASMANIA'S MULTIPURPOSE STADIUM



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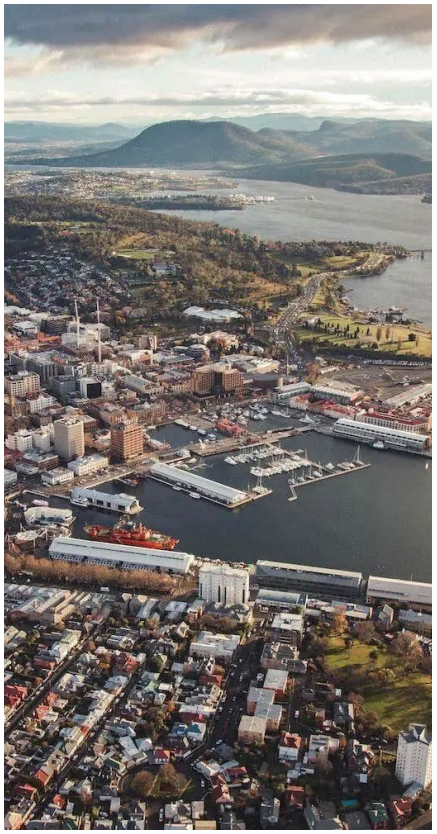
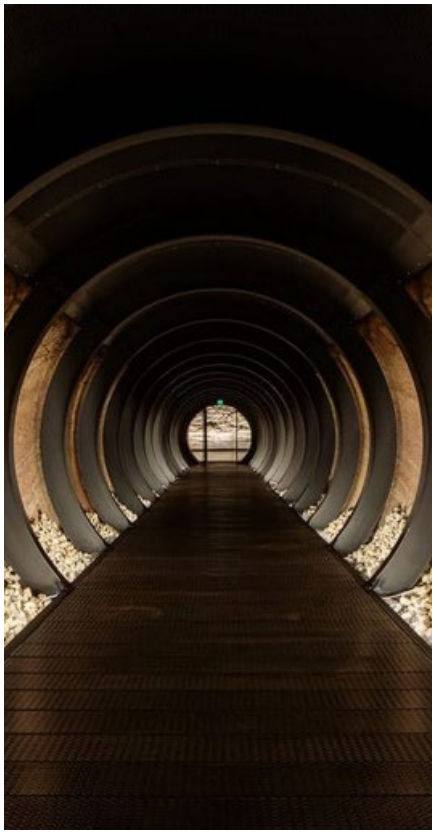
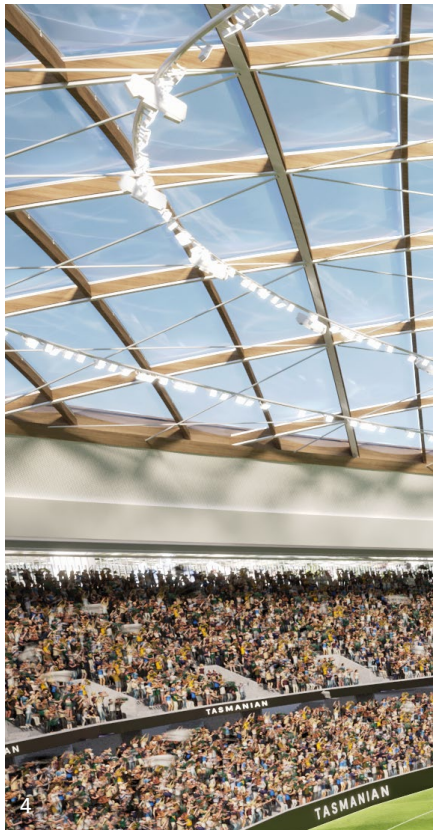
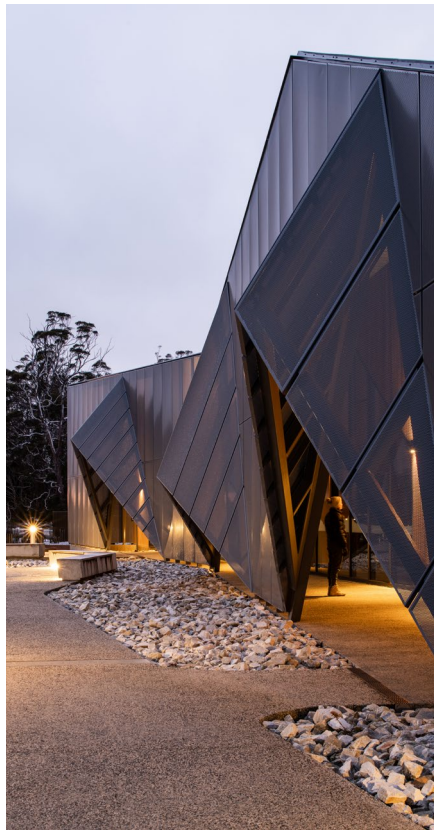








Culturally Informed

› Working with palawa community members to support the development of Culturally Informed designs.

Grounded in Place

› Belongs to this Place

› Form and Materiality

› Tasmanian Identity and Values

› Visual Connections to Place (kunanyi, Cenotaph, Derwent River)

Experience and Discovery

› Aspirational and Inviting

› Authentic Fan Experience

› Accessible and Adaptable for a Range of Experiences

A Tasmanian Timber Story

› Local Expertise

› Tasmanian Ingenuity

› Raw Materials

› Showcasing Locally Grown and Sourced Timber

A Welcoming Design

› Raw, Honest, Timeless, Quiet and Humble

› Creative and Unassuming

› Could only be of this Place

ARCHITECTURAL COMPOSITION

The approach to the architectural composition can be understood *from ground up, and sky down*. The new Stadium is composed in three distinct strata; one ground based, one sky bound, and a central layer in the middle. Each layer is distinguished by its own materiality.

Folded Ground Plane

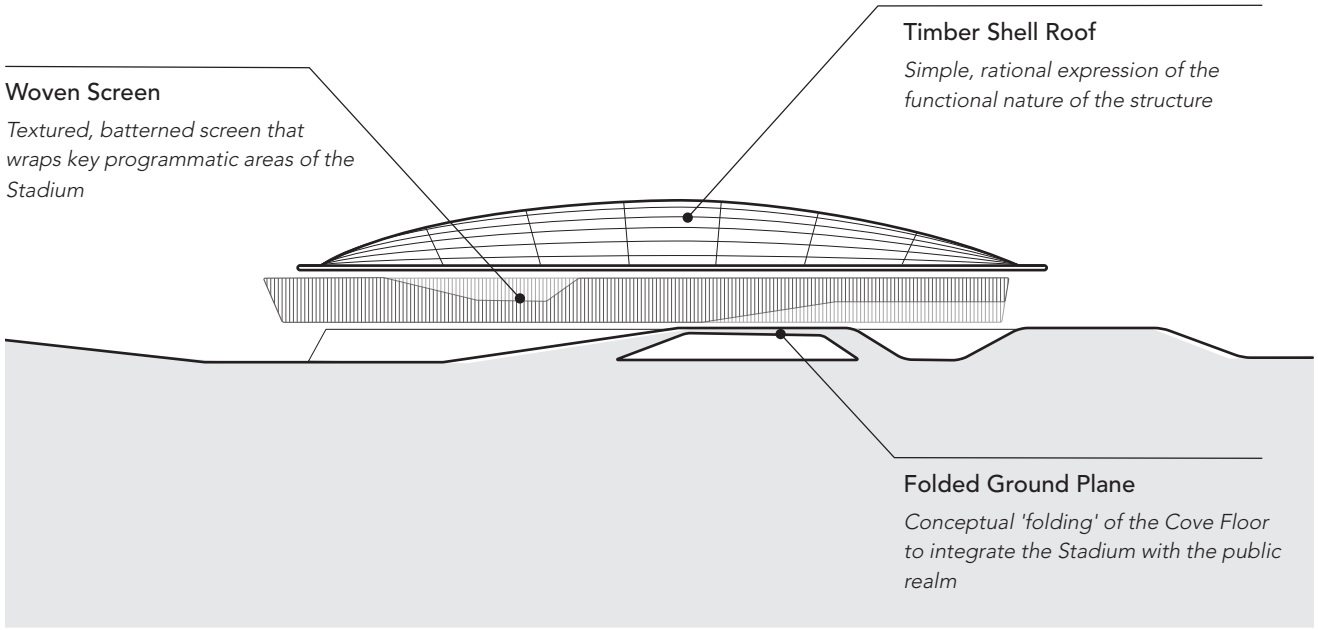
The folded ground plane is an expression of the base of the building at ground level and incorporates all elements of the development beneath the internal concourse at Level 1, as well as the lower seating terraces inside the Stadium. The Cove Floor will fold-up into a podium structure on which the Stadium sits. This maintains the pedestrian scale along Evans Street, and allows a consistent expression of materiality at ground level, in keeping with the Cove.

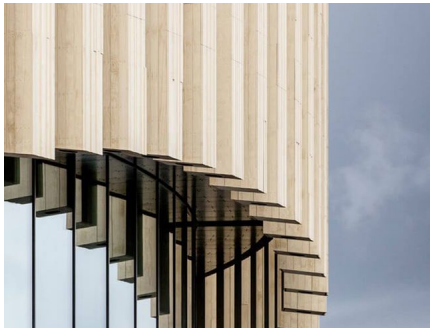
Woven Screen

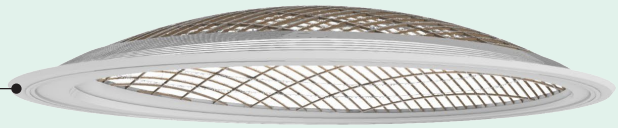
The 'woven screen' layer is home to the hospitality spaces that support the Stadium, including food and beverage offerings that service the concourse, as well as the Function Room at Level 2 and associated bars. This central layer is a distinctive element of the building and cantilevers over the external concourse on the western side. The primary facade treatment for the 'weave' will be a battened screen with variable openings to allow views from glazing behind.

Timber Shell Roof

The expansive roof shell over the field is conceived as belonging to the sky. It is intended to be read as cloud-like with a translucent skin that admits light, views, and a sense of connection to the city, mountain, and waterfront beyond. Its timber structure is expressed on the underside, and the volume created underneath will inspire a moment of awe - an appreciation of the extraordinary - as you arrive inside.





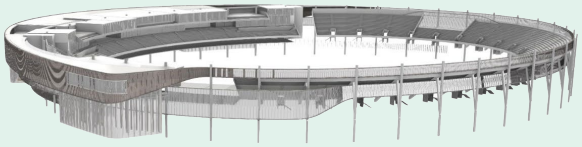


Timber Shell Roof

› Steel and timber hybrid structure

› Optimised engineering – doing more with less

› ETFE transparent pillows

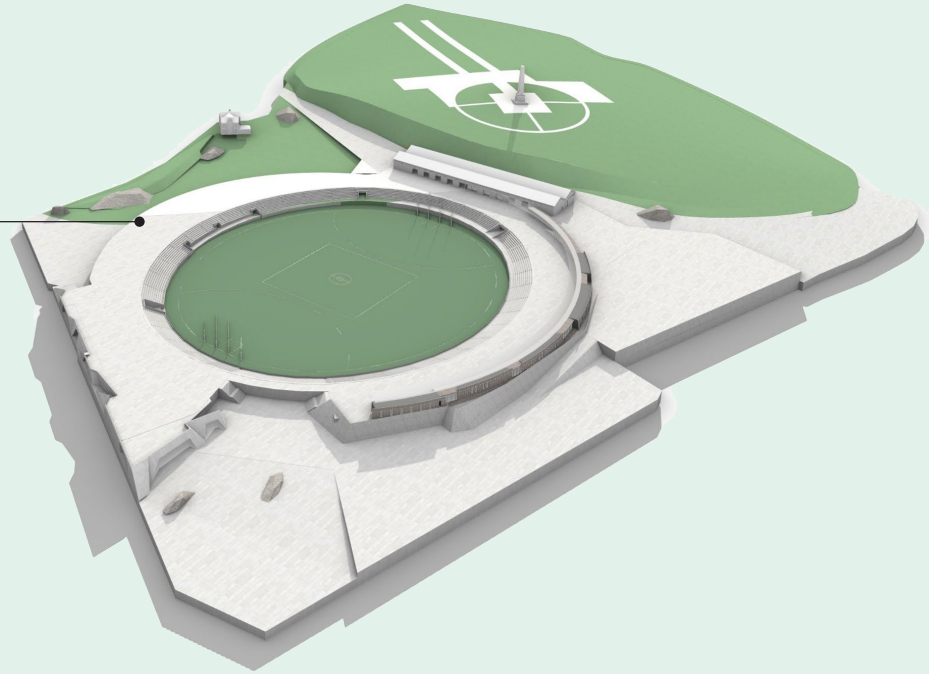


Woven Screen

› Function Room with views to kunanyi

› Weather protection to concourse

› Shading and aspect



Folded Ground Plane

› Revealing of the Cove Floor

› Rediscovering original shoreline

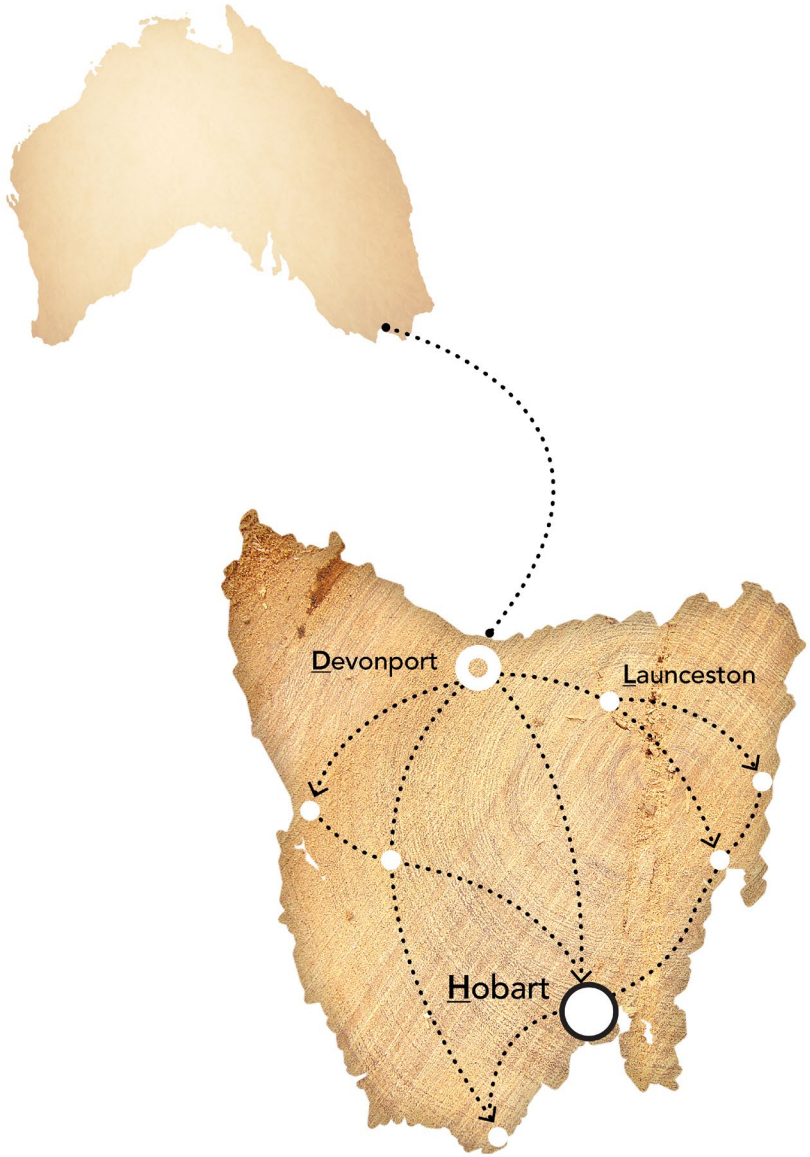
TIMBER TECHNOLOGY IN A WORLD-FIRST STADIUM ROOF

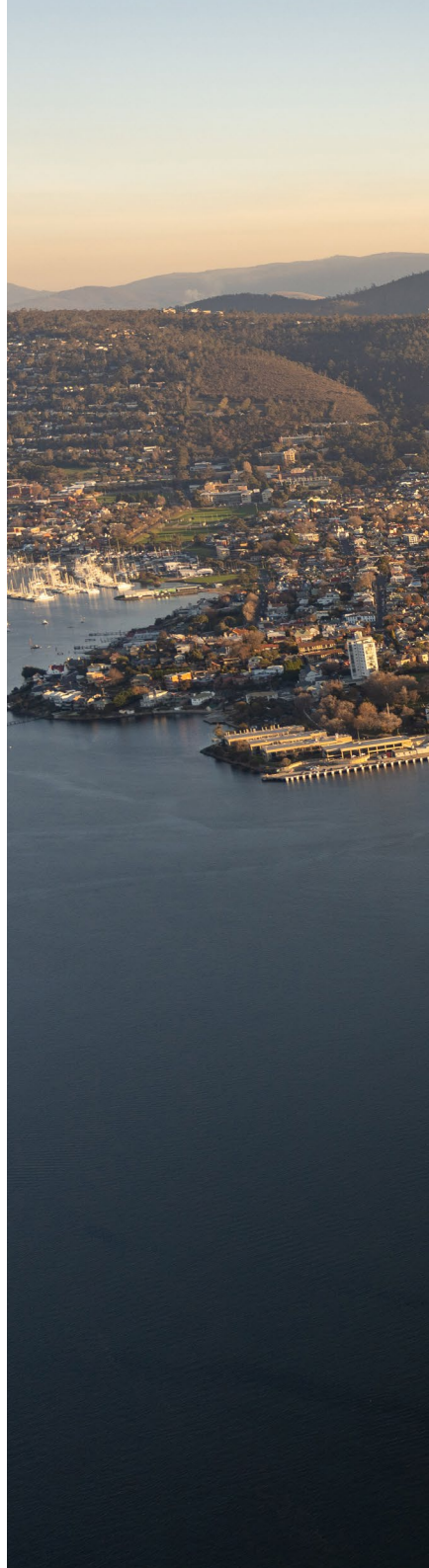
For our new Stadium, we are incorporating locally grown and sourced timber which will enable the supply chain to remain within Tasmania and promote local industry, expertise, and skills. Moreover, harnessing the natural properties of hardwood for a complex engineering brief will demonstrate the capability of our resources and technology, and will contribute to Tasmania's reputation for innovation in our quiet pursuit of the extraordinary.

The best locally grown and sourced timber for the job

The design development process has drawn on local expertise at the University of Tasmania (UTAS) as well as the Centre of Sustainable Architecture with Wood (CSAW). Together with leading engineering firms AECOM and Schlaich Bergermann Partner (sbp), we've developed a roof concept that will showcase timber in a way that is integral to the structure of the roof whilst representing an efficient use of material.

We will work with local industry to understand the supply options available. Sustainable sourcing practices will underpin the construction supply chain for the project, and all timber used on the Stadium will be independently certified.





FULL ROOF COVERAGE

Why a fully covered Stadium?

The spectators in the stands are at the heart of the design brief for the new Stadium. The decision to pursue a fully roofed venue is driven by a desire to provide shelter from the harsher elements of the weather, and to safeguard the venue for a variety of events in all-conditions.

The inclusion of the roof provides a particular advantage in that it allows live performance events to be staged on the field, and therefore maximises content opportunities for the Multipurpose Stadium.

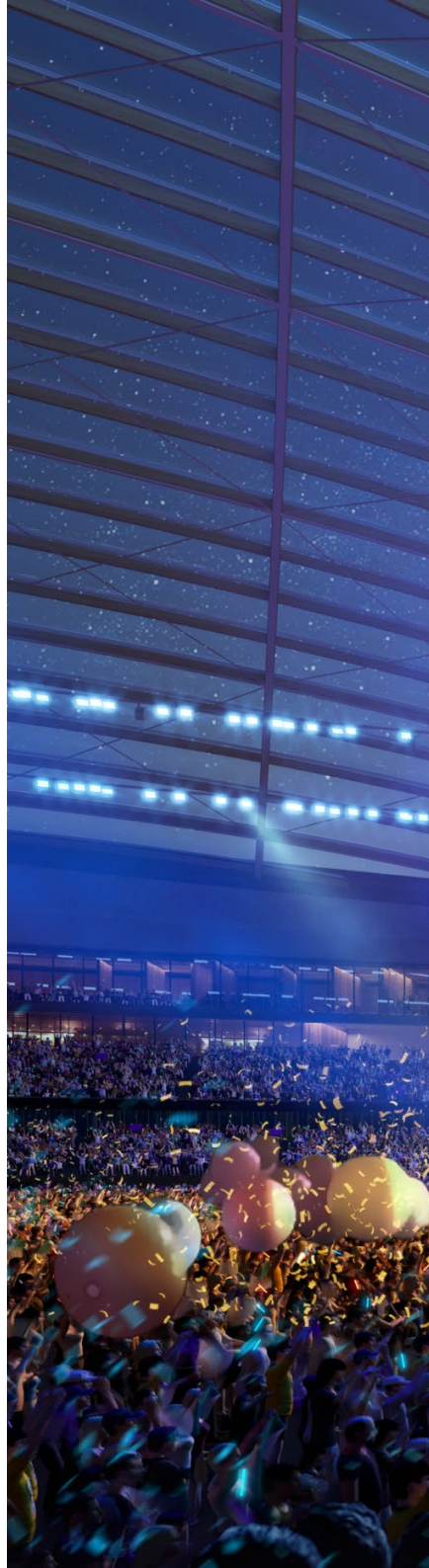
Patron Comfort

Promoting patron comfort is a high-priority for the project, and reducing visual glare, providing protection from the wind, and optimising thermal comfort are all advantages that full-roof coverage presents. For this reason, the design brief required a fixed translucent roof over the Stadium to provide full coverage for patrons, players and performers. A decision made by the design team is to adopt locally grown and sourced timber for the structural components.

Optimised Light Locations and Reduced Light Spill

A significant advantage from a full coverage roof is that it provides an apparatus from which sports lighting can be suspended, negating the need for free-standing light towers (similar to the MCG or Adelaide Oval), or lights fitted to a roof edge further from the field. Light fittings can be fixed directly over the field and in closer proximity to the playing surface. The result of this configuration is that fewer light fittings are required, and light spill from the venue is reduced. Mitigating light spill presents a considerable benefit for neighbouring residential areas and existing activities on Evans Street.

The lighting design has considered the extent of the spill lighting, which is calculated to be minimal. A technical model was developed by lighting engineers for the purpose of providing a comparative assessment of the potential light spill from both an open roof scenario as well as full-roof coverage. With an open roof, 100% light transmission is expected as a conservative assessment. With full-coverage – even with a translucent ETFE roof – some absorption of light spill will occur.



Artist's impression of a live performance inside the new Stadium

ROOF OPTIONS EVALUATION

The roof is the hardest working and most prominent element of the new Stadium. In addition to providing enclosure and comfort for spectators, the roof must also serve as an apparatus to support lighting, speakers and other equipment without imposing on the most important feature of the Stadium; the performance on the field below. Significantly, the challenge the roof presents is the need to introduce daylight to ensure the health of the natural grass playing surface.

The development of the roof has undergone an extensive options evaluation process to assess various roof typologies against a range of design criteria. These criteria address both performance-based requirements as well as site considerations, and these needs in concert have driven an innovative engineering solution.

The design requirements include:

- A form and scale that respects views and vistas across Sullivans Cove, as well as sensitive interfaces with adjacent landmarks including the Cenotaph on Regatta Point and historic Evans Street;
- 190 metre clear span over the field and seating areas;
- Minimum clear height requirements to support football, and exceed existing benchmarks for indoor cricket;
- Transparency to admit filtered sunlight to support the natural grass surface;
- Structural capability to support loads for suspended lighting and speakers; and
- Mechanical and passive ventilation for thermal comfort.

At the commencement of the design process, COX+ Cumulus together with leading engineers AECOM and schlaich bergermann partners (sbp) undertook extensive development of options to analyse the various different roof typologies that could support the Brief. In addition to the above listed core requirements, other attributes have been considered in the evaluation process for the optimal roof design.

Closed Roof or Openable

The relative value of a fixed, closed roof in comparison to an openable roof has been assessed. Openable roofs require additional structure and mechanisms to support the operational components of the roof system, which can result in a deeper structural zone beneath the roof surface which drives a higher roof profile.

A traditional, sliding panel roof also requires additional area for the panels to overhang when in an open configuration.

Roof Profile

The optimal roof profile will take into account several factors including height, structural stability, and overall form. Arched forms and domes will have variable height, with a central peak and a lower perimeter. They are also known for their inherent compressive strength which reduces reliance on additional structural members. Domes also promote efficient air circulation that will offer improved internal comfort.

By comparison, flat profile roofs have a generally consistent height, but over large spans will require more and deeper structural members to prevent the structure sagging.

Sunlight Permeability for Grass Health

Adopting a roof structural design that minimises visual obstructions will also support maximum sunlight filtration to the playing field to promote grass health. The adoption of ethylene tetrafluoroethylene cladding (or ETFE, a high-strength polymer with high light transmission) will achieve the desired transparency.

ETFE pillows have been adopted, in preference to single skin ETFE. The pillow form has its own structural stability and therefore reduces reliance on additional structural framing. The selection of ETFE pillows will reduce the number and size of structural elements required and allow for increased sunlight permeability.

Shadow Casting

The impact of shadows cast on the field by both the roof and the seating bowl is an important consideration, as shadows can adversely impact both the performance on the field, as well as the quality of any broadcast. The extent, clarity and complexity of shadows cast by the roof are all factors to be considered.

To mitigate the impact of shadows, a key design principle is to minimise the quantum and depth of structural members. A lighter structural system will yield the most desirable outcome, and this is best achieved with a structural form with inherent stability, such as a dome.

Increasing light diffraction as it passes through the roof will also lessen the impact of shadows. Diffraction occurs when a light wave passes through a barrier and bends or spreads out, resulting in softer shadows. The ETFE pillows on the roof will provide excellent light transmission, but due to the curved form of the pillows there will also be significant light diffraction (light waves bending as they pass through the surface).

Additionally, alignment of the primary structural beams in a north-south direction will provide optimal orientation with respect to the passage of the sun, and will minimise sunlight obstruction and adverse shadows.

Local Construction Capability

A design that aligns with our vision to be *Unmistakably Tasmanian* should be able to be delivered by local industry. The design and engineering of the roof has therefore taken into account the capability of Tasmanian-based fabricators and local supply of resources. This in turn informs material selection.

Incorporation of Timber Elements

In response to the aspirations of the Brief - and the cultural and industrial associations of Tasmania with timber – there is a strong preference for a roof form that can incorporate timber in a way that is integral to the structural system. This aspiration needs to be balanced with a structural design that can still be lightweight and highly efficient.

Expansion Strategy

Futureproofing the Stadium to allow for adaptability is another important consideration. The ability of the roof design to efficiently accommodate the possible future expansion of the seating bowl has been taken into account as part of the options evaluation.

BALL TRAJECTORY STUDY

Cricket Ball Trajectory Study

The cricket ball trajectory is a key consideration in establishing the clear height required under the roof. The Brief stipulates minimum clear heights to support football, and exceed existing benchmarks for cricket in covered venues. This would suggest a relatively flat profile to the roof which would require deeper structural members to support the span.

To refine the design development, we have reviewed data available from Hawk-Eye camera systems that visually track and map the trajectory of a ball. This reveals typical patterns of play in a cricket match, and indicates the likelihood of a ball coming into contact with adjacent structures.

The section below illustrates the cricket ball trajectory informed by Hawk-Eye data, and how it is accommodated under the proposed roof form.

In addition to responding to ball movements, the underside of the roof needs to make allowance for structural elements as well as suspended lighting, speakers, and fans to support the patron experience within the Stadium.

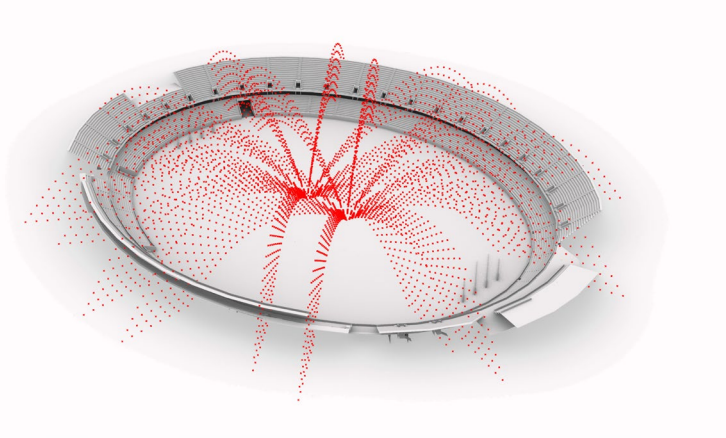


Figure 1: Hawk-Eye modelling of cricket ball trajectory

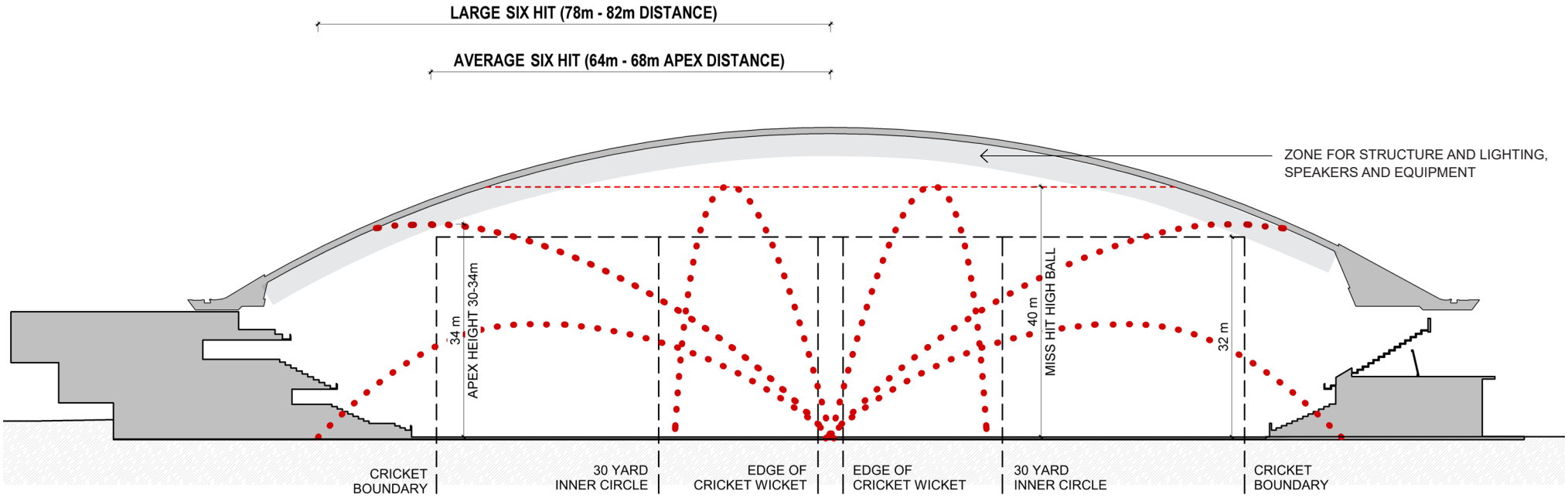


Figure 2: Section study of cricket ball trajectory

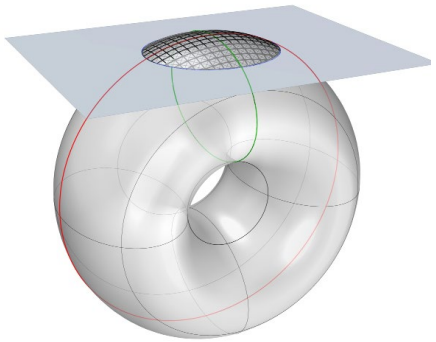
THE GRID-SHELL ROOF

A Grid-Shell

Curved structures can span large distances with minimal material use. Of the suite of geometric, three-dimensional forms, the dome demonstrates greatest structural stability.

For the new Stadium, the roof surface is described as part of a torus; a slice from the top of a doughnut lying on its side. To create a lightweight and transparent structure, this toroidal surface is achieved by arrays of longitudinal and transverse arches, yielding a regular grid. The chosen grid size represents the 'sweet spot' between the number of nodes required and economy of individual spans. The primary grid, made from welded box sections, is further subdivided using glued-laminated beams made from locally grown and sourced timber. Transparent, rectangular ETFE cushions are mounted to the roof structure to seal the envelope.

Loads acting on the structure are transferred bidirectionally to the perimeter via arches. The cable bracing of the arches ensures that the grid behaves like a shell structure. To avoid the need for extensive foundations, the horizontal forces of the arc are not directly introduced to the ground. Instead, it is short-circuited by the perimeter beam, which acts as a tension ring. Under self-weight, all horizontal forces are in equilibrium and only vertical forces are transferred to the columns and into the compact foundations.



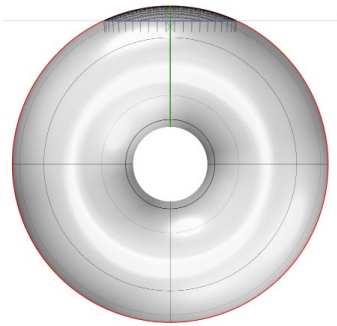


Figure 3: (Left) The elliptical footprint dome geometry results from slicing a torus with a plane

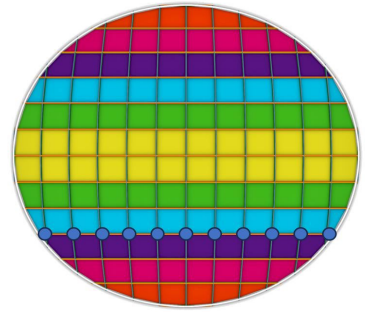


Figure 4: (Right) Plan view of the grid. Each row of the has identical, planar quadrangles and identical nodes

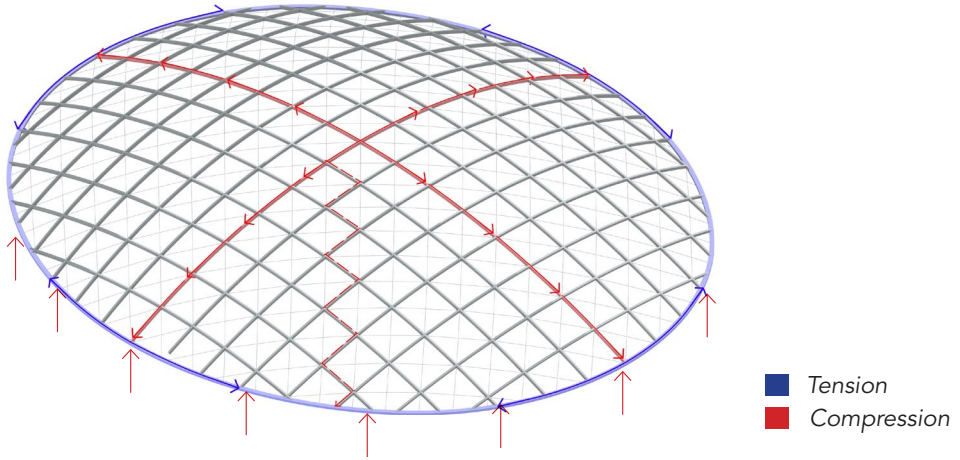


Figure 5: Structural diagram: Under self weight, horizontal forces are in equilibrium, only vertical loads are transferred to the columns (many load paths exist)

ROOF OUTLINE BRIEF

Clear Height Requirements

The dome geometry reduces the height of the Stadium where it interfaces with the urban context while providing the required clear-height over the playing field. With the height maximised toward the centre of the field, the likelihood of conflicts between ball and roof are greatly reduced.

Sports Lighting (Roof mounted vs Towers)

The sports lighting is integrated in the dome surface, avoiding the need for additional tall and light-polluting towers. The LED lighting is designed to the requirements of international standard sporting events and minimises glare and shadows.

Performance Requirements for Field of play

The membrane cladding of the roof is highly transparent to promote grass growth on the pitch through natural lighting. The transparent surface of the roof is oriented toward true north (rather than on axis with the centre line of the Stadium) to ensure daylight reaches the grass even when the sun is low.

Shadows

The lightness of the structure above the playing field minimizes shadows cast on the ground. The regularity of the roof structure translates into uniform lighting conditions at ground level.

The ETFE pillows increase the light diffraction as it passes through the roof and support softer shadows on the playing surface. At the perimeter, the roof is opaque above the stands to provide shade and keep spectators cool.

Roof Composition

The roof skin is composed of ETFE (Ethylene tetrafluoroethylene) pillows mounted to a dome-shaped hybrid steel and timber structure.

ETFE Roof Cladding

ETFE is a high-strength polymer with high light transmission.

ETFE pillows have been adopted, in preference to single skin ETFE. The pillow form has its own structural stability and therefore reduces reliance on additional structural framing. ETFE pillows also increase light diffraction which has a softening impact on shadow casting.

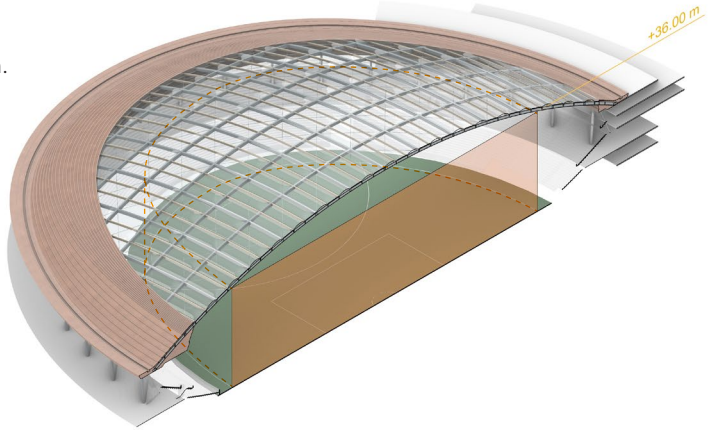


Figure 6: High-ball clear height envelope and roof shape

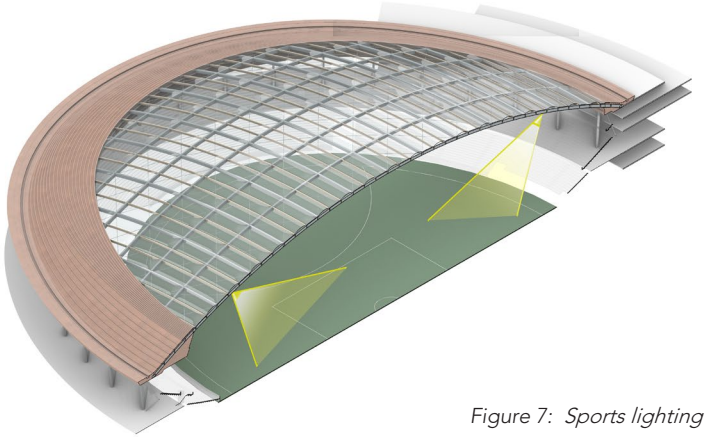


Figure 7: Sports lighting integrated in roof plane

SAFETY, CONSTRUCTION, ACCESS AND LIGHTING

A Safe Structure

Given the significant economic, social, and environmental impacts that would arise in the event of a structural failure, the design complies with the criteria established in AS 1170.0 for major structures with Importance Level 3. The shell structure ensures even load distribution across the entire roof and enhances its overall strength. The interconnected nature of the gridshell provides redundancy, allowing multiple load paths to compensate individual element failure. The structure is robust and capable of sustaining localized damage from accidental events without undergoing disproportionate or progressive collapse.

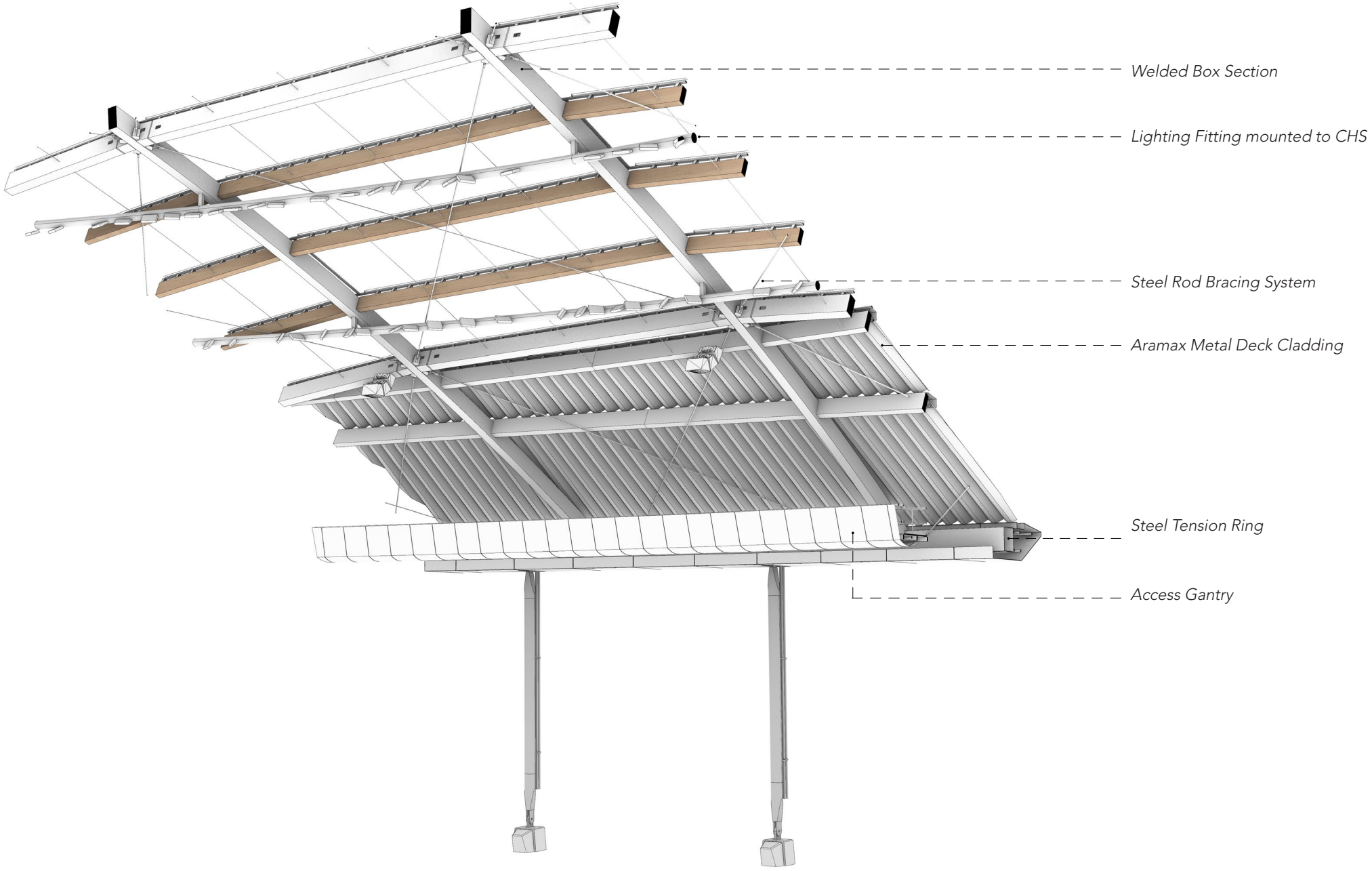
Serial Production and Rapid Construction

The roof is designed as a kit of parts with numerous identical elements and details. The components are prefabricated off-site, where controlled environments and serial production ensure greater quality control. The large degree of prefabrication and 'just-in-time' delivery to site of components allows for timely and safe delivery of the roof while minimising noise pollution and disruption to the local traffic. The involvement of regional contractors keeps transportation distances short.

Roof Access and Lighting

Roof maintenance and a roof walk will be provided by discrete access hatches and ladders to safely traverse the surface as required. A discrete static line system will be used to get access to 100% of the roof. Sports lighting to accommodate a range of sporting and event activities within the venue will be provided to suit international standards. The sports lights will be deliberately and specifically focussed on the pitch to limit the light spill to neighbouring residents. LED lights will be used which will incorporate feature lighting for branding opportunities and house lighting.

THE ROOF IN DETAIL



SOLAR ACCESS AND REFLECTIVITY

Solar Access and Shadows

The roof design for the Stadium has considered the impact of shadows cast onto the field. The intent is to minimise the extent of shadows altogether and thereby maximise solar access to the natural grass field. An additional benefit will be improving the quality of broadcast footage with balanced lighting across the playing surface.

The engineering for the roof has been able to adopt a comparatively light structural framing system because of the inherent stability of the dome form. If a flat profile roof was to be proposed, the quantum and/or depth of structural framing members would typically increase and impose shadows on the field that are more defined. The alignment of the primary structural beams in a north-south direction will provide optimal orientation with respect to the passage of the sun, and will minimise sunlight obstruction and adverse shadows.

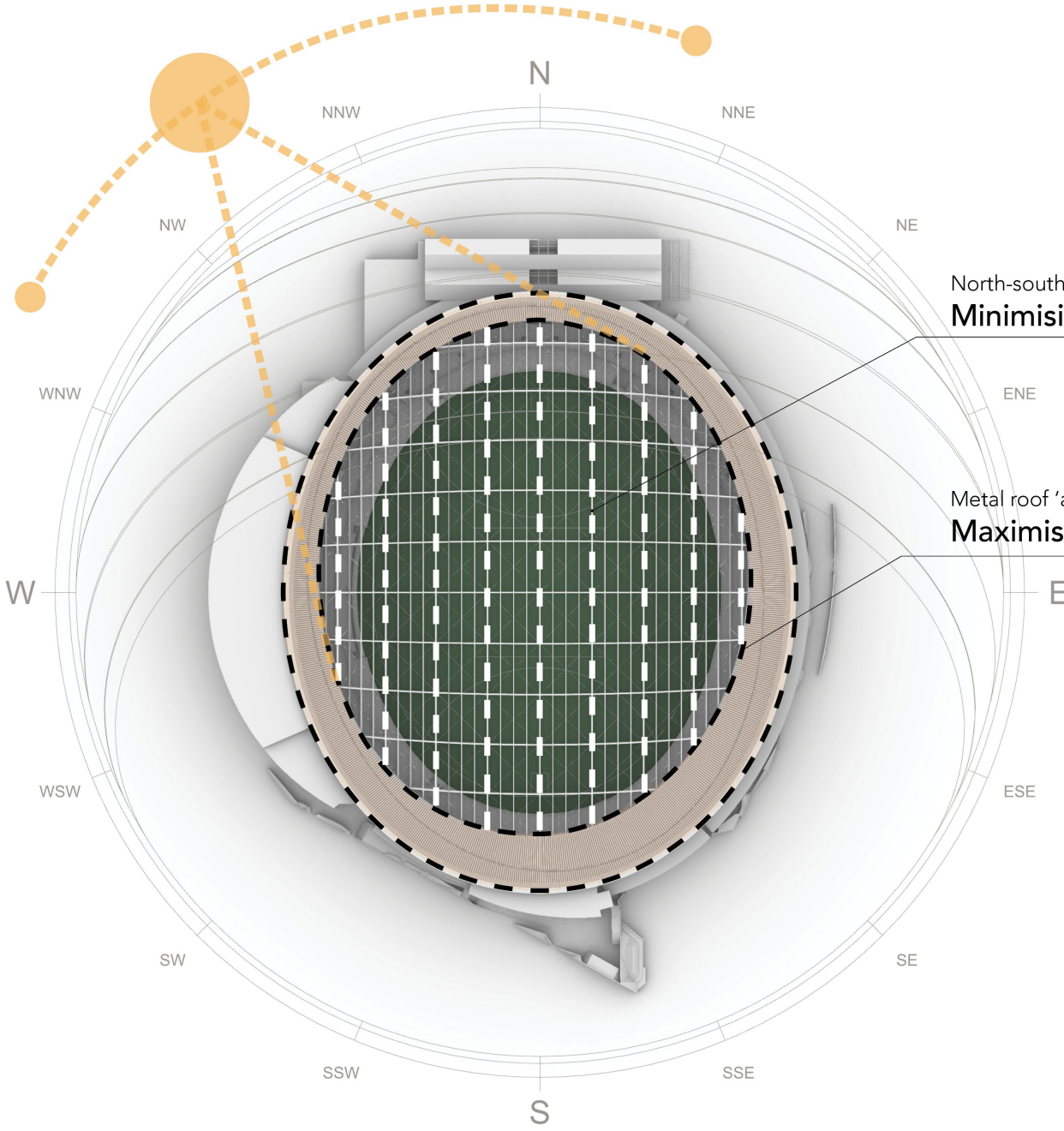
The high translucency of the ETFE pillows that clad the roof will provide excellent light transmission. The curved form of the pillows will also increase the light diffraction, meaning light waves will bend as they pass through the surface which has a diminishing effect on shadows. The shaping of the metal 'annulus' to the roof perimeter has responded to solar orientation with reduced extent of metal cladding facing north.

The collective impact of the lightweight structural grid, the ETFE pillows causing light diffraction, and the consistent composition of the roof system over the field will result in shadow casting that is unlikely to have a significant impact on the playing field or broadcasting.

Light Reflectivity

The primary materials of the roof and facade have been selected to limit solar reflections off the building where they could represent a risk to passing traffic, or a nuisance to adjacent users. Whilst both metal cladding and ETFE on the roof will present some light reflectivity, the height, orientation, and location of the roof in relation to other buildings and traffic means any reflection will not be significant. Where metal is featured on the roof or facade, a low gloss finish will be applied.

Highly reflective elements such as glass have been limited in their application and are not located where they could impose problematic reflections on adjacent uses.



North-south oriented primary structure

Minimising shadows on field

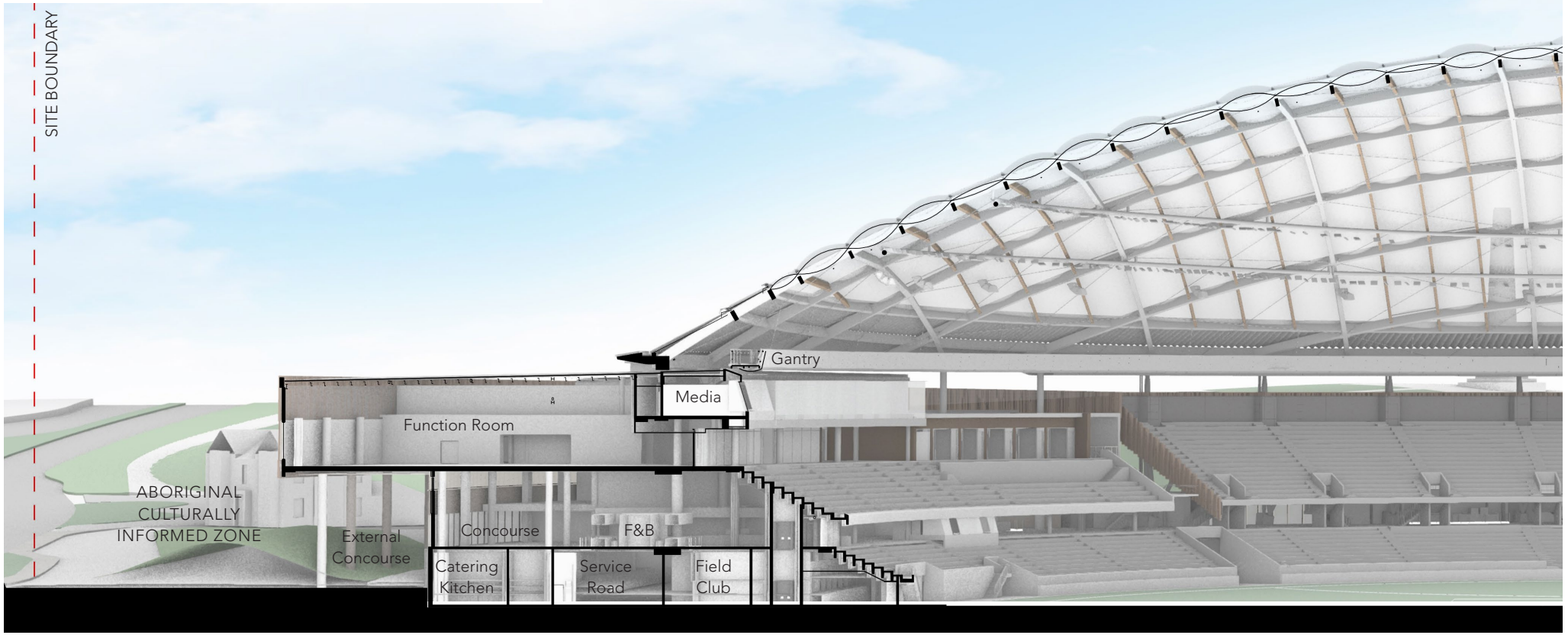
Metal roof ‘annulus’ adjusted toward the north

Maximising sunlight on field

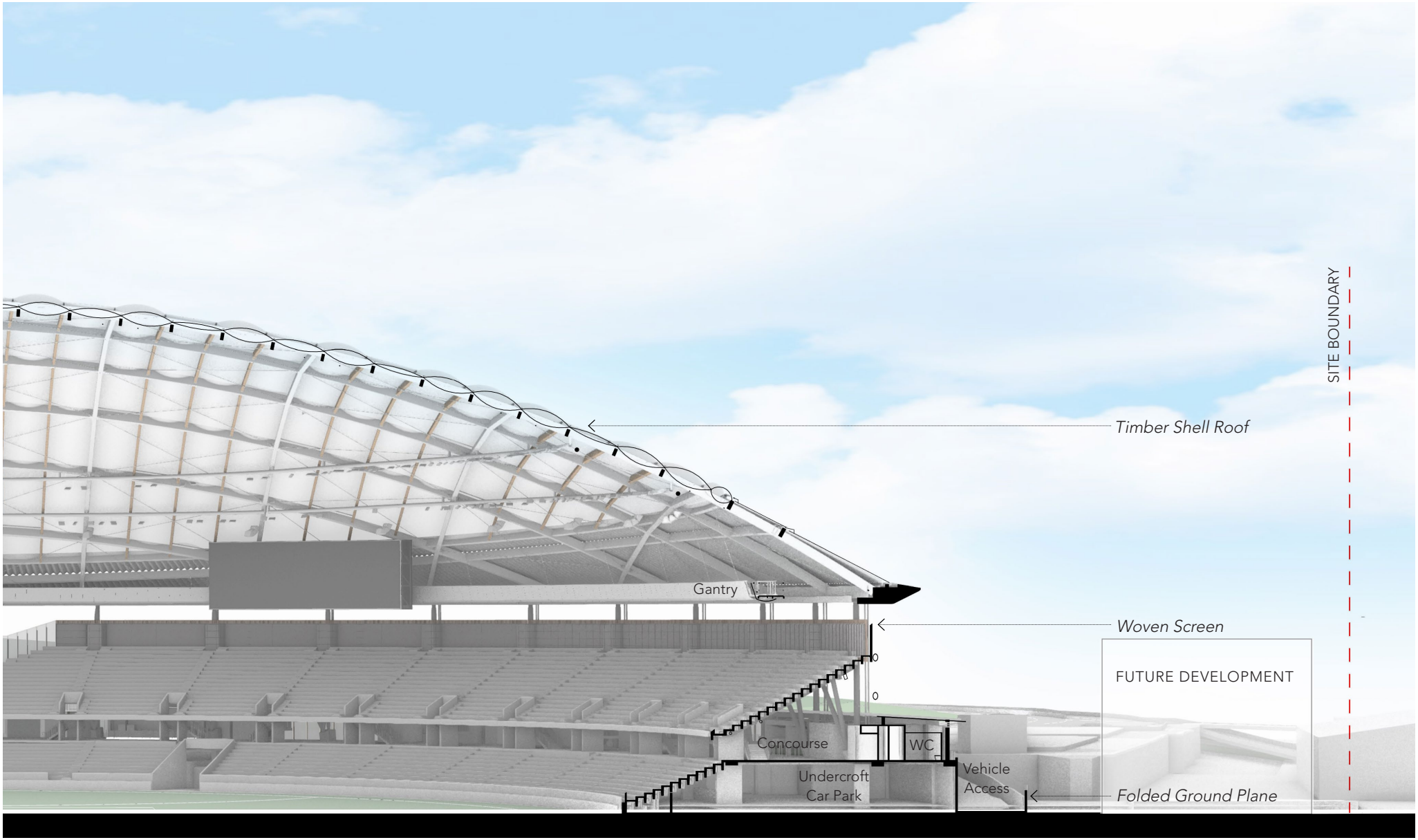
View toward the Stadium looking east from the corner of Davey Street and Evans Street

BUILDING SECTIONS

The following sectional studies show the configuration of the Stadium stands on the West, East, Northern, and Southern sides. A continuous internal concourse provides 360 degree connectivity to the seating bowl.

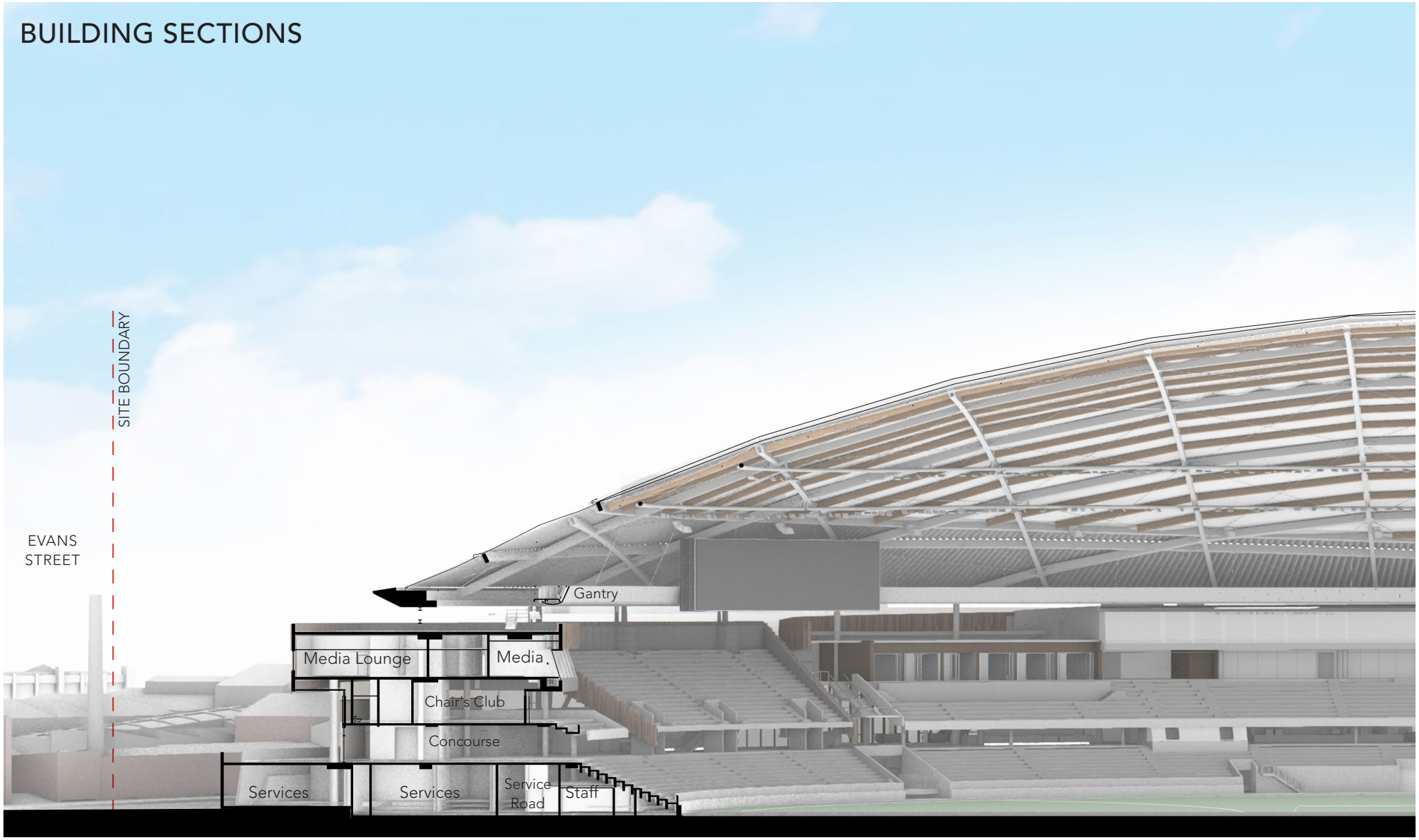


Section through Western Stand

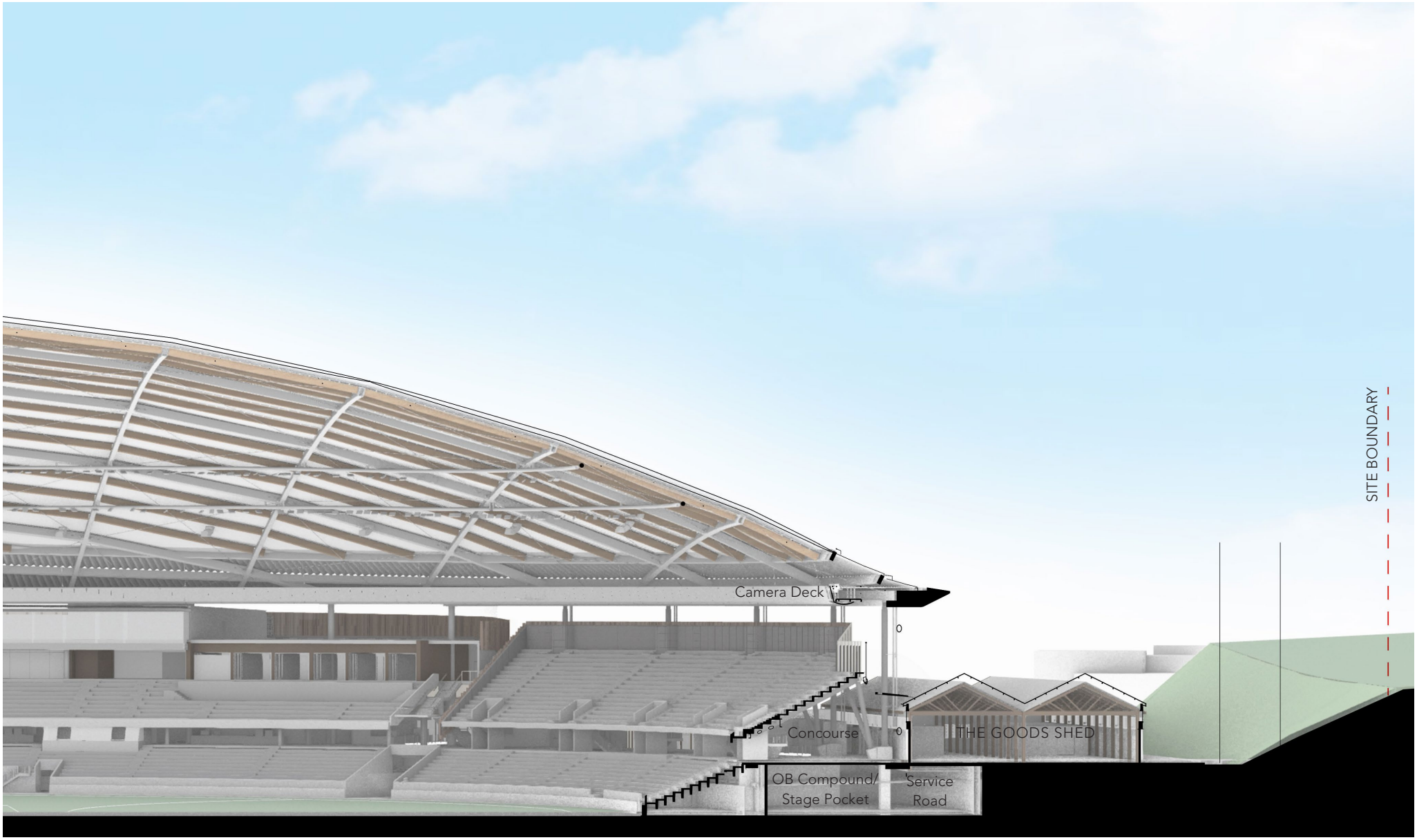


Section through Eastern Stand

BUILDING SECTIONS



Section through Southern Stand and Evans Street



Section through Northern Stand and the Goods Shed

EXTERNAL FINISHES

Approach to Materials

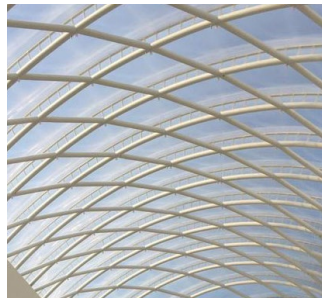
In keeping with our commitment to a raw and honest design expression, the material palette is composed of finishes that have a natural quality, are low maintenance and timeless. The intent is to express textures that are raw and natural and in-keeping with a site adjacent to a working port.

At the base of the building, a circumferential 'concrete apron' folds up the Stadium and grounds it in place. This draws on the built traditions of Sullivans Cove where buildings are expressed as legible forms on the Cove Floor and can be experienced from every aspect. The use of concrete will convey a sense of permanence and solidity.

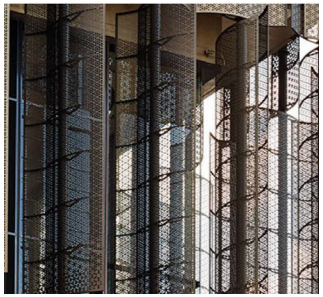
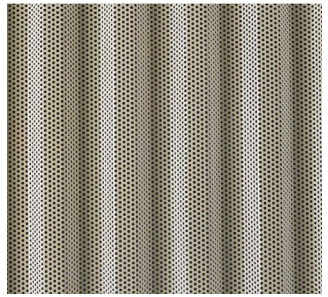
Between the floating roof and the ground plane, the mid-section of the building accommodates a series of hospitality spaces that support the Stadium, including food and beverage offerings and the Function Room at Level 2.

The expression of the mid-section is as a quiet interlayer nestled beneath the roof. The language of a 'woven screen' has inspired the treatment of the facade, composed of metal battens.

The roof, on the other hand, is the hardest-working and defining element of the Stadium. Its impressive structural design will be put 'on-show' and is intended to be read both externally and internally. A hybrid steel and timber frame will support a cladding of translucent ETFE pillows, and the structure as a whole will express a sense of lightness and weightlessness.

RT01 *ETFE roof skin with hybrid steel and timber structure*

RT01 *Battened screen examples (Anodised Aluminium)*


FT06 *Concrete walls with varying panel types*

The Woven Screen

The screening element to the mid-section of the Stadium draws inspiration from the Tasmanian Aboriginal cultural practice of weaving. A continuing practice, and a symbol of people coming together. The intention for the screen is to represent a woven element; a veil composed of many threads.

Allowing the roof to be the hero, the screen is an integrated facade element that will weave in and out from under the roof. It will wrap the perimeter of the Stadium and unify the various aspects of the program.

Whilst the roof is a formal element, the screen will be a feature of the facade that adds texture, playfulness, and visual appeal in the overall composition. It is also highly functional, providing solar protection to large, glazed areas behind and will introduce framing elements to direct outward views.

THE GOODS SHED RELOCATION

The historic Goods Shed will be an enduring reminder of the site's industrial past and the historic rail yards. Originally located at the terminus of a former rail line, the Shed's design allowed trains to pull up and unload onto concrete platforms situated either side of the track.

As part of the Stadium development, it is proposed that the Goods Shed will be carefully relocated to the northern side of the site. In this location, the Shed will be aligned to another former rail line in a similar location to where the Train Maintenance shed once stood, as part of the Hobart Rail Yards. In this location the Shed will retain its original relationship to rail tracks, and will continue to be a part of the site's story. While no longer present on the site, the intention is to interpret the former rail tracks through inlays and details in the paving on the northern plaza.

The Shed structure will be celebrated as part of the northern entry to the Stadium. It will be distinct and clearly identifiable adjacent to the Stadium, and accessible as a unique event space. It will provide new hospitality uses to support Stadium patrons on Event Day, and will also be available for functions throughout the week. By integrating the Stadium and the Goods Shed, new purpose will be ascribed to the historic Shed and promote greater engagement from users who may not otherwise visit the building. The alternative - complete separation of the Shed - could compound its redundancy on the site.

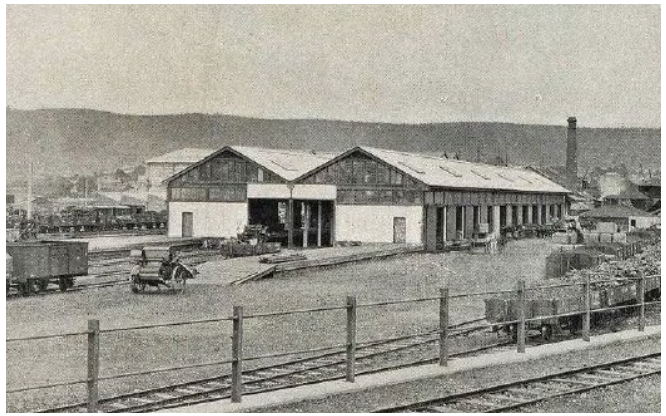


Figure 8: 1915: 'Improvements At Hobart Railway Station. New Goods Shed.' Weekly Courier, 23 December 1915, p.23

View toward the relocated Goods Shed from the northern access road

Hobart Yards in the 1960s
Uncredited, source Stations of Tasmania

THE GOODS SHED - AS IT WAS

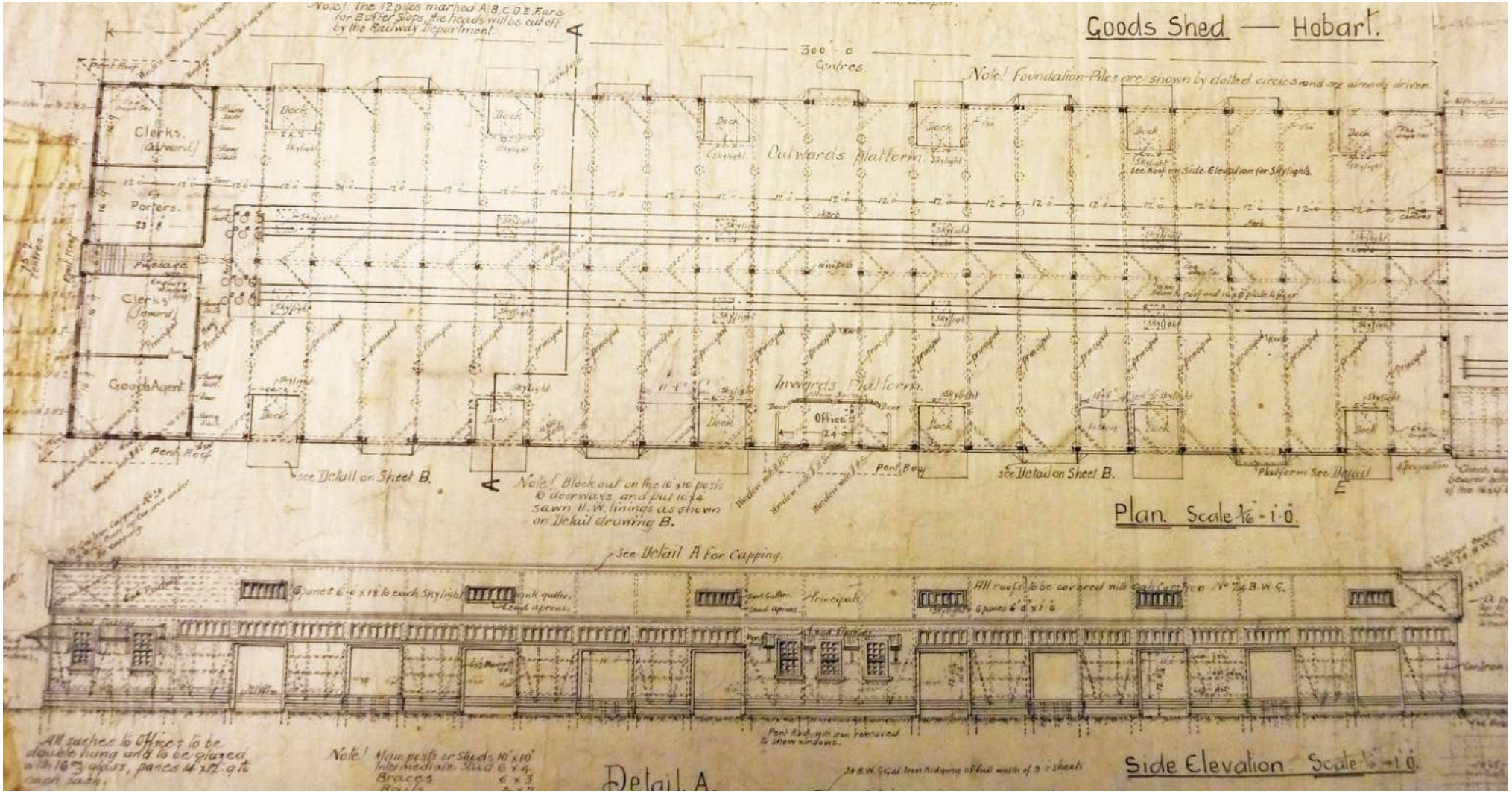


Figure 9: Plan and Elevation of the original Goods Shed - Historic 1914 Plan (CMP) showing locations of openings in the original facade

THE GOODS SHED RELOCATION

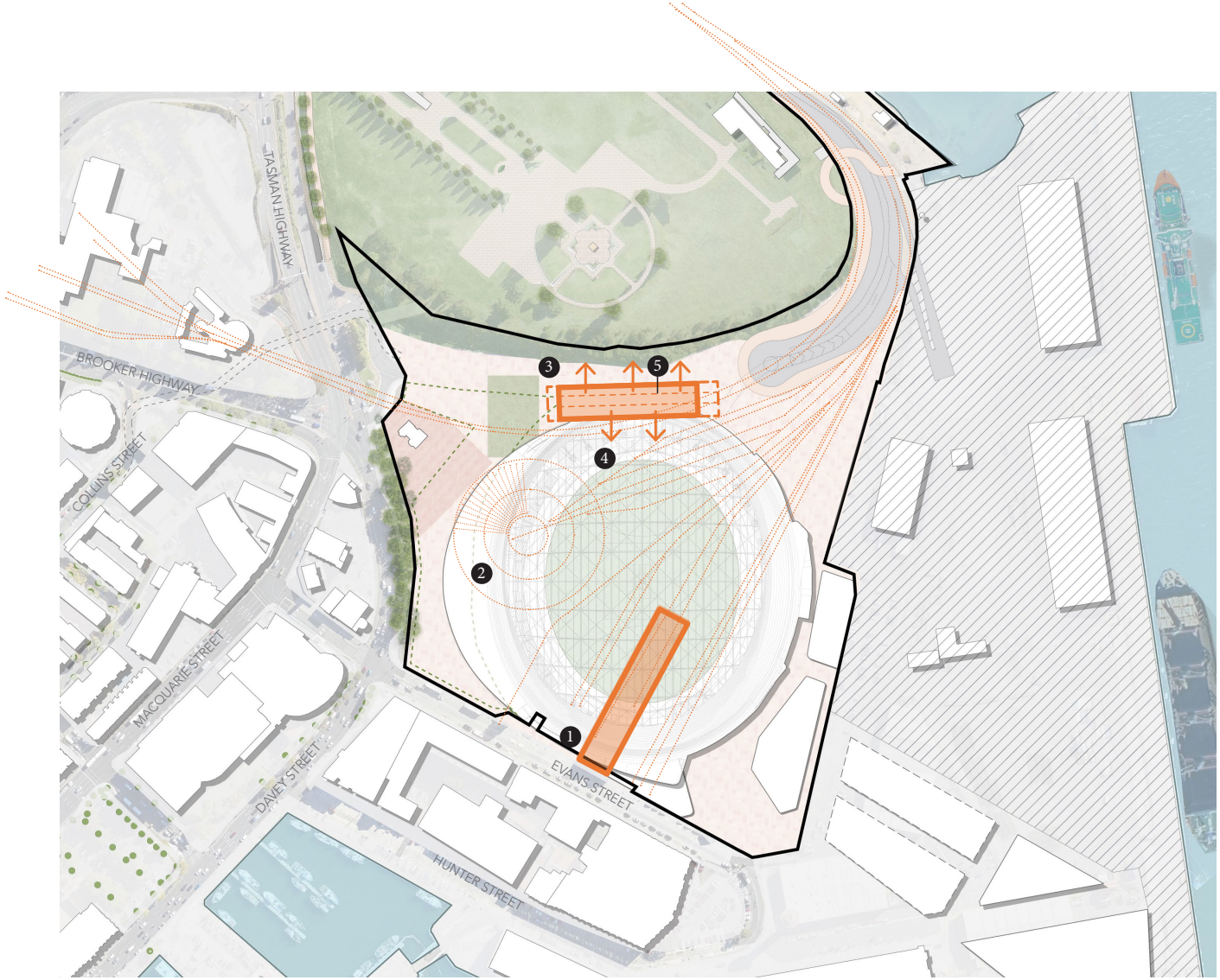


Figure 10: The Goods Shed Relocation

0 25 50 100m

1. Existing Goods Shed site
- Historic railway tracks (no longer present)
2. Outline of original roundhouse location (no longer present)
3. Proposed Goods Shed located on the existing maintenance shed site
4. Reintroduction of original service openings to north and south facades of Goods Shed
5. Location of rail pit in Goods Shed and interpretation of historic tracks

Principals of the Goods Shed Relocation

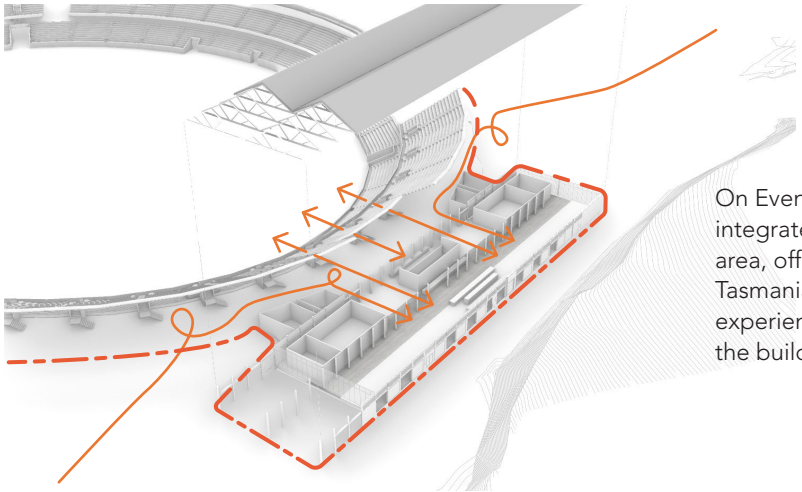
- preservation and connection to place and original use
- stand alone and legible
- retains relationship to former rail track
- use allows for original facade openings to be reinstated
- evolution of purpose
- continuity of use

THE GOODS SHED IN OPERATION

Throughout the week, the venue will continue to provide a space for local events, markets, and live performances that will attract residents and tourists alike. The seamless integration of the old and new not only breathes new life into the Goods Shed but also strengthens the cultural and social fabric of Hobart, offering a unique and engaging space that celebrates both its heritage and its future.

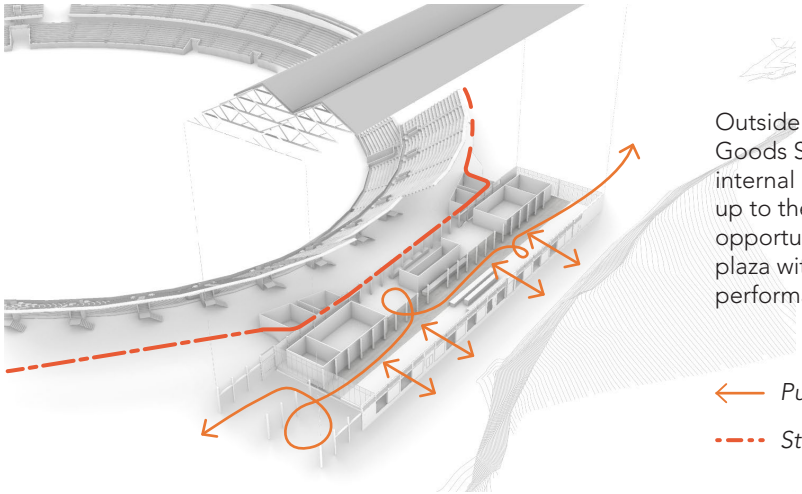
The form of the Goods Shed will be legible and appear detached from the Stadium, whilst providing a concealed threshold to allow connection between the two buildings. Its strategic location makes it an ideal venue for pre and post-game gatherings, and the reestablishment of the original loading bay openings along the northern side of the Shed will create a vibrant, sunny destination for the community.

The design respects the architectural integrity of the original structure, preserving its distinctive features while integrating contemporary elements that cater to the dynamic needs of a bustling social hub. The interior design of the Shed will blend the original, industrial fabric with contemporary insertions to provide thoroughly modern amenities whilst retaining the charm of the original architecture.



On Event Days, the Goods Shed integrates with the Stadium's secure area, offering ticket holders a unique Tasmanian food and beverage experience within the heritage fabric of the building.

Figure 11: The Goods Shed access on Event Day



Outside of Stadium events, the Goods Shed is closed off from the internal concourse and opened up to the exterior. This provides opportunity to activate the northern plaza with community events and live performance.

Public access

Stadium secure line

Figure 12: The Goods Shed access on non-Event Day

THE GOODS SHED INSIDE

Views out from the Goods Shed

Transparent insertions to the roof of the relocated Goods Shed will frame new views from the event space within. Toward the north, a new visual link to the escarpment and Cenotaph beyond will be established, as shown on the page opposite. This could provide opportunities for events supporting the Cenotaph and related commemorations and services.

The interior of the relocated Goods Shed with hospitality fitout and view of the Cenotaph beyond

02 | LANDSCAPE AND URBAN FORM

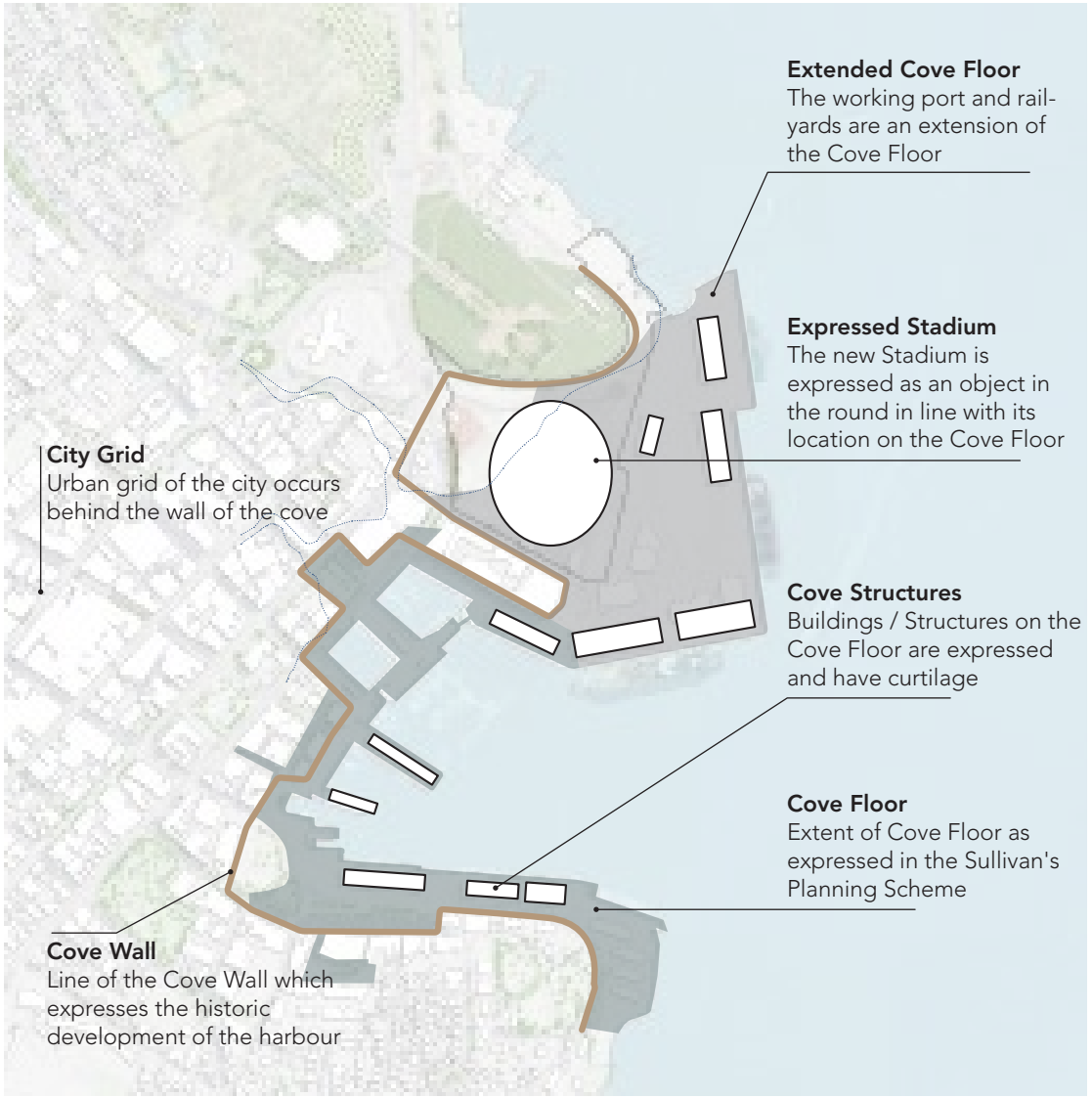
This chapter addresses the design approach for the Stadium in the context of Macquarie Point and the wider Sullivans Cove precinct.

EXPRESSION OF FORM

Sullivans Cove is known for its distinctive character. The area is notable for its historic waterfront, encompassing an active port, heritage buildings, parks, Parliament House, university and research facilities. It serves as the city's vibrant cultural, artistic, and festive center.

The Sullivan's Cove Planning Scheme (SCPS) sets up a relationship between what is called the 'Cove Wall' and the 'Cove Floor' or concrete Apron. The Cove Floor condition features a "hard, flat fill surface floor" and encourages 'regular spacing of elements'. In secondary Cove Floor spaces, a 'modest, irregular utilitarian character' is promoted.

Conceptually, the Stadium sits as a utilitarian form on the 'concrete apron' of the Cove Floor. Unashamedly contemporary in its architecture, the Stadium is expressed in a similar way to other structures in the cove with its form legible from every side. In this way, it contrasts with the prevailing urban pattern of Hobart behind the Cove Wall.



SITE CONSIDERATIONS

The waterfront location of the site represents a great asset to any future development at Macquarie Point. Together with the 19th century wharf buildings along Evans Street, the site presents high character attributes against the backdrop of the Wellington Range.

Whilst these features will enhance the landmark potential of the future Macquarie Point Multipurpose Stadium, they also represent sensitive interfaces and will need to be treated with careful consideration.

Macquarie Point is a 9.3-hectare site composed of largely reclaimed land and nestled between Hobart's CBD and the Port of Hobart. It connects the CBD to the green heart of the city on the Queen's Domain, the Hobart Cenotaph and to the intercity cycleway and Tasman Bridge.

Site Interfaces

The COX+Cumulus team identified several critical features at the interface of the development site. These have been thoughtfully considered through the Concept Design phase for the new Stadium, and include:

- Tas Ports restricted waterfront areas: Inaccessible waterfront areas along Macquarie Wharf and the Domain Slipway.
- Publicly accessible waterfront areas: Locations at Sullivans Cove and Regatta Point providing direct pedestrian access to the waterfront.
- Evans and Hunter Street: Heritage listed road surfaces and buildings. Vehicle access to Macquarie Wharf is currently permitted along Evans and Hunter Streets, with the opportunity to increase pedestrian activity along these roads.
- Davey Street and the Tasman Highway: key arterial roads running adjacent to the site. These facilitate high-volume vehicle access.
- The Cenotaph: Heritage listed and significant sites situated above the precinct that hold significant cultural value and require preservation of the character of these places.
- Queens Domain: The Queens Domain is the city's green heart and connection to important recreational spaces, including tennis, cricket, swimming, athletics, and soccer facilities.
- Significant views: Managing building massing and orientation to ensure the preservation of key views across the Cove Floor at Macquarie Point.

On Site Assets

Present on the site are several existing buildings and structures with heritage value. The Royal Engineers Building facing Davey Street was constructed in 1847 and is a fine example of sandstone construction in the Victorian Tudor style. The building is an attractive asset on the site and should be given prominence in any future development.

Also present is the Goods Shed from the former Hobart Railyards. The Goods Shed has been listed on the Tasmanian Heritage Register in recognition of its contribution to the development of rail transport in Tasmania post World War 1, and it's association with place, which will continue.

A further consideration is the future Aboriginal Culturally Informed Zone on the western side of the site. Whilst this Zone is still pre-design, the new Stadium must anticipate the creation of this space.

In-Ground Conditions

The Consultant Team has undertaken several geotechnical investigations on the site and have a comprehensive understanding of its complexities. Earthworks on the site will need to address the following challenges:

- Construction of a foundation system on reclaimed land with a sloping underlying rock
- Consideration of tidal impacts and rising sea levels
- Residual environmental conditions
- Finding the optimum balance to set levels between the existing height constraints and avoiding costly excavation.

Synthesising this suite of issues is required to support the best civil and geotechnical outcomes to ensure the cost-effective design of foundations and bulk earthworks.

INTERFACE CONSIDERATIONS

Infrastructure
Northern Access Road

Queens Domain and the Cenotaph
Views to and from

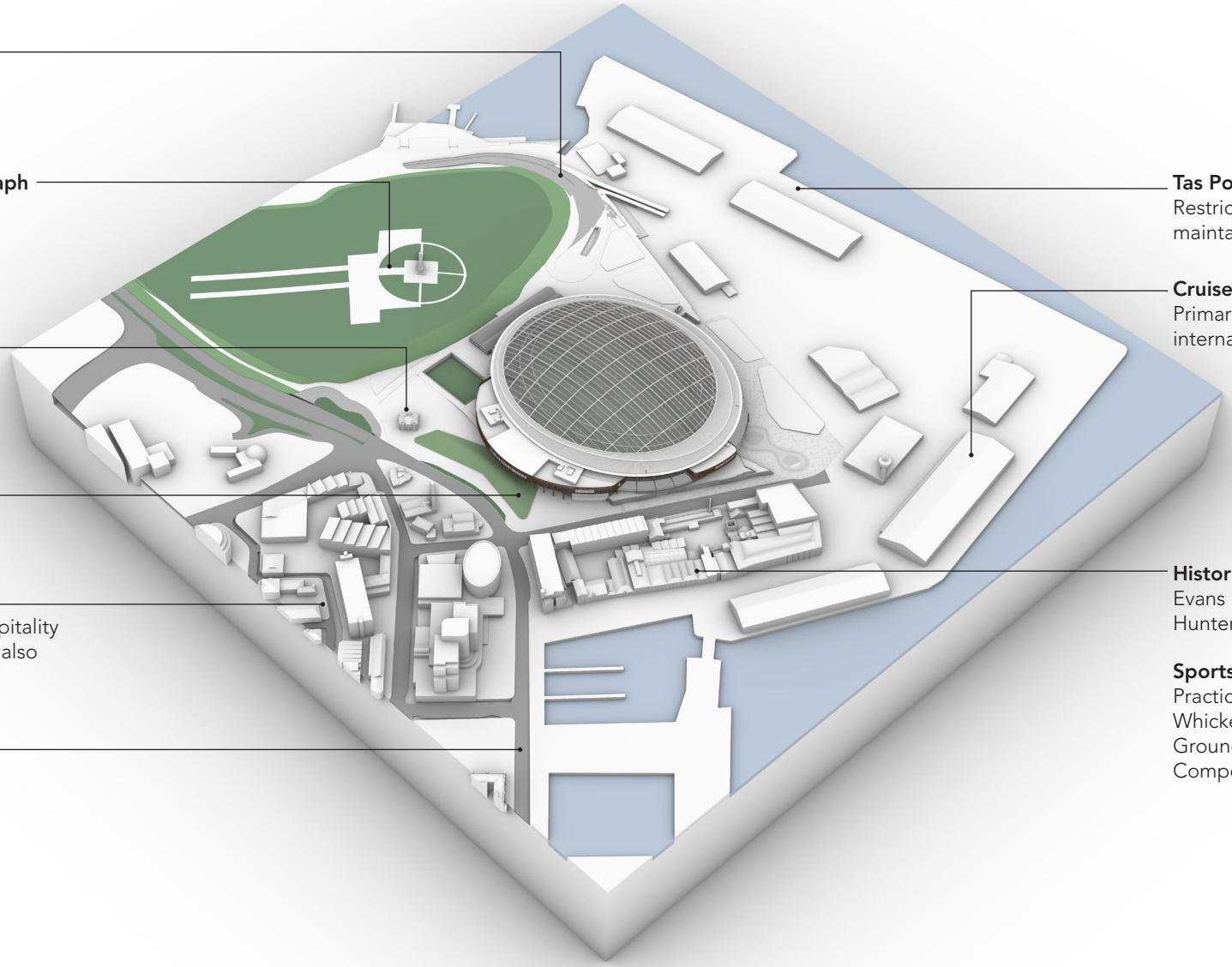
Heritage Interfaces
Goods Shed
Royal Engineers Building

Aboriginal Culturally Informed Zone

The Wapping District
Part of Hobart's cultural, arts, hospitality and accommodation district, and also included some residential

Major Arterial Road
Davey Street
Tasman Highway

Transport Infrastructure
Bus Interchange
Taxi Drop-off
Car Parking



Tas Ports
Restricted waterfront areas maintaining port access

Cruise Terminal
Primary arrival point for international cruise ships

Historic Waterfront Buildings
Evans Street
Hunter Street

Sports Infrastructure
Practice Wickets
Whicket Nursery
Grounds Maintenance
Compound

SITE PLAN

The Stadium positively contributes to the Cove Floor's historic lineage of singular buildings, scaled appropriately for their use and positioned to be read in the round.

The high-character attributes of the site has inspired an approach to the Stadium that looks both inwards and outwards. Simultaneously, it will engage with both the place outside, and the play within.

LANDSCAPE DESIGN APPROACH

The following landscape design approach has been informed through collaboration with a landscape architect and palawa community member, Theresa Sainty. It outlines a concept only, and the activation of the Aboriginal Culturally Informed Zone will be informed by engagement with the Tasmanian Aboriginal community.

Situated on a sensitive landscape, the precinct will reveal foundational geological features and highlight the original shoreline and the ecologies that once thrived here.

The site is understood as two distinct halves; one defined by the pre-colonial condition, and the other delineated by the original shoreline. To the west, groves of endemic Casuarina and eucalyptus forest occupy undulating slopes, evoking the natural ground of the past. To the north of the Stadium, the design of the public space adjacent to the escarpment anticipates that it will be activated for community occupation and enjoyment.

In contrast, the public space on the east side incorporates a restrained planting palette and extends the concrete of the Cove Floor. This design references the working wharfs and industrial histories of the site, creating a stark yet harmonious contrast with the western half.

The continuation of palawa cultural knowledge, practice, and ingenuity is a fundamental aspect of the site as a whole. Banded paving radiates from the Stadium in reference to the calcium layers of an oyster shell. Shell aggregates in the paving symbolize the abundance of traditional seafood that once collected along the water's edge. Glass aggregates reference the ingenuity of the muwinina, who applied expert skill in crafting tools out of remnant glass from European settlement.

The industrial legacy of the Cove Floor is revealed through the use of robust materials and large furnishings. The rail lines that once traversed across the site can be traced as paving inlays, serving as a tangible reminder of the site's industrious past.

The Stadium's public realm is a place where history, culture, and nature converge. By intertwining the ancient landscape with cultural narratives and industrial heritage, the design offers an immersive experience where contemporary civic life can flourish.

03 | ACCESS & CIRCULATION

Access to the Multipurpose Stadium is discussed in this chapter, with consideration for patron arrival pathways and vehicle circulation within and around the venue.

MODES OF ACCESS

Drawing from the experience of other stadia projects recently delivered in Sydney, Perth and Adelaide, the ensuing benefit from an inner-city Stadium is a natural outcome from ease of access that supports increased visitation, increased patronage at local businesses, and an uplift in bookings at city hotels. More importantly, the civic pride that stems from the establishment of a landmark public building is invaluable and brings enormous social benefit to the community.

The situation of the new Macquarie Point Multipurpose Stadium in a central activity precinct adjacent to the Hobart CBD is ideal to support multi-modal access to the venue. The majority of patrons attending the Stadium will arrive on foot, from nearby parked cars or from the new Bus Plaza.

This chapter provides an overview of access to, and circulation within, the new Stadium. The following modes are addressed:

- Patrons on Event Day
- Vehicles on Event Day (Broadcast and Medical)
- Vehicles on a Week Day (typical servicing)
- Emergency Access

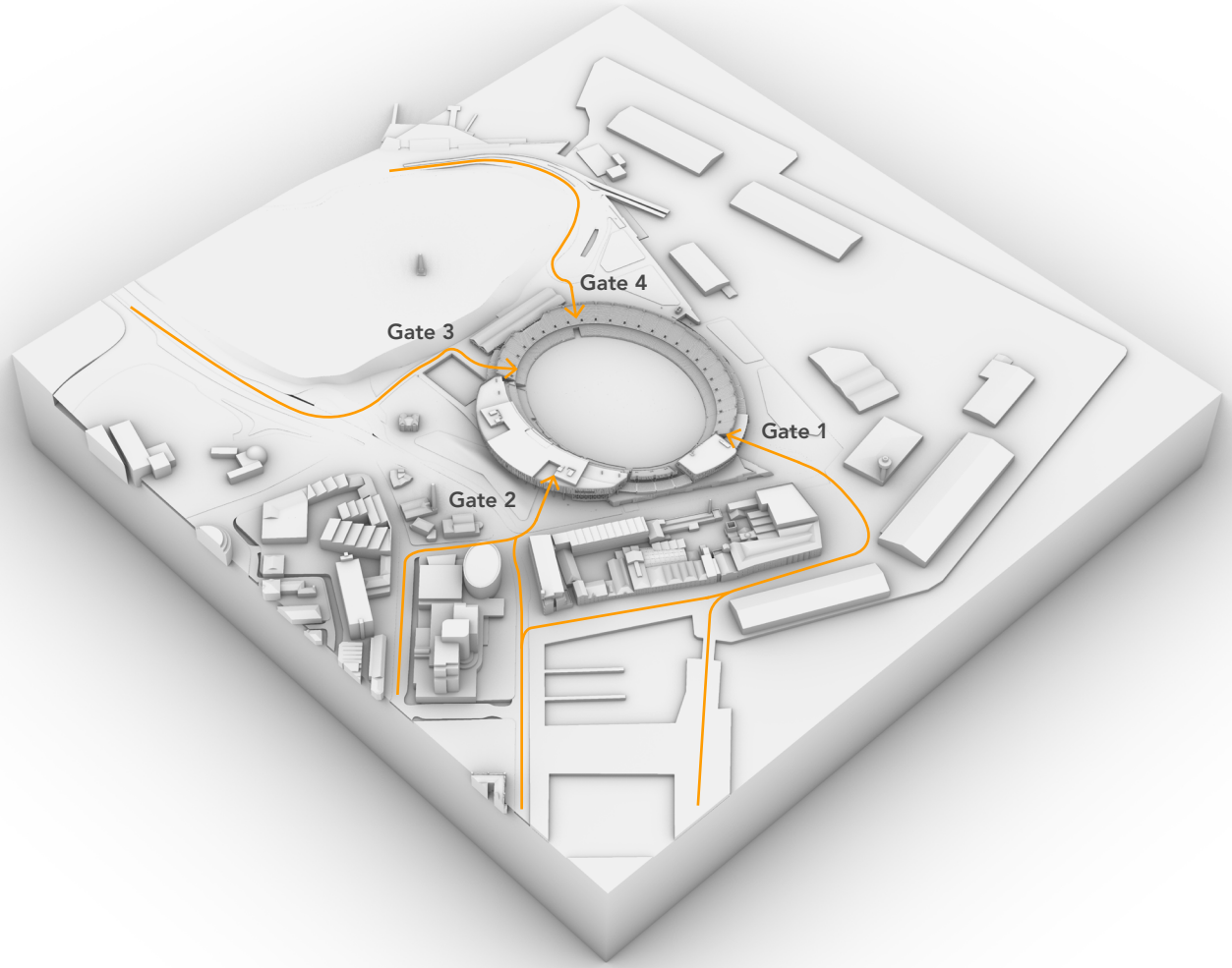
View toward the Stadium showing the new Bus Plaza

OPEN SPACE AND PATRON ARRIVAL

Surrounding the new Macquarie Point Multipurpose Stadium is a public concourse to support the safe movement of people arriving at, and leaving from, the venue. The concourse has a clear purpose in managing circulation, but also provides desirable public open space and a 360-degree pathway from which the Stadium building can be experienced. It allows sunlight to fall on all sides of the Stadium, and promotes outward views from the internal spaces.

The configuration of the new Stadium proposes four (4) public entries, one for each quadrant. The entries have been located to take advantage of pedestrian flow from the expected arrival pathways. The entry forecourts provide an ideal opportunity for landscape treatments that give character to each distinctive space:

- Gate 1 to the South-East: the Port-side Live Site for fan activation on Game Day
- Gate 2 to the South-West: addresses the Davey Street and Evans Steet intersection and faces local landmarks including the Federation Concert Hall and the decorative brick flue of the old Hobart Gas Company.
- Gate 3 to the North-West: facing the Queens Domain Escarpment, Gate 3 will receive patrons arriving on foot from Brooker Avenue, and the future Davey Street pedestrian bridge.
- Gate 4 to the North-East: in close proximity to the Bus Plaza, patrons arriving by public transport will approach Gate 4 on arrival. This entry will also be the first on approach from the inter city bikeway.



SECURE BOUNDARY

On a typical day, the secure boundary to the venue aligns to the Stadium facade. As the building is located in a publicly accessible area, people will be able to walk all around the building unencumbered. If arriving at the Stadium for a mid-week function, conference, or to work, the point of entry will be the doors into the venue at Gate 2.

During a major event at the Stadium, the Brief requires that an allowance of up to 30 metes in front of the entry gates should be made for bag and patron searching. Whilst this boundary will be formed with temporary overlay, it becomes the effective secure line beyond which people cannot pass without first being screened.

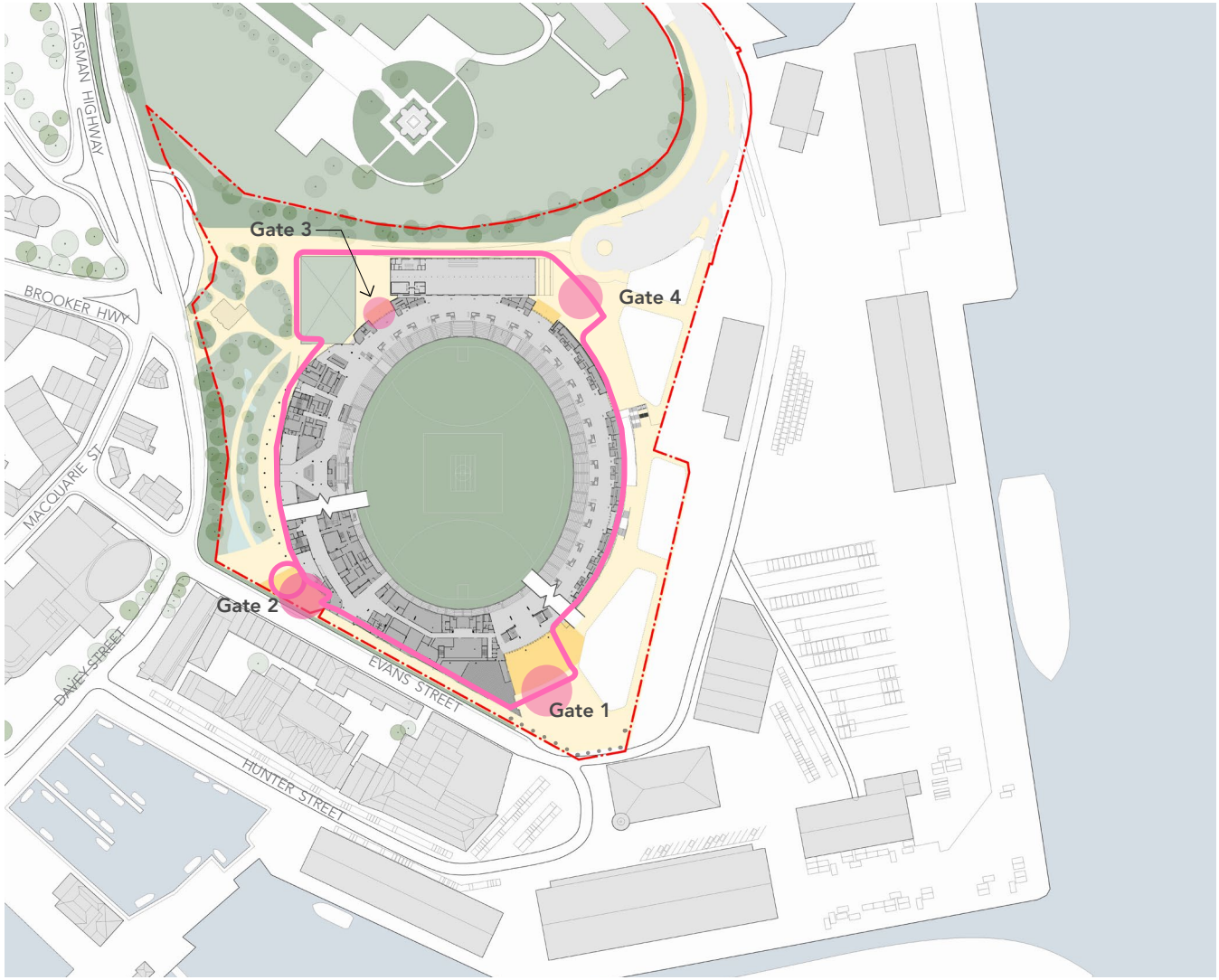


Figure 13: Event Day secure line

PATRONS ON AN EVENT DAY

On an event day, the majority of patrons attending the Stadium will arrive on foot. It's expected that in addition to local traffic, some people will park around Queens Domain and in the Hobart CBD utilising existing car parking, and will walk the remainder of the distance to Macquarie Point.

A Bus Plaza will be developed as part of the Northern Access Road immediately north of the Stadium and adjacent to the Regatta Point escarpment. Dedicated event-day bus services will be able to deliver patrons in close proximity to Gate 4.

The configuration of the new Stadium proposes four (4) public entries, one to each quadrant. The entries have been located to take advantage of pedestrian flow from the expected arrival pathways. The expected arrival pathways are:

- Along the waterfront and approaching from Hunter and Evans Streets
- Along Davey Street from the Hobart CBD
- Along Brooker Avenue from the North-Western suburbs
- From Queens Domain to the north of the site
- From the bus plaza at the North-East of the Macquarie Point site.

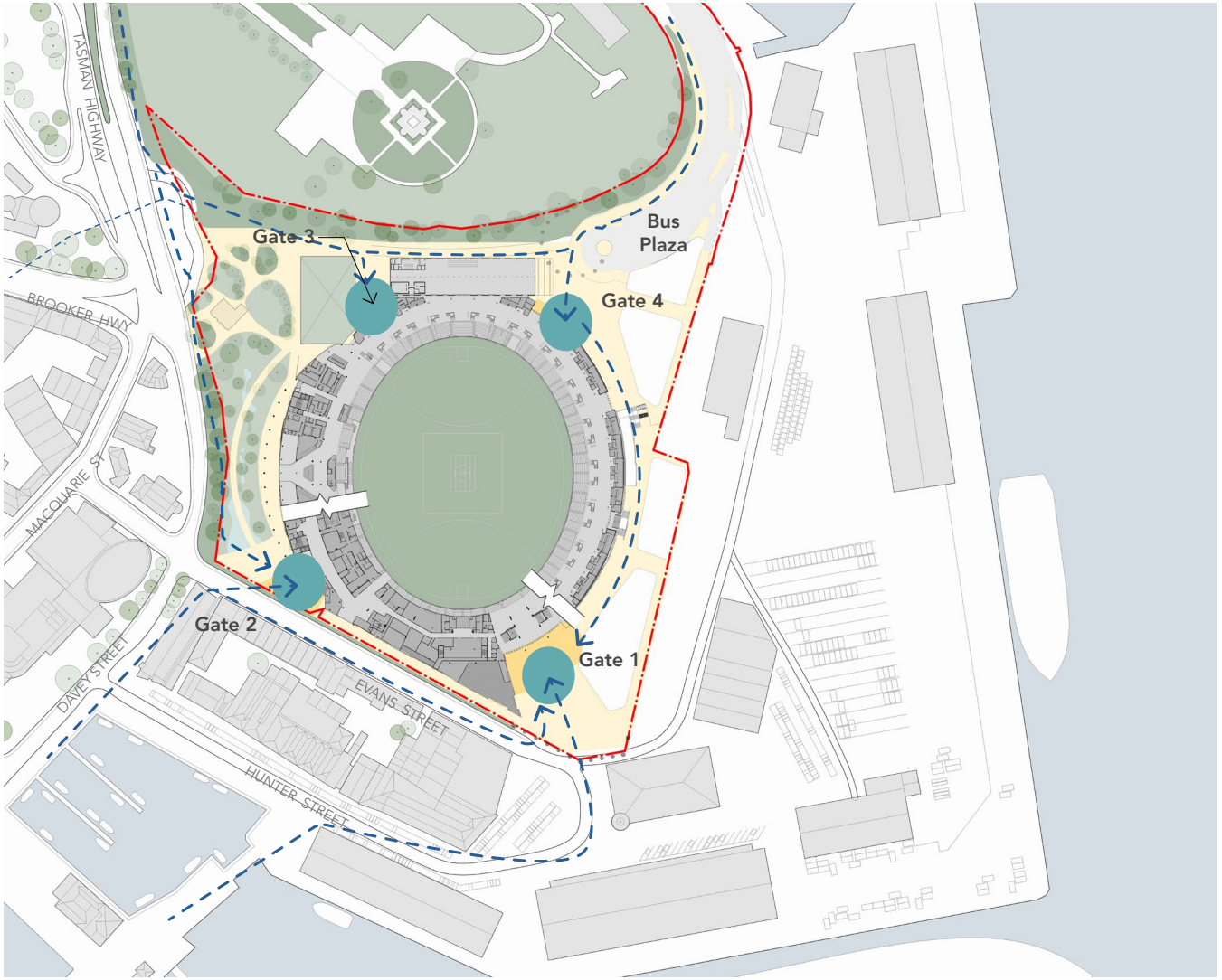


Figure 14: Patron entry points on game day

CROWD MODELLING

Key Inputs and Assumptions

The key inputs and assumptions to undertake the crowd modelling analysis are as follows:

- Capacity: 24,500 (including 1,500 standing)
- Peak Hour Arrival %:
  68% based on other stadium studies
- Peak 15 min Arrival %:
  29% based on other stadium studies
- Peak Hour Departure %:
  100% based on other stadium studies
- Peak 15 min Departure:
  61% based on other stadium studies
- % of stair users is based on the upper tier capacity and the total capacity
- Assuming people use the same access point to and from the stadium
- Trip distribution is based on the WSP Study undertaken as part of this PoSS submission
- The 1 min arrival and departure flows are based on an even spread over the 15 minutes

Table 1:
Demand per Access Points based on WSP Study

Access Points	Percent	Capacity
Gate 1	36	8,820
Gate 2	17	4,165
Gate 3	23	5,635
Gate 4	24	5,880
Total	**100%**	**24,500**

Table 2:
Peak 15 min Arrival and Departure Flow

Access Points	Arrival Flow	Departure Flow
Gate 1	1,739	3,380
Gate 2	821	2,541
Gate 3	1,111	3,437
Gate 4	1,159	3,587
Total	**4,831**	**14,945**

Security and Stair Capacity Requirements

Results of the initial analysis for security and stair capacity at the busiest access point are summarised in the tables below:

Table 3: Security Checks
Mag & Bag Lane Requirement (Based on Capacity B - 32,000)

Access Points	1 min Arrival Flow	Minimum no. Lane Required	Total Width
Gate 1	116 ppl/min	14	30.8 m
Gate 2	55 ppl/min	7	15.4 m
Gate 3	74 ppl/min	9	19.8 m
Gate 4	77 ppl/min	10	22.0 m

The security checks for each gate shall be placed in areas which provide the required width as shown in Table 3.

The security checks shall be placed not too close to the concourse stairs so that pedestrians have enough time and space to decide which stairs to use without causing overcrowding after the security check.

Movement Ways and Evacuation

A place of safety is defined as a place where a person is no longer in danger from effects of fire, such a place may be a road, walkway, or within the boundaries of the sports ground. For a limited period, people will have protection from the effects of fire and smoke or other threats, before continuing their escape to a place of safety, a place of reasonable safety will normally be:

- An exit route that is protected by a construction having a fire resistance.
- A stairway that is in the open air and protected from fire breaking out onto or below it.
- The pitch or area of activity, only in certain circumstances where the threat is localised to a particular area of the Stadium, and only after consultation.

At sports grounds with large or multi-tiered stands with levels that have no direct access to a final exit, it may be necessary for concourse areas to serve as part of the evacuation routes.

For more information on emergency procedures, refer to the accompanying Emergency Management and Incident Response Report.

ARRIVAL FOR PEOPLE WITH SPECIFIC ACCESS NEEDS

The Bus Plaza situated to the North-East of the Stadium incorporates a mobility drop-off/ pick-up point to facilitate easy access for buses and coaches, and will prioritise assistance for individuals with accessibility needs. An additional mobility drop-off/pick-up location is proposed for the South-West corner of the Stadium, close to Gate 2, and will be specifically designated for Australian Disability Parking Permit holders, taxis, and private vehicles to ensure separation from the main Bus Plaza.

These proposed mobility drop-off points are conveniently positioned to connect easily with precinct pathways, minimizing travel distances for individuals with accessibility needs. Each mobility drop-off/pick-up point will be within direct sight of the Stadium and will include provision for shade/shelter, as well as signage and wayfinding, seating, and lighting located near the entry gates.

Principal pathways through the Site will be designed to support gradual level changes with travel pathways that do not require undue exertion. The design will create an accessible environment that facilitates linkages for pedestrians, cyclists and electric scooters, and families with strollers.

Within the Stadium, accessible seating is provided througout the seating bowl. See pages 86-87 for more information.

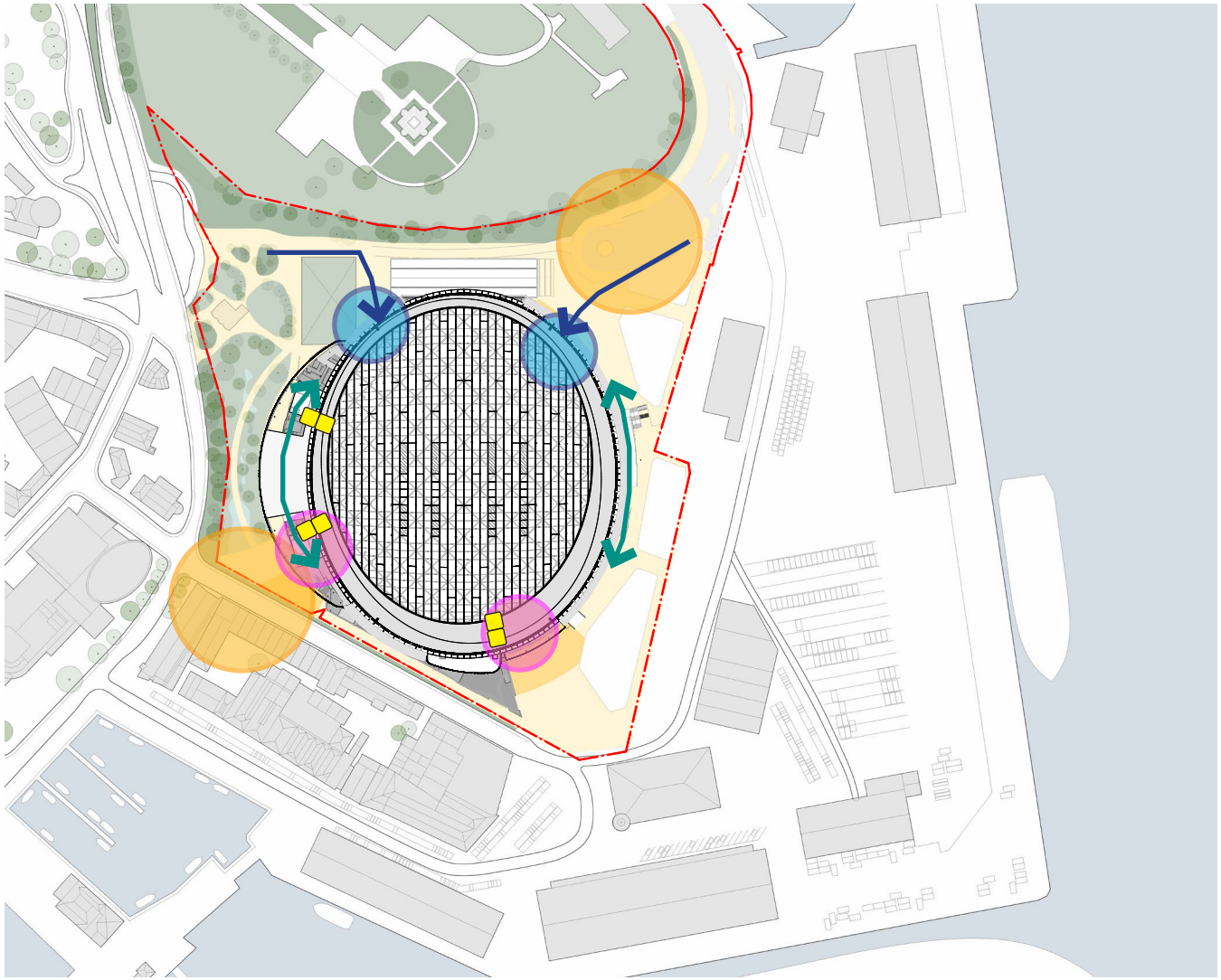


Figure 15: Drop-off locations for people with specific access needs

The approach to Gate 1 of the Multipurpose Stadium

EVENT DAY VEHICLES

MEDICAL ACCESS

During a major event at the new Stadium, some vehicles will need to have direct access into the venue. Medical support is essential for the wellbeing of staff and patrons attending the venue, as well as athletes and performers on the field.

When an event is underway, an ambulance will be permanently stationed near the South-West pitch access vomitory (PAV) to facilitate immediate access onto the field if needed.

More typically, an injured player or performer will be stretchered off the field to the team medical rooms associated with each Change Room. From here they will be assessed, and if needed, a medi-cart will transfer them along the internal service road to the waiting ambulance, which will then egress onto Evans Street and transport the patient directly to the hospital.

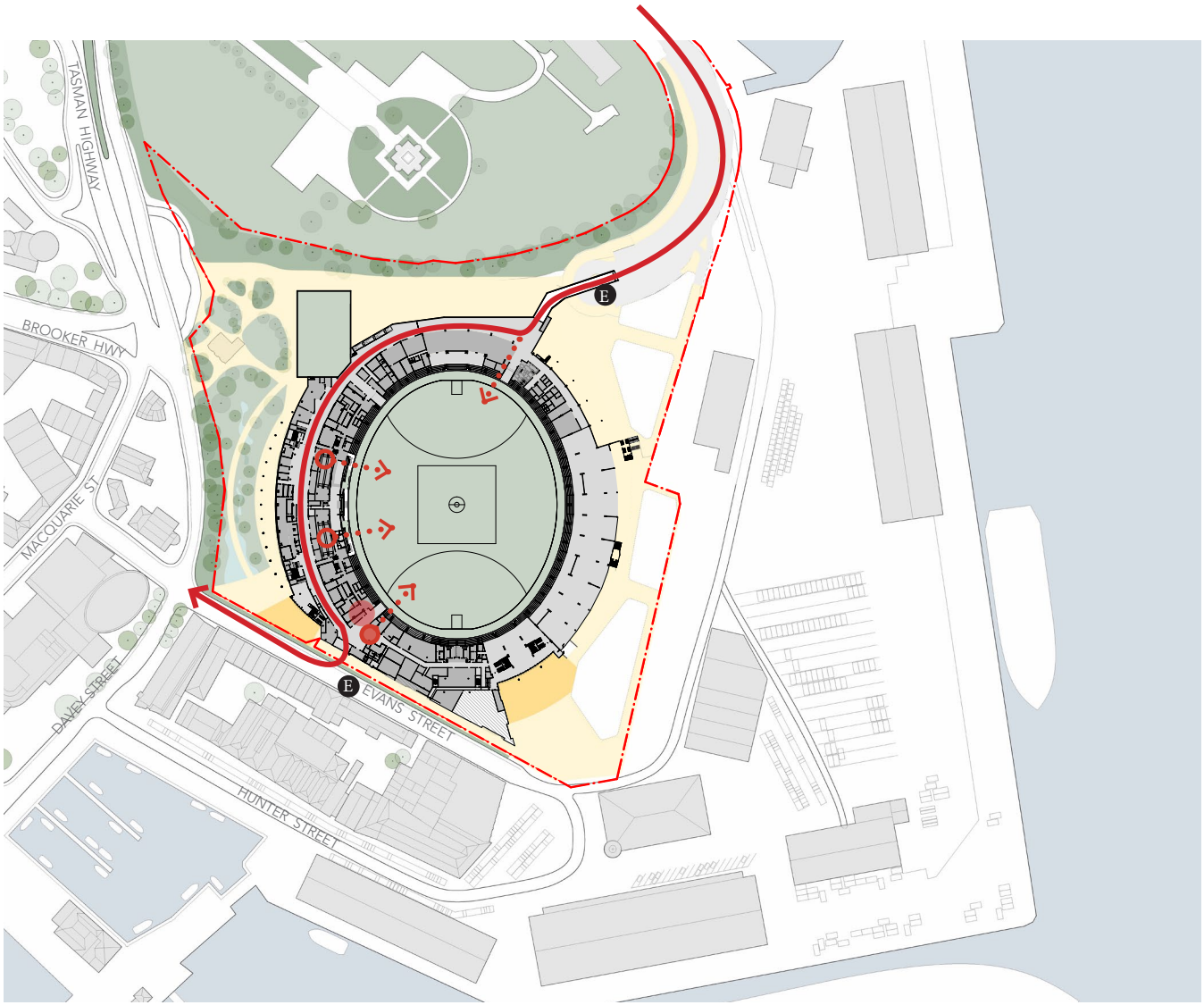


Figure 16: Medical response site access

EVENT DAY VEHICLES

BROADCAST VEHICLES

The Stadium's ability to attract high-profile events necessitates provision for media and broadcasting providers. At stadia generally, a zone is designated for use during an event for the set-down of broadcast vehicles. This Outdoor Broadcast (OB) compound typically needs to accommodate vans or 15 ton trucks that require a space where they can 'drive in and drive out' with minimal manoeuvring.

At the new Macquarie Point Multipurpose Stadium, the OB compound will be located internally and at field level, beneath the plaza area to the north of the Stadium. Given the site constraints and the public nature of the venue, locating the OB compound away from areas of patron circulation supports the public benefit and provides better security for broadcasters.

Broadcasting vehicles will arrive from the northern access road, and once screened, will enter the Stadium via the access ramp. At the completion of the broadcast, the vehicles will leave via the internal service road that egresses onto Evans Street.

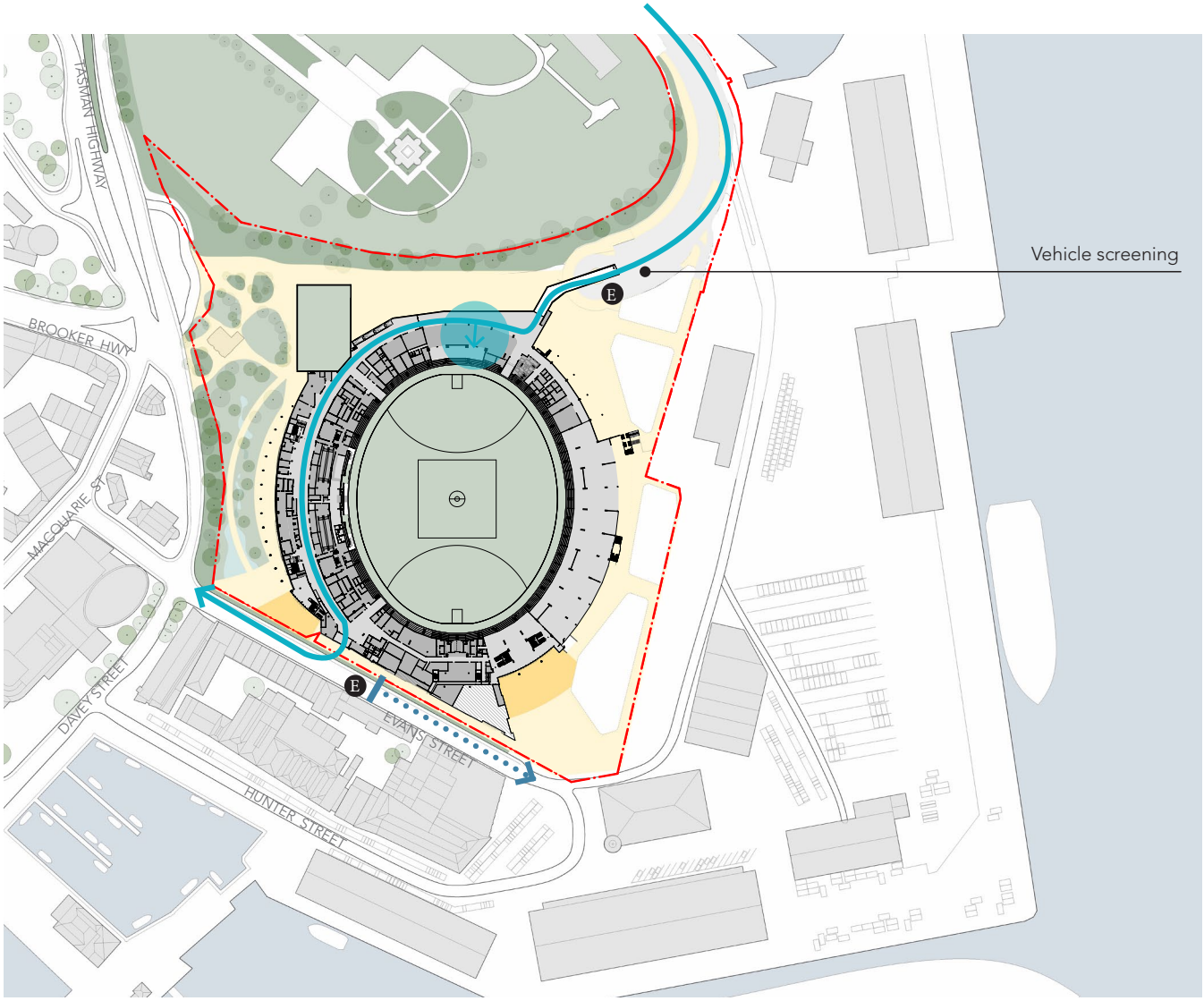


Figure 17: Media site access

TYPICAL VEHICLE SERVICING

The principle for servicing of the Stadium is that delivery or maintenance vehicles will arrive via an entry ramp off the northern access road, circulate along an internal service road beneath the stands, and then egress onto Evans Street. The semi-circular service road allows good access to all the main hospitality and tenant spaces on the western side of the venue. Typical delivery and maintenance services will happen outside the hours of an event.

All vehicles arriving at the Stadium will need to be screened before gaining entry to the venue. If an unauthorised vehicle attempts to gain entry, access will be denied, and they will need to proceed to the bus loop and return back via the northern access road.

On a typical weekday, the types of vehicles that may gain entry to the venue include:

- Grounds maintenance vehicles
- Delivery vehicles
- Waste collection trucks

There is no visitor car parking located beneath the Stadium.

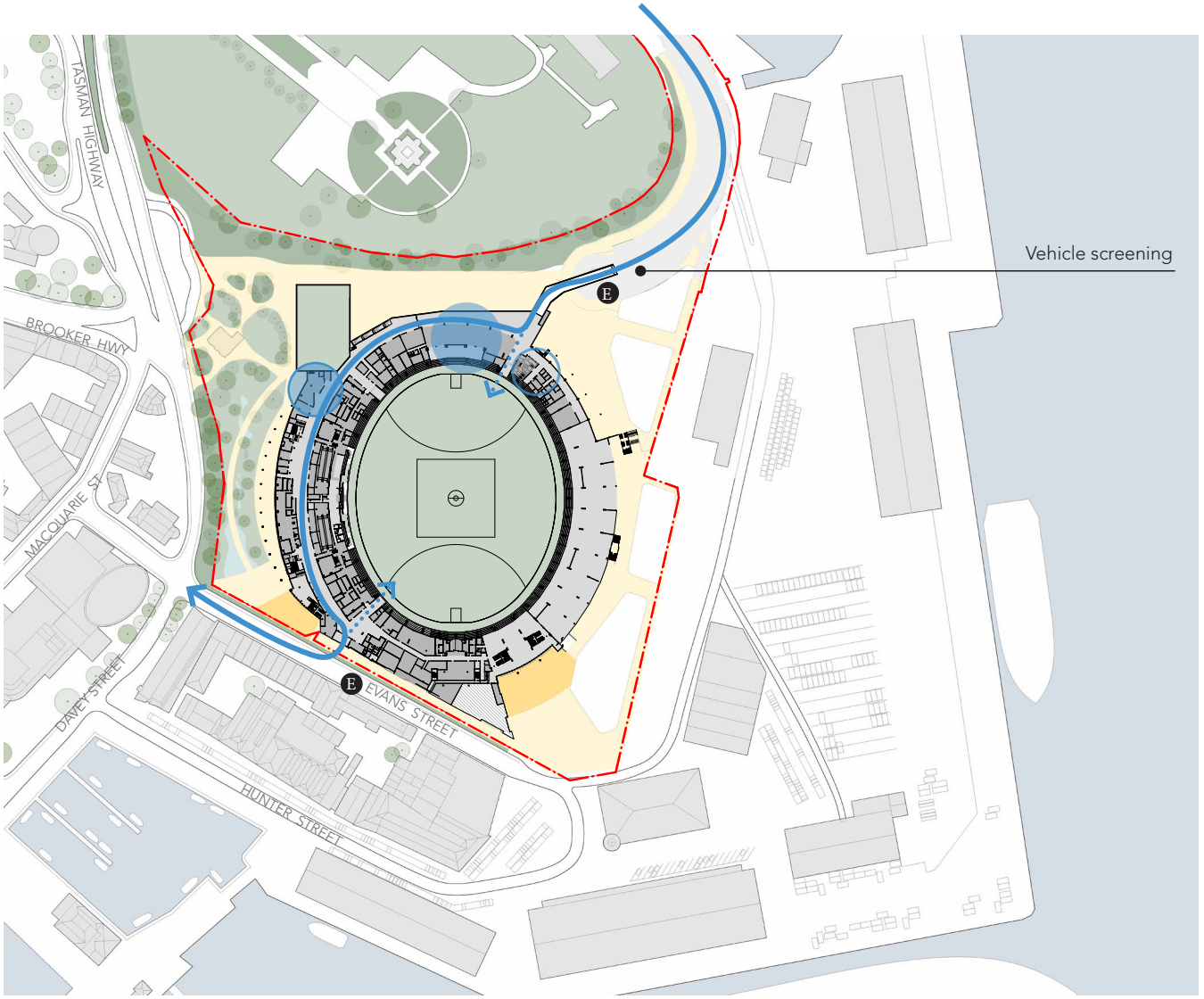


Figure 18: Vehicle servicing site access

WASTE COLLECTION

Waste collection will occur outside the hours of an event and will operate as per the vehicle servicing principle previously described. Waste trucks will arrive via an entry ramp off the northern access road, circulate along an internal service road beneath the stands, and then egress onto Evans Street.

A large waste store room is provided at Level Ground of the Stadium directly off the internal service road. It has been sized to allow waste collection trucks to reverse into the space to facilitate loading of the vehicles.

For more information on waste management procedures, refer to the accompanying Solid Waste and Hazardous Material Management Report.

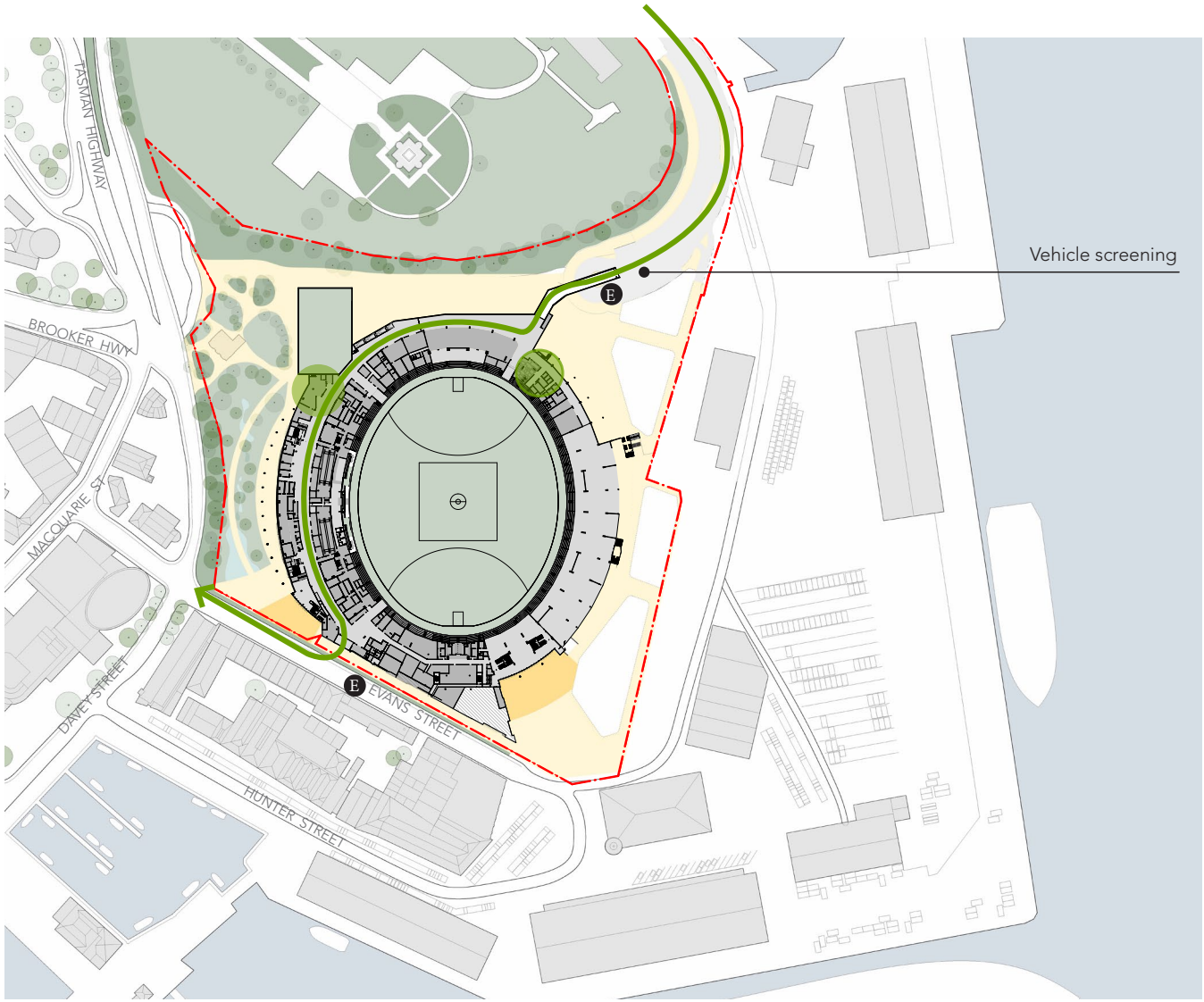


Figure 19: Waste truck serving site access

CRICKET WICKET TRANSPORTER

A drop-in wicket transporter is a large, articulated truck used for transporting the cricket wickets from an off-site nursery onto the field at the Stadium. The cricket wickets are transported in one slab, typically 25m long, 3m wide, and 200mm deep. Due to the size of the vehicle and its cargo, minimal manoeuvring should be facilitated.

At Macquarie Point Multipurpose Stadium, the wicket transporter will arrive from Davey Street and enter off Evans Street where it can gain direct access onto the field via the pitch access vomitory (PAV). Vehicle turning will be accommodated on the field, and the wicket transporter will leave via Evans Street - the same way it arrived.

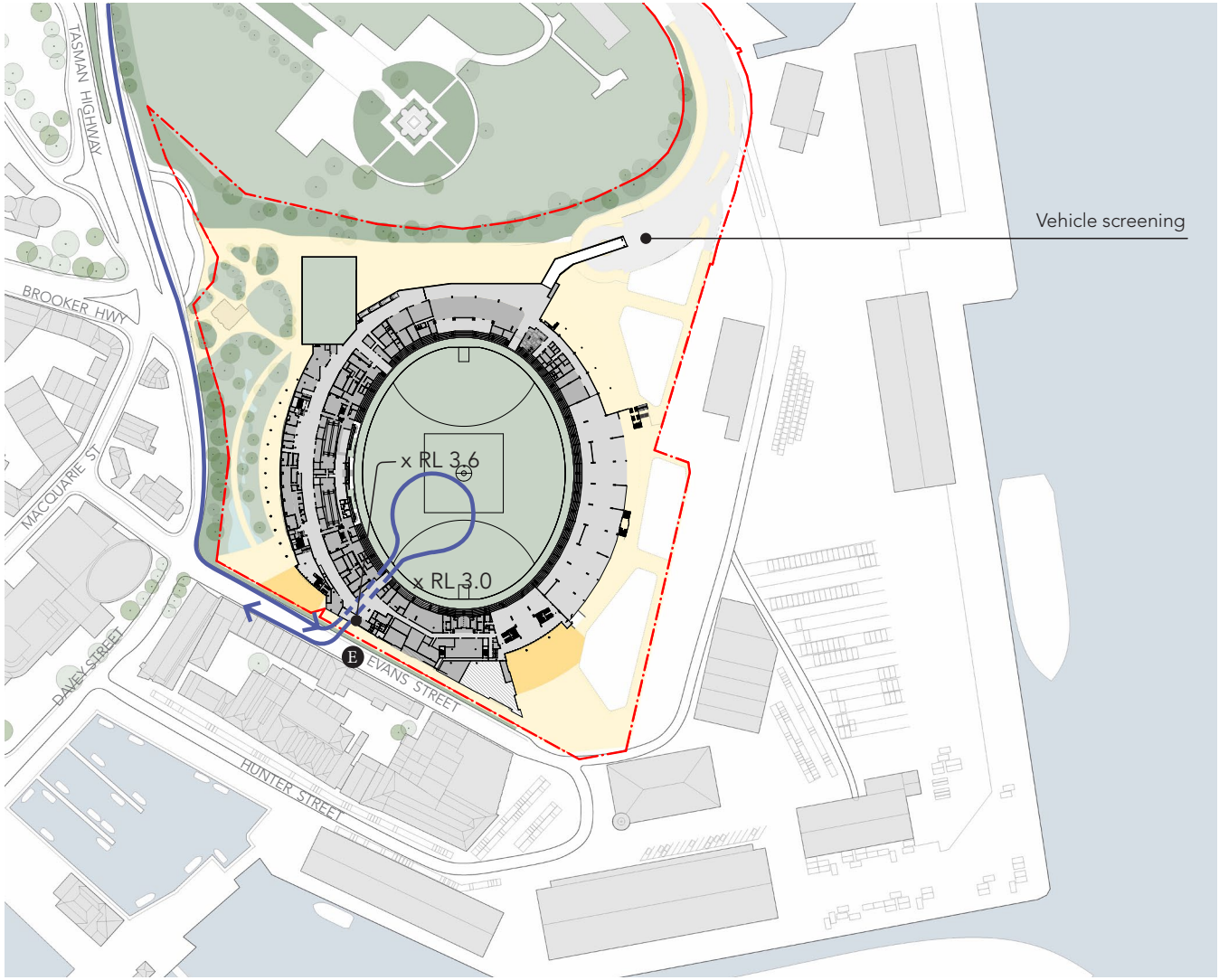


Figure 20: Wicket Transporter site access

EMERGENCY ACCESS

FIRE TRUCK

In the event of a fire at the Stadium, a fire truck will need to gain 360-degree access around the venue. The external concourse provides sufficient clear width to allow a fire truck to circulate around the full circumference of the Stadium. At its minimum, it provides 6 metres clearance.

Depending on the location of the incident, an emergency vehicle may gain access from the northern access road, from Evans Street, or via the north-eastern forecourt that connects to Davey Street.

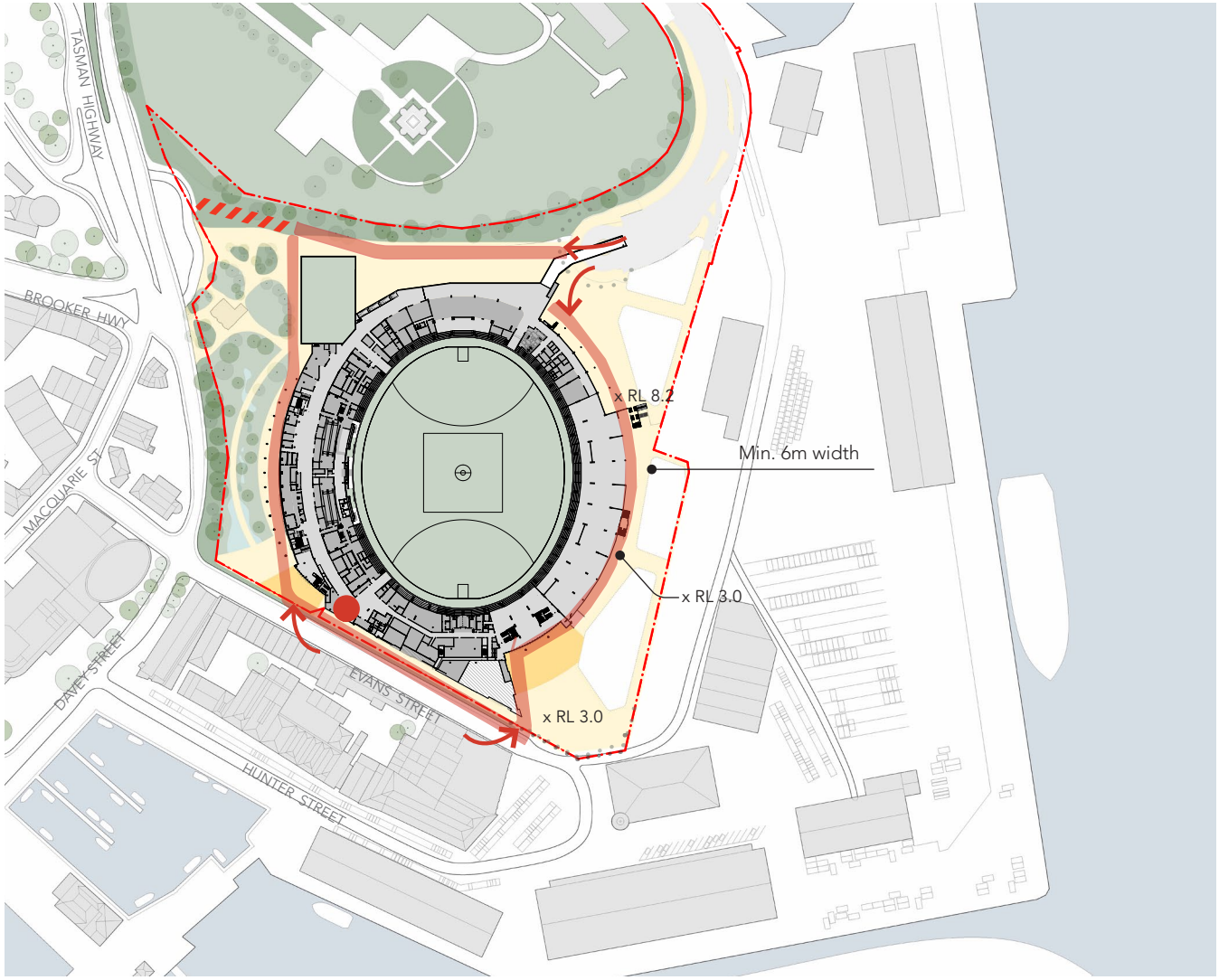


Figure 21: Fire truck site access

UNDERGROUND CAR PARK

Precinct Car Park

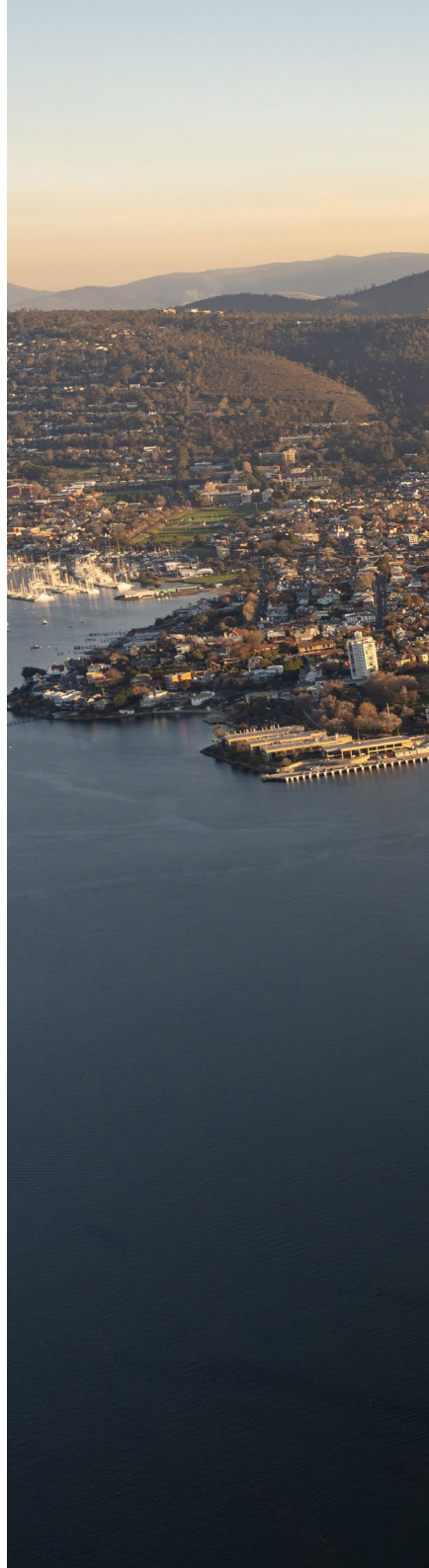
As part of the Project of State Significance an underground car park will be developed to meet the vehicular access requirements for the broader precinct, including future developments for the Antarctic Facilities. The car park will be located between the Stadium and the site boundary shared with TasPorts. It will be accessed via a ramp off the Northern Access Road.

The car park will have the flexibility to convert from standard parking mode to accessible parking mode where the central car parking space in a bay of three (3) can convert to a shared zone to support DDA access requirements. This is provided in addition to shuttle services from existing car parking facilities and drop-off options. The upper level of the car park will have sufficient clear height to allow access for cars with roof-mounted wheelchairs.

The car park will provide:

- Up to 375 parking spaces including dedicated accessible parking bays
- 700m^2 of motorcycling parking spaces.
- Stairs and lifts for direct pedestrian egress to the public domain above.

The car park is intended to be constructed and operational concurrently with the Stadium.



04 | PERFORMANCE

As a Multipurpose Stadium, this chapter outlines the requirements of various codes and how the design will deliver a 'fan first' experience.

THE SPECTATOR EXPERIENCE

The spectators in the stands are at the heart of the design brief for this new Stadium. The decision to pursue a fully roofed venue was driven by a desire to provide shelter from the harsher elements of the weather, and guarantee patron comfort. Reducing visual glare, providing protection from the wind, and optimising thermal comfort are all advantages that derive from full-roof coverage at the Stadium at Macquarie Point.

In addition to the internal climate, other aspects of the design are fundamental to promoting the best experience for spectators. These include:

- A safe and protected environment for visitors with a diversity of needs;
- Sightlines to the field to ensure unobstructed views and proximity to the ground so that fans feel part of the action;
- Comfortable seats;
- An intimate seating bowl that contains the atmosphere and amplifies the roar of the crowd;
- Well-positioned and sized screens and speakers to ensure none of the action is missed; and
- A variety of different product and hospitality offerings to ensure a diversity of experiences.

All these objectives have been synthesised into the concept design for the new Stadium to ensure a truly 'fans first' experience at a *ground for all*.

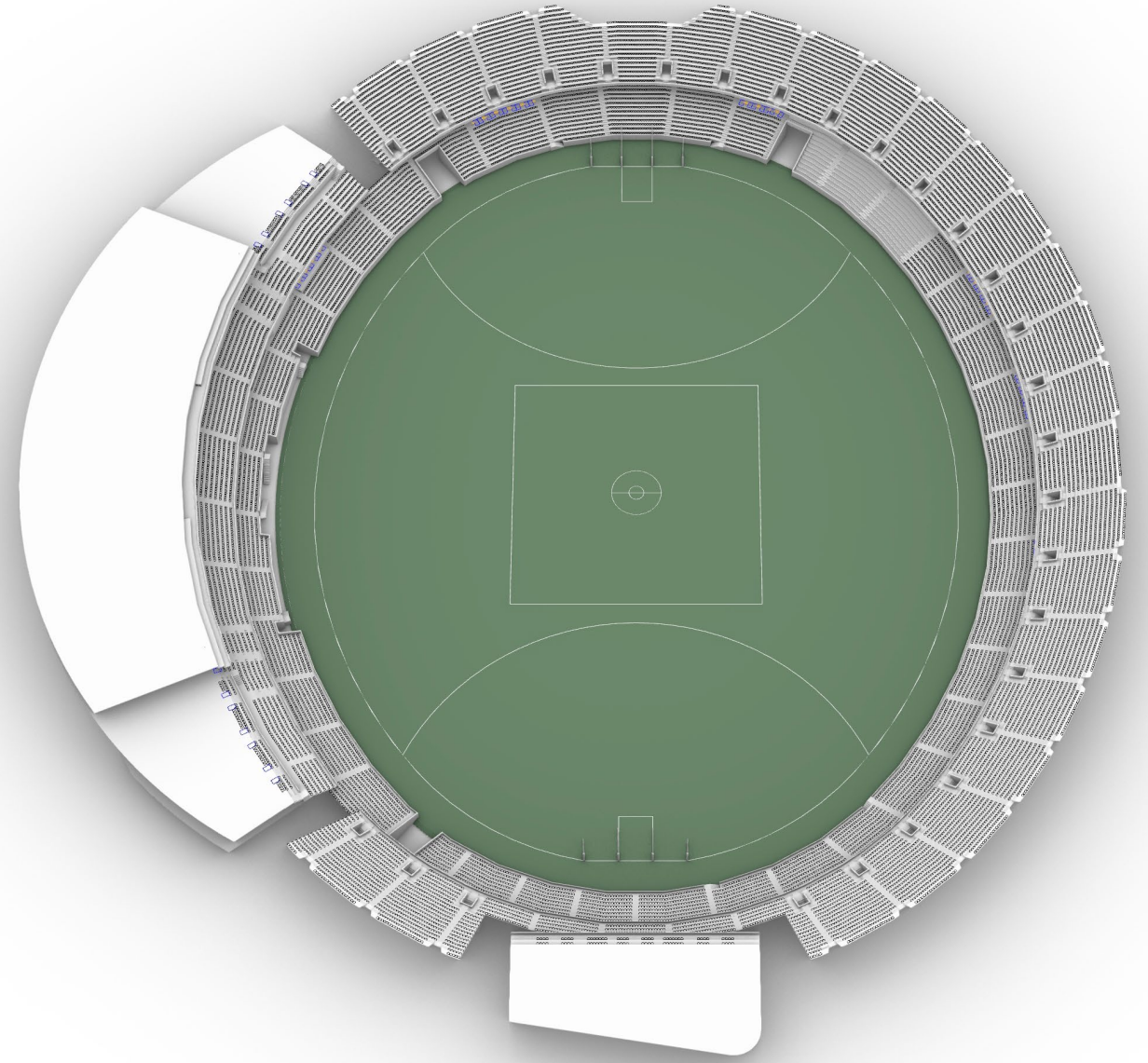
BOWL DESIGN PRINCIPLES

The Macquarie Point Multipurpose Stadium seating bowl has been carefully crafted to prioritise a fan-first experience, create an engaging experience for all, optimising sightlines for a range of events, and responding to the site.

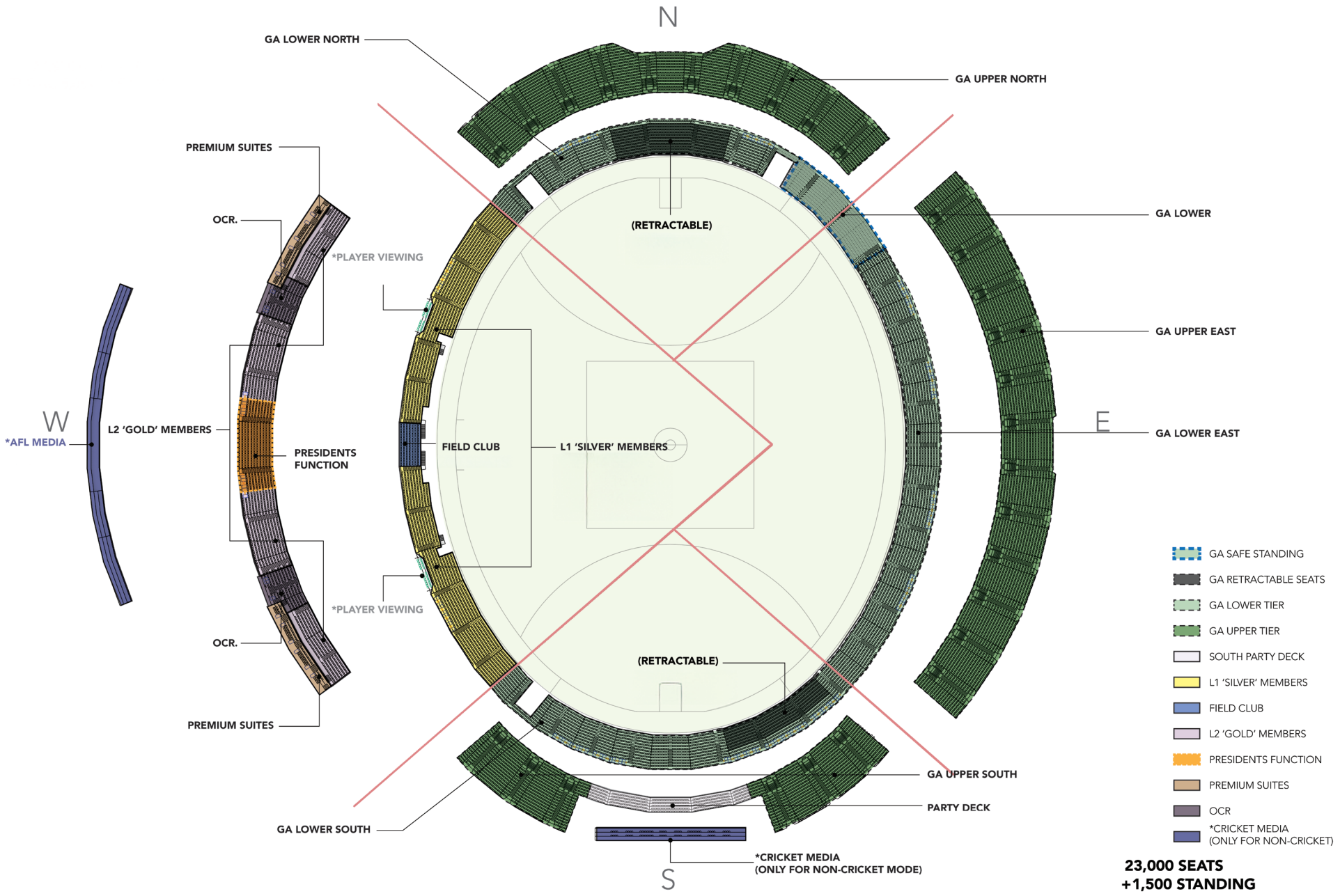
The lower bowl is defined by a universal concourse, a 360 degree experience that visually connects fans to the field, creating opportunities for fan engagement throughout the concourse area. The continuous relationship between the lower bowl and concourse supports a distributed layout of seating for all abilities, with prime viewing of the field of play.

The lower bowl also features an elevated front row, that optimises uninterrupted sightlines for all sporting codes supported by the venue. Both the lower and upper seating bowl have been defined with a variable sightline (C60-C90) and focal point, allowing the cross section of the seating bowl to bring fans closer to the action.

The seating bowl features cutouts aligned with the south-east entry and the north. These have been utilised to create views throughout the seating bowl to the Cenotaph.



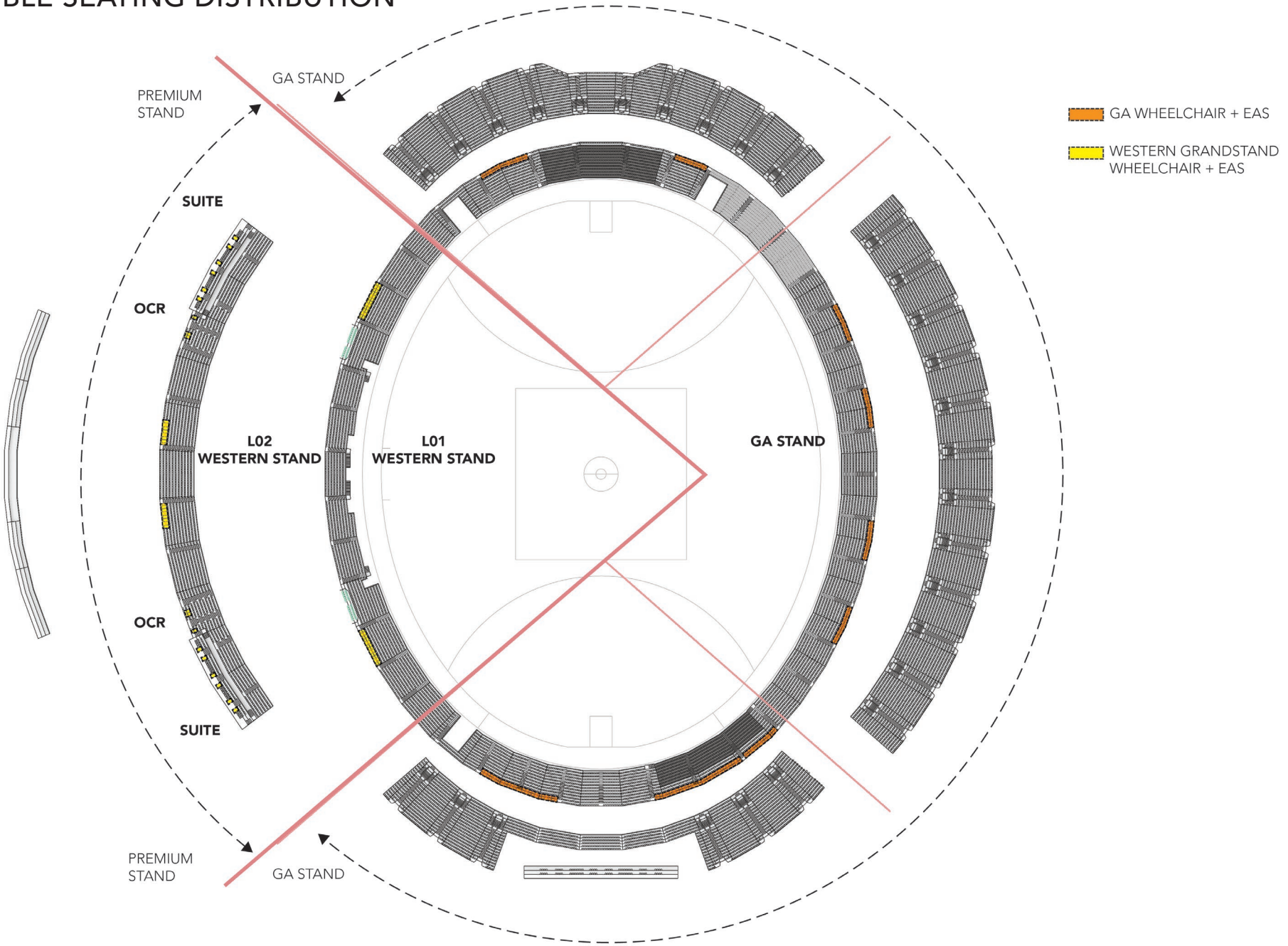
SEATING BOWL MANIFEST



23,000 SEATS
+1,500 STANDING

24,500 CAPACITY

ACCESSIBLE SEATING DISTRIBUTION



UNIVERSAL DESIGN PRINCIPLES

The new Multipurpose Stadium will adopt Universal Design (UD) initiatives to ensure that this major public venue will exceed the minimum legislative and technical requirements of the NCC, and promote efficient access for people with various needs. One of the key initiatives is to incorporate accessible seating including dedicated wheelchair spaces and enhanced amenity seating (EAS) around the entire concourse level (Level 1).

Wheelchair spaces are typically dedicated platforms at concourse level that are elevated above the seating row immediately in front to allow other patrons to stand or circulate without obstructing the view from a wheelchair behind them.

Enhanced Amenity Seating are seats that provide extra leg room and clear widths to support ease of access and manoeuvring for those with limited mobility. They also provide space for people attending events with support animals. At the new Stadium, the approach is to co-locate cluster of EAS seats to allow groups with people requiring EAS positions to be seated together.

Accessible seating will be dispersed across the bowl to offer patrons with accessibility needs different options for views and experiences within the Stadium. The location of accessible seating will also take into consideration various ticket price points and experience categories. Companion/ EAS seating will be located adjacent to the wheel-chair seating to allow family, friends, of companions to sit together.

The design of the Stadium will comply with the following requirements for universal access:

- All wheelchair and EAS spaces will meet the requirements of AS 1428, including the width, length and availability of adjacent seating for companions.
- Wheelchair and EAS spaces will collectively be provided at 1% of the total public spectator capacity for the venue.
- At a minimum, each wheelchair and EAS space shall provide an adjacent companion seat. In an ideal design, additional companion seats shall be provided adjacent to the accessible seating for family, friends, associates or carers (companion seating) noting that on average a wheelchair patron brings 2.4 companions when attending a sports event.
- Accessible and EAS seating should provide sightlines that still allow vision should someone stand up in front during the sport.

At the discretion of the venue operator, the following initiatives will be considered:

- Accessible seating types shall reflect the differing categories, grades, or costs of ticket price.
- All wheelchair and enhanced amenity seating areas shall have a Spectator Services assistant to coordinate seating and ticket checks.
- Audio description and hearing loops to be available for the hearing impaired.

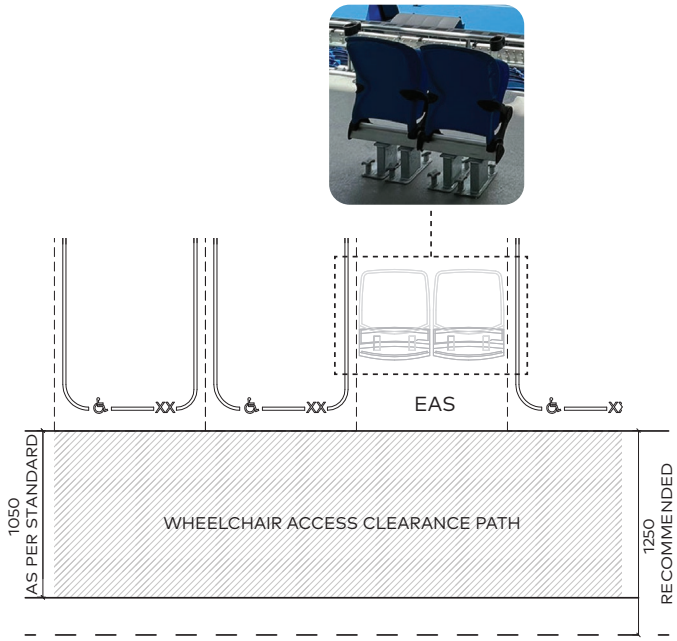


Figure 22: Wheelchair spaces co-located with an EAS seat that can be converted to two (2) standard seats

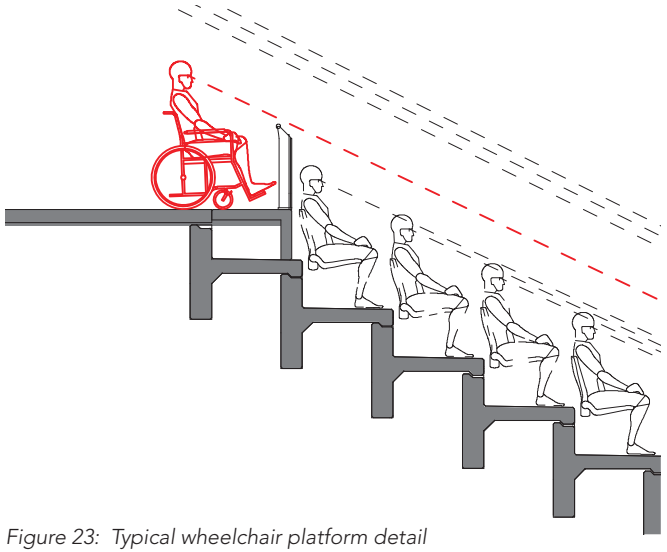


Figure 23: Typical wheelchair platform detail

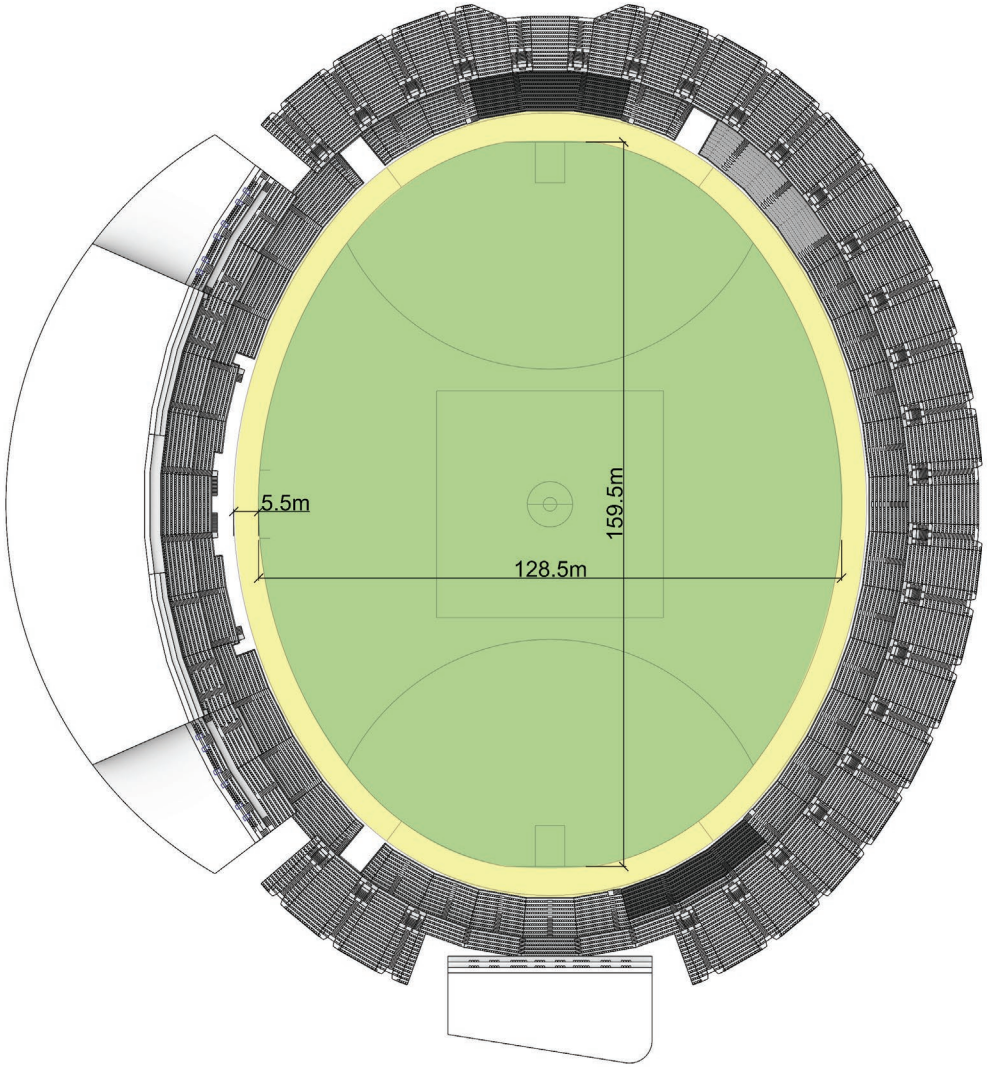
AFL CORE REQUIREMENTS

Australian Rules Football (AFL) is the most attended sport in Australia. Tasmania has historically had high participation in the game, and has produced some of the greatest champions the league has known. For this reason, an exemplary home ground for the inaugural Tassie Devils team is befitting of our long and proud footy tradition.

The AFL is a stakeholder in the Macquarie Point Multipurpose Stadium having launched the Tasmania Devils Football Club as the 19th team, with men's and women's teams in preparation to join the league in 2028.

The new Stadium will be designed to comply with the AFL Venue Guidelines Tier 2 requirements.

Field Configuration Diagram



2024 AFL Venue Guidelines (Tier 2 Requirements)

Selection of Requirements from the Functional Design Brief

Table 4: Selected Crieteria from the AFL Venue Guidelines 2024	
Stadium Component	
Field and Roof	
Field of Play Size	159.5 x 128.5m minimum (to boundary lines) (Stadium Agreement)
Roof Coverage	Fixed, translucent roof stadium providing full coverage. (Stadium) Min. 38m central clearance to min. 32m over boundary
Players Interchange Bench	Minimum of 22 players over 2 rows of 1000mm wide each. (2024 AFL Venue Guidelines)
Umpires & Officials Bench	Minimum room of 10 officials over 2 rows of 1000mm wide each. (2024 AFL Venue Guidelines)
Spectator Facilities	
Seating Bowl	All seats to have uninterrupted views of playing surface and video boards. (Stadium Agreement)
Corporate, Hospitality and Premium Spaces	At least 1,500 corporate / premium spaces which must include capacity of at least 500 hundred spaces in corporate suites (or similar facilities), with the suites to be of varying capacities but at least 12 of which must have a capacity of at least 16 persons (Stadium Agreement)
Toilets (GA and Corporate)	Toilet Facilities including disabled facilities in line with BCA (Building Code of Australia) requirements. (Stadium Agreement)
Food & Beverage Outlets	Food and beverage outlets in line with FSADC (Football Stadia Advisory Design Council) guidelines. (Stadium Agreement)
Player and Match Officials Facilities	
Players Changerooms	Minimum 4 change rooms gender neutral (Stadium Agreement) Minimum size of 85sqm. Seating and lockers for 40 players min. (2024 AFL Venue Guidelines). • Players Changeroom Wet Areas • Medical Room • Massage Room • Property Room • Team Meeting Room • Drug Testing Room
Warm-Up Room/Facilities	Minimum of 2. 120sqm each(2024 AFL Venue Guidelines)
Umpires & Officials Change Rooms	Umpire changeroom facilities gender neutral. (Stadium Agreement). Minimum size of 45sqm. Seating and lockers for 14 officials min. as per 2024 AFL Venue Guidelines
Media Facilities	
Television / Radio Broadcast	• Commentators rooms • Broadcast studio • Minimum of 6 boxes • Free TV Australia Operational Practice OP – 33
Press Room & Facilities	• Written Press Room • Press Conference Room • Photographers Room
Outside Broadcast Compound	Hardstand area is in the order 30 x 15m (2024 AFL Venue Guidelines
Stadium Operations	
Bus Parking	• Team bus parking space for each team • Team bus parking space for the Umpires

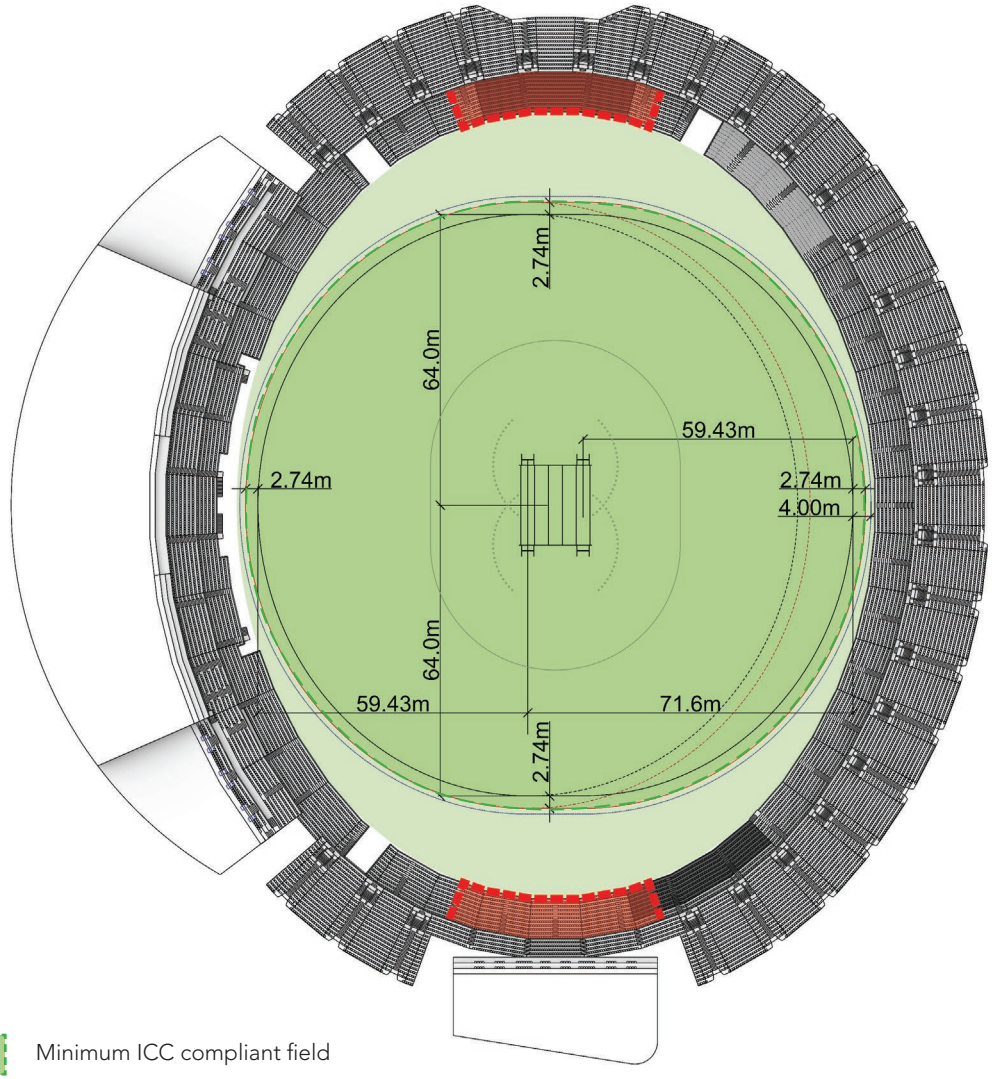
CRICKET CORE REQUIREMENTS

Cricket is the original game played on an oval field, and the driver for the height parameters of the new Stadium roof. It's recognised that cricket at the new Macquarie Point Multipurpose Stadium could be a pioneer of the game under a fixed roof.

Primary hirers will be the Hobart Hurricanes (BBL) and other cricket associations including Cricket Australia (CA) and Cricket Tasmania (CT). The stadium is being designed to meet international Cricket (ICC/Cricket Australia) standards. Whilst international limited-overs cricket, and BBL cricket content have been played under a roof at Marvel Stadium, Test cricket has not been trialled under these conditions.

The ability to host cricket triggers the provision of additional infrastructure to service the game, including outdoor practice wickets, and access to a turf nursery to support the curation of the wickets.

Field Configuration Diagram



ICC International Cricket Venue Guidelines 2020
Cricket Australia Tier 2 Venue Guidelines

Table 5: Selected Requirements as nomintated in the Stadiums Tamania User Brief	
Stadium Component	
Field and Roof	
Field of Play Size	Boundaries a minimum of 59.43m from the centre of the pitch (IICVG2020)
Sports Lighting requirements	Where artificial lighting is used there must be minimum lux levels of 1500
Player & Match Officials Facilities	
Players Changerooms	Two (2) separate change rooms, should be positioned in an area with easy and secure access to the field of play. Each change room should measure a minimum 70 m² to accommodate: 20 players and support staff at a minimum (CA Tier 2 Guidelines) • Players Changeroom Wet Areas • Medical Room • Massage Room • Property Room • Team Meeting Room • Drug Testing Room
Team Viewing Area	Provision of an exclusive area, secure from spectators/ patrons, is to be provided for each team to accommodate 20 players sitting down (CA Tier 2 Guidelines)
Warm-Up Room/Facilities	Minimum of two (2) at 150sqm
Umpires and Officials Change Rooms	Secure room, capable of holding up to 6 officials. (IICVG2020) Minimum size of 25sqm. Seating and lockers for 4 umpires min. as (CA Tier 2 Guidelines)
Training Practice Wicket	External Practice Pitch, minimum 4 active pitches per match, with full run ups and sightscreens. The facility should provide secure access for the players and ideally be situated as close as possible to the Dressing Rooms (Cricket Australia Facility Guidelines)
Media Facilities	
Television / Radio Broadcast	• Commentators rooms (north or south) • Broadcast studio • Radio box is 3.5m x 3.5m with clear sight line to the field of play and to the main scoreboard. (CA Tier 2 Guidelines) • Free TV Australia Operational Practice OP – 35 • The camera platform should be a minimum of 8 metres wide and 2.5 metres deep to locate the main cameras. The platform should be positioned to provide a clear line of sight to mid pitch over the bowler's end umpire for each "centre-line" camera
Press Room & Facilities	• Written Press Room • Press Conference Room • Photographers Room
Outside Broadcast Compound	Hardstand area is in the order of 500 square metres. Provision is to be made to site a satellite uplink vehicle within the Compound, adjacent to the compound or within the venue area with clear line of sight to the north eastern sky for the majority of Australian broadcasters and to the western sky for a number of international broadcasters is a location requirement. (Free TV OP35)
Stadium Operations	
Bus Parking	• Team bus parking space for each team • Team bus parking space for the Umpires

CRICKET CORE REQUIREMENTS

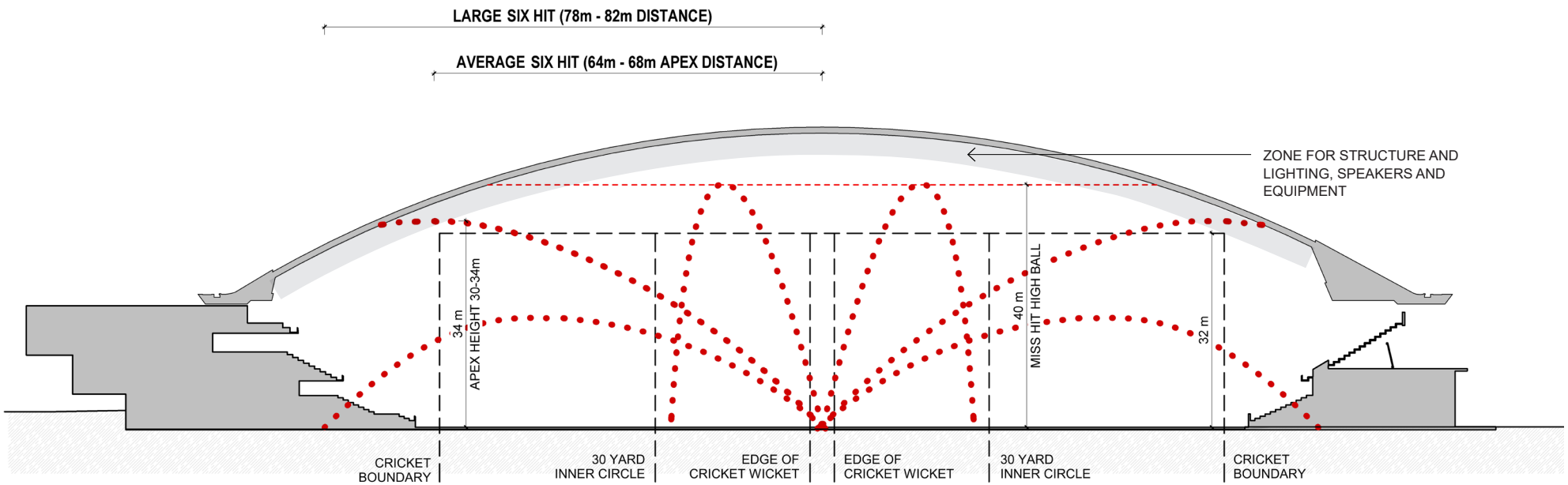
Cricket Ball Trajectory Study

The cricket ball trajectory is a key consideration in establishing the clear height required under the roof. The Brief stipulates minimum clear heights to support football, and exceed existing benchmarks for cricket in covered venues.

To refine the design development, we have reviewed data available from Hawk-Eye camera systems that visually track and map the trajectory of a ball. This reveals typical patterns of play in a cricket match, and indicates the likelihood of a ball coming into contact with adjacent structures.

The sections below illustrates the cricket ball trajectory informed by Hawk-Eye data, and how it is accommodated under the proposed roof form.

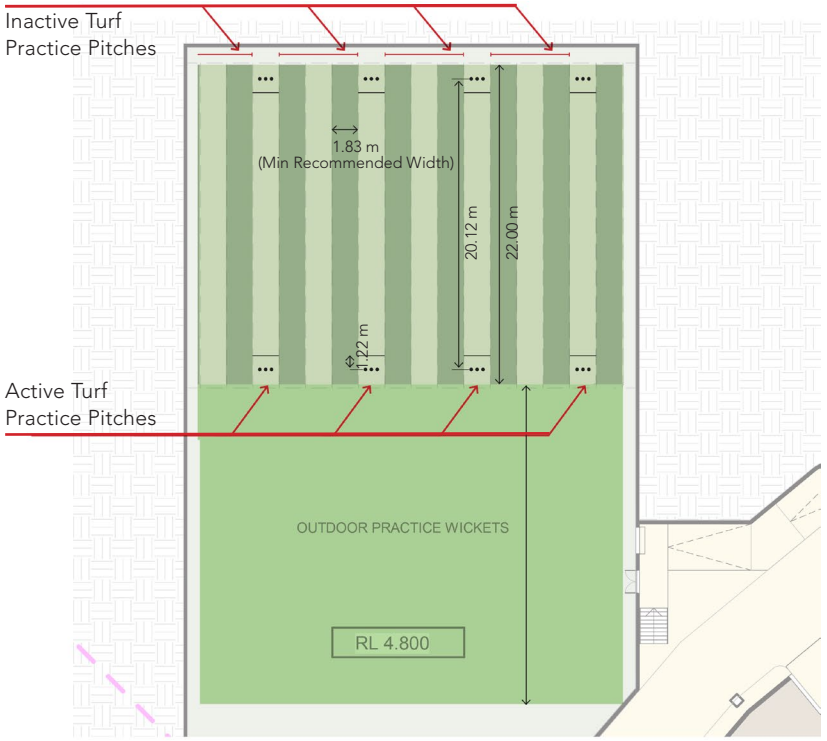
In addition to responding to ball movements, the underside of the roof needs to make allowance for structural elements as well as suspended lighting, speakers, and fans to support the patron experience within the Stadium.

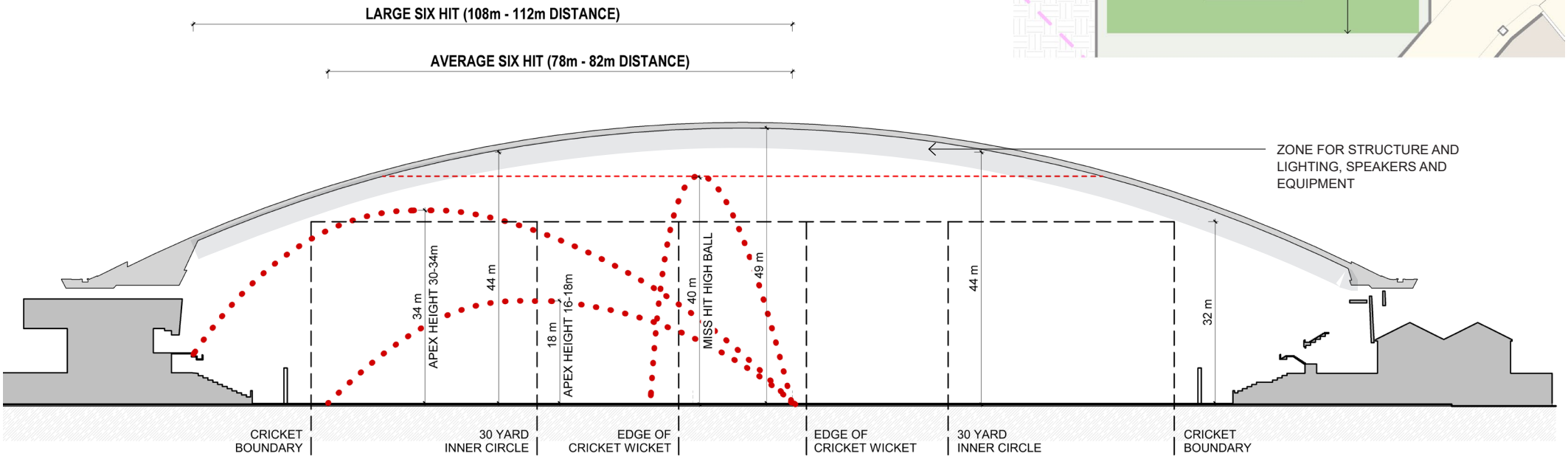


East-West section study of cricket ball trajectory

Training Practice Wickets

Turf Wickets General Arrangement
Cricket Australia Facility Guidelines





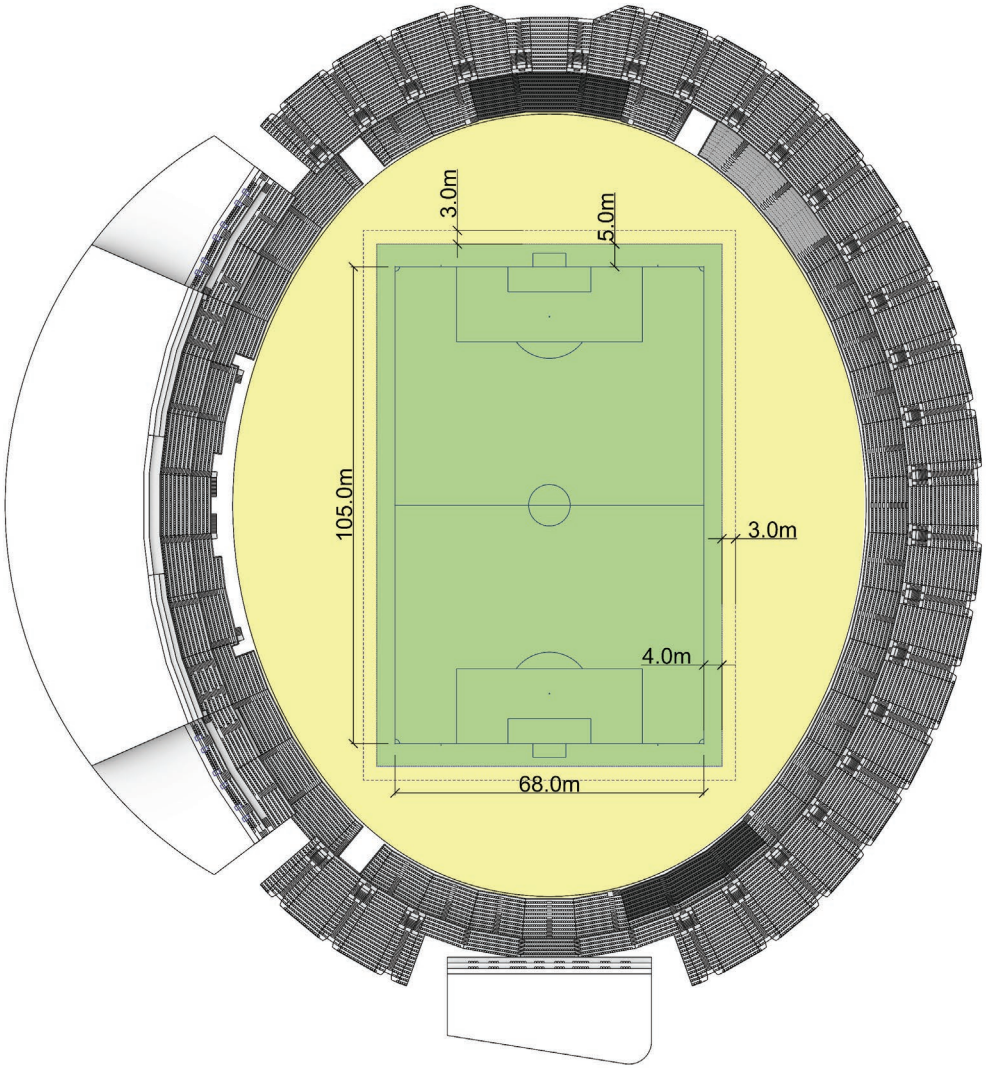
North-South section study of cricket ball trajectory

SOCCER CORE REQUIREMENTS

Soccer – the 'World Game' – will be an exciting addition to the Stadium events calendar. A potential attraction to the new Stadium is the Socceroos and Matildas (Australian national teams) qualifiers or friendly games, likely one match every two years.

The Stadium will be designed to accommodate the requirements outlined in the FIFA Football Stadiums Guidelines, as well as those in the APL Events and Venue Operations 2023-24.

Field Configuration Diagram

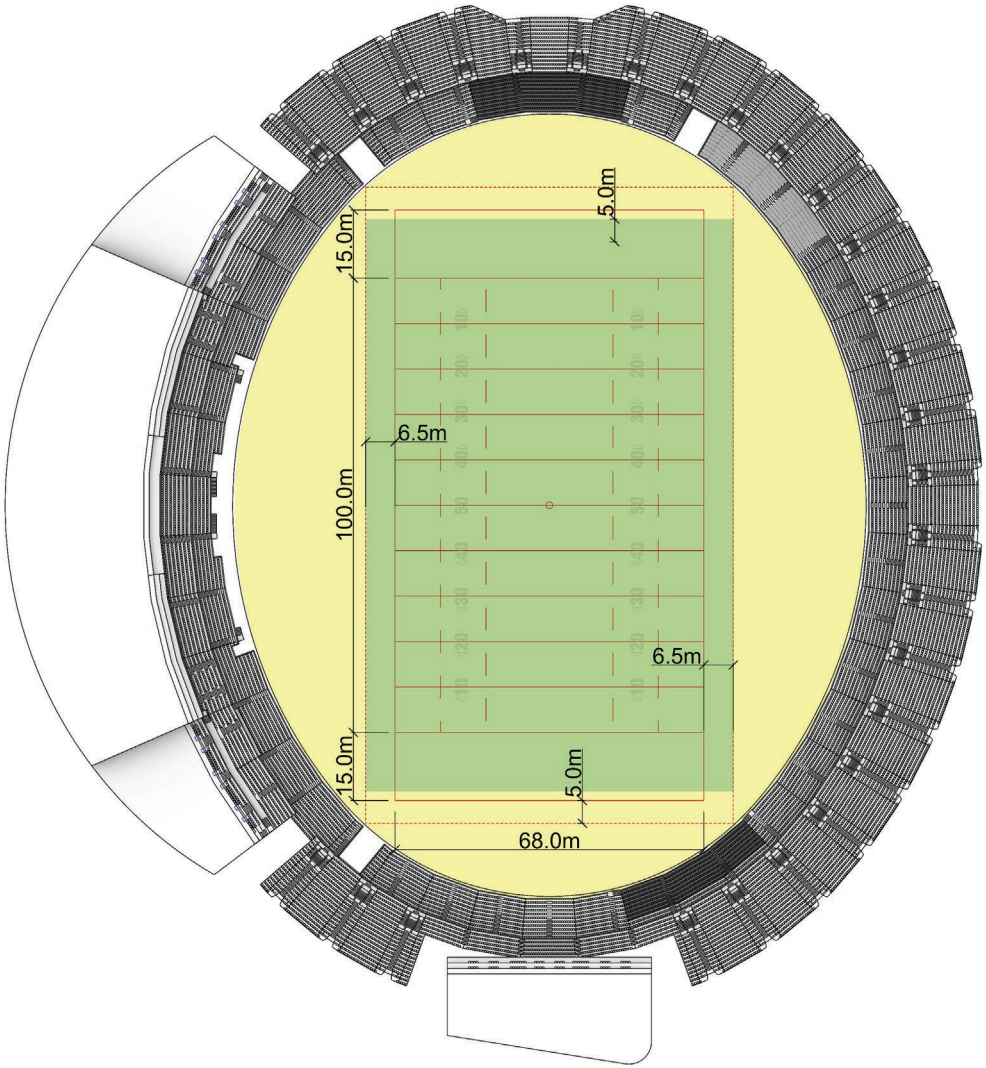


RUGBY CORE REQUIREMENTS

The two types of Rugby – Rugby Union and Rugby League – can be hosted at the Stadium, adding to the rich diversity of events that can be held at the venue.

The inclusion of Rugby at the venue has the potential to host matches for the upcoming Women's World Cup (2029) and to attract future international test matches and World Series Rugby 7's tournament. The Stadium design will be informed by the requirements outlined in the World Rugby Venue Regulations and the NRL Preferred Facility Guidelines.

Field Configuration Diagram



CONCERT MODE REQUIREMENTS

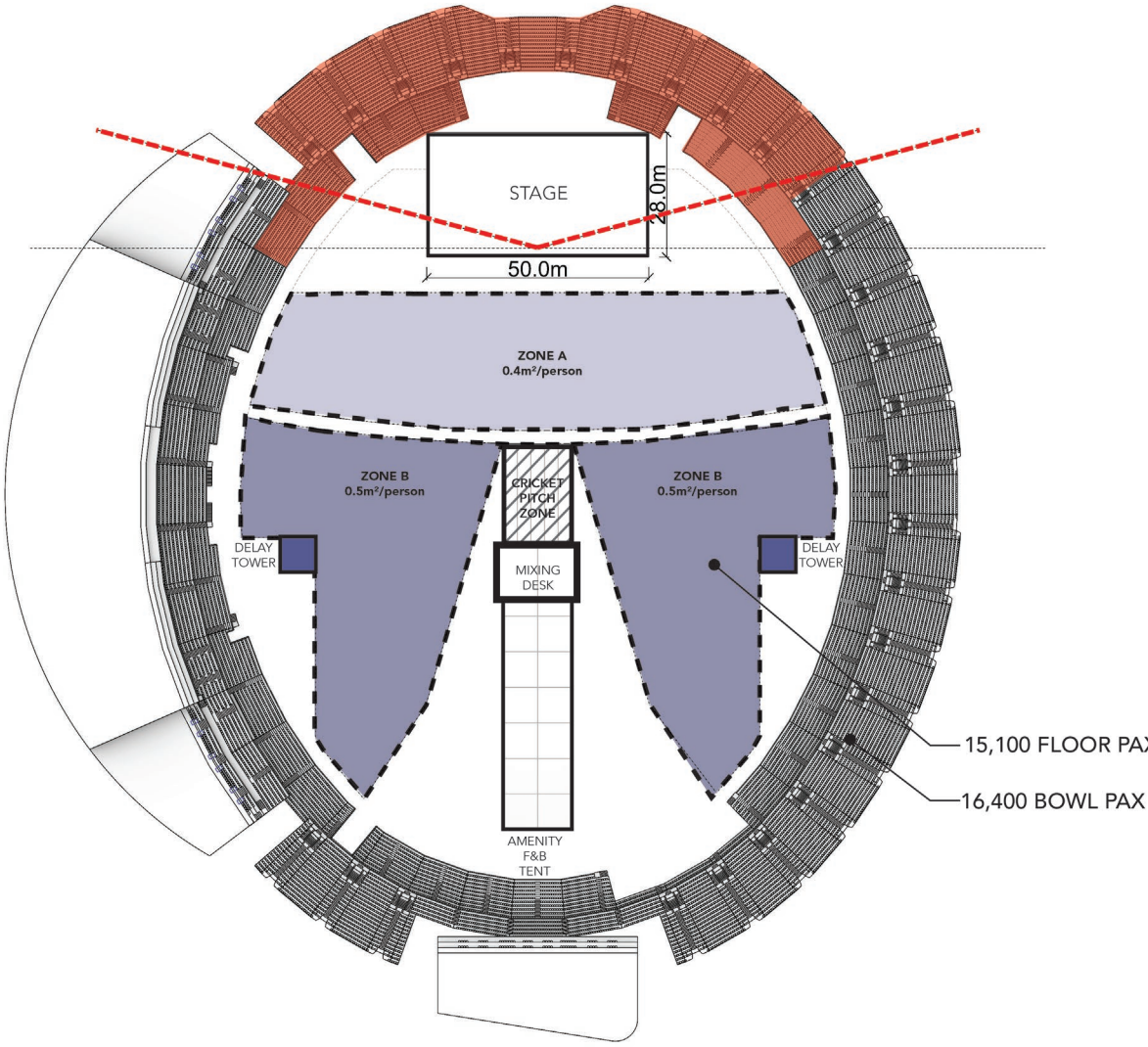
The experience economy is swiftly gaining momentum across the globe. This trend is dominated by the entertainment segment, and driven by Millennials and Gen Z with their increased spend on events and hospitality. Curating a variety of live performance experiences has never been more important or competitive than now.

Music and entertainment venues must be designed with consideration for long-term flexibility, and the ability to offer a range of experiences to appeal to a broad audience cross-section. The Brief for the new Macquarie Point Multipurpose Stadium anticipates one (1) major concert per annum (noting in any given year there are only 2-4 bands undertaking stadium tours in Australia), as well as smaller concerts/ festivals as a result of the configuration which supports more intimate seating.

During a concert event at the Stadium, patrons will occupy standing area on the field as well as seats within the stands. The egress strategy therefore needs to account for high volumes of pedestrians moving outward from the field of play. Principally, egress from the field will be via the aisles in the lower bowl and out from the Level 1 concourse through every available gateway.

Segments of the lower bowl in front of Gate 1 and directly behind the stage to the north are comprised of retractable seating that will be removed during Concert Mode to facilitate direct egress from the field and out through the main gateways.

Field Configuration Diagram



Site obstructed seats (behind stage)

Artist's impression of a concert at the new Maquarie Point Multipurpose Stadium

05 | SUSTAINABILITY

The Macquarie Point Multipurpose Stadium will be a unique showcase of the best of Tasmania, and this includes sustainability.

SUSTAINABILITY PRINCIPLES

The Stadium will set a leading sustainability agenda, reflecting the ambitions of all levels of government, the Macquarie Point Development Corporation, the Macquarie Point Draft Precinct Plan, and the project's own desire to set a benchmark for responsive and responsible sports stadiums in Australia.

Mac Point Precinct Plan

The Mac Point Precinct Plan identifies five sustainability themes for the broader precinct, namely:

- Climate Positive and Resilient
- Connected and Accessible
- Efficiently Manage Emissions
- Honour the Site's History
- Support Local Enterprises and Economy to Thrive

The first 3 of these speak directly to environmentally sustainable design, and emphasise the following outcomes:

- Maximise energy efficiency in buildings and infrastructure;
- Reduce upfront carbon emissions and supports uptake of low carbon transport;
- Manage water responsibility and encourage recycling and reuse;
- Is adaptable and responsive to current and future climate risk and impacts;
- Provide universally accessible public spaces to gather, celebrate and reflect;
- Prioritise travel by active and public transport;
- Provide well-designed, accessible, affordable housing for key workers;
- Prioritise positive health and wellbeing for visitors, residents and workers;
- Manage the environmental quality of the site and its emissions; and
- Promote environmentally efficient systems for water and wastewater management and reuse.

SUSTAINABILITY RESPONSE

The Macquarie Point Multipurpose Stadium is delivering on the environmental sustainability expectations of the Draft Precinct Plan and the community by targeting the following key themes and initiatives for the development:

Upfront Carbon Reduction

- The Stadium features a unique architectural roof to protect and enhance the paying surface, promoting less replacement of turf. Of multiple designs put forward, the team have selected a profile and height that maximises the reduction in steel support structure, ensuring a low carbon design solution for the unique dome.
- Within the dome structure, secondary steel support members are being replaced with timber supports to further reduce the embodied carbon impact.
- Concrete and steel supplies are being reviewed to understand potential to source low carbon alternatives to standard industry practices. This includes considering if local additives can be used to offset carbon-intensive cement ingredients.
- The existing Goods Shed on site will be protected, relocated and reestablished onsite, reducing the need newly constructed space.
- Paths, concourses, and roadways will use recycled and low carbon alternatives in the concrete and aggregates used.

Operation Energy and Carbon Efficiency

- The Stadium will benefit from provision of heating hot water and cooling chilled water by centralised plant, serving the wider Macquarie Point precinct as a whole. This reduces the number of separate plant installations (and their overall footprint), centralises maintenance for greater efficiency, and takes advantage of diversity of energy demand from the different buildings and uses across the precinct.
- The Stadium will support the decarbonisation of the overall precinct by hosting a photovoltaic array on the roof of the western grandstand. This system will be connected to the precinct wide energy network to ensure that if the power is not required by the stadium, it will be used elsewhere at Macquarie point, ensuring best return on investment.
- The Stadium will be all-electric in design, removing all fossil gas from the design for normal usage, and removing costly switch works from future development upgrades.
- In addition to Tasmania's renewable power generation which is already at 100%, the Stadium will also contribute to local generation through solar photovoltaic panels.
- The Stadium will feature an energy efficient LED sports lighting system, designed to effectively provide multiple lighting scenarios enhancing operational efficiency.
- The Stadium will target insulation levels, plant performance and HVAC/lighting efficiencies beyond the code minimum compliance.

Water Efficiency

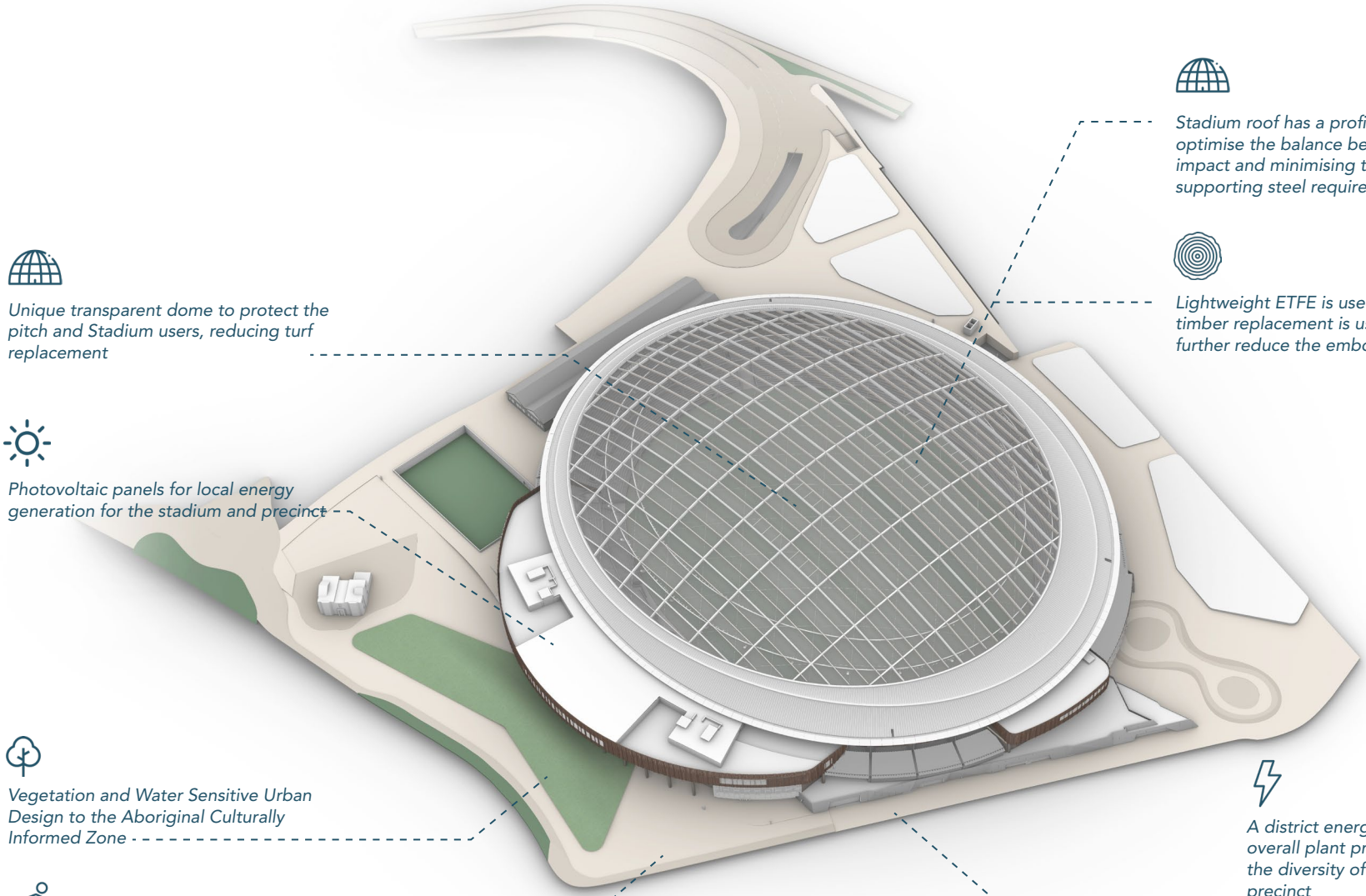
- The Stadium will feature a unique, lightweight, transparent roof which will shelter and protect both the Stadiums' users and the pitch alike. Irrigation systems will ensure the pitch receives just as much water as it needs and no more.
- The possibility of a recycled water connection to Self's Point will be reviewed by the development team, although this scenario is dependent on significant external factors outside the projects control.
- All water use fixtures and fittings will be selected with water efficient WELS ratings.

Climate Resilience

- The domed stadium roof is designed to protect both the stadiums' users and the pitch from extreme's a climate today and into the future. It will shield from excessive solar gain and rain fall, protect against storm and drought and decrease the amount of turf replacement required to maintain the high-quality playing surface.
- The roof also helps mitigate and adapt to climate change by solar energy generation through photovoltaic panels.

Other Initiatives

- The Stadium will support alternative forms of travel to matches, with public transport stops, bicycle parking, electric vehicle charging and safe and attractive walking options.
- The Stadium will actively the support the precinct in achieving its targeted Green Star Communities rating by providing on-site energy generation, and urban heat island reduction strategies.
- In conjunction with operational partners, the development team is investigating multiple options to reduce event waste including reusable cup solutions, on-site organic waste treatment (and food rescue) and removing single use plastics.



Unique transparent dome to protect the pitch and Stadium users, reducing turf replacement

Photovoltaic panels for local energy generation for the stadium and precinct

Vegetation and Water Sensitive Urban Design to the Aboriginal Culturally Informed Zone

An open, safe and attractive public realm promotes alternatives to personal vehicle use

Stadium roof has a profile selected to optimise the balance between visual impact and minimising the mount of supporting steel required

Lightweight ETFE is used for the dome, and timber replacement is used in the structure to further reduce the embodied carbon content

A district energy system will reduce overall plant provision by exploiting the diversity of load profiles across the precinct

Cycling and use of public transit will be supported by appropriate infrastructure provision

06 | OVERSHADOWING

This chapter addresses part 8.2 of the Project of State Significance Guidelines which requires a description of the existing solar access of the project site and adjacent area and an analysis of the effects of shadow impacts from the proposed project.

SOLAR ACCESS TO THE SITE

Macquarie Point Solar Access and Overshadowing

The project site currently experiences good solar access due to the absence of tall buildings or structures on, or immediately adjacent, to the site. The existing Goods Shed casts some shadow on the site and on Evans Street through the winter months.

Solar study diagrams have been prepared to indicate the extent and effects of overshadowing of the proposed Stadium on adjacent streets, properties and within the boundaries of the Stadium precinct. Diagrams compare the current overshadowing conditions of the site with those imposed by the proposed Stadium, associated structures, and future developments.

The form of the roof achieves its highest point above the centre of the playing field, and the gently sloping nature of the dome ensures that this has minimal impact on the shadows cast by the Stadium. The facade underneath the perimeter of the roof, which generally aligns with the back of the stands, casts most of the shadow across the site.

The site consists of several publicly accessible plazas that correspond to the major entry points to the Stadium:

- The North West Plaza at Gate 3 receives very little overshadowing from the Stadium throughout the year. Similarly, the North East Plaza at Gate 4 receives very little overshadowing from either the Stadium or the relocated Goods Shed throughout the year, however it will receive some afternoon overshadowing from the massing of the future development parcel. This area is largely taken up with pedestrian circulation associated with the Bus Plaza.
- The South West Plaza and the Aboriginal Culturally Informed Zone on the western side of the Stadium receive full sun from midday through to the afternoon throughout the course of the year.
- Evans Street is relatively untouched by overshadowing in December. By March, the Stadium begins to cast shadow across the street after midday, and in June there is considerable overshadowing of the street throughout the day.
- The South East Plaza that forms the main arrival space for Gate 1 receives little overshadowing from the Stadium throughout the day in December, although it will receive some overshadowing from the future development massing in the morning. Conditions will be similar through the month of March. In June, the majority of the plaza is in shadow at 9am and 3pm, but retains good solar access in the middle of the day.

The existing site features very little vegetation. Where there are some established trees, these are consolidated along the western boundary on Davey Street. These trees will experience some overshadowing from the Stadium, but only in the morning around 9am.

From March and through the winter months there will be some overshadowing of buildings on Evans Street in the morning. There will be no overshadowing of private open space.

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