26 April 2016

Mr Ben Lusher
Director – Key Sites Assessment
Department of Planning and Environment
GPO BOX 39, SYDNEY NSW 2001

Attention: Mr Cameron Sargeant/Ms Michele Nettlefold

Dear Sir,

The Star – Design Excellence Brief for Modification 13

We are writing on behalf of Star Entertainment Group Limited (**SEGL,** formerly Echo Entertainment Group Limited), the operator of The Star Sydney Complex (**The Star**), in respect of the proposed redevelopment of the casino complex. This communication is specifically in respect of proposed Modification 13 and the submission of a *Design Excellence Brief* for consideration by the Department.

As you would be aware, the *Design Excellence Process* was submitted to the Department of Planning and Environment for endorsement on 15 April 2016, in accordance with the *Secretary's Environmental Assessment Requirements* of February 2016. As committed to in the *Design Excellence Process*, a copy of the proposed *Design Excellence Brief* is hereby provided to the Department for comment ahead of finalisation and issue to the architects for the development of the design alternatives.

We trust this *Design Excellence Brief* meets the expectations of the Department and that the information contained within assists the Department's consideration and endorsement of the *Design Excellence Process*.

Should you require any additional information, please do not hesitate to contact either [redacted] the undersigned on [redacted]

Yours sincerely,

[redacted]

[redacted]
Managing Director

Enc. Design Excellence Brief

SYDNEY
GPO Box 5278 Sydney 2001
Tower 2, Level 23, Darling Park
201 Sussex Street
Sydney NSW 2000 Australia
[redacted]

Australia • Asia • Middle East

Sent: Tuesday, 26 April 2016 7:21 PM
To: Michele.Nettlefold@planning.nsw.gov.au; Cameron.Sargent@planning.nsw.gov.au; Benjamin.Lusher@planning.nsw.gov.au
Cc: [redacted]
Subject: Star Casino Modification 13 - Design Excellence Brief

Dear Michele,

Please find attached correspondence and Design Excellence Brief for consideration by the Department.
If you require any further information or have any questions, please do not hesitate to let us know.

Kind regards,

[redacted]
ASSOCIATE DIRECTOR – PLANNING

urbis
Property. Cities. Communities.

[redacted]
LEVEL 23 | DARLING PARK TOWER 2, 201 SUSSEX STREET | SYDNEY NSW 2000 | AUSTRALIA

THE STAR

THE STAR MODIFICATION 13 DESIGN EXCELLENCE BRIEF

PREPARED BY

urbis

APRIL 2016

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EXECUTIVE SUMMARY

Star Entertainment Group Limited (**SEGL**) is a leading operator of integrated resorts and casinos that appeal to both local and international visitors. SEGL is the operator of The Star Sydney Complex (The Star), with a licence to through to the year 2093.

Consistent with The Star's licence obligation to operate the site to an international standard, **SEGL** is proposing to advance a redevelopment of the casino complex. More specifically, the following are proposed:

- Provision of additional hotel, operated by Ritz Carlton, and other accommodation on site;
- The addition of new and improved VIP gaming facilities;
- Improved and expanded food and beverage outlets including premium dining facilities;
- Improved people and movement connections including upgrades to the light rail; and
- An upgrade of the external appearance and presentation of the facility.

This proposed redevelopment is referred to as **Modification 13**, being a modification to existing major project approval (MP 08_0098) established for the site.

SEGL is committed to achieving **design excellence** with the proposed redevelopment. The requirement for design excellence has also been reflected in the *Secretary's Environmental Assessment Requirements* issued on 9 February 2016. As key principle, design excellence includes the following:

- To achieve the highest standard of build form outcomes for the site;
- To encourage built form that positively contributes to the overall architecture of the City;
- To encourage innovation and best practice approaches;
- To establish buildings appropriate to their context; and
- To achieve environmentally sustainable built form outcomes.

Consistent with the requirements set out in the *Secretary's Environmental Assessment Requirements;* SEGL is seeking to advance a design excellence process that includes:

- Three alternative design options for the proposal.
- Establishment of a design review panel to review each alternative and inform the preferred design; and
- Mechanisms to retain the architect during the design and construction of the scheme.

In addition, opportunities are intended to be established for stakeholder engagement to be incorporated into the process.

The document itself is split into two (2) main parts, as follows:

- Part A – About the Design Excellence Process– how it is intended to run, how decisions are made etc.
- Part B – Technical considerations – outlining key technical matters identified from preliminary investigations that need to be taken into consideration in the preparation of the designed alternatives.

For the purposes of modification 13, the portion of the development that is subject to the design excellence process includes the proposed hotel tower and associated podium level treatments and extensions. The key outcome from the process is the validation of the scale and form of the tower and architectural expression of the tower and associated extension.

THE STAR

PART A – GENERAL INFORMATION ABOUT THE DESIGN EXCELLENCE PROCESS

1 PART A – GENERAL INFORMATION

1.1 SUBJECT SITE

The Star is located on an irregular shaped block in Pyrmont being Lot 500 in Deposited Plan 1161507 (Site). The site is bounded by Pyrmont, Edward and Union Streets, and Pirrama and Jones Bay Roads.

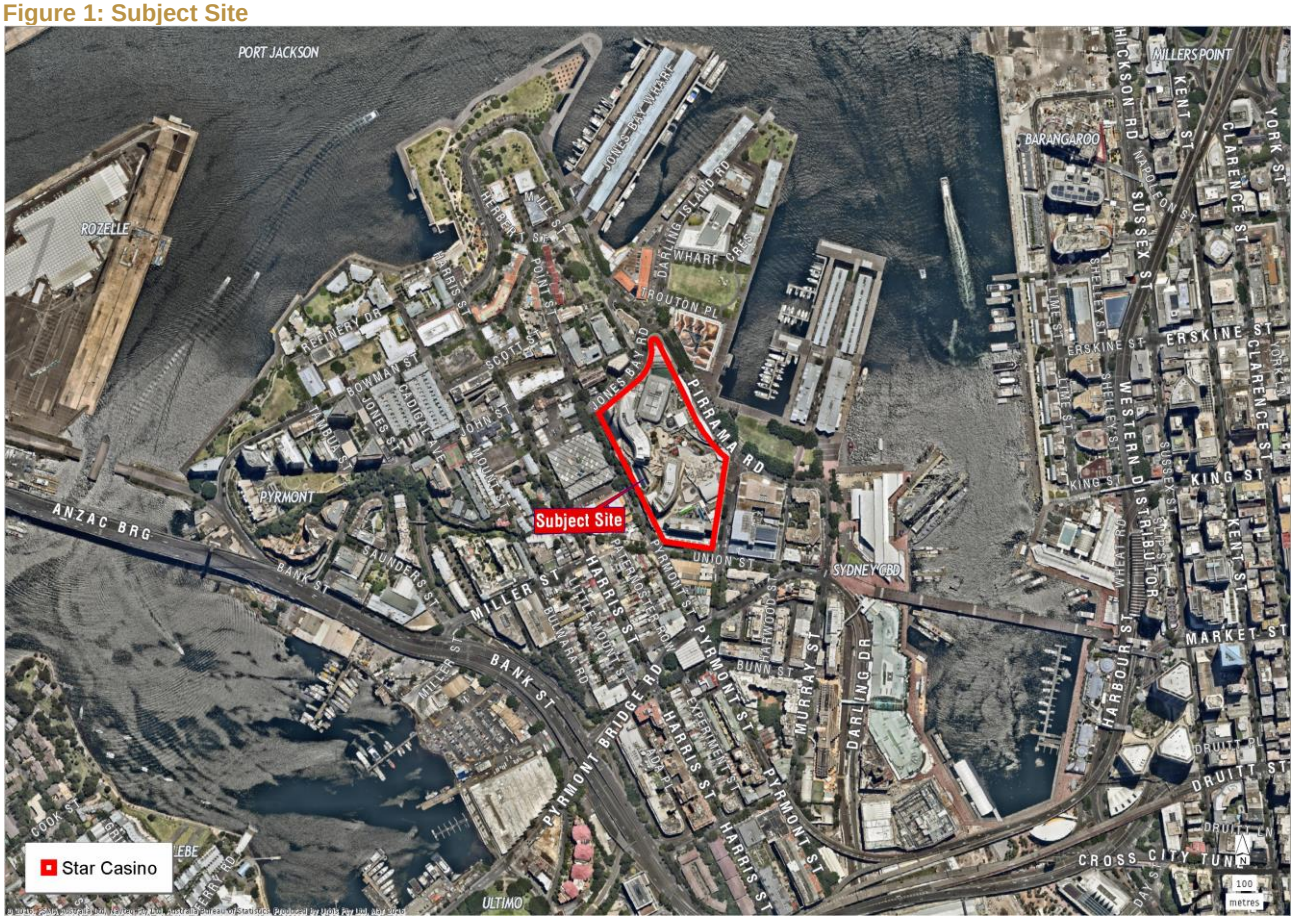
The site is leased by SEGL from the Independent Liquor and Gaming Authority (ILGA) and accommodates, in addition to The Star, a light rail line (including the 'Casino' light rail station) and a bus interchange located adjacent to the Site's Pirrama Road frontage. (Please refer to Figure 1).

1.2 ABOUT THIS DOCUMENT

The document itself is split into two (2) main parts, as follows:

- Part A – General Information about the Design Excellence Process– how it is intended to run, how decisions are made etc.
- Part B – Technical considerations – outlining key technical matters that need to be taken into consideration in the architectural design process, arising from preliminary investigations.

Figure 1: Subject Site



1.3 PROPOSED SITE REDEVELOPMENT

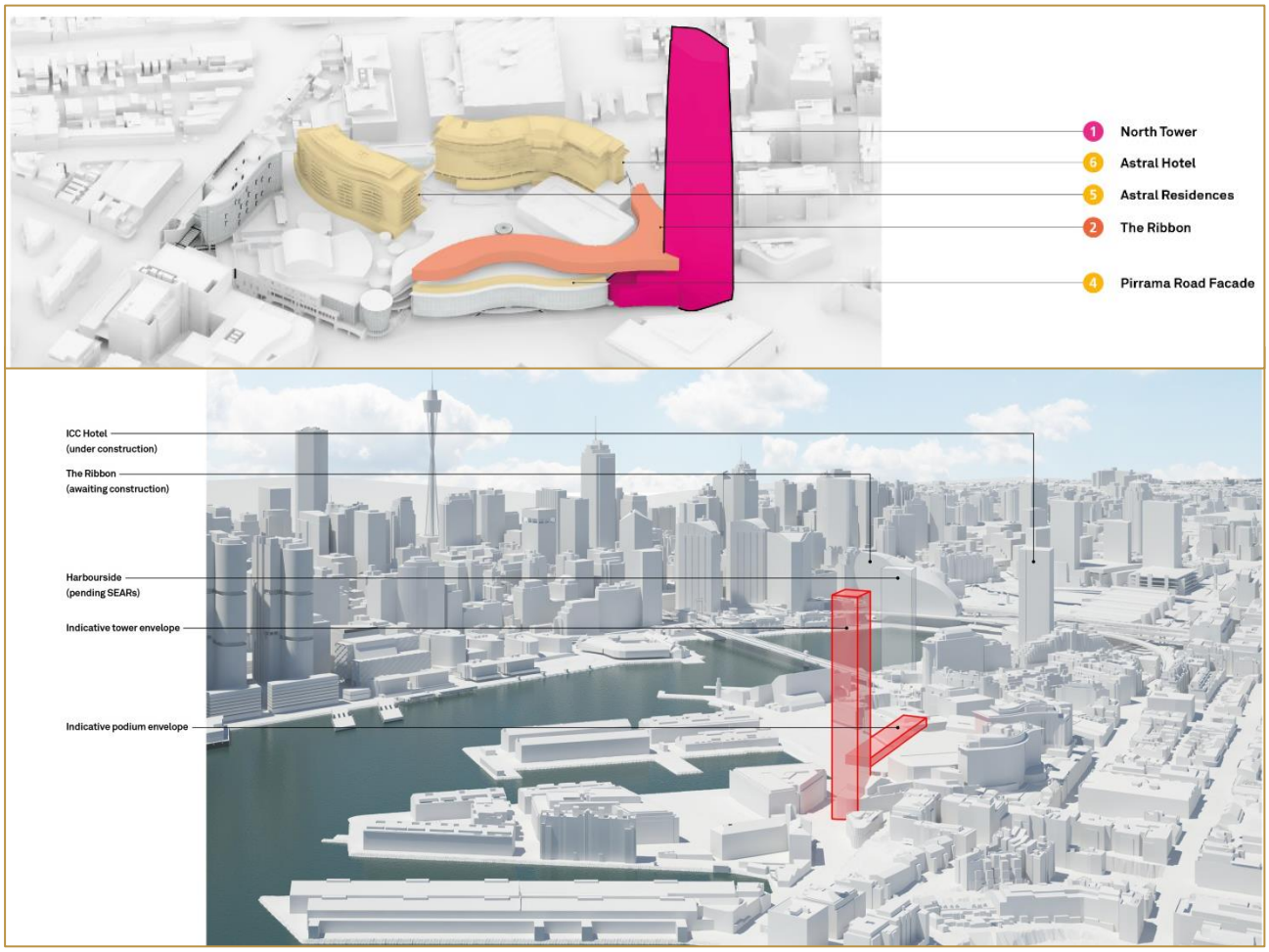
Star Entertainment Group Limited (SEGL) is a leading operator of integrated resorts and casinos that appeal to both local and international visitors. SEGL is the operator of The Star Sydney Complex (The Star), with a licence through to the year 2093.

Consistent with its licence obligation to operate the site to an international standard, SEGL is proposing to advance a redevelopment of the casino complex. More specifically, the following are proposed:

- Provision of additional hotel, operated by Ritz-Carlton, and other accommodation on site;
- The addition of new and improved VIP gaming facilities;
- Improved and expanded food and beverage outlets including premium dining facilities;
- Improved people and movement connections including upgrades to the light rail; and
- An upgrade of the external appearance and presentation of the facility.

The development that is subject to the design excellence process includes the proposed hotel tower and associated podium level treatments and extensions – as illustrated in Figure 2 below. A key outcome from the intended process is the validation of the scale and form of the tower and architectural expression of the tower and associated extension.

Figure 2: Component Plan and Indicative Building Envelope (source: Grimshaw Architects)



1.4 MEASURE OF SUCCESS FOR THE PROJECT

An important aspect of the Design Excellence Brief is to define the measures of success, in particular for a project of this ambition, scale and nature. The measures of success for Modification 13 have been established as follows:

- To create a landmark, exemplar development within the City of Sydney of contrasting experiences, for both local people and visitors alike;
- To create desirable places to live, work and play with different characteristics;
- To leave a positive legacy of SEGL's historical involvement for the locality of Pyrmont, including a positive contribution to the quality of public domain areas;
- To establish a global hotel tower in an elegant and efficient manner;
- To ensure the project meets or exceeds very high level benchmarks for environmental, social and economic sustainability;
- To demonstrate that the proposed redevelopment can advance with limited environmental impacts;
- To meet or exceed market expectations with respect to a commercial return; and
- To ensure that there is procedural fairness for the Design Teams and that the process is open, transparent, providing opportunities for genuine stakeholder engagement.

The measure of success sets the framework for the structure of the Design Excellence Brief, as well as informing the key elevation criteria for the final Design Team submissions.

1.5 OVERALL PROJECT

There are a wide range of requirements to be addressed in order to advance the proposed redevelopment, as an overall project. Figure 3 below illustrates the current status of the project at the time of writing (April 2016).

Figure 3: Project Overview

1.6 ABOUT THE DESIGN ALTERNATIVES PROCESS

The design alternatives process is intended to achieve design excellence for the redevelopment of the Star casino site in Pyrmont, in accordance with the requirements set out in the Secretary's Environmental Assessment Requirements (SEARs) issued by the Department of Planning and Environment on 9 February 2016 in respect of proposed Modification 13.

As key principle, design excellence includes the following:

- To achieve the highest standard of build form outcomes for the site;
- To encourage built form that positively contributes to the overall architecture of the City;
- To encourage innovation and best practice approaches;
- To establish buildings appropriate to their context; and
- To achieve environmentally sustainable built form outcomes.

Consistent with the requirements set out in the Secretary's Environmental Assessment Requirements; SEGL is seeking to advance a design excellence process that includes:

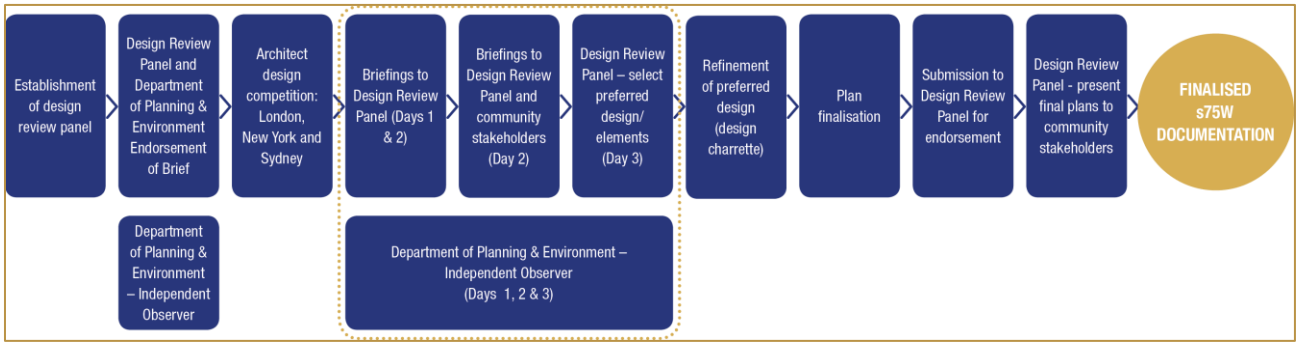
- Three alternative design options for the proposal;
- Establishment of a design review panel to review each alternative and inform the preferred design; and
- Mechanisms to retain the architect during the design and construction of the scheme.

In addition to the above, opportunities for stakeholder engagement are incorporated into the process.

1.7 OVERVIEW OF THE DESIGN EXCELLENCE PROCESS

A summary flowchart of the design component process is illustrated in Figure 4 below.

Figure 4: Design Excellence Process



1.8 DESIGN REVIEW PANEL

A design review panel is proposed to be established for the design excellence process. The role of the Design Review Panel (DRP) is to provide design excellence advice for the project and (if deemed appropriate, by virtue of being satisfied) select a 'winning design' and endorsement of a final design to advance for formal lodgement.

The panel will comprise a minimum of three and not more than five members. In addition to a representative from SEGL and a representative from Ritz Carlton, the Design Review Panel (DRP) shall consist of eminent professionals in their field, and shall have relevant design expertise and experience. The Department of Planning shall be consulted in the final selection of DRP membership.

It is intended that a clear governance framework for the panel would be established addressing:

- Independence;
- Conduct of meetings and decision making;
- Remuneration; and
- Tenure.

1.9 OBLIGATION OF THE DESIGN REVIEW PANEL MEMBERS

In accepting a position on the Design Review Selection Panel, the panel members agree to:

- Evaluate submissions promptly in accordance with the established Design Excellence Process timetable;
- Consider planning or other technical advice provided by the Consent Authority; and
- Make every effort to arrive at a consensus in the selection of a winner, noting that a unanimous decision is not required.

1.10 ROLE OF STAKEHOLDERS

Although not a specific requirement established in the Secretary's Environmental Assessment Requirements for the project, the proponent has identified as part of an overall stakeholder engagement strategy that there is value in bringing community stakeholders into the design excellence process.

In this context, community stakeholders are intended to be invited to participate in the design excellence process. More specifically, it is intended that community stakeholders will:

- Be invited to attend day two of the design excellence process;
- Receive presentations from the three (3) design team preparing the design alternatives
- Have the opportunity to ask questions of the different architectural offices, in response to the material presented;
- Have the opportunity to contribute ideas/suggested improvements in respect of the 3 different designs;
- Have the opportunity to provide feedback, comments and ideas, through a dedicated community session;
- Have the opportunity to have their feedback , comments and ideas considered by the Design Review Panel, as part of deliberations on a winning project design;
- Have the opportunity to attend a joint presentation by the winning architect office and the Design Review Panel, that will
  a) Provide an outline of the final design; and
  b) Demonstrate how stakeholder engagement has been considered in the design preparation process.

As outlined above, the opportunity for community stakeholders to participate in the design excellence process is part of a broader approach to stakeholder engagement for the project moving forward.

It is also important to be clear that as part of normal statutory/assessment processes, the proposal once formally lodged with the Department of Planning, shall be the subject of public exhibition and full technical assessment.

A list of community groups invited to attend the day two sessions of the Design Excellence Process shall be documented in a final stakeholder engagement strategy and the Department of Planning, as the consent authority, shall be consulted prior to the issue of invitations. It is intended that all members of the public will be able to attend a session at the end of day two, in order to provide feedback.

A community drop-in session is intended to take place on the evening of day two. Community members including local residents, business owners and workers will have the opportunity to contribute ideas/suggest improvements in respect of the three designs.

1.11 ROLE OF THE CONSENT AUTHORITY

As the project has been the subject of Part 3A approvals, the process set out in Section 75W of the Environmental Planning and Assessment Act 1979 for transitional projects establishes the Minister for Planning as the Consent Authority.

1.12 ROLE OF IMPARTIAL OBSERVER

This Design Excellence Process will be overseen by an impartial Observer(s), being a staff member of the Department of Planning.

Where practical, the observer shall be provided with two weeks' notice and shall be invited to be present when:

- Briefings are provided to Design Team;
- Any further information briefings;
- Design Review Panel discussions; and
- Presentations during the design excellence process.

All information and responses sent to the Design Teams Design Review Panel are also to be copied to the Observer(s).

1.13 ROLE OF THE DESIGN EXCELLENCE PROCESS MANAGER

Urbis has prepared this Brief as the Proponent's planning consultant and the Manager of this Design Excellence Process. All communications and enquiries related to this Process should be issued in writing to:

Urbis

Level 23, Darling Park Tower 2

201 Sussex Street

SYDNEY NSW 2000

1.14 ROLE OF ARCHITECT DESIGN TEAMS

Grimshaw Architects have been invited by SEGL to submit design alternatives by three (3) international offices operating independent. It may be noted that:

- The offices are required to operate entirely independently in the preparation of their design alternatives;
- Only that information contained within the design excellence brief shall be used;
- All communications shall be through the Design Excellence Process Manager and a copy provided to the Department's appointed Independent Observer;
- The design review panel will need to be satisfied that the process requires the preparation of genuine design alternatives; and
- The presentations to the community stakeholders shall be made independently by each office.

Once a decision has been made by the Design Review Panel in respect of a 'winning decision', it is open to the different offices of Grimshaw to work collaboratively in the preparation of a final design package for advancing toward final endorsement by the Design Review Panel.

1.15 TECHNICAL ASSISTANCE TO THE DESIGN REVIEW PANEL AND DESIGN TEAMS

The Design Review Panel may seek independent technical assistance, if required. The advice provided by technical advisors to the Design Review Panel will be limited to technical and compliance issues only.

1.16 LODGEMENT OF SUBMISSIONS

Design Teams shall lodge their Final Submissions in a sealed package to Urbis at the following address:

Design Excellence Process Manager

Urbis

Level 23, Darling Park Tower 2

201 Sussex Street

SYDNEY NSW 2000

Phone: (02) 8233 9900

The package should be labelled "Star Casino Project - Sydney – Design Excellence Process"

The Department representative nominated as the observer by the Consent Authority may be present when the submissions are opened.

1.17 SUBMISSION REQUIREMENTS

The proposal for distribution to the panel shall generally consist of:

- Aerial photograph (1:1000 or 1:2000);
- Existing site plan (1:500);
- Site Analysis (1:500);
- Streetscape elevations (1:500 or 1:200)
- Sketch concept plan (1:500) – this must locate new streets, public domain improvements, building form and massing;
- Typical Basement plans showing entry/exit location and loading dock arrangements; (1:200 or 1;500);
- Ground floor plan including landscaping concept and the relationship to the public domain; (1:200 or 1:500);
- Typical plans, elevations and sections; (1:200 or 1:500);
- Amenity diagrams demonstrating which residential apartments in the tower will achieve

the minimum ADG solar access and natural ventilation requirements;
- Streetscape elevations;
- Overshadowing diagrams demonstrating compliance with authority and code requirements;
- GFA plans illustrating GFA accounting; Schedule of areas expressed in the FSR, apartment numbers, hotel numbers;
- 3D massing or modulation study;
- Physical model;
- 3-D computer generated perspective(s)/photomontages(s) of the proposal. A minimum of three (3) images are required from the following locations:
    - A perspective of the development looking from McMahon's Point;
    - A perspective of the development looking from King Street Wharf;
    - A perspective of the development looking from Observatory Hill;
    - Aerial view from west;
    - A perspective of the development from Pyrmont Bay;
    - A perspective of the development from Pyrmont Bridge;
    - A perceptive of the development from Union Square; and
    - A perspective of the development from Darling Harbour (Cockle Bay).
- A digital materials/image board and indicative finishes;
- All plans, elevations and sections are to be presented at the scale specified and are to include the scale, scale bar and north point; and
- Critical relative levels to be shown on relevant sections and elevations.

The presentation material shall be collated into a single Power Point slide show or PDF document and saved onto five (5) separate CD or USB flash drives, one for each panel member. Five (5) bound sets of the presentation material shall also be submitted in A3 size. Presentations should generally be limited to a maximum of 40 pages/slides and shall be prepared using graphics/language accessible understood by members of the public.

The intent of the list detailed above is to minimise the amount of presentation material to the essential components necessary to explain the aesthetic, environmental, commercial and planning response.

1.18 PRESENTATION OF SUBMISSION

The Design Teams must present their entry in person. The presentation must be no longer than sixty (60) minutes followed by a further sixty (60) minutes of questions (total up to 120 minutes).

THE STAR

PART B – TECHNICAL CONSIDERATIONS

2 PART B – TECHNICAL CONSIDERATIONS

There are a range of practical matters that need to be taken in consideration by the different Design Team in the preparation of design alternatives for the site, and then in turn by the Design Review Panel in selecting a preferred design. These matters include:

- The **commercial brief** from the project proponent;
- The **project vision** from the project proponent; and
- The outcomes from the **preliminary technical investigations** advanced for the site, advanced by the SEGL Project Team, including Grimshaw Architects.

These matters are set out in the following sections.

2.1 COMMERICAL BRIEF

The Star Entertainment Group Limited (SEGL) has entered into a commercial arrangement with Ritz Carlton, as the intended operator of the new hotel within the proposed tower. Advancing the site in this manner is consistent with licence obligations SEGL has in respect of the land, including ensuring that the site operates at an international standard into the future.

For the project to advance, commercial imperatives must be satisfied in parallel with all other design, planning and technical considerations. Table 1 overleaf provides a summary of the commercial requirements for the proposed development.

Table 1: Commercial Brief

Matter	Detail
Target Number of Hotel Rooms	Minimum target of 206 rooms (target of. 45m^2/ hotel room). Internal layout and maximum yield to be considered as part of Design Excellence Process.
Target Number of Apartments	Minimum target of 160 apartments. Internal layout and maximum yield to be considered as part of Design Excellence Process.
Apartment Size	▪ Studio – minimum internal area of 35sqm; ▪ 1 bedroom – minimum internal area of 50sqm; ▪ 2 bedroom – minimum internal area of 70sqm; and ▪ 3 bedroom – minimum internal area of 90sqm.
Typical Finished Floor to Ceiling Height	Targets: ▪ Living Area – 2945mm ▪ Corridors – 2820mm ▪ Bathrooms – 2620mm ▪ Apartment Entries – 2520mm
Vertical transport strategy	To be in accordance with preliminary strategy set out in Section 2.7.8
Business Continuity for Overall Site.	The ability of the Casino, Darling Hotel, Astral Tower and the Multi-Use Entertainment Facility to continue operating normally shall not be compromised by the proposed hotel, both during construction and then on-going occupation.
Car Parking and Access	1 car parking bay per apartment Automated vehicle stacking parking system (underground), with fixed access arrangement via internal road layout.
Lifts	Ability to operate within effective vertical transport strategy.
Access to hotel related facilities	5 Star hotel arrival experience, Sky-level check-in.
Other facilities	Gym, spa, fine dining, club lounge, pools, roof terraces, restaurants and banquet. Public access to be provided to park of the Level 8 roof terrace.
ESD Benchmark	Minimum 4.5 Star, with ability to consider higher.
Technical Requirements	General compliance with relevant technical requirements and standards, to enable the project to be able to proceed through relevant approval pathways.

2.1.1 About the Star Entertainment Group Vision for the Site and Project

The Star Entertainment Group Limited (formerly known as Echo Entertainment Group) is an ASX 100 listed company that owns and operates The Star in Sydney, Treasury Casino & Hotel in Brisbane and Jupiters Hotel & Casino on the Gold Coast. The Star Entertainment Group also manages the Gold Coast Convention and Exhibition Centre on behalf of the Queensland Government.

At the core of The Star Entertainment Group's premium offering at each property is the quintessential spirit of each destination with broad appeal for both local and international visitors. This is achieved through a long-term commitment to local relationships, leveraging deep local knowledge and insights, and enhanced by international best practice expertise.

2.1.2 Star Entertainment Group Vision for the Site and Project

As Star's flagship Australian destination, The Star Sydney is a globally competitive, integrated resort offering a unique Sydney experience.

The Star forms a critical piece of the tourism landscape in New South Wales and provides an essential contribution to Sydney's reputation as Australia's number one city and a leading international destination.

2.1.3 Star Entertainment Group Environmental Management Policy

The Star Entertainment Group has established an environmental management policy that seeks to manage its risks and impacts arising from its business activities so that it:

- Identifies, controls and where possible minimises adverse environmental impacts arising from its operations;
- Meets or exceeds all relevant legal obligations and relevant codes of practice;
- Prevents pollution, minimise waste and improves resource use efficiency;
- Progressively assesses its energy consumption to identified opportunities for improving the energy efficiency of its operations; and
- Communicates openly with the community, government and other stakeholders regarding its environmental performance.

Any proposed redevelopment should be in accordance with the company's environment policy and principles.

2.2 EXISTING PLANNING FRAMEWORK

The Star is authorised under two key planning approvals including:

a) A development consent granted by the Minister for Planning on 2 December 1994 under s 91 of the EP&A Act and cl 6 of the State Environmental Planning Policy No 41 – Casino Entertainment Complex (DA 33/94); and
b) A Major Project Approval granted by the Minister for Planning on 27 January 2009 under s 75J of the EP&A Act (MP 08_0098).

In broad terms, DA 33/94 authorised the development on the site of a casino and entertainment complex including a hotel, serviced apartments, theatres, restaurants, bars, car parking and associated facilities.

MP 08_0098 authorised certain additions and alterations to the development under DA 33/94 including:

- Construction of a 10 storey hotel, above a 3 storey podium, containing ancillary retail, gaming and conference facilities on the switching station site;
- Provision of additional basement car parking, to a maximum of 3,000 spaces, on the switching station site to be accessed via the existing casino complex car park;
- Redevelopment of the retail arcade through the ground floor level of the complex, linking Pyrmont Bay Park to the intersection of Union and Pyrmont Streets, and to Jones Bay Road;
- Redevelopment of the Pirrama Road frontage of the casino building with restaurants, retail outlets, gaming space and other entertainment and tourist related facilities, and construction of a new entry and driveway providing a new vehicle drop off point; and
- Works to the exterior of the existing casino tower.

Since MP 08_0098 was granted in 2009, it has been modified under Section 75W of the EP&A Act on 12 occasions. Most of these modifications were relatively minor in nature. The most substantial modifications were:

- Modification 4 (approved 1 December 2009) – which modified the approval to facilitate an alternative façade design, consolidation of

porte-cocheres, reconfiguration of the entry arrangements and extension to the entertainment deck; and

- Modification 7 (approved 29 July 2011) – which modified the approval to facilitate the construction of the Multi-Use Entertainment Facility on level 4 roof top terrace area.

The proposed redevelopment that forms Modification 13 is intended to be progressed under Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It is open to the Minister to consider the proposal on its merits and the provisions and standards of the City of Sydney Local Environmental Plan 2012 are not applicable in this instance.

In the context of the above, it is a requirement of the design excellence process to validate an appropriate building envelope in the first instance and then consider the merits of the proposed architectural responses.

2.3 LIMITED ENVIRONMENTAL IMPACTS

A requirement that has been established in the Secretary's Environment Assessment Requirements (February 2016) necessitates the following to be demonstrated:

"Demonstrate that the proposal has limited environmental impacts beyond those already assessed for project approval MP 08_0098 and any subsequent modifications to that approval."

This is a general requirement that the design teams should be cognisant of in the preparation of their designs.

The below-mentioned documents , set out in Table 2, are publicly available through the Department's Major Project website. If required, further detail may be requested through the Design Excellence Process Manager.

Table 2: Available Documents from Previous Approvals

Environmental Impact	Relevant Document(s)
Environmental Assessment	Environmental Assessment Report prepared by Urbis on behalf of Sydney Harbour Casino Properties Pty Ltd, September 2008
Transport	Transport Impact of Star City Redevelopment prepared by Arup dated September 2008 and supplementary report dated December 2008 and Traffic Impact of Star City Redevelopment prepared by Arup dated September 2008.
Visual Impact	Visual Impact Assessment prepared by GM Urban Design & Architecture Pty Ltd dated September 2008 View Impact Assessment prepared by GM Urban Design & Architecture Pty Ltd, dated October 2010 and Revised Visual Impact Assessment, prepared by GMU, dated 14th January 2011(including revised photomontages by Arterra)
Contamination	Limited Phase 1 Contamination Assessment prepared by Douglas Partners dated June 2008
Wind	Pedestrian Wind Environment Statement prepared by Windtech Consultants Pty Ltd dated September 11, 2008
Noise	Acoustic Assessment Report prepared by Arup Acoustics dated September 2008 and Acoustic Assessment prepared by AECOM dated 7 October 2010
Reflectivity	Assessment of Reflected Solar Glare from Glazed Facade Pirrama Road prepared by Bassett Consulting Engineers dated 8 September 2008 and supplementary report dated 12 December 2008
Crime Prevention through Environmental Design	Crime Prevention Through Environmental Design report prepared by Urbis dated June 2008. Further amended by Crime Prevention Through Environmental design report prepared by Urbis dated October 2010.
Heritage	Heritage Impact Statement prepared by Urbis dated September 2008
Economic	Economic Impact Assessment prepared by Urbis dated 30 June 2008
Building Code of Australia	BCA Capability Statement prepared by Philip Chun & Associates dated 11 September 2008 and BCA Review prepared by Philip Chun dated 10 August 2010. Further amended by BCA Review prepared by Phillip Chun & Associates, dated 6th October 2010.
Accessibility	Accessibility Review prepared by Morris-Goding Accessibility Consulting dated 10 September 2008. Further amended by Accessibility report prepared by Morris-Goding Accessibility Consulting dated 7 October 2010.
ESD	Project Star ESD Revised Scheme Statement prepared by Cundall, dated 12 August 2009. Further amended by Ecological Sustainable Development Statement prepared by Cundall dated 7 October 2010
Fire Engineering	Fire Engineering Statement prepared by AECOM, dated 5th October 2010 and supplementary letter from AECOM entitled 'Star City - Egress from MUEF' dated 3 June 2011
Landscape	Landscape and Public Domain Design prepared by Tract Consultants, dated 12 August 2009
Hydraulic Services	Hydraulic Services Report prepared by Steve Paul & partners dated 25 June 2008
Services	Building Services Report prepared by Bassett Consulting Engineers dated 1 August 2008

2.4 PRELIMINARY INVESTIGATIONS

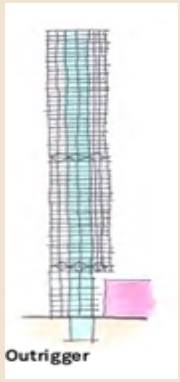
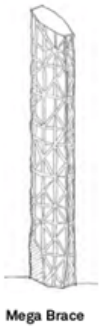
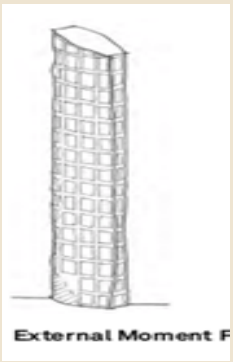
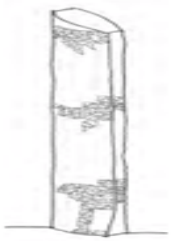
2.4.1 Site Analysis

A range of preliminary technical investigations have been completed for the site, which will need to be taken into consideration by the design team in the preparation of the design alternatives. The primary considerations that have driven the overall location of the hotel tower have been structural assessments of the site (and its existing buildings), the commercial requirement to achieve business continuity across the site and the need to minimise potential shadow impacts on the other surrounding area from future buildings. These matters and other technical considerations are set out in the following sections.

2.4.2 Structural Opportunities

The structural engineers have offered a number of different structural typologies that are suitable for use with a hotel and residential tower. The opportunity for permutations within each typology are significant, the below preliminary concepts should be seen as starting points only for further exploration. Table 3 outlines the potential structural opportunities

Table 3: Structural Opportunities
Source: Grimshaw Architects)

Type	Description	Illustration
Outrigger	This is quite a common form of construction and is relatively efficient. The outrigger system utilise the main core as a primary lateral support element with additional support from outriggers transferring loads to the perimeter columns through 'belt trusses', which circle the perimeter of the building.	
Mega Brace	This option would supplement the concrete core with an externally braced frame. The triangulated frame would wrap around the building perimeter and continue to ground at the south extent. The form of the triangulated frame would not necessarily have to be uniform but ideally would increase in density toward the base of the tower.	
External Moment Frame	This option supplements the concrete core with a moment frame around the perimeter of the building, which acts as a 0 type truss and as such would feature deep beams and columns. The use of a moment frame would preclude floor to ceiling glazing and a thin structure zone.	
Diagrid	This form of construction would use a triangulated braced frame within the faced to provide additional lateral stability. The scale of the triangulation is smaller than the mega brace option and would therefore require a larger numbers of smaller members.	

2.4.3 Location of Transport Infrastructure

A preliminary site structural assessment was completed by consultants Taylor Thomson Whitting for SEGL. Internally within the site there are two main elements of transport infrastructure which are key constraints to the site. The light rail corridor runs through the site in the North/South direction and forms an easement.

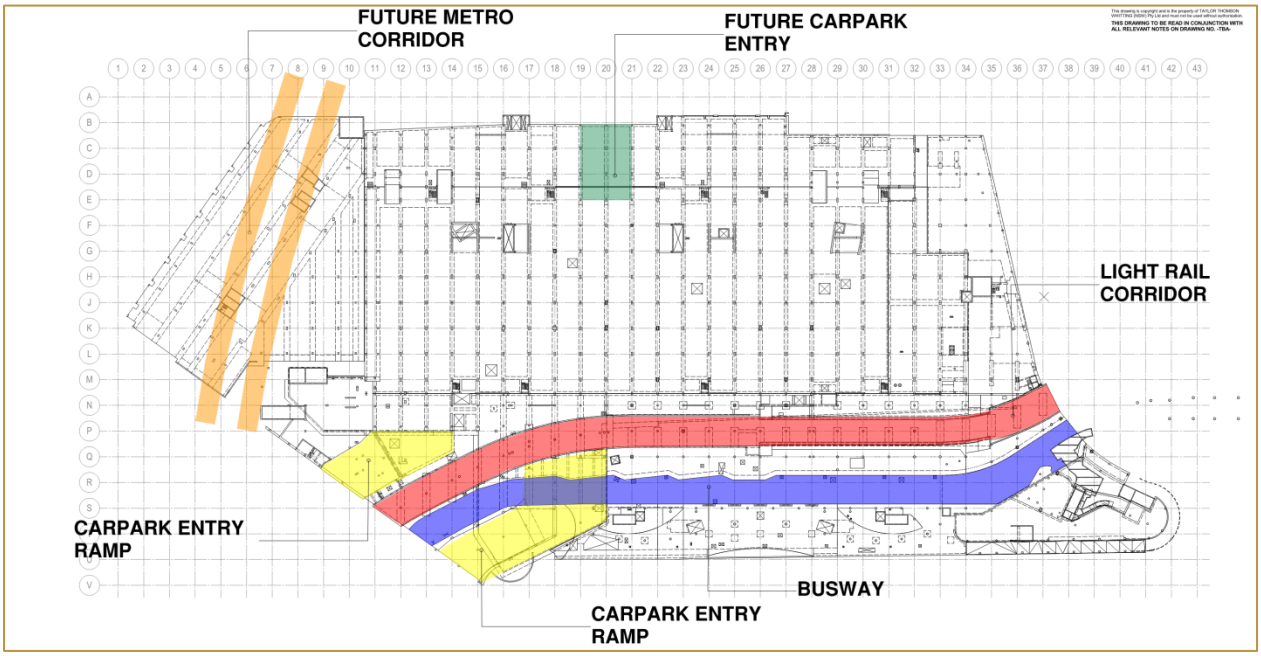
Adjacent to the light rail corridor, there is a transport busway which allows for taxi and vehicle drop offs and for deliveries to the Event Centre.

There are two access ramps to the basement carpark on the buildings South Eastern side which provide access to Sovereign car parking directly and to public parking. There is a proposal for an additional carpark entry off Pyrmont Street as part of the redevelopment works.

The Pyrmont street side of the building houses the main Porte Cochere structure and drop off for the site. A second harbour drop off zone was developed in 2008.

The proposed future Metro Tunnel sits beneath the Darling Hotel structure to the south. The design of the tower has made allowance for the construction of the tunnel in the future.

Figure 5: Transport Infrastructure Locations (Source: TTW)



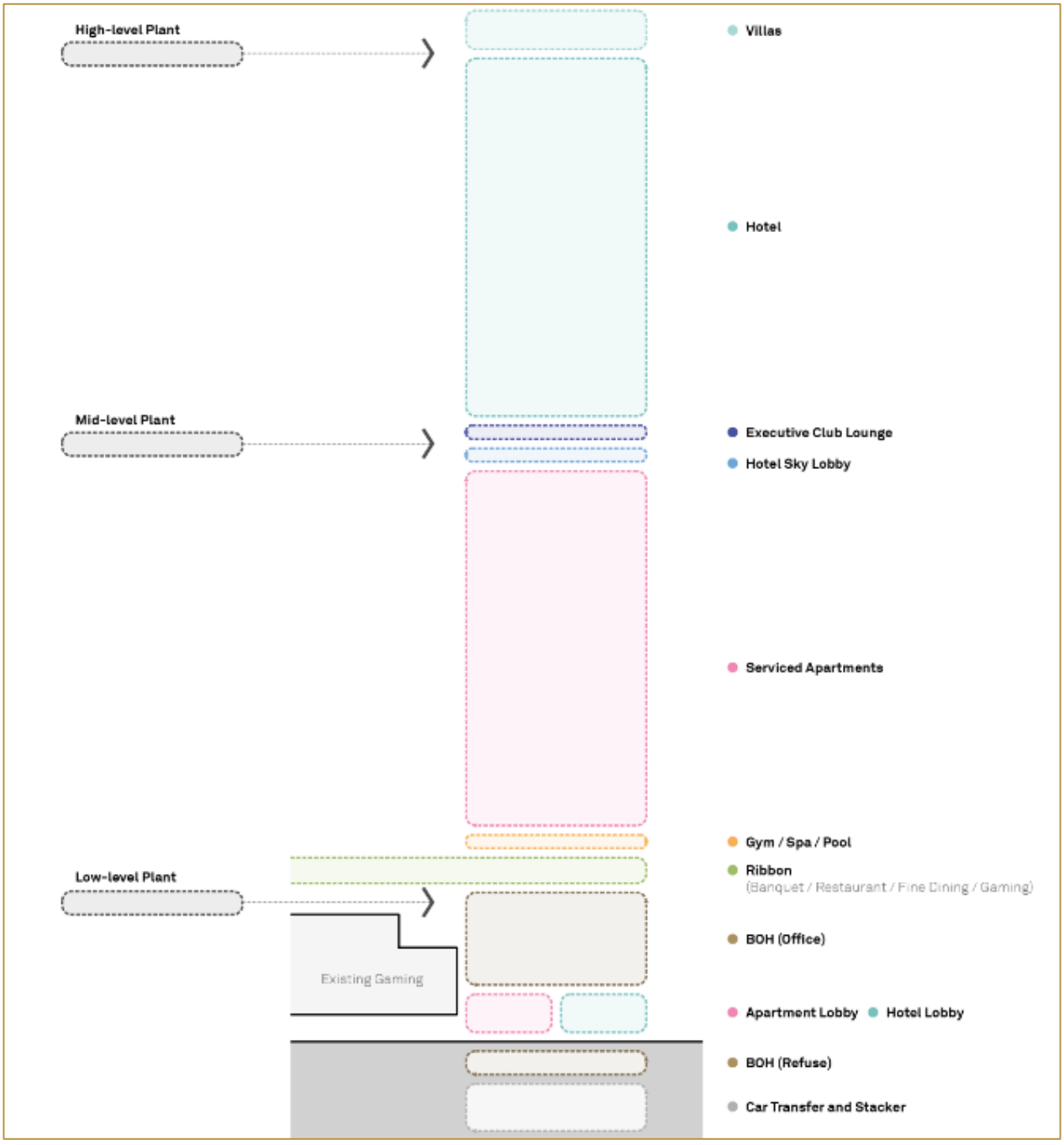
2.4.4 Vertical Allocation of Uses

A 'feasibility scheme' has established a potential layout of land uses and different components of the development; this is illustrated in Figure 6 below. This represents an overall functional configuration that is capable of meeting both technical design requirements and the commercial brief. A potential configuration includes:

- The proposed hotel and villas will be located above the serviced apartments;
- The hotel will have a 'Sky Lobby 'at mid-level;
- The serviced apartments and hotel will have separate ground level lobbies;
- An Executive Club Lounge will be located at mid-level; and
- 'The Ribbon' will have banquet, restaurants and gaming facilities.

The architectural design of the building remains the subject of determination through the design excellence process. Alternative configurations are able to be considered on their merit.

Figure 6: Vertical Allocation of Use (Source: Grimshaw Architects)



2.4.5 Solar Envelope

A potential solar envelope for the tower has been established, based on the requirements set out in SEPP 65 (residential design code) and the associated compliance requirements.

The resultant solar envelope is outlined with the potential building footprint and indicates maximum height opportunities across the site.

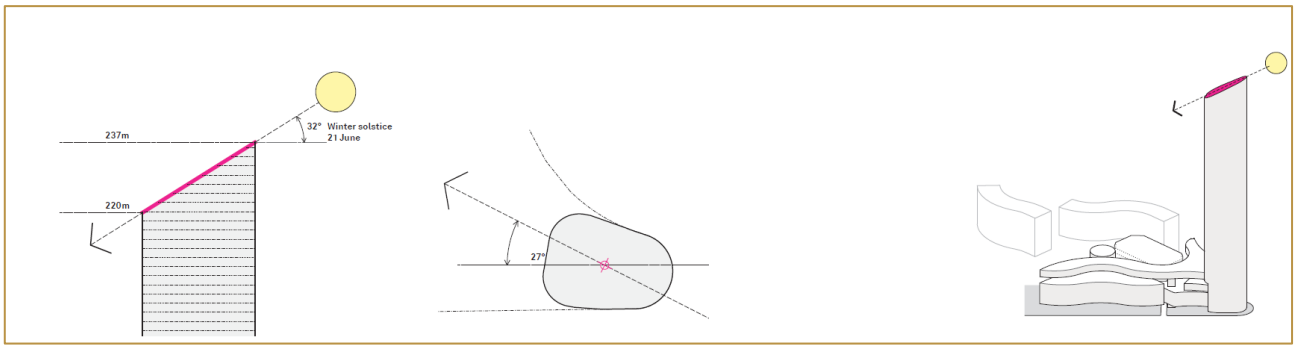
Preliminary solar analysis has identified the following results:

- The solar angle that offers the largest constraints on the tower height is 32 degrees;
- The solar angle to the existing grid is 27 degrees;
- That in order to achieve the requirements for SEPP 65* a building height at the most northerly point of the existing building envelope for the hotel tower should not exceed 237 metres; and
- That in order to achieve the requirements for SEPP 65* a building height at the most southern point of the existing building envelope for the hotel should not exceed 220m.

* In respect to achieving SEPP 65 compliance for the proposed development; considering potential impacts on adjoining properties.

This preliminary analysis is illustrated in Figure 7 below.

Figure 7: Solar Envelope (Source: Grimshaw Architects)

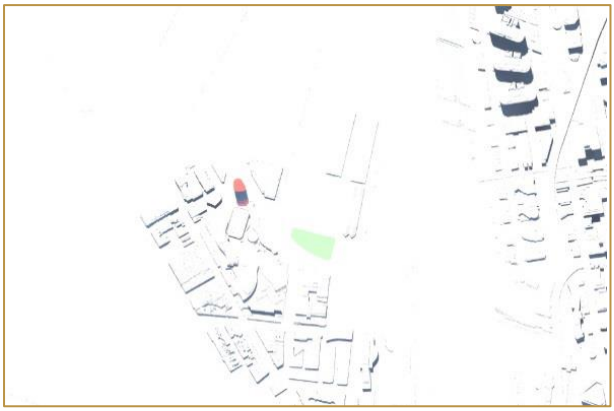


2.4.6 Overshadowing

The analysis of the maximum development envelope indicates that the proposed placement of the building at the northern end of the site, which has been carefully considered to minimise impact on adjacent buildings, also result in minimal over-shadowing of the public domain.

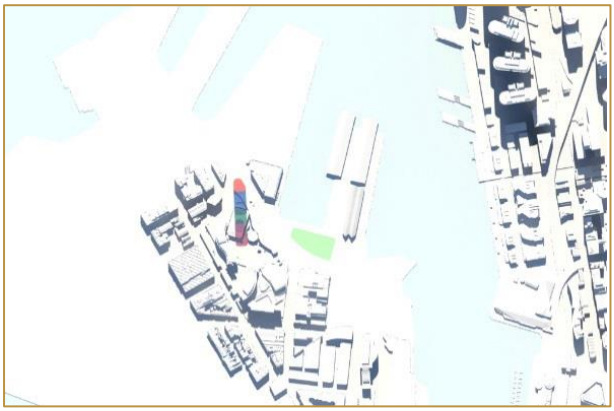
- Summer Solstice – Minimal overshadowing,
- Equinox – Brief overshadowing of Pirrama Park at the north, which clears the park by 3pm,
- Winter – Self-shadowing for the most part.

Figure 8: Shadow Diagrams (Source: Grimshaw Architects)

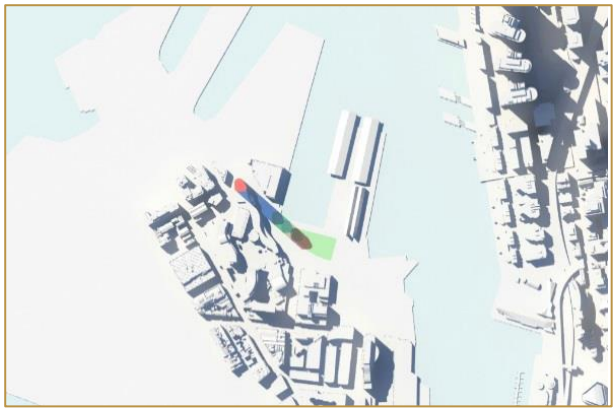


Summer Solstice: 12pm

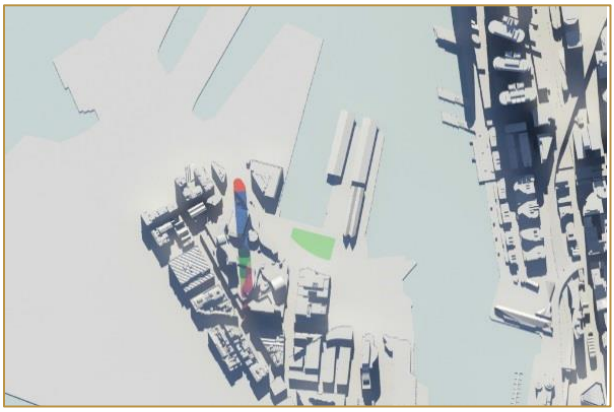
Summer Solstice: 2pm



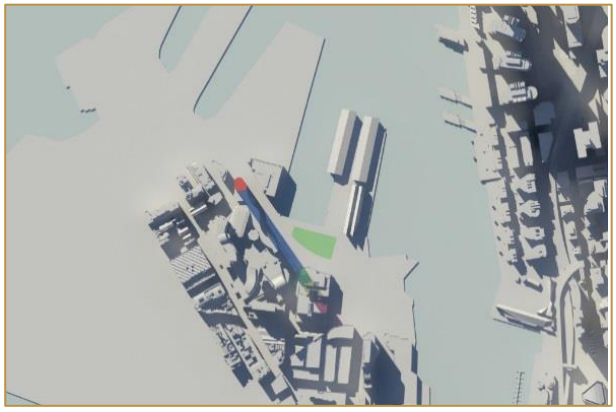
Equinox: 12pm



Equinox: 2pm



Winter: 12pm



Winter: 2pm

2.4.7 Fixed and Flexible Elements of the Ribbon

As a formal strategy, the ribbon serves the purpose of unifying the assemblage of buildings at Star City and anchoring the tower to the site. Crowning the facades at Level 7 along Pirrama and Jones Bay Roads, it also frames unique views onto the city of Sydney and the harbour.

The ribbion will house the Ritz-Carlton banquet facility, restaurant, fine ding and gmaing areas with access to the rooftop terrace above.

A number of fixed and flexible site elements have been identified, as illustrated in Figure 9 below.

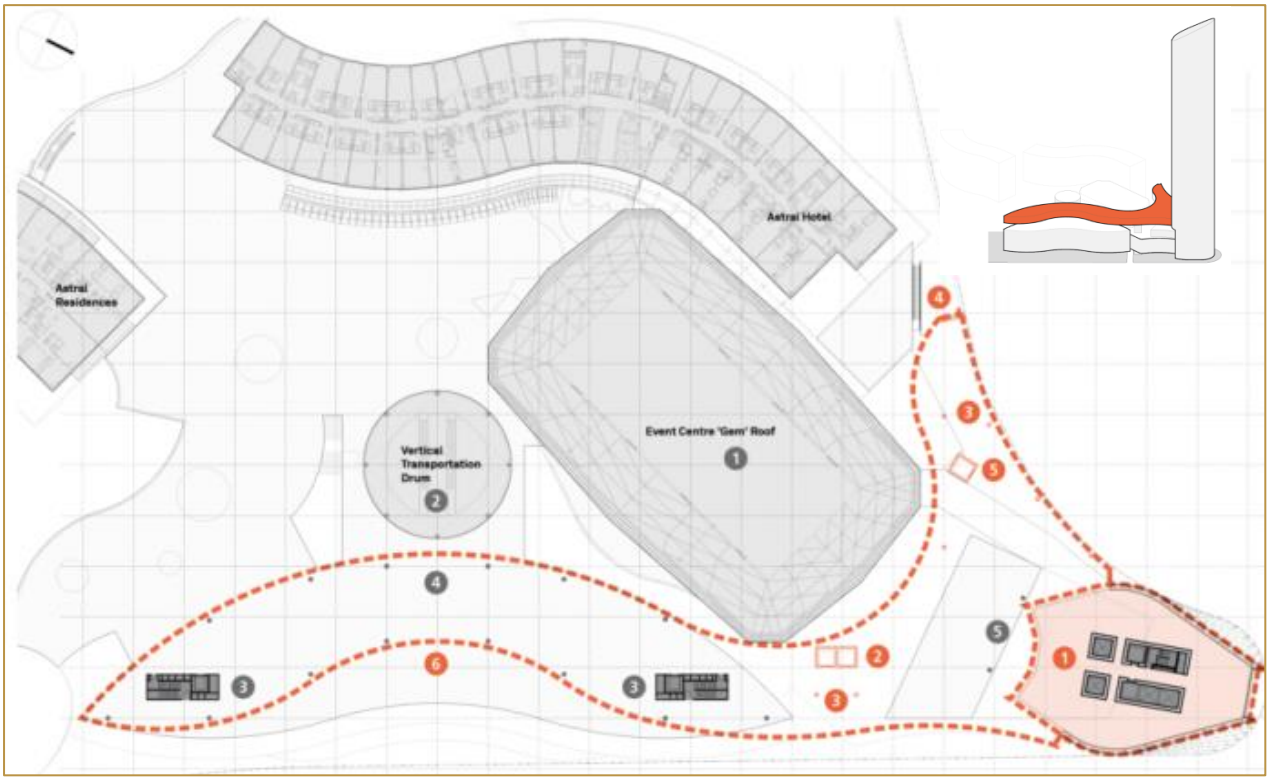
Fixed Site Elements

1. Event Centre 'Gem' Roof
2. Vertical Transportation Drum
3. Existing podium lift cores to be extended to support new Ribbon
4. Existing podium ribbon columns to be extended to support new Ribbon
5. Existing proscenium arch columns to be extended to support new Ribbon

Flexible Site Elements

1. Proposed Hotel Tower: Envelope shown indicative
2. Mega column: Supports ribbon, can be relocated
3. Ribbon-supporting columns: minor relocation possible, must be coordinated with lower levels
4. Blade wall, location and necessity dependent on ribbon form
5. New MRL between L03 and L07, servicing the Banquet reheat kitchen, location under review
6. Ribbon geometry: The form of the ribbon has been largely agreed, however there is still opportunity for further shaping

Figure 9: Fixed and Flexible Elements of the Ribbon (Source: Grimshaw Architects)



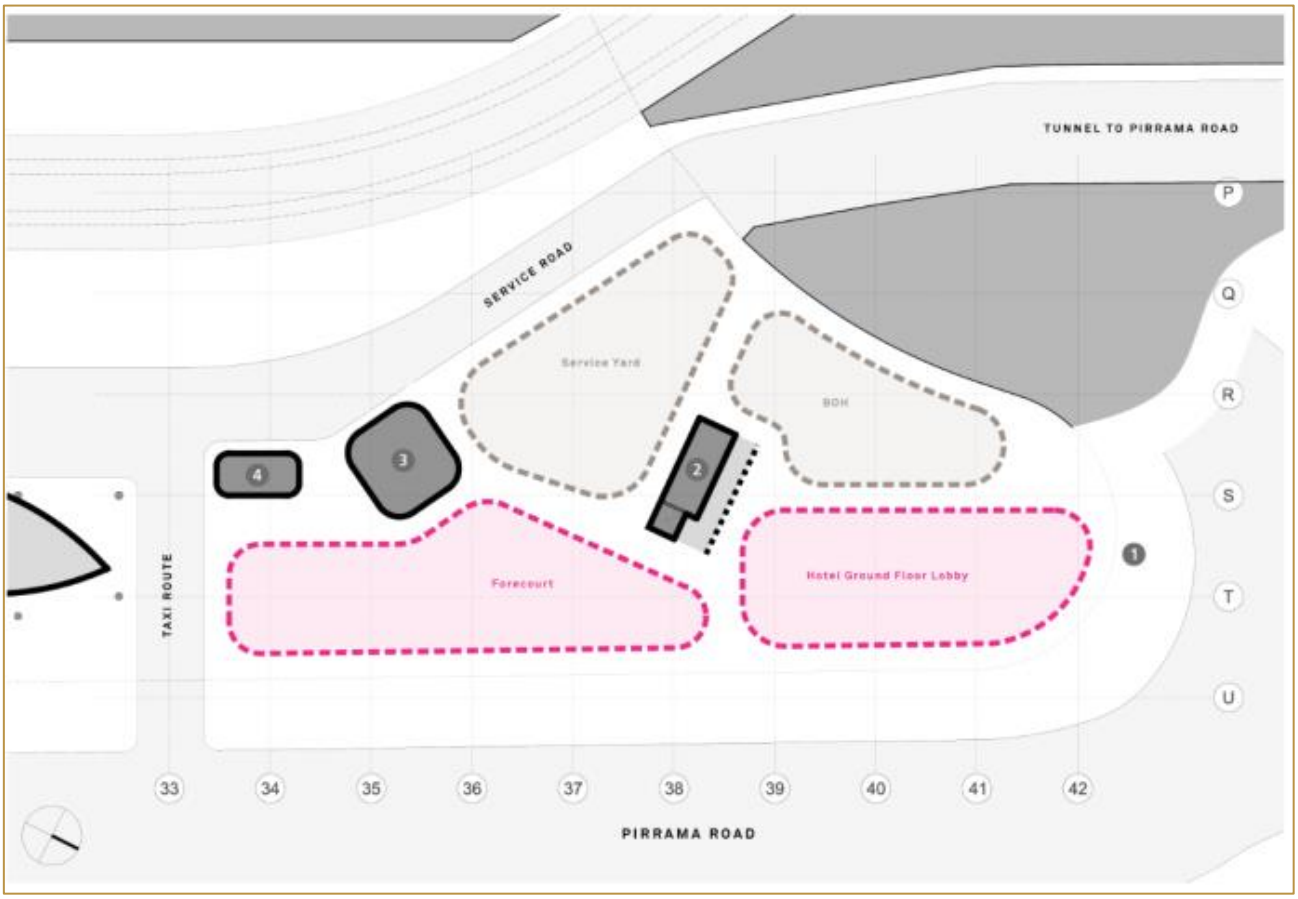
2.4.8 Public Realm

There is a requirement in the SEARs for the preparation of a public domain plan to be prepared and advanced as part of Modification 13.

For the design excellence process, the public domain forms part of the overall site context for the proposed hotel and residential tower as well as the ribbon, which will be specifically advanced through the design excellence process.

There are a number of fixed and flexible site elements associated with the public realm as set out in Figure 10 and Figure 11.

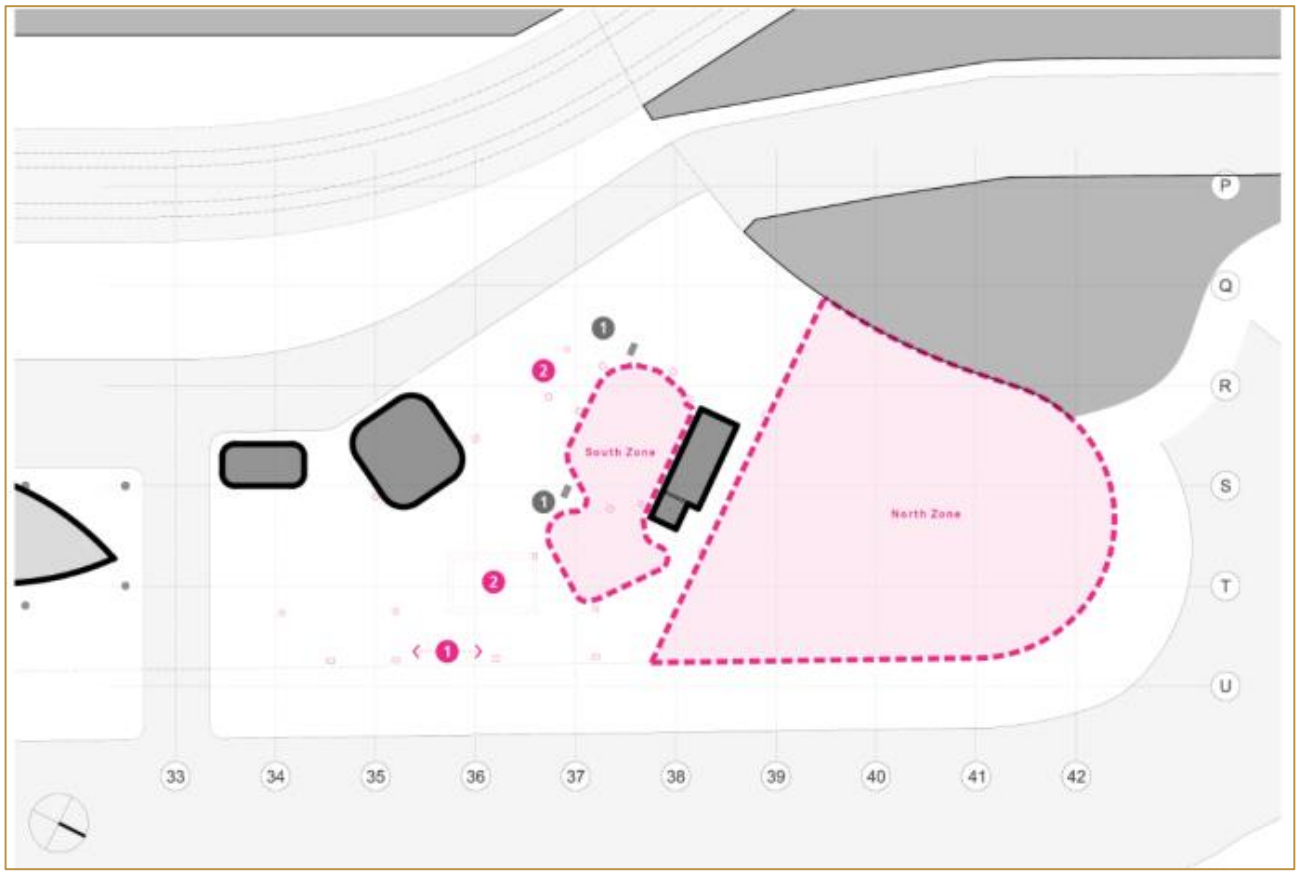
Figure 10: Level B2 Public Realm (Source: Grimshaw Architects)



Fixed Site Elements

1. Site boundary
2. Existing theatre lift serving the Multi-use Entertainment Facility (MUEF), which cannot be altered or obstructed during construction of the tower.
3. Vehicle lifts to car stacker below
4. Mega column: Supports ribbon, there is opportunity for locating public access here

Figure 11: Level B2 Public Realm and Structural Opportunities (Source: Grimshaw Architects)



Fixed Site Elements

1. Existing proscenium arch columns

Flexible Site Elements

1. Existing Pirrama Road columns: Can be demolished or relocated
2. Existing podium structure: Can be relocated, must provide structure to replace demolished fire stair

2.4.9 Vertical Transport Strategy and Building Core

There is a requirement to establish an efficient and effective vertical transport strategy to meet the functional needs of future occupants. A preliminary strategy has been developed, as illustrated in Figure 12 below. Again, the feasibility scheme is not intended to prescribe a particular building envelope nor architectural building expression but rather it has been prepared to assist with technical understanding of site specific considerations. Alternative design responses are able to be considered on their merit through the design excellence process.

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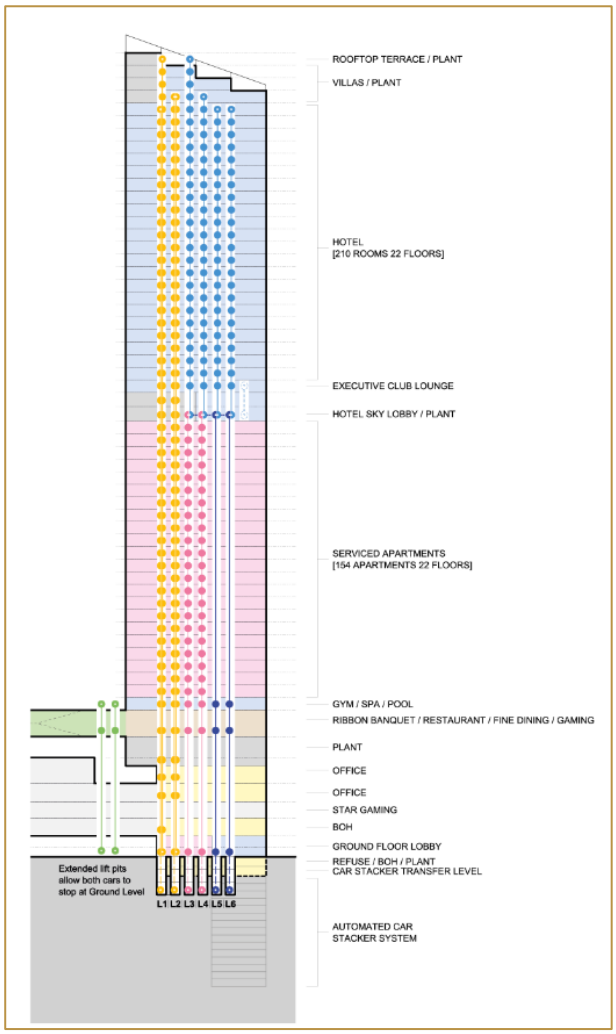
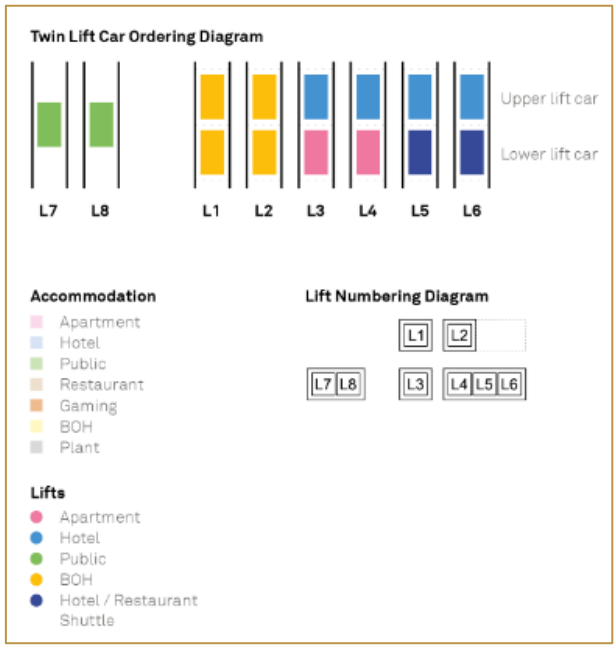
The proposed vertical transport strategy employs a proprietary solution by Thyssen Krupp called the 'Twin' System. The two lift cars operate independently within the same shaft. This system offers maximum flexibility in a relatively small core, which is necessary for a slender tower. The varied programme within the tower puts a heavy load on lifting strategies and the develop twin lift solution is the absolute best response to this difficult constraint.

Public access to the Ribbon L07 Restaurant and Banquet; would ideally be housed within the fixed mega column currently required to support the Ribbon.

Figure 12: Vertical Transport Strategy (Source: Grimshaw Architects)





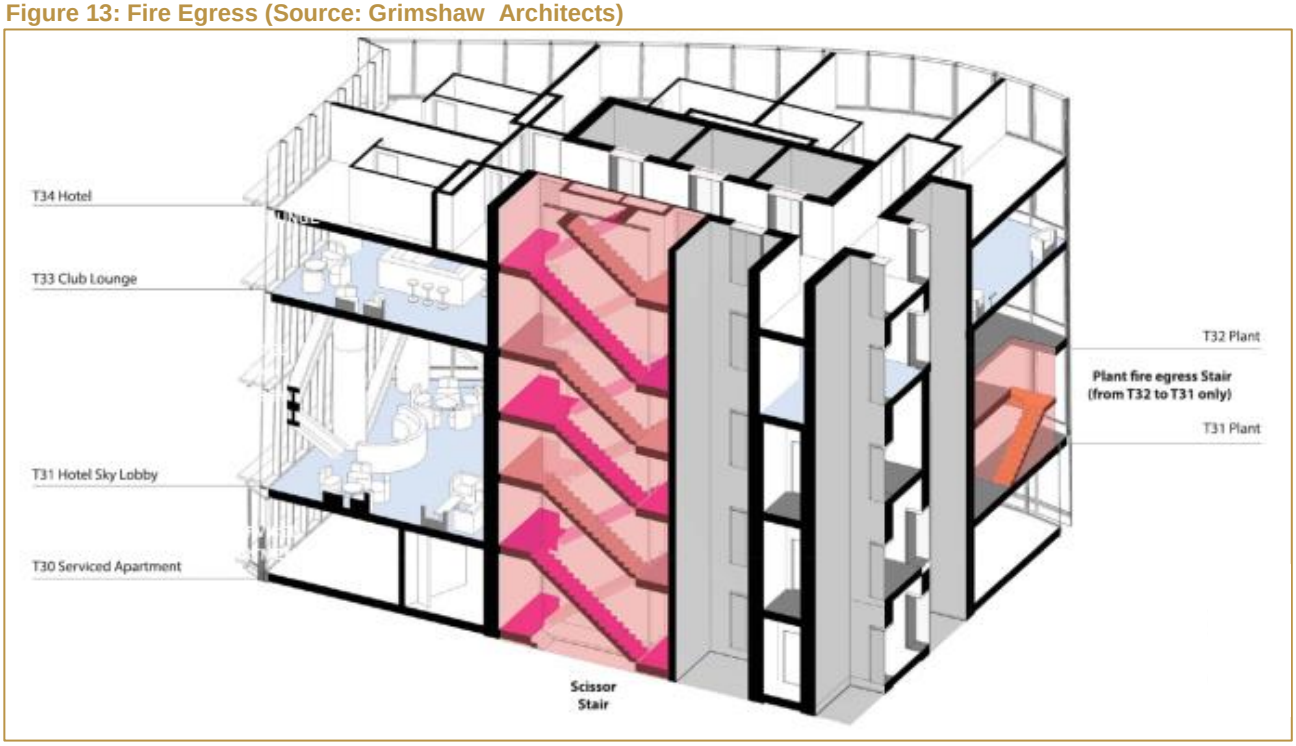
2.4.10 Fire Egress

There is a requirement to establish an efficient and effective fire egress to meet the functional needs of future occupants. A preliminary options analysis has been developed, as illustrated in Figure 13 below.

A 1m wide scissor star has been deemed satisfactory, providing two paths of egress per floor. In addition, one of the passenger lifts will operate as a fire fighting lift providing access for the Fire Brigade, which can also be utilised to evacuate occupants if unable to use the stairs.

Again, the preliminary design option outlined is not intended to prescribe a particular building envelope or architectural building expression; rather it has been prepared to assist with technical understanding of site specific considerations. Alternative design responses are able to be considered on their merit through the design excellence process.

Figure 13: Fire Egress (Source: Grimshaw Architects)



2.4.11 Wind Advice

Potential impacts on the vertical flow of air (commonly referred to as downwash) will need to be taken into consideration, particularly with respect to summer north-easterly winds.

Based on preliminary assessments completed by CPP Wind Engineering, consideration must be given to the use of:

- Building form and its effect on wind-floor patterns and speeds around the building;
- Mitigation of adverse effects of wind at ground level;
- The achievement of an appropriate level of comfort at the podium roof; and
- Potential structural implications and occupant comfort.

The wind loading on any exposed tower is expected to be relatively high due to the exposed nature of the site, with little interference from neighbouring tall buildings. Sydney is a reasonably windy city, with strong prevailing winds from the northeast, south and west quadrants. To reduce the wind loads the best architectural design would be to remove the sharp-edge fins on the corners, marking them square, faceted, chamfered or rounded.

2.4.12 Visual Privacy

SEPP 65 is a State Environmental Planning Policy 65, which is concerned with the design quality of residential apartments and provides specific planning controls.

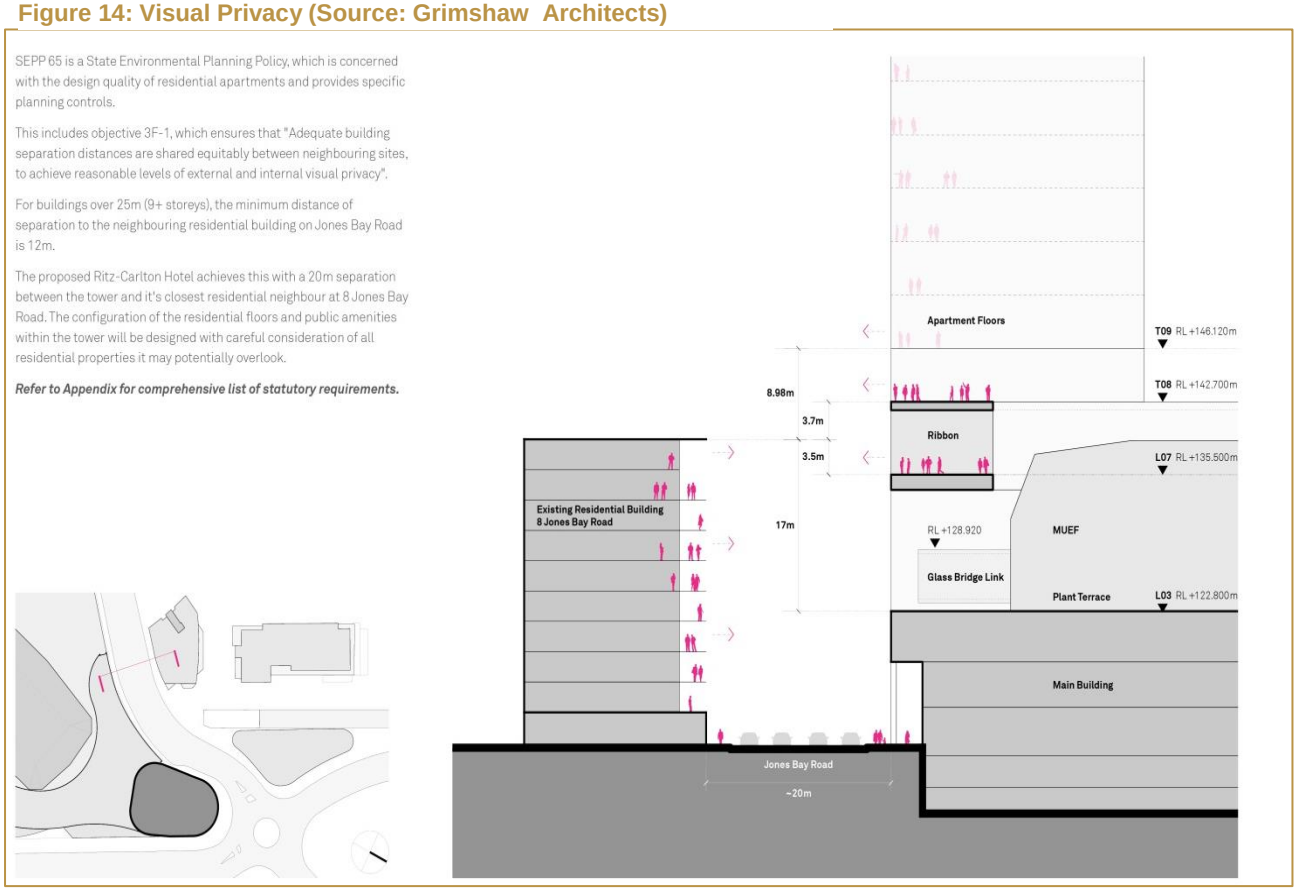
This includes objectives 3F-1, which ensures that "Adequate building separation distances are shared equitably between neighbouring sites, to achieve reasonable levels of external and internal visual privacy".

For buildings over 25m (9 + storeys), the minimum distance of separation to the neighbouring residential building on is 12m.

The proposed Ritz-Carlton Hotel achieves this with a 20m separation between the tower and its closest residential floors and public amenities within the tower will be designed with careful consideration of all residential properties it may potentially overlook. Refer to Figure 14.

In accordance with the requirements set out in the SEARs, Modification 13 will need to include a formal Visual Assessment Report in accordance with the Land and Environmental Guidelines.

Figure 14: Visual Privacy (Source: Grimshaw Architects)



2.4.13 ESD

As part of preliminary investigations for the project, a range of potential ESD opportunities were identified in Table 4.

It is open to design teams architects to explore the different options potentially available, some matters are detailed in nature and will need to be further considered at the detailed design/documentation stage of the project, as part of a detailed ESD strategy.

Table 4: ESD Opportunities

Considerations	ESD Opportunities
Water	▪ Rainwater harvesting using large rainwater storage tank and maximise rainwater capture area. ▪ Blackwater and greywater recycling (note: greywater not preferred for flushing WCs by operator, nut could be used for watering landscape) ▪ Reduce potable water use. ▪ High efficiency fixture, fittings and equipment. ▪ Use of xeriscape landscaping to minimise landscape irrigation requirements. ▪ Reused water pipework to urinals, pans and potentially cooling towers which can be connected to treatment plant or procured from utility. ▪ Permeable surface, landscaping and storm water detention capacity for improved storm water discharge performance.
Energy	▪ Mixed mode air conditioning and natural ventilation capability throughout entire development. ▪ Minimising Greenhouse Gas Emissions (energy in-use). ▪ Opportunities for on-site renewables. ▪ In-use monitoring. ▪ Passive Systems. ▪ High performance façade (but with high VLT glazing) for improved thermal loads, improved day lighting and improved energy consumption. ▪ Natural ventilation opportunities, with dual aspect apartments where possible, optimise indoor air quality. And thermal comfort. ▪ Maximise day lighting opportunities. ▪ Low-energy LED lighting technology, individually addressable and programmable ▪ Efficient light zoning with daylight harvesting technology. ▪ Energy efficient plant. .
Ecology and Biodiversity	▪ Improve ecological value of the site through landscaping ▪ Design to reduce heat island effect.
Waste	▪ Efficient waste management plan for the hotel, apartments and restaurants. ▪ Provision of storage for major waste streams for recycling. ▪ Consideration of design for efficient disassembly and reuse at the end of its life.
Indoor Environment	▪ Allowance for additional outside fresh air, free from pollutants. ▪ Appropriate internal noise levels, acoustic separation and reverberation. ▪ Lighting systems to provide uniform luminance, local user control and be free from glare. ▪ External views to be maximised through full height glass with high Visual Light Transmittance, glare to be reduced through internal blinds. ▪ Façade and systems to be designed to provide excellent thermal comfort to occupants.
Materials	▪ Sustainable materials and recycled content. ▪ Source high strength steel for low energy intensive processing plants. ▪ Use certified and ethically sourced timber. ▪ Utilise green concrete throughout development. ▪ Reduce embodied energy. ▪ Reduced VOCs, PVC and other pollutants indoors. ▪ Reduced materials that are toxic when broken down after disposal, low emissions, ▪ Lifestyle costs. ▪ Select resilient materials to increase materials life within the development.
Transport	▪ Priority for small/efficient/ electric vehicles ▪ Provision for supercharging stations for electric vehicles. . ▪ Provision for cyclist parking spaces. ▪ Urban design to incorporate easy access to public transportation already close to The Star
Innovation Opportunities	▪ Building integrated photovoltaic systems. ▪ Operable façade system to allow for natural ventilation. ▪ Battery energy storage system for deployment during energy peak periods. ▪ Whole life carbon and cost based decision making ▪ Climate change and adaption assessment and implementation of mitigation measure for a more resilient asset, ▪ Bioluminescent landscape or green wall. ▪ Thermal labyrinth for outside sure pre cooling. ▪ Closed cavity façade or triple glazed system for excellent thermal performance ▪ Photoelectric glazing systems ▪ Building envelope and orientation optimisation for improved thermal and mechanical performance.

2.4.14 Services

A preliminary assessment of likely service requirements for the proposed redevelopment has been progressed, with the key findings outlined in the table below. Alternative design solutions can be considered on their merits, through the design excellence process, should a need arise to advance an architectural design response.

Services	Description
Damping System	Possible 'damper' may be required (subject to wind and structural analysis and anticipated serviceability accelerations)
Cooling System (Base Design)	▪ Centralised plant strategy ▪ Water-cooled chiller plant, located in chiller plant room (Level 03) ▪ AHUs located in air handling plant room ▪ In-room fan coils units.
Mechanical Ventilation Systems (Base Design)	▪ Primary ventilation system to double as push-pull smoke exhaust system in all lift lobbies ▪ Commercial kitchen exhaust systems provided to the Fine Dining and Banquet levels. ▪ Ducted kitchen exhaust system to Serviced Apartments. ▪ Ducted laundry exhaust system to all Serviced Apartments. ▪ Ducted bathroom exhaust system
Domestic Cold and Hot Water System	▪ Gas-fired hot water plant ▪ 20KL domestic water tank
No of Passenger/Goods Lifts	▪ Thyssen Krupp Twin system: 6no. Twin passengers lift systems; (12no, lift cars in 6no. shafts). ▪ DCS operation ▪ Extended lift pits required ▪ 1no. Passenger lift nominated as fire fighting lift ▪ 3no. lifts cars to operate as BOH/good lifts.
Vehicle Lifts	▪ 2no. vehicle lifts (ground to basement levels)
Smoke Management Strategy	▪ 'Push-pull' lobby smoke clearance system in lobbies.

2.4.15 Crime Prevention through environmental design

Crime Prevention Through Environmental Design (CPTED) aims to identify and analyse potential improvements to design which may help to reduce crime and anti-social behaviour. The NSW Government best practice guidelines outline four key principles for consideration.

Number	Principle	Detail
1	Natural Surveillance	Maximising opportunities for passers-by or residents to observe what happens in an area (the 'safety in number 'concept)
2	Access control	Control of who enters an area so that unauthorised people are excluded, for instance, via physical barriers such as fences, grills etc.
3	Territorial Reinforcement/Owner	People are more likely to protect territory they feel they owner and have a certain respect for the territory of others. This can be expressed through installation of fences, paving signs, good maintenance and landscaping. Territoriality relates to the way in which a community has ownership over a space.
4	Space Management	Ensures that space is appropriately utilised and cared for. Space management strategies include: activity coordination (i.e. having a specific plan for the way different types of activities are carried out in space), site cleanliness, rapid repair of vandalism and graffiti, the replacement of burned out lighting and the removal or refurbishment of decayed physical element.

2.4.16 Traffic

The Star Casino and Entertainment Complex is permitted to have a maximum of 3000 car parking spaces across the whole site. The current peak traffic times are at 8am-9am, 6:15pm-7:15pm and 10:30-11:30pm; as determined from initial traffic counts of key intersections Pyrmont Bridge Road, Union Street and Pyrmont Street. There are three major vehicular access points to the Casino including Edward Street North/Pirrama Road intersection, Edward Street South and Jones Bay Road.

The recommendations made in the 2008 Arup Transport Report still stand including the commitment to continually monitoring the parking situation both on site and at surrounding parking areas and control parking usage with pricing modification.

Currently, pedestrians can access the Casino complex via entry points on Pyrmont Street and Pirrama Road. Arup 2008 survey revealed that the large majority of pedestrians enter the casino from the southern side of Pyrmont Street and Pirrama Road. The peak pedestrian time is between 7:30pm and 8:30pm. Pedestrians should be prioritised with wide pavements and shared surfaces.

The existing loading dock is located in the Sports Theatre off Pirrama Road; the loading dock currently operates 24 hours per day 365 days per year. All vehicles enter and leave the site in a forward direction. A new loading dock will be required for the hotel and residential tower; the loading dock should be located at ground level with an interface to the service road. Refer to Figure 7.

A covered vehicular drop-off area should be provided directly in front of the entrance, with clear sightlines to the buildings entrances. Vehicles access the dedicated drop-off area from Pirrama Road, while access to the basement car parking is contained within the internal service road to minimise potential conflicts between pedestrian and vehicular movements.

An automated car stacking parking system in the basement will be implemented to accommodate serviced apartments, accessed from Pirrama Road and the service road. The proposed location of the system is a fixed element. Vehicles will access the basement level via the two car lifts access from the service road. They will then drive into one of the two ‘transfer cabins’ where the resident will leave the vehicle and it is conveyed into the automated car stacker system below. Refer to Figure 7 & Figure 15

In accordance with the requirements set out in the SEARs, Modification 13 will need to include a formal Traffic, Car Parking, Transport and Access Report in accordance with the Land and Environmental Guidelines.

Figure 15: Car Stacking System