

GSA Australia Pty Ltd C/- Intro Design Pty Ltd

Demolition of all existing structures and the construction of a 34 storey mixed-use building comprising student accommodation, associated student services/amenity spaces and ground floor commercial land uses.

266-269 North Terrace, Adelaide

020/A074/17

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OVERVIEW

Application No	020/A074/17		
Unique ID/KNET ID	2695 - 2017/24787/01		
Applicant	GSA Australian Pty Ltd C/- Intro Design Pty Ltd		
Proposal	Demolition of all existing structures and the construction of a		
	34 storey mixed-use building comprising student		
	accommodation, associated student services/amenity spaces		
	and ground floor commercial land uses		
Subject Land	266-269 North Terrace, Adelaide		
Zone/Policy Area	Capital City Zone / Central Business Policy Area		
Relevant Authority	State Commission Assessment Panel (SCAP) Schedule 10 (4B)		
Lodgement Date	21 November 2017		
Council	City of Adelaide		
Development Plan	Adelaide (City) Development Plan – Consolidated 20 June		
	2017		
Type of Development	Merit		
Public Notification	Category 1		
Referral Agencies	Government Architect, Airports, State Heritage Branch		
Report Author	Brett Miller – Team Leader Inner Metro Development		
	Assessment		
RECOMMENDATION	Grant Development Plan Consent with Conditions		

EXECUTIVE SUMMARY

The proposed development is for a 34 storey predominantly student accommodation building located on the corner of Frome Street and North Terrace. The proposal includes a commercial space at the ground floor and is located adjacent State Heritage Places to the west and the approved Adelaidian development to the south. The site is located within an area of the City that has no specific height limitations.

The application required formal referral to the Associate Government Architect (AGA), the State Heritage Branch and the Airports Authority. The overall height of the building was not raised as a concern by any department, however it is noted that a separate Commonwealth approval is required in relation to the development as it penetrate the Adelaide Airport Obstacle Limitation Surfaces (OLS) which is protected airspace for aircraft operations.

The State Heritage branch were supportive of the proposed development and considered that the development to have suitably considered the heritage context of the subject site.

The AGA provided comment that considered the development to not relate well to the North Terrace context and recommended a review of setbacks, further consideration of the solid to void ratio of the development, incorporation of ESD principles and a review of the architectural expression of the building. The applicant did some minor changes to the development however the concerns of the AGA remained concerned with the appropriateness of the proposed architectural expression in its location.

The proposal meets the Development Plan criteria in relation to height, use, access, parking (bicycle and vehicle, encroachments, setbacks, ESD principles, CPTED principles, noise emissions and noise protection, student apartment amenity and waste management.

Whilst the argument is finely balanced, particularly in relation to design and appearance, the development is recommended for the granting of Development Plan Consent.



ASSESSMENT REPORT

1. BACKGROUND

1.1 Strategic Context

On 30 May 2017 the Minister for Planning approved the Capital City Policy Review (Design Quality) Development Plan Amendment introducing new policy intended to:

- reinforce the importance of design quality for new development;
- establish additional requirements for over-height development including zone interface treatments and triggers for over-height allowances; and
- provide guidance regarding built form responses to context and streetscape character.

1.2 Pre-Lodgement Process

The applicant chose not to engage in the Pre-lodgement service and submitted the application without undertaking a Pre-lodgement meeting or Design Review process.

2. DESCRIPTION OF PROPOSAL

Application details are contained in the ATTACHMENTS.

The proposed development involves the demolition of the buildings on site and the construction of a 34 storey mixed use building that is predominantly student accommodation. The mixed use stems from the ground floor containing a commercial space that is indicated it is to be used as a cafe (subject to tenanting). The height of the building is proposed to be 118.32 metres and is to contain 687 student beds.

A summary of the proposal is as follows:

Land Use	Mixed use building comprising commercial (cafe) tenancy at			
Description	Ground floor and 687 student accommodation beds with			
	associated communal areas.			
Building Height	118.32 metres – 34 levels and basement			
Description of levels	Basement – building services, bicycle store and back of house			
2000	facilities			
	Ground – commercial tenancy with alfresco area, foyer,			
	student services, loading and waste store.			
	Level 1 – student amenity space, laundry, back of house and			
	co-work space.			
	Levels 2-5 (each contain) – 1x DDA compliant studio, 4x 1			
	bed co-living, 3x 2 bed co-living, 4x 4 bed co-living and two			
	level communal spaces			
	Levels 6-11 (each level) – 4 x 1 bed co-living, 4x 2 bed co-			
	living, 4x 4 bed co-living and two level communal spaces.			
	Level 12 – Student amenity space, gymnasium and balcony			
	area			
	Level 13 – Student amenity space including study rooms.			
	Levels 14-23 (each level) – 1 x 5 bed duplex every second			
	level and 4x 5 bed ensuite.			
	Level 24 – 1x 2 bed ensuite and 4x 5 bed ensuite.			
	Level 25 – 9x standard studio, 1x large studio, 1x 1 bed room,			
	1x DDA compliant studio, communal open space.			
	Level 26-29 (each level) – 15x standard studio, 2x large			



	studio, 1x 1 bed room and 1x DDA studio. Levels 30-33 (each level) – 15x standard studio, 2x large studio and 2x 1 bed rooms. Roof – lift overrun with rooftop plant concealed by structure with solar panels above.
Site Access	Vehicular access to the site, for deliveries and waste collection, is via a private laneway and associated right of way. Pedestrian access is via the main entrance at the corner of Frome Street and North Terrace, through the commercial tenancy on North Terrace. Fire egress is at the southern edge of the building adjacent the private laneway.
Car and Bicycle Parking	128 bicycle parks with no inclusion of car parking on site.
Encroachments	The external fins encroach into the public land by a maximum or 1.2 metres – Council has confirmed that the encroachments can be authorised under staff delegation.
Staging	Stage 1: Demolition Stage 2: Substructure Stage 3: Superstructure Stage 4: Architectural facade

3. SITE AND LOCALITY

3.1 Site Description

The site comprises of one allotment, described as follows:

Lot No	Street	Suburb	Hundred	Title Reference
235	North Terrace	Adelaide	Adelaide	6194/250

The subject site is located at the corner of North Terrace and Frome Road and currently contains the First Church of Christ Scientist building. The site has a 27.38 metre frontage to Frome Street and a 25.76 metre frontage to North Terrace. There is a 4.57 metre shared lane to the southern boundary of the site which has rights of way over it to enable rear access to the rear of the neighbouring buildings that front North Terrace.

The site is reasonably surrounded by state heritage buildings with the 4 buildings immediately west of the site being listed along with the University of South Australia building to the north west and the Old Royal Adelaide Hospital buildings to the north east.

The site is relatively flat with a fall from south to north of approximately 1 metre, the site is devoid of vegetation save for the 5 small trees adjacent the eastern edge of the existing building. There is one street tree in front of the North Terrace frontage of the site and one street tree to the south eastern corner of the private laneway.

3.2 Locality

The immediate locality is characterised (as mentioned above) by a number of grand State Heritage Listed buildings including the Brookman Building of the University of South Australia, the Old Royal Adelaide Hospital Buildings, Ayers House, the classical sandstone Villa at 261 North Terrace, the two storey terrace buildings at 263-264 North Terrace and Grand Lodge of Freemasons Adelaide Masonic Centre.



North Terrace is Adelaide's most prominent boulevard and provides a significant cultural experience with the location of the Universities, Museum, Art Gallery and Parliament located on the its northern side. The Southern side comprises of a mixture of used with offices, public buildings, public car parking structures and two churches (one to be demolished by this application).

A majority of the buildings on North Terrace have a zero setback to the front boundaries and create a hard edge between the public realm and the built form, the exception is the heritage buildings at 261-264 North Terrace.

South of the site is a privately owned laneway, a construction site for the new Adelaidian development and the existing public car parking structure fronting Frome Street.

The eastern side of Frome Street comprises of a Budget car rental office with associated car park and another public carpark further south with residential apartments above and ground floor tenancies.

Figure 1 – Location Map







South Eastern corner of the site



North eastern corner of the site.



Adjacent State Heritage properties on North Terrace



North western corner of the site

4. STATUTORY REFERRAL BODY COMMENTS

Referral responses are contained in the ATTACHMENTS.

4.1 Government Architect

The Government Architect is a mandatory referral in accordance with Schedule 8 of the Development Regulations 2008. The Commission must have regard to this advice.

The application was referred with the AGA providing comment. Whilst there was support for the project teams aspirations for the site, particularly as the site has potential to become a landmark site for Adelaide and North Terrace in particular, there was concern that the architectural expression of the development was not in keeping with the established character of North Terrace. The referral response noted that North Terrace buildings were defined by their grand scale, institutional architecture and they reflected the symmetry and order of the Adelaide square mile.

The referral response raised no concern with the overall height of the development, the proposed use given its proximity to the two university sites on the northern side of North Terrace and support was given to the integrated rooftop plant. However, the response maintained that the development did not sit well with the character of "the City's premier boulevard".

The referral response continues on to suggest that the lower two levels of the building should not be setback from the frontages of the site as this would appear



contradictory to the established character of North Terrace and the Development Plan which calls for a consistent built form to frame the City edge.

The facade treatment of concrete vertical fins, light weight metal panels and infill glazing was not supported by the AGA. This was predominantly due to the low solid to void ration being highly inconsistent with the North Terrace character.

There was support for the breaking down of the buildings mass with the inclusion of the break provided at levels 12 and 13 and with this also making a podium that works well with the under construction Adelaidian Development on Frome Street.

Further justification was requested of the ecologically sustainable development due to the inclusion of a substantial amount of glazing.

The applicant has considered the referral from the AGA and provided amended plans that addressed some of the concerns raised in the referral. The changes to the plans were:

- Alterations to the ground plane and the reducing of the setbacks to Frome Street and North Terrace to better address the corner and reinforce the city edge.
- The vertical fins were reduced in depth to no more than 1.2 metres (note that this also addressed the Council concerns in relation to the encroachments).
- Additional justification in relation to the architectural expression (no changes to the overall plans.
- Supporting statements from the architects for the proposal and an additional Heritage Impact Statement.
- Further details as to the communal open space elements and strategy for the development.
- Additional information in relation to ecologically sustainable development initiatives for the project.
- Justification in relation to the non-supply of a materials and finishes board.

Due to the timing of the information supplied there was limited opportunity to rerefer the application to the AGA, however commentary was supplied via e-mail and can be found in the attachments associated with this report. The AGA acknowledged the positive steps taken to address the North Terrace and Frome Street frontages of the site and the further information pertaining to the open space elements. However the AGA remains concerned with the architectural expression of the building.

4.2 State Heritage Branch of DWENR

The application has been referred to the Minister for Sustainability, Environment and Conservation in accordance with Section 37 of the Development Act 1993 as a development that directly affects a State Heritage Place due to its location east of the State Heritage place at 263-264 North Terrace. There are also two other State Heritage Places identified to the west of the above mentioned property at 261 North Terrace and 254 North Terrace.

The State Heritage Branch advised the following:

"Subject to the recommendation set out below, the proposed development (as amended 22/01/2018) is considered to be acceptable in relation to the above State heritage places for the reasons described in the Heritage Impact Statement and as follows.

• Other than the construction management issues covered by conditions recommended below, the proposed development does not directly affect the physical fabric or material heritage values of the State heritage places.



- The two-storey boundary wall of the proposed building is set back from the common side boundary with the State heritage place at 263-264 North Terrace to allow sufficient clearance for projections beyond its eastern wall face (such as footings, plinth and eaves). The two-storey western wall of the proposed building establishes a comfortable visual juxtaposition with the State heritage place by finishing just below its eaves line, and by its front setback sitting behind the two-storey verandah and balcony in line with the front wall alignment of the State heritage place.
- Visually, the pronounced articulation of the building's form sets up a satisfactory relationship with the scale of the two-storey State heritage places (SH/13376 and SH/13377), and the inset faceted infill of these levels provides eye-level visual interest and detail that responds to the fine-grained detail of the heritage places. The articulation with a similar inset at levels 12 and 13 generally acknowledges the various heights and scale of more recent built form in the vicinity (including the State heritage-listed Grand Lodge of Freemasons, Brookman Building and Royal Adelaide Hospital buildings)."

The State Heritage Branch recommended 3 conditions and a number of notes be attached to any consent granted for the proposed development. These conditions and notes have been attached to the recommendation of this report.

4.3 Airport

The Adelaide Airport is a mandatory referral in accordance with Schedule 8 of the *Development Regulations 2008*. The Panel must have direction to the advice.

The application has been assessed and at a height of RL 158.9m AHD. As a result the application will penetrate the Adelaide Airport Obstacle Limitation Surfaces (OLS) which is protected airspace for aircraft operations. It is noted that the proposed development will penetrate the OLS by approximately 8 metres.

As such the application will require approval in accordance with the Airports Act 1996 and the Airport (protection Airspace) Regulation 1996 and therefore will be forwarded to the Department of Infrastructure and Regional Development for their approval.

Crane operations associated with construction, if approved, will also be subject to a separate application and are to remain below the PANS-OPS height of RL 182m AHD. It was also noted that any associated lighting for the building would need to conform to the Airport lighting restrictions and be shielded from aircraft flight paths.

The applicant has recently provided an Aeronautical Study which concludes that the proposed building development at 266 North Terrace, Adelaide, at a height of 158.9m AHD:

- Will infringe the OLS at Adelaide Airport and will require approval from aviation authorities:
- Will not infringe the PANS OPS surfaces at Adelaide Airport;
- Will not impact navigation aid systems located at Adelaide Airport;
- May affect ATS Surveillance system accuracy but other sensors in the area are likely to mitigate this impact. Advice from Airservices Australia's engineers will be required;
- Will not infringe the RTCC protection surface.

This AIA concludes that the crane activity, at a maximum height of 188.9 m;

- Will infringe the OLS at Adelaide Airport;
- Will infringe the PANS OPS surface for two of the approaches to runway 23, as described above;
- Will infringe the RTCC protection surface;



- Adjustments to segment altitudes of the RNAV and VOR approaches and to the RTCC are required to accommodate crane operations during the construction of the building;
- The adjustments and infringements will require approval from aviation authorities.

The applicant is aware of the separate approval being required and have commenced that process. However it is noted that the fact that there is an approval for the building immediately south of the subject site at a taller height indicates that the separate approval should be forthcoming.

5. COUNCIL TECHNICAL ADVICE

5.1 City of Adelaide

The City of Adelaide were referred the application for technical comments and raised no concern in relation to the waste management strategy proposed for the development and very minimal commentary from a traffic perspective. The applicant has addressed the traffic matters and noted that an outdoor seating would be required for any outdoor dining to occur outside of the development site.

Council originally raised concern with the fin elements and their encroachment over the public realm. The original design had the fins projecting more than 1.2 metres over the boundary of the development site and this posed a concern from Council as it failed to meet the Councils Encroachments Policy. The applicant has reconfigured the fin elements to ensure that they will be in line with the Policy and Council have confirmed that these encroachments can be authorised under delegation should the development gain development plan consent.

No further issues were raised by Council in relation to this development.

6. PUBLIC NOTIFICATION

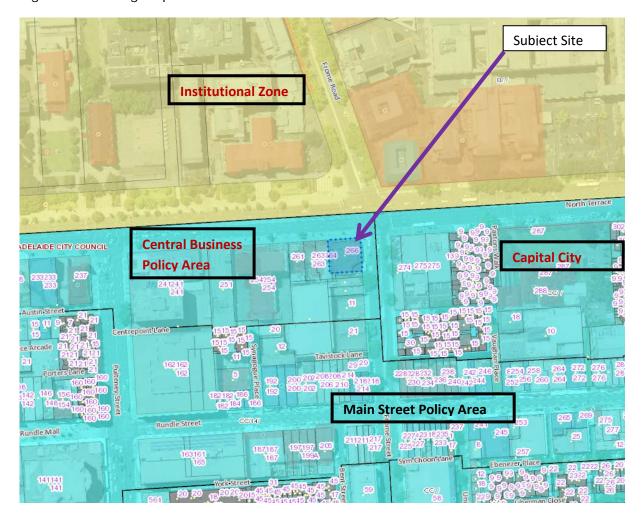
The application is a Category 1 development pursuant to The City of Adelaide Development Plan and more specifically Principle of Development Control 40 of the Capital City Zone. No public notification was required.

7. POLICY OVERVIEW

The subject site is within the Capital City Zone, Central Business Policy Area 13 as described within the Adelaide (City) Development Plan Consolidated 30 May 2017. Relevant planning policies are contained in the attachments and are summarised below.



Figure 2 - Zoning Map



7.1 Central Business Policy Area 13

- The Policy Area is the State's pre-eminent economic, governance and cultural hub and will be supported by educational, hospitality and entertainment activities and increased opportunities for residential, student and tourist accommodation.
- Buildings will exhibit innovative design approaches and produce stylish and evocative architecture, including tall and imposing buildings that provide a hard edge to the street and are of the highest design quality.
- Complementary and harmonious buildings in individual streets will create localised character and legible differences between streets, founded on the existing activity focus, building and settlement patterns and street widths.
- Development of a high standard of design and external appearance is anticipated in a way that successfully integrates with the public realm. To enable an activated street level, residential uses (or similar) should be located above ground level.

7.2 Capital City Zone

 High-scale development is envisaged in the Capital City Zone with high street walls that frame the streets and an interesting pedestrian environment and human scale created at ground level.



- In important pedestrian areas, buildings will be set back at higher levels above the street wall to provide views to the sky and create a comfortable pedestrian environment.
- Minor streets and laneways will have a sense of enclosure (a tall street wall compared to street width) and an intimate, welcoming and comfortable pedestrian environment with buildings sited and composed in a way that responds to the buildings' context.
- A comprehensive, safe and convenient movement network throughout the City will develop, focusing on the provision of linkages on both public and private land between important destinations and public transport.

7.3 Council Wide

Council Wide provisions provide guidance on the desire for increased levels of activity and interest at ground level; a high standard of design; appropriate bulk and scale of buildings and positive contribution to streetscapes including interfaces with places of heritage significance. Multi-level car parks and short stay public use of ancillary car parking spaces are discouraged at ground floor street frontages within the Primary Pedestrian Area.

7.4 Overlays

7.4.1 Airport Building Heights

Prescribed height limits are specified for the subject land under the Adelaide (City) Airport Building Heights Map Adel/1 (Overlay 5).

Referral to the Department of Transport and Regional Services through AAL is required where a development would exceed the Obstacle Limitation Surface contours shown on Overlay 5. Approval is required under the Commonwealth *Airports Act 1996* for structures that penetrate prescribed air space as defined in the Act.

7.4.2 Affordable Housing

The subject land is located within the Affordable Housing Designated Area in Development Plan Map Adel/1 (Overlay 5a).

The Overlay recommends integration of affordable housing with residential and mixed-use development, and development comprising 20 or more dwellings to include a minimum of 15 percent affordable housing.

8. PLANNING ASSESSMENT

The SCAP is the relevant authority pursuant to Schedule 10(4) of the *Development Regulations 2008*:

4B (1) Development in the area of the Corporation of the City of Adelaide where the total amount to be applied to any work, when all stages of the development are completed, exceeds \$10 000 000

The application has been assessed against the relevant provisions of the Adelaide (City) Development Plan, contained in the **Attachments**



8.1 Quantitative Provisions

	Development Plan Guideline	Proposed	Guideline Achieved	Comment
Building Height	No height limit	118.32 metres	YES NO PARTIAL	
Land Use	Envisaged forms of development within the Capital City Zone include Student Accommodation and commercial developments.	Mixed use , predominantly student accommodation with commercial tenancy	YES 🛚 NO 🔲 PARTIAL 🗍	
Car Parking	No minimum recommended	None supplied	YES ⊠ NO □ PARTIAL □	
Bicycle Parking	No specific ratio applied for student accommodation	128 bicycle spaces	YES ⊠ NO □ PARTIAL □	
Front Setback	Built to street frontage to form a city edge	Varies due to ground floor design – note 6 metre setback adjacent the Heritage Place.	YES	Refer to section 8.4 for further discussion
Rear Setback	None applicable	1.93 metres	YES 🖂 NO 🖂 PARTIAL	
Side Setback	None applicable	On boundary for lower two levels then 3 metres	YES 🖂 NO 🖂 PARTIAL	
Private Open Space	No specific ratio applied for student accommodation.	No individual private open space however there is communal areas and a 54m² balcony on level 12.	YES 🔀 NO 🗆 PARTIAL 🗆	

8.2 Land Use and Character

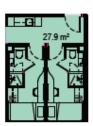
The proposed development contributes to the Desired Character of the Capital City Zone by introducing envisaged forms of development, which will contribute to an increased population with a resulting increase in the vibrancy and level of activity in this part of Adelaide's CBD.

It is noted that the proposed development contributes to objectives in relation to housing choice, including through the provision of 9 DDA-compliant rooms through the development and the provision of a mixture of room typologies. The room typologies comprise of the following:



SCAP Agenda Item 2.2.4 8 March 2018





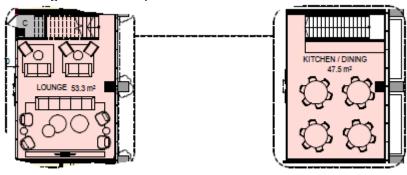


Typology- 1 Bed Co-Living

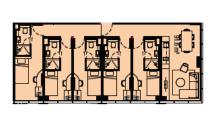
Typology- 2 Bed Co-Living

Typology- 4 Bed Co-Living

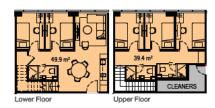
Co-living communal space



UPPER LEVEL COMMUNAL SPACE



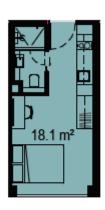


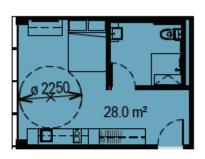


Typology- 5 Bed Apartment

Typology- 5 Bed Apartment

Typology- 5 Bed Duplex Apartment



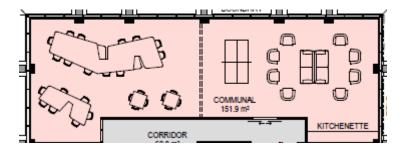


Typology- Studio

Typology- Accessible Studio



Communal Space for studio apartments



While the planning report and application material does not specifically address the requirements of the affordable housing overlay, it is noted that the proposed apartments in varying configurations of shared and private facilities will contribute to the supply of student accommodation in a range of price brackets.

The proposed building will introduce a contemporary design to North Terrace and there is some concern in relation to how the building will fit into the existing streetscape and character for North Terrace, particularly the protruding fins, the solid to void ratio and the unique ground floor plane. North Terrace has a distinct character with grand buildings that present a relatively consistent streetscape with a high solid to void ratio and rectilinear shapes and relatively hard edges to the North Terrace frontages. It is noted that the ground floor layout has been amended to provide a more solid facade treatment and to form an edge to the building. It is also noted that the design has been tailored to provide a setback to the north western corner of the building to address the State Heritage listed building adjoining the site.

The building is, on balance, considered to be providing an appropriate land use for the locality, however there is some unease in the design and it being in keeping with the character of the locality.

8.3 Building height

Within the Capital City Zone, PDC 21 provides that development should not exceed the maximum building height shown in the relevant Concept Plan. Concept Plan Figure CC/1 shows a no maximum height for the subject site.

Whilst the subject land is located within a portion of the Capital City Zone where no building height limit is prescribed, Zone PDC 22(c) envisages diminished building height where development would be located adjacent a Heritage Place. The Central Business Policy Area also advocates buildings of a height that ensures airport operational safety is not adversely affected.

At 34 storeys (118.32 metres) the building would present as one of the largest in the locality, it is noted that there is an approval for a building of a similar height (slightly taller) located to the south of the development site. Whilst the Development Plan contemplates lower buildings adjacent Heritage Places the proposed development is not considered out of context in terms of height for this locality. As discussed earlier in this report the AGA and the State Heritage Branch do not consider the height of this proposed development to be an issue.

8.4 Setbacks, Design and Appearance

The Capital City Zone seeks high street walls that frame the city streets, which is further strengthened by the Central Business Policy Area that supports tall and imposing buildings that provide a hard edge to the street.



The proposed development is attempting to blend the above mentioned requirement for a hard edge to the street with the fact that the development site is adjacent State heritage places that are setback between 3-6 metres. The North Terrace frontage of the building steps back at ground and first floor levels adjacent the State Heritage place to have the building set behind the built form of the Heritage place. It is noted that there is a fin column located in the courtyard located in front of the commercial tenancy to this frontage.

The remainder of the building fronting North Terrace has a varied setback to the building line as it works around the column/fin elements. The design of the building provides adequate grounding by virtue of the column/fin widths and the design has been amended following the original comments from the AGA to provide more ground floor area abutting the road boundaries of the site. The amendments are considered to provide contrast to the rectilinear form of the upper levels of the building, however it is noted that the AGA remains concerned with the setbacks and maintains that this aspect of the development does not suitable consider the existing character of North Terrace.

The upper levels of the building are set in from the western boundary of the site, which as discussed earlier in this report gives the neighbouring State Heritage Place breathing room. This setback also provides separation to meet the building code and allows separation for any later development of neighbouring sites. The rear of the building is set back 1.9 metres from the rear private laneway and therefore has a separation of 6.5 metres to the approved Adelaidian development.

Buildings in the Central Business Policy Area will exhibit innovative design approaches and produce stylish and evocative architecture of the highest design quality including tall and imposing buildings that provide a hard edge to the street. Development should be of a high standard of architectural design and finish to produce a variety of design outcomes of enduring appeal and contemporary juxtapositions providing new settings for heritage places.

The Development Plan identifies North Terrace as an important pedestrian promenade and cultural boulevard that provides an important northern edge to the City square mile. The intent of the boulevard is to provide a clear sense of arrival into the City. This is of particular relevance to this site due to its location on a prominent corner of North Terrace and Frome Street.

There is fundamental difference of opinion between the applicants design team and the AGA in terms of the architectural expression of the building. The AGA considers the proposed development should provide a more appropriate response to the specific context of the North Terrace locality. The AGA continues on to state that there is a concern with the low solid to void ratio due to the construction of the building to incorporate the concrete vertical fins with infill glazing (colour backed and standard).

The applicants design team has responded to the concerns by some minor changes at the lower levels to provide more of an edge to the building, however they have retained the lower level form and the use of the vertical fin elements with infill glazing. The changes to the lower levels have provided a more usable space rather than the unusable tight corner elements. The applicant has also provided a separate architectural opinion from Hosking Willis Architecture in direct repose to the AGA's comments. The opinion takes cues from the approved Adelaidian development to the southern side of the site rather than the broader North Terrace locality. The statement continues to suggest that there would be difficulty in taking cues from the lower scale developments on North Terrace and transfer the design language onto a building of the scale proposed in this application.



The use of the colour-backed glazing does little to address the solid to void ratio of the building and whilst it is not suggested that it would need to match that of the heritage buildings it has been suggested that further consideration be given to this element of the design. The applicant has chosen to remain with this design. This has been supported by the secondary architectural opinion. The opinion suggests that the use of a higher solid to void ratio would cause an insular building. The design is considered to provide a design approach that allows for connection from the interior of the building to external public realm (however this argument becomes diluted the higher you go up the building).

There are valid arguments both for and against the proposed development in relation to the design and appearance. The discussion is finely balanced between two parts of the Desired Character statement of the Capital City Zone with these being:

"High-scale development is envisaged in the Zone with high street walls that frame the streets. However an interesting pedestrian environment and human scale will be created at ground floor levels through careful building articulation and fenestration, frequent openings in building facades, verandahs, balconies, awnings and other features that provide weather protection."

And

"Development fronting North Terrace, King William Street, Wakefield Street, Grote Street, the Squares and in the Main Street Policy Area, will reflect their importance through highly contextual design that reflects and responds to their setting and role."

Both of the above statements provide a level of flexibility in the design of proposals in the Capital City Zone that are somewhat conflicting, particularly the aspects that call for a hard edge and then the creation of an interesting pedestrian environment through articulation.

Consideration must also be given to the Desired Character Statement of the Central Business Policy Area, which also has an ability to have a differing opinion expressed as the statement calls for a hard edge to the street, but also a wide variety of design outcomes of enduring appeal.

On balance the proposal meets the Development Plan guidelines in relation to setbacks and the design team have somewhat addressed the lower level design. However, there is still concern in relation to the appearance of the building in the context of North Terrace.

8.5 Internal Amenity

Being specifically designed for student occupation, the proposed development qualifies for reduced internal and external private spaces through the provision of a significant number of shared or communal facilities including, theatre, kitchen, and dining areas, gaming console room, study areas and a balcony area on level 12. The development also provides a number of different room configurations and includes communal areas within the duplex configurations and communal spaces for the coliving configurations. The development proposes over 1,300m² of communal areas within the building.

Each bedroom has access to natural light along with the circulation spaces on each level by virtue of windows at the end of each corridor. The multi-bed room types have access to natural light by the location of the communal areas within these pods being generally located in the corners of the building. The floor plans accompanying the application show how each room type can accommodate as a minimum a desk,



robe, shelves and a single bed. In the absence of specific quantitative criteria for room size, regard is had to PDC 13 which seeks to ensure that sufficient space is provided for a single bed, book shelves, a desk and workspace and a cupboard/wardrobe. The applicant has suitably demonstrated how these can be accommodated within each of the room types proposed.

It is considered that the proposed development achieves the objective and principles set out in Objective 9 and PDCs 10 to 13 in relation to Student Accommodation.

8.6 Heritage

The design of the proposed building has had careful consideration of the adjacent State Heritage Places with the design garnering support from the State Heritage Branch. Whilst the building will tower over the adjoining heritage buildings the design at the junction between the buildings is considered appropriate. The proposed building has been stepped back into the site for the lower two levels adjacent the Heritage properties to allow for visibility of the properties from North Terrace. The building has also been set in from the western boundary to provide some breathing space to the heritage building and to enable the building to have similar facade treatments from all sides. This side setback also meets the building code for separation between buildings to minimise external fire treatments.

The design of the building whilst being contemporary has enabled breathing space to the Heritage places and is not considered to diminish the heritage value of the places. As such the development is considered satisfactory in relation to Heritage matters.

8.7 Traffic Impact, Access and Parking

Development should provide safe, convenient and comfortable access and movement (Transport and Access, PDC 224), including by reflecting the significance and increasing the permeability of the identified pedestrian network (PDC 226), and by providing an adequate supply of on-site secure bicycle parking (PDC 234). No specific requirement for provision of on-site car parking arises for development in the Capital City Zone.

The application documentation includes a Traffic Impact Assessment Report prepared by GTA Consultants. As stated above the site is located in an area that has no specific requirement for on-site vehicle parking, with the application not proposing to supply any. The GTA report concludes that given the proposed use of the building there is no specific need to supply car parking.

The GTA report has undertaken a review of the waste dock area (doubled as a delivery area) and the vehicle swept paths required for the waste collection vehicle to enter and exit the site in a forward direction and concluded that the use of the lane and the fact that the building is being set off the rear boundary enables this manoeuvre to safely occur.

In terms of bicycle parking it is noted that there are 128 spaces provided. Again the development plan is silent on the supply of bicycle parking on site for student accommodation buildings. Given the location of this site within the City, adjacent two university campuses, adjacent a soon to be completed tram and bus routes along North Terrace the development is considered to have adequate supply of bicycle parks.

The proposed development is considered to have adequately addressed the Development Plan requirements in relation to traffic and access.



8.8 Environmental Factors

8.8.1 Crime Prevention

Development should promote the safety and security of the community in the public realm and within development, through the promotion of natural surveillance and other design measures (Environmental – Crime Prevention Through Urban Design, PDCs 82 to 84).

The applicants planning report identifies a range of active and passive surveillance strategies for the site. The strategies include:

- All public areas being well lit.
- All student accommodation rooms have external windows that provide passive surveillance at the lower levels to the public realm.
- The ground level design has considered entrances from clearly defined paths and thoroughfares.
- The building design has eliminated external nooks and isolated areas to remove possibilities of places for people to hide from view.
- The service lane will be adequately lit and appropriately surveiled during night hours.
- The building has a reception lobby for persons entering the site and will be fitted with electronic keyed entry outside of hours when the reception area is staffed.

The proposed development is considered to have satisfactorily addressed CPTED principles and therefore the Development Plan requirements.

8.8.2 Noise Emissions

Objective 27 (Environmental – Noise Emissions) requires that noise sensitive development be designed to protect its occupants from existing and contemplated noise sources, and not unreasonably interfere with the operation of non-residential uses contemplated within the relevant Zone or Policy Area. Noise receivers should incorporate adequate noise attenuation measures, and should not unreasonably interfere with the operation of non-residential uses that are commensurate with the envisaged amenity of the locality (PDCs 95 to 97).

The applicant has provided two separate noise assessment reports to address the potential traffic and tram noise arising from the adjacent road networks and the potential external noise impacts to other developments surrounding the site.

The second noise report specifically reviewed the noise levels from traffic due to the fact that construction work was occurring on the tram line at the time of the first assessment and this had an impact on the traffic flow around this site.

The reports concluded a number of minimum acoustic treatments required to the façade of the building to ensure an acceptable level of amenity is maintained within the building in relation to noise impacts. The recommendations of this report have been included as a condition of consent attached to the recommendation of this report.

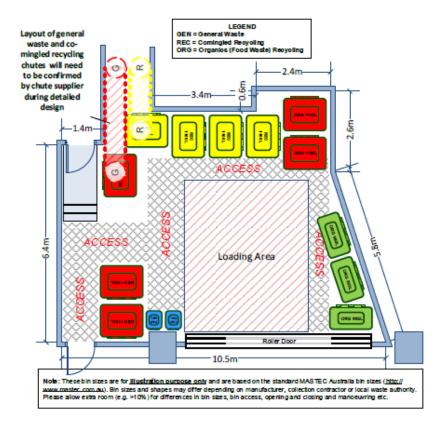
8.8.3 Waste Management

PDC 101 (Environmental – Waste Management) requires a dedicated area for on-site collection and sorting of recyclable materials and refuse to be provided within all new development. Development greater than 2,000 square metres



total floor area should manage waste by containing a dedicated area for collection and sorting of construction waste and recyclable building materials; on-site storage and management of waste; disposal of non-recyclable waste; and incorporating waste water and stormwater re-use including the treatment and re-use of grey water (PDC 103).

The applicant has supplied a Waste Management Plan that discusses the ability for the site to adequately store and allow for onsite collection of the waste streams generated. It is estimated that there will be 15 Waste collection vehicle movements per week for the proposed development and these are to be completed by a contractor. The Waste Management Plan has the below layout proposed for the Waste room.



Council has been referred the application and is supportive of the Waste Management Plan proposed. The proposal is considered to have addressed the Development Plan requirements form waste management.

8.8.4 Energy Efficiency

Buildings should provide adequate thermal comfort and minimise the need for energy use for heating, cooling and lighting through design measures specified in Environmental – Energy Efficiency PDCs 106 to 108.

The proposed development is supported by a sustainability report that indicates a number of initiatives that have been adopted in the design of the building, most notably the inclusion of roof mounted photovoltaic cells, water efficient fittings throughout the building, LED lighting, natural ventilation to each unit, the use of architectural elements to shade glazing and high performance low-e glazing throughout.



The development has also not proposed any car parking spaces on site and a storage room for 128 bicycles to encourage low carbon forms of transportation.

8.8.5 Wind Analysis

Development should be designed and sited to minimise micro-climactic impact on adjacent land or buildings, including effects of patterns of wind (Environmental – Micro-climate and Sunlight PDC 119).

The applicant has supplied a wind impact assessment report which discusses the potential "downwash" wind effect at the ground level corners of the building. The design of the building is such that the downwash effects are significantly reduced by a number of factors including the indented communal areas on level 12 and 13 of the building, the setbacks of glazing a the ground floor level and the horizontal elements of the proposed facade.

The report concludes that the proposed development is not expected to impact on the existing wind conditions experienced around the site. However it did recommend that light weight items or loose furniture located on the open terrace of level 12 should be secured during strong wind events as there is potential for the downwash at this level to have an impact on such items.

With the inclusion of a condition around loose furniture and light weight items on level 12 being secured the proposed development is considered to have satisfactorily addressed Development Plan criteria in relation to wind analysis.

8.8.6 Site Contamination

Council Wide (Environmental – Contaminated Sites) policy recommends that where there is evidence or reasonable suspicion that land may have been contaminated, development should only occur where it is demonstrated that the land can be made suitable for its intended use prior to commencement of that use.

The application includes an Environmental Site History Report undertaken by FMG. The report concludes that there is a low to moderate potential risk arising from the redevelopment of the site and that the site warrants further investigation. A condition is proposed to be assigned to any consent granted that a statement from a suitably qualified environmental engineer demonstrating suitability of the site for its intended use be provided prior to the commencement of construction.

8.9 Signage

Objective 56 – Advertising within Built Form and Townscape aims for outdoor advertisements that are designed and located to reinforce the desired character and amenity of their location, to be concise and efficient, including by not contributing to confusion and visual clutter, and not to create a hazard. PDCs 211 to 217 set out design and location standards for advertising signage.

The documentation supplied does not indicate any signage and it is reasonable to expect that there will be some corporate identification signs and directional signage required, the detail required to assess the proposed signage against the principles set out in PDCs 211 to 217 has not been provided as part of the present application.

Signage should therefore be the subject of a separate application for Development Plan Consent.



9. CONCLUSION

The applicant proposes a 34 storey mixed use development comprising student accommodation and a commercial tenancy in a prominent North Terrace location. The proposal meets the Development Plan criteria in relation to height, use, access, parking (bicycle and vehicle, encroachments, setbacks, ESD principles, CPTED principles, noise emissions and noise protection and waste management.

Council, the State Heritage Branch and the Airports Authority are generally supportive of the proposed development. However the AGA has raised concerns with the architectural design and whilst some alterations have been made to the lower level design the concerns of the AGA remain.

Whilst the argument is finely balanced, particularly in relation to design and appearance, the development meets a majority of the Development Plan requirements and is considered to provide a pleasant living environment for the students to be housed in the building. The development is therefore recommended for the granting of Development Plan Consent.

10. RECOMMENDATION

It is recommended that the State Commission Assessment Panel:

- 1) RESOLVE that the proposed development is NOT seriously at variance with the policies in the Development Plan.
- 2) RESOLVE that the State Commission Assessment Panel is satisfied that the proposal generally accords with the related Objectives and Principles of Development Control of the Adelaide (City) Council Development Plan.
- 3) RESOLVE to grant Development Plan Consent to the proposal by GSA Australian Pty Ltd for demolition of all existing structures and the construction of a 34 storey mixed-use building comprising student accommodation, associated student services/amenity spaces and ground floor commercial land uses at 266-269 North Terrace, Adelaide subject to the following reserved matters and conditions of consent.

PLANNING CONDITIONS

 That except where minor amendments may be required by other relevant Acts, or by conditions imposed by this application, the development shall be established in strict accordance with the details and following plans submitted in Development Application No 020/A074/17.

Plans By Rothe Lowman

Sheet title	Drawing Number	Revision	Date
Basement	TP01.00	Α	23.02.18
Ground Floor	TP01.01	С	23.02.18
Ground Floor Mezzanine	TP01.02	С	23.02.18
Levels 2-5 'Co-Living- & DDA	TP01.03	Α	13.02.18
Levels 6-11 'Co-Living'	TP01.07	Α	13.02.18
Level 12 Communal	TP01.13	-	08.11.17
Level 13 Communal	TP01.14	-	08.11.17
Levels 14-23 'Multi-Bed' & Duplex	TP01.15	-	08.11.17
Level 24 'Multi-Bed'	TP01.25	-	08.11.17
Level 25 'Studio', DDA & Communal	TP01.26	-	08.11.17



Levels 26-29 'Studio' & DDA	TP01.27	-	08.11.17
Levels 30-33 'Studio'	TP01.31	-	08.11.17
Roof	TP01.35	-	08.11.17
Elevations - North & East	TP02.01	D	23.02.18
Elevations – South & West	TP02.02	D	23.02.18
North & West Elevations (at Lower Levels)	TP02.11	С	23.02.18
Section	TP03.01	Α	13.02.18
3D Façade Section	TP03.02	-	08.11.17
Material Pallette	TP05.01	Α	22.01.18
Façade at North Terrace & Frome St	SK10.21	-	13.02.18
Boundaries			

Environment

- 2. All stormwater design and construction shall be in accordance with Australian Standard AS/NZS 3500.3:2015 (Part 3) to ensure that stormwater does not adversely affect any adjoining property or public road.
- 3. The acoustic attenuation measures recommended in the Traffic and Tram Noise Assessment Report dated February 2018 by Sonus, shall be fully incorporated into the building rules documentation to the reasonable satisfaction of the State Commission Assessment Panel. Such acoustic measures shall be made operational prior to the occupation or use of the development.
- 4. All external lighting on the site shall be designed and constructed to conform to Australian Standard (AS 4282-1997).
- 5. A Construction Environment Management Plan (CEMP) shall be prepared and implemented in accordance with current industry standards including the EPA publications "Handbook for Pollution Avoidance on Commercial and Residential Building Sites Second Edition" and, where applicable, "Environmental Management of On-site Remediation" to minimise environmental harm and disturbance during construction. A copy of the CEMP shall be provided to the State Commission Assessment Panel prior to commencement of site works.
- 6. All Council, utility or state-agency maintained infrastructure (i.e. roads, kerbs, drains, crossovers, footpaths etc.) that is demolished, altered, removed or damaged during the construction of the development shall be reinstated to Council, utility or state agency specifications. All costs associated with these works shall be met by the proponent.
- 7. Waste collection vehicles shall not access the site after 10:00pm on any day, before 7:00am Monday to Saturday or before 9:00am on Sundays.

External Materials

8. Prior to Development Approval for superstructure works, the applicant shall submit a final detailed schedule of external materials and finishes (including the class of concrete to be utilised) to the reasonable satisfaction of the State Commission Assessment Panel in consultation with the Associate Government Architect.

Site Contamination

9. A statement by a suitably qualified environmental engineer that demonstrates that the land is suitable for its intended use (or can reasonably be made suitable for its intended use) shall be submitted to the State Commission Assessment Panel prior to Development Approval being granted for substructure works.



State Heritage Branch Conditions

- 10. A dilapidation survey recording the condition of the State heritage place at 263-264 North Terrace shall be prepared prior to the commencement of work on site, to the satisfaction of the relevant authority. As well as recording fabric in good condition, the survey shall also record the location, type and dimensional extent of any existing physical damage to the place that might be affected by the proposed demolition, excavation and construction works.
- 11. A Construction Management Plan outlining measures to minimise ground vibrations in the proximity of the heritage building is to be prepared to the satisfaction of the relevant authority in consultation with Heritage South Australia (Department of Environment, Water and Natural Resources) prior to final Development Approval being granted. The Management Plan shall include:
 - a. proposals for the ongoing monitoring of the condition of the heritage place during the works;
 - b. proposals for protective measures against accidental damage to the heritage place; and
 - c. procedures to be taken if any structural distress or accidental damage is identified in the heritage fabric.
- 12. During ground works, the short term vibration levels at the heritage-listed structure shall be monitored, and shall not exceed the velocity limits for structural vibration in buildings established for Group 3 structures in the German Standard DIN 4150 Part 3.

ADVISORY NOTES

- a. The development has been proposed in the following stages:
 - Stage 1: Demolition
 - Stage 2: Substructure
 - Stage 3 Superstructure
 - Stage 4: Architectural Façade
- b. This Development Plan Consent will expire after 12 months from the date of this Notification, unless final Development Approval from Council has been received within that period or this Consent has been extended by the State Commission Assessment Panel.
- c. The applicant is also advised that any act or work authorised or required by this Notification must be substantially commenced within 1 year of the final Development Approval issued by Council and substantially completed within 3 years of the date of final Development Approval issued by Council, unless that Development Approval is extended by the Council.
- d. The applicant has a right of appeal against the conditions which have been imposed on this Development Plan Consent. Such an appeal must be lodged at the Environment, Resources and Development Court within two months from the day of receiving this notice or such longer time as the Court may allow. The applicant is asked to contact the Court if wishing to appeal. The Court is located in the Sir Samuel Way Building, Victoria Square, Adelaide, (telephone number 8204 0289).
- e. Any changes to the proposal for which planning consent is sought or granted may give rise to heritage impacts requiring further consultation with the Department of Environment, Water and Natural Resources, or an additional referral to the Minister for Sustainability, Environment and Conservation. Such changes would include for



example (a) an application to vary the planning consent, or (b) Building Rules documentation that incorporates differences from the proposal as documented in the planning application.

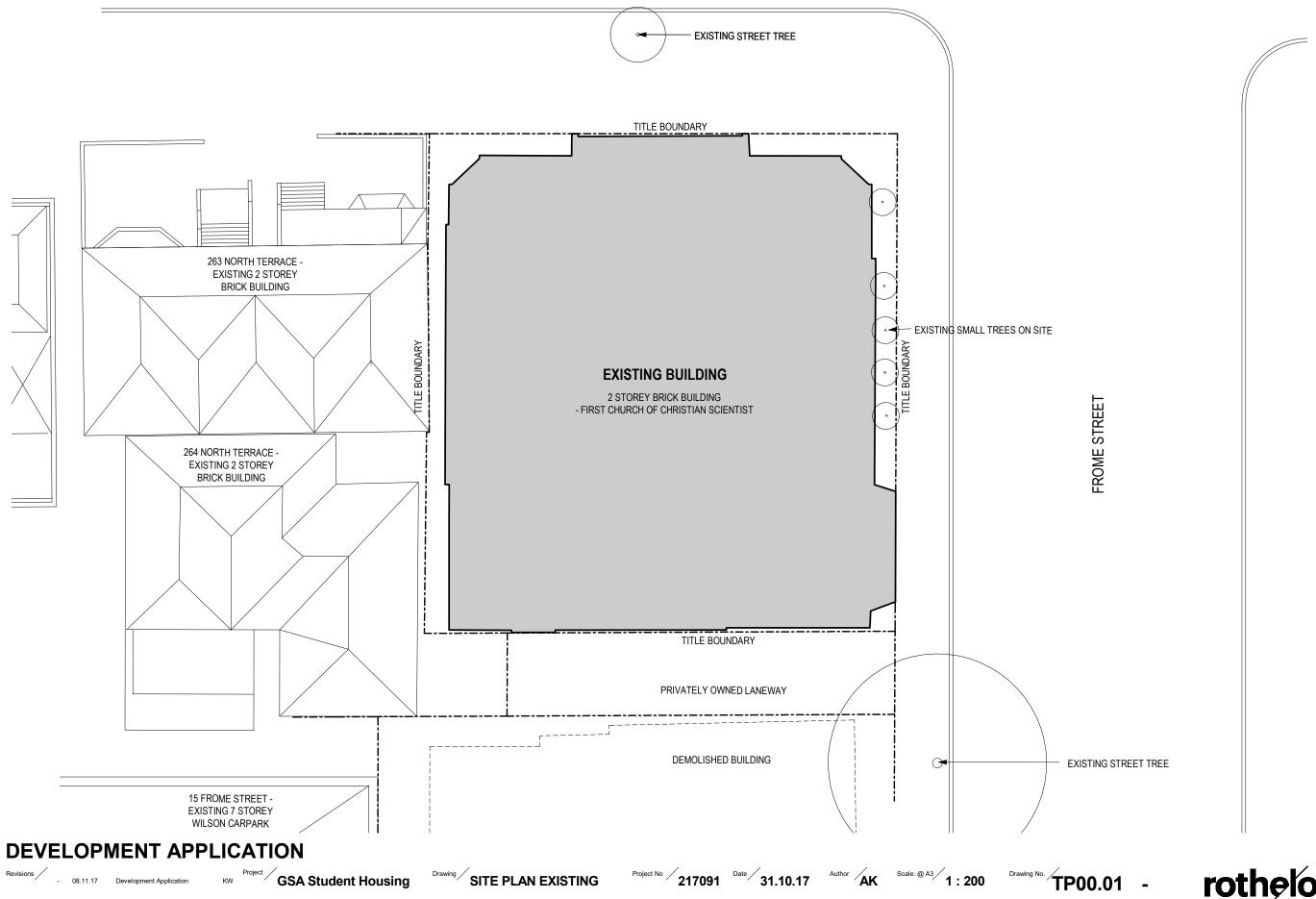
- f. The applicant is to note the following requirements of the Heritage Places Act 1993:
 - If an archaeological artefact believed to be of heritage significance is encountered during excavation works, disturbance in the vicinity shall cease and the SA Heritage Council shall be notified.
 - Where it is known in advance (or there is reasonable cause to suspect) that significant archaeological artefacts may be encountered, a permit is required prior to commencing excavation works.

For further information, contact the Department of Environment, Water and Natural Resources.

- g. The applicant is to note the following requirements of the Aboriginal Heritage Act 1988:
 - If Aboriginal sites, objects or remains are discovered during excavation works, the Aboriginal Heritage Branch of the Aboriginal Affairs and Reconciliation Division of the Department of the Premier and Cabinet (as delegate of the Minister) should be notified under Section 20 of the Aboriginal Heritage Act 1988.

Brett Miller

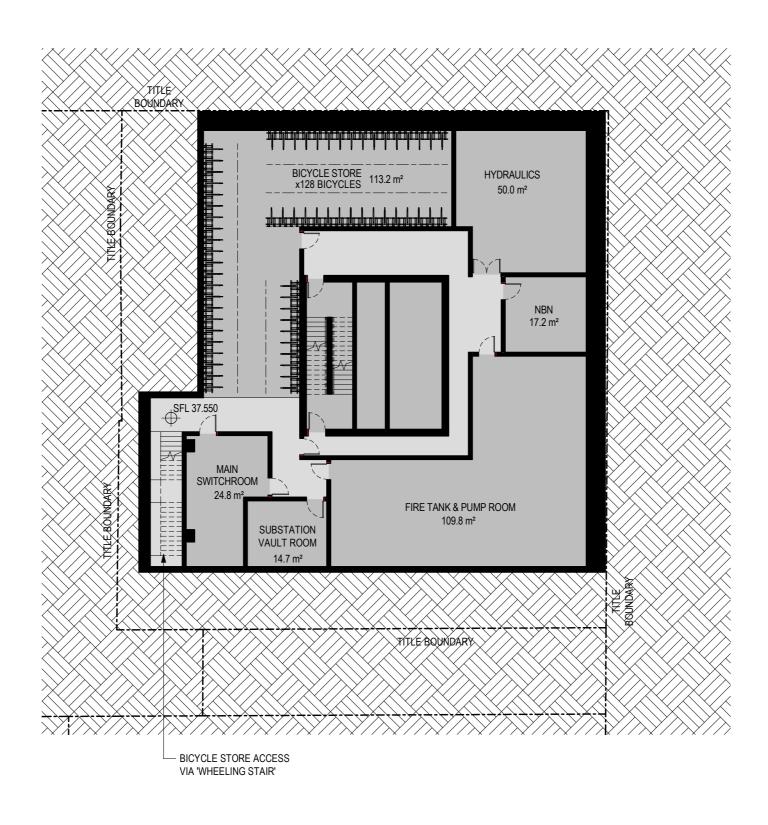
TEAM LEADER —INNER METRO DEVELOPMENT ASSESSMENT DEVELOPMENT DIVISION DEPARTMENT OF PLANNING, TRANSPORT and INFRASTRUCTURE



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DEVELOPMENT APPLICATION

- 08.11.17 Development Application KW A 23.02.18 Response to Government Architect KW KW

GSA Student Housing **North Terrace**

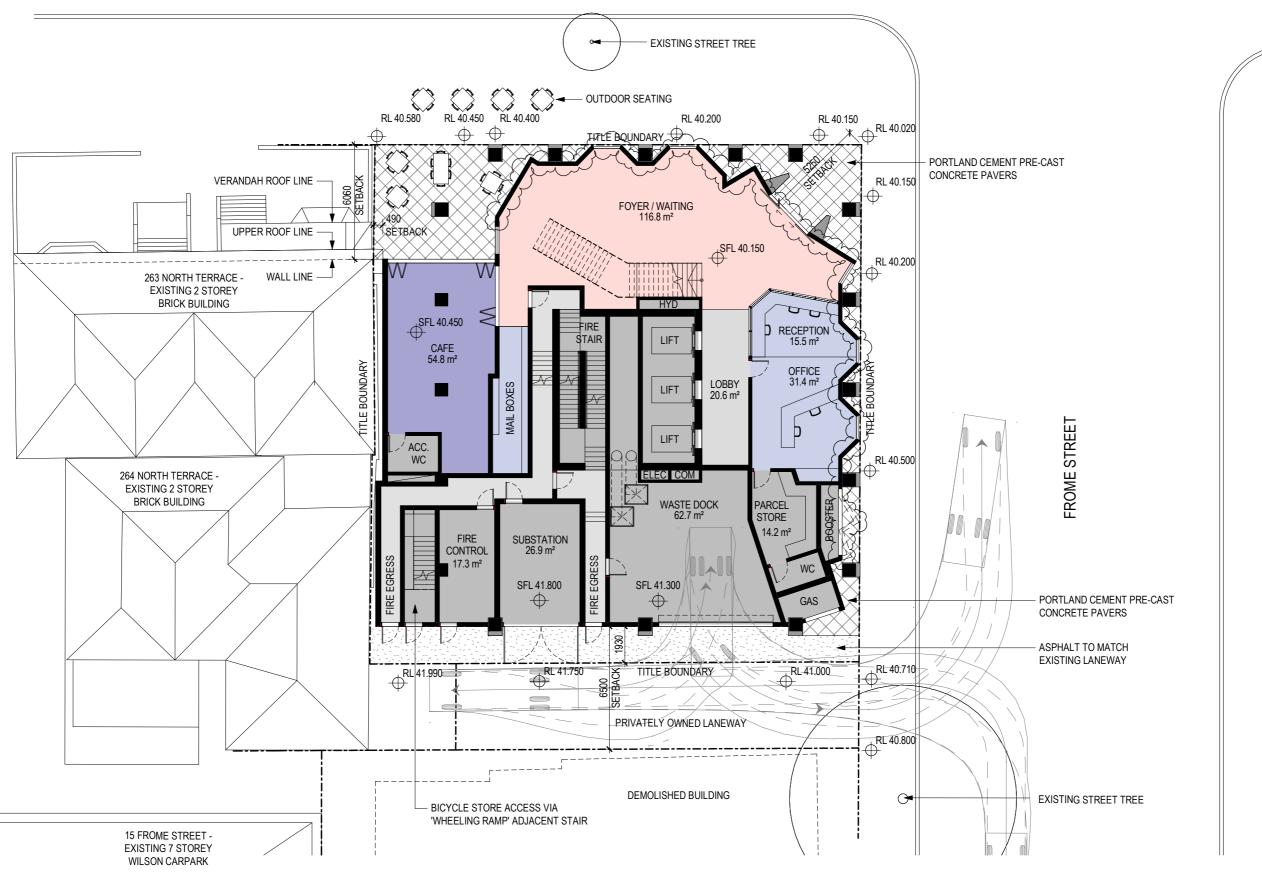
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Project No 217091 Date 23.10.17 Author JLi Scale: @ A3 1:200 Drawing No. TP01.00 A

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NORTH TERRACE



DEVELOPMENT APPLICATION

- 08.11.17 Development Application A 22.11.17 Revised Ground & Level 1 for DA KW
B 22.01.18 Response to Council comments KW **GSA Student Housing North Terrace**

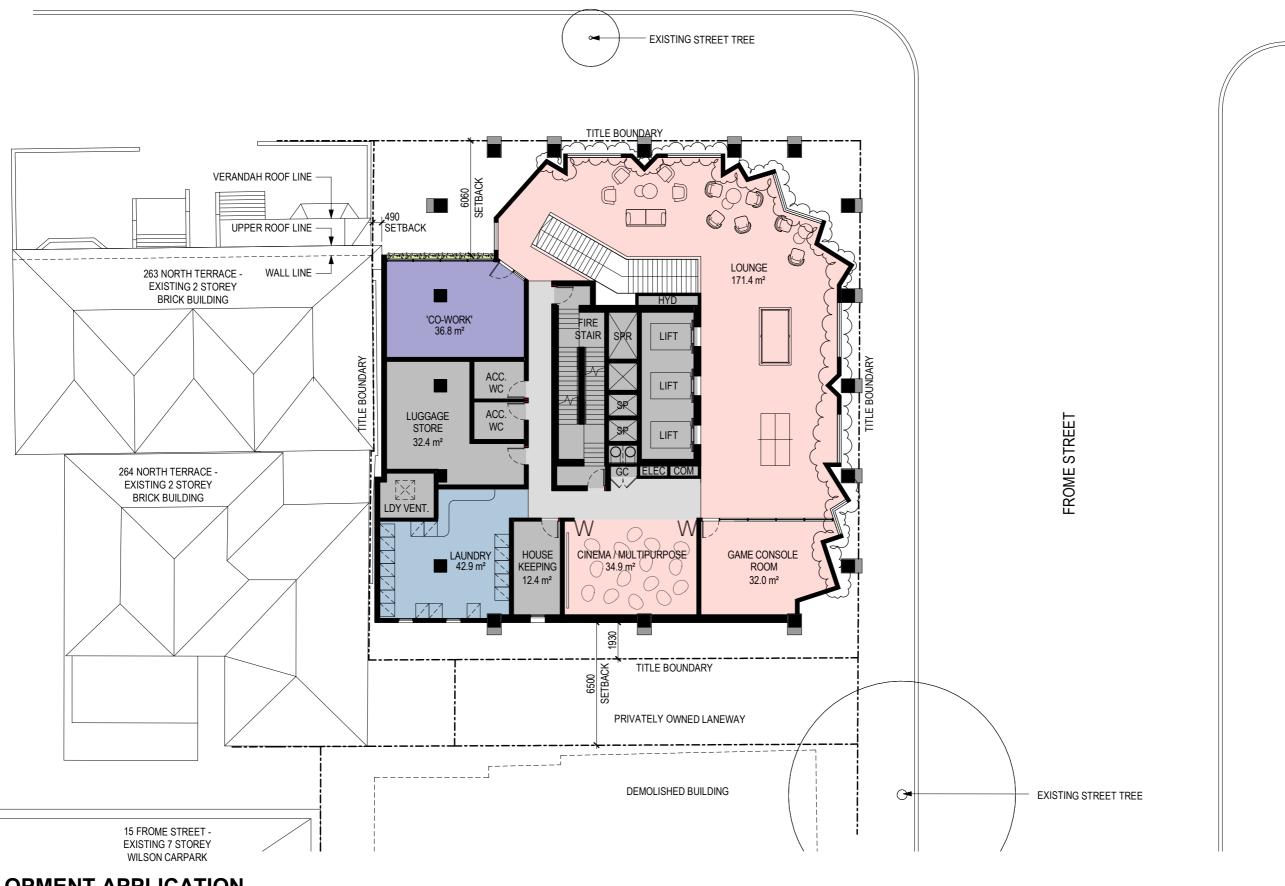
GROUND FLOOR

Project No 217091 Date 23.10.17 Author JLi Scale: @ A3 1 : 200 Drawing No. TP01.01 C

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NORTH TERRACE



DEVELOPMENT APPLICATION

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GSA Student Housing **North Terrace**

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DEVELOPMENT APPLICATION

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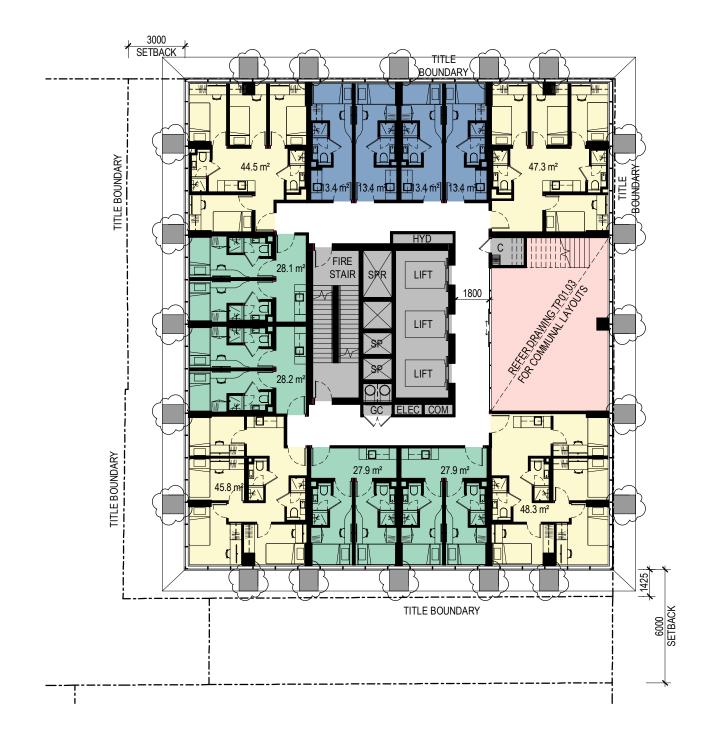
GSA Student Housing North Terrace

LEVELS 2-5 'CO-LIVING' Project No 217091 Date 23.10.17 Author JLi Scale: @ A3 1 : 200 TP01.03 A

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DEVELOPMENT APPLICATION

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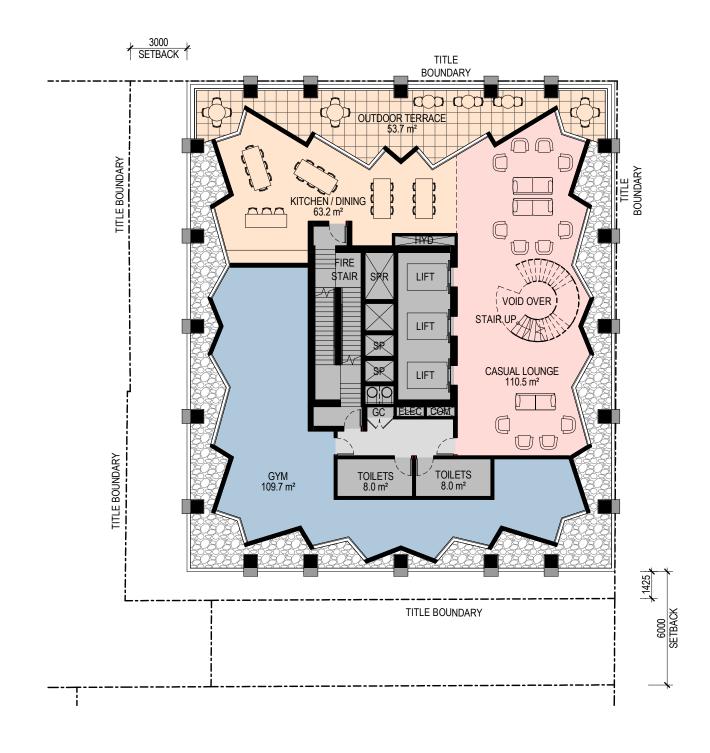
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LEVELS 6-11 'CO-LIVING'

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KW Project GSA Student Housing

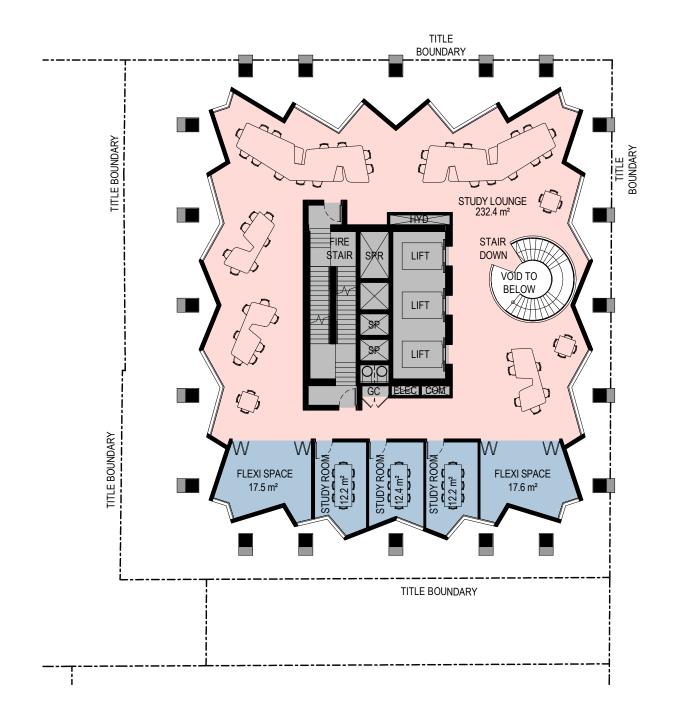
LEVEL 12 COMMUNAL

Project No 217091 Date 23.10.17 Author JLi Scale: @ A3 1 : 200 Drawing No. TP01.13 -

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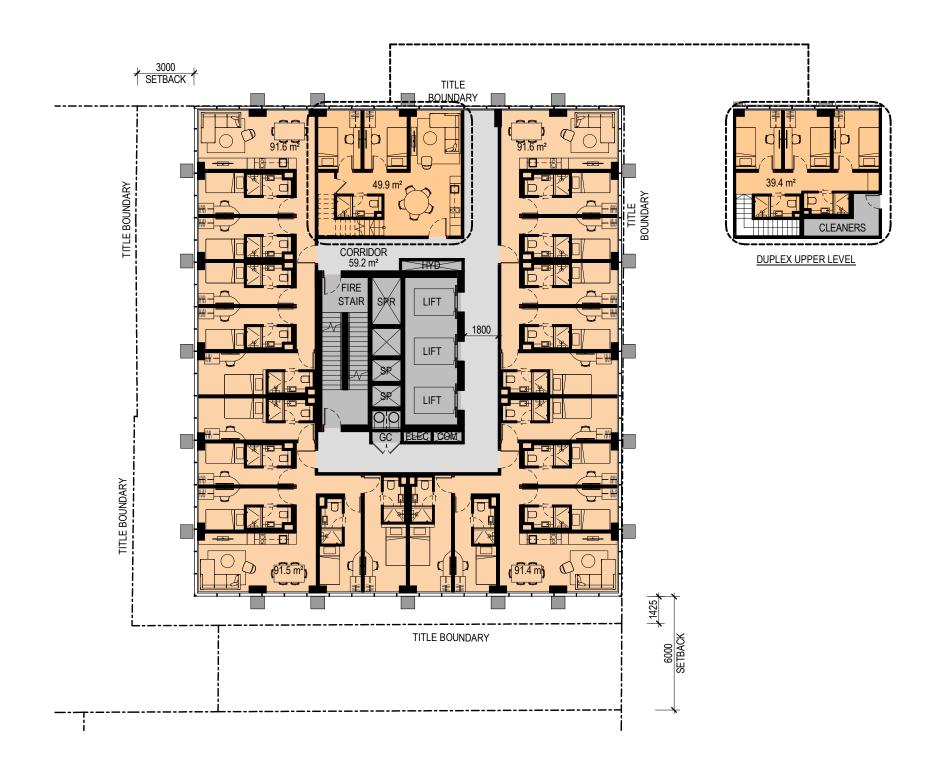
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LEVEL 13 COMMUNAL

Project No 217091 Date 23.10.17 Author JLi Scale: @ A3 1: 200 Drawing No. TP01.14 -

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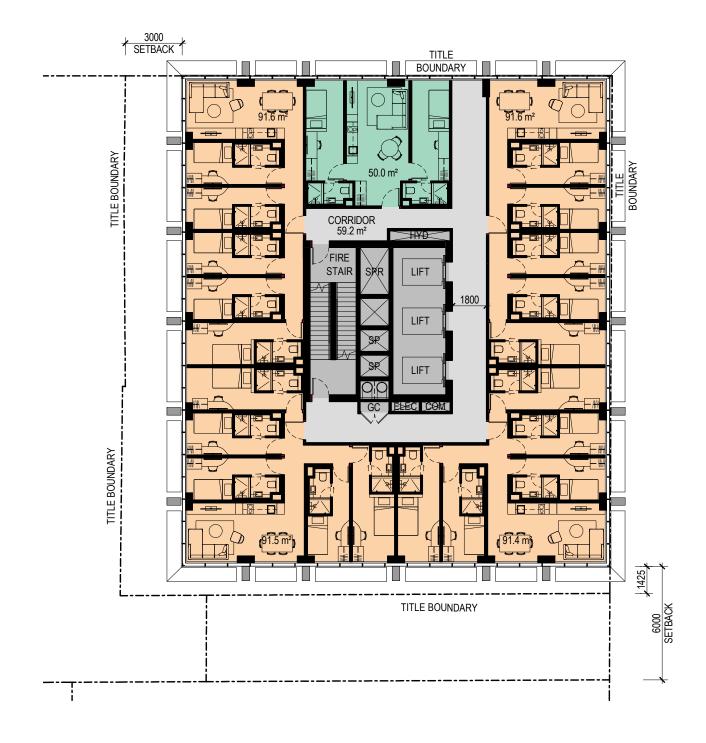
Drawing LEVELS 14-23 'MULTI-BED' & DUPLEX Project No 217091 Date 23.10.17 Author JLi Scale: @ A3 1 : 200 Drawing No. TP01.15 -

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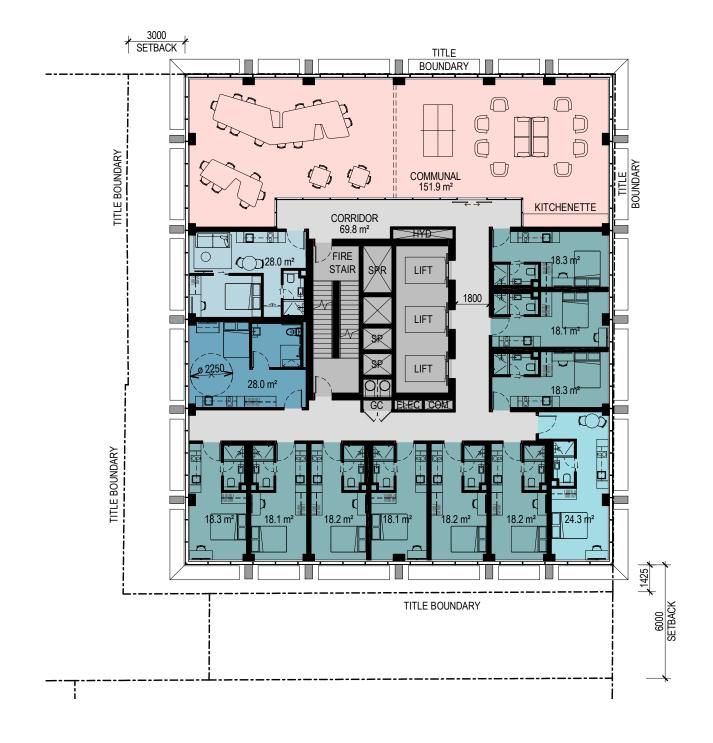
LEVEL 24 'MULTI-BED'

Project No 217091 Date 27.10.17 KW Scale: @ A3 1 : 200 Drawing No. TP01.25 -

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DEVELOPMENT APPLICATION

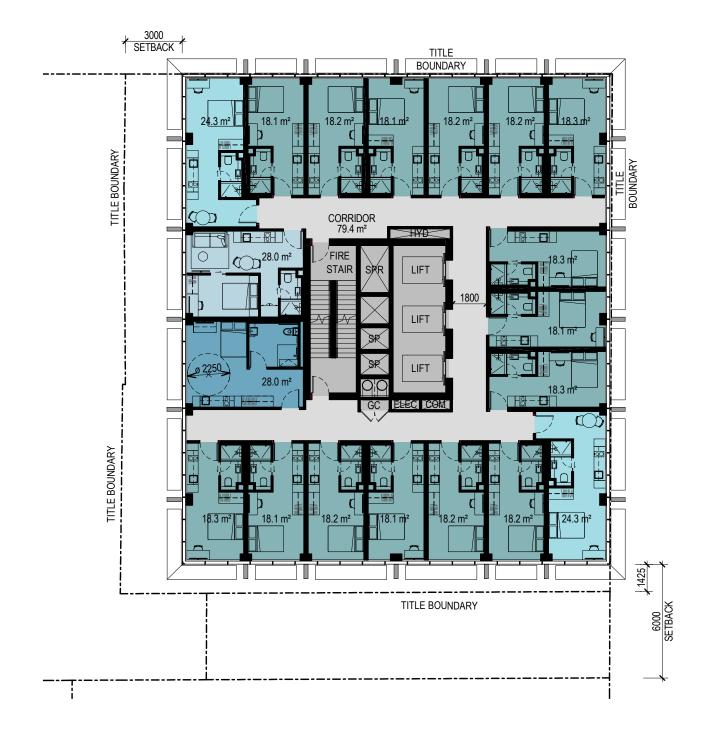
GSA Student Housing

LEVEL 25 'STUDIO', **DDA & COMMUNAL**

Project No 217091 Date 23.10.17 Author JLi Scale: @ A3 1 : 200 Drawing No. TP01.26 -

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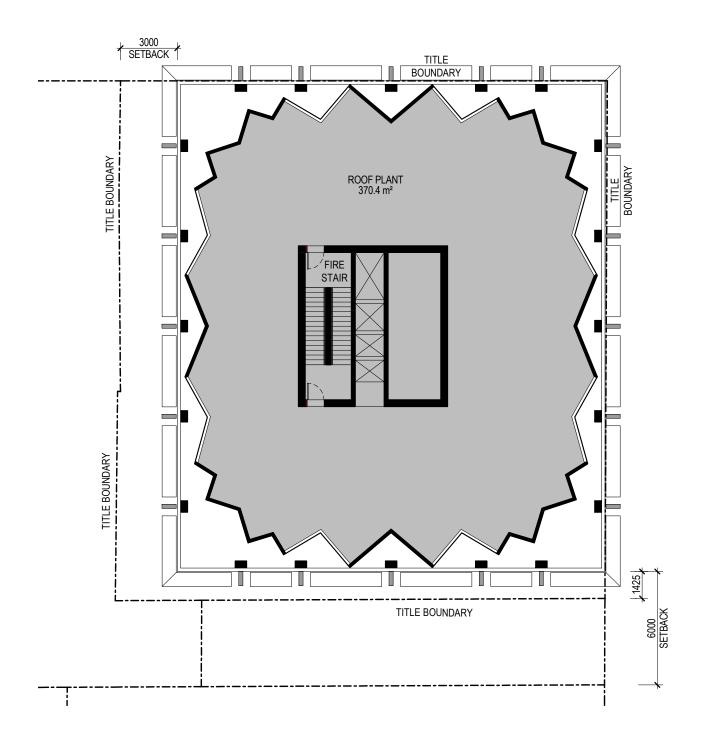
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DEVELOPMENT APPLICATION

GSA Student Housing

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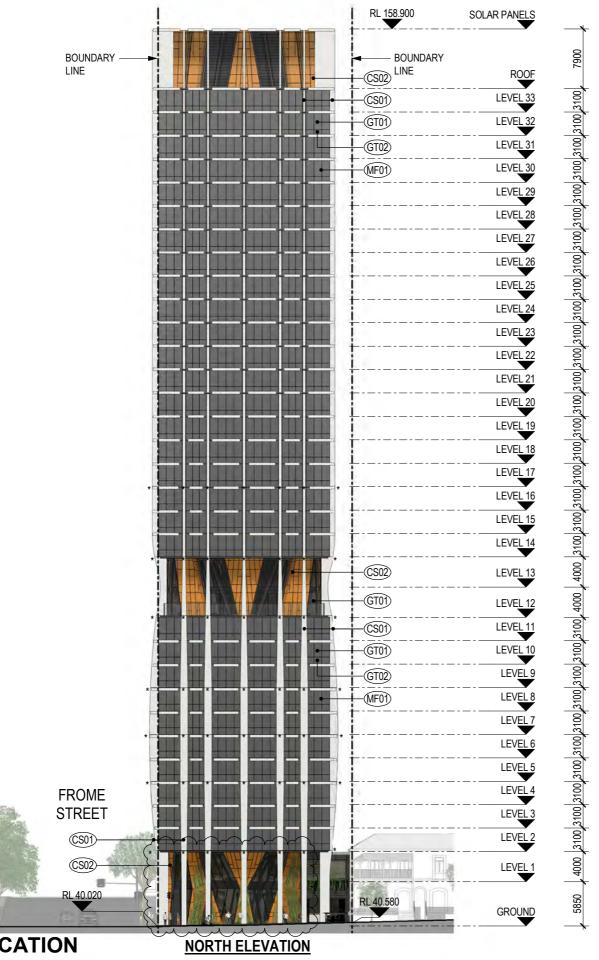
Revisions - 08.11.17 Development Application kw Project / GSA Student Housing Drawing ROOF Project No 217091 Date 25.10.17 KW Scale: @ A3 1 : 200 Prawing No. TP01.35 -

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SOLAR PANELS **BOUNDARY** BOUNDARY LINE LINE ROOF (CS02) LEVEL 33 (CS01) LEVEL 32 (GT01) LEVEL 31 -(GT02) LEVEL 30 -(MF01) LEVEL 29 LEVEL 28 LEVEL 27 LEVEL 26 LEVEL 25 LEVEL 24 LEVEL 23 LEVEL 22 LEVEL 21 LEVEL 20 LEVEL 19 LEVEL 18 LEVEL 17 LEVEL 16 LEVEL 15 LEVEL 14 LEVEL 13 (CS02) -(GT01) LEVEL 12 LEVEL 11 -(CS01) LEVEL 10 -(GT01) LEVEL 9 -GT02 LEVEL 8 -(MF01) LEVEL 7 LEVEL 6 LEVEL 5 LEVEL 4 **NORTH** LEVEL 3 **TERRACE** LEVEL 2 LEVEL 1 GROUND EAST ELEVATION

RL 158.900

SYMBOL LEGEND:

REFER TO TP05.01 MATERIAL PALETTE FOR DESCRIPTION AND COLOUR

CLADDING SYSTEM TYPE 01

(MF01) METAL FINISH TYPE 01 (GT01) **GLAZING TYPE 01**

FACADE JOINT

DEVELOPMENT APPLICATION

D 23.02.18 Response to Government Architect KW

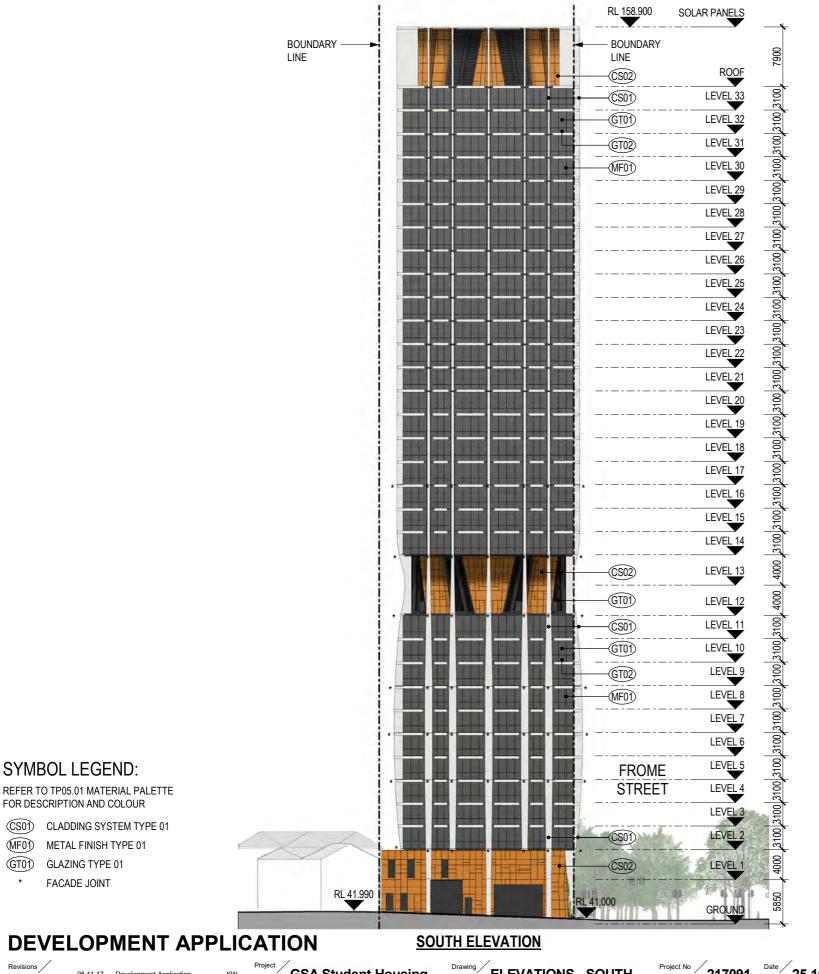
08.11.17 Development Application Revised Ground & Level 1 for DA KW B 22.01.18 Response to Council comments KW 13.02.18 Response to Government Architect JLi **GSA Student Housing North Terrace**

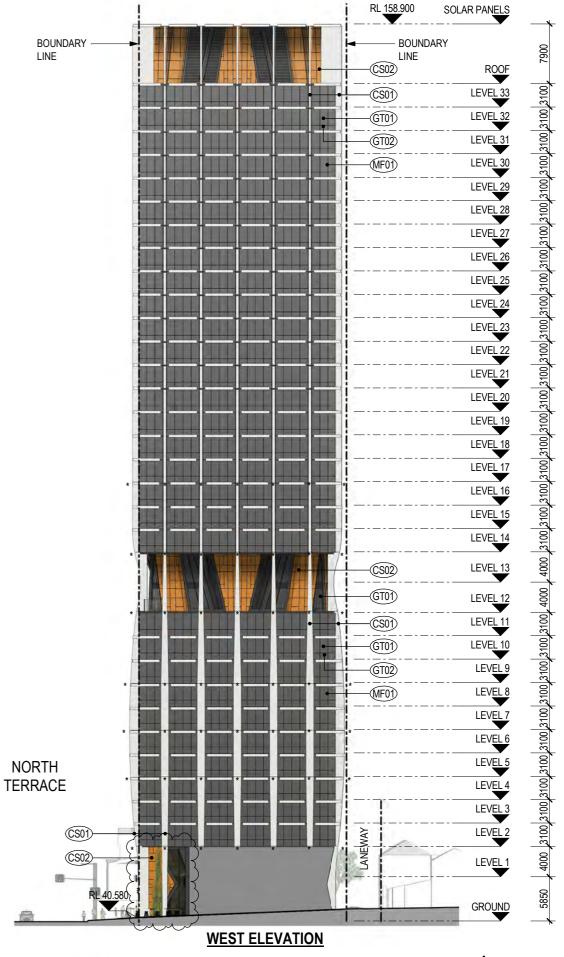
ELEVATIONS - NORTH & EAST

Project No 217091 Date 25.10.17

Author **KW** Scale: @ A3 1:500

TP02.01 D





D 23.02.18 Response to Government Architect KW

08.11.17 Development Application Revised Ground & Level 1 for DA KW B 22.01.18 Response to Council comments KW Response to Government Architect JLi **GSA Student Housing North Terrace**

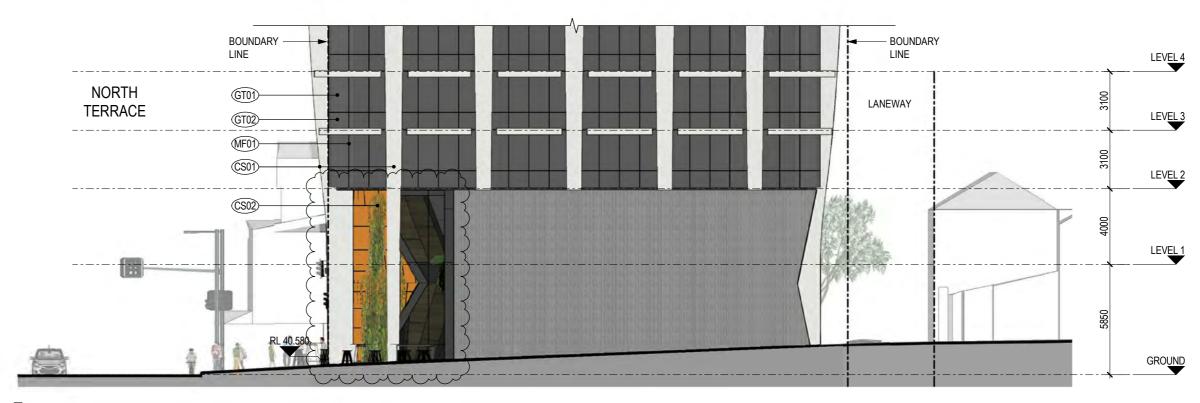
ELEVATIONS - SOUTH & WEST

Project No 217091 Date 25.10.17 Author KW Scale: @ A3 1:500

TP02.02 D



NORTH ELEVATION



WEST ELEVATION

DEVELOPMENT APPLICATION

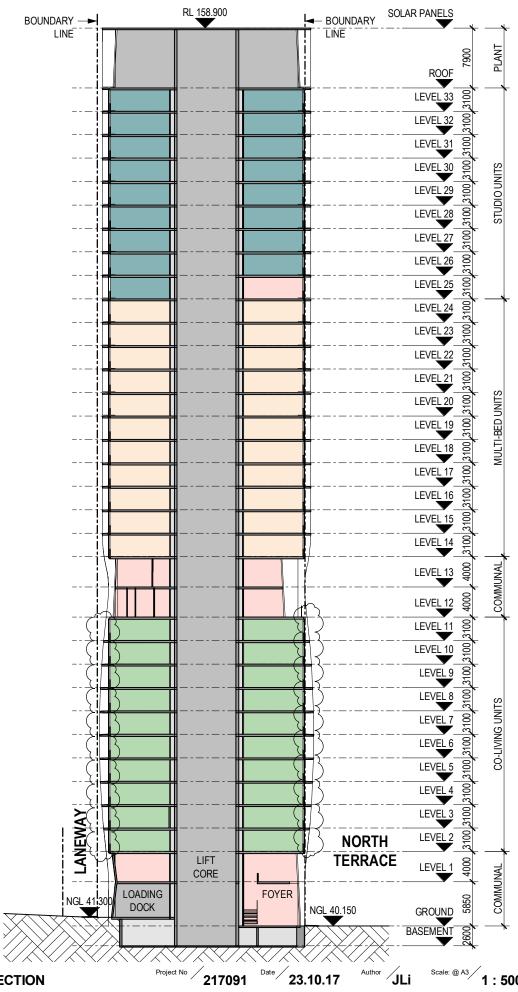
 22.11.17
 Development Application
 KW

 A
 22.01.18
 Response to Council comments
 KW

 B
 13.02.18
 Response to Government Architect
 JLi

GSA Student Housing **North Terrace**

NORTH & WEST ELEVATIONS (AT LOWER LEVELS) Project No 217091 Date 14.11.17 KW Scale: @ A3 1 : 200 Prawing No. TP02.11 C



KW

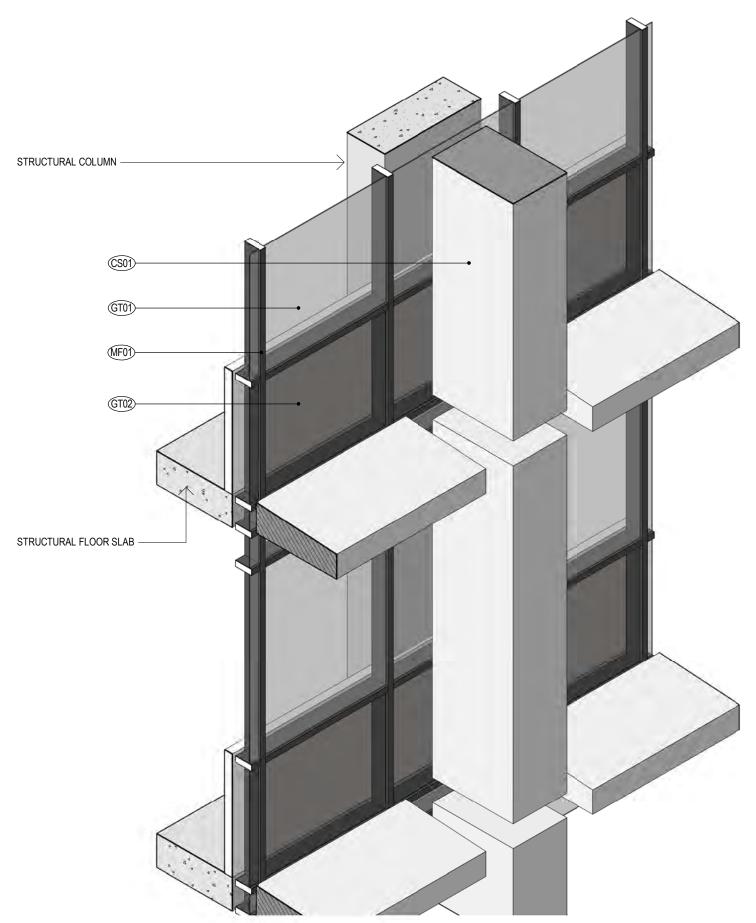
- 08.11.17 Development Application KW A 13.02.18 Response to Government Architect JLi

GSA Student Housing North Terrace

Author **JLi** Scale: @ A3 1 : 500 Drawing SECTION

TP03.01 A





SYMBOL LEGEND:

REFER TO TP05.01 MATERIAL PALETTE FOR DESCRIPTION AND COLOUR

CS01) CLADDING SYSTEM TYPE 01

MF01 METAL FINISH TYPE 01

GT01 GLAZING TYPE 01

DEVELOPMENT APPLICATION

Revisions - 08.11.17 Development Application

кw Project / GSA Student Housing

3D FACADE SECTION

Project No 217091 Date 26.10.17 Author KW Scale: @ A3/

TP03.02 -





PRELIMINARY

- 08.11.17 Development Application KW A 13.02.18 Response to Government Architect JLi

GSA Student Housing North Terrace

SHADOW ANALYSIS -21 JUNE 0900

Project No 217091 Date 30.10.17 AK Scale: @ A3 1 : 1500 Prawing No. TP04.01 A

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PRELIMINARY

- 08.11.17 Development Application KW A 13.02.18 Response to Government Architect JLi

GSA Student Housing North Terrace

SHADOW ANALYSIS -21 JUNE 1200

Project No 217091 Date 30.10.17 AK Scale: @ A3 1 : 1500 Prawing No. TP04.02 A

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PRELIMINARY

- 08.11.17 Development Application KW A 13.02.18 Response to Government Architect JLi

GSA Student Housing North Terrace

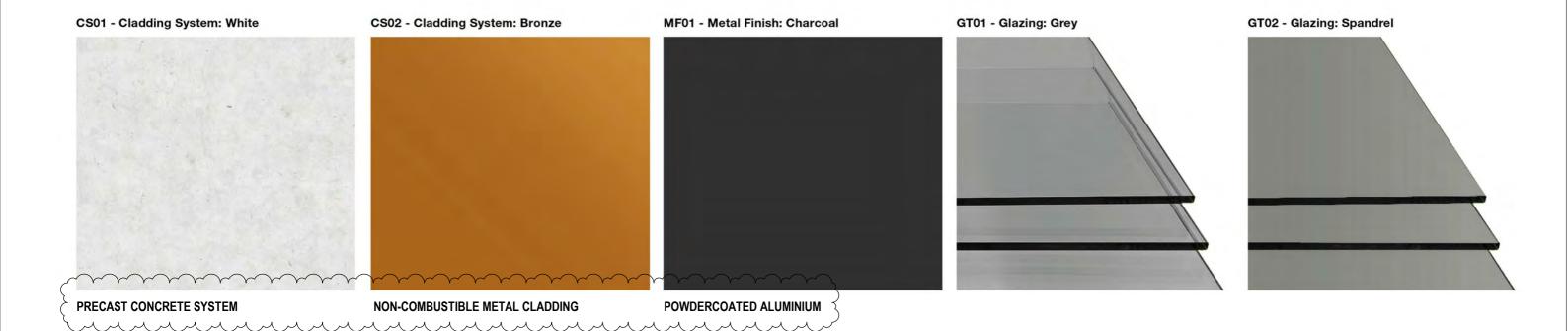
SHADOW ANALYSIS -21 JUNE 1500

Project No 217091 Date 30.10.17 AK Scale: @ A3 1 : 1500 Prawing No. TP04.03 A

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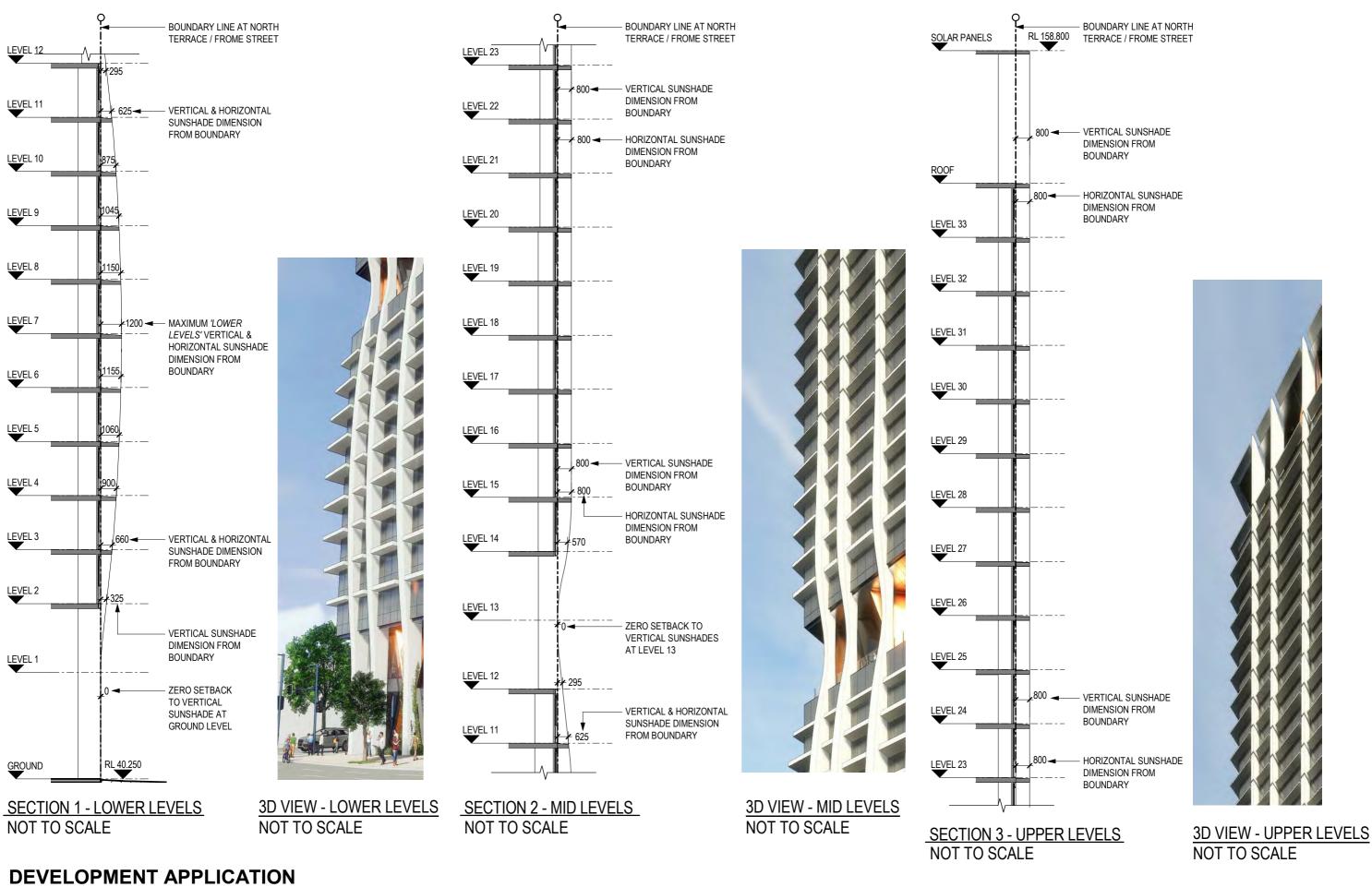
GSA Student Housing Revisions - 08.11.17 Development Application KW A 22.01.18 Response to Council comments KW **North Terrace**

MATERIAL PALETTE

Project No 217091 Date 03.11.17 Author KW Scale: @ A3

TP05.01 A

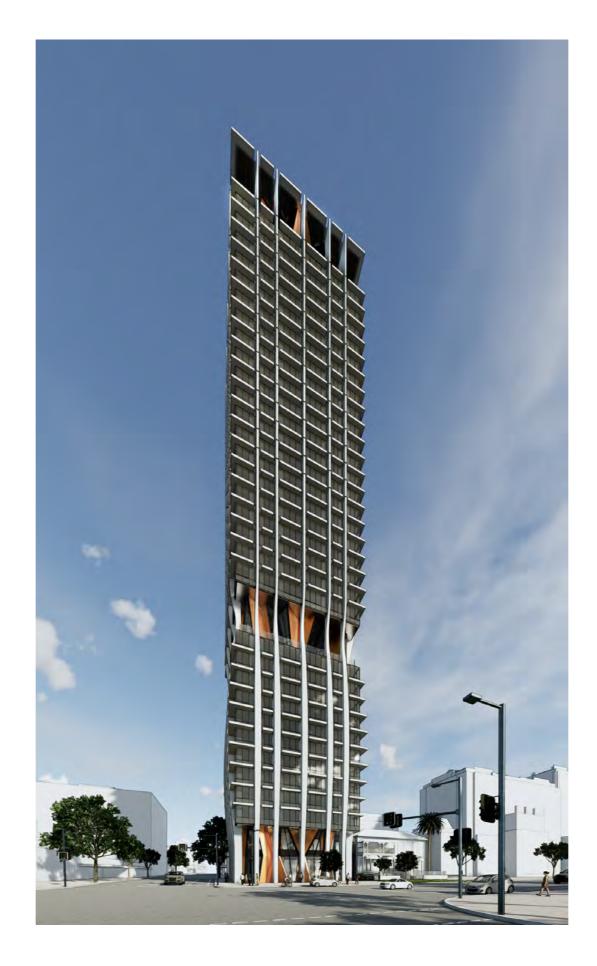




GSA Student Housing Revisions / - 13.02.18 Development Application **North Terrace**

FACADE AT NORTH TERRACE & FROME ST BOUNDARIES

Project No 217091 Date 07.12.17 KW Scale: @ A3 NOT TO SCALE Drawing No. SK10.21 -



A 22.11.17 Development Application KW
A 22.11.17 Revised Ground & Level 1 for DA KW
B 13.02.18 Response to Government Architect JLi
C 27.02.18 Response to Government Architect JLi

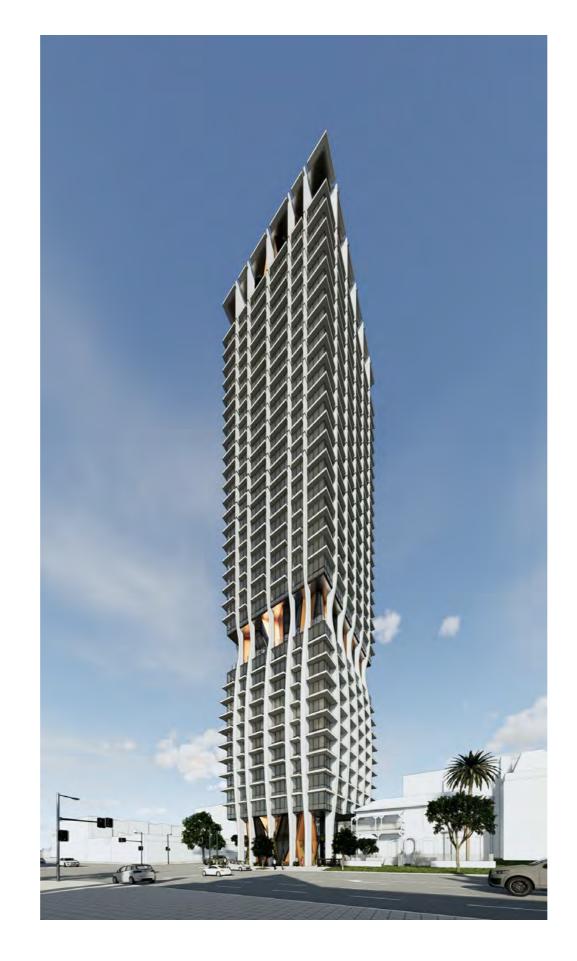
GSA Student Housing North Terrace 266 North Terrace, Adelaide, SA

3D VIEW 1 - OVERALL AT NORTH TERRACE

Project No 217091 Date 07.11.17 Author KW Scale: @ A3/

TP06.01 C





- 08.11.17 Development Application KW
A 22.11.17 Revised Ground & Level 1 for DA KW
B 13.02.18 Response to Government Architect JLi

GSA Student Housing North Terrace 266 North Terrace, Adelaide, SA

3D VIEW 2 - OVERALL AT NORTH TERRACE

Project No 217091 Date 07.11.17 Author KW Scale: @ A3/

TP06.02 C





GSA Student Housing
North Terrace
266 North Terrace, Adelaide, SA

3D VIEW 3 - GROUND AT Project No 217091 Date 27.02.18 KW Scale: @ A3 / MAIN ENTRY

TP06.03 B





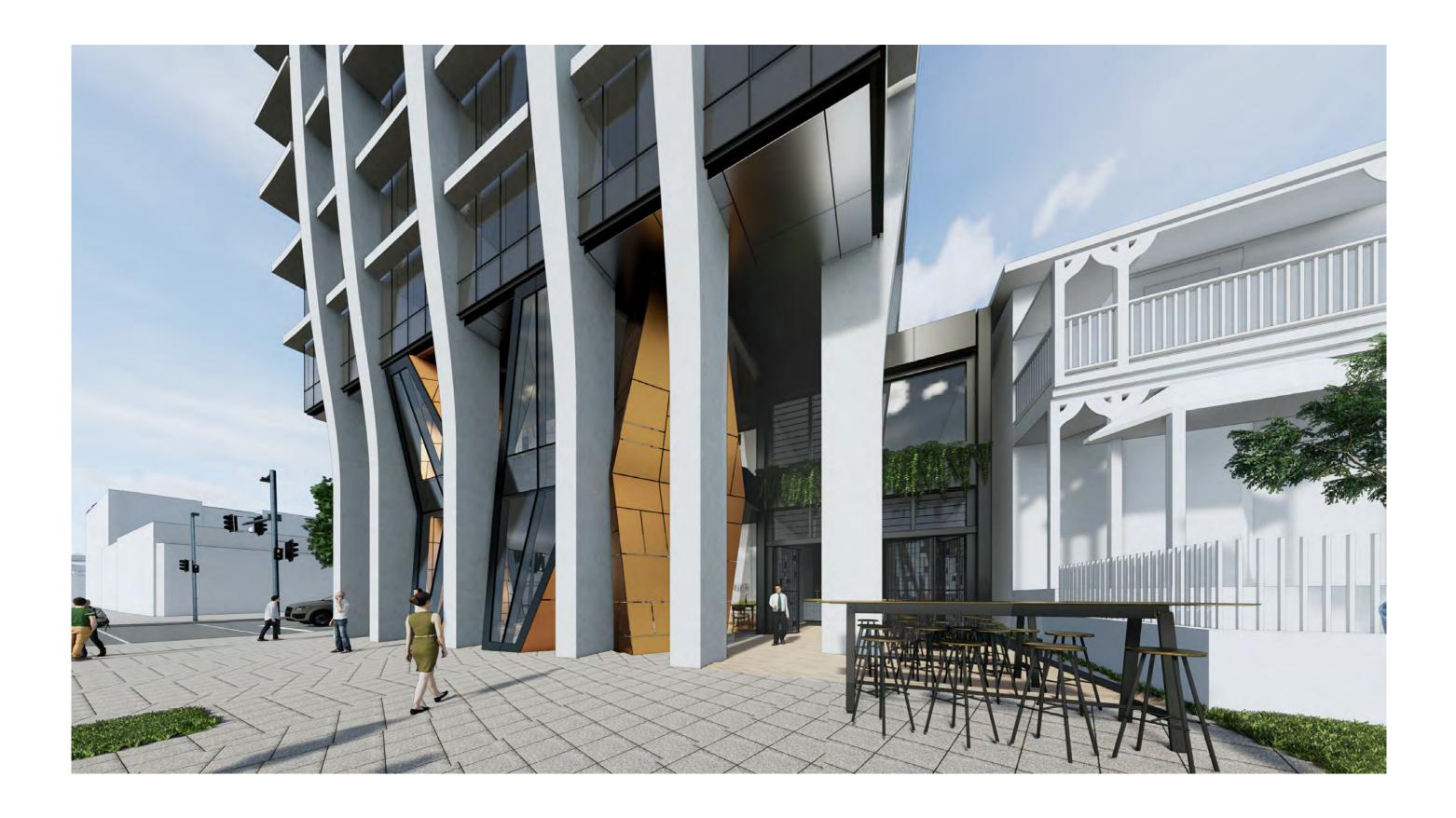
B 27.02.18 Response to Government Architect JLi

GSA Student Housing North Terrace

3D VIEW 4 - GROUND AT Project No 217091 Date 07.11.17 KW Scale: @ A3 **NORTH TERRACE**

TP06.04 B





Revisions

- 27.02.18 Response to Government Architect JLi

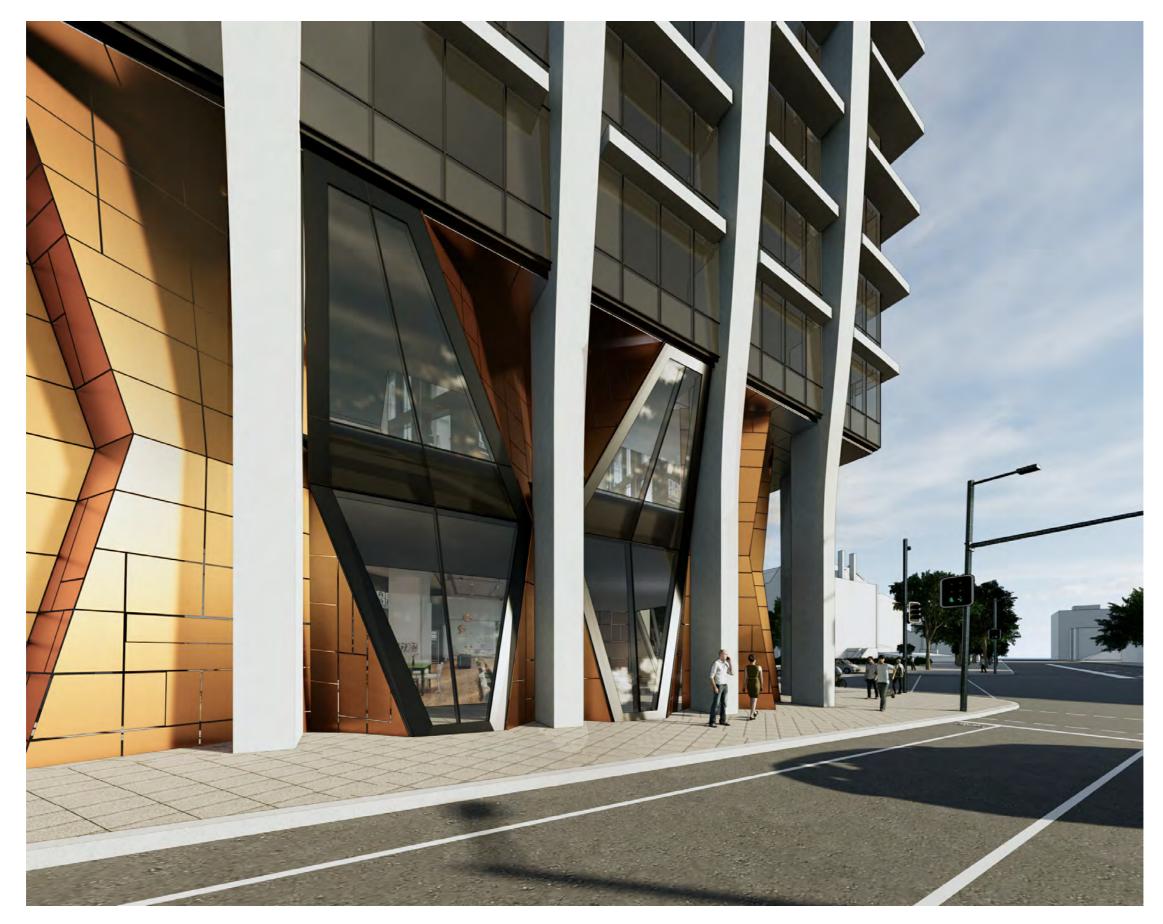
Project GSA Student Housing North Terrace
266 North Terrace, Adelaide, SA

3D VIEW 5 - GROUND AT NORTH TCE / CAFE

Project No 217091 Date 27.02.18 Author JLi Scale: @ A3

TP06.05 -





Revisions

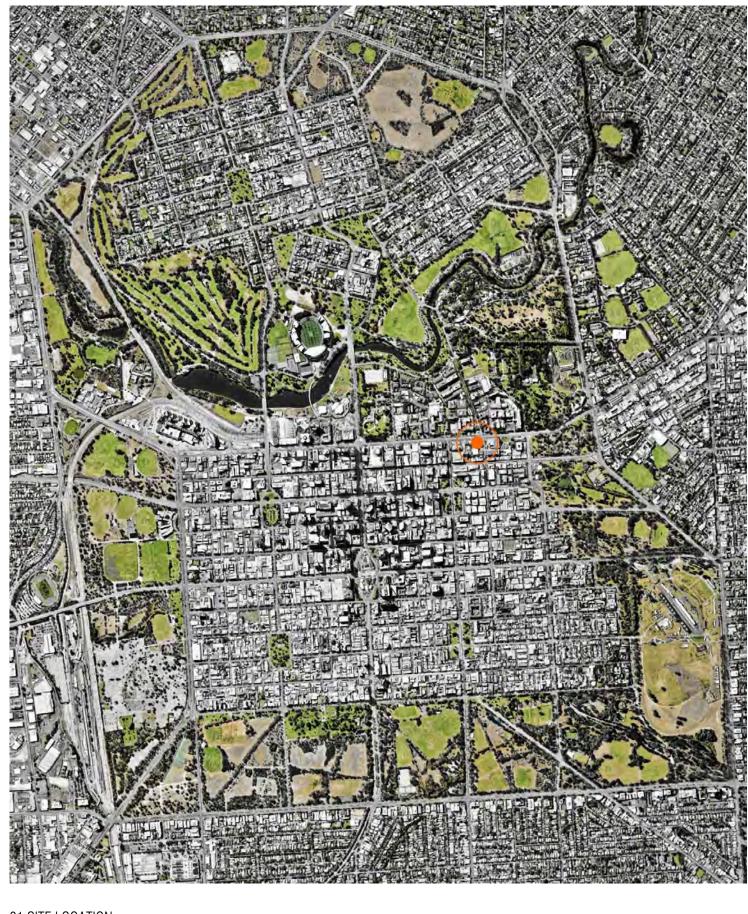
- 08.11.17 Development Application KW
A 22.11.17 Revised Ground & Level 1 for DA KW
B 27.02.18 Response to Government Architect JLi

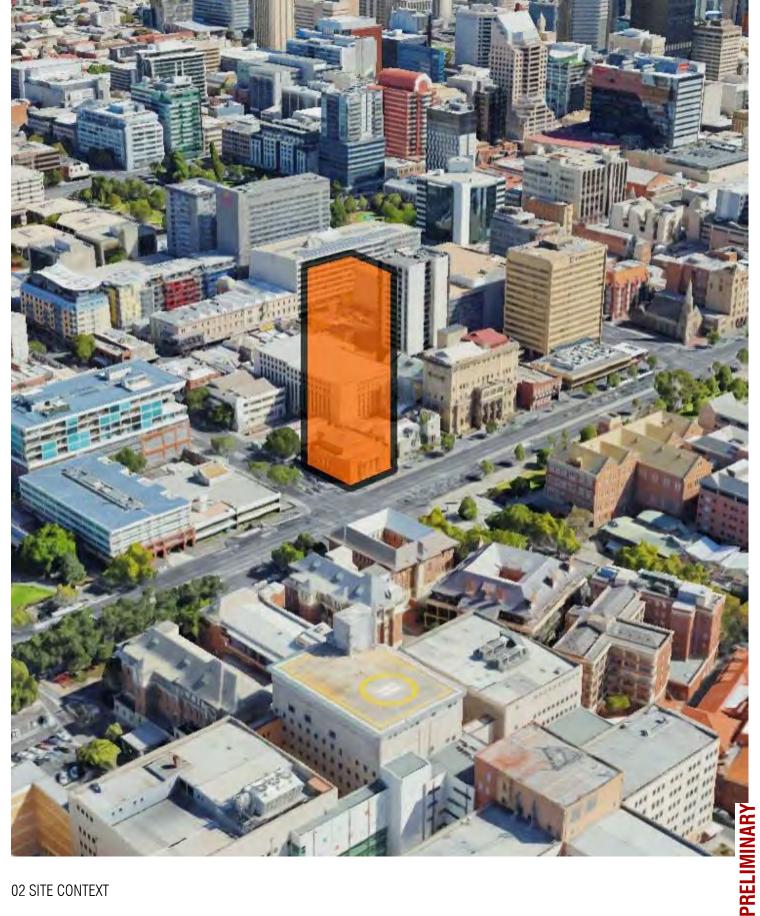
GSA Student Housing
North Terrace
266 North Terrace, Adelaide, SA

3D VIEW 6 - GROUND AT Project No 217091 Date 27.02.18 Author JLi Scale: @ A3 FROME STREET

TP06.06 B







01 SITE LOCATION

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DRAWING LOCATION PLAN

DRAWING NUMBER SK01

266 NORTH TERRACE, ADELAIDE

CLIENT

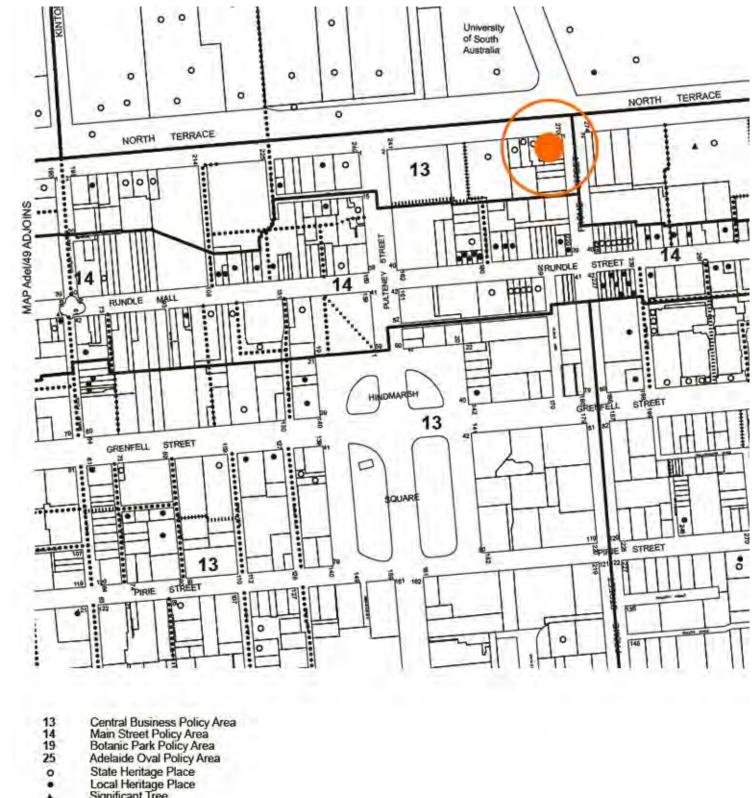
GSA STUDENT HOUSING

PROJECT NO. 17044

NTS / as indicated

REVISION





Significant Tree

Existing Pedestrian Link Proposed Pedestrian Link

Policy Area Boundary

03 POLICY AREAS AND ZONING

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DRAWING PLANNING CONTROLS

DRAWING NUMBER SK02



Referral to the Department of Transport and Regional Services through Adelaide Airport Limited is required where a development would exceed the Obstacle Limitation Surface (OLS) contours on this map.

OLS Values in Australian Height Datum (AHD)

OLS Contour Boundary

Indicative ground level in AHD. Note: Ground level varies throughout the Council area and accurate ground level in AHD would need to be confirmed

Development Plan Boundary

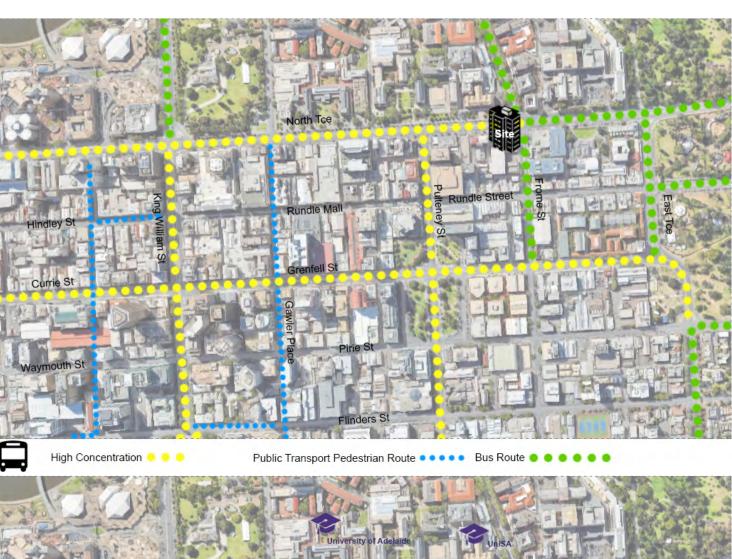
Note: Approval is required under the Commonwealth Airports Act 1996 for structures and the like that penetrate prescribed air space (as defined in the Airports Act 1996)

04 BUILDING HEIGHTS

PROJECT 266 NORTH TERRACE, ADELAIDE	PROJECT NO. 17044	NTS / as indicated
CLIENT GSA STUDENT HOUSING	REVISION -	DATE 8/11/2017









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SITE CONNECTIVITY & SURROUNDS

DRAWING NUMBER SK03

266 NORTH TERRACE, ADELAIDE

Educational Institutions

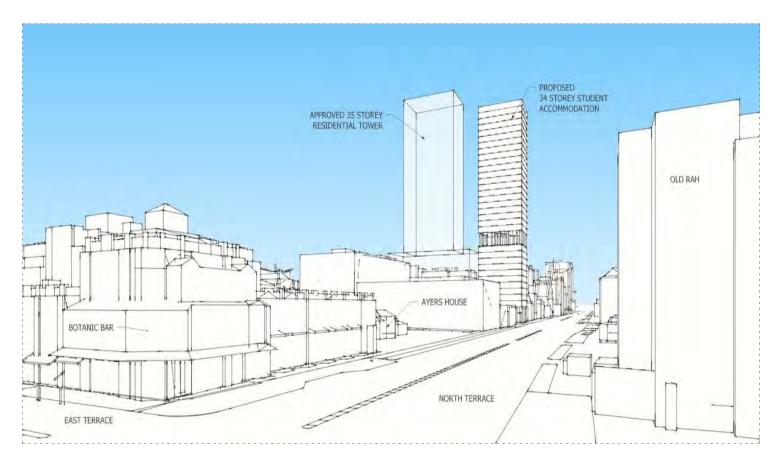
CLIENT

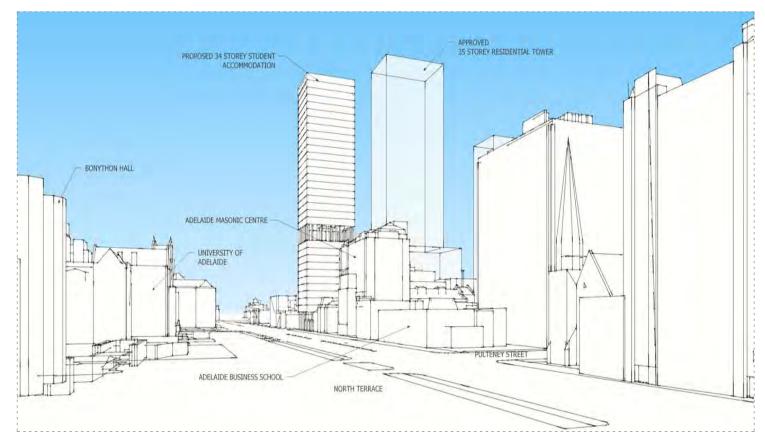
GSA STUDENT HOUSING

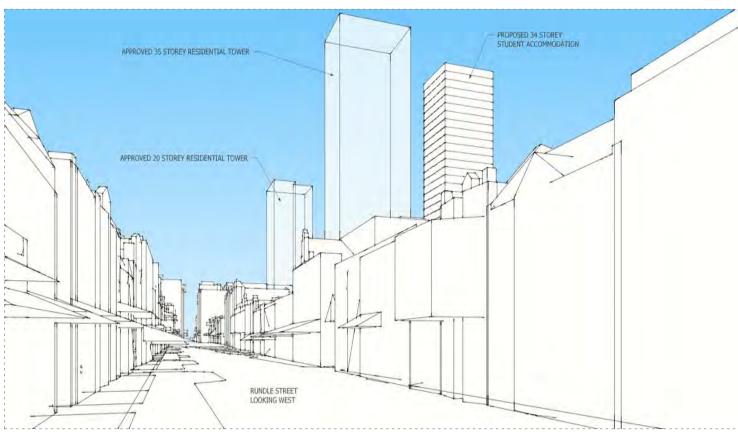
PROJECT NO. 17044

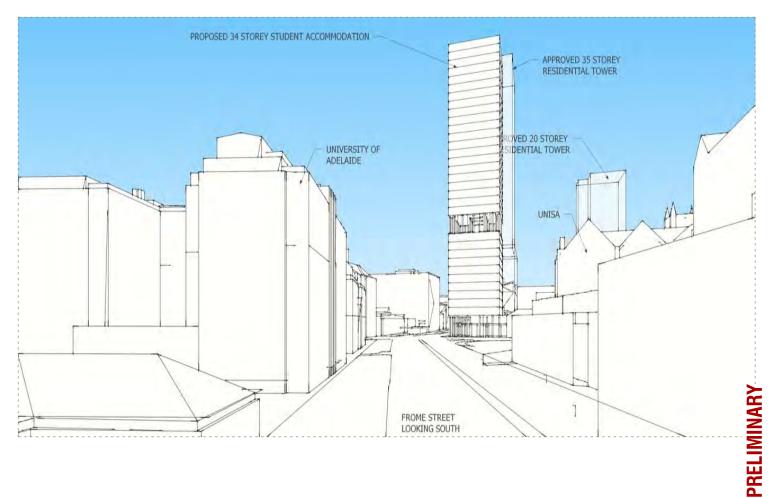
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DRAWING
3D CONTEXT VIEWS

DRAWING NUMBER **SK04**

PROJECT
266 NORTH TERRACE, ADELAIDE

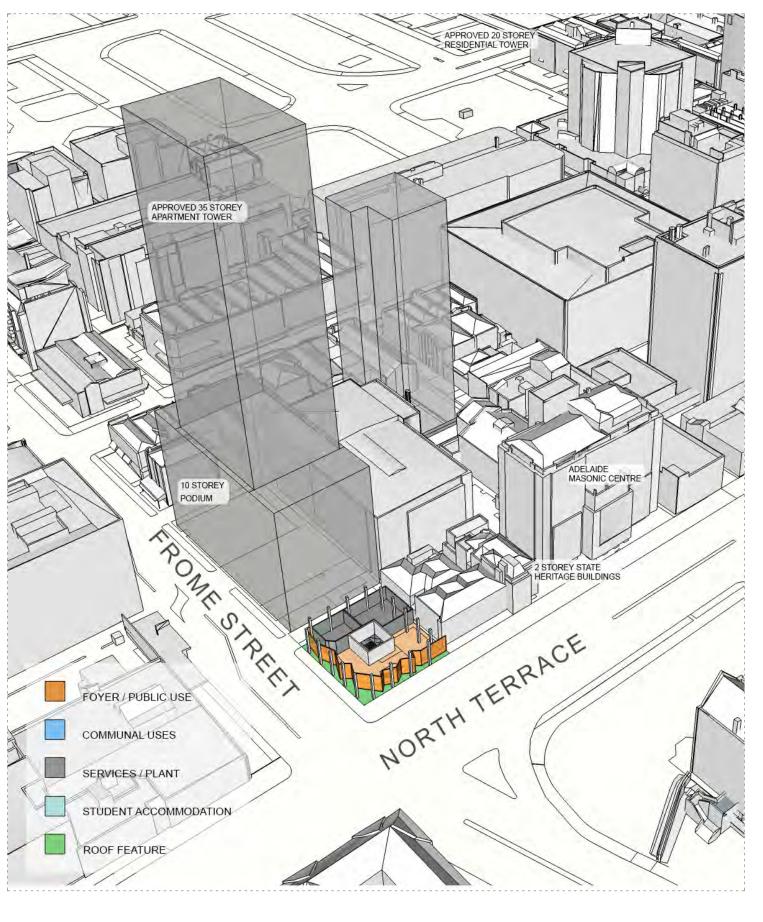
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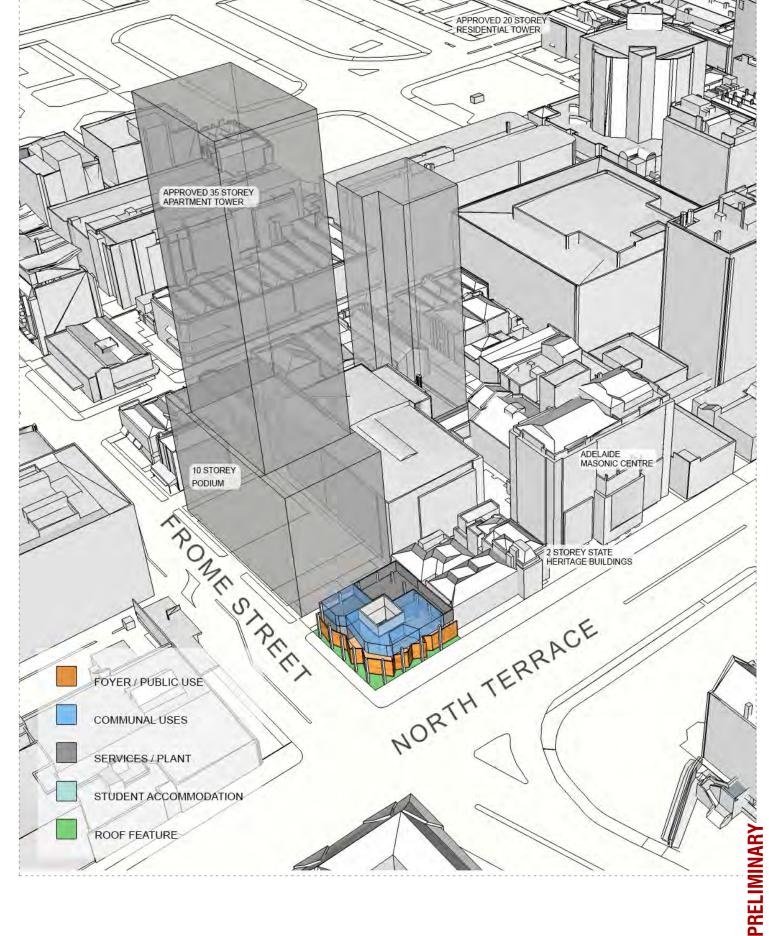
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17044 REVISION

PROJECT NO.

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DRAWING

URBAN BUILDUP AND PROGRAM

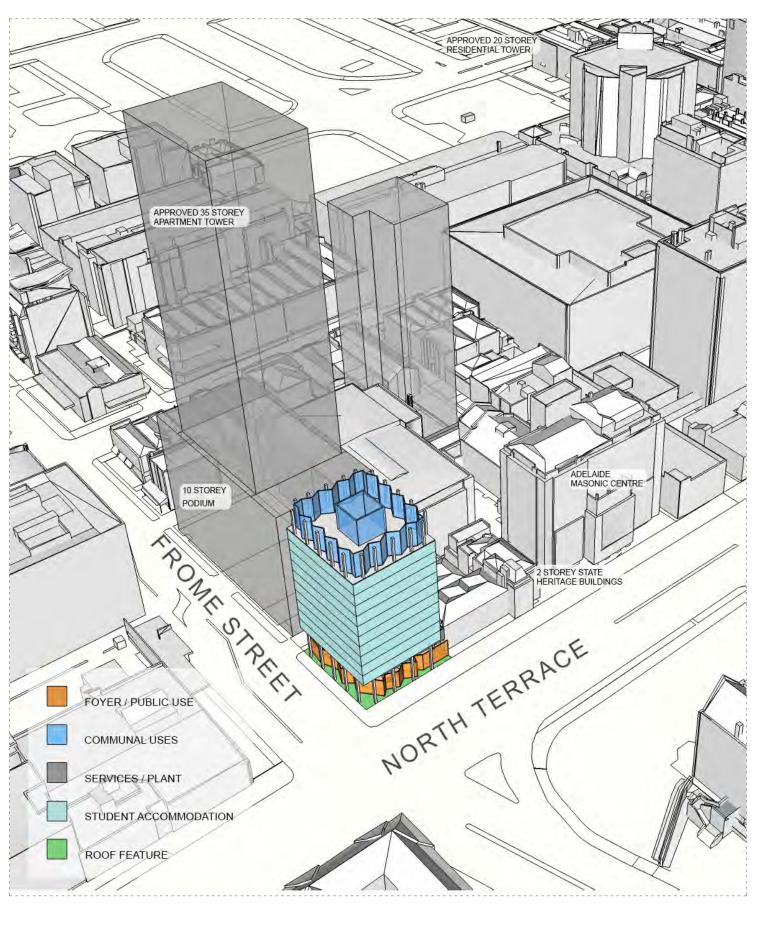
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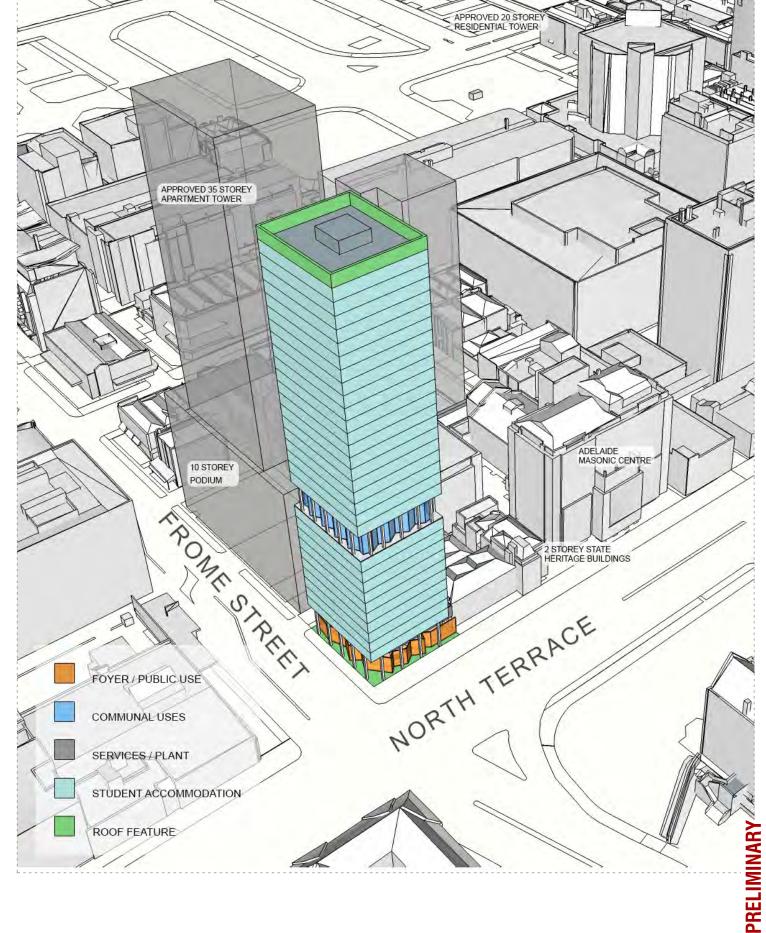
266 NORTH TERRACE, ADELAIDE

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DRAWING

URBAN BUILDUP AND PROGRAM

DRAWING NUMBER **SK06**

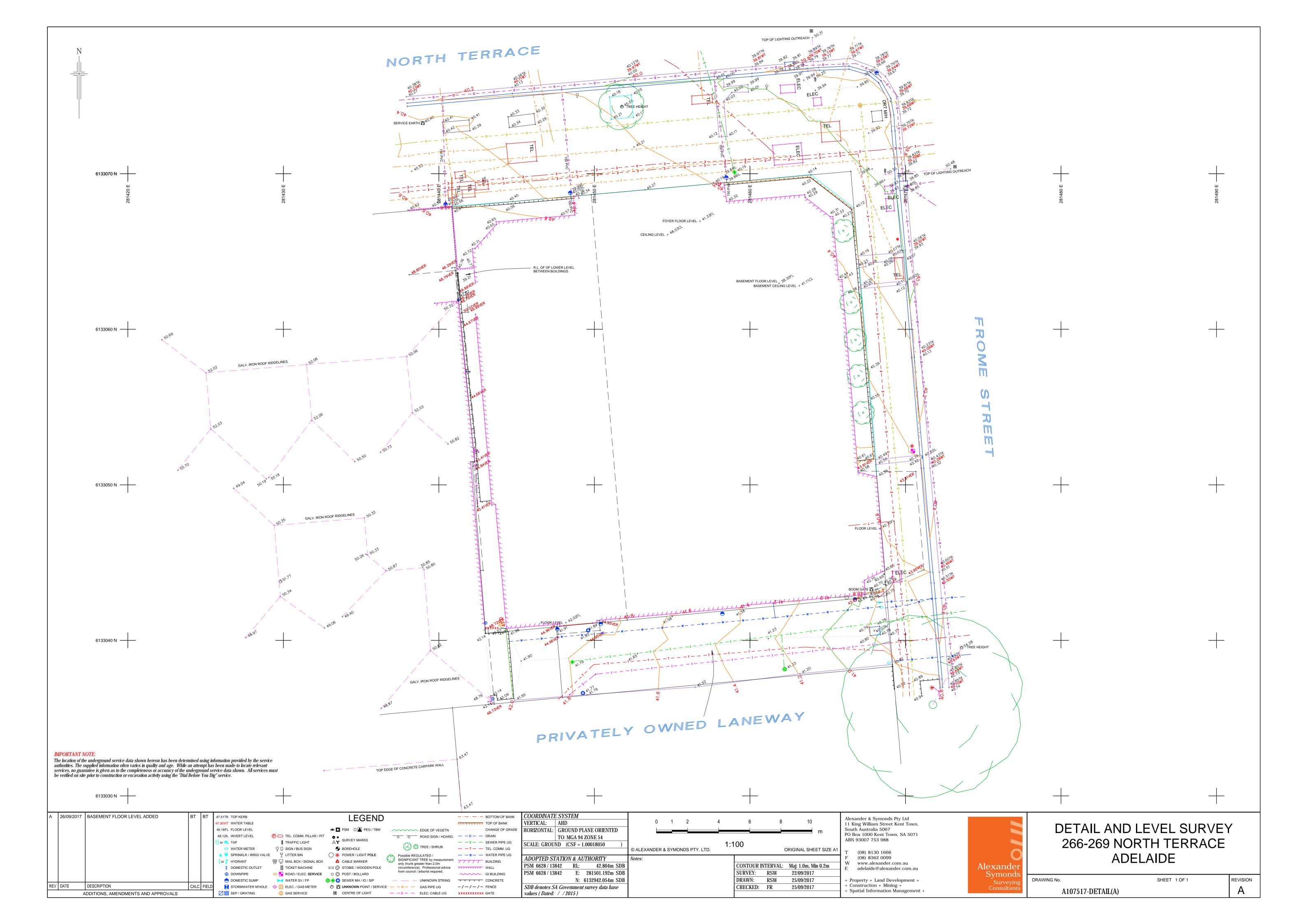
PROJECT
266 NORTH TERRACE, ADELAIDE

GSA STUDENT HOUSING

CLIENT

DELAIDE

PROJECT NO. 17044 REVISION NTS / as indicated



Product Date/Time **Customer Reference** Order ID

Cost

Register Search 28/10/2016 09:45AM 266-267 Nth Tce CM 20161028002374 \$27.75





(CERTIFICATE OF TITLE.)

Register Book,

2331 Folio 105

CHURCH OF CHRIST SCIENTIST ADELAIDE

of 120 Wakefield Street Adelaide INCORPORATED

the proprietor of an estate in fee simple is .

subject nevertheless to such encumbrances lieus and interests as are notified by memorial underwritten or endorsed hereon in piece of land situated in the CITY OF ADELAIDE, being PORTION OF THE TOWN ACRE numbered 27 more particularly delineated and bounded as appears in the plan in the margin hereof and therein colored green TOGETHER with a free and unrestricted right of way over the Private Road as delineated in the said plan and therein colored brown and marked X TOGETHER also with a right of way over Tavistock Street and the Private Road marked Y as delineated in the said plan and therein colored brown appurtenant only to that portion of the said land colored green marked A

which said Town Acre

delineated in the public map of the said City deposited in the Land Office at Adelaide.

In witness whereof I have hereunto signed my name and affixed my seal this dwindy fourth day of Lux

Signed the 24th day of June 1954, in the presence of Phlose

octions in red vide Dkt. 3182 1978

Registrar-General.

MORTGAGE No. 1913234 FROM First Church of Christ Scientist Adelaide Incorporated TO SOUTH AUSTRALIAN SUPERANNUATION FUND BOARD PRODUCED FOR REGISTRATION THE #

October 10 ST, AT 11 20am

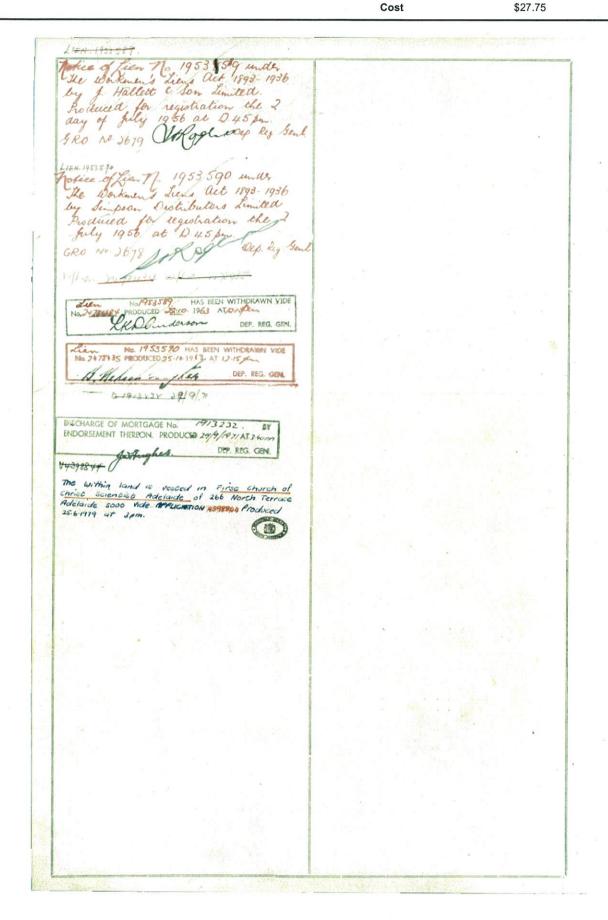
1956 St 1.49pm

DEP. REG. GENL



Product
Date/Time
Customer Reference
Order ID

Register Search 28/10/2016 09:45AM 266-267 Nth Tce CM 20161028002374 \$27.75





Product
Date/Time
Customer Reference
Order ID
Cost

Register Search 28/10/2016 09:45AM 266-267 Nth Tce CM 20161028002374 \$27.75

Notations

Dealings Affecting Title

NIL

Priority Notices

NIL

Registrar-General's Notes

NEW TITLE TO ISSUE (REDESIGNATION) VIDE FILED PLAN F181887

Administrative Interests

NIL



\REA

: ADELAIDE

.GA

: CORP OF THE CITY OF ADELAIDE

HUNDRED: ADELAIDE SECTION: PT 27

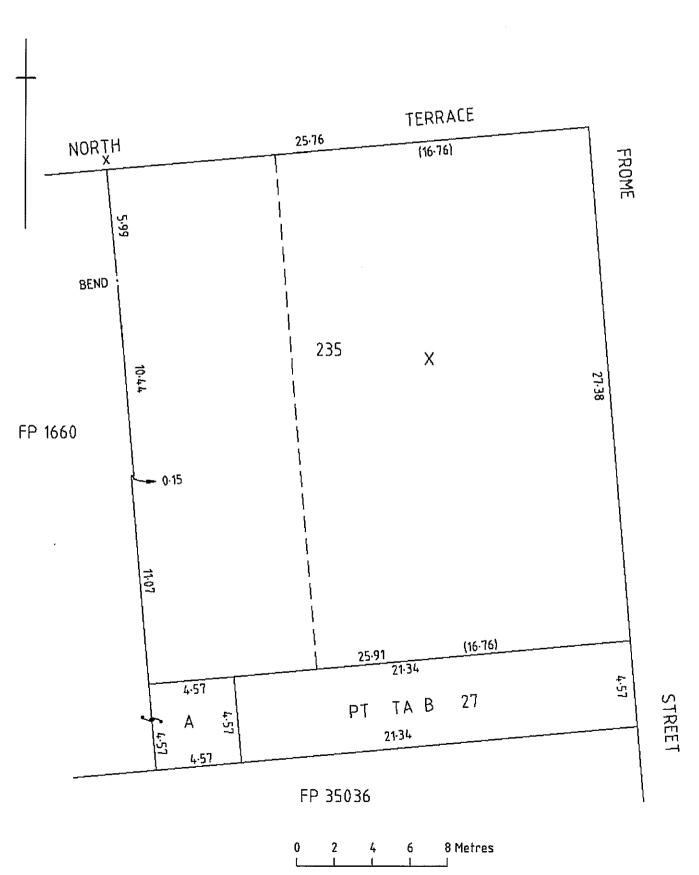
FP 181887

SHEET 1 OF 1

ACCEPTED FOR FILING
24/05/1996

REGISTRAR-GENERAL

THIS PLAN IS PREPARED FROM CERTIFICATE OF TITLE 2331/105 SEE TITLE TEXT FOR EASEMENT DETAILS





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O1 INTE

INTRODUCTION

Intro has prepared this report on behalf of GSA, to provide planning advice pertaining to the establishment of a mixed use building located at 266 North Terrace, Adelaide. The proposal represents an opportunity to deliver a high quality development in an area in close proximity to key cultural institutions.

In undertaking the project design, the Applicant has commissioned the following sub-consultants to provide specialist advice:

Architecture: Rothe Lowman and Intro

Town Planning: Intro

Project Management: Neoscape

Traffic GTA Traffic Consultants

Waste Management Rawtec
Acoustic Sonus
ESD Lucid
Wind MLEI

Stormwater Wallbridge Gilbert Aztec

Environmental Site History FMG

Heritage Hosking Willis

In forming my opinions herein, I confirm that I have viewed the proposal plans prepared by Rothe Lowman, and Intro, have attended the subject land and locality and considered the relevant provisions of the Adelaide City Development Plan (consolidated - 20 June 2017).

5

02

SUBJECT LAND AND LOCALITY

02.1 SUBJECT LAND

The subject site is located at 266-267 North Terrace and is on a north-east facing corner of Frome Street and North Terrace. The land holding is more particularly described within the following Certificates of Title:

ALLOTMENT	FILED PLAN	VOLUME/FOLIO	HUNDRED
235	181887	5097/955	Adelaide
23	181887	2331/105	Adelaide

A copy of the Certificate of Title and Filed Plan is included within Appendix 01 of this document.

The site comprises a prominent corner position with site area approximately 709sqm in size. The site presents a frontage of 25.76m to North Terrace and 27.38m to Frome Street and 21.34m to a 4.57m wide shared lane to the south of which the subject title has a free and unrestricted right of access.

The land contains a fall from the south northwards. A survey is provided in Appendix 02.

There are no easements over the subject site nor does it contain any heritage-listed items.



FIGURE 02.1: SUBJECT LAND

Currently located on the subject site is the Christian Science Church an orange brick building constructed in 1954-56 which demonstrates a built form height of approximately 8.5m. A framed stepped entry constructed of marble extends to the North Terrace street front whilst the balance of the building's façade is set back approximately 0.75m from the street with a chamfered corner on the North Terrace-Frome Street pedestrian corner. Planted within the set-back are five immature fastigiate pyrus trees. The southern portion of the Frome Street frontage comprises a bookstore and reading room which are built to the boundary with a canopy extending over the footpath.

02.2 LOCALITY

North Terrace, Adelaide Council's most prominent boulevard, is a substantial influence on the locality to the north. Directly opposite the site along North Terrace exists the University of South Australia (UniSA) City East Campus fronted by the State Heritage-listed Goodman building. The building is of Federation Gothic style and features red brick and sandstone facades with zinc roof. UniSA City East campus is set behind the high-quality and generous North Terrace public realm.

An urban context study is provided in Appendix 03.

Adjacent to the site on the west fronting North Terrace are three consecutive State Heritage-listed items on four titles. These are listed in order of proximity to the subject site:

- 263-264 North Terrace a two-storey terrace currently used as an office but originally built as a dwelling. This Victorian bluestone terrace State Heritage-listed and is set behind a masonry and wrought iron fence which encloses some formal landscaping; and
- Further to the west at 261 North Terrace is an elaborately detailed two-storey classical sandstone villa set behind a sandstone and wrought iron fence.

Further west exists the Grand Lodge of Freemasons Adelaide Masonic Centre is a six-storey classical sandstone institution located at 254 North Terrace directly beyond to the west.

Existing set-backs vary from 0 to 3 metres along the immediate North Terrace frontage. Along the general North Terrace boulevard, there is little consistency in set-backs. On the subject site, the existing building's entry is built to the street front.

To the East, across Frome Street is Budget Car and Truck Rental with Alpha Apartments and a UPark to seven storeys in height.

To the south, a shared access lane 4.57 metres wide abuts the site with existing boutique retail and an entertainment venue and café contained within the two-storey building across the lane.

To the south-west of the site is a 9-storey car park accessed from Frome Street. The property comprises a 498-bay multi-level car park over eight levels and thee older commercial and retail buildings.

The existing built form to the south fronting Frome Road comprises two to three storey boutique retail, cafes, entertainment venues and restaurants on the ground floor with commercial space above. The existing built form within the locality has predominately no set-back from Frome Street. There are inconsistent canopies on various buildings extending over the footpath on Frome Street. The existing built form immediately to the south of the subject site along Frome Street and extending west to Synagogue Place is undergoing considerable change.

It should be noted that the land directly south of the existing site has development approval for demolition as part of the 11 Frome Road development described below. The approved development on the 4157sqm site, located at 11-27 Frome Street and 12-18 Synagogue Place in Adelaide comprises:

construction of a multi-level mixed use development comprising retail and commercial uses; hotel; student accommodation; residential and serviced apartments, including car parking, landscaping and site works.

The 4,157sqm parcel of land comprising three bordering properties with a combined frontage of 56m to Frome Street has development approval to construct The Adelaidean. The approved 33-level mixed-use development at 11-25 Frome Street is depicted below with the subject site in the foreground.

The 11-25 Frome Street development was approved by the Development Assessment Commission on 27 October 2016 to comprise the following:

Basement bin room, bike storage, cleaners room, maintenance room, lifts and services retail/restaurant, lobby, entrance, car park entry, taxi, drop off, loading area, services

Level 1car parking, apartment storage, servicesLevel 2car parking, gym, library, store, servicesLevel 3-9car parking and hotel rooms and storage

Level 10 outdoor communal open space

Level 11-20 serviced apartments

Level 21 communal open space for private apartments

Level 22 private residential apartments

The 11-floor podium will be built with a 1.8 metre set-back from the Frome Road property boundary and to the northern boundary of the laneway between the development and the subject site. According to an architectural model of the development, the tower appears to be set back approximately 10 metres from the laneway to accommodate outdoor communal open space at level 10.

Demolition has commenced on 11-25 Frome Street and, according to the developer's website, construction is estimated to be completed by the end of 2019.





L | RENDER OF THE APPROVED ADELAIDEAN DEVELOPMENT – 11-27 FROME STREET ADELAIDE WITH THE SUBJECT SITE IN THE FOREGROUND R | SOUTH-EASTERN VIEW ALONG NORTH TERRACE FROM THE PULTNEY STREET INTERSECTION WITH GRAND LODGE OF FREEMASONS AND HERITAGE TERRACES IN THE FOREGROUND.

02.3 VEHICLE MOVEMENTS AND ACCESS

There are no existing car parks on site and a 4.57m wide public lane directly to the south services both the subject site as well as the consulting offices located in 263-264 North Terrace to the west.









- UL | WESTERN VIEW ALONG NORTH TERRACE FOOTPATH FROM THE FROME STREET CORNER. FROM THE OLD ROYAL ADELAIDE HOSPITAL SITE UR | TWO-STOREY BLUESTONE HERITAGE TERRACE ADJACENT TO THE SITE WITH EXISTING CHURCH WALL SHOWING IN THE FOREGROUND LL | REAR ACCESS LANE SHOWING THE 263-264 NORTH TERRACE GARAGE ACCESS AT THE END OF THE LANE LR | VIEW ALONG NORTH TERRACE SOUTHERN FOOTPATH WITH HERITAGE CAR PARK AND HERITAGE PLACES IN THE FOREGROUND

PROPOSED DEVELOPMENT

03.1 DESIGN STATEMENT

The following design statement has been prepared by Rothe Lowman:

THE SITE

The site, 266 North Terrace is located on the prominent corner of North Terrace and Frome Streets, Adelaide. Facing directly across from the heritage precinct of Royal Adelaide Hospital, and the University of South Australia, the site is located next to finer grain remnant Colonial buildings and Adelaide Masonic Centre.

ARCHITECTURAL STATEMENT

The proposed development for GSA student accommodation, is to be an exemplar project for Adelaide, with a focus on new types of living in a collegiate environment, and a focus on the life and learning of students.

Being located on North Terrace, required a building that would sit amongst the wide variety of architectural styles, but most importantly, seek a civic scale and presence to allow it so sit comfortably in this important streetscape.

As a contemporary tower, we have been able to express visually the uses and activity within, and highlight the innovative nature of its use with inclusion of significant communal living areas for students at different vantage points within the building. These act as a means to occupy all parts of the proposal.

GSA North Terrace creates a new type of Urban College, furthering the nature of what constitutes a civic building and how Student Accommodation can contribute positively to the City.

ARCHITECTURAL PROPOSAL

Tall building architecture has up until recently ignored the locality and context in which it has been placed. Our concept seeks to place the building within its local surrounds through creation of colonnade and highly active and dynamic ground plane, but also a responsive façade that manages the extremes of the South Australia climate.

The building connects to and enhances two distinctly different scales at once. The first, the chess set nature of the variety of architectural styles along North Terrace. The broad boulevard elevates this feeling, such that our proposal sought a clear and crisp architectural form that doesn't seek to project its presence through architectural style.

The second, and arguably more important scale is that of the street edge of Frome and North Terrace. Located next to two Colonial terraces, we recognised the need for our tower to speak to these.

Colonial architecture respected the heat, and the creation of shade. Therefore, rather than the traditional tower/podium that modern corporate towers create, we sought to draw the building program within the floor plate, so that shade and protection is created for occupants of the space within.

This creates a formal scale respectful at the ground levels of a two-storey form. Our communal elements of the lower levels are then placed as their own tectonic form, a glazed Pavilion as such, sitting within the classical colonnade. By freeing the communal areas to respond to each orientation, they can adapt and shift as required.

The Pavilions serve as an architectural counterpoint to the classically inspired tower. The façade and plan figures of each pavilion is inspired by the mathematical geometry of quasicrystals and aperiodic tiles. The architecture provides an institutional presence to the student amenity, akin to the architecture one might find on campus.

On the North Terrace edge, active uses such as the café, and co-working space are located within the



expressed two storey pavilion that slides out beyond the tower plate to address the corner, and street edge of the adjacent heritage cottage.

As you move along North terrace, the Pavilion folds and fractures to provide vistas and sightlines to and from the building. Elements of solid are introduced, such that occupants of the space can also feel protected from view. Student Housing is a truly 24hr building, and part of the building's responsibility is to create places that not only are safe but can feel safe, with this unique glazing device creating protected spaces within, but removing opportunities for concealment externally.

On the first floor, innovative uses such as the Co-working space are provided, where students can provide a space to mingle with potential future employers, and facilitate their growth beyond university life.

At the Corner of North Terrace and Frome Street, the Pavilion compresses and opens out to signalise the main building entry. By withdrawing under the tower colonnade, protection and shelter is created, but also opportunity for broader sightlines for pedestrians at street level enhancing the public realm.

For the Frome street façade, the highly operational uses of reception, and staff office are located with sightlines to both the foyer and street, allowing for creation of safe and friendly street edge.

Above on the first floor, the main study levels are located, that are provided with a vantage point over the street, with oblique views prioritised to see the more important architectural forms of North Terrace and down Frome streets.

To the private lane in the rear, the majority of service infrastructure is located. At the far end of the lane is the main bicycle entrance for the students to a significant underground storage space. Passive surveillance is provided in this space by the location of the active uses of Cinema and study rooms. The future development to the south of the site similarly provides some measure of activation.

As we move vertically up the tower, the uses are again expressed in the tower brise soleil – Columns project forward to express the mass of the tower above in a contemporary interpretation of entasis, a classical proportional device that managed the optical illusion of vertical objects appearing concave. This element also creates a deeper shading effect for our co-living units which locate large shared living spaces within, and bedrooms located adjacent to all facades.

Above this point, the second formal break in the façade is created as the shape shell cladding retreats to the primary structural line and another two storey Pavilion for communal space is created. On these two levels are the more informal activities of campus life. Large self-serve kitchens and dining spaces are provided, with external Terraces. These external terraces needed special planning and facade articulation to make them comfortable for as much of the year round as possible. The glazing leans out from the lower to the upper level of these communal spaces, essentially creating more shelter and shielding for occupants. Secondly, the fractal nature of the glazing is based on research into wind dynamics. Each notch slows wind velocity, but also has the added benefit of creating smaller, more intimate external spaces where smaller groups of students can congregate outside of the larger communal areas.

The principle of civic open space design whereby you can feel comfortable in a crowd of 1 or 100 applies in communal living for colleges, and this is deployed throughout all our internal spaces. Hence smaller intimate gathering areas are contrasted with larger volumes to create diversity and options of inhabiting the building. Above the communal spaces, the tower cladding tapers back in to enhance the verticality of the form, finally dissipating at the tower crown that expressively marks the environmental focus of the development.

MATERIALITY

Sitting amongst the important cultural, educational and civic buildings of North Terrace, GSA North Terrace had to take a different approach to traditional private student accommodation.

The expressiveness of the vertical structure harks back to the honesty and formalism of the surrounding



masonry heritage buildings. Buildings such as the Royal Adelaide hospital with its masonry verandas and decorative elements. These buildings along with the purity of form provided by the Masonic Centre inspired us to create a building that creates the dynamic of mass and weight and speaks to Civic Architecture.

Our vertical façade elements are proposed as a Concrete Shape Shell – these prefabricated elements are affixed to the primary structural columns, and act as vertical lightweight screen.

The horizontal screening elements are proposed as a clad, lightweight element, with a prefinished coating system.

Our primary wall glazing is a stick framed, aluminium system. With solid spandrel panels as required for privacy and fire separation.

At the communal break out floor, a simple framed glazed balustrade holds the building edge. The Pavilion device is made up of an aluminium framed window system, with solid cladding panels interspersed with glazed pieces to suit orientation and vistas.

HOUSING TYPOLOGY

A truly innovative, and market leading business, GSA operates globally in the Student Housing sector. Bringing this to the Adelaide city, we are proposing a new type of Co-living model whereby students are clustered within broader "family" groups within the larger college.

These Co-living units provide all the amenity of a conventional student room, but with the added benefit of a shared living space spread dynamically across two storeys. This two-storey home in the sky, creates a shared kitchen eating space on one level, and a second lounge/relaxation area on the other. These students get the benefit of both this area, and the wider facilities in the building.

A true diversity of product is then provided throughout the remainder of the building, through shared, multi-bed "apartment" like rooms, where 3-5 students share a combined living area, through to the upper floor levels where larger Studio and 1-bedroom spaces are provided.

Importantly for the feeling of amenity, every level of the building is provided with natural daylighting to the corridor areas.

CLIMATICALLY RESPONSIVE

To improve the internal space quality for the residents, a traditional hot/dry climatic device – the Brise Soleil, has been adapted to the high rise building type. Vertically expressed columns not only provide scale and form, but create an armature and protection for glazing. Created through innovative shape-shell technology, a durable and expressive architecture is created. Horizontal screens are then added, with these being solar tuned to their orientation and sun angle. Being free from the façade not only allows them to create a play of light and shadow on the façade, but facilitates easier access and maintenance into the future.

To be climatically responsive, also means to be focused on the future. Our client GSA is committed to this through their sustainability plans which for GSA North Terrace includes the provision of significant roof-top solar panels.

These are celebrated through the roof top expression of the building crown. This serves as not only a screen to the roof top plant, and lift overruns, but importantly it has a practical function in supporting the solar plant which run around its edge.

03.2 BUILDING COMPOSITION

The particular elements of the proposal are detailed within the plans prepared by Rothe Lowman and Intro dated November 2017, which form Appendix 04 of this planning statement.

The proposal consists of the construction of a 34 storey mixed use building comprising student accommodation and commercial land uses with ancillary resident amenity spaces, back of house facilities, vehicular loading and bike storage.

A retail tenancy will occupy part of the ground floor of the building and fronts onto North Terrace. The remainder of the building is dedicated to student accommodation, resident amenity spaces and back of house services.

A floor breakdown is provided below:

BASEMENT LEVEL

- Building services 223sqm;
- Back of House 70sqm; and
- · Bicycle store 128 spaces.

GROUND FLOOR

- · Commercial 78sqm internal area, 21sqm alfresco;
- Foyer 77sqm;
- Student services 60sqm;
- · Refuse store and loading 72sqm; and
- · Building Services circa 40sqm.

LEVELS 1

- · Student amenity spaces 216sqm;
- Laundry 28sqm;
- · Back of house circa 80sqm; and
- · Co-work space 61sqm.

LEVELS 2-5

- 1x DDA compliant studio per level;
- 4x 1 bed co-living types per level;
- 3x 2 bed co-living types per level; and
- 4x 4 bed co-living types per level.

LEVELS 6-11

- 4x 1 bed co-living types per level;
- 4x 2 bed co-living types per level; and
- 4x 4 bed co-living types per level.

LEVEL 12

- Student amenity space 300sqm; and
- 54sqm balcony.

LEVEL 13

Student amenity space 305sqm

LEVELS 14-23

- 1x 5 bed duplex types every second level; and
- 4x 5 bed ensuite types per level.

LEVEL 24

- 1x 2 bed ensuite; and
- 4x 5 bed ensuite types.

LEVEL 25

- 9x standard studio types per level;
- 1x large studio types per level;
- 1x 1 bed types per level; and
- 1x DDA studio per level.
- 152sqm communal open space

LEVELS 26-29

- 15x standard studio types per level;
- 2x large studio types per level;
- 1x 1 bed types per level; and
- 1x DDA studio per level.

LEVELS 30-33

- 15x standard studio types per level;
- 2x large studio types per level; and
- 2x 1 bed types per level.

In total the proposed development incorporates 687 student beds and 128 bicycle parking spaces.

03.3 TRAFFIC AND PARKING

SERVICE VEHICLE ACCESS

Service vehicle access to the loading bay and bin store is via a crossover at southern end of the building off Frome Street.

BICYCLE FACILITIES

A bicycle storage area of 205.5m2 located in the basement will provide secure storage for 128 bicycles. A bike ramp on ground floor at the southwest of the building is proposed to access the bike storage on basement level.

PEDESTRIAN FACILITIES

Existing pedestrian paths will be adequate to provide site access for pedestrians.

LOADING AREAS

Loading dock and waste collection will be provided on the south end of the site, accessible from the laneway which connects to Frome Street.

The entire Traffic Impact Analysis is provided in Appendix 05.

03.4 WASTE MANAGEMENT

A waste management plan has been prepared by Rawtec. The report reccommends the following:

Waste generated throughout the building would be stored within the waste room on the ground floor.

Collection would be conducted by a commercial waste collector. This Waste Management Plan assumes all tenancies are using the same service.

Building services would be responsible for moving waste and recycling bins within the waste room, coordinating hard waste collection, and collecting organics (food) waste from communal areas throughout the building.

Collection would be direct from the waste room on the ground floor. There will be a Loading Zone on the ground floor that can be accessed via the southern lane, which runs off Frome Street.

The waste management plan is provided in Appendix 06.

03.5 ACOUSTIC

Sonus have undertaken an noise assessment, and propose a range of design outcomes to ensure that the proposed development satisfies Minister's Specification SA 78B.

The noise assessment is provided in Appendix 07.

03.6 ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT

Lucid Consulting Engineers have provided a Sustainability Report in relation to the proposed development. The proposal incorporates the following inititatives:

- High performance building envelope: wall, floor and roof insulation R-values to meet best practice guidelines.
- High performance glazing with solar control to mitigate solar heat gains in summer.
- · Use of architectural facade feature elements to shade glazing.
- Energy efficient massing with minimal exposed ceilings and floors (Levels 2 to 11 and Levels 14 to 33 have the same boundaries)
- Natural ventilation provided to every unit.
- Master shutdown switches at the entry of each unit, allowing residents to easily turn off all lighting and airconditioning upon departure.
- · LED lighting throughout.
- Motion sensors for efficient lighting control within common areas.
- Water efficient fittings:
 - Taps: minimum 5 star WELS rating (i.e. maximum flow rate of 6.0 L/min)
 - Showerheads: minimum 3 star WELS rating (i.e. maximum flow rate of 7.0 L/min)
 - Toilets: minimum 4 star WELS rating (i.e. maximum average consumption of 3.5 L/flush)
- Secure bicycle storage in the basement.
- Portland cement content in concrete mixes to be reduced by 25% and replaced by slag and/or flyash to reduce carbon footprint and resource depletion.
- · Low volatile organic compound (VOC) paints

The proposal is also investigating the following initiatives:

- central hydronic plant;
- cogeneration; and
- · roof mounted photovoltaic systems.



PROJECT

The ESD Report is provided in Appendix 08.

03.7 WIND

A wind impact assessment has been prepared by MLEI Consulting Engineers. The report concludes:

The proposed development has the potential to impact on the current wind conditions in the surrounding areas. However, it is not expected that the proposed development will generate wind conditions that cannot be managed by careful consideration. It is expected that most of the ground level would be close to or within the criterion for acceptability for walking, standing or sitting providing the following guidelines are adhered to:

- The proposed façade system must consist of horizontal elements on the sides of the building to reduce the downwash effect. Alternatively, wide canopies are recommended to be installed at ground level along North Terrace and Frome Street: and
- Carefully planned obstructions such as perforated screens or a row of trees at the north side shall be
 designed to reduce the wind effect to the front of the ground floor cafe area.

It is recommended that light weight items or loose furniture at the open terrace area on Level 12 to be secured during strong wind events.

The entire Wind Impact Assessment is provided in Appendix 09.

03.8 STORMWATER

Wallbridge Gilbert Aztec have undertake a preliminary Stormwater Management Report and propose the following:

Collection of roof drainage will follow the same philosophy as the current building with the stormwater runoff directed towards the kerb and gutter in both North Terrace and Frome Street. The exact location of the checker plate drains in the footpath will be determined during detailed design and will be dependent on the final roof layout. The checker plate drains will be in accordance with Adelaide City Council standard detail C222.

It may be possible to connect to the existing "private" 150mm dia pipes in the North Terrace footpath however this will be resolved during the detailed design phase of the project. It is noted that the peak flow rate from the 1 in 100 year storm event is approximately 35l/s and as such there will need to be a minimum of 3 No checker plate drains to discharge the water to the street kerb and gutter (based on Council's requirements for a maximum 15l/s outlet).

No stormwater quality improvement measures are proposed as the majority of the site runoff is "clean" roof water.

The Stormwater Management Report is provided in Appendix 10.

03.9 ENVIRONMENTAL SITE HISTORY

FMG completed an Environmental Site History (ESH) assessment for the site located at 266-269 North Terrace, Adelaide, South Australia, 5000. The site occupies an area of approximately 700 square metres (m2) and currently comprises a church building occupied by the First Church of Christ Scientist.

Based upon the findings of the ESH, FMG considers that there is a low to moderate potential risk presented to the identified human health and environment receptors associated with the site. Potential pollutant linkages have been identified to exist, during and following the residential redevelopment of the site that warrant further investigation.

The Environmental Site History report is provided in Appendix 11.



PLANNING ASSESSMENT

04.1 NATURE OF DEVELOPMENT

The proposed development is contained within the Capital City Zone, Central Business Policy Area13 as detailed within the Adelaide (City) Development Plan (consolidated – 20 June 2017).

The particular details of the proposed development are referenced in the preceding chapter. For ease of assessment I recommend that the nature of the proposed development be described as:

the demolition of all existing structures the construction of a 34 storey mixed use building comprising student accommodation (687 beds) and commercial land uses with ancillary resident amenity spaces, back of house facilities, vehicular loading and bike storage.

The proponent is seeking a staged approval, and I generally describe the Stages below:

Stage 1: Demolition
Stage 2: Substructure
Stage 3: Superstructure
Stage 4: Architectural facade

The proposed development is not prescribed as complying nor as non complying within the Development Plan and should be assessed on its merits as a consent form of development.

04.2 PUBLIC NOTIFICATION

Principle 40 of the Capital City Zone prescribes all development as Category 1 within the Zone, other than where it is designated as Category 2 or identified as a non-complying form of development. Development is designated Category 2 in the Capital City Zone where it abuts the City Living Zone or Adelaide Historic (Conservation) Zone zone and exceeds 22m in height. The proposal does not satisfy this criterion and hence should navigate the Category 1 public notification process.

The Category 1 public notification procedures are detailed with Section 38 of the *Development Act 1993*. Section 38 (3) states:

the relevant authority must not, on its own initiative seek the views of the owners or occupiers of adjacent land or other land in relation to the granting or refusal of development plan consent.

04.3 RELEVANT DEVELOPMENT PLAN PROVISIONS

This planning assessment will consider the relevant provisions determined to be most pertinent to the proposed development.

04.3.1 LAND USE

POLICY AREA

PDC 3: To enable an activated street level, residential development or similar should be located above ground

floor level.

ZONE

Objective 2: A vibrant mix of commercial, retail, professional services, hospitality, entertainment, educational

facilities, and medium and high density living.

Objective 3: Design and management of City living to ensure the compatibility of residential amenity with the

essential commercial and leisure functions of the Zone.





Objective 8: Development that contributes to the Desired Character of the Zone.

The Capital City Zone is the economic and cultural focus of the State and includes a range of employment, community, educational, tourism and entertainment facilities. It is anticipated that an increased population within the Zone will complement the range of opportunities and experiences provided in the City and increase its vibrancy.

...

Non-residential land uses at ground floor level that generate high levels of pedestrian activity such as shops, cafés and restaurants will occur throughout the Zone. Within the Central Business Policy Area, residential land uses at ground level are discouraged. At ground level, development will continue to provide visual interest after hours by being well lit and having no external shutters. Non-residential and / or residential land uses will face the street at the first floor level to contribute to street vibrancy.

...

North Terrace will be reinforced as an important pedestrian promenade and cultural boulevard that provides an important northern edge to the City square mile.

PDC 1: The following types of development, or combinations thereof, are envisaged:

...

Student accommodation Shop or group of shops

...

The proposed mixed use development comprises land uses which are envisaged by the Capital City Zone. The land uses are configured upon the site appropriately, ensuring that active land uses are provided at the ground level, with accommodation land uses provided on the upper floors.

The student accommodation land use will support South Australia's vital education industry by providing centrally-located, high-density student accommodation within close proximity to two significant Tertiary Education Campuses, and connected to others via public transport. The proposal supports the State's Economic Priority 'the Knowledge State' by providing a world class student accommodation facility.

The increased capacity of student accommodation within will further support local businesses and make best use of existing social and physical infrastructure. A diversity of student culture will create new markets and bring vibrancy to the city. Residing students will be in close proximity to the Adelaide Park Lands, tertiary institutions, the Adelaide Botanic Gardens as well as the prime shopping, bar and restaurant precincts of Rundle Street and Rundle Mall.

The proposed development will support the Desired Character Statement of the Capital City Zone by:

- providing an increase of the student population within the Zone which will complement the range of opportunities and experiences provided in the City and increase its vibrancy.
- designing the ground floor level of the proposed development to include a commercial tenancy which will
 contribute to pedestrian activity and interest. No after hour barriers will detract from the visual interest of
 the site: and
- maintains North Terrace's status as a prominent cultural boulevard.

Development at the subject site complements the institutional cluster along North Terrace. It further provides accommodation to students in the heart of the city which will enhance the vibrancy of Adelaide's East End. By supporting a greater population of students within the City of Adelaide, the proposed development supports the relevant provisions of the Policy Area and Zone.

COUNCIL WIDE

PDC 266: Development, particularly within the Capital City and Institutional Zones, is encouraged to:



- a. provide a range of shopping facilities in locations that are readily accessible;
- provide for the growth in economic activities that sustain and enhance the variety and mix of land uses and the character and function of the City;
- maximise opportunities for co-location, multiple use and sharing of facilities;
- be accessible to all modes of transport (particularly public transport) and safe pedestrian and cycling routes.

The proposed development comprises a lobby, office space, student amenity and a commercial tenancy at street-level. The provision of such facilities at the ground level ensure that the facility is readily accessible to students and others frequenting the site. Increasing the population at this location is anticipated to support the retail, dining and entertainment businesses in the city's east end and centre.

The provision of such will provide for high-quality and ideally positioned student accommodation to support Adelaide's reputation as an internationally recognised centre for tertiary education. Students living at this location will be ideally-placed to make use of student facilities within the University campuses across North Terrace providing for safe transportation.

04.3.2 BUILT FORM

POLICY AREA

Objective 3: Development that contributes to the Desired Character of the Policy Area.

Buildings will exhibit innovative design approaches and produce stylish and evocative architecture, including tall and imposing buildings that provide a hard edge to the street and are of the highest design quality. A wide variety of design outcomes of enduring appeal are expected. Complementary and harmonious buildings in individual streets will create localised character and legible differences between streets, founded on the existing activity focus, building and settlement patterns, and street widths.

PDC 3: To enable an activated street level, residential development or similar should be located above ground floor level.

The proposed built form has paid credence to its prominent location and exhibits an innovative design, incorporating strong horizontal and vertical elements, a hard edge to the street representing the highest design quality. A wide variety of design outcomes of enduring appeal are expected. The proposal is complementary to other built form within the streetscape, incorporating a datum line, setback and masonry colonnade which respects the adjoining State Heritage Place.

ZONE

Objective 6: Buildings that reinforce the gridded layout of Adelaide's streets and respond to the underlying built-

form framework of the City.

Development that contributes to the Desired Character of the Zone. **Objective 8:**

High-scale development is envisaged in the Zone with high street walls that frame the streets. However an interesting pedestrian environment and human scale will be created at ground floor levels through careful building articulation and fenestration, frequent openings in building façades, verandahs, balconies, awnings and other features that provide weather protection.

... In the Central Business Policy Areas, upper level setbacks are not envisaged.

New development will achieve high design quality by being:

- Contextual so that it responds to its surroundings, recognises and carefully considers the adjacent built form, and positively contributes to the character of the immediate area.
- b. Durable - by being fit for purpose, adaptable and long lasting, and carefully considers the existing development around it.
- Inclusive by integrating landscape design to optimize pedestrian and cyclist usability, privacy, and equitable access, and also promote the provision of quality spaces integrated with the public realm that can be used for access and recreation and help optimize security and safety both internally and into the public realm, for occupants and visitors alike.
- Sustainable by integrating sustainable systems into new buildings and the surrounding landscape design to improve

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environmental performance and minimise energy consumption.

e. Amenable – by providing natural light and ventilation to habitable spaces.

Contemporary juxtapositions will provide new settings for heritage places. Innovative design is expected in areas of identified street character with an emphasis on contemporary architecture that responds to site context and broader streetscape, while supporting optimal site development. The addition of height, bulk and massing of new form should be given due consideration in the wider context of the proposed development.

Development fronting North Terrace, King William Street, Wakefield Street, Grote Street, the Squares, and in the Main Street Policy Area, will reflect their importance though highly contextual design that reflects and responds to their setting and role.

The proposed development reinforces the gridded layout of the city by addressing North Terrace and Frome Street, two primary city access roads. The proposal celebrates this corner by providing a strong built form along its edge. The prominence of the building in this location, reinforces the role and function of these streets.

The proposal responds to the Desired Character of the Zone in a range of ways. Importantly, the built form, at 34 storeys, responds to the desire for High-scale development within the Zone. Importantly, the proposed design addresses the ground and first floor levels to respond to the relevant portions of the Desired Character Statement. The proposal creates an interesting pedestrian environment by creating a human scale at the ground level, providing for a recessed concourse, and providing for building articulation, openings and fenestration which create visual interest. A heavy concourse is proposed which reinforces the predominant masonry form of the adjoining heritage place. The concourse also provides for weather protection.

The upper levels of the built form are not setback from the boundary.

The proposed development represents high quality design by being:

- contextual. The design responds to its surroundings and considers the adjoining heritage place through
 the provision of a two storey form which respects datum heights, scale and proportions. The building is
 also contextual in that it is located at the junction of two primary city access roads and reinforces the
 prominence of this corner;
- durable through a simple design which is fit for purpose. The proponent will own and operate the asset, however has retained the ability to reconfigure floorplates as required. A range of structural typologies are currently being assessed however, adaptability is a key driver. A simple facade solution is proposed which establishes a primary facade for weatherproofing and a secondary system which expresses structural elements and provides for shading opportunities;
- is inclusive. The proposal integrates landscape design where possible, and optimises pedestrian and cyclist comfort and usability. No private vehicle movements to and from the site are envisaged and commercial vehicle access will all enter and exit the site in a forward moving direction. Bicycle storage is proposed in the basement with a ramp-stair proposed to provide convenient access;
- sustainable by incorporating a range of passive design features to improve environmental performance and minimise energy consumption. As is detailed within the ESD report the proposal is also investigating a range additions.
- · amenable by ensuring that all rooms have direct access to natural light and ventilation.

04.3.2.1 SETBACKS

ZONE

PDC 11: Buildings should be positioned regularly on the site and built to the street frontage, except where a set-back is required to accommodate outdoor dining or provide a contextual response to a heritage place.

No set-back is proposed for the subject development along the North Terrace frontage which will contribute to the desired 'City wall' character of North Terrace. This alignment will be consistent with the adjacent heritage fences as well as the portico on the Grand Lodge of Freemasons.



PDC 13:

Buildings north of Rundle Mall, Rundle Street, Hindley Street and Gouger Street should have a built form that incorporates slender tower elements, spaces between buildings or other design techniques that enable sunlight access to the southern footpath.

Cognisant of the development approval of the 33-storey Adelaidean, directly to the south of the proposed site, the subject development is not considered to have any additional impacts on sunlight access to the southern footpath of Rundle Street.

COUNCIL WIDE

PDC 271:

Development should not unreasonably restrict the development potential of adjacent sites, and should have regard to possible future impacts such as loss of daylight/sunlight access, privacy and outlook.

The proposed development will not unreasonably restrict the development potential of adjacent sites. The proposed development is setback to:

- the laneway to the south, which creates a distance of 6m between buildings. The purpose of this setback has the dual function of providing a suitable visual privacy to the future Adelaidean development to the south and to facilitate safe and convenient vehicular movement; and
- create space from the State Heritage item to the west and not unreasonably restrict the future development
 of this site.

PDC 179:

Buildings within the Capital City Zone should be built to the street edge to reinforce the grid pattern, create a continuity of frontage and provide definition and enclosure to the public realm whilst contributing to the interest, vitality and security of the pedestrian environment.

The development is equally proposed to be built to the Frome Street and North Terrace frontages as desired in the Zone.

The building is to be set back from the southern boundary. This set-back will both allow for adequate laneway access and facilitate appropriate separation between the proposed student accommodation and the Adelaidean development to the south.

04.3.2.2 BUILDING HEIGHT

POLICY AREA

PDC 2:

Buildings should be of a height that ensures airport operational safety is not adversely affected.

COUNCIL WIDE

PDC 172:

Buildings and structures should not adversely affect by way of their height and location the long-term operational, safety and commercial requirements of Adelaide International Airport. Buildings and structures which exceed the heights shown in Map Adel/1 (Overlay 5) and which penetrate the Obstacle Limitation Surfaces (OLS) should be designed, marked or lit to ensure the safe operation of aircraft within the airspace around the Adelaide International Airport.

Concept Plan Figure CC/2 within the Adelaide City Development Plan prescribes no height limit at the subject site. Airport Building Heights Map Adel/1 (Overlay 5) prescribes the Obstacle Limitation Surface (OLS) at a height of approximately 153m above the subject land.

The built form height, marginally exceeds the OLS limit and as such the proposal will require referral to the Adelaide Airports for comment. It is understood that the building would be shielded to a height of 180m AHD in this location and as such the proposal will not adversely affect operational safety of the Adelaide Airport.

04.3.2.3 DESIGN AND APPEARANCE

ZONE

Objective 5: Innovative design approaches and contemporary architecture that respond to a building's context.

Objective 6: Buildings that reinforce the gridded layout of Adelaide's streets and respond to the underlying built-form

framework of the City.

Objective 7: Large sites developed to their full potential while ensuring a cohesive scale of development and responding

to a building's context.

The subject site makes optimal use of the land located on the corner of two Primary City Access Roads, North Terrace and Frome Street where intensive, high-density development is envisaged.

The proposed building design is cognisant of its prominent corner location and provides an appropriate architectural response which is sculptural in form, provides for an appropriate materiality and is proportional to the broader streetscape. The proposal has responded to the adjoining State Heritage item on North Terrace providing an contextual response to the two storey terrace buildings to the west. The proposed development also takes into account the approved Adelaidean development to the south.

The development addresses both North Terrace and Frome Streets and will built to the street frontages in line with the Zone provisions.

POLICY AREA

Objective 2: Development of a high standard of design and external appearance that integrates with the public

realm.

ZONE

PDC 6: Development should be of a high standard of architectural design and finish which is appropriate to

the City's role and image as the capital of the State.

PDC 7: Buildings should achieve a high standard of external appearance by:

a. the use of high quality materials and finishes. This may be achieved through the use of materials such as masonry, natural stone, prefinished materials that minimise staining, discolouring

or deterioration, and avoiding painted surfaces particularly above ground level;

b. providing a high degree of visual interest though articulation, avoiding any large blank facades, and incorporating design features within blank walls on side boundaries which have the

potential to be built out;

c. ensuring lower levels are well-integrated with, and contribute to a vibrant public realm.

COUNCIL WIDE

Objective 48: Development which incorporates a high level of design excellence in terms of scale, bulk, massing,

materials, finishes, colours and architectural treatment.

PDC 188: Development should be finished with materials that are sympathetic to the design and setting of the

new building and which incorporate recycled or low embodied energy materials. The form, colour, texture and quality of materials should be of high quality, durable and contribute to the desired character of the locality. Materials, colours and finishes should not necessarily imitate materials and

colours of an existing streetscape.

The proposal represents a high standard of architectural design and a sculptural external appearance which responds to the positive aspects of the locality. The proposal demonstrates a high standard of external appearance by:

- using high quality, robust, materials and which are prefinished and do not require maintenance over time;
- providing a high degree of visual interest through strong articulation. The proposal uses a range of strong

horizontal and vertical elements which create articulation and depth to the facade. The proposal avoids the use of blank walls; and

designing the ground floor elements so they are treated uniquely and have been designed to respond to
positive attributes of the locality and enhance the pedestrian environment.

The proposal utilises a range of design features to ensure that the buildings bulk or scale is not overbearing to the locality. The proposal ensures this occurs through design features such as differing setbacks, and sculptural elements, and finer detailing such as choice of material, finishes and colouring.

The materials at ground floor have regard to the bluestone footpaths adjacent the site and to the masonry within the heritage item adjacent. The proposal uses strong masonry-like elements to ground the tower and to reflect the masonry elements of the adjoining heritage building. Behind this strong concourse element is a range of glazing and prefinished materials which delineate the two storey element as distinct to the tower above.

PDC 15:

Building façades should be strongly modelled, incorporate a vertical composition which reflects the proportions of existing frontages, and ensure that architectural detailing is consistent around corners and along minor streets and laneways.

The proposed building treats north, east and western facades as contiguous and demonstrates a vertical composition with strong horizontal elements provided at the lower levels. This detailing is consistent to the Frome Street frontage and western frontage. The southern aspect of the building uses similar detailing with less exaggerated horizontal and vertical elements.

04.3.2.4 THE TERRACES (NORTH, EAST AND WEST)

ZONE

PDC 19: Development along the terraces should contribute to a continuous built form to frame the City edge

and activate the Park Lands.

PDC 20: Development along North Terrace should reinforce the predominant scale and 'City wall' character of

the Terrace frontage.

Being sited upon North Terrace, the proposed development contributes to the continuous built form which frames the City edge.

The proposal reinforces the City Wall character of the North Terrace frontage.

COUNCIL WIDE

Objective 46: Reinforcement of the city's grid pattern of streets through:

a. high rise development framing city boulevards, the Squares and Park Lands

...

PDC 168: Development should be of a high standard of design and should reinforce the grid layout and distinctive urban character of the City by maintaining a clear distinction between the following:

 a. the intense urban development and built-form of the town acres in the Capital City, Main Street, Mixed Use, City Frame and City Living Zones.

PDC 169: The height and scale of development and the type of land use should reflect and respond to the role of

the street it fronts as illustrated on Map Adel/1 (Overlay 1).

PDC 170:

The height, scale and massing of buildings should reinforce:

- the desired character, built form, public environment and scale of the streetscape as contemplated within the Zone and Policy Area, and have regard to:
 - i. maintaining consistent parapet lines, floor levels, height and massing with existing buildings consistent with the areas desired character;
 - ii. reflecting the prevailing pattern of visual sub-division of neighbouring building frontages where frontages display a character pattern of vertical and horizontal sub-divisions; and
 iii. avoiding massive unbroken facades.
- b. a comfortable proportion of human scale at street level by:
 - i. building ground level to the street frontage where zero set-backs prevail;
 - ii. breaking up the building facade into distinct elements;
 - iii. incorporating art work and wall and window detailing; and
 - iv. including attractive planting, seating and pedestrian shelter.

The proposal reinforces the city's grid pattern through locating high rise development which frames the North Terrace cultural boulevard. Further, the proposal is located at the junction of two Primary City Access Roads being North Terrace and Frome Street. The proposal reinforces the role of these streets.

The façade is divided into distinct elements which respect the site's context. Importantly the proposal reinforces the datum height of the adjoining two storey heritage place to the west. The proposal avoids massive unbroken facades through strong modelling of horizontal and vertical elements.

The proposal creates a comfortable proportion of human scale at the street level by:

- providing a strong built form edge to the street frontage and creating activity and articulation in close proximity behind this edge;
- breaking up the facade into distinct elements and uses building planning to cluster typologies. A visual break is created through a recessed communal space, which incorporates a similar materiality to the ground floor elements;
- · incorporating a modelled and articulated ground floor; and
- · providing for landscaping and pedestrian shelter.

04.3.2.5 COMPOSITION AND PROPORTION

COUNCIL WIDE

PDC 180:

Development should respect the composition and proportion of architectural elements of building facades that form an important pattern which contributes to the streetscape's distinctive character in a manner consistent with the desired character of a locality by:

- a. establishing visual links with neighbouring buildings by reflecting and reinforcing the prevailing pattern of visual sub-division in building facades where a pattern of vertical and/or horizontal subdivisions is evident and desirable, for example, there may be strong horizontal lines of verandahs, masonry courses, podia or openings, or there may be vertical proportions in the divisions of facades or windows: and
- b. clearly defining ground, middle and roof top levels.

The proposal respects the composition of the adjoining heritage place by:

- establishing a visual link to this place, through the continuity of the datum line of its parapet, and incorporating strong masonry-like elements within the ground floor plane; and
- clearly defining ground, middle and upper levels through building planning, setbacks and articulation.



04.3.2.6 SKY AND ROOF LINES

COUNCIL WIDE

Objective 49: Innovative and interesting skylines which contribute to the overall design and performance of the

ouilding.

PDC 193: Buildings should be designed to incorporate well designed roof tops that:

c. reinforce the desired character of the locality, as expressed in the relevant Zone or Policy Area;

d. enhance the skyline and local views;

e. contribute to the architectural quality of the building;

f. provide a compositional relationship between the upper-most levels and the lower portions of the building:

g. provide an expression of identity;

h. articulate the roof, breaking down its massing on large buildings to minimise apparent bulk;

i. respond to the orientation of the site; and

j. create minimal glare.

The roof top design enhances the skyline through its unique visual element and treats the design of this space in a similar manner to the ground and communal levels. These three elements, in addition to the strongly modelled facade contribute to an identifiable architectural quality as well as ensuring its visual compatibility with the Adelaidean tower under construction to the south.

PDC 194: Roof top plant and ancillary equipment that projects above the ceiling of the top storey should:

a. be designed to minimise the visual impact; and

b. be screened from view, including the potential view looking down or across from existing or possible higher buildings, or be included in a decorative roof form that is integrated into the design of the building.

PDC 195: Roof design should facilitate future use for sustainable functions such as:

a. rainwater tanks for water conservation;

b. roof surfaces orientated, angled and of suitable material for photovoltaic applications; and/or

 $c. \quad \hbox{``green'' roofs (ie roof top gardens structurally capable of supporting vegetation) or water features.}$

Roof top plant and ancillary equipment has been screened from view from the adjacent Adelaidean Building through its design. The proponent is investigating the potential to provide a solar array at this level.

04.3.2.7 PEDESTRIAN AMENITY / PUBLIC REALM

ZONE

PDC 8: Buildings should present an attractive pedestrian-oriented frontage that adds interest and vitality to

City streets and laneways.

PDC 9: The finished ground floor level of buildings should be at grade and/or level with the footpath to provide

direct pedestrian access and street level activation.

PDC 10: Providing footpath widths and street tree growth permit, development should contribute to the

comfort of pedestrians through the incorporation of verandahs, balconies, awnings and/or canopies

that provide pedestrian shelter.

COUNCIL WIDE

PDC 123: Buildings within the Core and Primary Pedestrian Areas identified in Map Adel/1 (Overlays 2, 2A and

3), unless specified otherwise within the relevant Zone or Policy Area, should be designed to provide weather protection for pedestrians against rain, wind and sun. The design of canopies, verandahs and awnings should be compatible with the style and character of the building and adjoining buildings, as

well as the desired character, both in scale and detail.

PDC 124: Weather protection should not be introduced where it would interfere with the integrity or heritage value of heritage places or unduly affect street trees.

The proposed development contributes to a pedestrian oriented frontage and improves the amenity of the immediate streetscape at this corner. The ground and first floor have a range of uses which add visual interest and create vitality at and above the street frontage.

The proposed development will be constructed to the ground floor level of the adjoining footpath.

The development is to incorporate a pedestrian concourse to provide for pedestrian comfort.

04.3.2.8 BUILDING ENTRANCES

COUNCIL WIDE

PDC 48: Entrances to medium to high scale residential or serviced apartment development should:

- (a) be oriented towards the street;
- (b) be visible and easily identifiable from the street; and
- (c) provide shelter, a sense of personal address and transitional space around the entry.

The proposed student entrance and commercial tenancy entrances are oriented towards the street and can be easily identified.

PDC 125: Development that is over 21 metres in building height and is to be built at or on the street frontage should minimise wind tunnel effect.

A wind assessment has been prepared and indicates that the walking and sitting criterion surrounding the site will accord with the relevant criteria.

04.3.2.9 CORNER SITES

COUNCIL WIDE

PDC 191: New development on major corner sites should define and reinforce the townscape importance of these sites with appropriately scaled buildings that:

- (a) establish an architectural form on the corner;
- (b) abut the street frontage; and
- (c) address all street frontages.

The proposed development, being at the corner of two Primary City Access roads has been designed to reinforce the townscape importance of this corner. The proposal:

- establishes an architectural form and building entrance at the corner;
- · abuts the street frontage; and
- · addresses both street frontages.

04.3.3 STUDENT AMENITY

COUNCIL WIDE

Objective 22: Medium to high scale residential (including student accommodation) or serviced apartment

development that:

a. has a high standard of amenity and environmental performance;

b. comprises functional internal layouts;

c. is adaptable to meet a variety of accommodation and living needs; and

d. includes well-designed and functional recreation and storage areas

PDC 49: Entrances to individual dwellings or apartments within medium to high scale residential or serviced

apartment development should:

 a. be located as close as practical to the lift and/or lobby access and minimise the need for long access corridors;

b. be clearly identifiable; and

c. avoid the creation of potential areas for entrapment.

The proponent, GSA, are an experienced, leading, international student accommodation provider. GSA currently own and operate a range of facilities within Australia and around the world. GSA have proven market experience and the internal layouts proposed within the building function within existing developments interstate. The proposal:

- has been designed to a high level of amenity and environmental performance with a range of ESD initiatives proposed;
- · comprises functional internal layouts with all rooms having primary access to natural light and ventilation;
- utilises a simple structural layout to create adaptability to other accommodation models in the future;
- incorporates storage opportunities for residents.

The proposal provides for a functional corridor layout with all accommodation options being located in close proximity to the lift core. The accommodation units will be clearly identifiable through signage and wayfinding. Corridors are free of isolated nooks and cranny's such that they remain safe.

04.3.3.1 DAYLIGHT, SUNLIGHT AND VENTILATION

COUNCIL WIDE

PDC 50: Medium to high scale residential or serviced apartment development should be designed to maximise

opportunities to facilitate natural ventilation and capitalise on natural daylight and minimise the need

for artificial lighting during daylight hours.

PDC 51: Medium to high scale residential or serviced apartment development should be designed and located

to maximise solar access to dwellings and communal open space on the northern facade.

PDC 54: The maximum distance of a habitable room such as a living, dining, bedroom or kitchen from a window

providing natural light and ventilation to that room is 8 metres.

PDC 56: Medium to high scale residential or serviced apartment development should be designed to ensure

living areas, private open space or communal open space, where such communal open space provides

the primary area of private open space, are the main recipients of sunlight.

PDC 57: Medium to high scale residential or serviced apartment development should locate living areas, private open space and communal open space, where such communal open space provides the primary area

of private open space, where they will receive sunlight and, where possible, should maintain at least two hours of direct sunlight solar time on 22 June to:

- at least one habitable room window (excluding bathroom, toilet, laundry or storage room windows);
- b. to at least 20 percent of the private open space; and
- c. communal open space, where such communal open space provides the primary private open space for any adjacent residential development.



The student accommodation facility has been designed to capitalise on natural daylight and ventilation with all accommodation units having direct access to natural light and ventilation. Communal spaces are provided at level 1 and at level 12-13 and 25 and have north east and west orientation to provide alternative options for students.

The depth of each accommodation outcome ensures that the maximum distance of a habitable room from a window is less than 8 metres.

Living areas and communal space is located on the northern façade where possible, despite this, all dwellings have primary access to natural light.

All accommodation units facing east, west and north will maintain solar access to living areas which meets or exceeds the recommended criteria. Where accommodation outcomes face south, they will maintain access to natural light, however will not receive direct solar irradiation which meets the criteria. All communal spaces will receive access to sunlight which meets or exceeds the minimum criteria.

PDC 52: Ceiling heights that promote the use of taller windows, highlight windows, fan lights and light shelves

should be utilised to facilitate access to natural light, improve daylight distribution and enhance air

circulation, particularly in dwellings with limited light access and deep interiors.

PDC 53: All new medium to high scale residential or serviced apartment development should have direct

ventilation and natural light.

The accommodation outcomes proposed are relatively shallow. The proposal provides for ceiling heights which will provide an appropriate access to natural light and ventilation.

All accommodation units have openable windows to allow for direct ventilation.

PDC 58: Natural cross ventilation of habitable rooms should be achieved by the following methods:

- a. positioning window and door openings in different directions to encourage cross ventilation from cooling summer breezes;
- b. installing small low level windows on the windward side and larger raised openings on the leeward side to maximise airspeed in the room;
- installing higher level casement or sash windows, clerestory windows or operable fanlight windows to facilitate convective currents;
- selecting windows which the occupants can reconfigure to funnel breezes such as vertical louvred, casement windows and externally opening doors;
- e. ensuring the internal layout minimises interruptions to airflow;
- f. limiting building depth to allow for ease of cross ventilation; and/or
- g. draught proofing doors, windows and other openings.

The proponent is investigating a range of natural ventilation and mechanical ventilation opportunities for the proposed development. Each accommodation unit will have an openable window. This window coupled with mechanical ventilation will ensure that all living units will have high internal amenity.

04.3.3.2 VISUAL PRIVACY

COUNCIL WIDE

PDC66: Medium to high scale residential or serviced apartment development should be designed and sited to

minimise the potential overlooking of habitable rooms such as bedrooms and living areas of adjacent

development.

PDC67: A habitable room window, balcony, roof garden, terrace or deck should be set-back from boundaries

with adjacent sites at least three metres to provide an adequate level of amenity and privacy and to not

restrict the reasonable development of adjacent sites.

The proposed development has adequate set-backs and orientation of habitable spaces to minimise potential



overlooking issues to the south and west. The building is setback some 3m from the allotment to the west and some 6m from the allotment to the south.

04.3.3.3 STUDENT ACCOMMODATION

COUNCIL WIDE

Objective 9: High-quality student accommodation that creates an affordable, safe, healthy and comfortable living

environment.

PDC 10: Residential development specifically designed for the short-term occupation of students may provide reduced internal floor areas, car parking, storage areas and/or areas of private open space provided

that:

 residents have access to common or shared facilities that enable a more efficient use of space (such as cooking, laundry, common rooms or communal open space);

 every living room has a window that provides an external outlook and maximises access to natural light;

 the development is designed to enable easy adaptation or reconfiguration to accommodate an alternative use;

d. the development is designed to maximise opportunities to access natural ventilation and natural light:

 e. private open space is provided in the form of balconies and/or substituted with communal open space (including rooftop gardens, common rooms or the like) that is accessible to all occupants of the building; and

f. the internal layout and facilities provide sufficient space and amenity for the requirements of student life and promote social interaction.

PDC 11: Internal common areas should be capable of being used in a variety of ways to meet the study, social

and cultural needs of students.

PDC 12: Development should provide secure long-term storage space in both communal and private areas.

The proposed student accommodation provides a range of dwelling options:

- 1, 2, and 4 bed co-living outcomes;
- twin-studio;
- · shared unit with five beds each with ensuite;
- studio;
- · large studio; and
- 1 bedroom.

There are a range of accessible units which comply with DDA requirements. These are provided at various points within the building.

The proposed development provides for student accommodation which has reduced internal floor areas, in comparison to typical residential development and:

- · provides access to a range of common or shared facilities;
- provides a window to every student room, maximising access to natural light and ventilation;
- · is investigating structural designs, all of which provide for adaptability;
- · provides access to natural light and ventilation to all private and communal areas; and
- provides communal open space in the order of 2sqm per bed.

A communal laundry and clothes drying facility has been provided within the building for the exclusive use of the residents.

The proposal provides for a range of communal spaces internal and external to the building. As a result of the modern living requirements for the students, these spaces are proposed to be used in a range of ways.

Secure long-term storage spaces are provided in each living unit. Long-term storage for bicycles and short-



term storage opportunities are provided in the basement.

PDC 13: Student accommodation with shared living areas should ensure bedrooms are of a suitable size to accommodate a single bed, book shelves, a desk and workspace, and a cupboard/wardrobe.

All accommodation units are of a sufficient size to accommodate a single bed, storage opportunities in the form of shelving and cupboards and a desk/workspace.

04.3.4 ENVIRONMENTAL

04.3.4.1 CRIME PREVENTION

Objective 24: A safe and secure, crime resistant environment that:

- a. ensures that land uses are integrated and designed to facilitate natural surveillance;
- b. promotes building and site security; and
- c. promotes visibility through the incorporation of clear lines of sight and appropriate lighting.

PDC 82: Development should promote the safety and security of the community in the public realm and within development. Development should:

- a. promote natural surveillance of the public realm, including open space, car parks, pedestrian routes, service lanes, public transport stops and residential areas, through the design and location of physical features, electrical and mechanical devices, activities and people to maximise visibility by:
 - orientating windows, doors and building entrances towards the street, open spaces, car parks, pedestrian routes and public transport stops;
 - ii. avoiding high walls, blank facades, carports and landscaping that obscures direct views to public areas:
 - arranging living areas, windows, pedestrian paths and balconies to overlook recreation areas, entrances and car parks;
 - iv. creating a complementary mix of day and night-time activities, such as residential, commercial, recreational and community uses, that extend the duration and level of intensity of public activity:
 - ensuring that rear service areas and access lanes are either secured or exposed to surveillance.
- b. provide access control by facilitating communication, escape and path finding within development through legible design by:
 - i. incorporating clear directional devices;
 - ii. avoiding opportunities for concealment near well travelled routes;
 - iii. locating main entrances and exits at the front of a site and in view of a street;
 - iv. providing open space and pedestrian routes which are clearly defined and have clear and direct sightlines for the users; and
 - v. locating elevators and stairwells where they can be viewed by a maximum number of people, near the edge of buildings where there is a glass wall at the entrance.
- c. provide awareness through design of what is around and what is ahead so that legitimate users and observers can make an accurate assessment of the safety of a locality and site and plan their behaviour accordingly by:
 - avoiding blind sharp corners, pillars, tall solid fences and a sudden change in grade of pathways, stairs or corridors so that movement can be predicted;
 - using devices such as convex security mirrors or reflective surfaces where lines of sight are impeded;
 - iii. ensuring barriers along pathways such as landscaping, fencing and walls are permeable;
 - iv. planting shrubs that have a mature height less than one metre and trees with a canopy that begins at two metres;
 - v. adequate and consistent lighting of open spaces, building entrances, parking and pedestrian areas to avoid the creation of shadowed areas; and
 - vi. use of robust and durable design features to discourage vandalism.

The proposed development will incorporate a comprehensive range of active and passive surveillance strategies. All public areas will be well lit to enable facial recognition so that people can see and interact with



one another.

The building has been designed to maximise the visual connections between the internal spaces with outdoor areas. For instance, residential apartments have external views and provide passive surveillance the public realm. The building design eliminates isolated external nooks, eliminating opportunities for hiding. All entry points to the building will be clearly identified by the architecture, lighting and signage.

The proposal will create a 'legible environment', by integrating the architecture, landscaping, interior design, lighting and signage. This will provide clear paths of travel to ensure that wayfinding is made simple. The wayfinding strategy has been developed as an integral part of the overall design strategy, and embedded into the proposed design.

Providing clearly defined paths of travel to and from all entrances has been a central component of the proposal. The main public entrance fronts a public thoroughfare and is directly accessible from the public realm. A The paths of travel from surrounding public transit stops will be clearly defined through the existing road network. Vehicular routes will be clearly delineated and distinguished from pedestrian pathways and zones through the use of distinctive paving, lighting, surface textures and kerbs.

A robust and simple material palette has been expressed throughout the design language.

The service lane will also be adequately lit and appropriately surveiled during night hours.

A range of physical barriers will present unauthorised users to enter into any portion of the building.

Having regard to the commentary above, it is considered that the proposal achieves the intent of the Crime Prevention through Urban Design provisions of the Development Plan.

PDC 84: To maximise security and safety, buildings should be designed to minimise access between roofs, balconies and windows of adjacent buildings.

No access will occur from balconies or windows of adjacent buildings.

04.3.4.2 NOISE

Objective 27: Noise sensitive development designed to protect its occupants from existing noise sources and from

noise sources contemplated within the relevant Zone or Policy Area and that does not unreasonably interfere with the operation of non-residential uses contemplated within the relevant Zone or Policy

Area.

PDC 95: Noise sensitive development should incorporate adequate noise attenuation measures into their

design and construction to provide occupants with reasonable amenity when exposed to noise sources such as major transport corridors (road, rail, tram and aircraft), commercial centres, entertainment premises and the like, and from activities and land uses contemplated in the relevant Zone and Policy

Area provisions.



PDC 97:

Noise sensitive development adjacent to noise sources should include noise attenuation measures to achieve the following:

- a. satisfaction of the sleep disturbance criteria in the bedrooms or sleeping areas of the development as defined by the limits recommended by the World Health Organisation;
- b. the maximum satisfactory levels in any habitable room for development near major roads, as provided in the Australian/New Zealand Standard AS/NZS 2107:2000 'Acoustics Recommended Design Sound Levels and Reverberation Times for Building Interiors'; and
- noise level in any bedroom, when exposed to music noise (L10) from existing entertainment premises, being:
 - less than 8 dB above the level of background noise (L90,15 min) in any octave band of the sound spectrum; and
 - less than 5 dB(A) above the level of background noise (LA90,15 min) for the overall (sum of all octave bands) A-weighted levels.

Background noise within the habitable room can be taken to be that expected in a typical residential/ apartment development of the type proposed, that is inclusive of internal noise sources such as air conditioning systems, refrigerators and the like as deemed appropriate.

Unless otherwise demonstrated, the minimum background noise to be used will be:

Octave Band Centre Frequency (Hz)	Minimum Background Noise Level (LA80, 16) dB (A)
63	10
125	12
250	14
500	14
1000	12
2000	10
4000	8
Overall Sum	21

on the basis of the windows being closed for the noise sensitive development and any existing entertainment premises complying with the relevant legislation relating to noise emission.

PDC 98:

Attached dwellings/serviced apartments should be designed to minimise the transmission of sound between dwellings/serviced apartments and should particularly protect bedrooms from possible noise intrusion.

An acoustic impact assessment has been undertaken by Sonus. The report recommends a range of design criteria to be established at the facade to ensure that noise ingress into accommodation occurs at an acceptable level. The report also reviews vehicular movement and mechanical plant noise, and determines, that while further design is required, the proposal can ensure that noise impacts on adjoining development can be appropriately mitigated.

The Acoustic Impact Assessment is provided in Appendix 07.

04.3.4.3 WASTE MANAGEMENT

Objective 28: Development which supports high local environmental quality, promotes waste minimisation, re-use

and recycling, encourages waste water, grey water and stormwater re-use and does not generate

unacceptable levels of air, liquid or solid pollution.

PDC 101: A dedicated area for on-site collection and sorting of recyclable materials and refuse should be

provided within all new development.

PDC 102: A dedicated area for the collection and sorting of construction waste and the recycling of building

materials during construction as appropriate to the size and nature of the development should be provided and screened from public view.



PDC 103: Development greater than 2 000 square metres of total floor area should manage waste by:

- a. containing a dedicated area for the collection and sorting of construction waste and recyclable building materials;
- b. on-site storage and management of waste;
- c. disposal of non-recyclable waste; and
- d. incorporating waste water and stormwater re-use including the treatment and re-use of grey water.

The proposal provides for waste chutes that are accessed at each level. Waste is aggregated and collected at the ground floor within an area specifically earmarked for such. A Waste Management Plan is being prepared and will be provided shortly.

04.3.4.4 ENERGY EFFICIENCY

Objective 30: Development which is compatible with the long term sustainability of the environment, minimises

consumption of non-renewable resources and utilises alternative energy generation systems.

PDC 108: Energy reductions should, where possible, be achieved by the following:

a. appropriate orientation of the building by:

- ii. maximising north/south facing facades;
 - iii. designing and locating the building so the north facade receives good direct solar radiation;
 - iv. minimising east/west facades to protect the building from summer sun and winter winds;
 - v. narrow floor plates to maximise the amount of floor area receiving good daylight; and/or
 - vi. minimising the ratio of wall surface to floor area.
- b. window orientation and shading;
- adequate thermal mass including night time purging to cool thermal mass;
- d. appropriate insulation by:
 - i. insulating windows, walls, floors and roofs; and
 - ii. sealing of external openings to minimise infiltration.
- e. maximising natural ventilation including the provision of openable windows;
- f. appropriate selection of materials, colours and finishes; and
- g. introduction of efficient energy use technologies such as geo-exchange and embedded, distributed energy generation systems such as cogeneration*, wind power, fuel cells and solar photovoltaic panels that supplement the energy needs of the building and in some cases, export surplus energy to the electricity grid.

PDC 109 Orientation and pitch of the roof should facilitate the efficient use of solar collectors and photovoltaic

cells.

PDC 112 Selection of internal materials for all buildings should be made with regard to internal air quality and ensure low toxic emissions, particularly with respect to paint and joinery products.

The proposed development incorporates a range of intrinsic building features which create a high performance building, such as, solar shading to facades, high performance glazing and energy efficient massing. The proposal is also investigating a range of additional sustainability measures such as a central hydronic plant, co-generation, and roof mounted photovoltaic cells. Low voc paints are proposed for all internal spaces.

The ESD report is provided in Appendix 08.

04.3.5 HERITAGE AND CONSERVATION

A heritage impact assessment is being prepared by Hosking Willis architects and will be provided when it is available.

04.3.6 ACCESS AND MOVEMENT

Objective 60: Access to and movement within the City that is easy, safe, comfortable and convenient with priority

given to pedestrian and cyclist safety and access.

Objective 61: Development that promotes the comfort, enjoyment and security of pedestrians by providing shelter

and reducing conflict with motor vehicles.

Objective 62: Development that contributes to the quality of the public realm as a safe, secure and attractive

environment for pedestrian movement and social interaction.

Objective 65: Adequate supply of secure, short stay and long stay bicycle parking to support desired growth in City

activities

Objective 66: Development that promotes the use of sustainable transport consistent with State Government

objectives and initiatives.

Objective 70: Adequate off-street facilities for loading and unloading of courier, delivery and service vehicles and

access for emergency vehicles.

The proposed development prioritises pedestrian and cyclist access and ensures that all commercial vehicle movements entering and exiting from the site occurs in a forward moving directions.

No private vehicle parking is proposed on site, for this reason, the proposal reduces the potential for pedestrian conflict with motor vehicles.

The proposal contributes to a safe and secure pedestrian environment by providing for pedestrian shelter, and creating active frontages along its length.

A range of long-stay bicycle parks are provided in the basement for the exclusive use of the residents.

The proposal promotes the use of sustainable transport, by excluding private vehicle usage on the site. The proposal encourages residents to walk, cycle or catch public transport. When the use of a private vehicle is required, residents are encouraged to use the available Go-Get fleets which are in operation throughout the city.

The proposal provides for commercial vehicle loading and unloading to be accessed from the private laneway to the south.

A traffic impact assessment is provided in Appendix 05.

04.3.7 ECONOMIC DEVELOPMENT

PDC 266: Development, particularly within the Capital City and Institutional Zones, is encouraged to:

- a. provide a range of shopping facilities in locations that are readily accessible;
- b. provide for the growth in economic activities that sustain and enhance the variety and mix of land uses and the character and function of the City:
- c. maximise opportunities for co-location, multiple use and sharing of facilities;
- d. be accessible to all modes of transport (particularly public transport) and safe pedestrian and cycling routes; and
- e. have minimal impact on the amenity of residential areas.

PDC 272: Development should not unreasonably restrict the development potential of adjacent sites, and should have regard to possible future impacts such as loss of daylight/sunlight access, privacy and outlook.

The proposed development is located in the Capital City Zone and:

- · provides retail development at the ground floor;
- provides a mix of land uses;
- is in a location which is in close proximity to public transport routes and cycling routes; and
- will have no direct impact on the amenity of residential areas.

A key element of the proposed design has been to minimise potential economic impacts on adjacent land. The



proposal has been sited such that it fronts North Terrace to the north and Frome Street to the east, while being setback from properties to the west and south. The land uses surrounding the subject land will not have an impact on the proposals potential to gain access to natural light or ventilation.

The proposed development will not impact the adjoining properties such that they cannot achieve access to daylight/sunlight access, privacy and outlook.

The proposed development incorporates a range of design responses which satisfy the relevant economic development provisions.

04.3.8 DEMOLITION

Objective 53:

Where demolition of an existing building is proposed, the replacement building is designed and sited to achieve the purposes of the relevant Zone and Policy Area and to provide for quality urban design.

PDC 203

The demolition of any building should not occur unless Development Approval for a replacement development has been granted. Exceptions may only be granted:

- a. for documented reasons of public health or safety agreed by the planning authority or alternatively agreed by a statutory order; or
- b. where located within the Park Lands Zone.

Should the replacement development not commence within 12 months of the granting of Development Approval, then landscaping of the site should be undertaken.

Demolition of all existing structures upon the land are proposed as the first stage of the development. The proposed replacement building has demonstrated it achieves the relevant provisions of the Zone and Policy area, and will contribute to the locality.

CONCLUSIONS

It is concluded that the proposal is an appropriate development within the Capital City Zone, for the following reasons:

- the proposed land uses reflect the advocated land use direction within the specific provisions of the Policy Area and the relevant Desired Character Statement and provisions of the Zone;
- the building form reflects the advocated policy direction within the Policy Area and Zone;
- the material palette will be sympathetic and complementary to the prevailing built form appearance within the locality;
- the proposal represents world class design;
- an appropriate waste management solution which separate waste streams at the source, and ensures
 collection can occur in accordance with legislative requirements. Bin collection will be dealt with through
 the use of a private contractor;
- the proposed development utilises appropriate facade materials, window fixtures and fittings to ensure that the acoustic environment will be in accordance with the relevant criteria;
- the subject land is located in proximity to highly frequented public transport routes, with the proposal incorporating an appropriate quantum of on-site bicycle parking spaces;
- CPTED has been considered throughout the layout of the building, and the proposal satisfies the relevant criteria;
- the proposed development will not adversely affect wind conditions at and around the subject land;
- the proposal incorporates appropriate stormwater management outcomes; and
- the proposal incorporates a range of ESD initiatives imbued within the building design and is investigating a range of other initiatives.

It is for the reasons discussed herein that the proposal is considered to display sufficient merit and warrants Development Plan consent being granted.

INTRO

23 February 2018

Brett Miller
Team Leader – CBD & Inner Metro
Development Division
Department of Planning, Transport and Infrastructure

Via email: Brett.Miller@sa.gov.au

Dear Brett,

RE: 266 North Terrace – Response to RFI

Intro Design Pty Ltd act on behalf of GSA Australia Pty Ltd (the applicant) with respect to the proposed development of a multi-storey mixed-use building located at 266 North Terrace.

A revised drawing set has been prepared in response to this RFI and is provided in Appendix 01.

The revised drawings improve the relationship of the ground floor lobby to the public realm, and further reinforce the City edge. The revised drawings further express the intended materiality and solid to void ratio of the façade in response to its heritage context.

This correspondence has been prepared in response to the request for information received from the relevant referral agencies. I provide a response to each of the agencies raised below:

OFFICE FOR DESIGN + ARCHITECTURE SA

WALL SETBACKS TO FROME + NORTH TERRACE FRONTAGES

The ground and first floor setbacks have been amended to better address both street frontages and to reinforce the prominence of the corner site and its role in reinforcing the City edge. In response to the Associate Government Architect's comments, this latest redesign is considered to optimise the development's engagement with the public realm.

VERTICAL FIN ENCROACHMENTS

The vertical sunshade encroachments have been amended such that they now extend no more than 1.2 metres beyond the site boundary.

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INTRO

ARCHITECTURAL EXPRESSION

Greater detail has been provided which speaks to the façade treatment and the solid to void ratio. The project team is of the opinion that the architectural expression is appropriate and acknowledges the heritage context of the site. Further information is provided in the Design Statement by Rothe Lowman. Hosking Willis Architecture have further reviewed the façade design and its light of its context within the North Terrace Streetscape and provide further comment.

The Design Statement by Rothe Lowman, will be provided under separate cover and the Heritage Impact Statement by Hosking Willis Architecture is provided in Appendix 02.

COMMUNAL SPACE STRATEGY

Attached within the architectural Design Statement by Rothe Lowman are further details of the communal open space elements. The approach to shared spaces within the proposed Student Accommodation is based GSA's proven student accommodation models implemented across Australia and overseas.

As stated, this information will be provided under separate cover.

ESD PRINCIPLES

Environmental performance of the proposed building was an integral consideration during the design and significant additional budget has been committed to ensure a performance over and above BCA requirements. This is critical to the applicant as the initiatives will reduce the operational costs of the Student Accommodation considerably as well as improving the overall internal environmental amenity. GSA has international experience in the operation of student accommodation which informs the ESD initiatives which will be included in this development for optimal performance.

On top of the ESD performance elements intrinsic to the form of the building, a suite of ESD technologies will be incorporated into the development.

A *Sustainability Report* was prepared by Lucid Consulting Australia and outlines the sustainability initiatives proposed for the development. These are summarised in this report which formed Appendix 08 of the Planning Report that accompanied the initial Development Application.

MATERIALS + FINISHES BOARD

Specification of materials and finishes for the exterior of the building and communal and publicly accessible open spaces will be undertaken in the detailed design phase. Cognisant of the standard nature of the materials selected, the provided materials sheet is considered to adequately demonstrate the design intent.

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ADELAIDE CITY COUNCIL

TRAFFIC

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Council has noted tripping concerns around a narrow section of footpath at the front entrance between a column and part of the sloping façade. The ground floor design has since been amended and resolves this concern. This design change will allow for safe and convenient pedestrian movement to the footpaths adjacent the site.

ENCROACHMENTS

The encroachments have been resolved such that they accord with councils encroachment policy.

The bifold doors for the café have been slightly repositioned to remove any encroachment onto the footpath.

The outdoor seating does not form part of this Development Application and appropriate approvals for such use will be sought in due course with due consideration given to *The City of Adelaide Outdoor Dining Policy*.

STATE HERITAGE UNIT

The proposed conditions are acceptable to the project team. The project team will liaise with Heritage to resolve the outcomes desired.

In addition to the information requested, I will take the opportunity to provide:

- a revised acoustic statement (Appendix 03);
- a Management Statement prepared by the proponent (Appendix 04); and
- an aeronautical impact assessment (Appendix 05).

Should you require further information, please do not hesitate to contact the undersigned on 0402 424 403.

Yours sincerely

Anthony Gatti

Senior Planning Advisor

Activating human space



February 2018

266 North Terrace, Adelaide

Design Statement



rothelowman INTRO

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1.0 Design Vision

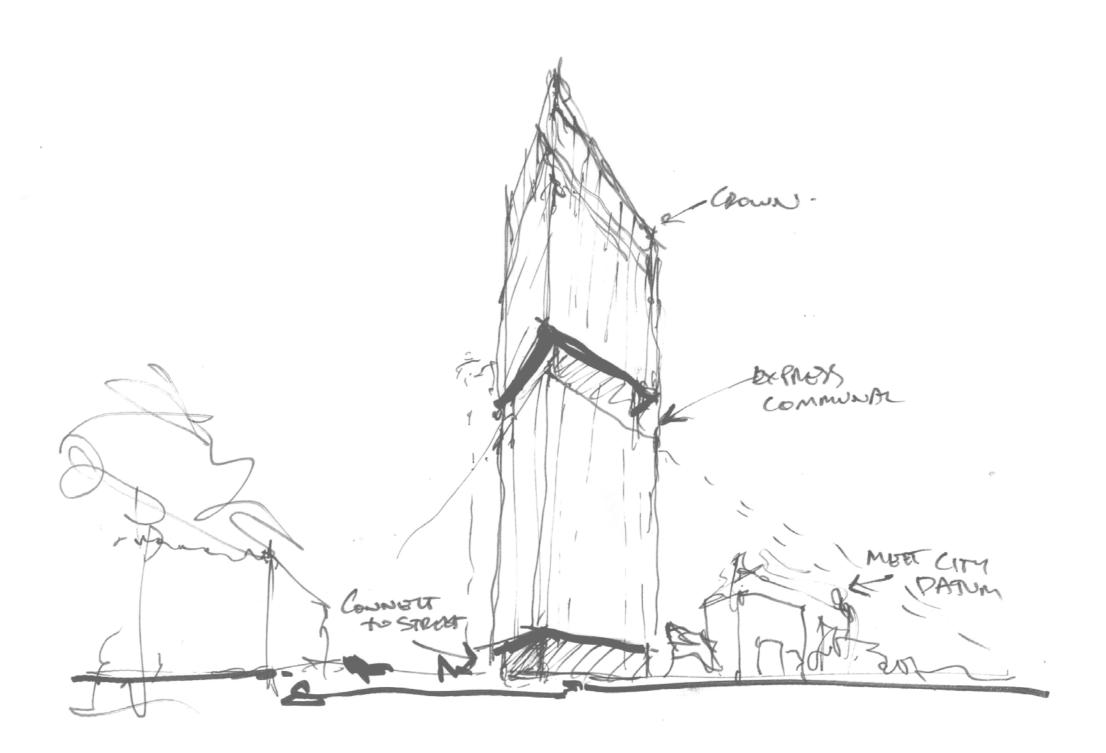
1.01 Architectural Statement

The proposed development for GSA Student Accommodation, is to be an exemplar project for Adelaide, with a focus on new types of living in a collegiate environment, and a focus on the life and learning of students.

Being located on North Terrace, required a building that would sit amongst the wide variety of architectural styles, but most importantly, seek a civic scale and presence to allow it so sit comfortably in this important street scape.

As a contemporary tower, we have been able to express visually the uses and activity within, and highlight the innovative nature of its use with inclusion of significant communal living areas for students at different vantage points within the building. These act as a means to occupy all parts of the proposal.

GSA North Terrace creates a new type of Urban College, furthering the nature of what constitutes a civic building and how Student Accommodation can contribute positively to the City.



2.0 Urban Context and Site Analysis

2.01 Site Location

The site sits at almost the North-Eastern corner of the Adelaide Grid. Located on a prominent corner site, the opportunity exists for the building to form a marker to edge of the CBD, yet sit amongst the iconic and historic public orientated buildings on the northernside of North Terrace.

The building seeks to mediate between these two contexts and draw out a commercial development that embraces its civic location.

Subject Site



2.02 City Context & Surrounding Key Buildings

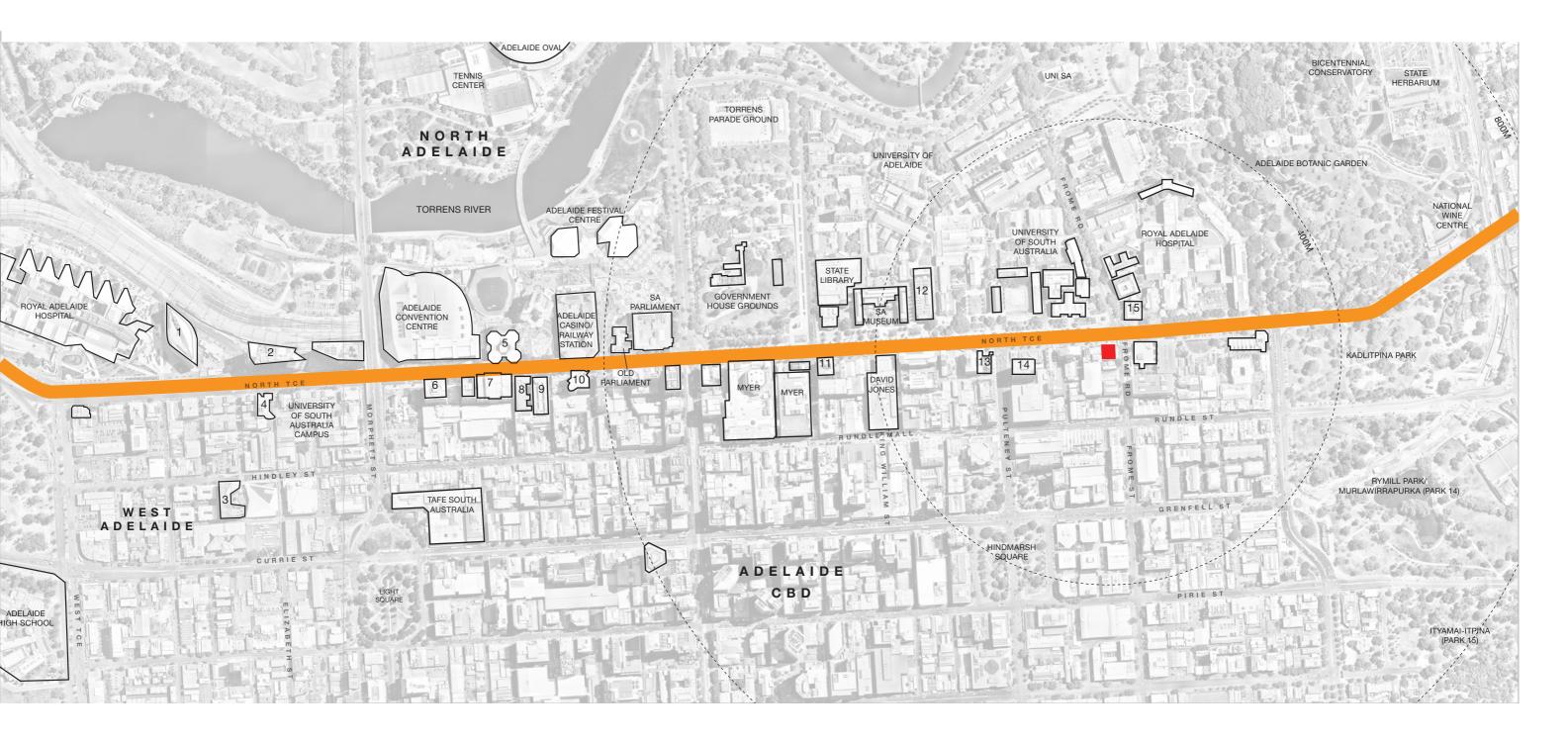
North Terrace is nominated as a ceremonial boulevard, flanked on the northern side by public buildings, uses and parklands. The southern side is focused on commercial development, but with a strong sense of built form and a variety of street wall conditions and architectural styles.

Our scheme sees to create an architectural marker that speaks this unique context, but also with its scale speak to the broader city framework.

es and parklands. I development, but ty of street wall marker that speaks beak to the broader		INSTITUTE		MGALLERY BY SOFITEL
	2.	HEALTH INNOVATION	9.	MERCURE GROSVERNOR
		BUILDINGS	10.	ROMA MITCHELL HOUSE
	3.	UNIVERSITY OF SOUTH AUSTRALIA LIBRARY	11.	UNISA
	4.	HAWKE BUILDING UNISA	12.	ART GALLERY OF SA
	5.	RIVERSIDE CENTRE	13.	SCOTS CHURCH ADELAIDE
	6.	OAKS EMBASSY	14.	NEXUS 10 HUB
	7.	SERVICE SA	15.	WOMEN'S HEALTH CENTRE

PLAYFORD ADELAIDE

SAHMRI RESEARCH



2.03 Green Open Space

As a part of the Eastern edge of the CBD, the site sits in the centre of a precinct edged in most directions by open space. This creates a unique character for this edge of the CBD, further enhanced by the change in orientation of Frome street as it crosses North Terrace that puts the site and building in a unique position as viewed on the approach through the parklands to the CBD.

At this urban scale, the tower form and slenderness is critical to providing a measured and elegant form to the skyline.





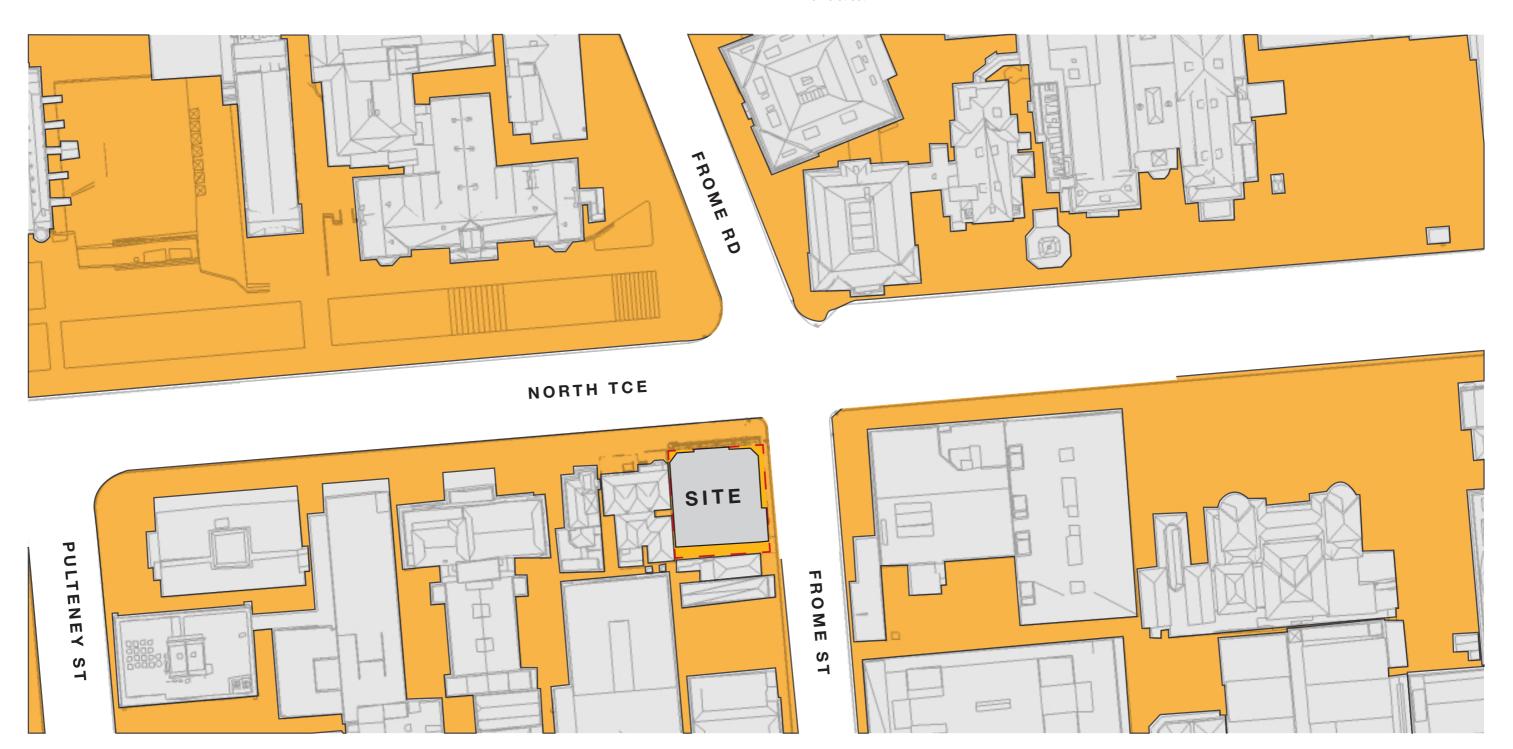
2.04 Existing Building Form

The site sits in a context of built form that varies in setback and arrangement to the street. Open spaces, and mixture of architectural styles and forms predominate.

The existing building holds the street corner, matching that of form of Hospital.

Importantly, the site picks up a key edge position of the city grid, with the bend in Frome street creating a unique corner site in the CBD that not only has a street corner address, but also presents a direct Northern orientation and view across open space and Frome street.

Legend	
5.3	Subject Site
	Open Space
	Building Outline



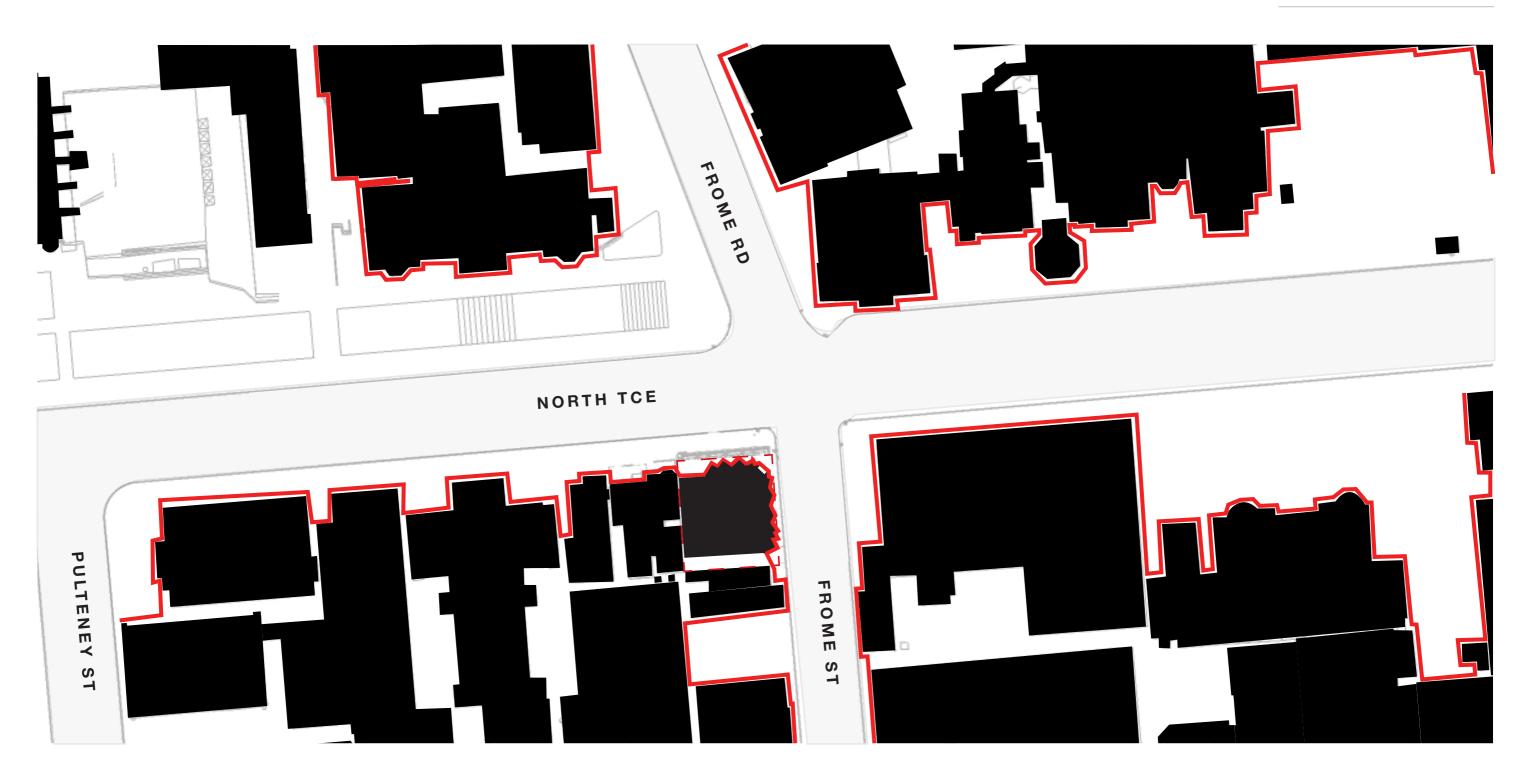
2.05 Figure Ground Map

The Design proposal seeks to anchor the North Terrace and Frome street corner. The new proposal holds the street corner, whilst providing the main point of access and address.

The Western edge of the proposal peels back from the street edge to follow the much more articulated setbacks of the neighbouring buildings on North Terrace that vary in setback to the street edge.

The surrounding arrangements of buildings in this precinct are widely diverse and the proposal seeks to mediate this and enhance this context through a strategy of formal architectural expression of the pilaster/colonnade, combined with the primary enclosure of expressive bay windows and glazing that manage the ground plane interface.

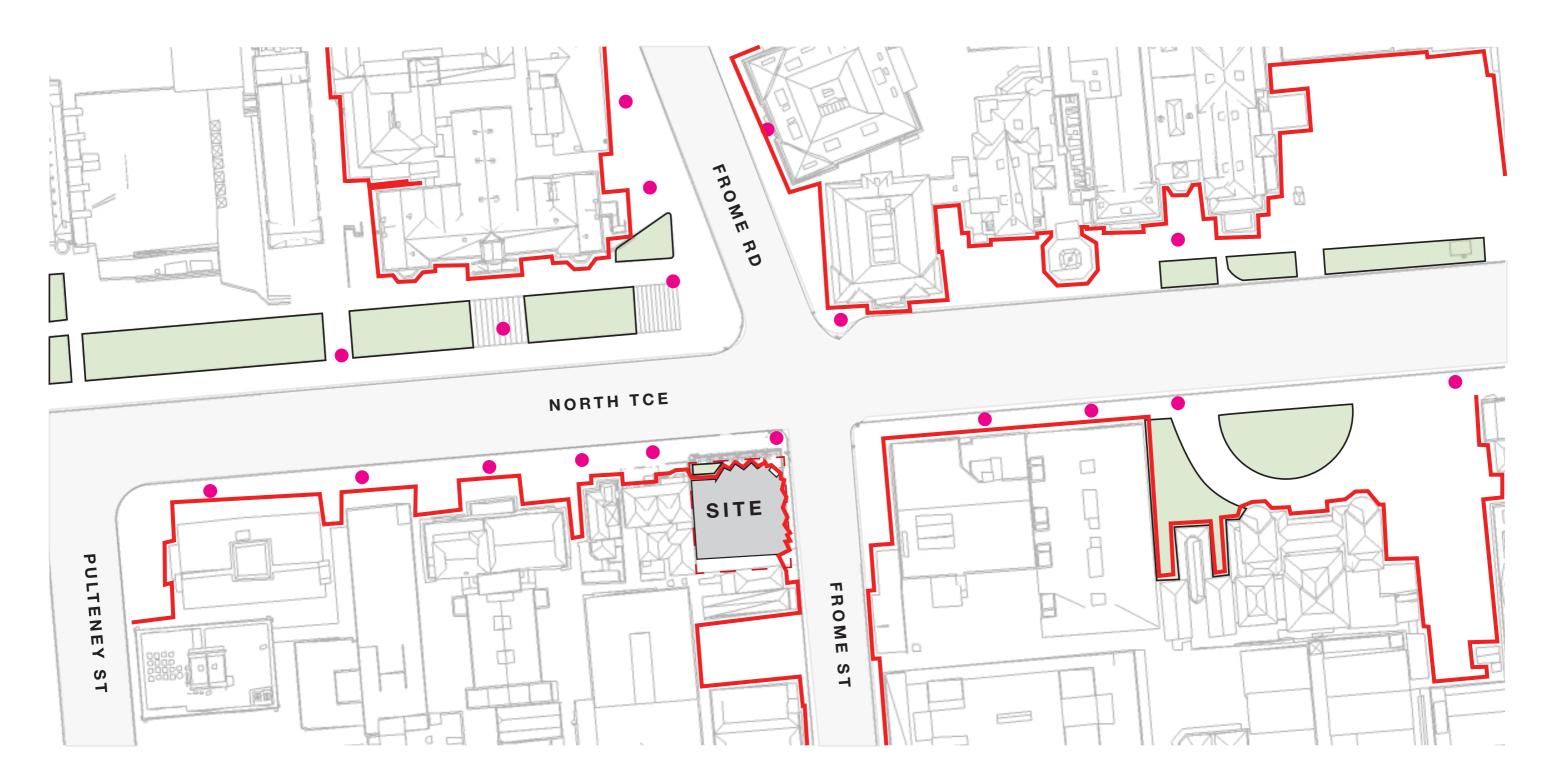
Legend	
5.3	Subject Site
	Building (Solid)
	Existing Building Street Wall Position

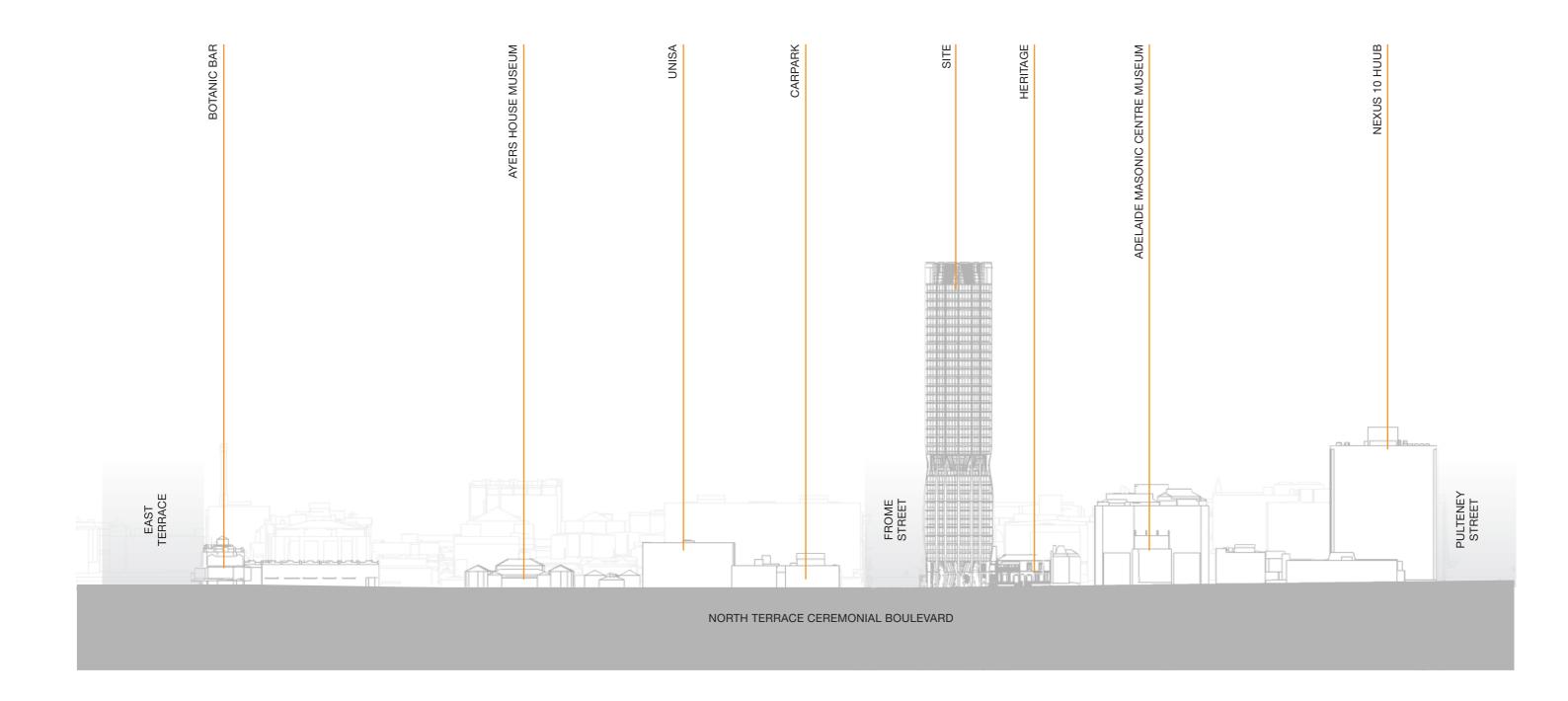


2.06 Green Open Space and Address

The new proposal creates a small pocket open space adjacent to the heritage cottages that not only provides a space of relief to North Terrace, but extends the theme of pocket open spaces in the precinct.







Architectural Concept

3.0 Architectural Concept

3.01 Response to Context

Colonial architecture respected the heat, and the creation of shade. Therefore, rather than the traditional tower/podium that modern corporate towers create, we sought to draw the building program within the floor plate, so that shading and protection are created for occupants of the space within.

The design concept in respecting the significant cultural and built form heritage of the area, seeks to create a contemporary interpretation of classical South Australian design elements - shaded colonnades, deep pilasters, and corner verandah expressions.



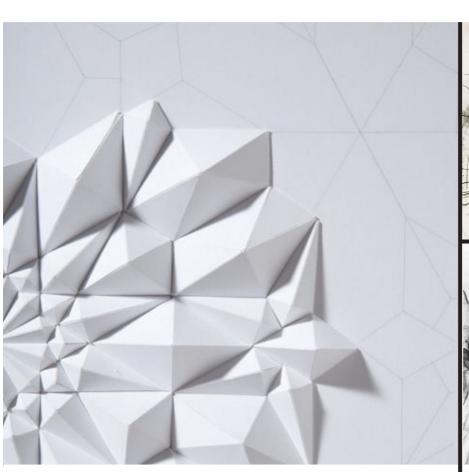






Tree of Knowledge

Representing not only the natural state but symbolising growth through journey & education.











Quasicrystals

Structure that is ordered but not periodic, can continuously fill all available space, but it lacks translational symmetry.

Vertical City

Stacked & level interactions All amenity; communal & private in vertical formation

Architectural Concept- Tower

4.0 Architectural Concept- Tower 4.01 External Expression



The architectural language of the tower inverts the typical structure of a modern tower. It takes the typically clad building in lightweight panels of glass and metal, and draws the structure to the facade line.

This move creates several key gestures. It brings a masonry pilaster and colonnade expression to the tower

Secondly this expression creates a sense of weight and presence for the tower, using classical design devices, without the requirement for extensive solid walls that would create dark living spaces within.

Finally, the expression turns an architectural and structural element and creates a sustainability feature through providing bris soleil shading to the main facade line.

The tower becomes a device for living and one that is climatically and stylistically attuned to Adelaide

4.0 Architectural Concept- Tower 4.02 External Expression



The tower is scaled into 3 distinct portions.

The Crown

- Not only an expressive element to mark the Adelaide skyline, but a pragmatic and practical element, the crown conceals rooftop plant and equipment, whilst creating a platform for a roof top solar farm.

The Upper Tower

- As the tower rises through the final levels, the columns reduce in section and width to accentuate the nature of the tower.

The Communal Levels

- Speaking to the important and loved context, the tower structure tapers to express the datum of adjacent buildings such as the Masonic centre, and future Adelaidean. This also creates a significant wind dynamic improvement.

The Entasis Form

- The lower 8 floors contain the flaring of the external structure and sun shades that express the mass of the tower, whilst bringing a more classical scaling device of vertical elements, rather than long horizontal planes reminiscent of modernism.

The Street Building

- The lower 2 levels scaled to match the existing heritage items to the East, with a language of colonnade and pilaster to reference the scaling of balconies and setbacks of that building.

The Cafe Building

- To manage the interface to the sensitive items to the West a 2 storey form is established that transitions the street setbacks and scale at the edge, whilst also bringing a finer grain to the lower levels of the building

Architectural Concept- Ground Plane

4.0 Architectural Concept

4.03 Street Building Main Entry

The importance of the corner of Frome and North Terrace is celebrated in the design. Reflecting the nature of other corner sites within the CBD, the dual architectural languages of structural form that holds the street boundary, and glazed/bay window system that adapts and shifts.

As a corner site, and one that has a residential use, the tower expression creates a protected colonnade entry point on the main corner. This colonnade creates a point of shelter for wind and rain, and facilitates a gently sloped entrance pathway that optimises accessibility to connect to the surrounding footpaths. The masonry qualities of the main structure express themselves strongest from the corner address, where the entasis of the columns grounding are anchored to the street edge.



4.0 Architectural Concept 4.04 Street Building- At North Terrace

The lower levels of the tower start to speak to their immediate context. Again, classical architectural devices such as entasis - the curvature of a load bearing column - are used to proportionally manage the grounding at the front line of the

The columns meet the ground in the form of a classical pilasters and colonnade - the edges opening up for address and entry the central columns framing the new bay window elements that address the street scape.

Subtle thickening in section and elevation further enhance the affect of the loads of the tower being brought to ground, evoking the presences and scale of the taller

To then provide for connection and visibility to the street edge, glazed Bay windows are added that control the street edge, and hold it along the tower mid sections on both Frome Streeet and North Terrace.



4.0 Architectural Concept

4.05 Street Building- At Frome Street

The bay window elements address the finer grain of the Frome street context, providing overlooks from the main student communal space to the street, and visual connectivity that maximises the city shaping potential of student housing.

The glazing and cladding element is shown as it sets back from the street corner to provide enhanced lines of site at the ground plane for pedestrians, but in the design languages duality, hold the corner of the street as the tower rises.



4.0 Architectural Concept

4.06 Cafe Building

In a similar fashion to the NE corner, the NW corner creates a colonnade that creates a visual connection to the second street building created in the form of a cafe, thereby
Managing the variety of built form setbacks on North Terrace



4.0 Architectural Concept / 4.07 Cafe Building





Sustainability and Climatic Response

5.0 Sustainability and Climatic Response

BOUNDARY LINE AT NORTH TERRACE / FROME STREET

VERTICAL SUNSHADE

- HORIZONTAL SUNSHADE DIMENSION FROM BOUNDARY

- VERTICAL SUNSHADE DIMENSION FROM BOUNDARY - HORIZONTAL SUNSHADE DIMENSION FROM BOUNDARY

- ZERO SETBACK TO VERTICAL SUNSHADES AT LEVEL 13

- VERTICAL & HORIZONTAL SUNSHADE DIMENSION FROM BOUNDARY SUNSHADE DIMENSION FROM BOUNDARY

VERTICAL & HORIZONTAL

VERTICAL SUNSHADE DIMENSION FROM BOUNDARY

- ZERO SETBACK TO VERTICAL SUNSHADE AT GROUND LEVEL

LEVEL 23

LEVEL 22

LEVEL 20

LEVEL 19

LEVEL 17

LEVEL 16

LEVEL 13

LEVEL 12

LEVEL 10

LEVEL 9

LEVEL 8

LEVEL 5

LEVEL 4

LEVEL 2

LEVEL 1



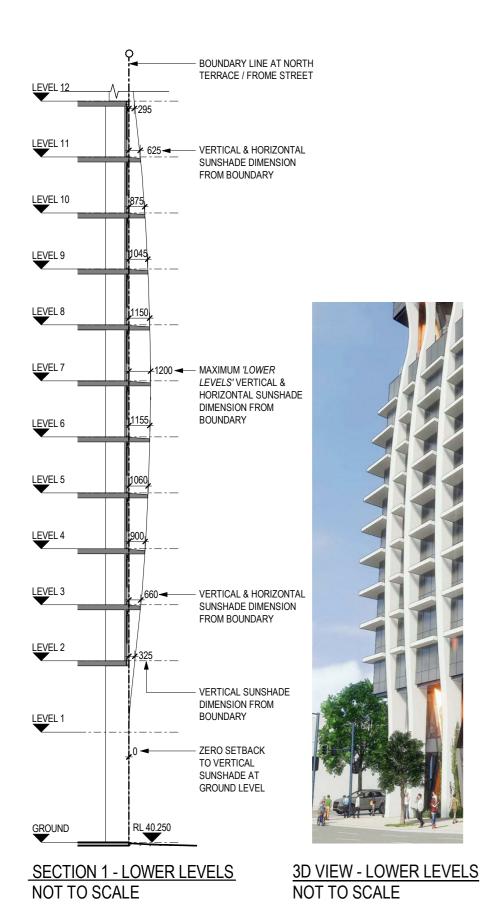
5.01 Climatically Responsive

To create a modern tower for Adelaide, climate responsiveness had to be at its core.

A traditional hot/dry climatic device – the Brise Soleil, has been adapted to the high rise building type.

Vertically expressed columns not only provide scale and form, but create an armature and protection for glazing. Created finely detailed concrete fins, they are durable and expressive architecture is created.

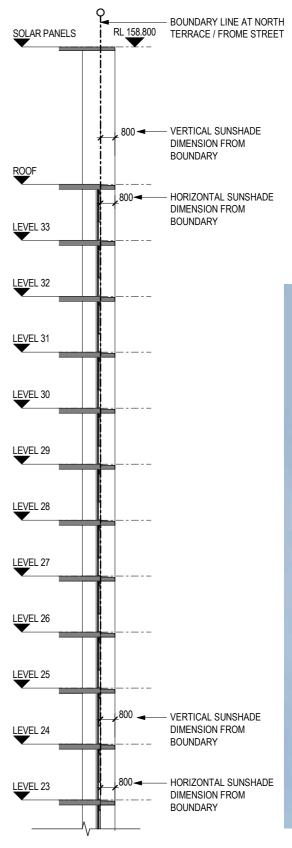
The Vertical and horizontal elements have been designed to meet the objectives of the City controls, whilst creating architectural expression and a facade that in the middle of summer has all glazing elements protected from solar heat gain, an important move to create a sustainable design.



BOUNDARY LINE AT NORTH TERRACE / FROME STREET LEVEL 23 VERTICAL SUNSHADE DIMENSION FROM LEVEL 22 BOUNDARY HORIZONTAL SUNSHADE DIMENSION FROM LEVEL 21 BOUNDARY LEVEL 20 LEVEL 19 LEVEL 18 LEVEL 17 LEVEL 16 - VERTICAL SUNSHADE DIMENSION FROM LEVEL 15 BOUNDARY HORIZONTAL SUNSHADE DIMENSION FROM LEVEL 14 BOUNDARY LEVEL 13 ZERO SETBACK TO VERTICAL SUNSHADES AT LEVEL 13 LEVEL 12 **₩** 295 VERTICAL & HORIZONTAL SUNSHADE DIMENSION <u>LEV</u>EL 11 FROM BOUNDARY







SECTION 3 - UPPER LEVELS

NOT TO SCALE

3D VIEW - UPPER LEVELS NOT TO SCALE

SECTION 2 - MID LEVELS

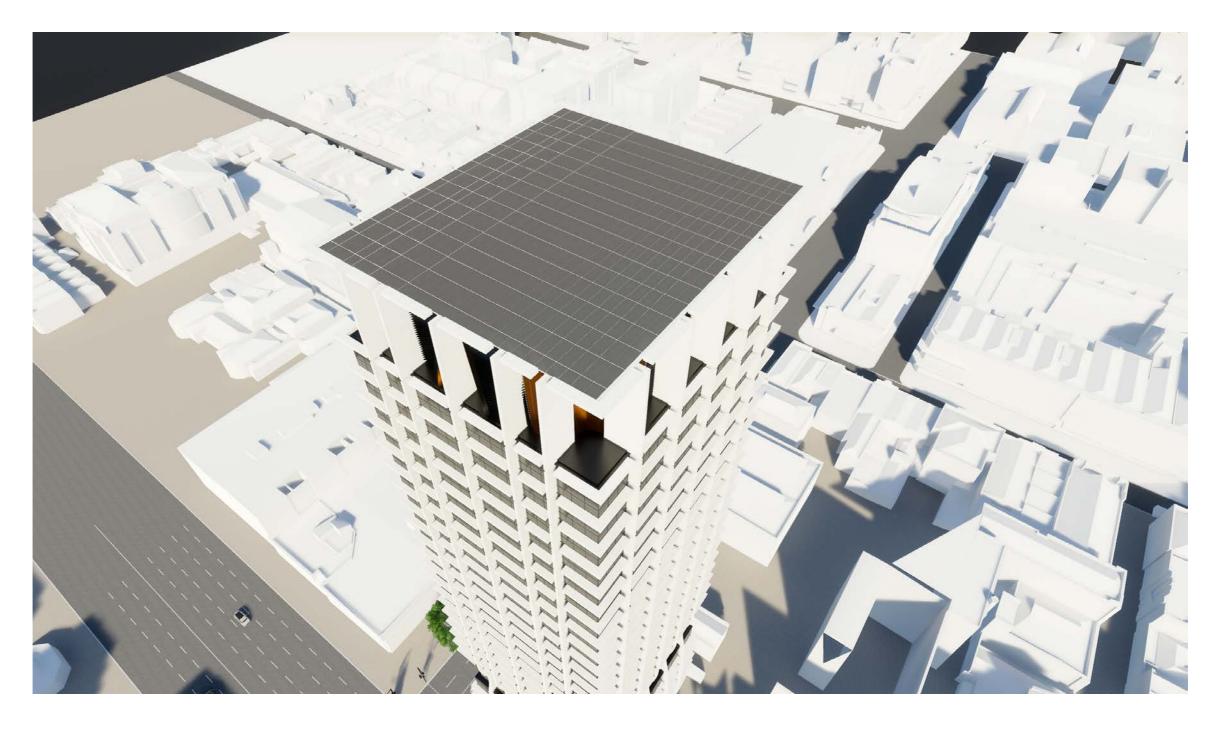
NOT TO SCALE

5.0 Sustainability and Climatic Response

5.03 Solar Array

To be climatically responsive, also means to be focused on the future. Our client GSA is committed to this through their sustainability plans which for GSA North Terrace includes the provision of significant roof-top solar panels.

These are celebrated through the roof top expression of the building crown. This serves as not only a screen to the roof top plant, and lift overruns, but importantly it has a practical function in supporting the solar plant which run around its edge.



Communal Living Concept

6.0 Communal Living Concept

On the North Terrace edge, active uses such as the café, and co-working space are located within the expressed two storey pavilion that slides out beyond the tower plate to address the corner, and street edge of the adjacent heritage cottage. As you move along North terrace, the Pavilion folds and fractures to provide vistas and sightlines to and from the building. Elements of solid are introduced, such that occupants of the space can also feel protected from view. Student Housing is a truly 24hr building, and part of the building's responsibility is to create places that not only are safe but can feel safe, with this unique glazing device creating protected spaces within, but removing opportunities for concealment externally.

On the first floor, innovative uses such as the Co-working space are provided, where students can provide a space to mingle with potential future employers, and facilitate their growth beyond university life.

6.01 Communal Facilities

At the Corner of North Terrace and Frome Street, the Pavilion compresses and opens out to signalise the main building entry. By withdrawing under the tower colonnade, protection and shelter are created, but also opportunity for broader sightlines for pedestrians at street level enhancing the public realm. For the Frome street façade, the highly operational uses of reception, and staff office are located with sightlines to both the foyer and street, allowing for creation of safe and friendly street

To the private lane in the rear, the majority of service infrastructure is located. At the far end of the lane is the main bicycle entrance for the students to a significant underground storage space. Passive surveillance is provided in this space by the location of the active uses of cinema and study rooms. The future development to the south of the site similarly provides some measure of activation.

Above on the first floor, main study levels are located, that are provided with a vantage point over the street, with oblique views prioritised to see the more important architectural forms of North Terrace and down Frome streets.







Gym



Cinema



Study lounge



Communal kitchen



Media lounge

6.0 Communal Living Concept

As we move vertically up the tower, the uses are again expressed in the tower brise soleil – Columns project forward to express the mass of the tower above in a contemporary interpretation of entasis, a classical proportional device that managed the optical illusion of vertical objects appearing concave. This element also creates a deeper shading effect for our co-living units which locate large shared living spaces within, and bedrooms located adjacent to all facades.

Above this point, the second formal break in the façade is created as the shape shell cladding retreats to the primary structural line and another two storey Pavilion for communal space is created. On these two levels are the more informal activities of campus life. Large self-serve kitchens and dining spaces are provided, with external Terraces. These external terraces needed special planning and facade articulation to make them comfortable for as much of the year round as possible. The glazing leans out from the lower to the upper level

of these communal spaces, essentially creating more shelter and shielding for occupants. Secondly, the fractal nature of the glazing is based on research into wind dynamics. Each notch slows wind velocity, but also has the added benefit of creating smaller, more intimate external spaces where smaller groups of students can congregate outside of the larger communal areas. The principle of civic open space design whereby you can feel comfortable in a ground of 1 or 100 applies in communal living for colleges, and this is deployed throughout all our internal spaces. Hence smaller intimate gathering areas are contrasted with larger volumes to create diversity and options of inhabiting the building.

6.02 Communal Facilities

Above the communal spaces, the tower cladding tapers back in to enhance the verticality of the form, finally dissipating at the tower crown that expressively marks the environmental focus of the development.

Every opportunity for social interaction of students is amplified in the proposal. Circulation spaces are where the life of the building will express itself, as students pass each other.

The primary entry lobby is provided with generous spaces to allow for residents to meet guests comfortably and safely being surveilled by building management.

Stair cases are provided in addition to lifts to create additional seating and broad congregation areas adjacent to the different communal programs both interior and exterior focused.

Corridor areas within each typical level of the building are provided with natural light and ventilation to enhance the connection to the natural environment.



Level 12-13 Communal



Entry



Corridor



Ground Streetscape

LIFT

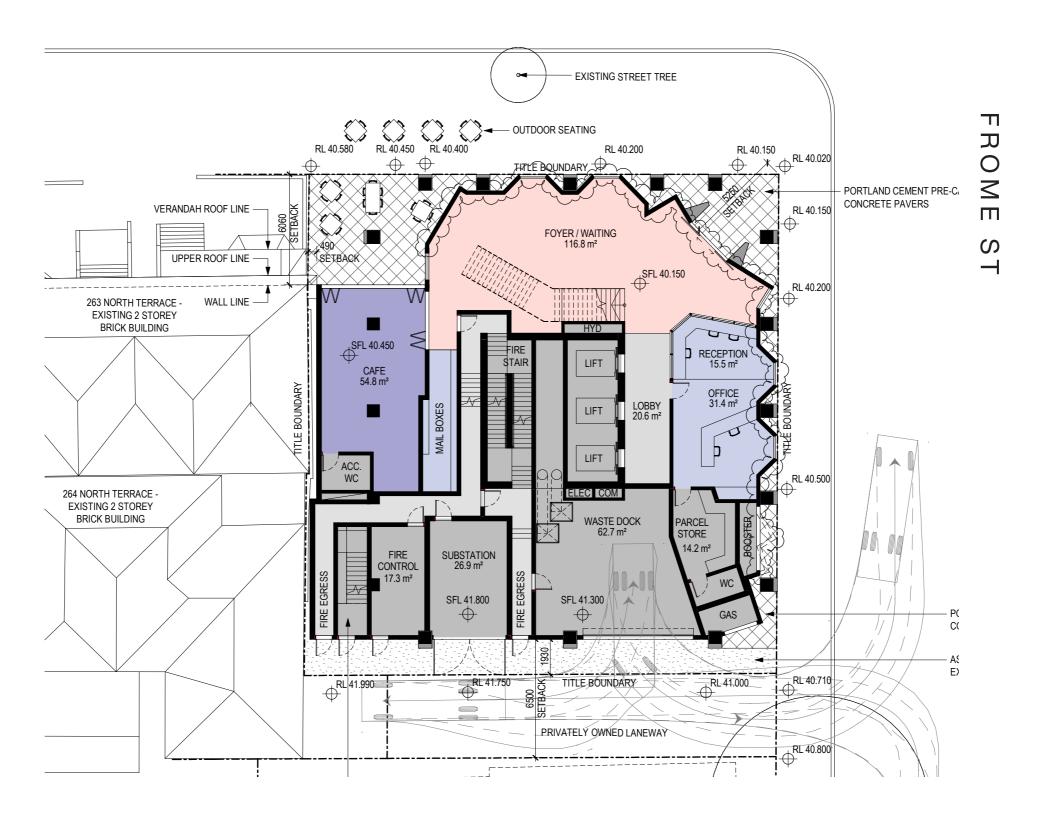


Entry volume

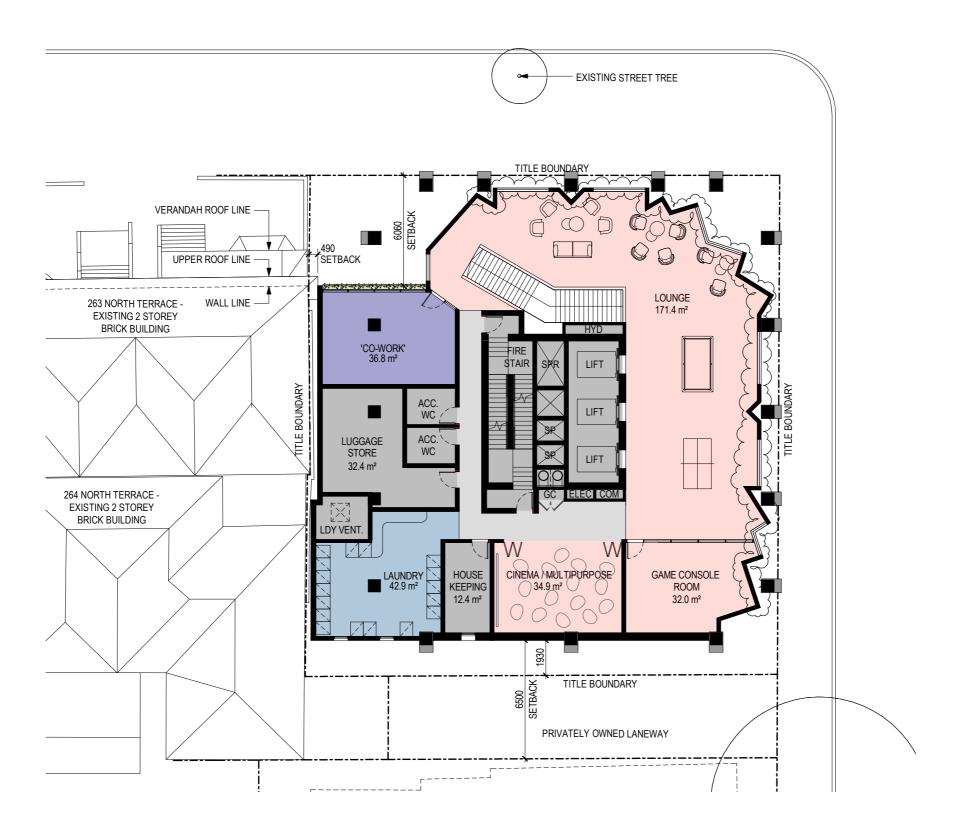


Stair

NORTH TCE



NORTH TCE



6.0 Communal Living Concept

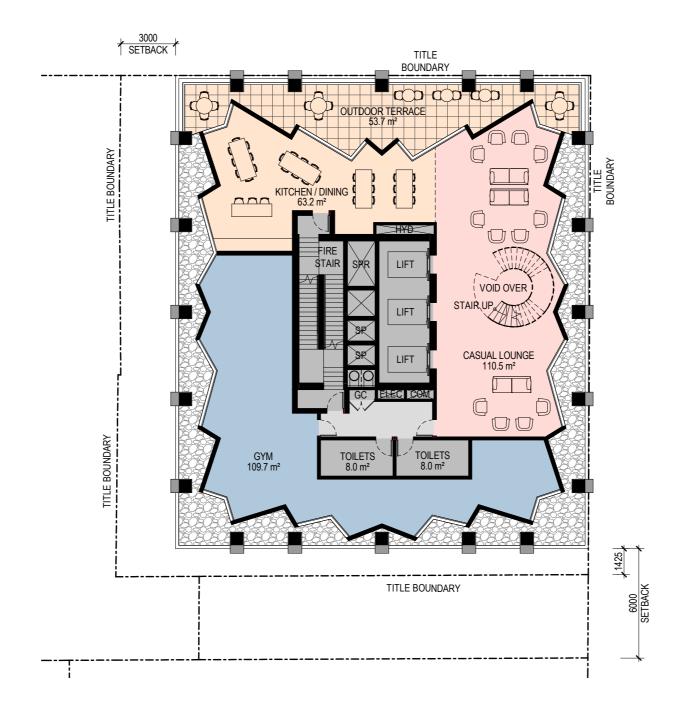
6.05 Level 12 and Level 13

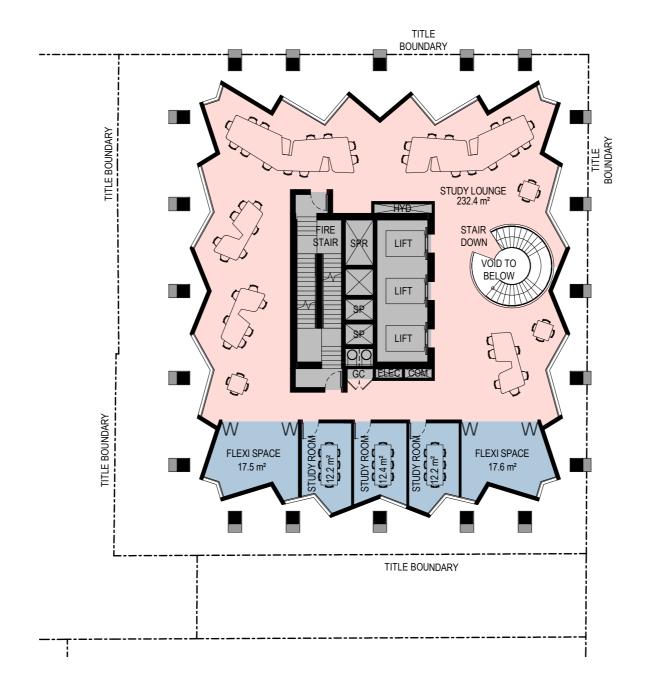
Communal areas disbursed through the tower create the opportunity for the legibility of the buildings use to be enhanced. Through expressing the communal nature of the tower at these levels, the tower creates a datum line that ties into the heights of surrounding existing buildings, and dynamically expresses the tower superstructure.

The functional aspect of this key urban design move, significantly reduces the wind dynamic affects on the tower by disbursing wind pressures at the typically highly loaded corner by drawing the glazing line back from the edge at two levels. Wind is disbursed 4m above the balcony line to create highlty habitable spaces, and a building significantly less impacted by wind pressure at this level, and at street level.









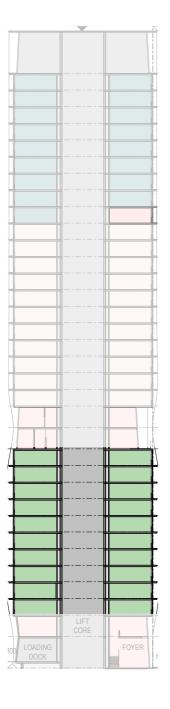
Co-Living

7.0 Co-Living

7.01 Living Arrangement- Co-Living

A truly innovative, and market leading business, GSA operates globally in the Student Housing sector. Bringing this to the Adelaide city, we are proposing a new type of Co-living model whereby students are clustered within broader "family" groups within the larger college.

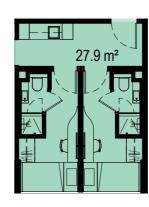
These Co-living units provide all the amenity of a conventional student room, but with the added benefit of a shared living space spread dynamically across two storeys. This two-storey home in the sky, creates a shared kitchen eating space on one level, and a second lounge/relaxation area on the other. These students get the benefit of both this area, and the wider facilities in the building.



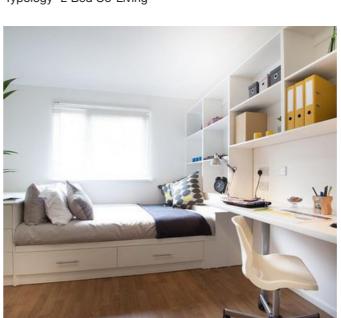




Typology- 1 Bed Co-Living



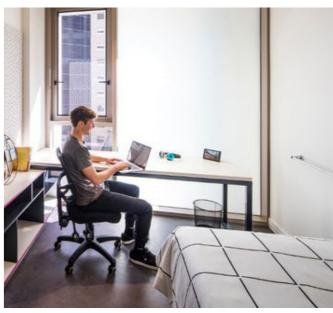
Typology- 2 Bed Co-Living



Co-Living style room

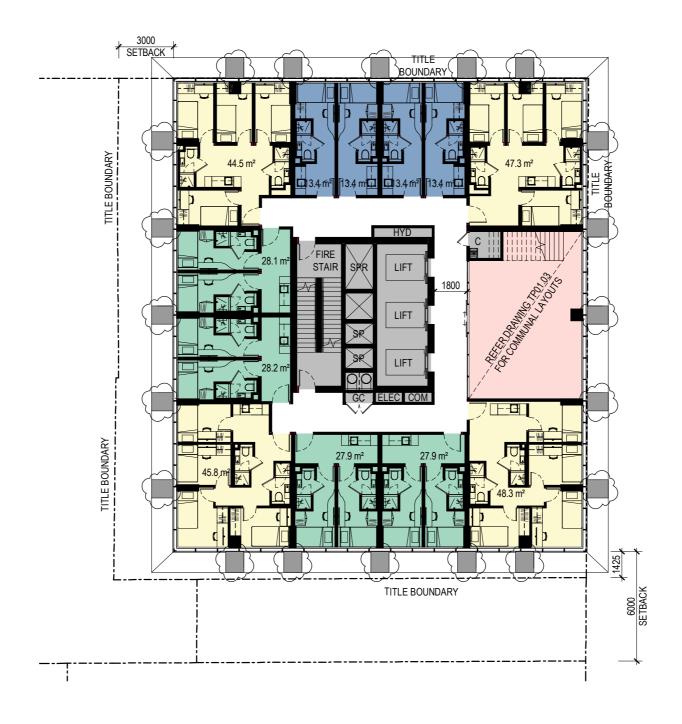


Typology- 4 Bed Co-Living



Co-Living style room





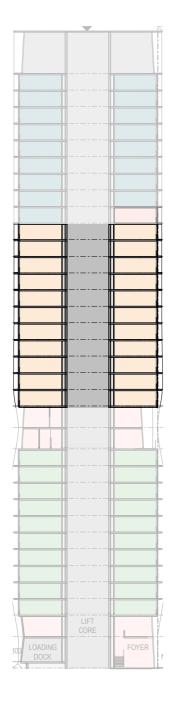
Multi-Beds and Duplex

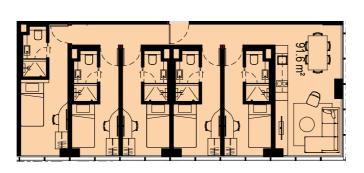
8.0 Multi-Beds and Duplex

8.01 Living Arrangement- Multi-Bed

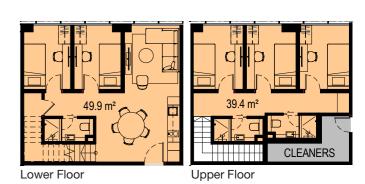
A true diversity of product is then provided throughout the remainder of the building, through shared, multi-bed "apartment" like rooms, where 3-5 students share a combined living area, through to the upper floor levels where larger Studio and 1-bedroom spaces are provided.

Importantly for the feeling of amenity, every level of the building is provided with natural daylighting to the corridor areas.









Typology- 5 Bed Apartment

Typical shared living room arrangement

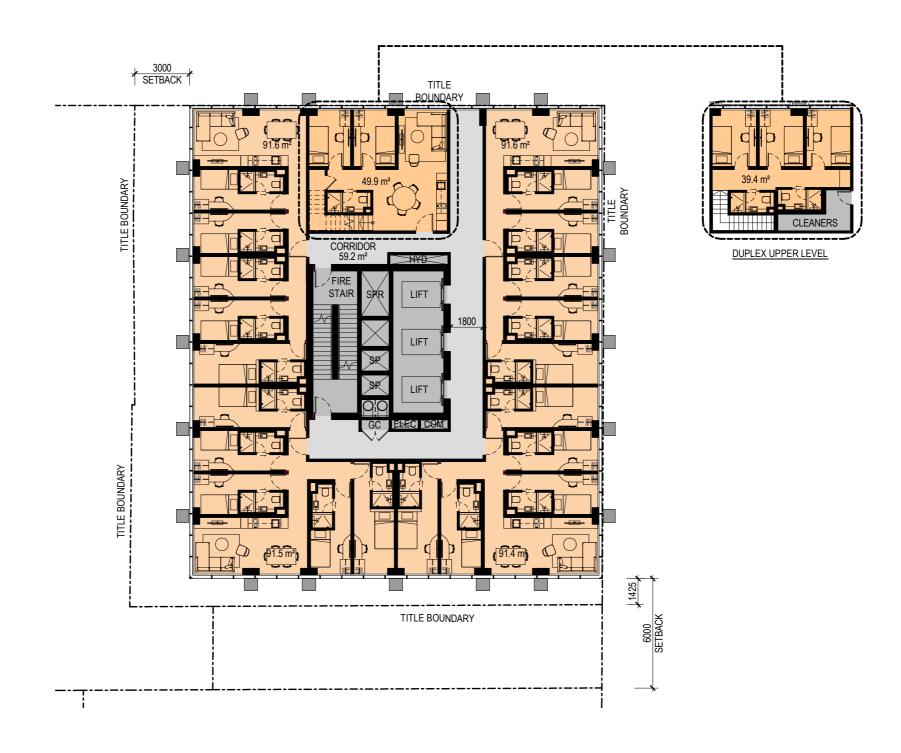
Typology- 5 Bed Apartment

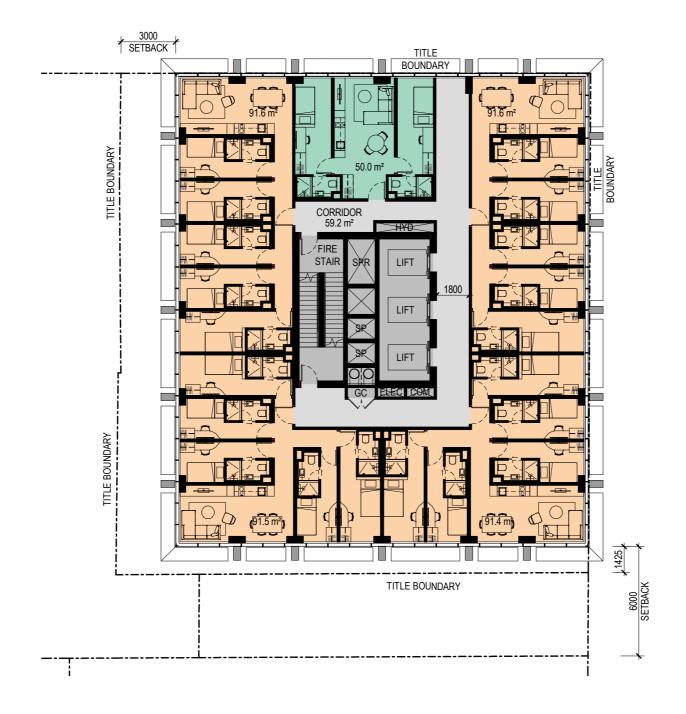
Typical shared living room arrangement

Typology- 5 Bed Duplex Apartment



Duplex style apartment with shared living areas



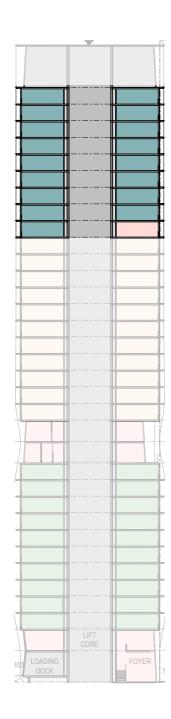


Studios

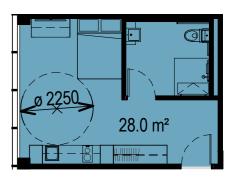
9.0 Studio

9.01 Living Arrangement- Studio

To provide for the upper end and mature age students, private studio rooms are provide at upper levels, still interconnected to the communal levels by lift, but perched at the upper levels of the building to take advantage of aspect and view.

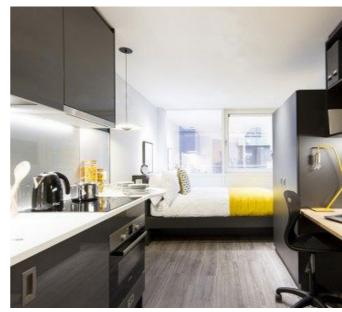






Typology- Studio

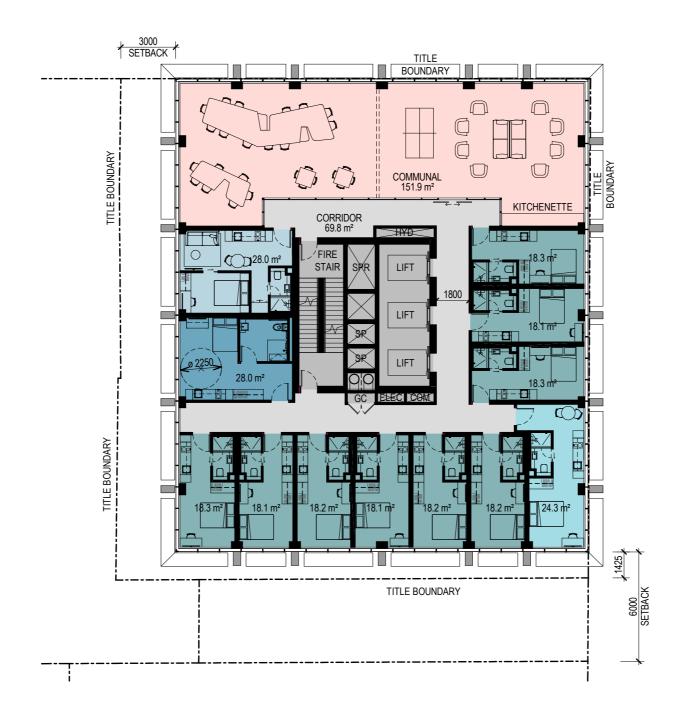
Typology- Accessible Studio







Room











Heritage Impact Statement



GSA Student Housing

233 North Terrace, Adelaide

Hosking Willis Architecture

Level 1, 121 South Terrace, Adelaide

(08) 8212 3089 http://www.hoskingwillis.com.au

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1.0 Introduction

1.1 Objectives of the Report

The objective of this report for proposed GSA Student Housing, 266 North Terrace, Adelaide, is to review and assess the heritage impact of the proposed development on the adjacent heritage places. The subject site contains a building (not heritage listed) dating from the mid twentieth century, however a number of State Heritage Places are located adjacent the site.

The following tasks have been undertaken in order to develop an understanding of the place and to inform the statement:

- Inspection of the site and context to define and understand the extent of heritage listed places affected by the development.
- Brief review of the history of the site.
- Inspection of the surrounding heritage listed places.
- Review of the surrounding heritage listed places to understand their heritage value.
- Review of the design of the proposed development and liaison with the client to understand the design objectives.
- Review of relevant Adelaide (City) Development Plan provisions.
- Assessment of the impact of the proposed development on the adjacent local and state heritage place against the provisions of the Adelaide (City) Development Plan – 31 July, 2014.
- Preparation of this Heritage Impact Statement for the place.

Rothelowman and Intro have been engaged by GSA to design a new multi-level student accommodation building on the North Terrace site.

1.2 Design Drawings

The following drawings prepared by Rothelowman have been reviewed:

GSA Student Housing, 266 North Terrace, Adelaide Project No: 217091

Drawings:

- TP00.00 TP00.02
- TP01.00 TP1.03, TP1.07, TP01.13-TP01.15, TP01.25-TP01.27, TP01.31, TP01.35.
- TP02.01, TP02.02, TP02.11
- TP03.01, TP03.02
- TP04.01 TP04.03
- TP05.01
- TP06.01 TP06.12

1.3 Existing Heritage Context

The existing site at 266 North Terrace is not heritage listed.

There are a number of State Heritage listed places adjacent the site. These include:

Office (Former Dwelling), 263-264 North Terrace, Adelaide (ID 13377).

- Two Storey Dwelling (An elaborately detailed classic villa), 261 North Terrace, Adelaide (ID 13376).
- Grand Lodge of Freemasons Adelaide Masonic Centre, 254 North Terrace, Adelaide (ID 10956).
- Royal Adelaide Hospital, including Women's Health Centre (ID 26413).
- Brookman Building, University of South Australia, North Terrace, Adelaide (ID 10877).

The property at 263-264 North Terrace is located immediately to the west of the subject site, with the properties at 261 and 254 North Terrace to the west of that. The Brookman Building is located on the opposite side of North Terrace, with the Women's Health Centre (Royal Adelaide Hospital) diagonally opposite across the North Terrace / Frome Road intersection.

The Adelaide (City) Development Plan, consolidated 20 June, 2017, identifies a Local Heritage Place on the north east corner of North Terrace and Frome Road, diagonally opposite the site (MAP Adel/50). There is no listing for this building, within the Royal Adelaide Hospital site, in TABLE Adel/2 Local Heritage Places. It appears that the building identified as a Local Heritage Place on MAP Adel/50, is also recorded as a State Heritage Place as part of the Royal Adelaide Hospital (South West Precinct) listing. This property, in the context of this report, is considered as a State Heritage place.

There are no other local heritage places within the locality.

Refer to Section 4.0 for a more detailed discussion of the heritage value of the properties listed above.

1.4 Location of the Place

The site is located on the south west corner of the intersection of North Terrace and Frome Street. The existing building is believed to have been constructed as the Christian Science Church in the 1960's.

Two two-storey buildings are located to the west of the site, with the Grand Lodge of Freemasons Centre, a five to six storey structure to the west of that. The University of South Australia is located on the northern side of North Terrace, and the old Royal Adelaide Hospital diagonally opposite on the north east corner of the intersection of North Terrace and Frome Road. An open lot carpark and a modern two-storey commercial building is located on the eastern side of Frome Street.

1.5 Zoning and Surrounding Locality

266 North Terrace is located within the Capital City Zone as described on Adelaide (City) Zones Map Adel/19 of the current Adelaide (City) Development Plan, consolidated 20 June, 2017. The site is located within Central Business Policy Area 13 and is abutted to the south by the Main Street Policy Area. The Central Business Policy Area ends on Frome Street immediately to the east of the site.

1.6 Amendments to Proposed Design

During the course of preparation of this Heritage Impact Statement the proposed treatment of the junction between the proposed development and the heritage listed property at 263-264 North Terrace has been discussed and refined.

During this process the following heritage outcomes have been amended in consultation with

Rothelowman and the property owner. These include:

- Removing a projecting boundary wall on the western side of the property to reveal oblique views of the property at 263-265 North Terrace. This amendment has opened an effective two-storey height from footpath level, significantly increasing the current visibility of the heritage place.
- Introducing an outdoor eating area adjacent the footpath on the western side of the property.
- Introducing a recessed set-back to the junction of the new development and
 adjacent heritage place at Mezzanine level, creating a negative junction between
 old and new and revealing the eastern end of the upper level balcony. This
 amendment has also exposed the eastern end of the verandah, a part of the
 building fabric that that has not exposed since the construction of the existing
 Church building.

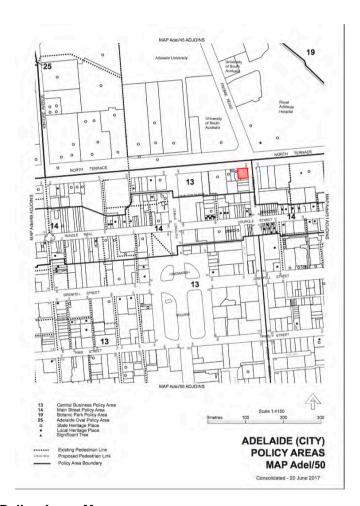


Figure 1: Policy Areas Map

Source: Adelaide (City) Development Plan. 20 June, 2017.



Figure 2: Site Plan, 266 North Terrace, Adelaide

Source: maps.sa.gov.au. November, 2017



Figure 3: Adjacent Heritage listed places, North Terrace, Adelaide

Source: maps.sa.gov.au. November, 2017

2.0 Historical Overview

2.1 Historical Overview

The proposed development at 266 North Terrace occupies part of Town Acre 27 (highlighted below), as identified in the original survey of Adelaide undertaken in 1836. The town acre was originally purchased by a Mr John Brown, who also purchased six other acre allotments spread through the City.

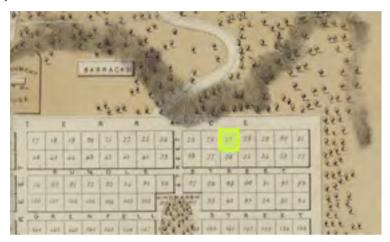


Figure 4: Book Plan of Adelaide, Smith Survey, 1880.

Source: Mortlock Collection, State Library of South Australia, mao890_i1606602a_rbr

No development is recorded on the Town Acre by 1842, but it was noted on the survey taken at the time that Tavistock Street had developed along the eastern side of the allotment. It does not appear to have been formed as a formal street at that time. It can also be noted that a significant proportion of town acre allotments in this part of Adelaide where undeveloped.



Figure 5: G.S.Kingston Map of Adelaide (part) c. 1842.

Source: City of Adelaide map set, State Library of South Australia, zcm 1435207

The Smith Survey, undertaken by the South Australian Surveyor General's Department in 1880 and published in 1881, indicates that by this time, the attached dwellings at 263-265 North Terrace had been constructed. Their footprints showing the bay windows are clearly visible immediately to the west of the site. The site at 266 North Terrace appears to be fenced, but has

not undergone any other development. There is no evidence of the other buildings now listed as State Heritage places. By 1880, most of the town acre allotments in this part of Adelaide had undergone some form of development, with substantial housing appearing to be the dominate building type along North Terrace.

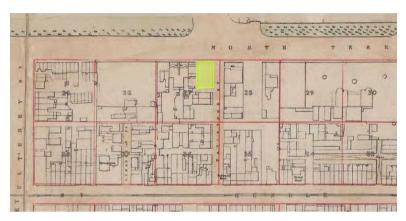


Figure 6: Extract from Book Plan of Adelaide, Smith Survey, 1880.

Source: State Library of South Australia. Survey and Plan of Adelaide, Surveyor General's Office, 1880, mao890_i1606602a_rbr

Figure 9 below, an aerial photograph taken in 1906, shows that the current site at 266 North Terrace had still not been developed. The heritage listed properties at 263-265 and 261 North Terrace are clearly visible, as are the Brookman Building and the Royal Adelaide Hospital.

The existing Church of Christian Science appears to have been constructed in the 1960's but further details have not been investigated for this report.

Refer to Section 4.0 below for historical information about the heritage listed buildings adjacent the proposed GSA Student Housing development.

2.2 Historic photographs

The following photographs show the development of the heritage listed buildings around the site from around 1875 through to 1975.

The photographs selected have focussed on the development site and heritage listed properties adjacent.



Figure 7: Brookman Building, School of Mines and Industry, 1903.

Source: Mortlock Collection, State Library of South Australia, B31326.

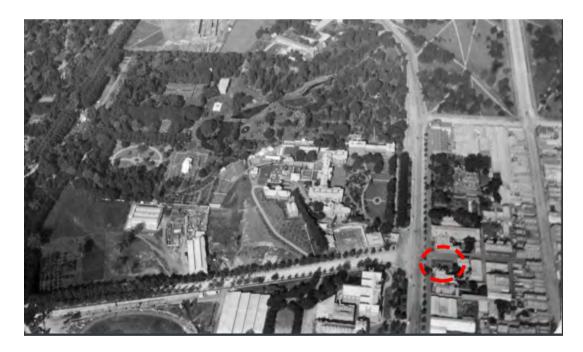


Figure 8: Aerial view showing the North Terrace, Frome Street intersection, 1906.

The location of 266 North Terrace is highlighted, and was undeveloped at this time.

Source: Mortlock Collection, State Library of South Australia, [PRG 280/1/4/139].



Figure 9: View of 261 North Terrace, Adelaide, 1907.

Source: Mortlock Collection, State Library of South Australia, [PRG 631/2/1450].



Figure 10: View of 269 North Terrace, Adelaide, 1909

Source: Mortlock Collection, State Library of South Australia, B 4399.



Figure 11: View of North Terrace, 1927

The photo is looking south west from the corner of Frome Road and shows the houses at 263-264 and 261, with the Grand Lodge of Freemasons in the background.

Source: Mortlock Collection, State Library of South Australia, B 5817.



Figure 12: View of the Grand Lodge of Freemasons, 1928

Source: Mortlock Collection, State Library of South Australia, B 5817.

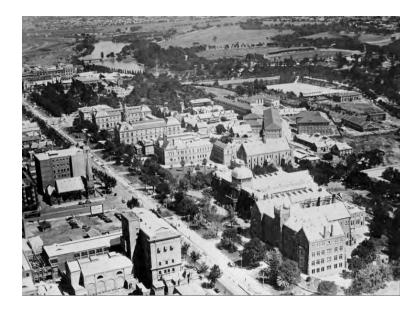


Figure 13: View of North Terrace, 1928.

The photographs shows the buildings west of the site, with the Brookman Building evident in the right foreground and the Grand Lodge of Freemasons directly opposite. The roofs to the properties at 261and 263-264 are visible at the bottom of the photograph

Source: Mortlock Collection, State Library of South Australia, B 4077.



Figure 14: 261 North Terrace, 1955.

The photograph appears to show the removal of the original balcony and

verandah, which is still missing.

Source: Mortlock Collection, State Library of South Australia, B13384.



Figure 15: Church of Christian Science, 1974.

Source:

Photograph taken from Frome Street looking north towards North Terrace. *Mortlock Collection, State Library of South Australia, B28763.*



Figure 16: Church of Christian Science, 1974, taken from Frome Street.

Photograph taken from the eastern side of Frome Street looking south west.

Source: Mortlock Collection, State Library of South Australia, B28764.



Figure 17: View of the dwellings at 261 and 263-264 North Terrace, 1979

The Grand Lodge of Freemasons is visible to the right. *Mortlock Collection, State Library of South Australia, B37496.*



Figure 18: View of the dwellings at 261 and 263-264 North Terrace, 1979

The existing Church of Christian Science building is visible on the left of the

photograph

Source: Mortlock Collection, State Library of South Australia, B13384.

Source:

3.0 Survey of Extant Fabric

3.1 Introduction

A survey of the site context was undertaken in November 2017. The survey was limited to visual observation and documentary evidence, without physical intervention to any fabric.

3.2 Description

The site for the proposed GSA Student Housing development currently accommodates the Christian Science Church, a two-storey face red brick building with modern symmetrical façade to North Terrace. The north elevation, constructed on the North Terrace boundary, features a three bay entrance with surrounding concrete portico. The corners have a small chamfer to Frome Street and the heritage place at 263-264 North Terrace, which slightly opens views towards the place from across North Terrace to the north east.

There is a slight rise along North Terrace to the west of the site and plane trees have been planted along the footpath.

The existing building is also constructed to the Frome Street boundary, and steps down to a single storey height to the south. A new multi-level residential development, on the allotment immediately to the south, has recently commenced construction.

State heritage listed places are located as identified in Figure 3.

3.3 Current Photographs

The following photographs of the site were taken in November 2017. Photographs of specific buildings adjacent the site are contained in Section 4.



Figure 19: 266 North Terrace, 2017

Source: Hosking Willis Architecture, 2017.



Figure 20: 266 North Terrace, 2017

Taken from north east corner of Frome Road, North Terrace intersection.

Source: Hosking Willis Architecture, 2017.



Figure 21: Frome Street frontage, 266 North Terrace, 2017

Source: Hosking Willis Architecture, 2017.

3.4 Heritage Integrity

The building at 266 North Terrace appears to have been built in the 1960s. It has not been assessed as having any heritage value as either a state or local heritage place, and is not considered to make any contribution to the heritage character of the City of Adelaide.

3.5 Description of the Proposal

The site at 266 North Terrace is included in the Capital City Zone. This allows for greater flexibility for development and encourages the creation of mixed use schemes of higher density and provides greater opportunity for development.

The proposed GSA Student Housing development is a 33 storey development, with a distinctive architectural form. The development has been conceived as an innovative student housing model, with varying levels of communal spaces, intended to develop a vertical collegiate experience for inhabitants. Accommodation types range from multi-bed apartment like rooms to larger studio and one bedroom apartments on upper levels.

The external form of the development is broken into five distinct forms – two bands of expressed communal floors at ground and mid-level, a similar architectural treatment to the roof plant, and two distinct blocks containing the accommodation levels. At ground level, which houses café, foyer, administration and back of house services, and the mezzanine level, which houses coworking space, student lounges, laundry and storage spaces, the external cladding is described by the architects as fractal pavilion. Angular external walls, recessed within lines of the external footprint of the floors above, have been designed to create a recessed and sheltered façade, responding in a contemporary manner to the traditional verandahs on the heritage places adjacent. This typology is repeated in Levels 12 and 13, where student kitchens, lounges and balconies are located. The roof plant is disguised in a similar manner.

The accommodation levels are treated in a more traditional 'high-rise' manner, with expressed vertical structure and cantilevering floor slabs. The lower block of accommodation, from levels 2 to 11, includes a projecting, curving concrete shell shape – prefabricated curved forms that are attached to the primary structural columns. These forms act as vertical lightweight screens, articulating and shading the façade and providing deep recesses for the play of light and shade. From levels 14 to 33 the extent of projection recedes and almost disappears as the building height increases. This emphasises the verticality of the structure and simplifies the level of articulation at the higher levels.

The primary cladding proposed is a stick framed aluminium panel system, with pre-finished coating systems, interspersed with glazing. The cladding material is proposed in a combination of bronze and charcoal colours, with the glazing a combination of light and dark grey depending upon location. The structural form will be white. Green walls are proposed at the ground and first floor levels to provide a softer and climatically responsive environment.

The development will include 334 accommodation units, with a total bed provision for 687 students. This will be achieved with a total net lettable floor area of 11,342m2.

The architectural approach has been to provide a building with a civic scale and presence that sits amongst an eclectic variety of surrounding architectural styles. These range from the larger institutional buildings of the universities and former Royal Adelaide Hospital site, to the small residential buildings adjacent. They have sought to visually express the functions of the uses and activities within the building, that is sited on a significant North Terrace intersection.



Figure 22: GSA Student Housing, 266 North Terrace

Source: Rothelowman November, 2017.

4.0 Review of Adjacent Heritage Places

4.1 General

The concept of heritage value assists in identifying and assessing the qualities that make a place or object of value to the community. An understanding of the nature and degree of that value indicates where constraint is required with future work, and conversely, introduces flexibility by identifying aspects that can be developed with greater freedom.

Heritage value encompasses all the values or meanings that a place may have to people beyond its utilitarian value, and can refer to the criteria under Section 16 of the Heritage Places Act (1993) for state heritage places, and Section 23(4) of the Development Act 1993 for local heritage places. A place can be designated as a place of state or local heritage value if it meets one of the criteria listed in the relevant Act.

The following section reviews the statement of heritage value and extent of listing for the heritage places adjacent the site at 266 North Terrace; identifies their relationship with the development site, and assesses the impact of the proposed development on the identified heritage value of the individual places.

The following data relating to the state heritage places has been taken from the State Heritage Unit, Department for Environment Water and Natural Resources, property files for each property.



Figure 23: 266 North Terrace, showing heritage places adjacent

Source: maps.sa.gov.au. November, 2017

4.2 Review of Heritage Places and Assessment of Individual Impact

The Adelaide (City) Development Plan identifies a number of properties immediately opposite or in close proximity to 266 North Terrace. Four of the places are included in the State Heritage Register, with one entered under the South Australian Development Act 1993 as a Local Heritage Place. Note the comment above that this local heritage place appears to have been included in the State Heritage listing for the former Royal Adelaide Hospital site.

4.2.1 Former Houses, 263-265 North Terrace



Figure 24: 263-265 North Terrace

Source: Hosking Willis Architecture, November, 2017

Address	263-264 North Terrace
Heritage Status	State Heritage Place
SA Heritage Register	13377
ID and listing date	11 September, 1986
Heritage Number	1336
Policy Area	
Certificate of Title	CT 5085/918; CT 5128/559
Use	Offices
Description and / or	Office (former Dwelling)
Extent of Listing	

History and Description

The dwelling at 263-265 North Terrace was designed by the architectural firm of English and Rees, of Temple Chambers, for Dr John Fisher. Completed in 1872, the development was described as follows...

Dr Fisher has completed during the year [1872] two residences on North Terrace...On the basement floor are cellar and pantries and two large summer living rooms. On the ground

floor there are handsome arch pilasters, caps, and bases separating the front portion from that from which the staircase rises to the first floor, where are the kitchen, scullery, pantries and larder. The western house is provided with a surgery and waiting room approached directly from the street, and is designed specially as a medical man's residence. The one pair floor has bedrooms, nursery, bathroom and every convenience. The design is Italian in outline and the verandah and (canopy) which are ornate and pleasing, give a tone to the buildings generally... The work has been carried out by Dr Fisher, with the assistance of a clerk of works, under the superintendence of the architects, and has involved an expenditure of about 2500 pounds...¹

From the 1880s it became increasingly fashionable for medical men to build professional rooms on North Terrace. Several, like Dr Fisher, combined substantial residences with surgeries, creating a handsome residential streetscape along southern North Terrace by the early twentieth century. Dr Fisher's premises, which are among the earliest of such residences and purposebuilt surgeries, are one of the very few which have survived the almost total transformation of that streetscape from residential to commercial use.

The design may have been one of the last executed while Rowland Rees was still in partnership with Thomas English.

For many years the residences continued to be used by the medical profession, most notably by the Chinese specialist Dr Lum Yow. Dr Lum Yow, whose advertisements for 'Cure All' tonic were a regular feature of the newspapers was associated with the residence from 1909 until about 1934. His memorial is one of the largest in West Terrace Cemetery.

The North Terrace building is a distinctive composition, centred about the central passage, which creates a rear access. Such access to the rear of premises was once a common design in Adelaide of which few examples remain.

The substantial bay windows enliven the building. The window detailing is picked up by the bracketed eaves in a manner similar to the design at the Tivoli Hotel (see NE25), which is also attributed to Rowland Rees. At some stage prior to the 1970's, the original verandahs were removed; however, in recent years the balcony and verandah to the eastern half of the building has been reinstated, returning that part of the building to its original appearance.

Statement of Heritage Value

These attached two storey houses were built for Dr John Fisher in 1872. Designed by English and Rees, they feature large summer living rooms in the basements and the westernmost one had a surgery and waiting room on the ground floor. From the 1880's it became more common for medical men to build residences with surgeries on North Terrace. Today such places have been largely superseded by offices and commercial establishments. Hence, these former residences are now significant as a reminder of an important phase in the development of one of Adelaide's major boulevards.

The houses are historically significant for the manner in which they illustrate features of the early residential development of Adelaide, most notably something of the one-time residential character of North Terrace. Though now used as offices, these former houses remain examples of the residential buildings that once characterised North Terrace.

Architecturally this place is of note for its distinctive composition, centred about the common central passage. Such access to the rear of properties was once common in the designs of buildings in Adelaide but is now relatively rarely found. The substantial bay windows enliven the building, the detailing for these windows being picked up in the bracketed eaves in a manner

¹ Heritage of the City of Adelaide, Marsden, Stark & Summerling, 1990. P. 144.

reminiscent of the design for the Tivoli Hotel, also attributed to Rowland Rees. The original verandah to 264 has recently been reconstructed.

Environmentally the building gains distinction from its slightly elevated position (with basements at a half level). It is adjacent to another state heritage listed place and contributes to the residential character of North Terrace, principally established by Ayers House and the Botanic Chambers to the east.

Relationship with Proposed Development

The proposed development at 266 North Terrace is located immediately to the east of 263-265 North Terrace, with the buildings sharing a common boundary. The 'fractal pavilion' of the proposed development aligns with the eaves height of the heritage place, and the proposed café opens up the junction with the existing building.

Impact of GSA Student Housing on Heritage Value

The proposed GSA Student Housing development will have no physical impact on the fabric and identified heritage value of the former houses at 263-265 North Terrace. The history of the house is embedded in its fabric, and the economic and social history of Adelaide, rather than just its physical setting. It will retain its ability to demonstrate its association with the development of early residential development along North Terrace.

The architectural significance of the houses will not be impacted on by the proposed development. The house will remain a rare and significant example of the housing that used to line North Terrace, and in particular the medical rooms that were associated with these houses.

Its composition, rich exterior forms and detail will be retained, as will its elevated siting above the North Terrace footpath.

The house at 263-265 North Terrace will remain an important visual element in a section of streetscape containing heritage buildings, and its contribution to that streetscape will remain unaltered.

The proposed Student Housing development will not inhibit the ability of the building to be an easily recognisable landmark in the precinct. The former houses are viewed in the approaches from the east and west along North Terrace and from the footpath directly opposite. Views from the east have been compromised since the construction of the existing Christian Science Church, which was built to the North Terrace setback to a similar height to the houses. This has meant that the houses are not visible from the east until the Frome Road intersection is reached. The proposed development will allow improved views of the houses due to the setback of the proposed development and the provision of an open café at its north west corner. As a consequence, the view angles will be substantially improved.

Views of the former houses from the west will not be impacted, although the proposed Student Accommodation building will provide a significant backdrop to the houses. This will have an impact on the setting of the former houses. The proposed forms do not attempt to replicate the style of the original buildings adjacent. The proposed building is clearly contemporary in form and the facades are well articulated, with clean horizontal and vertical lines and shadowing. The two storey colonnade at ground level will visually separate the tower and relate to the scale and mass of the heritage buildings adjacent.

The proposed forms do not attempt to replicate the style of the original buildings adjacent, and the relationship of the former house with the adjacent heritage places will be maintained.

The proposed development will not impact on the heritage value or integrity of former house at 261 North Terrace.

4.2.2 Former House, 261 North Terrace



Figure 25: Former House, 261 North Terrace

Source: Hosking Willis Architecture, November, 2017

Address	261 North Terrace				
Heritage Status	State Heritage Place				
SA Heritage Register	13376				
ID and listing date	11 September, 1986				
Heritage Number	1335				
Policy Area					
Certificate of Title	CT 5688/685				
Use	Offices				
Description and / or Extent of Listing	Two Storey Dwelling (An elaborately detailed classical villa)				

History and Description

In approximately 1881 two small dwellings on this plot were demolished to make way for a more imposing residence, with the rateable annual value increasing from 22 pounds in November 1880, to 100 pounds a years later, and to 175 pounds in 1882, indicating that the house was completed.² Thomas Greaves Waterhouse who commissioned the building was a successful businessman who owned the Black Bull Hotel (now the Princes Berkley) in Hindley Street.

The design of the house is attributed to the architect William McMinn.-Several notable South Australian occupied the house. Sir William Milne (1822-95) took out a three year lease on the property. Milne was a wine and spirit merchant, politician, director and chairman of the Wallaroo and Moonta Mining and Smelting Co., and a trustee of the Savings Bank. He was appointed a knight of the realm in 1876.

In 1906 the residence was bought by Adelaide architect Walter Hervey Bagot and remained within the Bagot family until 1926. Bagot was a prominent early twentieth century Adelaide architect.

The building was a guest-house between 1927 and the 1940s. In 1953 the Chamber of Manufactures Insurances Limited bought and extensively remodelled the building to house the Chamil Surgical and Physiotherapy Clinic for treatment of injured workmen employed by policyholders of the company. The premises were later used once more as a doctor's professional rooms until the present owners purchased the property and restored it as a private home.

The building is of architectural interest because of the high quality of detailing to both the North Terrace and western elevations. The surrounds to openings are well finished, with a variety of stucco ornamentation including foliated capitals and spandrel decoration. The design has been marred by the removal of a balcony, but the imposing mansard roof with its slate cladding, the widow's walk and parapet survive intact.

Statement of Heritage Value

This item is historically significant for its association with notable South Australians. It is also particularly significant as one of the few survivors of the many grand homes which once graced North Terrace, a choice residential address in Adelaide.

Architecturally the building is of great interest because of the high quality of detailing to both the North Terrace and western elevations. The surrounds to openings are well finished with a variety of stucco ornamentation including foliated capitals and spandrel decoration. The quality of detailing to guoins and the great floor lonic columns is particularly noteworthy. The design has been marred by the ground floor addition and the removal of a balcony, but the imposing mansard roof with its slate cladding, the widow's walk, and the parapet survive intact. Morgan & Gilbert wrote in "Early Adelaide Architecture"; the design "...although elaborate is well scaled to so small a house."

Environmentally the item is significant because of the interest and diversity which is provides to the streetscape. Unfortunately, its contribution to the streetscape is lessened because of the dominant Freemason's Hall building to the west.

The integrity of the building has been compromised by several unsympathetic additions. The interior has been adapted for use as professional chambers but retains many earlier elements and details.

Relationship with Proposed Development

			Terrace to				

² Ibid. p 143

development. It is separated by the width of the property at 263-265 North Terrace, approximately 20 metres.

Impact of GSA Student Housing on Heritage Value

The proposed Student Housing development will have no physical impact on the fabric and identified heritage value of the former residence at 261 North Terrace. The building will continue to demonstrate its association with a number of notable South Australians, its impressive architectural design, and its importance as a reference to North Terraces early life as a residential street.

The house at 261 North Terrace will remain an important visual element in a section of streetscape containing heritage buildings, and its contribution to that streetscape will remain unaltered.

easily recognisable landmark in the precinct. The former house is viewed as it is approached from the east and west along North Terrace. Views from the east have been compromised since the construction of the existing Christian Science Church, which was built to the North Terrace boundary, screening views of the house. The proposed development will allow improved views of the house from footpath level from the east, due the proposed colonnade at ground level and the provision of an open café at its north west corner.

Views of the former house from the west will not be impacted, although the proposed Student Accommodation building will provide a significant backdrop to the house. This will have an impact on the setting of the former house. The proposed forms do not attempt to replicate the style of the original buildings adjacent. The proposed building is clearly contemporary in form and the facades are well articulated, with clean horizontal and vertical lines and shadowing. The two storey colonnade at ground level will visually separate the tower and relate to the scale and mass of the heritage buildings adjacent.

The proposed forms do not attempt to replicate the style of the original buildings adjacent, and the relationship of the former house with the adjacent heritage places will be maintained.

The proposed development will not impact on the heritage value or integrity of former house at 261 North Terrace.





Figure 26: Grand Lodge of Freemasons, 254 North Terrace

Source: Hosking Willis Architecture, November, 2017

Address	254 North Terrace	
Address	204 NORTH Terrace	
Heritage Status	State Heritage Place	
SA Heritage Register	10956	
ID and listing date	8 November, 1984	
Heritage Number	1270	
Policy Area		
Certificate of Title	CT 6062/837	
Use	Community facilities - Masonic Hall	
Description and / or	Grand Lodge of Freemasons Adelaide Masonic	
Extent of Listing	Centre	

History and Description

The South Australian Grand Lodge was the first to be established in Australia and was formed before the colony was settled. The South Australian Lodge of Friendship was consecrated in London on 22 October 1834 with the colonization commission's deputy surveyor, George Strickland Kingston as first senior warden.

Plans for a masonic temple to be built on North Terrace seem to date from 1913-14 when fundraising was undertaken, but it was ten years before the plans could be put into practice.

The architects were 'brothers', J. Quinton Bruce and W.H. Harral, who submitted a design IN 1923, which was unanimously accepted. However, when tenders were called, the cost was far

greater than expected, so the specified cut stone and granite work was replaced by reinforced concrete. However, the imposing scale of the design was retained, with the front section comprising five storeys, a basement and a rear part with a great hall for grand lodge functions. 'On the ground floor will be the administrative offices and billiard rooms and the Hall of Fame, this last rising two storeys with a balcony all round at the height of the first floor level.' Harral personally superintended the work, the main contract for which was let to Anderson and Company. The building was opened in May 1927. Few alterations have been made since then to the interior or exterior.

This city landmark illustrates the way in which compromises were reached between the expression of form and of function in buildings during this transitional period. The choice of classical orders and stylised ornament of Roman origin was deliberate since the orders figure prominently as part of masonic ritual. The central Hall of Fame is most notable for its propylaeum-like form, aptly chosen for this building. The interior reveals lofty halls and spaces and impressively executed detailing. The building's massive scale and form dominate the surroundings, although it is complemented by the Brookman building on the northern side of North Terrace.

Statement of Heritage Value

The Adelaide Masonic Centre is historically significant as the headquarters of Freemasonry in South Australia. It serves as the meeting place of several lodges, including the State's oldest, the Lodge of Friendship, and is also the home of the Grand Lodge of South Australia. The Lodge of Friendship was consecrated at the headquarters of the South Australian Association in London in 1834, almost two years prior to colonisation, and its early members included several notable citizens. Freemasonry has continued to attract many prominent South Australians to its ranks in the ensuing years. The Centre was designed by Bruce and Harrall as a monolithic example of Classical Revival architecture and completed in 1927. It is a building of high architectural significance for its apt and unusual architectural design and detailing, impressive interior spaces, high degree of integrity and incorporation of progressive structural engineering ideas in its design. The use of reinforced concrete shear walls at upper levels and of waffle slabs incorporating breeze blocks is notable. (Adapted from Adelaide Masonic Centre Conservation Plan 1993).

Historically, the building is significant as being a direct manifestation of the rapid growth of the Freemasonry Movement that occurred in South Australia from 1917 to 1930. It is also associated with the Freemasonry Movement in South Australia generally, being the focus of that movement. Many members have been or are prominent South Australian citizens.

Architecturally, the building is important for being an imposing example of Classic Revival architecture, as seen in the rich detailing and the sophisticated layout, both internally and externally. The internal reception foyer and stairway are particularly impressive, together with the ceremonial hall and the Grand Hall. A building of this type, function and scale is rare in South Australia.

Environmentally, it is significant for being part of a group of institutional buildings at this point along North Terrace, for contributing to the dominant older character of the local streetscape, and for being a landmark building in this section of North Terrace.

The Integrity of the building is excellent, there being no evident additions or alterations. A caretaker's flat added onto the roof is not readily visible. The building appears to be in south structural condition.

Relationship with Proposed Development

The Grand Lodge of Freemasons is located on North Terrace to the west of the proposed Student Housing development. It is separated by the width of the properties at 261 and 263-265

North Terrace, approximately 35 metres.

Impact of GSA Student Housing on Heritage Value

The proposed Student Housing development will have no physical impact on the fabric and identified heritage value of the Grand Lodge of Freemasons. The building will continue to demonstrate its association with the growth of Freemasonry in South Australia, its architectural significance, and its association with a number of notable South Australians.

The history of the building is embedded in its fabric and it will retain its architectural significance.

The Grand Lodge of Freemasons makes a significant contribution to the streetscape of North Terrace and is a landmark building on the southern side of the street. The proposed Student Housing development will not inhibit the ability of the building to be an easily recognisable landmark in the precinct.

As a landmark building, the Grand Lodge of Freemasons is viewed from the east and west along North Terrace and from the northern footpath. The new Student Housing development will have a significant visual impact on views along North Terrace; however, the Brookman Building is separated from the development by the heritage places adjacent.

The proposed building is clearly contemporary in form and the facades are well articulated, with clean horizontal and vertical lines and shadowing. A two storey colonnade at ground level will visually separate the tower and relate to the scale and mass of the heritage buildings adjacent.

The proposed forms do not attempt to replicate the style of the original buildings adjacent, including the Grand Lodge.

The relationship of the Grand Lodge of Freemasons with the adjacent heritage places will be maintained.

The proposed development will not impact on the heritage value or integrity of the Grand Lodge of Freemasons.





Figure 27: Brookman Building, University of South Australia,

Source: Hosking Willis Architecture, November, 2017

Address	254 North Terrace	
Heritage Status	State Heritage Place	
SA Heritage Register	10877	
ID and listing date	26 November, 1981	
Heritage Number	1547	
Policy Area		
Certificate of Title	CTR 5251/900	
Use	Education – tertiary institution	
Description and / or	Brookman Building, University of South Australia	
Extent of Listing	(former School of Mines and Industries, then SA Institute of technology	

History and Description

Moves to establish a School of Mines and Industry in South Australia were the result of an enquiry established in 1886 to report on the best means of developing a general system of technical and agricultural education in South Australia. Mr George Brookman donated 15,000 pounds for the construction of the building, which the South Australian government matched.

The building was designed by Mr C.E Owen Smyth, the commissioner of Public Works, with the construction by F Fricker for the cost of 25,613 pounds.

All of the materials used in the structure where produced within the state, with various stone types coming from Auburn, Murray Bridge and Angaston. A description written in 1903 noted the....'Gothic lines, with some features which ally it to the late Tudor period...the detail of the façade has been modified to suit the exigencies of economy, and but for this necessity the curious gargoyles, ornamental parapets and enriched cornices peculiar to the perpendicular

style might have been introduced with conspicuous effort. In the building as it stands, however, the detail so far as it goes is correct, and the utmost possible has been done with the money at command.'3

The building features a number of stained glass windows inspired by the federation of Australia, the Boer War and scientific endeavours of the time.

Statement of Heritage Value

The Brookman Building represents the importance and growth of technical education in South Australia at the turn of the 20th Century. Its construction was a response to the need to provide education for emerging technical professions as a result of the State's industrialisation. A fine representation of the 'Federation Gothic' style, it is architecturally significant as a well-executed example of the work of Superintendent of Public Buildings Charles Owen Smyth. The building also contains significant stained glass windows, the work of notable Adelaide firm's E F Troy and H L Vosz.

It has important associations with Sir George Brookman, MLC, one of the State's key industrialists, who provided a substantial donation towards the cost of construction. Several other prominent industry leaders also contributed funds for a library and laboratories.

It was the first purpose-built building of the South Australian School of Mines and Industries, which from its establishment in 1888 played a crucial role in the development of technical education in the State.

Relationship with Proposed Development

The Brookman Building is separated from the proposed GSA Student Housing development by the width of North Terrace and associated pedestrian zones. The Brookman Building is also set back from North Terrace behind a landscaping zone. The separation is as indicated in the historic photograph (Figure 13) above.

The colonnaded plinth to the new building will provide a contextual scale relevant to the heritage buildings adjacent and the Brookman Building opposite.

Impact of GSA Student Housing on Heritage Value

The proposed Student Housing development will have no physical impact on the fabric and identified heritage value of the Brookman Building. The building will continue to demonstrate its association with the development of technical education in South Australia, its architectural significance, and its association with a number of notable South Australians.

The history of the building is embedded in its fabric and the development of the School of Mines and Industries since the early 1900's.

The Brookman Building makes a significant contribution to the streetscape of North Terrace and is a landmark on the corner of Frome Road. The proposed Student Housing development will not inhibit the ability of the Building to be an easily recognisable landmark in the precinct. As a landmark building, the Brookman Building is viewed from the east and west along North Terrace and the southern footpath opposite. The new Student Housing will have a significant visual impact on views along North Terrace; however, the Brookman Building is separated from the development by the width of North Terrace.

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³ Ibid. p272.

The proposed building is clearly contemporary in form and the facades are well articulated, with clean horizontal and vertical lines and shadowing. A two storey colonnade at ground level will visually separate the tower and relate to the scale and mass of the heritage buildings adjacent.

The proposed forms do not attempt to replicate the style of the original buildings adjacent, including the Brookman Building.

The proposed development will not impact on the heritage value or integrity of the Brookman Building.

4.2.5 Royal Adelaide Hospital (South-west precinct)



Figure 28: Royal Adelaide Hospital, (South-West precinct)

Source: Hosking Willis Architecture, November, 2017

Address	North Terrace	
Heritage Status	State Heritage Place	
SA Heritage Register	26413	
ID and listing date	28 August, 2014	
Heritage Number	27070	
Policy Area		
Certificate of Title	CT 6134/112	
Use	Former hospital (closed September 2017)	
Description and / or	Royal Adelaide Hospital (South-West Precinct)	
Extent of Listing	[including Sheridan Building (former Kiosk), Bice	
	Building, Women's Health Centre (former	
	Outpatients' Department), Allied Health Services	
	Building (former Admissions and Casualty	
	Department), McEwin Building, Former Margaret	
	Graham Nurses' Home (State Heritage Place No	

13093), remnant iron-railing fence to North Terrace, and brick boundary wall to Frome Road]	

History, Description and Statement Heritage Value (taken from SA Maps Heritage Places Database)

The Royal Adelaide Hospital (South-West Precinct) comprises a cohesive group of related buildings occupying a prominent position at the south western corner of the Royal Adelaide Hospital, and is representative of the importance of the Hospital in South Australia's history.

Established by the colonial government in 1841, the Hospital is the oldest facility of its kind in the state, and has occupied its present site since 1856. It has functioned as the principal public/ teaching hospital for South Australia, and centre for medical research and training for over 170 years. The place demonstrates an important aspect of South Australian history in the development of public health and the growth of centralised services for the community in the first half of the twentieth century. Its location, on the corner of North Terrace and Frome Road, demonstrates the early twentieth century planning for a larger and more efficient hospital. Although the six buildings in the precinct were constructed over a period of more than forty years from 1908 to 1946, the result is a carefully considered complex of structures related by location, scale, aesthetic detail and materials, which demonstrate the expansion of the hospital in response to population growth and advances in medical treatment in the early to midtwentieth century.

A significant quality of these buildings is both their individual and group aesthetic which is quite distinct from other contemporaneous architects' work. The precinct evolved from a Master Plan for the site conceived in 1921-22, and progressively implemented over the following 25 years. The six buildings display a cohesive design aesthetic originating with the design for the Former Margaret Graham Nurses' Home completed in 1911 (State Heritage Place No 13093), and continued in the work of successive architects in the Architect-in-Chief's Department, including the important South Australian architect George Gavin Lawson who was employed for a time in the Department. Their formal design and the aesthetic qualities of the group demonstrate an outstanding and original interpretation of Edwardian/Inter-War Free and Stripped Classical design in South Australia which evolved, with repeated scale and detail, over several decades from the early 1900s to the 1940s. The distinctive and original design vocabulary demonstrated by the buildings in the precinct was first introduced in the Margaret Graham Nurses' Home. As well as distinctive colonnaded verandahs to all levels the building displays a design vocabulary of bell cast roof forms, broad eaves with brackets, rendered rusticated plinth with face red brick walls above, and entrance porticoes with rusticated columns.

The essence of this style is further elaborated in the Bice Building (completed 1927) and repeated in later buildings in the North Terrace group, including the Women's Health Centre and Allied Health Services Building (both completed in 1935) and the McEwin Building (completed in 1946). These four finely-detailed multi-storied buildings are complemented by the simplified tempietto (temple-like) form of the small central Sheridan Building (1925). The exterior integrity of the group is high and together these five buildings present as a unified and readily recognisable precinct at the eastern end of the North Terrace streetscape.

As a prominent landmark, and the primary access point to the Royal Adelaide Hospital for most patients and visitors, the precinct has important cultural and social associations for the South Australian community as the focus for public health care and medical research for most of the state. The six buildings are significant both as contributory elements within a cohesive group, and individually.

The Former Margaret Graham Nurses' Home, on Frome Road, was listed in 1985 and is State Heritage Place 13093. Refer to the South Australian Heritage Register for details of the listing. The Sheridan Building (former Kiosk) is a small but distinctive octagonal structure located at the main entrance to the Hospital. It was completed in 1925, having been largely funded, under a private bequest from Alice Frances Keith Sheridan, and her sister Violet. It operated for many

years as a kiosk and tea-room, staffed by volunteers, and profits were used to purchase extra equipment for the hospital. It demonstrates the importance of philanthropy and volunteers in the provision of public facilities at this time. The building is notable for its formal design and aesthetic qualities, as an interpretation of the classical tempietto form applied to a small public building. It was designed by the Architect-in-Chief's Department along with other buildings in the group. It is an excellent representative of a small well-designed public building.

Completed in 1927, the four-storey Bice Building was the first of several multi-storey buildings proposed as part of the new Master Plan for the hospital developed in 1921/22. It comprised administration offices, accommodation for medical staff, and wards with open balconies. Its design reflects the needs of the evolving hospital site and modern theories of hospital design, which included cross ventilation and balconies and north-south orientation, to allow the benefits of sunlight and 'clean air' for patient care and cure. The formal design and aesthetic qualities demonstrate an outstanding and original interpretation of Edwardian/Inter-War Free Classical design. Designed by the Architect-in-Chief's Department it may have been influenced by the work of George Gavin Lawson. This distinctive style is repeated in other iterations in all the buildings in the North Terrace group.

The Women's Health Centre and Allied Health Services Building are also derived from the 1921-22 Master Plan for a larger and more efficient hospital, and are essentially intact and capable of demonstrating hospital design theories of the time. Construction of both buildings was delayed due to depressed economic conditions, and they did not open for patients until late 1935. The Women's Health Centre was originally built as the new Outpatients' Department and its design reflects an important change in medical practices, with the separation of outpatients' treatment from admission wards. Similarly, the Allied Health Services Building, originally the Casualty and Admissions Department, reflects contemporary theories of hospital design by incorporating a range of ward and room sizes, to provide patients with accommodation appropriate for their treatment. Both buildings repeat the distinctive style and design vocabulary established in the adjacent Bice Building.

Though not completed until 1946 due to the intervention of World War Two, the four-storey McEwin Building also belongs to the suite of multi-storeyed buildings first conceived in the early 1920s. Designed as the new Operating Theatre Block, it incorporated nine up-to-date general and specialised operating theatres, and well-equipped X-Ray department. It also included wards for surgical and medical cases, featuring balconies and sundecks for patient access to fresh air as an aid to recovery. Structurally, the building is a departure from the load-bearing face brick of its neighbours, being of steel-framed construction encased in concrete, with concrete floors and balconies, however the exterior is sheathed in face brickwork to harmonise with other buildings in the group. Its formal design and aesthetic qualities include the use of design details first established in the 1922 design for the adjacent Bice Building. The continuation of the earlier detail (particularly the bell cast roof form, rendered plinth and face red brick walls) by the architects in the Architect-in-Chief's department when developing the 1930s Stripped Classical design links the buildings together, while allowing the McEwin Building to be assessed as an individually aesthetically significant building in its own right.

Relationship with Proposed Development

The nearest heritage listed building on the former Royal Adelaide Hospital site is diagonally separated from the proposed GSA Student Housing development by the width of the North Terrace / Frome Road intersection, a distance of approximately 50 metres.

Impact of GSA Student Housing on Heritage Value

The proposed Student Housing development will have no physical impact on the fabric and identified heritage value of any buildings on the former Royal Adelaide Hospital site. The nearest building, the Women's Health Centre, will continue to demonstrate its association with the development of medical facilities in Adelaide.

The Hospital buildings, and in particular the Women's Health Centre, make a significant contribution to the streetscape of North Terrace and are a landmark on the corner of Frome Road and North Terrace. The proposed Student Housing development will not inhibit the ability of the Women's Health Centre and broader Hospital site to be a recognisable landmark in the precinct.

As a landmark building, the Hospital building is viewed from the east and west along North Terrace and from the southern footpath opposite. The new Student Housing will have a significant visual impact on views along North Terrace; however, the Hospital is separated from the development by the width of North Terrace.

The proposed building is clearly contemporary in form and the facades are well articulated, with clean horizontal and vertical lines and shadowing. A two storey colonnade at ground level will visually separate the tower and relate to the scale and mass of the heritage buildings adjacent.

The proposed forms do not attempt to replicate the style of the original buildings adjacent, including those on the Hospital site.

The proposed development will not impact on the heritage value or integrity of the Royal Adelaide Hospital.

5.0 Assessment of Proposed Development

5.1 Relevant Policy

The Adelaide (City) Development Plan provides the relevant statutory control for the development of sites adjacent state and local heritage places. Specific Heritage and Conservation objectives and principles are contained within the Development Plan.

The objectives and policies ensure that any development retains the heritage value and setting of a heritage place and ensures that its built form contribution to the locality is maintained. The objectives and policies guide development of sites adjacent heritage places to ensure that their context is not compromised and that appropriate development and conservation is undertaken.

Development should generally facilitate continued or adaptive re-use and utilise materials, finishes, setbacks, scale and other built form qualities that are complementary to the heritage place.

Development affecting a local heritage place requires development approval.

5.1.1 Council Wide Policy

With regard to Heritage and Conservation, the relevant broader Council-wide sections of the Adelaide (City) Development Plan (consolidated 20 June, 2017) are included below. Each policy statement is followed by a comment assessing the impact of the proposed development on each of the relevant provisions.

Objective 42: Acknowledge the diversity of Adelaide's cultural heritage from pre-European occupation to current time through the conservation of heritage places and retention of their heritage value.

Comment

The proposed redevelopment at 266 North Terrace will be constructed on a cleared and vacant site. No part of the proposed development will have direct physical contact, and therefore impact, on any of the heritage places adjacent the site. The retention of the heritage value of those places will be assured.

GSA does not own the adjacent heritage listed properties; therefore, conservation of those places is not to be considered as part of this development.

The proposed GSA Student Housing development will provide a strongly contrasting and contemporary backdrop to the adjacent heritage listed buildings, further enhancing the richness and form of the existing nineteenth century building forms.

Objective 43: Development that retains the heritage value and setting of a heritage place and its built form contribution to the locality.

Comment

The proposed GSA Student Housing development will be located on a cleared site bounded on two sides by streets (North Terrace and Frome Street), by a new development to the south (The Adelaidean) and by a state heritage place to the west. The proposed development will not detract from the ability of the adjacent heritage place to contribute to the built form of the locality as it will have no direct physical impact on the adjacent places.

Refer to Section 4 above for the discussion on the impact on the heritage value of the individual places.

The proposed development will impact on the broader setting of the heritage places in different ways. This impact will largely be noticed as people move along North Terrace. As the site is approached from the west, the adjacent heritage places will be viewed with the new development as a partial backdrop, separated by the adjacent buildings (with the exception of 263-265 North Terrace, which is immediately adjacent).

As the site is approached from the east, adjacent heritage places will be viewed beyond the development, with the Student Accommodation building being a visual focus of the North Terrace / Frome Street intersection.

Refer to Section 5 above for the discussion on the impact on the heritage value of the individual places.

Principle 140: Development on land adjacent to a heritage place in non-residential Zones or Policy Areas should incorporate design elements, including where it comprises an innovative contemporary design that:

- (a) utilise materials, finishes, and other built form qualities that complement the adjacent heritage places; and
- (b) is located no closer to the primary street frontage than the adjacent heritage place.

Comment

The proposed development will be located immediately adjacent a state heritage place (263-265 North Terrace), with two further places to the west of that (261, Grand Lodge of Freemasons).

The proposed GSA Student Accommodation building has been carefully designed in a contemporary manner to contrast with, highlight and reinforce the rich modulation of the adjacent heritage places, rather than replicate any of their materials, finishes or proportions. For a development of its scale and typology, direct incorporation of any elements of the nineteenth century place into the new forms would be incongruous.

The proposed development makes reference to the punched, vertical proportions of the adjacent heritage places, through the vertical proportions of the glazing panels, the expressed vertical structural elements that articulate the façade, the play of light and shade across the facades and the horizontal banding across the elevations.

The proposed GSA Housing building has been designed to respond to the height of the adjacent state heritage place, by creating a two level colonnade at the building base that references the eaves height of that place. The recessed colonnade acts as a form of verandah shelter around the base of the new development and allows greater views of the existing building than currently exists. The proposed café on the north western corner of the development is setback to the front wall line of the heritage place, and has no solid building forms in the zone. That will allow the northern elevation of the place, which includes the ornate verandah and bay window, to be more visible from North Terrace.

The proposed GSA Accommodation Building will be constructed to the North Terrace and

Frome Street boundaries at mezzanine level, but will be set back and articulated with angled walls at ground level. As indicated above, this will create an open colonnaded effect to North Terrace and Frome Street. The existing building on the site creates a hard edge to both street frontages, so the proposed development will provide an improved context and setback for the presentation of the existing heritage place.



Figure 29: Proposed setback adjacent 263-265 North Terrace.

Source: Rothelowman, 2017



Figure 30: The proposed café area.

The ground and first floor has been cut back to increase the visibility of the heritage places adjacent.

Principle 142: Development that abuts the built form / fabric of a heritage place should be carefully integrated, generally being located behind or at the side of the heritage place and

without necessarily replicating historical detailing, so as to retain the heritage value of the heritage place.

Comment

As indicated above, the proposed GSA Student Housing building will be constructed to the property boundaries at upper levels. As a consequence, the building will be constructed forward of the front façade of the heritage place. This issue is exacerbated by the fact the heritage place at 263-265 North Terrace was constructed as a dwelling, not a commercial property, at a time when the southern side of North Terrace consisted of predominantly residential properties. As Adelaide has developed, land uses have changed and most of the residences have been replaced with commercial buildings built to the North Terrace boundary. That is the case with the existing building at 266 North Terrace, which was constructed to the footpath alignment. The proposed development will return the land use to a residential use that existed along that portion of North Terrace originally, but will replicate the existing building footprint. As a consequence, it will not be located behind, or to the side, of the state heritage place adjacent.

The mezzanine level junction with the state heritage place at 263-265 North Terrace has been carefully considered and will be set back behind the line of the upper level façade of the heritage place. This will allow the junction to be articulated, and the existing original detail to be retained without impact or compromise. The recessed junction will be shaded for most of the day, and will be viewed as a darker section of the façade. This will create a sense of visual separation between the existing heritage place and the new development.

A green wall is proposed around the base of the building, including the west facing wall abutting the heritage place adjacent. This will visually soften the juxtaposition between old and new.



Figure 31: The proposed café area.

The ground and first floor has been cut back to increase the visibility of the heritage places adjacent.

5.1.2 Capital City Zone

The Adelaide Council Development Plan includes the subject site in the Capital City Zone.

With regard to 69 Light Square, the following comments are considered relevant:

Desired Character

New development will achieve high design quality by being:

(a) **Contextual** – so that it responds to its surroundings, recognises and carefully considers the adjacent built form, and positively contributes to the character of the immediate area.

Comment

As indicated above, the proposed GSA Student Accommodation building has been carefully designed in a contemporary manner to contrast with, highlight and reinforce the rich modulation of the adjacent heritage places, rather than replicate any of their materials, finishes or proportions. For a development of its scale and typology, direct incorporation of any elements of the nineteenth century place into the new forms would be incongruous.

The proposed development makes reference to the punched, vertical proportions of the adjacent heritage places, through the vertical proportions of the glazing panels, the expressed vertical structural elements that articulate the façade, the play of light and shade across the facades and the horizontal banding across the elevations.

The proposed GSA Student Housing building has been designed to respond to the height of the adjacent state heritage place, by creating a two level colonnade at the building base that references the eaves height of that place. The recessed colonnade acts as a form of verandah shelter around the base of the new development and allows greater views of the existing building than currently exists. The proposed café on the north western corner of the development is setback to the front wall line of the heritage place, and has no solid building forms in the zone. That will allow the northern elevation of the place, which includes the ornate verandah and bay window, to be more visible from North Terrace.



Figure 32: Diagram indicating colonnade façade treatment

Contemporary juxtapositions will provide new settings for heritage places. Innovative design is expected in areas of identified street character with an emphasis on contemporary architecture that responds to site context and broader streetscape, while supporting optimal site development. The addition of height, bulk and massing of new form should be given due consideration in the wider context of the proposed development.

Comment

The proposed GSA Student Accommodation building has been designed in a contemporary manner to contrast with, highlight and reinforce the rich modulation of the adjacent heritage places, rather than replicate any of their materials, finishes or proportions. For a development of its scale and typology, direct incorporation of any elements of the nineteenth century place into the new forms would be incongruous.

As indicated above, the proposed development makes reference to the punched, vertical proportions of the adjacent heritage places, through the vertical proportions of the glazing panels, the expressed vertical structural elements that articulate the façade, the play of light and shade across the facades and the horizontal banding across the elevations.

The proposed Student Housing building has been designed to respond to the height of the adjacent state heritage place, by creating a two level colonnade at the building base that references the eaves height of that place. The recessed colonnade acts as a form of verandah shelter around the base of the new development and allows greater views of the existing building than currently exists. The proposed café on the north western corner of the development is setback to the front wall line of the heritage place, and has no solid building forms in the zone. That will allow the northern elevation of the place, which includes the ornate verandah and bay window, to be more visible from North Terrace.

A contemporary design approach has also been taken to respond to the wide variety of architectural styles and building ages within the Zone. Specifically, the design has taken a similar contemporary approach as the Adelaidean apartment tower to the south on Frome Street. The Adelaidean tower (34 storeys) is a similar height to this development (33 storeys), with a secondary tower to the south west of 20 storeys. As such, the proposed GSA Student Accommodation development responds to the multi-level height of the wider context, and to the two-storey height and scale of the heritage listed places to the west of the site



Figure 33: North Terrace relationship with 263-265 North Terrace

Objectives

Objective 5: Innovative design approaches and contemporary architecture that responds to a building's context.

Comment

As described above, the proposed GSA Student Accommodation development is a clearly contemporary and innovative design that responds to the immediate heritage context on North Terrace, and the broader context across the surrounding streets. The new apartment tower is clearly contemporary in appearance and design, and utilises current building materials and methodologies. As described above, the development responds to the context provided by the adjacent heritage listed buildings and new multi-level structure to the south.

Objective 8: Development that contributes to the Desired Character of the Zone.

Comment

The proposed development will contribute to the ongoing activation of North Terrace and will reinforce its role as an important pedestrian promenade. As indicated above, the design responds to the immediate and broader site context in a contemporary and innovative manner, and will provide a strong built form edge to North Terrace. The colonnade level will reinforce the scale and form of the 19th Century buildings adjacent and opposite the site, thereby retaining and celebrating their character and contribution to the streetscape.

5.2 Assessment Summary

The design intent for the proposed development at 266 North Terrace is to deliver a contemporary and innovative student accommodation building that will invigorate and activate the corner of North Terrace and Frome Street.

The proposal has been designed to a high and considered architectural standard in a clearly contemporary manner that avoids replication of historic forms and details. The design intent is to complement the existing heritage places and general character of North Terrace by contrasting, rather than competing, with the selection of materials and forms.

The design proposed combines materials, finishes, and colours on a contemporary tower form that is complementary to the fabric and character of the adjacent historic buildings. Although the scale of the proposed development exceeds that of the surrounding buildings, the careful articulation and modulation of the facades will reduce the visual bulk and mass of the structure.

The development will be located immediately adjacent a State Heritage Places – the former dwelling at 263-265 North Terrace, and in the vicinity of several other state heritage places. The impact of the new building has been carefully considered to minimise detrimental impact on its neighbours.

The proposed development will not have any physical impact on any of the heritage listed properties adjacent the site. The setting of several of the properties will be affected, in that the proposed development will impact on views of those places. That impact will be in the form of new built forms in the backdrops of current views.

Despite this, it is considered that the development at 266 North Terrace will not detract from the heritage value of the adjacent state heritage listed properties.

5.3 Conclusion of Heritage Impact

We have reviewed the drawings prepared by Rothelowman and considered the likely impacts of the proposed development on the heritage value of the adjoining heritage listed places

We have also considered the requirements for heritage places contained within the Adelaide (City) Development Plan, and conclude that the proposed GSA Student Housing development building at 233 North Terrace will not diminish the heritage value of the adjacent state heritage listed places.

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17-312



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23 February, 2018

Mr Damien Ellis Director INTRO DESIGN PTY LTD Level 11, 44 Waymouth Street ADELAIDE SA 5000

Dear Damien

Architectural Opinion, Proposed Built Form, 266 North Terrace Adelaide

Thank you for approaching Hosking Willis Architecture to provide an independent architectural opinion about the proposed built form at 266 North Terrace, Adelaide.

We understand that the Office for Design and Architecture SA has provided correspondence to DPTI, dated 7 February, 2018, raising a number of concerns about the design for the GSA Student Housing development at 266 North Terrace.

Location of the Place

The site is located on the south west corner of the intersection of North Terrace and Frome Street. The existing building is believed to have been constructed as the Christian Science Church in the 1950's / 60's.

Two two-storey buildings are located to the west of the site, with the Grand Lodge of Freemasons Centre, a five to six storey structure to the west of that. The University of South Australia is located on the northern side of North Terrace, and the old Royal Adelaide Hospital diagonally opposite on the north east corner of the intersection of North Terrace and Frome Road. An open lot carpark and a modern two-storey commercial building is located on the eastern side of Frome Street.

Immediately to the south of the site, construction has commenced on The Adelaidean, a multi-level residential development.

Proposed Development

The proposed GSA Student Housing development is a 33-storey development, with a distinctive architectural form. The development has been conceived as an innovative student housing model, with varying levels of communal spaces, intended to develop a vertical collegiate experience for inhabitants. Accommodation types range from multi-bed apartment like rooms to larger studio and one-bedroom apartments on upper levels.

The external form of the development is broken into five distinct forms – two bands of expressed communal floors at ground and mid-level, a similar architectural treatment to the roof plant with a solar-collector roof, and two distinct blocks containing the





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accommodation levels. At ground level, which houses café, foyer, administration and back of house services, and the mezzanine level, which houses co-working space, student lounges, laundry and storage spaces, the external cladding is described by the architects as a fractal pavilion. Angular external walls inspired by quasicrystals, provide some random lines compared to the more structured external footprint of the floors above. The angular walls create a slightly recessed and sheltered façade, responding in a contemporary manner to the traditional verandahs on the heritage places adjacent. This typology is repeated in Levels 12 and 13, where student kitchens, lounges and balconies are located. The roof plant is disguised in a similar manner.

The accommodation levels are treated in a more traditional 'high-rise' manner, with expressed vertical structure and cantilevering floor slabs. The lower block of accommodation, from levels 2 to 11, includes a projecting, gently curving concrete shell shape – prefabricated curved forms that are attached to the primary structural columns. These forms act as vertical lightweight screens, articulating and shading the façade and providing deep recesses for the play of light and shade. At the mid communal levels the columns taper to transition to the upper tower. From levels 14 to 33 the columns reduce in section and width to accentuate the form of the tower. This emphasises the verticality of the structure and simplifies the level of articulation at the higher levels.

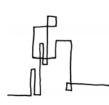
The communal levels, where the structure tapers to transition from the curving 'Entasis Form' to the Upper Tower form, provide a visual relief to the form of the building that relates to the scale of the surrounding heritage buildings.

The primary cladding proposed is a stick framed aluminium panel system, with pre-finished coating systems, interspersed with glazing. The cladding material is proposed in a combination of bronze and charcoal colours, with the glazing a combination of light and dark grey depending upon location. The structural form will be white. Green walls are proposed at the ground and first floor levels to provide a softer and climatically responsive environment.

The development will include 334 accommodation units, with a total bed provision for 687 students. This will be achieved with a total net lettable floor area of 11,342m2. The architectural approach has been to provide a building with a civic scale and presence that sits amongst an eclectic variety of surrounding architectural styles. These range from the larger institutional buildings of the universities and former Royal Adelaide Hospital site, to the small residential buildings adjacent. The design has sought to visually express the functions of the uses and activities within the building, that is sited on a significant North Terrace intersection.

ODASA comments

There were a number of issues raised in the correspondence by Mr Nick Tridente. The following comment responds to the various issues from an architectural and heritage perspective.





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North Terrace is described as a 'Ceremonial Boulevard' in the Adelaide Design Manual, with buildings defined by their grand scale, institutional architecture and that reflect the symmetry and order of Colonel Light's Plan. The location of the site is considered significant as the City's gateway and it offers a unique opportunity for a corner development.

The design response for 266 North Terrace has taken into account that it is located opposite one of a number of Gateways into the City – Frome Road. Having said that, there are a number of Gateways that are more important and that have a greater visual importance – the North Terrace and West Terrace corners in particular.

The proposed development addresses both Frome Street and North Terrace, with the building entrance addressing the corner, and defining the intersection. The architectural solution provides visual interest to the corner and will activate the streetscape at pedestrian level.

It will be critical that the proposal presents a convincing response to the established character of the City's premier boulevard, which in my opinion, is yet to be successfully demonstrated.

In my view the character of North Terrace, the Cultural Boulevard, is sufficiently disparate that a convincing response could take any number of forms. The site sits within a context of low rise (2-5 storey) heritage buildings. It would be inappropriate and ill-conceived to transfer a low height heritage vernacular to a multi-level (119m high) building. There is no precedence in South Australia for a building typology of that scale.

The immediate backdrop to the development (The Adelaidean) will be a high quality residential development with strong horizontal lines and low solid to void ratio; that is, it will be clad almost entirely in glass. The form of that building makes no particular reference to the surrounding character and context, and will also be highly visible from North Terrace.

The proposed GSA development will comprise strong vertical lines, with expressed floor plates and glazed infill panels. The level of articulation and visual interest will be appropriate to the surrounding low scale context.

The contemporary cladding materials and strong vertical lines are typical of a number of recent and proposed developments along North Terrace, including the UniSA and Adelaide University health buildings adjacent the Morphett Street bridge. The proposed approach is of a contemporary nature with a high level of façade articulation. Other projects previously approved, but yet to be built, also feature high levels of glazing behind heritage listed buildings.

I do not support the current setback of the bottom two floors. It is my view that the setting back of the walls at the street level is inconsistent with the established built form





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pattern of the precinct and is contrary to the to the ambition of the Development Plan to provide a continuous built form to frame the City edge. I am particularly concerned by the setback at the prominent street corner, which in my opinion, erodes the building's corner presence. I recommend review of the built form response at the street level, with the view to provide a strong corner built form to the City edge.

The setbacks proposed for the GSA development have been amended to take into account the comments provided by Mr Tridente. They are now very minor in depth and are intended to provide visual interest and contrast with the rectilinear form of the upper levels. The angular nature of the setbacks will mean that the building will still present visually with a hard edge to the street, and when viewed obliquely along North Terrace and Frome Street, will effectively provide built form to the boundary.

The setback at the north western corner is intended to provide a seating area for the proposed café, an activity and space that will allow activation of the footpath.

The setback at the corner of North Terrace and Frome Street is to highlight the building entry, which addresses the corner rather than either Frome Street or North Terrace. This provides a more dramatic and 'ceremonial' entrance to the building.

The vertical structural system comprises vertical columns at relatively close centres, particularly to the North Terrace and Frome Street elevations. Those columns define the street edge more dominantly than the angular walls and landscaping. As such, the column colonnade does reinforce the established built form pattern with building elements to property boundaries.

It should be noted that the properties immediately to the west on North Terrace are set back by several metres from the North Terrace boundary. Consequently, the immediate context is significantly more inconsistent with the established built form pattern of the precinct that Mr Tridente seeks the GSA development to reinforce.

It should also be noted The Adelaidean to the south of the site has been approved with building setbacks at ground level to improve the pedestrian flow along Frome Street. The setbacks appear to be in the order of 2.0m.

I am of the view that the proposed development will strongly define the street corner, provide a continuous frame to the City edge, and successfully reinforce the established built form pattern of the streetscape.

I am also concerned by the encroachment of vertical fins over the north and east boundaries, as in my opinion the encroachments are not 'minor' as described within the Adelaide City Council's operating guidelines. Furthermore, the fins form a critical part of the overall built form architectural expression and the identity of the proposal, which in my view, should be accommodated within the site boundaries.





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As indicated, the fins form a critical part of the architectural form and design concept. Following discussion with Mr Tridente the fins and tapering columns have been deleted to the upper tower, and reduced in horizontal projection on the lower section of the tower.

This compromise solution retains the architectural expression of the north and east facades, and reinforces the built form edge and established built form pattern of the adjacent streetscape.

The indentations have created small and unusable landscaped spaces, which in my opinion, compromise the visual and physical permeability of the building at street level and prohibits the meaningful engagement between the development and adjoining streets.

Following receipt of the comment from Mr Tridente, the indentations at street level have been significantly reduced in depth, with the fractal nature of the façade projecting much more consistently to the street boundary. As a result of this amendment the visual and physical permeability of the building will be substantially improved at street level. This will emphasise the engagement between the development and the adjacent streets, which was previously provided by the entry foyer and café.

The architectural expression of the proposal is characterised by a skeleton of vertical concrete fins infilled with glazing and light weight metal panels. I do not support the proposed expression, as in my view, its low solid to void ratio is highly inconsistent with the established character of North Terrace, particularly in this cultural precinct with a number of significant historic buildings.

As indicated above, the architectural context of North Terrace is disparate. The adjacent heritage listed buildings form a low-level context (2-5 storeys) that would be difficult and inappropriate to emulate over a 33-storey building. Applying the existing solid to void ratio evident on the heritage buildings would create an insular building with reduced capacity to visually connect with the interiors and thereby activate the streetscape.

This insular approach is evident in other buildings on North Terrace, and results in large buildings with little variation in façade activity or fluctuations in lighting. These buildings provide façade articulation and solidity, but have little connection between the interior and exterior. The proposed design has the potential for greater activity and variation (curtains, blinds, lighting, people movement) that will contribute to the vitality of the building.

As indicated previously, the immediate backdrop to the development (The Adelaidean) will be clad almost entirely in glass. The form of that building makes no reference to the solid to void ratio of the North Terrace character and context, but will be highly visible from North Terrace.

The contemporary cladding materials, large areas of glazing and strong vertical lines are typical of contemporary design trends, with a number of recent and proposed





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developments along North Terrace. These include the UniSA and Adelaide University health buildings adjacent the Morphett Street bridge. The proposed approach is of a contemporary nature with a high level of façade articulation.

I am of the view that the scale of the angled indentation is disproportionately small in comparison to the scale of the overall building to be visually meaningful.

The angled indentations articulate the overall mass of the proposed development by breaking the height midway up the building. The angled, and coloured, sections also create a 'base' and 'top' to the building, providing a visual and design continuity over its height.

I am of the view that the angled indentations, combined with the contrasting colours and materials proposed, are sufficiently large to effectively articulate the building and provide visual interest over the height of the building. The significant reduction in size of the landscape areas at street level will further emphasise the angled fractals, heightening their visual contribution to the development.

Summary

Having reviewed the development application drawings for the proposed GSA Student Accommodation building at 266 North Terrace, I am of the view that the proposed development is a suitable design response to the surrounding heritage buildings, the broader 'Cultural Boulevard' context and the 'gateway' status of the North Terrace / Frome Street intersection.

Please let me know if any further comment or explanation is required.

Yours sincerely

Sam Hosking Director



GSA Student Housing Adelaide

266 North Terrace, Adelaide

Noise Assessment

S5436C2

October 2017

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Sonus Pty Ltd 17 Ruthven Avenue Adelaide 5000 SA www.sonus.com.au +61 (8) 8231 2100 GSA Student Housing, 266 North Terrace, Adelaide Noise Assessment S5436C2 October 2017

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Noise Assessment

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Date : October 2017

Author : Chris Turnbull, MAAS

Reviewer : Jason Turner, MAAS

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1 INTRODUCTION

A noise assessment has been conducted for the proposed student housing development at 266 North Terrace, Adelaide.

The assessment considers the following noise sources:

- traffic and street activity on surrounding roads; and,
- Rubbish collection, mechanical plant and equipment at the proposed development.

The assessment has been based on:

- Rothelowman drawings "TP01.00" to "TP01.03" (inclusive), "TP01.07", "TP01.13" to "TP01.15" (inclusive), and "TP03.01", with Project number "217091" and dated 23 October 2017; and,
- a site inspection of the existing premises and surrounding area on 5 October 2017.

The key noise issue for the site is the impact of traffic on North Terrace and Frome Street on the amenity of the development. A tram line is currently being constructed along North Terrace and this construction activity has fundamentally changed the traffic flow and resultant noise environment. As current noise levels are not representative of the future noise environment, this report presents preliminary facade acoustic treatments to achieve the relevant criteria for road traffic and trams as a method of indicating that the Development Plan can be satisfied. It is proposed to update the recommended façade construction during the design stage of the project once the road and tram modifications are complete and the resulting acoustic environment can be accurately determined.

In addition, a preliminary assessment of the environmental noise from mechanical plant operating and rubbish collection at the proposed development has been conducted.

2 DEVELOPMENT PLAN

The subject site is located within a Capital City Zone (Central Business Policy Area) of the City of Adelaide Development Plan (consolidated 20 June 2017). The Development Plan has been reviewed and particular regard has been given to the following Council Wide provisions:

OBJECTIVES

- Objective 9: High-quality student accommodation that creates an affordable, safe, healthy and comfortable living environment.
- Objective 22: Medium to high scale residential (including student accommodation) or serviced apartment development that:
 - (a) has a high standard of amenity and environmental performance;

...

- Objective 26: Development that does not unreasonably interfere with the desired character of the locality by generating unduly annoying or disturbing noise.
- Objective 27: Noise sensitive development designed to protect its occupants from existing noise sources and from noise sources contemplated within the relevant Zone or Policy Area and that does not unreasonably interfere with the operation of non-residential uses contemplated within the relevant Zone or Policy Area.

PRINCIPLES OF DEVELOPMENT CONTROL

- 68. Medium to high scale residential or serviced apartment development close to high noise sources (e.g. major roads, established places of entertainment and centres of activity) should be designed to locate noise sensitive rooms and private open space away from noise sources, or be protected by appropriate shielding techniques.
- 89. Development with potential to emit significant noise (including licensed entertainment premises and licensed premises) should incorporate appropriate noise attenuation measures in to their design to prevent noise from causing unreasonable interference with the amenity and desired character of the locality, as contemplated in the relevant Zone and Policy Area.
- 93. Mechanical plant or equipment should be designed, sited and screened to minimise noise impact on adjacent premises or properties. The noise level associated with the combined operation of plant and equipment such as air conditioning, ventilation and refrigeration systems when assessed at the nearest existing or envisaged noise sensitive location in or adjacent to the site should not exceed
 - (a) 55 dB(A) during daytime (7.00am to 10.00pm) and 45 dB(A) during night time (10.00pm to 7.00am) when measured and adjusted in accordance with the relevant environmental noise legislation except where it can be demonstrated that a high background noise exists.

•••

- 94 To ensure minimal disturbance to residents:
 - (a) ancillary activities such as deliveries, collection, movement of private waste bins, goods, empty bottles and the like should not occur:



- (i) after 10.00pm; and
- (ii) before 7.00am Monday to Saturday or before 9.00am on a Sunday or Public Holiday.
- 95. Noise sensitive development should incorporate adequate noise attenuation measures into their design and construction to provide occupants with reasonable amenity when exposed to noise sources such as major transport corridors (road, rail, tram and aircraft), commercial centres, entertainment premises and the like, and from activities and land uses contemplated in the relevant Zone and Policy Area provisions.
- 96. Noise sensitive development in mixed use areas should not unreasonably interfere with the operation of surrounding non-residential uses that generate noise levels that are commensurate with the envisaged amenity of the locality.
- 97. Noise sensitive development adjacent to noise sources should include noise attenuation measures to achieve the following:
 - (a) satisfaction of the sleep disturbance criteria in the bedrooms or sleeping areas of the development as defined by the limits recommended by the World Health Organisation;
 - (b) the maximum satisfactory levels in any habitable room for development near major roads, as provided in the Australian/New Zealand Standard AS/NZS 2107:2000 'Acoustics Recommended Design Sound Levels and Reverberation Times for Building Interiors'; and
 - (c) noise level in any bedroom, when exposed to music noise (L_{10}) from existing entertainment premises, being:
 - (i) less than 8 dB above the level of background noise ($L_{90,15 \text{ min}}$) in any octave band of the sound spectrum; and
 - (ii) less than 5 dB(A) above the level of background noise ($L_{A90,15\,min}$) for the overall (sum of all octave bands) A-weighted levels.

Background noise within the habitable room can be taken to be that expected in a typical residential/apartment development of the type proposed, that is inclusive of internal noise sources such as air conditioning systems, refrigerators and the like as deemed appropriate.

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3 ASSESSMENT CRITERIA

3.1 Noise Ingress to the Development

The noise sources with the greatest potential to impact upon the development are road traffic, and the future tram activity on North Terrace.

In relation to the appropriate criteria for the intrusion of noise into a housing development, the assessment considers the relevant provisions of the Adelaide City Council Development Plan which refer to the recommendations of the Australian Standard *AS 2107:2000 – Acoustics – Recommended design sound levels and reverberation times for building interiors* and the World Health Organisation Guidelines with respect to sleep disturbance.

Notwithstanding the above, due to current construction works to install the future tram line, the current noise environment does not provide a good representation of noise levels which should be expected at the proposed development. The assessment has therefore considered the Minister's Specification *SA 78B Construction requirements for the control of external sound* to provide a contemporary approach, which provides an assessment method which does not require the existing noise levels to be measured. The treatments in this report are therefore indicative and should be rationalised as the design progresses and relevant measurements of traffic and tram noise in the vicinity are able to be obtained.

3.1.1 Minister's Specification SA 78B

The intent of Minister's Specification *SA 78B Construction requirements for the control of external sound* (SA 78B) is to protect the occupants of residential buildings from the sound intrusion of transport (being both road and rail) corridors and from mixed use activity. To this end, SA 78B establishes internal noise levels or "performance requirements".

For a particular site, the need to comply with SA 78B is established by "designation" in the Development Plan. The subject site has not been designated in the Development Plan and therefore SA 78B does not strictly apply but rather is utilised to provide an indication of the acoustic treatments to address traffic and tram noise impacts, noting that SA78B provides a contemporary approach and a method for assessing both traffic and future tram noise based on the setback distance from the transport corridors.

The objective assessment criteria applied to the development for internal noise levels are detailed in Table 1, which have been extracted from SA 78B.

Table 1: Noise criteria provided by SA 78B for transport corridors.

Type of room	Internal Sou	Applicable time	
Type of footi	Average for total number of rooms	Maximum for individual room	period
Bedroom	30 <i>dB(A)</i> L _{Aeq, 9hr (transport)} 30 <i>dB(A)</i> L _{Aeq, 15min (people)}	35 $dB(A)$ L _{Aeq, 9hr (transport)} 35 $dB(A)$ L _{Aeq, 15min (people)}	Night (10pm to 7am)
Other habitable room	35 <i>dB(A)</i> L _{Aeq, 15hr}	40 dB(A) L _{Aeq, 15hr}	Day (7am to 10pm)

It is noted that these criteria are more onerous than the recommendations of AS2107 for student accommodation, which are summarised in Table 2:

Table 2: Recommended noise levels of AS2107.

Type of Occupancy/Activity	Recommended Design Sound Levels (dB(A))
Sleeping areas	35 to 40
Common areas	40 to 45
Kitchen and service areas	45 to 55
Reception and admin	40 to 45

3.2 Noise from the Development

Potential noise sources at the development are plant and equipment associated with the mechanical services system and the collection of rubbish.

3.2.1 Mechanical Plant

Objective criteria have been considered for the design of the mechanical services system in order to prevent adverse impacts at the existing and approved surrounding dwellings.

CWPDC 93 of the City of Adelaide Development Plan provides the relevant objective criteria for noise from mechanical plant and equipment at the development, which are as follows:

- 55 dB(A) L_{Aeq} during the daytime (7am to 10pm); and,
- 45 dB(A) L_{Aeq} during the night-time (10pm to 7am).

The criteria are to be achieved with the noise measured and adjusted at the nearest existing and approved noise-sensitive land use in accordance with the *Environment Protection (Noise) Policy 2007*.

3.2.2 Rubbish Collection

Council-wide Principle 94 of the City of Adelaide Development Plan deals with waste collection and deliveries by effectively limiting the hours to the least sensitive portions of the day. The Development Plan requires that deliveries and waste collection only occur between the hours of 9am and 7pm on a Sunday or public holiday, and between 7am and 10pm on any other day. In the circumstance where the development incorporates an arrangement which can satisfy the onerous requirements of the *Environment Protection* (Noise) Policy 2007, then it is considered that the times may be extended without adversely impacting on the amenity of the surrounding area.

4 ASSESSMENT

4.1 Noise Ingress to the Development

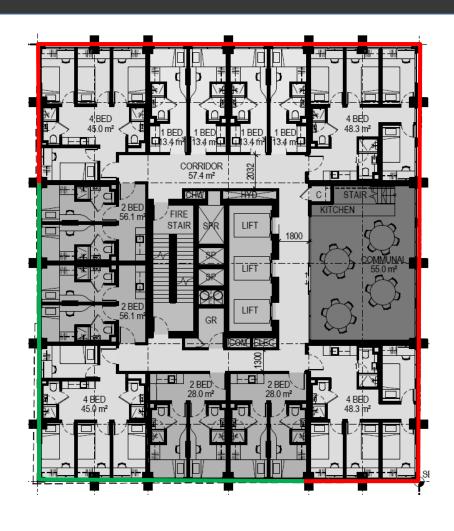
4.1.1 Noise from Traffic

SA 78B provides a "Deemed to Satisfy" assessment approach, which assigns each facade a sound exposure category based on the transport corridor "type" and the distance to the corridor. The subject site is not within the designated area of the Development Plan, however the South Australian Planning Policy Library "Technical Information Sheet 8 – Noise and Air Emissions – Overlay 3" classifies both North Terrace and Frome Street as "Type B" roads.

Based on the separation distance from the road and future tram corridor, the following table and mark-up summarises the relevant façade categories for the development.

Facade	Levels	Category	
	2-4	3	
Red Portion	5-10	2	
Ked Portion —	11	1	
	14-18	1	
	2-8	2	
Green Portion	9-11	1	
	14-16	1	

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4.1.2 Recommended Acoustic Treatment

North

Based on the "deemed to satisfy" assessment approach, the following minimum building constructions are required for each of the facade sound exposure categories, as well as specific glazing, subject to the ratio of floor area to glass and the room type;

	ACOUSTIC REQUIREMENTS OF SA78B			
BUILDING ELEMENT	Facade Category	Requirement		
Forbarra Lucalla	1	Wall construction which achieves an $R_w + C_{tr}$ of 45 or higher. The acoustic rating car be achieved with a minimum 100mm thick concrete panel.		
External walls	2 & 3	Wall construction which achieves an $R_w + C_{tr}$ of 50 or higher. The acoustic rating can be achieved with a minimum 150mm thick concrete panel.		
Ventilation Ventilation Ventilation All then that ventilation system must be designed to achieve an R _w Typically this would comprise an acoustically lined flexible duct betw and opening into the fresh air inlet of an air conditioning unit; however		If outside air ventilation, other than openable windows, is provided across a facade then that ventilation system must be designed to achieve an $R_{\rm w}$ rating of 40. Typically this would comprise an acoustically lined flexible duct between the vent and opening into the fresh air inlet of an air conditioning unit; however, ventilation in this form is unusual in a dwelling. Further advice can be provided if such a ventilation system is desired.		

Based on the current glazing to floor area ratios, the following table summarises the glazing requirements for different rooms of the development. It is noted that some areas are outside the scope of the deemed to satisfy assessment method and the requirements for these areas have been determined based on predictions using the noise levels provided in SA 78B. These selections are identified by the use of a * in the following table.

	ACOUSTIC REQUIREMENTS OF SA78B		
Room type / Glazing Extent	Facade Category	Requirement	
	1	Glazing which achieves an $\mathbf{R_w}$ + $\mathbf{C_{tr}}$ of 37 or higher. The acoustic rating can be achieved with 12.5mm thick VLam Hush Glass.	
	2 <u>*</u>	Minimum double glazing consisting of one layer of 4mm thick glass and one layer of 6mm thick glass at a cavity of 150mm.	
	3*	Minimum double glazing consisting of one layer of 10mm thick glass and one layer of 6mm thick glass at a cavity of 200mm.	
	1	Glazing which achieves an R_w+C_{tr} of 37 or higher. The acoustic rating can be achieved with 12.5mm thick VLam Hush Glass.	
	2*	Minimum double glazing consisting of one layer of 4mm thick glass and one layer of 6mm thick glass at a cavity of 150mm	
	3*	Minimum double glazing consisting of one layer of 10mm thick glass and one layer of 6mm thick glass at a cavity of 200mm.	
1 BED 13.4 m ²	1	Glazing which achieves an $R_w + C_{tr}$ of 31 or higher. The acoustic rating can be achieved with 10mm thick glass.	
	2	Glazing which achieves an $\mathbf{R_w}$ + $\mathbf{C_{tr}}$ of 34 or higher. The acoustic rating can be achieved with minimum 8.5mm thick VLam Hush Glass.	
	3*	Minimum double glazing consisting of one layer of 4mm thick glass and one layer of 6mm thick glass at a cavity of 150mm	

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Room type / Glazing Extent	ACOUSTIC REQUIREMENTS OF SA78B		
	1	Glazing which achieves an $\mathbf{R_w}$ + $\mathbf{C_{tr}}$ of 34 or higher. The acoustic rating can be achieved with minimum 8.5mm thick VLam Hush Glass.	
	2*	Minimum 12.5mm thick VLam Hush Glass	
	3*	Minimum double glazing consisting of one layer of 4mm thick glass and one layer of 6mm thick glass at a cavity of 150mm	
	1	Glazing which achieves an $R_w + C_{tr}$ of 34 or higher. The acoustic rating can be achieved with minimum 8.5mm thick VLam Hush Glass.	
	2*	Minimum 12.5mm thick VLam Hush Glass	
	3*	Minimum double glazing consisting of one layer of 4mm thick glass and one layer of 6mm thick glass at a cavity of 150mm	
DDA	1	Glazing which achieves an $\mathbf{R_w} + \mathbf{C_{tr}}$ of 31 or higher. The acoustic rating can be achieved with 10mm thick glass.	
27.7 m ²	2	Glazing which achieves an $\mathbf{R_w} + \mathbf{C_{tr}}$ of 34 or higher. The acoustic rating can be achieved with minimum 8.5mm thick VLam Hush Glass.	
ø 2250	3*	Minimum double glazing consisting of one layer of 4mm thick glass and one layer of 6mm thick glass at a cavity of 150mm	

4.2 Noise from the Development

4.2.1 Mechanical Plant

The designated location for mechanical plant on top of the roof and within the basement provides shielding and a good separation distance between the plant and surrounding existing and approved dwellings. As final equipment selections are not available at the Development Application stage of a project, a preliminary assessment has been conducted to determine whether the established noise criteria can be practicably achieved during the detailed design stage.

As the layouts progress through the detailed design phase of the project, acoustic treatments will be incorporated into the design documentation to ensure compliance with the project criteria recommended above.

Notwithstanding, the assessment criteria are expected to be practicably achieved with the following acoustic treatment;

- Screening of the rooftop plant from the future residential development to the south; and,
- Specific ventilation systems using acoustic treated ductwork and / or attenuators to the plant area at the ground and basement levels.

4.2.2 Rubbish Collection

In accordance with the development plan, specifically Council Wide Principle of Development Control 94, waste collection should not occur during the following times:

- after 10.00pm; and,
- before 7.00am Monday to Saturday or before 9.00am on a Sunday or Public Holiday.

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5 CONCLUSION

A noise assessment has been made for the proposed student housing development at 266 North Terrace, Adelaide.

The external noise ingress into the proposed development includes noise from traffic on surrounding roads and a future tram line.

The main noise sources at the proposed development are the mechanical services plant and equipment and rubbish collection.

Given the status of North Terrace traffic at this current point in time, a preliminary assessment against a contemporary standard has been made and indicative facade treatments have been determined to show that the Adelaide City Council Development Plan can be satisfied. The final façade construction will be confirmed during the design stage of the project when the final traffic arrangement and acoustic environment on North Terrace and Frome Street is known.

The noise from mechanical plant at the site will be reviewed as the design selections progress and become available.

The noise from rubbish collection will comply with the Adelaide City Council requirements with the restrictions recommended in this report.

GSA Student Housing Adelaide

266 North Terrace, Adelaide

Traffic and Tram Noise Assessment

S5436C3

February 2018

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Document Title : GSA Student Housing – 266 North Terrace, Adelaide

Noise Assessment

Document Reference: S5436C3

Date : February 2018

Author : Chris Turnbull, MAAS

Reviewer : Jason Turner, MAAS

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1 INTRODUCTION

A noise assessment has previously been conducted for the proposed student housing development at 266 North Terrace, Adelaide for the purposes of planning approval and achieving the Adelaide City Council Development Plan provisions relating to traffic and tram noise. The assessment is summarised in Sonus report "S5423C2" (the previous assessment).

Specifically, the previous assessment considered the following noise sources:

- traffic and tram movements on surrounding roads; and,
- Rubbish collection and mechanical plant and equipment operation at the proposed development.

The key noise issue for the site is the impact of traffic on North Terrace and Frome Street on the amenity of the development. At the time of the previous assessment, a tram line was being constructed along North Terrace and the construction activity fundamentally changed the traffic flow and resultant noise environment. As noise levels were not representative of the future environment, the report presented preliminary facade acoustic treatments to achieve the relevant criteria for road traffic and trams as a method of indicating that the Development Plan provisions in the Adelaide City Council Development Plan could be satisfied.

The construction activity for the tram way in close proximity of 266 North Terrace have now ceased and the existing noise levels from traffic can be measured. An objective assessment has therefore now been conducted based on measured noise levels and is summarised in this report.

The assessment has been based on:

- Rothelowman drawings "TP01.00" to "TP01.03" (inclusive), "TP01.07", "TP01.13" to "TP01.15" (inclusive), and "TP03.01", with Project number "217091" and dated 23 October 2017;
- Continuous noise logging at two locations on the subject site between 6 and 7 February 2018;
 and,
- a site inspection of the existing premises and surrounding area on 6 February 2018.



2 ASSESSMENT CRITERIA

The previous assessment of noise ingress was based on the *Minister's Specification SA 78B Construction requirements for the control of external sound* (SA 78B). The intent of SA 78B is to protect the occupants of residential buildings from the sound intrusion of transport (being both road and rail) corridors and from mixed use activity. To this end, SA 78B establishes internal noise levels or "performance requirements".

For a particular site, the need to comply with SA 78B is established by "designation" in the Development Plan. The subject site has not been designated in the Development Plan and therefore SA 78B does not strictly apply but rather is utilised to provide an indication of the acoustic treatments to address traffic and tram noise impacts, noting that SA78B provides a contemporary approach and a method for assessing both traffic and future tram noise based on the setback distance from the transport corridors.

The objective assessment criteria applied to the development for internal noise levels are detailed in Table 1, which have been extracted from SA 78B.

Table 1: Noise criteria provided by SA 78B for transport corridors.

Type of room	Internal Sou	Applicable time	
Type of footil	Average for total number of rooms	Maximum for individual room	period
Bedroom	30 <i>dB(A)</i> L _{Aeq, 9hr (transport)} 30 <i>dB(A)</i> L _{Aeq, 15min (people)}	35 $dB(A)$ L _{Aeq, 9hr (transport)} 35 $dB(A)$ L _{Aeq, 15min (people)}	Night (10pm to 7am)
Other habitable room	35 <i>dB(A)</i> L _{Aeq, 15hr}	40 <i>dB(A)</i> L _{Aeq, 15hr}	Day (7am to 10pm)

GSA Student Housing, 266 North Terrace, Adelaide Traffic and Tram Noise Assessment S5436C3 February 2018

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3 ASSESSMENT

SA 78B provides a "Deemed to Satisfy" assessment approach, which assigns each facade a sound exposure category based on the transport corridor "type" and the distance to the corridor. The previous assessment used this method, given that construction resulted in it not being possible to measure existing noise levels from traffic and tram activity.

The proposed methodology is to determine the facade treatments based on measurements now that construction activity has ceased.

Traffic

Construction works in this area have now been temporarily completed and the noise from traffic has been measured over a 24 hour period at both the northern and southern facades of the existing building at 266 North Terrace. Based on the measured noise levels, a model has been established such that the resulting noise level at each floor of the proposed building can be determined.

Trams

Given that the tram line in the vicinity of the proposed development is not yet in use, previous noise measurements from trams have been used to determine the likely level at the proposed building. Based on the number of pass-bys being similar to the existing Adelaide to Glenelg tram and measurements of trams accelerating, decelerating and traveling at a constant speed, it is predicted that the noise level from trams will typically be more than 10 dB(A) less than the noise from traffic noise levels and as such the acoustic treatment incorporated into the façade to reduce traffic noise impacts will inherently address the tram line.



Acoustic Treatment

Based on the proposed objective assessment approach, the following minimum building constructions are required for each of the façade elements.

Where reference is made to VLam HUSH glass, alternatives can be utilised subject to satisfactory test data which indicates the equivalent performance on an octave band basis.

BUILDING ELEMENT	ACOUSTIC TREATMENT			
BUILDING ELEWENT	Level	Requirement		
Spandrel Panels (above and below the	2-15	Minimum 10.5mm thick VLam Hush glass to the outside, gap to a minimum kg/m² aluminium sheet inner panel, minimum 90mm thick studwork with minimum 11kg/m³ insulation in the cavity and 2 layers of 13mm thick fire raplasterboard on the inside. The sill shall be designed to ensure the integrity the spandrel panel is maintained.		
windows)	16-Top	Minimum 10.5mm thick VLam Hush glass to the outside, gap to a minimum 6 kg/m² aluminium sheet inner panel, minimum 90mm thick studwork with minimum 11kg/m³ insulation in the cavity and a single layer of 13mm thick fire rated plasterboard on the inside. The sill shall be designed to ensure the integrity of the spandrel panel is maintained.		
Ventilation	where it uses	gn input will be required to the ventilation and exhaust system (in circumstances the façade) to ensure the acoustic integrity of the façade is maintained. Details is will be required including louvre and duct sizes and ductwork arrangements.		

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The following table summarises the glazing requirements based on the current glazed areas:

	ACOUSTIC TREATMENT		
Room type / Glazing Extent	Building Level	Requirement	
	2-6	Double glazing consisting of 1 layer of 10.5mm thick VLam Hush glass and one layer of 10mm thick glass separated by an air gap of 16mm.	
	7-14	12.5mm thick VLam Hush glass	
07 4.1	15-Тор	10.5mm thick VLam Hush glass	
	2-6	12.5mm thick VLam Hush glass	
	7-Тор	10.38mm thick laminated glass	

Room type / Glazing Extent ACOUSTIC TREATMENT				
U206	2-6	12.5mm thick VLam Hush glass		
CO1.1	7-Тор	10.38mm thick laminated glass		
	14-25	12.5mm thick VLam Hush glass		
	26-Тор	10.38mm thick laminated glass		
U3019 DO ADT1.1	26-Тор	10.38mm thick laminated glass		

GSA Student Housing, 266 North Terrace, Adelaide Traffic and Tram Noise Assessment S5436C3 February 2018



4 CONCLUSION

A noise assessment has previously been made for the proposed student housing development at 266 North Terrace, Adelaide in order to achieve the Adelaide City Council Development Plan requirements.

The external noise ingress into the proposed development includes noise from traffic on surrounding roads and a future tram line.

Given the status of North Terrace traffic at the point in time of the previous assessment, a preliminary desk top investigation was made.

Now that construction activity has ceased in that area of North Terrace, the previous assessment has been updated to include site measurement data. The acoustic treatments to the facade are provided.





GSA Student Housing 266 North Terrace, Adelaide Transport Impact Assessment

Client // GSA Australia Pty Ltd

Office // SA

Reference // \$137890 **Date //** 10/11/2017

GSA Student Housing

266 North Terrace, Adelaide

Transport Impact Assessment

Issue: B 10/11/2017

Client: GSA Australia Pty Ltd

Reference: \$137890

GTA Consultants Office: SA

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
Α	3/11/2017	Final	Joy Lu	Paul Froggatt	Paul Froggatt	PF
В	10/11/2017	Final – amended	Joy Lu	Paul Froggatt	Paul Froggatt	had Groupst



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1. Introduction

1.1 Background

The proposed mixed use of retail and student accommodation is located at 266 North Terrace, Adelaide. The proposed development incorporates a total of 687 beds for student accommodation, a ground floor retail area of 78.1 m², and associated facilities.

GTA Consultants was commissioned by GSA Australia Pty Ltd in September 2017 to undertake a Transport Impact Assessment of the proposed development.

1.2 Purpose of this Report

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of the following:

- i existing traffic and parking conditions surrounding the site
- ii walking, cycling and public transport access for the site;
- iii traffic generation characteristics of the proposed development
- iv proposed access arrangements for the site
- v transport impact of the development proposal on the surrounding road network.

1.3 References

In preparing this report, reference has been made to the following:

- Adelaide (City) Development Plan (Consolidated 20 June 2017)
- Australian Standard/ New Zealand Standard, Parking Facilities, Part 1: Off-Street Car Parking AS/NZS 2890.1:2004
- Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS 2890.2:2002
- Australian Standard / New Zealand Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS/NZS 2890.6:2009
- o plans for the proposed development prepared by Rothe Lowman (dated 06/11/2017)
- various technical data as referenced in this report
- o an inspection of the site and its surrounds
- other documents as nominated.



GSA Student Housing, 266 North Terrace, Adelaide

2. Existing Conditions

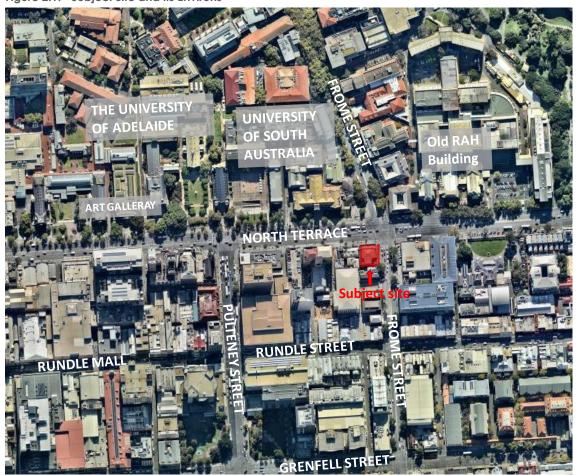
2.1 Subject Site

The subject site is located at 266 North Terrace in Adelaide. The site of approximately 600m² has frontages of 23m to North Terrace and 26m to Frome Road.

The site is located within a Central Business Policy Area and Primary Pedestrian Area in a Capital City Zone as specified in the Adelaide (City) Development Plan. The site is currently occupied by a church building (First Church of Christ. Scientist).

The location of the subject site and the surrounding environs is shown in Figure 2.1. The site is located opposite the University of South Australia City East Campus and the University of Adelaide North Terrace Campus.

Figure 2.1: Subject Site and its Environs



(PhotoMap courtesy of NearMap Pty Ltd)

2.2 Road Network

2.2.1 Adjoining Roads

North Terrace

North Terrace is a two-way divided road aligned in an approximately East/West direction and configured with 3 lanes in each direction. The approximately 23-metre carriageway is set within an approximately 35-metre road reserve.

Kerbside parking is not permitted adjacent to the site due to the close proximity to the signalised intersection.

North Terrace carries approximately 28,600 vehicles per day¹ adjacent to the subject site and is subject to a speed limit of 50km/h.

Frome Street

Frome Street is a two-way road aligned in a north/south direction at the subject site. It is configured with a 2-lane in each direction, 18-metre-wide carriageway set within a 23-metre-wide road reserve (approx). Kerbside parking is permitted outside of clearway times and is subject to time restrictions.

Frome Road carries approximately 14,100vehicles per day.¹

Rundle Street

Rundle Street is a two-way road aligned in an east/west direction and is configured with one lane in each direction, with a 10-metre-wide carriageway set within a 16-metre-wide road reserve (approx.). Rundle Street is subject to a speed limit of 50km/h and carries approximately 13,800 vehicles per day.¹

2.2.2 Surrounding Intersections

The following intersections currently exist in the vicinity of the site:

- North Terrace / Frome Street (signalised)
- Rundle Street / Frome Street (signalised).

2.3 Sustainable Transport Infrastructure

2.3.1 Public Transport

North Terrace is one of the High Concentration Public Transport Route identified in the Adelaide (City) Development Plan. Currently most of the bus services on North Terrace are rerouted via Grenfell Street due to the construction of the North Terrace tram line extension. Grenfell Street is located within walkable distance (approximately 300m) south to the proposed site and will provide the nearest location for the majority of the CBD bus services. The high frequency bus services in vicinity of the site provide a variety of links to most urban centres as well as destinations within the CBD.

The City Tram Extension is proposed to be operational in late first quarter in 2018. A new tram stop servicing Adelaide University and University of South Australia, and a new tram stop servicing the east end and Botanic Gardens are proposed on North Terrace within 200m of the subject site as shown in Figure 2.2. The extension of the tram line will provide regular tram services to and from



Obtained from DPTI AADT estimates dated 14 September 2015

Glenelg and the Entertainment Centre from the proposed site. The proposed tram extension will also provide links between the proposed site and the City West campus of University of South Australia.

In addition to the tram and frequent bus services, the Adelaide Train Station is located approximately 900m from the proposed site, and offers train services to and from Belair, Gawler, Outer Harbor, Seaford and Tonsley at regular intervals.

Figure 2.2: Public Transport Map



(Reproduced from City Tram Extension Booklet)

2.3.2 Pedestrian Infrastructure

Pedestrian paths are located on either side of North Terrace and Frome Road. Pedestrian actuated crossing facilities are located at the intersection of Frome Road and North Terrace.

2.3.3 Cycle Infrastructure

A short section of on-street bicycle lane is marked on the west side of Frome Street on the immediate approach to North Terrace adjacent to the subject site. No marked on-street bicycle lanes are present on North Terrace. Existing bicycle lanes and paths on Frome Road on the north side of North Terrace provide bicycle access to the Riverbank Shared Path.

Frome Street adjacent to the development forms part of the proposed north-south separated bikeway through the Adelaide CBD. The bikeway is currently complete from the south to Pirie Street, with the remaining sections from Pirie Street to North Terrace due to be delivered within the next 2-3 years. The bikeway adjacent to the site is likely to be in the form of a separated bikeway, with physical separation of cyclists from both pedestrians and vehicles, although the design of this section of bikeway is still to be completed.

Public bicycle parking available in the vicinity of the site as shown in Figure 2.3. There are more than 20 on-street bicycle racks available on Rundle Street, and some available on North Terrace and Frome Street in the vicinity of the site. Adelaide free city bikes are available in the UniSA City East Campus right opposite to the proposed site.

GTA further notes that bicycle parking facilities are available in all UPark facilities in Adelaide free of charge or with a small cost depending on individual security requirements. The UParks on Frome Street and Rundle Street are both located in close proximity to the site.



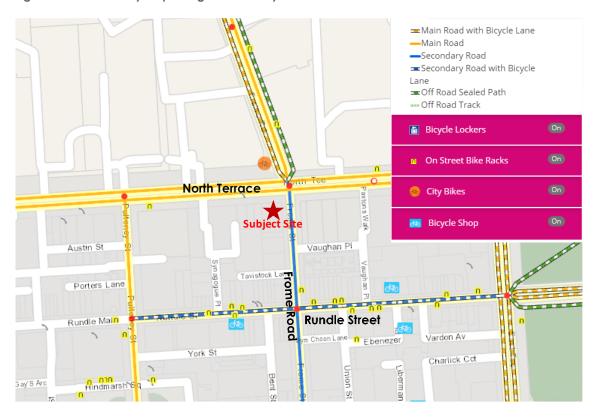


Figure 2.3: Public bicycle parking and free City Bikes locations

2.3.4 Local Car Sharing Services

Car sharing is a commercial alternative to car ownership for individuals and businesses allowing members to access shared vehicles for periods of time. This is achieved through hourly rates and subscriptions to the service. Car sharing is best suited to locations with good access to other transport modes such as public transport, walking and cycling. A car sharing pod, operated by GoGet, is located at Hindmarsh Square, approximately 550 metres walk from the subject site.

GSA Student Housing, 266 North Terrace, Adelaide

3. Development Proposal

3.1 Land Uses

The proposal includes the construction of a student accommodation tower comprising bicycle storage and service areas on the basement floor, retail and service areas on ground floor, a mezzanine level of retail and communal area, 30 levels of student accommodation, with communal student areas at Level 12 and Level 13.

The development will provide a total of 687 student accommodation beds (across 334 units) and 78.1m 2 of retail tenancy.

3.2 Car Parking

No car parking is proposed.

3.3 Service Vehicle Access

Service vehicle access to the loading bay and bin store is via a crossover at southern end of the building off Frome Street.

3.4 Bicycle Facilities

A bicycle storage area of 113.2m² located in the basement will provide secure storage for 128 bicycles. A bike ramp integrated within the stairs from the ground floor at the southwest of the building is proposed to access the bike storage on basement level.

3.5 Pedestrian Facilities

Existing pedestrian paths will be adequate to provide site access for pedestrians.

3.6 Loading Areas

Loading dock and waste collection will be provided on the south end of the site, accessible from the laneway which connects to Frome Street.



4. Car Parking

4.1 Development Plan Car Parking Requirements

The parking requirement applicable for this development is listed in Table Adel/7 in the Adelaide (City) Development Plan (Dated 20 June 2017). There is no minimum parking requirement applicable for residential development in the Capital City Zone and within the Primary Pedestrian Area.

4.2 Adequacy of Parking Supply

No minimum requirement for car parking at the proposed development is required according to the development plan. No parking is proposed and given the nature of the development this is considered appropriate.

5. Sustainable Transport Infrastructure

5.1 Bicycle End of Trip Facilities

Table Adel/6 in the Adelaide (City) Development Plan (consolidated 20 June 2017) has listed the recommended bicycle parking rates for new developments in Adelaide City Council. A review of Table Adel/6 has found there is no specific bicycle parking rate for student accommodation.

The Development Plan contains bicycle parking rates for general residential use and serviced apartments. The nature of the proposed use would fall between the two types of uses. Given the more transient nature of student accommodation, the bicycle ownership of the proposed site would be at the lower end.

The recommended bicycle parking rates for serviced apartments, residential units, and retail as contained in the Development Plan are summarised below:

Land Use	Residents/Employees	Visitors
All low, medium, and high scale residential	1 for every dwelling/apartment with a total floor area less than 150 square metres	1 for every 10 dwellings
Serviced Apartment	1 per 20 employees	2 for the first 40 rooms, plus 1 for every additional 40 rooms
Retail	1 per 300 sq.m of gross leasable floor area	1 per 600 sq.m of gross leasable floor area

The development plan requirement for the provision of bicycle facilities for the subject site is set out in Table 5.1.

Table 5.1: Development Plan Requirement for general residential development and serviced apartment

	Use	Size	Development Plan Rate	Required Bicycle Parking Spaces
General Residential	Residents/Employees	334 Units	1 for every dwelling/apartment with a total floor area less than 150 square metres	334 Spaces
	Accommodation	334 Units	1 for every 10 dwellings	33 Spaces
	Total			
Serviced	Employees	< 20 Employees	1 per 20 employees	1 Space
Apartment	Accommodation	334 units	2 for the first 40 rooms, plus 1 for every additional 40 rooms	10 Spaces ² (18 Spaces)
		(687 beds)	101 every additional 40 1001113	(10 spaces)

GTA consultants

 $^{^{2}}$ Based on number of units. If based on number of beds, 18 spaces would be required.

Table 5.2: Development Plan Requirement for Retail Tenancy

Use		Number/Area	Development Plan Rate	Required Bicycle Parking Spaces
Retail	Employees	78.1 sq.m	1 space per 300 sq.m	1 Space
Reidii	Customer	78.1 sq.m	1 space per 600 sq.m	1 Space
			Total	2 Spaces

Based on Table 5.1, the proposed development would generate a requirement for 11-19 bicycle parking spaces based on the serviced apartment rate, and 367 spaces based on the standard residential rate. With a required bicycle parking space of 2 for retail purposes, the proposed development generates a total bicycle parking requirement of between 13 and 369 spaces.

5.2 Adequacy of Bicycle Parking Supply

The provision of 128 bicycle parking spaces falls in the bicycle parking requirement range between the serviced apartment rate and standard residential rate in the Development Plan. The transient nature of the student accommodation indicates the bicycle parking demand could be expected to be at the lower end of the requirement range. The majority of the residents at the student accommodation would be from overseas or remote areas who most likely would only stay for the duration of their study. Compared to local residents, students change their places of stay more frequently and would be more likely to minimise the amount of luggage they have to move.

The proposed student accommodation would be mainly attracting students who attend one of the adjacent Universities which are located approximately 200 metres from the subject site. The subject site is also located approximately 400 metres from Rundle Mall shopping district. Given the close proximity to University campuses and shopping district, the majority of the student residents would be expected to walk to their study and shopping destinations.

With two new tram stops proposed in vicinity of the site, residents will have good accessibility to the free tram services to for other parts of the CBD area, including the City West campus of UniSA, the Adelaide Railway Station and nearby facilities, Central Market and Victoria Square.

In addition, bike-share services would be likely to reduce the demand for bicycles. Private dockless bike-share operation has recently commenced operation in the Adelaide CBD by Ofo and Obike, allowing users to find and hire bikes through a mobile application, and leave them wherever their journey ends. The service is available to the public at a small fee. Compared to the cost of buying a bike, residents may choose to use this bike-share service for the anticipated occasional bicycle trips.

Based on the above discussion and analysis, GTA considers the proposed ground level bicycle storage room, with capacity to store up to 128 bicycles using a mixture of horizontal and vertical bicycle storage racks, will be appropriate for the nature and location of the proposed student accommodation and will cater for the likely demand.

5.3 Walking and Cycling Network

Existing pedestrian facilities (footpaths and kerb ramps) will be maintained adjacent the site on North Terrace and Frome Road.

Significant enhancements to the local bicycle network is anticipated following the proposed completion of the Frome Street bikeway in front of the site.



5.4 Public Transport

The site is accessible by public transport as discussed in Section 2.3.1.

Loading Facilities

6.1 Development Plan Requirements

The Adelaide (City) Development Plan (dated 17 September 2015) provides guidance for loading/unloading facilities. Principle of Development Control (PDC) 241 in the Transport and Access section of the Development Plan applies to the proposed development. PDC 241 is as follows:

"Facilities for the loading and unloading of courier, delivery and service vehicles and access for emergency vehicles should be provided on-site as appropriate to the size and nature of the development. Such facilities should be screened from public view and designed, where possible, so that vehicles may enter and leave in a forward direction."

6.2 Proposed Loading Arrangements

A loading and waste storage area of 71.6m² is proposed to be located on the ground floor adjacent to the laneway.

Access into this loading area is provided via the laneway to the south of the site accessed from Frome Street.

The loading bay had been designed to cater for an 8m refuse vehicle to reverse into and exit in a forward direction.

6.3 Refuse Collection

As required by the Development Plan, the loading and waste collection area will be accessed via forward entry and exit from Frome Street. The truck will enter from Frome Street, reverse into the loading dock and then exit to Frome Street in a forward gear.

Figure 6.1 shows the entry and exit manoeuvres.



Figure 6.1: Refuse Collection



7. Traffic Impact Assessment

7.1 Traffic Generation

The proposed development does not include any car parking provision, as such there will be no vehicle movements associated with car parking areas.

There will be a small number of traffic movements associated with the loading dock and refuse collection at the proposed site. Based on the information provided to GTA Consultants, it is understood there would be approximately 15 commercial waste collections per week at the site. In addition, 1-2 deliveries could be expected for the combined uses of the site per day.

Based on the above, the proposed development could be expected to generate a total of 5 inbound and outbound movements to and from Frome Street every day. These movements are generally anticipated to occur outside of peak hours and as such will have minimal impact on the safety or operation of the adjacent road network.

8. Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

- i The proposed development includes the construction of a student accommodation tower comprising ground floor retail and service areas, a mezzanine level student hub, 32 levels of student accommodation incorporating Communal facilities.
- ii The proposed development is not required to provide any parking based on the Development Plan off-street parking requirements.
- iii No parking is proposed in the proposed development given the primarily student accommodation use.
- iv The proposed development will provide pedestrian connections to North Terrace and Frome Street.
- v A bicycle storage room is proposed within the basement and will provide space for up to 128 bicycles to be stored. This is considered appropriate based on the nature and location of the proposed student accommodation.
- vi The site is well located for bus, tram and train based public transport services, and walking distance to tertiary education facilities.
- vii A loading dock with access from Frome Street will cater for loading and refuse collection vehicles up to 8.0m in length and will enable vehicles to reverse into the site and exit to Frome Street in a forward direction.
- viii The site is expected to generate minimal traffic movements associated with loading and refuse collection only, with movements anticipated to occur outside of the peak period.



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266 North Terrace Development Waste Management Plan

November 2017





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- IMPORTANT NOTES-

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Document verification

Date	Version	Title	Prepared by	Approved by
9/11/2017	V1	266 North Terrace Development Waste Management Plan – Draft	Matt Allan and Jarvis Webb	Mark Rawson
10/11/2017	V2	266 North Terrace Development Waste Management Plan	Matt Allan and Jarvis Webb	Mark Rawson

1. Introduction

1.1 About This WMP and the Proposed Development

This document provides a waste management plan (WMP), for the proposed development identified in Table 1 below. This WMP will be included with building plans for the development lodged with the Development Assessment Commission (DAC) to obtain Development Approval. The WMP outlines the proposed waste management system (WMS) for the development at high-level, which demonstrate that successful management of waste can be achieved at the site.

Table 1: Proposed development's details

Site Location	266 North Terrace, Adelaide
Development Project	GSA Student Housing Adelaide
Client	GSA
Project Architect	Rothelowman
Project Managers	Intro
Traffic Consultant	GTA Consultants

1.2 Purpose and Scope Of WMP

This WMP has been developed for the planning stage of this development. It provides a preliminary design for the WMS for this site and is intended to demonstrate that successful management of waste can be achieved.

The WMP has been prepared with the policy and requirements for waste management (identified in Appendix 1) in conjunction with the Client, Project Managers, Project Architects, and Traffic Consultant, who have indicated the intended site uses of the development, occupancy data, and requirements for how waste should be managed. If future land uses and waste management arrangements for the development are altered, the WMP may need to be updated.

The suggested arrangements in this WMP are preliminary and reflect one possible configuration for the waste management system at this site. These arrangements could evolve and be refined (during detailed building design) before the construction takes place. This may affect the WMP for the site, which should be updated accordingly.

1.3 What This WMP Contains

Table 2 below outlines what is contained in the waste management plan (WMP)

Table 2: What this WMP contains

Section 2 – Description of Development	Provides details of the development relevant to the WMP preparation and indicates the waste and recycling collection services proposed for the development.	
Section 3 – Outcomes from the Analysis on Waste and Recycling Requirements at the Development	Provides estimates of the waste and recycling volumes likely to be generated at the site which will require storage, collection and disposal. This included the recommended size and layout of the development waste and recycling storage locations.	
Section 4 – Proposed Waste Management System (WMS)	Provides an overview of the proposed WMS for the development, including the main elements and important design requirements, and how these systems should operate. The WMS outlines how waste would be stored, transferred and collected at the site.	
Section 5 – Collection Vehicle Requirements	Includes relevant information on collection requirements, including number of collections per week and provision for access and maneuverability for waste collection vehicles.	
Appendix 1 – Policy, Design and Operational Waste Management Requirements	This Appendix identifies the policy, design, and/or operational requirements for waste management that have been used in relation to the development of the WMP.	
Appendix 2 – Additional Waste Management Design Considerations	This Appendix provides better practice design advice and other waste management design considerations for the development, based on the South Australia Better Practice Waste Management Guide for Residential and Mixed Use Developments and other applicable documents.	

2. Description of the Development

2.1 Land Uses and Occupancy Data

The Client and Project Architects have provided Rawtec with a description of the development and plans showing the proposed layout of the site, buildings and land uses. A breakdown of the land use and tenancy assumptions used for estimating waste and recycling volumes for the development, can be found in Table 3 below.

Table 3: Land use and occupancy overview

Floor	Tenancy according to plans	Waste & Recycling Generating Rate Land Use ¹	Est. Size/ Number	m²/ Bedrooms
Ground	Café and Alfresco	Café/ restaurant	99	m²
Ground	Reception and Office	Offices and Consulting Rooms	34	m²
2 – 33	Studio, Twodio and multi- bed apartments	Residential (high density)	687	Bedrooms

^{*} Note that levels Mezzanine, 12 and 13 have communal areas that will not generate additional waste as the waste in these areas will be generated by residents/students, which is captured in the waste generated in apartments throughout the building.

2.2 Site Waste Management Requirements

The following waste management and operational arrangements were identified as preferred for the site by the Client and Project Architect (Table 4). These arrangements have been considered when developing the design of the proposed waste management system and the information contained in the waste management plan.

Table 4: Site requirement summary

Waste Management Requirement	Description
Waste Storage	Waste generated throughout the building would be stored within the waste room on the ground floor.
Waste management at the site and collection services	Collection would be conducted by a commercial waste collector. This Waste Management Plan assumes all tenancies are using the same service. Note that by utilising a commercial collector, Council is unlikely to perform any collection services at the site.
Residents and Building Services responsibilities	Building services would be responsible for moving waste and recycling bins within the waste room, coordinating hard waste collection, and collecting organics (food) waste from communal areas throughout the building.
Collection point	Collection would be direct from the waste room on the ground floor. There will be a Loading Zone on the ground floor that can be accessed via the southern lane, which runs off Frome Street.

¹ Waste and recycling generation rate land use categories are based on the SA Better Practice Guide – Waste Management in Residential or Mixed Use Developments (Green Industries SA, 2014).

2.3 Recommended Waste and Recycling Services

To achieve effective waste and recycling management at the site, Table 5 below outlines the recommended waste and recycling services that should be collected from the development as outlined in the SA Better Practice Guide – Waste Management in Residential or Mixed Use Developments (Green Industries SA, 2014). Note that to minimise bin numbers stored at the development, we have combined cardboard recycling with co-mingled recycling.

Table 5: Proposed waste recycling services for the development per identified land uses²

	Required/Desired Waste and Recycling Collection Services			
Sarvina tura	Development Land Uses	Student	Café	Offices and
Service type	Wast/Recycling Streams	bedrooms	Care	Reception
	General Waste	Х	Х	X
	Co-mingled Recycling	Х	Х	Х
Routine collection (e.g. rear-lift	Organics (Food) Recycling	X	X	X
collection)	Cardboard Recycling	NS	X	NS
	Paper Recycling	NS	NS	X
	Confidential Paper Recycling	NS	NS	X
*On-call collection	Hard Waste	Х	Х	Х
(pick-up by contractor)/	Hard Waste	^	^	^
External drop-off	E-waste	Х	Х	Х
(by building services)	E-waste	^	^	^

Х	= Required/Desired	
NS	= Not serviced as not required/desired	

The following tenancy managed waste and recycling streams are not included in this WMP:

- E-waste (batteries and printer cartridges, lighting etc.) These waste streams would be temporarily stored within land uses (e.g. offices) before being dropped off at an appropriate external location (e.g. local recycling depot or office supply store) or collected by an appropriate collection company. Some items may be managed through an external collection contractor (e.g. for carpark lighting replacement).
- Hard waste (e.g. during tenancy fit out) hard waste would be temporarily stored within tenancies, and be managed via a pull-in/pull-out collection service during retrofitting or maintenance activities. This would be arranged by the tenants in conjunction with building services, to ensure that collection via the on-property loading area, is undertaken at an appropriate time.

² 'X' indicates required/desired as per The SA Better Practice Guide – Waste Management in Residential or Mixed Use Developments (Green Industries SA, 2014).

3. Outcomes from the Analysis

3.1 Estimated Waste & Recycling Generation Rates (WRGR) and Volumes

Table 6 below includes the estimated volumes of waste generated at the development each week overall, and by stream. Note that to minimise bin numbers stored at the development, we have combined cardboard recycling with co-mingled recycling.

Table 6: Estimated waste and recycling volumes by land development³

Estima	Estimated Waste Generation Volumes (Litres Per Week) by Land Use & Waste Stream (All Land Uses)				
Development Land Use		Residential	Commercial	Commercial	
		Student bedrooms	Café	Offices and Reception	Totals (Litres
WRGR Classification		Residential (High Density)	Café/Restaura nt	Offices or Consulting Rooms	Per Week)
	General Waste	20,600	2,100	60	22,800
٤	Co-mingled Recycling	17,200	1,400	30	18,600
Stream	Organics (Food) Recycling	6,900	2,800	10	9,700
e S	Paper Recycling	NE	NE	30	30
Waste	Confidential Paper Recycling	NE	NE	4	4
>	Hard Waste	4,800	NE	NE	4,800
	E-waste		NE	NE	800
Total Site Volume (Litres per Week)		50,300	6,300	100	56,700

*Note: Totals have been rounded to better reflect estimates and may not equate

NE = Not Estimated as Not Required

³ Estimated volumes based on: The proposed land use data; Waste generation metrics found in the South Australian Better Guide Practice Guide – Waste Management in Residential or Mixed-Use Developments (Green Industries SA (previously Zero Waste SA), 2014); Waste and recycling metrics developed by Rawtec, which are based on industry knowledge and experience.

3.2 Waste and Recycling Stream Volumes, Bin Sizes and Collection Details

Table 7 below identifies the:

- estimated waste and recycling volumes generated at the development;
- nominated bin sizes for each waste stream;
- proposed collection frequency;
- · number of bins required;
- proposed waste collection service provider; and
- the location where bins are presented for collection.

The data in the table below also assumes that the waste collection service provider would be the same for all land uses generating waste within the building (student apartments, retail and offices). Note that the below calculations assume that no compaction would occur for the general waste bins.

Table 7: Estimates of waste and recycling volumes (litres/week) for residents in the larger building, with proposed services and collection frequency

	Cationatad		Propos	ed Services			
Waste stream	Estimated Waste Volume (Litres Per Week)*	Bin Size (Litres)	Collection Frequency	Est. no. of bins required	Proposed waste collection service provider	Proposed location where bins/ waste is presented for collection	
General Waste	22,800	1100	5 x week	5	Commercial Ground floor was Contractor ⁴ room	Ground floor waste	
Co-mingled Recycling	18,600	1100	5 x week	4			
Organics (Food) Recycling	9,700	660	5 x week	3			
Paper Recycling	30	140	Monthly/ on-call	1		Contractor*	room
Confidential Paper Recycling	4	140	Monthly/ on-call	1			
Hard Waste	4,800	NA	On-call	NA			
E-waste	800	NA	On-call	NA			
Totals	56,700	-	15 x per week	bins	-	-	

*Note: Totals have been rounded to better reflect estimation of the volumes and may not equate

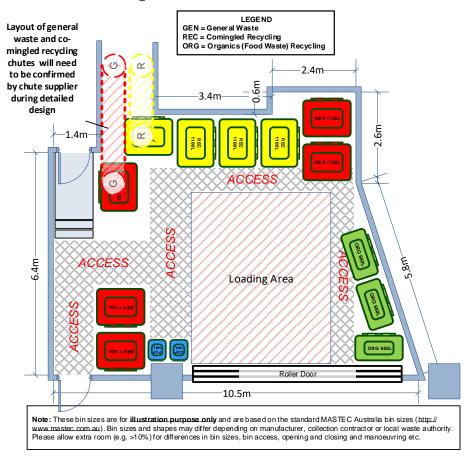
⁴ It is understood that the City of Adelaide is offering weekly bulk bin services to residential developments in the city. However, given the generation rates and storage space at this development, commercial contractors are likely to be needed to collect the waste at this site as collection will likely be more than once a week.

3.3 Waste Storage Area and Considerations for the Development

An indicative drawing of the development's waste collection room on the ground floor containing the required number of bins (un-compacted), which includes one example of bin configuration, can be found in Figure 1 below. Additional design advice and other considerations (e.g. bin washing), can be found in Appendix 2.

The current estimated volumes of waste generated with the allocated storage area confirms that the development can accommodate the estimated no. bins required without any compaction required (based on the collection frequency proposed in Table 7 in Section 3.2). However, the Client has indicated that there may interest for compaction and automatic bin swapping (e.g. linear conveyor) for the development, to minimise the time taken for building services to manage bins under the chute (e.g. swapping bins over). The final layout of chutes and equipment (e.g. compactors and/or conveyors) would need to be confirmed by the Client and chute system supplier during detailed design.

Figure 1: Preliminary drawing showing the estimated required size and layout of the ground floor waste room storage and no. bins⁵



⁵ the chute layout is indicative and for illustration only all design, layout, sizing and dimensions of chutes and equipment (e.g. compactors, conveyors) will need to be confirmed by a chute manufacturer/supplier in detailed design.

4. Proposed Waste Management System

4.1 Overview of the WMS

To effectively manage the waste generated at the site, an appropriate Waste Management System (WMS) is required. The WMS consists of:

- User storage of waste
- Waste transfer to common disposal area
- Aggregation and storage of this waste
- Waste/bin collection.

The tables below provide an outline of the waste management system for each land use within the building. This is based on the waste management steps recommended in the Guide, summarised in Appendix 2.

4.2 Student Apartment Waste Management System

Table 8 below provides details on the WMS for student waste generated within the building.

Table 8: WMS for the student waste generated in the building

	WMS step	WMS Notes
	Step 1 – User storage	Each apartment would have its own small bins (with bags if required) to store waste (for example 10-60L bins). Organics (food) recycling can be stored in apartments where there are kitchen facilities. The City of Adelaide can provide small kitchen caddies with compostable liners for these apartments. Waste bins would also be placed in Communal areas throughout the building, including Organics (Food) Recycling bins for areas that have kitchen facilities. The liner/ bag for these bins would be compostable.
Storage, transfer pathways and collection details for:		Residents would take waste and recyclables from their rooms to the to the chute room on their respective floor, and apartments with organics (food) recycling can transport waste to Communal areas which will have organics bins. Building management/cleaners would take the general waste and co-mingled recycling from Communal areas to the chute room on the respective floor, and organic (food) recycling directly to the waste room on the ground floor.
 General Waste Comingled Recycling Organics (Food) 	Step 3 – Aggregation and Storage	General waste and co-mingled recyclables would progress down the chutes to the ground floor waste room bins, where it would be stored in larger bins (e.g. 1100L). The bins would be rotated by building services with other bins in the waste room on the ground floor and stored here until collection.
Step 4 – Bin collection		Collection by a Commercial Waste and Recycling Collection Contractor would take place from the Loading Area within the development. Collection contractors would: 1. Drive into the lane adjacent the building (southern side) off Frome Street in a forward direction, 2. Reverse the vehicle into the designated Loading Area. 3. Load the bins directly from the Waste Room. 4. Empty the bins into their collection vehicle. 5. Return the empty bins to the Bin Storage Room. 6. Exit in a forward direction onto the lane and then onto Frome Street. See Section 5 and the Traffic Consultant's Report for details on collection vehicle movements within the development.

4.3 Commercial Tenancies' Waste Management System

Table 9 below provides details on the WMS for the Café, Alfresco, Reception and Office on the ground floor.

Table 9: WMS for the Commercial Tenancies' waste generated in the building

	WMS step	WMS Notes
Storage, transfer pathways and collection details for:	Step 1 – User storage	 Where required, all rooms/areas would have small-medium bins (with bags if required) to store waste. For example: A 40-80L general waste bin; A 40-80L comingled recycling bin; and A 40-80L organics (food) recycling bin with compostable bin liner A 40-80L paper bin A 40-80L confidential paper bin. Bulky or excessive quantities of cardboard are to be taken directly to the waste room and disposed of within the co-mingled recycling bins. Smaller quantities of cardboard waste are to be placed within the co-mingled recycling bins within or near the room/area where it is generated.
 General Waste Comingled Recycling Step 2 – Transfer pathways 		Cleaners/ tenancy staff/ building services would take waste and recyclables from the commercial tenancies on the ground floor to the waste room using internal corridors and pathways. See Appendix 2 for recommendations on transfer pathways.
 Organics (Food) Recycling Cardboard Recycling 	Step 3 – Aggregation and Storage	Cleaners/ tenancy staff/ building services would then dispose of waste and recycling items into the bins provided in the ground floor waste room.
(collected in co- mingled recycling bins)	Step 4 – Bin collection	Collection by a Commercial Waste and Recycling Collection Contractor would take place from the Loading Area within the development, which is adjacent to the Waste Room. Collection contractors would: 1. Drive into the lane adjacent the building (southern side) off Frome Street in a forward direction, 2. Reverse the vehicle into the designated Loading Area. 3. Load the bins directly from the Waste Room. 4. Empty the bins into their collection vehicle. 5. Return the empty bins to the Bin Storage Room. 6. Exit in a forward direction into the lane and onto Frome Street. See Section 5 and the Traffic Consultant's Report for details on collection vehicle movements within the development.

5. Collection Vehicle Requirements

5.1 Collection Vehicle Requirements

The collection vehicles expected for waste collection at this development would generally be:

- Rear-lift trucks for collection of routine waste, comingled recycling and organics;
- Pan-tech or flat-bed trucks for collection of at-call waste streams, if required.

Examples of the likely truck dimensions are provided in Table 10 below to assist the Traffic Engineer/Consultant in ensuring that the loading zone can accommodate the waste and recycling collection vehicles, and that vehicles can enter and exit the area safely. In addition to the truck length, the parking area will need to accommodate at least 2m behind collection vehicles for waste bin loading for the rear-lift trucks.

Collection vehicle dimensions and operating requirements vary between waste collection contractors. The Client would be required to ensure that the collection vehicle used by the waste collection contractor servicing the development is able to accommodate for the Loading Zone and other requirements before collection can begin.

Table 10: Likely dimensions and turning circles of waste collection vehicles that would be required to access the site⁶

Likely <u>minimum</u> dimensions and	Likely minimum dimensions and turning circles of waste collection trucks		
Vehicle Type	Rear-lift waste trucks (to collect bins up to 1100L)		
Height	3.5m		
Width	2.5m		
Length	8m (min)		
Space at the rear to load bins	2m		
Vehicle height in operation	3.5m		
Vehicle turning circle	18-25m		

5.2 Estimated Number of Waste Vehicle Movements Per Week

We have estimated that there would be 15 collection vehicle movements per week at the site. This is based on the estimated waste and recycling volumes and service frequency described above. These estimated vehicle movements do not include on-call or infrequent services such as paper and confidential paper, hard waste and E-waste collection.

⁶Vehicle width dimensions are based on Australian MRV standard specifications - AS 2890.2-2002. Vehicle length and heights are based on common collection vehicles currently operating in the SA market. However, it should be noted that waste and recycling collection vehicles are custom designed and may differ from these specifications.

Appendix 1 – Policy, Design and Operational Waste Management Requirements

This WMP has been prepared with the following policy, design, and/or operational requirements for waste management in mind:

- The South Australian Environment Protection (Waste to Resources) Policy 2010 (W2REPP) (Government of South Australia, 2011):
 - This Policy requires that waste is subject to resource recovery processes, which can include source separation, before disposal to landfill.
- South Australian Better Practice Guide Waste Management in Residential or Mixed Use Developments (Green Industries SA (previously Zero Waste SA), 2014):
 - Identifies need for areas to store waste and recyclable materials, appropriate to the size and type of development, screened from public, which minimises disturbance to residents and provides for service vehicle access.
 - Provides guidance on design of waste management systems for medium to high density residential and mixed use developments.
- City of Adelaide Design Guide for Residential Recycling (2013)
 - Similar to the Better Practice Guide above, but with some slightly different design requirements.
- The City of Adelaide Operating Guideline Waste & Recycling Services (The City of Adelaide, previously Adelaide City Council, 2014)
 - Set outs Council's proposed basic and enhanced services for collection of waste and recycling from high density and mixed use developments and businesses.
- Adelaide (City) Development Plan (Department of Planning, Transport & Infrastructure, 2017).
 - Objectives and principles of development control regarding waste management, specifically:
 - OBJ 28: Development which supports high local environmental quality, promotes waste minimisation, re-use and recycling, encourages waste water, grey water and stormwater re-use and does not generate unacceptable levels of air, liquid or solid pollution.
 - PDC 101: A dedicated area for on-site collection and sorting of recyclable materials and refuse should be provided within all new development.
 - PDC 102: A dedicated area for the collection and sorting of construction waste and the recycling of building materials during construction as appropriate to the size and nature of the development should be provided and screened from public view.

- PDC 103: Development greater than 2 000 square metres of total floor area should manage waste by:
 - a) containing a dedicated area for the collection and sorting of construction waste and recyclable building materials;
 - b) on-site storage and management of waste;
 - c) disposal of non-recyclable waste; and
 - d) incorporating waste water and stormwater re-use including the treatment and re-use of grey water.

The estimation of waste and recycling volumes contained in this waste management plan, is based on:

- The proposed land use data;
- Client and regulatory expected services for different development land uses; and
- Waste generation metrics found in:
 - The South Australian Better Guide Practice Guide Waste Management in Residential or Mixed Use Developments (Green Industries SA (previously Zero Waste SA), 2014)
 - Waste and recycling metrics developed by Rawtec, which are based on industry knowledge and experience.

Appendix 2 – Additional Waste Management Design Advice

The below table provides design advice and other considerations based on the *South*Australia Better Practice Waste Management Guide for Residential and Mixed Use

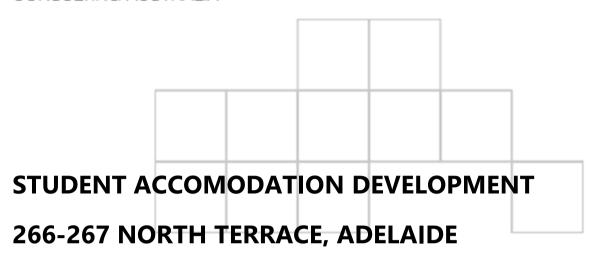
Developments. For further recommendations and information from this guide, please visit the

Green Industries SA website.

Table 11: Additional waste management design advice and other considerations

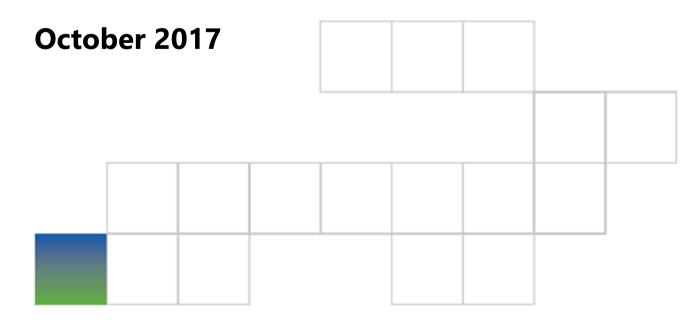
Area	Recommendation/ Consideration
Access distance from	Better practice recommends this distance be no greater than 30 metres. This
resident properties to	reduces the likelihood of spillage and increases convenience for residents.
bin disposal point	
Disposal points for	The SA Better Practice Guide indicates that organics (food and/or garden) is a
residents	required or expected service for residents in South Australia.
	It is also recommended that disposal points for all three streams (general waste,
	comingled recycling and food organics) be at the same point for residents.
Bin/chute rooms on	Another consideration from a better practice waste perspective is having chutes
each floor	allocated in a chute room on each floor. This may prevent odour or spillage issues
	in undesirable areas if the chutes are directly accessible in a hallway for example.
	It is important that consideration is given for access to this room/chute area by
	mobility impaired persons.
Bin transfer routes	The Better Practice Guide recommends transfer routes be free of obstructions and
	steps, at least 1.25m wide and a slope of no more than 1:10.
	These should also not pass through living areas or dwellings.
Hard waste	It is recommended that an aggregation point for hard waste be provided in a
	space that is easy to access for collection vehicles.
	This is logistically easier than collection directly from apartments, where the
	building services manager, resident and collection contractor would all need to be
	present for the collection day and time. It also takes longer for the contractor to
	collect the waste and may therefore increase costs.
Bin washing	It is recommended that a bin wash area be installed and that it:
	 Is sloped to a drain leading to the sewer;
	 Has an installed tap with mains supply and a hose nearby;
	 Is at least 2m x 2m; and
	 Is slip resistant to prevent slippage during washing.
	Note that line marking and bunding is not required around the bin wash area, and
	bins can be stored on top of the bin wash area in the waste room. During washing,
	other bins can be placed outside the waste collection room while bins are washed
	in the waste room. Alternatively, the bin wash area can be installed outside the
	waste room. It may also be possible for the waste contractor to be contracted to
	provide this service (either on-site or off-site).





Project No: LCE13384

Sustainability Report



1 INTRODUCTION

1.1 PROJECT OVERVIEW

The proposed student accommodation building at 266-267 North Terrace (Adelaide) is a Class 3 building under the National Construction Code which comprises:

- Basement: Bicycle room and plant rooms.
- Ground floor: Entry lobby, reception, media lounge, café and waste storage room.
- Level 1: Gym, game lounge, study room and laundry room.
- Level 2 to Level 11: Co-living units.
- Level 12 and 13: Community space.
- Level 14 to Level 24: Multi-bed units.
- Level 25 to Level 33: Studio units.
- A total of 682 beds.

The following figure shows the site's location.



Site plan showing location of proposed building (Source: Google Maps)

1.2 OBJECTIVES

This report outlines the sustainability initiatives proposed for the development.

The intent of each initiative is to add value to the project by improving the building's environmental performance. Collectively, these initiatives will:

- Reduce energy and water consumption.
- Reduce the ecological footprint of the building and its occupants.
- Improve thermal comfort and air quality within the building.
- Improve occupant well-being.

1.3 SUMMARY OF PROPOSED SUSTAINABILITY INITIATIVES

The following initiatives have been adopted and incorporated into the design of the building:

- High performance building envelope: wall, floor and roof insulation R-values to meet best practice guidelines.
- High performance glazing with solar control to mitigate solar heat gains in summer.
- Use of architectural facade feature elements to shade glazing.
- Energy efficient massing with minimal exposed ceilings and floors (Levels 2 to 11 and Levels 14 to 33 have the same boundaries)
- Natural ventilation provided to every unit.
- Master shutdown switches at the entry of each unit, allowing residents to easily turn off all lighting and air-conditioning upon departure.
- LED lighting throughout.
- Motion sensors for efficient lighting control within common areas.
- Water efficient fittings:
 - □ Taps: minimum 5 star WELS rating (i.e. maximum flow rate of 6.0 L/min)
 - □ Showerheads: minimum 3 star WELS rating (i.e. maximum flow rate of 7.0 L/min)
 - □ Toilets: minimum 4 star WELS rating (i.e. maximum average consumption of 3.5 L/flush)
- Secure bicycle storage in the basement.
- Portland cement content in concrete mixes to be reduced by 25% and replaced by slag and/or flyash to reduce carbon footprint and resource depletion.
- Low volatile organic compound (VOC) paints

2 SUSTAINABILITY INITIATIVES

2.1 EFFICIENT BUILDING THERMAL ENVELOPE

An efficient building envelope is a highly robust feature as its benefits will be constant throughout the life of the building and are largely independent of the behaviour of the occupants. The performance of wall, floor and ceiling/roof insulation will meet best practice guidelines.

High performance glazing

Preliminary glazing calculations have been completed to verify compliance with the minimum requirements of the 2016 National Construction Code (NCC). The project team's intent is to exceed the NCC minimum requirements to reduce cooling and heating loads, reduce operational costs and increase thermal comfort. GSA will own and operate this student accommodation building and are therefore committed to reducing energy usage and providing a high quality indoor environment.

High performance glazing will be installed throughout and will either be low-e single glazing or low-e double glazing. The benefits of double glazing over single glazing will be quantified during the detailed design phase, which will assist in selecting the most suitable glazing for this development.

Energy efficient massing

The boundaries of the conditioned space at levels 2 to 11 and levels 14 to 33 are identical, which minimises the area of floors and ceilings exposed to outside air and therefore improves the thermal performance of the building.

All surfaces exposed to outside air such as the Level 2 slab on the northern and eastern sides of the building will be provided with insulation.

2.2 PROVISION OF SHADING

Architectural feature elements have been designed for the facades of this building as shown below. The elements will act as horizontal and vertical projections, which will provide significant shading to the glazing.



Architectural feature elements on the northern facade

This shading strategy and the use of high performance low-e glazing will significantly reduce solar gains and cooling loads in summer.

2.3 ENERGY EFFICIENT LIGHTING

High efficiency LED lighting is proposed throughout.

A master shutdown switch will be provided in each unit, which will enable the students to turn off all lighting and air-conditioning upon departure.

Lighting in common area will be controlled automatically to ensure lighting only operates when required. Motion sensors, push button timers and BMS time schedules will be used for lighting control.

2.4 WATER EFFICIENCY

Water efficient taps and fixtures will be selected for this development. The following WELS ratings are proposed:-

- Taps with a WELS rating of not less than 5 Stars (6.0 L/min)
- Shower heads with a WELS rating of not less than 3 Stars (7.0 L/min)
- Water closets with a WELS rating of not less than 4 Stars (3.5 L/flush, dual flush)

The following table demonstrates the water savings (approx. 50%) expected to be achieved per person and resulting from the use of the above low-flow fittings.

Average unit		266-267 North Terrace			
Equipment	Flow Rate	Daily Consumption	WELS	Flow Rate	Daily Consumption
Taps	9.0 L/min	48 L	5 Star	6.0 L/min	32 L
WC's	8.0 L/flush	48 L	4 Star	3.5 L/flush	21 L
Showers	15.0 L/min	135 L	3 Star	7.0 L/min	63 L
Total	-	231 L	-	-	116 L

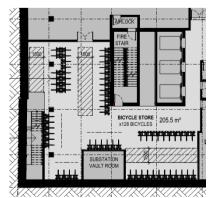
2.5 NATURAL VENTILATION & DAYLIGHT

All the units will be provided with operable windows and access to outside air. It is proposed that compliance with AS 1668.4 is achieved, where practical, to improve indoor air quality.

Provision of daylight to each unit will exceed the NCC minimum requirement. Higher daylight levels will improve visual comfort and reduce energy usage for lighting.

2.6 BICYCLE STORAGE

Bicycle racks are proposed in the basement for the building occupants. Approximately 120 bicycle spaces have been provided within a secure room as shown below. This encourages building occupants to utilise carbon-free means of transport.



Extract from floor plans showing the bicycle storage room in the basement.

2.7 ADDITIONAL SUSTAINABILITY INITIATIVES

Sustainability and energy efficiency are high priorities for GSA as they will own and operate this student accommodation building. To further reduce operational costs and carbon emissions, the following initiatives are currently investigated and will be developed during the detailed design phase.

Central hydronic plant

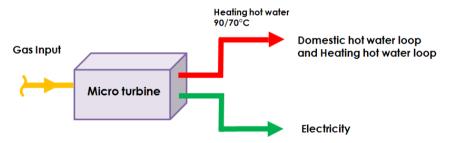
A chiller plant is proposed in lieu of a refrigerant based VRF air-conditioning system. The two main benefits of chiller plants are high energy efficiency and long lifetime (25 years+). Three different options are considered: air-cooled chiller, evaporative air-cooled chiller and water-cooled chiller. A life cycle analysis will be completed to compare these chiller plants and select the most suitable option for this development.



Air-cooled chiller of York manufacture

Cogeneration

Co-generation units are diesel or gas-powered engines that simultaneously generate electricity and heat. For this student accommodation building, heat would be used for domestic hot water production.



Simplified schematic of a cogeneration system

Cogeneration typically reduces both operational costs and greenhouse gas emissions. A life cycle analysis will be completed to assess the feasibility and financial viability of cogeneration for this student accommodation building.

Roof mounted solar PV system

Solar PV generation systems convert solar radiation into electricity by utilising photo-voltaic technology. A solar PV system would reduce the building's grid electricity consumption and peak electrical load, which would result in significant cost savings and carbon emission reduction. A preliminary review of the roof indicates that a 50-70kW system could be installed. A detailed feasibility study will be undertaken during the detailed design phase.



Roof mounted solar PV at the Adelaide showground

6



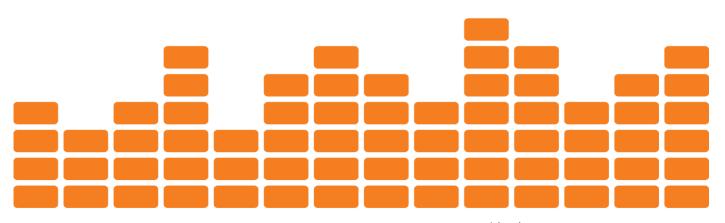
Desktop Wind Assessment Report for

Proposed Development at 266 North Terrace, Adelaide



Reference: 2017-6776

Issue B - 26/10/2017



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Executive Summary

MLEI have been commissioned by Mr Nicholas Kary of GSA to undertake a desktop assessment of the changes to the pedestrian environment caused by the proposed development at 266 North Terrace, Adelaide. The site is at the corner of North Terrace and Frome Street with dimensions of approximately 25.9m x 25.6m.

The proposed development is a 33 storey building with a basement and will be used for student accommodation. The proposed building height is approximately 106m above ground level.

This assessment is based on our experience in wind engineering consultancy for similar sites in Adelaide.

The assessment has been based on the planning drawings prepared by Rothelowman Revision P1 dated 23 October 2017. The findings of that assessment are summarised below:

- Just as any development would, this proposed development has the potential to impact on the current wind conditions on ground level along North Terrace and Frome Street;
- We do not expect that the proposed development will generate wind conditions that cannot be managed by careful consideration;
- Accordingly we expect that most of the ground level would be close to or within the criterion for acceptability for walking, standing or sitting providing the following guidelines are adhered to:
 - The proposed façade system shall consist of horizontal elements on the sides of the building to reduce the downwash effect. Alternatively, wide canopies are recommended to be installed at ground level along North Terrace and Frome Street;
 - Carefully planned obstructions such as perforated screens or a row of trees at the north side shall be designed to reduce the wind effect to the front of the ground floor cafe area.

Limitations

It should be noted that, without wind tunnel testing, the assessment of wind conditions based on technical experience and available wind data may not be of high accuracy. If it is necessary to verify any predictions in this report, wind tunnel testing would need to be conducted for the site.

1.0 Introduction

A set of 90% architectural drawings prepared by Rothelowman were supplied to MLEI on 25th October 2017. The proposed development is a 33 storey building with a basement and will be used for student accommodation. The proposed building height is approximately 106m above ground level. The site is located at the corner of North Terrace and Frome Street in the East End of Adelaide CBD. Figure 1 shows the topography of the area. As can be seen, the site is surrounded by low to medium rise buildings.



Figure 1 – Aerial view of the site and surrounding area (from Google Earth)

This report outlines the basic wind analysis based on available wind data (at West Terrace Station) obtained from Bureau of Meteorology's website, Australian Standard AS/NZS 1170.2 and technical guidelines and publication on wind design. The wind effects on pedestrians at ground level will be assessed and compared with acceptance criteria. Measures to minimise the wind effects are recommended at the end of this report.

2.0 Analysis Methodology

Tall buildings generally induce changes in wind conditions in adjacent ground level areas. Those changes may create discomfort or even danger to pedestrians at ground level. In order to assess the effects of the new wind conditions due to a new high-rise development, the following factors are to be considered:

- The exposure of the proposed building to wind;
- The regional wind climate in the locality;
- The geometry and orientation of the proposed buildings; and
- The interaction of flows with adjacent buildings.

The wind effect is normally represented by gust wind speeds or mean wind speeds. The assessment criteria for comfort and safety in terms of wind speeds are given in Tables 1 and 2. If the wind speeds are found to exceed the threshold values, wind control devices will be recommended. If complex air flow scenario is evident, MLEI will recommend wind tunnel modelling to accurately study the wind patterns and effectiveness of proposed wind control devices.

Annual maximum gust wind speed	Result on perceived pedestrian comfort
> 23m/s	Unsafe (frail pedestrians knocked over)
< 16m/s	Acceptable for walking (steady steps for most pedestrians)
< 13m/s	Acceptable for standing (window shopping, vehicle drop off, queuing)
< 10m/s	Acceptable for sitting (outdoor cafes, pool areas, gardens)

Table 1 – Recommended wind comfort and safety - gust criteria

Annual maximum mean wind speed	Result on perceived pedestrian comfort
> 15m/s	Unsafe (frail pedestrians knocked over)
< 10m/s	Acceptable for walking (steady steps for most pedestrians)
< 7m/s	Acceptable for standing (window shopping, vehicle drop off, queuing)
< 5m/s	Acceptable for sitting (outdoor cafes, pool areas, gardens)

Table 2 – Recommended wind comfort and safety - mean criteria

The recommended criteria for comfort are shown in Table 3.

Area	Recommended criteria
Public footpaths and walkways	Acceptable for walking and standing
Building entrances	Acceptable for walking and standing
Balconies, café alfresco	Walking, sitting and standing

Table 3 – Recommended application criteria

3.0 Wind Assessment

3.1. Site exposure

The proposed development at 266 North Terrace is located at the East End of Adelaide CBD. The local terrain is relatively flat. According to AS/NZS 1170.2, the terrain category for the site is TC4 for the north, west and south directions and is TC3 for the east direction.

3.2. Regional Wind Climate

The wind data for the proposed development is obtained from the Bureau of Meteorology's website at West Terrace Station. The charts in Figures 2 and 3 present the distribution of the wind speed (km/h) at 40m elevation in different directions.

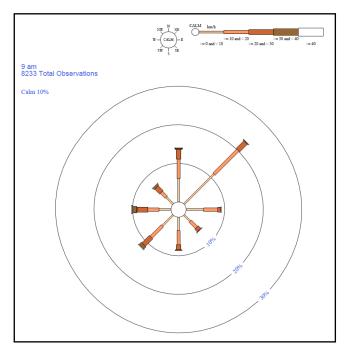


Figure 2 – Mean wind speed distribution at 9am

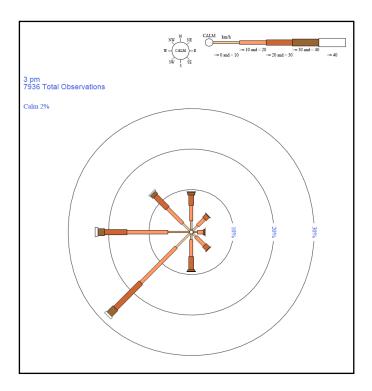


Figure 3 – Mean wind speed distribution at 3pm

From the charts, north-easterly winds dominate in the morning and south-westerly winds dominate the afternoon. Stronger winds are expected in the north-easterly, south-westerly and westerly directions.

3.3. Geometry and Orientation of the Development

Figure 4 shows the ground floor plan of the proposed development. The floor plan is almost square with dimensions of $25.9 \,\mathrm{m} \times 25.6 \,\mathrm{m}$. The main entrance to the building is located at the north east corner. The building height is approximately $106 \,\mathrm{m}$ above the ground level.



Figure 4 – Proposed ground floor plan (extracted from Rothelowman's drawings)

Figure 5 shows a typical floor plan at upper levels. There will be no private balconies to the apartments/studios.

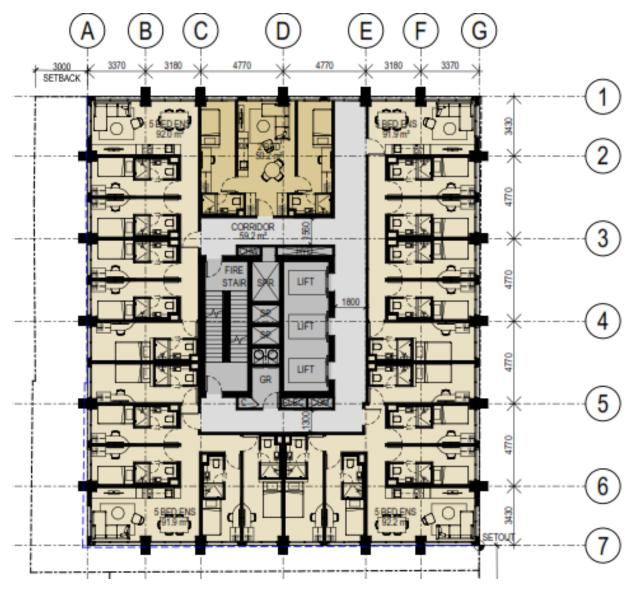


Figure 5 – Proposed typical floor plan for upper levels (extracted from Rothelowman's drawings)

There are 2 levels of communal areas at levels 12 and 13. A terrace is proposed along the northern façade of levels 12 as shown in Figure 6.

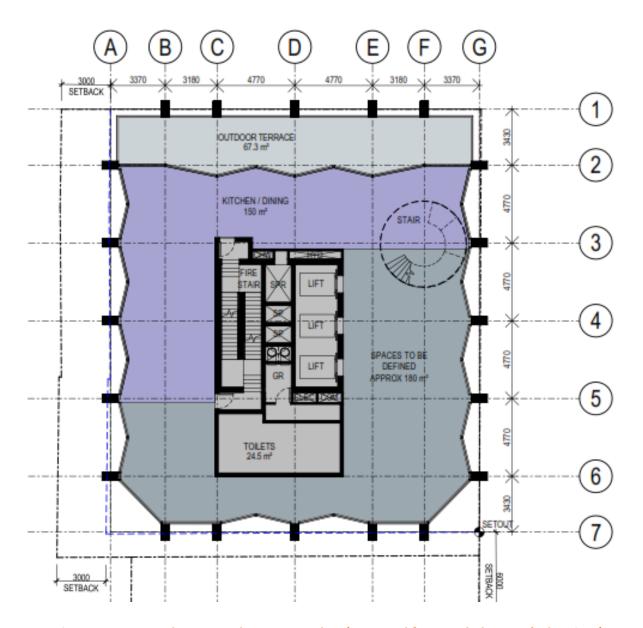


Figure 6 – Proposed communal area at Level 12 (extracted from Rothelowman's drawings)

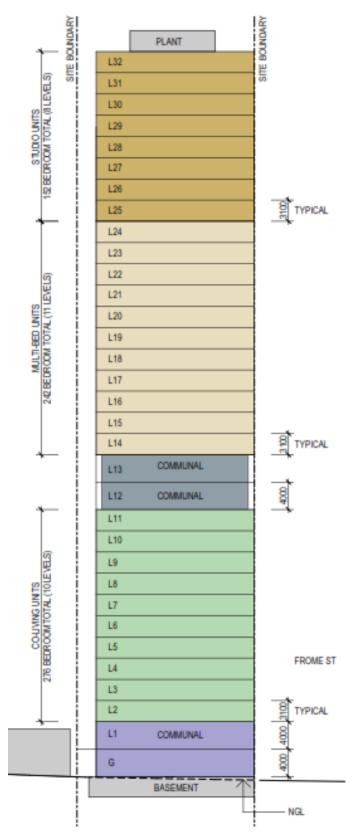


Figure 7 – Typical section through the building (extracted from Rothelowman's drawings)

The proposed elevation of the building suggests that the façade system will consist of exposed structural columns and beams with infilled glass panels. The glass cladding will be set back from the building lines at ground level and at Levels 12 and 13.



Figure 8 – 3D artist impression (extracted from Rothelowman's drawings)

3.4. Flow Interactions with Adjacent Buildings

The proposed building will be significantly taller than the existing buildings in the vicinity of the site. The influences of aerodynamic interactions can be significant for south-westerly wind, westerly wind, southerly wind, northerly wind and north-easterly wind. Downwash effect could be significant on the all sides of the building given its geometry.



Figure 9 – Google Streetview's image of the site (from Frome Street looking South)



Figure 10 – Google Streetview's image of the site (North Terrace looking East)



Figure 11 – Google Streetview's image of the site (North Terrace looking West)



Figure 12 – Google Streetview's image of the site (Frome Street looking North)



Figure 13 – Ground floor plan with recommended criteria overlaid

4.0 Discussions

The proposed development is located within the Adelaide CBD surrounded by low rise to medium rise buildings.

When the wind hits the building, the wind accelerates down and around the windward corners and causes the windiest condition at ground level at the windward corners and sides of the building. The mechanism is referred to as "downwash" wind effect.

Channelling effect occurs when the wind accelerates between two buildings or along straight streets with buildings on either side.

At ground floor level, it is unlikely that the wind conditions in the footpath areas would exceed the criterion for standing and walking. Some higher wind conditions are expected in the footpaths to the north and east of the development due to the channelling effect in North Terrace and Frome Street. Channelling effect would also be experienced along the laneway at the south boundary of the development.

It is expected that the horizontal elements of the proposed façade combined with the setbacks of the glass glazing at Ground floor level and at Communal areas on Level 12 and Level 13 would significant reduce the downwash effects.

Without wind amelioration, wind conditions exceeding sitting and standing criteria may be experienced in the terrace at Level 12. Light weight items or loose furniture placed in those areas may be at risk of being removed by strong winds.

5.0 Recommendations

Just as any development would, this proposed development has the potential to impact on the current wind conditions in the surrounding areas. However, we do not expect that the proposed development will generate wind conditions that cannot be managed by careful consideration. Accordingly we expect that most of the ground level would be close to or within the criterion for acceptability for walking, standing or sitting providing the following guidelines are adhered to:

- The proposed façade system must consist of horizontal elements on the sides of the building to reduce the downwash effect. Alternatively, wide canopies are recommended to be installed at ground level along North Terrace and Frome Street;
- Carefully planned obstructions such as perforated screens or a row of trees at the north side shall be designed to reduce the wind effect to the front of the ground floor cafe area.

It is recommended that light weight items or loose furniture at the open terrace area on Level 12 to be secured during strong wind events.



GSA Pty Ltd Suite 603, 55 Harrington St The Rocks NSW 6682

Attention: Mr Simon Pikkat

24th October 2017

Job No. WAD171377

Dear Simon.

STUDENT HOUSING, 266 NORTH TERRACE ADELAIDE

PRELIMINARY STORMWATER MANAGEMENT REPORT

1. INTRODUCTION

WGA have been engaged by GSA Ptv Ltd to undertake the preliminary civil design for the proposed new student housing development located at 266 North Terrace, Adelaide. This report is intended to outline the preliminary stormwater management design for the proposed works. The final detailed design is still being carried out and as such this advice is preliminary only.

DEVELOPMENT DESCRIPTION 2.

The proposed development is detailed on the Architectural drawings and involves the construction of a new multi-storey apartment building. The new building occupies almost the entire site with only minor paved areas located on the northern side of the site.

Demolition of the existing structures within the new building footprint will also occur as part of the development.

A copy of the relevant Architectural drawings are attached in Appendix A.

3. **EXISTING STORMWATER DRAINAGE**

The stormwater runoff from the existing building is discharged via downpipes to either North Terrace or Frome Street. The downpipes on the western and northern sides of the site connect to an underground pipe located within the North Terrace footpath. This 150mm dia pipe is not a Council asset with Council advising it is a "private" drain. It connects to a Council catch pit located on the kerb line of North Terrace (on the north-east corner of the site). The downpipes on the eastern side connect to two checker plate drains located in the footpath of Frome Street. These drains discharge directly into the kerb and gutter in Frome Street.

There is another "private" stormwater drain located immediately south of the site that connects to the existing building on the south-western side of the site. This will not be impacted by the proposed development.

A copy of the Engineering Survey is attached in Appendix B and a copy of Council's stormwater drainage network is attached in Appendix C.

60 Wyatt Street Adelaide SA 5000 T: 08 8223 7433 WGASA Pty Ltd ABN 97 617 437 724

171377lt001 - Rev A

4. COUNCIL REQUIREMENTS

Adelaide City Council's requirements for stormwater drainage are as follows:

- For traditional downpipe drainage, stormwater discharge to the street kerb and gutter is preferred, with a maximum of 15 l/s allowable per outlet. The footpath crossing shall be via a checker plate drain (refer Adelaide City Council standard detail C222). The maximum spacing per outlet is 5m. No stormwater detention is required.
- Where a symphonic downpipe system is proposed, stormwater detention storage is required to reduce the post-development 1 in 100 year flow rate to the pre-development 1 in 20 year flow rate.
- Finished floor levels of new development shall be no lower than the existing surface level at the property boundary.

5. STORMWATER MANAGEMENT METHODOLOGY

Collection of roof drainage will follow the same philosophy as the current building with the stormwater runoff directed towards the kerb and gutter in both North Terrace and Frome Street. The exact location of the checker plate drains in the footpath will be determined during detailed design and will be dependent on the final roof layout. The checker plate drains will be in accordance with Adelaide City Council standard detail C222.

It may be possible to connect to the existing "private" 150mm dia pipes in the North Terrace footpath however this will be resolved during the detailed design phase of the project.

It is noted that the peak flow rate from the 1 in 100 year storm event is approximately 35l/s and as such there will need to be a minimum of 3 No checker plate drains to discharge the water to the street kerb and gutter (based on Council's requirements for a maximum 15l/s outlet).

No stormwater quality improvement measures are proposed as the majority of the site runoff is "clean" roof water.

A copy of the indicative stormwater drainage layout is attached in Appendix D, noting that the final layout is still to be finalised.

Should you have any further queries, please contact the undersigned.

Yours faithfully

Colin

WALLBRIDGE GILBERT AZTEC

Appendix A – Architectural Drawings

Appendix B – Engineering Survey

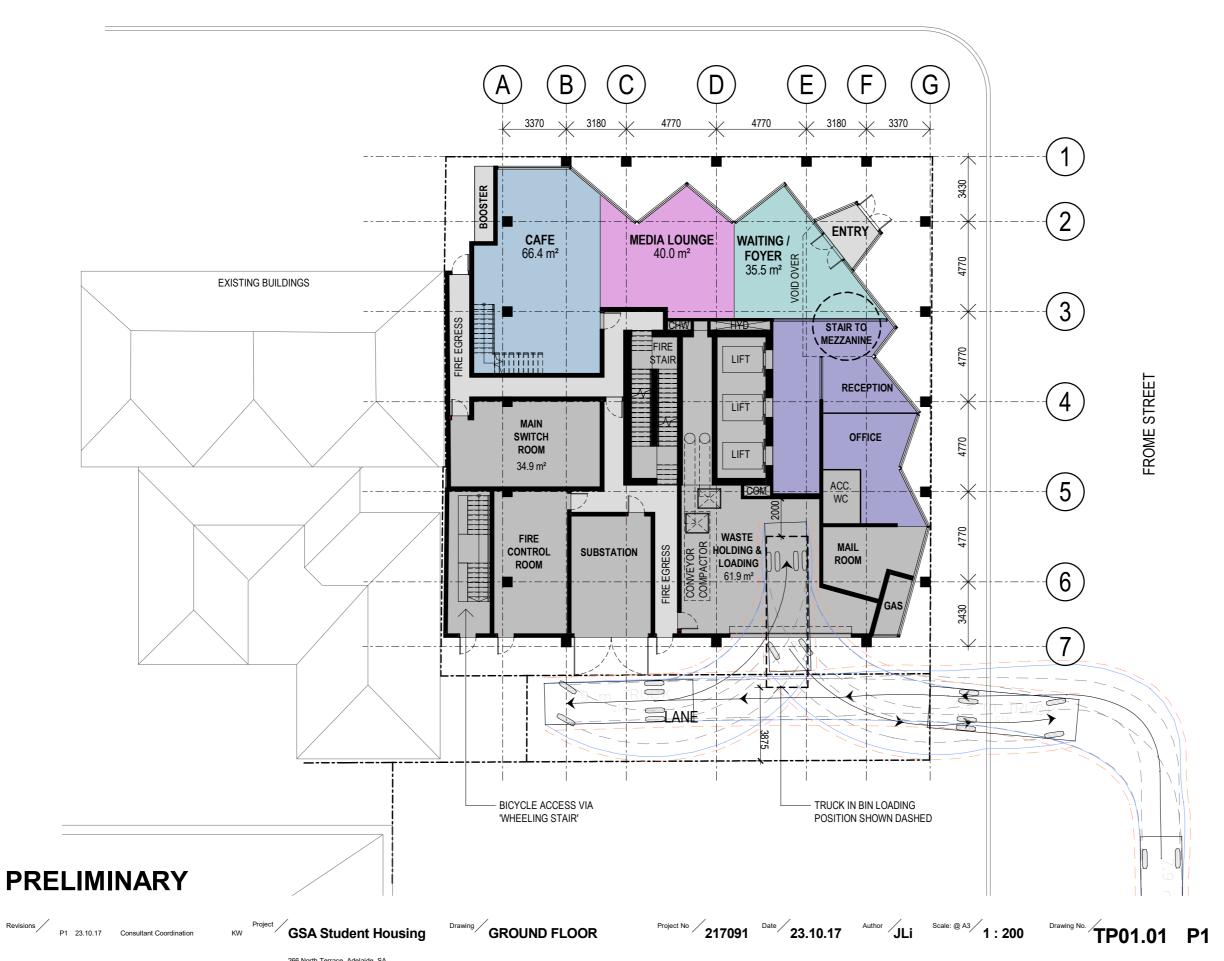
Appendix C – Existing Council Drainage

Appendix D – Preliminary Stormwater Sketch

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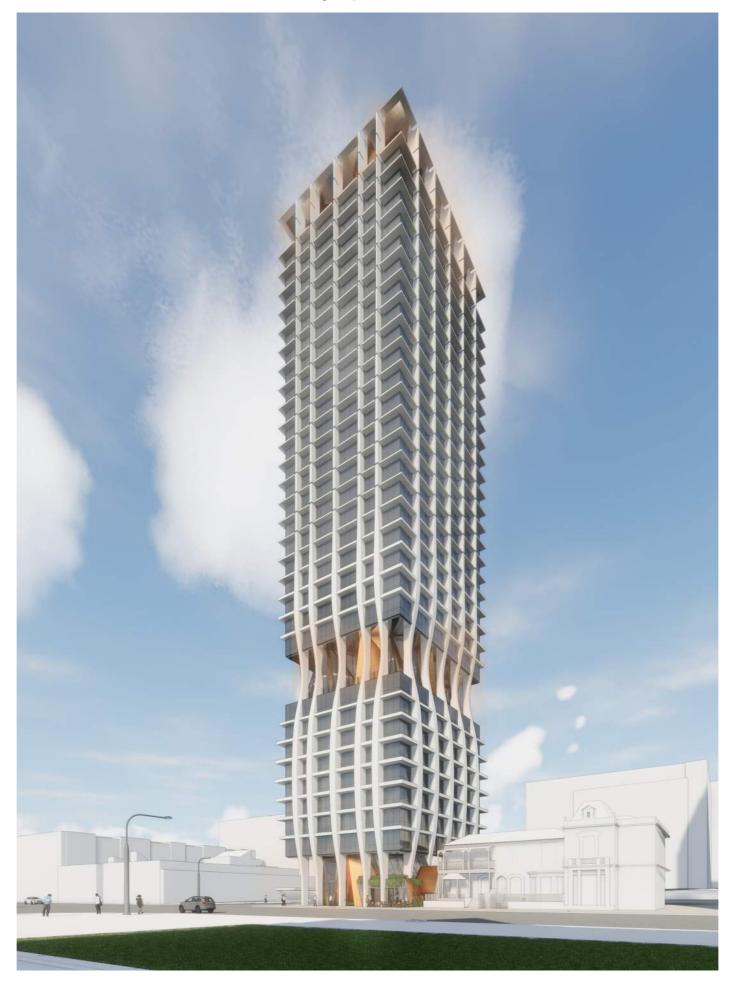
Architectural Drawings



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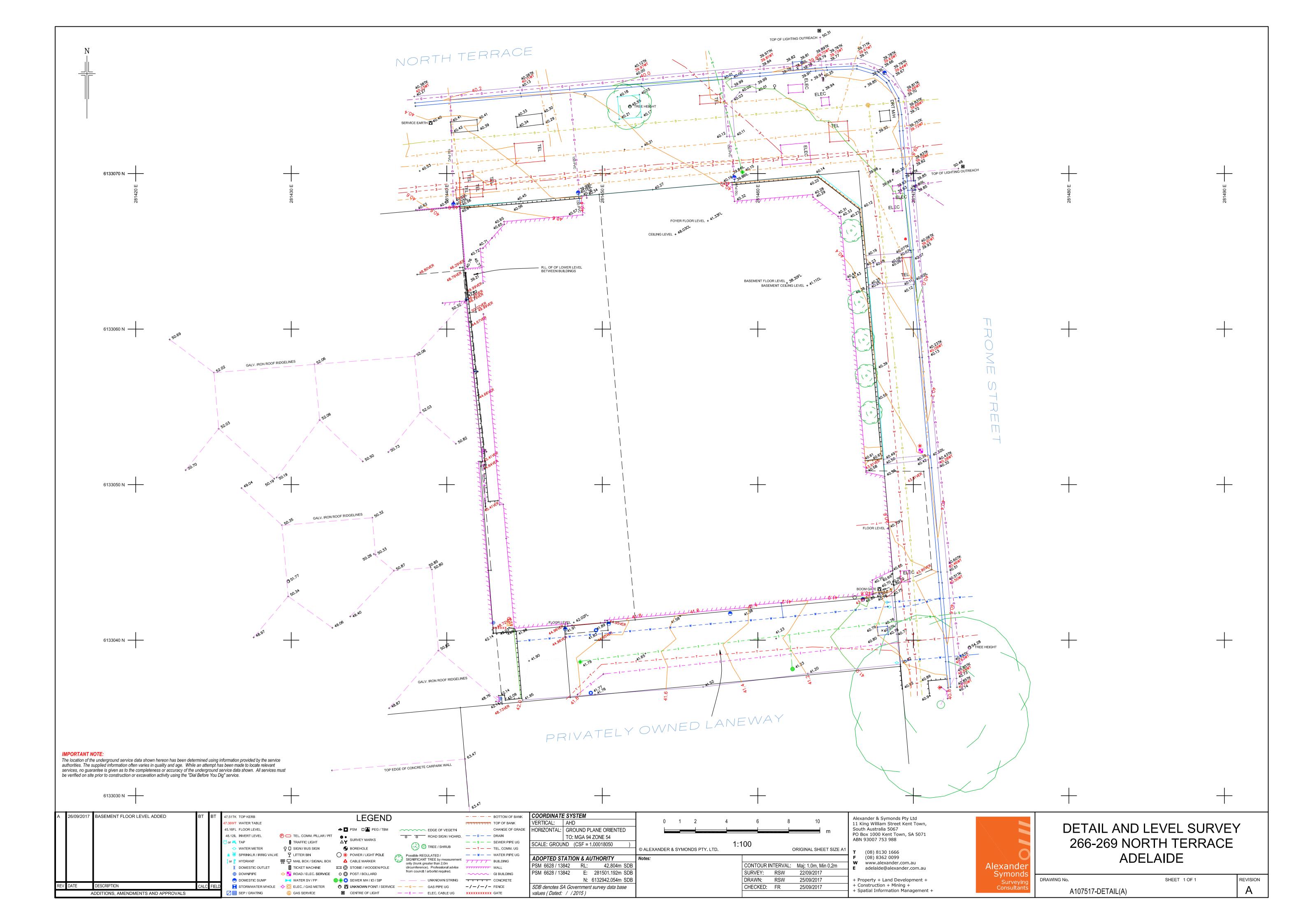






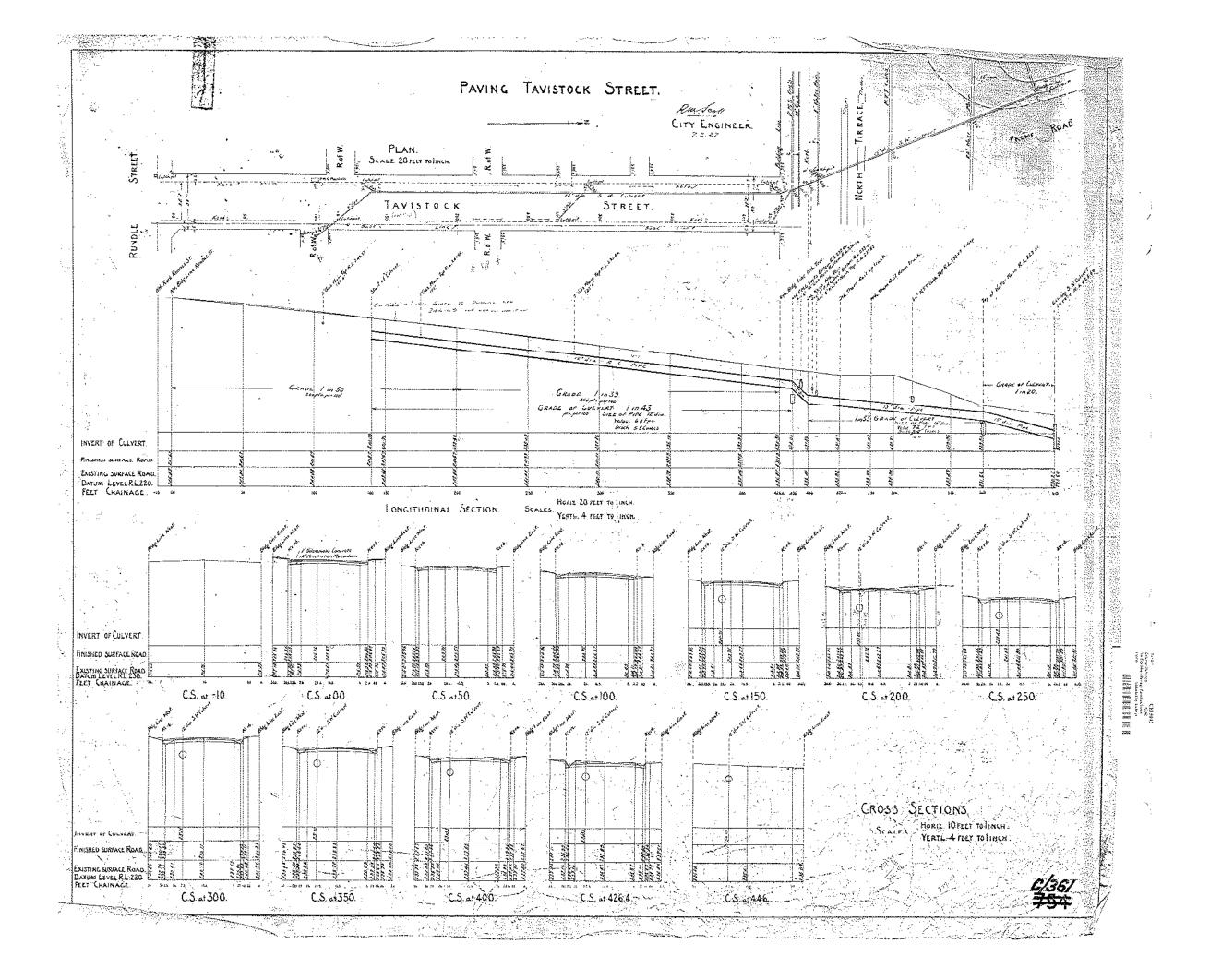
APPENDIX B

Engineering Survey



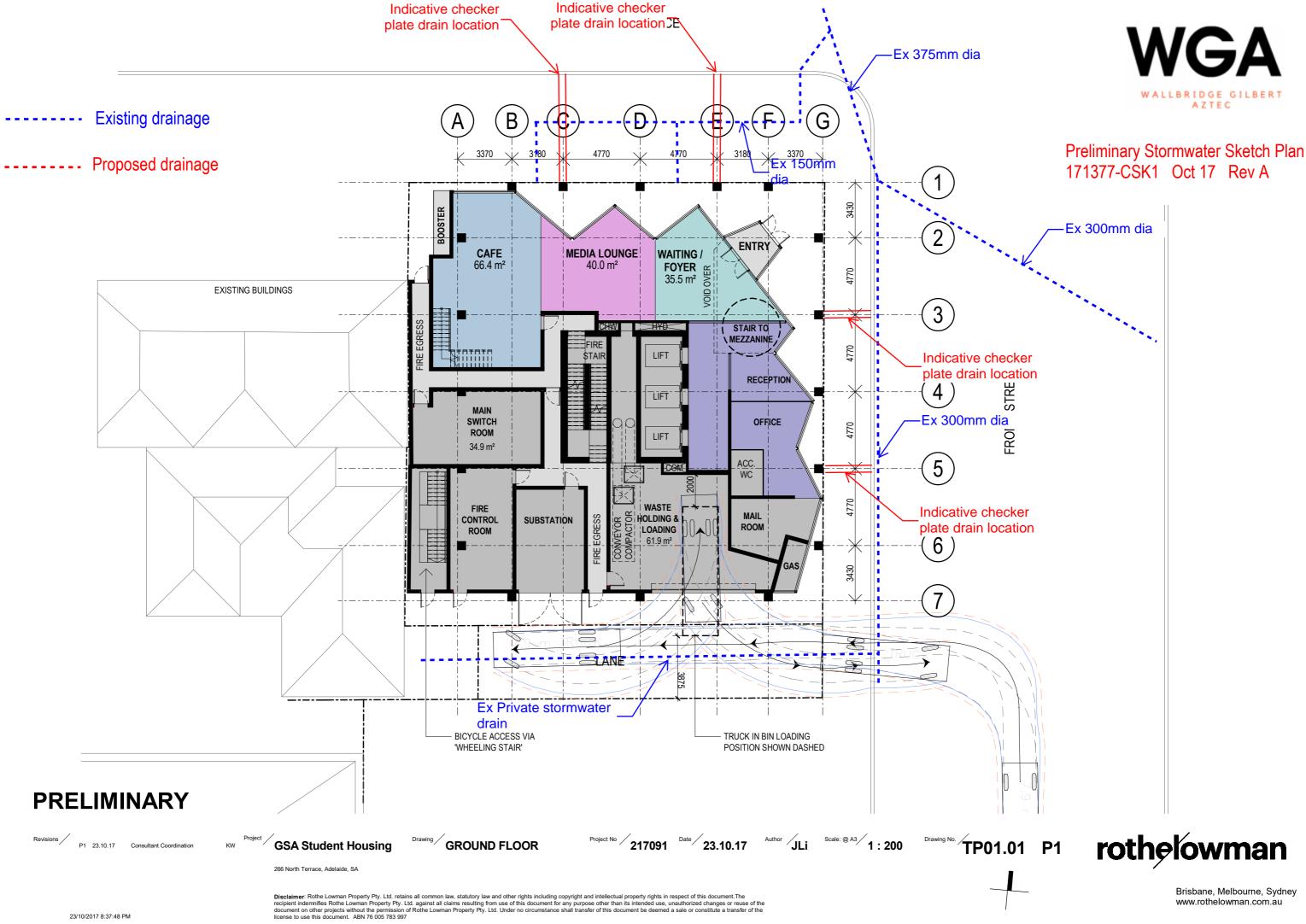


Existing Council Drainage





APPENDIX D		
Preliminary Stormwater Sketch		







Preliminary Site Investigation: Environmental Site History

Job Number: \$36285 - 256785

Client: GSA Australia Pty Ltd

Site: 266 – 269 North Terrace, Adelaide, SA, 5000

Date: 25 July 2017

Revision: 0

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Document Status

D		Approved for Issue			
Rev No.	Author	Name	Signature	Date	
0	Kate Stead Environmental Scientist	Drew Gowling Senior Environmental Scientist	The	25 July 2017	

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Executive Summary

Site Location and Current Condition	The site is located at 266-269 North Terrace, Adelaide. The site occupies an area of approximately 700m² and is currently occupied by the First Church of Christ Scientist church.		
Objectives of Investigation	The objectives of this PSI - ESH are to identify potential source(s) of contamination associated with current and historical site uses to provide information for assessment of the potential Contaminants of Concern in soil that could pose unacceptable risks to future users of the site.		
Proposed Development	High density residential		
Environmental Setting	Geology Description The Geological Survey of South Australia, 1:100,000 Adelaide 6628 sheet, (Department of Primary Industries and Resources South Australia) indicates that the geology beneath the site and surrounds is characterised by Keswick Clay underlain by Hindmarsh Clay. Hydrogeology Description Depth to groundwater in the vicinity of the site is indicated to be approximately 3.35 - 16m bgl. Hydrology Description The River Torrens is the closest surface water feature to the site, located approximately 550m north west of the site.		
Potentially Contaminating	On-site PCAs identified include the following:		
activities (PCAs) and Associated Contaminants (Sources)	 Potential importation/ dumping of fill whilst the site was an abandoned construction site and during construction; 		
	 Potential application of pesticides and herbicides whilst maintaining an abandoned construction site; and 		
	 Potential spillage/leakage of chemicals in the chemical storage room located in the basement. 		
	Off-site sources of potential contamination identified within the investigation includes an underground petrol storage tank located approximately 30m east of the site.		
Conclusions and Recommendations	Based upon the findings of the ESH, FMG considers that there is a low to moderate risk that contamination may exist on-site that could affect human health and environment. This is due to PCAs being identified and there being a potential for pollutant linkages to exist, during the construction phase and following redevelopment of the site for residential use. This warrants further investigation and consideration.		
	FMG therefore recommends that a preliminary investigation comprising limited soil sampling is undertaken to assess the contamination status of the soils at the site. This will allow further assessment of the nature and extent of site contamination and the potential risks posed to the receptors at the site during construction and following the proposed residential redevelopment.		

Shortened Form

AHD	Australian Height Datum
AS	Australian Standards
ASC	Assessment of Site Contamination National Environmental Protection Measure
BTEX	Benzene, Toluene, Ethylbenzene & Xylenes
CSM	Conceptual Site Model
СТ	Certificate of Title
DEWNR	Department of Environment, Water and Natural Resources
DWLBC	Department of Water Land Biodiversity Conservation
EPA	Environment Protection Authority South Australia
ESH	Environmental Site History
FMG	FMG Engineering
km	Kilometres
m	Metres
m²	Square Metres
m bgl	Metres below ground level
mg/kg	Milligrams per kilogram
mg/L	Milligrams per litre
NEPM	National Environment Protection Measure
PAH	Polycyclic Aromatic Hydrocarbons
PCA	Potentially Contaminating Activities
PCB	Polychlorinated Biphenyls
PSI	Preliminary Site Investigation
SARIG	South Australian Resources Information Geoserver
TRH	Total Recoverable Hydrocarbons
VOCs	Volatile Organic Compounds
μg/L	Micrograms per litre

1. Introduction

1.1. Background

FMG Engineering (FMG) was engaged by GSA Australia Pty Ltd. (GSA) to undertake a Preliminary Site Investigation (PSI) comprising an Environmental Site History (ESH) for a property located at 266 - 269 North Terrace, Adelaide, South Australia (the site).

The site comprises an area of approximately 700 square metres (m²) and currently comprises a church building occupied by the First Church of Christ Scientist. The location and boundaries of the sites are presented in Figure 1.

GSA intends to redevelop the site for high-density student housing. FMG understands that the client requires a PSI completed to assess whether there are potential unacceptable risks to the future users of the site, following the proposed redevelopment due to historical land use.

1.2. Objectives

The objective of this PSI ESH is to identify potential source(s) of contamination associated with current or historical site uses that may impact on the suitability of the site for future development, including residential land use, and/or warrant further investigation.

The purposes of the PSI ESH are to:

- To provide information on past and current uses of the site and surrounding area, and the nature of hazards and physical constraints;
- To provide information on the geology, hydrogeology and hydrology of the site to assist in establishing a conceptual site model and identify constraints to the development of the site;
- To identify receptors, potential sources of contamination, likely pathways and features of immediate concern; and
- To provide a preliminary Conceptual Site Model (CSM) of the nature and extent of potential contamination and data for a preliminary qualitative risk assessment.

1.3. Scope of Work

All work was undertaken in accordance with the scope of work outlined in the FMG proposal (EST12142) dated 13 June 2017 and conformed to the requirements of FMG's Quality Management System, which is certified by BSI Australia to comply with the requirements of ISO9001.

The scope of work was developed in accordance with:

- National Environment Protection (Assessment of Site Contamination) Measure, 1999, amendment May 2013 referenced in this report as "ASC NEPM"; and
- Australian Standard AS4482.1-2005, Guide to the investigation and sampling of sites with potentially contaminated soil.

The PSI ESH encompasses a desktop study and a site inspection only. No intrusive investigations were undertaken as a part of the commission.

1.4. Sources of Information

The sources of information which have been consulted during the preparation of this report are presented in Table 1.4 overleaf.

Table 1.4: Sources of Information and Search Results

		Section of the Report
Land Services Group DPTI, Property Assist Application	The Certificates of Title (Current and Cancelled) have been obtained and reviewed.	Section 2 and Appendix A
Adelaide City Council	Planning and zoning Information	
DEWNR, Mapland	Historical aerial photographs have been obtained and reviewed.	Section 3 and Appendix C
Sands & McDougall's South Australian Directory	A review of the SA Directory, incorporating Boothby's SA Directory has been undertaken	Section 3
SA EPA Section 7 Search	Records obtained from the SA EPA Database relating to the Land and Business (Sale and Conveyancing) ACT 1994.	Section 3 and Appendix D
Safe Work SA Records	Dangerous goods licensing Information.	Section 3 and Appendix E
Smith Survey	Survey of the City of Adelaide circa 1878-1800.	Section 3 and
	Accessed online (http://www.cityofadelaide.com.au/your-community/culture-history/city-archives/holdings-collections/) on 10/7/2017	Appendix F
Fire Insurance Maps	Survey of the City of Adelaide circa 1911-1914	Section 3 and
	Accessed online	Appendix G
	(https://data.sa.gov.au/data/dataset/c2b6d9a4-9b7e-42bd- 9cba-856320e2e139) on 10/7/2017	
Anecdotal Information	Annecdotal information in regards to the history of the	Section 3 and
	building was obtained via an internet search. (http://www.ohta.org.au/organs/organs/AdelaideChSci.html) on 7 July 2017	Appendix H
Department of environment and Heritage, The Adelaide topographic series Sheet No.6638-3 and PT6528-2, Scale 1:50,000		Section 5
Department of Primary Industries and Resources South Australia, The Geological Survey of South Australia	Sheet No. 6628, Scale 1:100,000	Section 5
CSIRO Australia, Report Book 94/9, Volume 1, "Soils, stratigraphy and engineering geology of near surface materials of the Adelaide Plains", Sheard and Bowman, 1998. A review of the publication to obtain information relating to the geology of the site.		Section 5
DEWNR Water Connect Website	Groundwater data relating to the site. Accessed 13 July 2017.	Section 5 and Appendix F
Department of Environmental and Primary Industries, Victorian Resources Online	A review of the resources online to gain information on the Groundwater Beneficial Uses relating to the groundwater quality of the site.	Section 5
Australian Soil Resource Information System (ASRIS), CSIRO online	Information relating to Acid Sulphate Soils in the vicinity of the site.	Section 5

2. Site Identification

The information relating to the site is presented within Table 2.1

Table 2.1: Site Details

Site Address	266 – 269 North Terrace, Adelaide.		
Certificate of Title(s) and Legal Description	Volume 2331 Folio 105 – Portion of Town Acre 27, Filed Plan 181887, Area of Adelaide, Hundred of Adelaide. The certificates of title are presented within Appendix A.		
Current Ownership	First Church of Christ Scientist, Adelaide Incorporated.		
Site Area	The site occupies approximately 700m².		
Current Land Use	A church encompasses the entire site, commercial land use as defined within the ASC NEPM.		
Local Government Authority	Adelaide City Council.		
	Central Business Policy Area – "The pre-eminent economic, governance and cultural hub for the state. This role will be supported by the educational, hospitality and entertainment activities and increased opportunities for residential, student and tourist accommodation."		
Current Zoning	A copy of the relevant extract from the Adelaide City Council Development Plan is provided in Appendix B.		
	The zoning information provided is an extract only and should be read in conjunction with the other principles and objectives of development control contained within the Adelaide City Council Development Plan, dated 24 September 2015.		
Proposed Land use	High density residential building. Residential land use with no accessible soil as defined within the ASC NEPM.		
	To the North – North Terrace with the University of Adelaide beyond.		
Surrounding Land Uses	To the East – Frome Road, with Budget Car and truck Rental beyond.		
Surrounding Land USES	To the South – Laneway and commercial buildings.		
	To the West – Medical consulting rooms.		

3. Site History

3.1. Historical Ownership

A review of the current and historic Certificates of Title (CT) was undertaken to identify:

- Previous ownership/ occupiers of the site;
- Periods during which ownership or tenancy is unknown or uncertain; and
- Potentially contaminating activities that may have occurred on site.

The initial CT, issued in 1923 noted Samuel Howell (Investor) as the site owner. The ownership was then transferred to investors, Harold Rankin and Otto Rieben in 1924. On 4 May 1939, ownership was transferred to the First Church of Christ Scientist Incorporated. Copies of the CT documentation for the site are presented in Appendix A.

3.2. Aerial Photography Review

Aerial photographs of the site from 1949, 1959, 1968, 1979, 1989, 1999 and 2005, were obtained from the Department of Environment Water and Natural Resources (DEWNR). Copies of the aerial photographs are provided in Appendix C.

Table 3.2 provides a summary of the historical aerial photography review. In addition, any subsequent information has been included in the table, if considered relevant.

Table 3.2: Historical Aerial Photograph Review Table

Photograph Data	Features Identified			
Survey: 7	The photograph is black and white and of poor quality. The site			
Photo: 74 Scale: 1:15,840 Date: 10/01/1949	An unknown structure is located on the site. Due to the poor quality of the image further detail is not visible.			
Date: 10/01/1949	Surrounding land			
	The site appears to be situated in a predominately commercial/residential area, which appears to be well developed with what appears to be commercial/residential properties.			
Survey: 326	The photograph is black and white and of poor to moderate quality.			
Photo: 9453	The site			
Scale: 1:15,800 Date: 3/1/1959	A large building encompasses the entire site, which is known to be the Church of Christ Science currently occupying the site.			
	Surrounding Land			
	No significant changes are visible since the 1949 aerial photograph.			
Survey: 1132B	The photograph is black and white and is of moderate quality.			
Photo: 463 The site				
Scale: 1:14,000	No significant changes are visible since the 1959 aerial photograph.			
Date: 15/11/1968	Surrounding Land			
	A Laneway is visible along the southern boundary between the site and the commercial/residential buildings.			

Table 3.2 Continued: Historical Aerial Photograph Review Table

Photograph	Features Identified		
Data			
Survey: 2408	ey: 2408 The photograph is colour and is of moderate quality.		
Photo: 78	The site		
Scale: 1:16,000	No significant changes are visible since the 1969 aerial photograph.		
Date: 19/03/1979	Surrounding Land		
	No significant changes are visible since the 1969 aerial photograph.		
Survey: 4091	The photograph is colour and is of poor to moderate quality.		
Photo: 190	The site		
Scale: 1:20,000	No significant changes are visible since the 1979 aerial photograph.		
Date: 6/09/1989	Surrounding Land		
	No significant changes are visible since the 1979 aerial photograph.		
Survey: 5717	The photograph is colour and is of good quality.		
Photo: 539 The site			
Scale: 1:20,000	No significant changes are visible since the 1989 aerial photograph.		
Date: 26/09/1999	Surrounding Land		
	No significant changes are visible since the 1989 aerial photograph.		

3.3. Sands and McDougall

FMG conducted a search of the Sands and McDougall Directories for the site. The first record of 266 North Terrace was in 1957 and was listed as "First Church of Christ Scientist". Previous to 1957, the site was vacant and therefore did not appear in the directory. These entries in the Sands and McDougal generally coincide with the CTs, presented within Appendix A.

3.4. Environment Protection Authority

The SA EPA conducted a Section 7 - Land and Business (Sale and Conveyancing) Act 1994 search for the site. A copy of the search result is included in Appendix D and reported the following, as of 5 July 2017:

- There are no mortgages, charges or prescribed encumbrances affecting the site under Sections 59, 93, 99 and 100 of the Environment Protection Act 1993;
- The EPA does not hold copies of any reports on any environmental assessments or any
 pollution or contamination in relation to the land or any part of the land;
- No licence to operate a waste depot or produce prescribed or listed waste has been issued for the site under the repealed South Australian Waste Management Commission Act 1979, the repealed Waste Management Act 1987 or the Environment Protection Act 1993.

The Section 7 search results note that historical records provided to the SA EPA concerning matters arising prior to 1 May 1995 are limited and may not be accurate or complete.

Additionally, FMG searched the SA EPA Site Contamination Index for Adelaide, to determine if the EPA held reports, in relation to site contamination for any nearby sites. FMG obtained numerous reports held by the EPA however no information of note was found.

3.5. SafeWork SA Dangerous Substances Register

A request for a search of the Dangerous Substances Register was lodged with Safework SA for the site. SafeWork SA indicated that they held no current or historical licenses for the site.

A copy of SafeWork SA search results is provided within Appendix E.

3.6. Smith Survey

A detailed trigonometrical survey of the City of Adelaide was carried out by the City Engineer (Charles Smith) during 1878-1880, in preparation for the installation of a general system of deep drainage. The Survey comprises 126 maps each of 10 acre blocks, which show the precise location and layout of every building that existed in the City at that time.

The Smith Survey indicated that the site was vacant circa 1878-1880. A copy of the relevant survey plan is provided within Appendix F.

3.7. Adelaide Fire Insurance Maps

A series of maps were produced in 1911-1914 by the Fire Underwriters Association of South Australia who surveyed portions of the Adelaide CBD.

The Fire Insurance maps indicated that the site was vacant circa 1911-1914. A copy of the relevant map is provided within Appendix G.

3.8. Anecdotal Information

A search of the site address on google was conducted on the 7 July 2017. A web page (http://www.ohta.org.au/organs/organs/AdelaideChSci.html, accessed 7 July 2017) provided some anecdotal information in regards to the history of the site, as follows:

- It is unclear exactly when building commenced on the Temple on North Terrace by it is suggested that building began on 6 March 1916 but stopped in June of that year;
- The walls were raised a few feet and preparations made to lay the foundation stone when building operations ceased;
- The building site lay derelict for some 36 years before being purchased by the First Church of Christ Scientist in 1939;
- The current building was designed by Mr L. Laybourne Smith and opened for the first service on Sunday 20 January 1957.

An extract of the anecdotal information is provided within Appendix H.

3.9. Summary of Site History

A chronology table summarising the history of the site is provided within Table 3.9 overleaf.

Table 3.9: Summary of Site History

Date	Owner	Land Use	Buildings/ Structures	Comments	Source of Information
1878-1880	-	Vacant Land	No Buildings or Structures		Smith Survey (Appendix F)
1911-1914	-	Vacant Land	No Buildings or Structures		Adelaide Fire Insurance Maps (Appendix G)
March 1916	-	Active Construction Site	Partial building structure	Construction commenced for a church on North Terrace. The walls were raised a few feet and preparation was made to lay foundations.	Anecdotal information from internet search (Appendix H)
June 1916	-	Abandoned Construction Site	Partial building structure	Construction ceased for temple on North Terrace	Anecdotal information from internet search (Appendix H)
September 1925	Samuel Howell	Abandoned Construction Site	Partial building structure	First Certificate of title issued.	Certificate of Title (Appendix A).
1939	First Church of Christ Scientist	Abandoned Construction Site	Partial building structure		Certificate of Title (Appendix A) and aerial photographs (Appendix C)
1957- Current	First Church of Christ Scientist	Church	Church building (as per current layout)	Church first listed in Sands and MacDougal. Anecdotal information indicated that the first service was conducted on 20 January 1957.	Certificate of Title (Appendix A), aerial photographs (Appendix C) Sands McDougall and anecdotal information (Appendix H).

- Denotes information unknown

4. Environmental Setting

4.1. Site Topography& Drainage

The South Australian 1:50,000 Topographic Series, Sheet No. 6628-3-IV & PT6628-2 (Department of Environment and Heritage) indicates that the site is at an approximate elevation of 40m above Australian Height Datum (AHD).

4.2. Regional Geology

Table 4.2: Summary Table of Regional Geology

Geology	Details	Source
Keswick Clay underlain by Hindmarsh Clay	Keswick Clay is indicated by Sheard and Bowman to typically consist of a thin brown to grey sandy A horizon which is calcareous, a brown to red-brown calcareous clayey sand to sandy clay B horizon of variable thickness. Hindmarsh Clay is indicated by Sheard and Bowman to typically consist of predominantly clay, but is often sandy, silty, micaceous or gravelly.	Geological Survey of South Australia, 1:100,000 Barker Series (SI5413), Adelaide 6627 sheet. Soils, stratigraphy and engineering geology of near surface materials of the Adelaide Plains, Volume 1 (M.J Sheard and G.M Bowman). Report book 94/9 (March 1996).
Extremely Unlikely to comprise acid sulphate soils	The site is located in an area where there is no known occurrence of acid sulphate soils.	ASRIS accessed 19 January 2017.

4.3. Regional Hydrogeology

The Department of Water, Land and Biodiversity Conservation (DWLBC) report, 'Overview of the Hydrogeology of the Adelaide Metropolitan Area' (DWLBC, 2010) indicates that the site lies within Zone 4. The report describes Zone 4 as containing up to three Quaternary aquifers and two Tertiary aquifers and a fractured rock aquifer. Each Tertiary Aquifer consists mainly of thin layers of fine sand with low yield. Most of the Quaternary and Tertiary aquifers become thin, shallow and interconnected in the vicinity of the River Torrens. The shallow fractured rock aquifer near the River Torrens contains groundwater of low salinity and significant yield.

A search of the WaterConnect Enquiry System (on the DEWNR website) (21 July 2017) identified no groundwater wells on the site. The search identified 45 registered groundwater wells within a 300m radius of the centre of the site. Wells installed earlier than 1960 were excluded from the data set due to the age of the available data. In addition, wells installed to depths greater than 100m below ground level were also excluded from the data set.

Table 4.3 provides a summary of the data collected from the enquiry system. The groundwater data is provided in Appendix I.

Table 4.3: Summary Table of Water Connect Data

	Well depth (m)	Standing water level (m bgl)	Water level (AHD)	TDS (mg/L)	Electrical conductivity (mS)	рН	Yield (I/s)
Minimum	4.57	3.35	23.9	262	476	7.4	0.13
Maximum	36.65	16	41.69	2,909	5,200	8.0	6.31
Average	-	-	-	1,735	3,112	7.65	1.4

The search indicated that of the 45 wells in the data set, one well was recorded for 'Investigation' purposes. The remaining wells did not have a recorded purpose.

The groundwater well located on the site (6628-73) has no recorded purpose. Water Connect holds the following information on the well:

Drilled Date: 13 October 1971;

Well Depth: 20.42m bgl;

TDS: 2,067mg/L;

Electrical Conductivity 3,715 mS;

pH: 8.0; and

Yield: 0.13 l/s.

A review of the reduced standing water levels (RSWLs) reported for the wells located in the vicinity of the site indicated that the localised groundwater flow direction is likely to be north westerly towards the Barker Inlet, this is supported by the likely regional groundwater flow.

The results of the Water Connect Enquiry are presented in Appendix I.

4.3.1. Comparison of Groundwater Data with Victorian EPA Beneficial Uses

The South Australian EPA Water Quality Policy provides recommendations regarding the environmental management of water. However, the policy does not provide details for the classification of water use based on the available chemical and physical parameters. Therefore, the Victorian EPA Beneficial Use Segments (Victorian EPA, 1998) were adopted to categorise groundwater conditions into different Beneficial Use Segments based on water quality criteria, thus providing a benchmark to which protection measures can be applied. Adoption of the Victorian EPA criteria is purely for comparison and is not part of the South Australian EPA Water Quality Policy. Based on the local TDS concentrations (476mg/L to 5,200mg/L), local groundwater falls under the water quality segments A1 (0-500mg/L), A2(501-1000mg/L), B (1,001-3,500mg/L) and C (3,501-13,000mg/L) with the following uses (depending on the TDS concentration):

- Potable Water- desirable (A1 only);
- Potable Water- acceptable (A2 only);
- Potable Mineral Water (A and B only);
- Irrigation (A and B only);
- Stock Water;
- Industry;
- Ecosystem Protection; and

Buildings and Structures.

Based upon the information provided by the Water Connect Enquiry system, the groundwater beneath the site may act as a potential receptor.

4.4. Regional Hydrology

The River Torrens is located approximately 550m north west of the site. The River Torrens flows into Gulf of St Vincent approximately 10.5km west of the site.

5. Site Inspection

5.1. Site Features

On 12 January 2017, a suitably qualified FMG Environmental Scientist inspected the site. The features identified during the site inspection were recorded on the Preliminary Site Investigation Checklist, presented in Appendix J.

A summary of the observed site features are shown on the Site Layout Plan, presented as Figure 2

Selected site photographs taken during the site inspection are presented in Appendix K.

A summary of the site features observed during the site inspection is as follows:

- The site comprised an active church with congregation areas, kitchen and bathroom facilities, and various associated meeting/ storage rooms;
- A basement was located beneath the entire footprint of the building. Additional rooms, congregation areas and facilities associated with the church were located within the basement;
- A storage room containing cleaning products, oils/ lubricants and insect sprays was located in the basement. A slight odour was noted within the storage room. The surface of the room comprised concrete which was in good condition;
- A second floor was present above the southern portion of the building which held the air conditioning unit;
- No odours or stains (except as mentioned above) were noted during the inspection; and
- No evidence of asbestos was noted during the site inspection.

Surrounding current land uses, as observed during the site inspection, are listed below:

- North: North Terrace with the University of South Australia beyond;
- East: Frome Road with Budget Car and Truck Rental beyond. It should be noted that a bowser (indicating an underground petrol storage tank) was noted on the Budget site;
- South: Roadway (un-named) with restaurants and commercial properties beyond; and
- West: Medical Consulting Rooms.

5.2. Indication of Preferential Pathways

Services are present beneath the site as presented in the Dial Before You Dig Plans in Appendix K. Services may act as a preferential pathway aiding the migration of contamination.

6. Preliminary Conceptual Site Model

6.1. Elements of a Conceptual Site Model

A conceptual site model (CSM) is a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The development of a CSM is an essential part of all site assessments and provides the framework for identifying how the site may have become contaminated and how potential receptors may be exposed to contamination, either in the present or the future¹.

The preliminary CSM is constructed from the results of the ESH and is used to identify data gaps and inform a decision on whether further investigation is required.

The essential elements of a preliminary CSM are:

- Known and potential sources of contamination (potentially contaminating activities) and contaminants of concern including the mechanism(s) of contamination;
- Potentially affected media (soil, sediment, groundwater, surface water, indoor and ambient air);
- · Human and ecological receptors; and
- Potential and complete exposure pathways.

In the absence of a plausible exposure pathway there is no risk. Therefore, the presence of measurable concentrations of contaminants of concern does not automatically imply that the site will cause harm. In order for this to be the case a plausible exposure pathway must be present allowing a source to adversely affect a receptor. The nature and importance of both receptors and exposure routes, which are relevant to any particular site, will vary according to its characteristics, intended end-use and its environmental setting.

6.2. Potential Contaminants and Sources

The following sections use the information gathered during the ESH investigation to provide an indication of the potentially contaminative activities (PCAs) that have been carried out throughout the duration of the use of the site and surrounding land. Associated potential contaminants are also identified where appropriate.

6.2.1. On-Site Sources

Based on the information obtained during the desktop study and the site inspection, PCAs have been identified, or were reasonably inferred, to have occurred at the site. The identified PCAs are as follows:

- Potential importation/ dumping of fill whilst the site was an abandoned construction site and during construction;
- Potential application of pesticides and herbicides whilst maintaining an abandoned construction site; and
- Potential spillage/leakage of chemicals in the chemical storage room located in the basement.

The associated contaminants relating to these PCA are presented in Table 6.2.

¹ Schedule B2 – Guideline on Site Characterisation, NEPM.

6.2.2. Off-Site Sources

Based on the information obtained during the desktop study and the site inspection, PCAs have been identified, or were reasonably inferred, to have occurred surrounding the site. The identified PCAs include an underground storage tank located approximately 30m east of the site.

Table 6.2: Identified PCAs and Associated Contaminants of Concern

PCAs	Potential Contaminant	Likely Location	Chemical mobility, persistency and toxicity	Potentially Affected Media
Potential importation/ dumping of fill whilst the site was an abandoned construction site and during construction.	TRH/BTEX(fuels), TRH/BTEX (oils), metals, polycyclic aromatic hydrocarbons (PAH), chlorinated hydrocarbons.	Beneath the building footprint.	Metals - variably (potentially high) mobile, variable persistence, moderate toxicity. TRH/BTEX (fuels) – highly mobile in the	Heavy metals – Soil, groundwater, surface water Fuels and oils - Soil,
Potential application of pesticides and herbicides whilst maintaining an	Herbicides/ Pesticides	Across the entire site.	environment, moderate persistency, moderate to high toxicity to humans. TRH (Oils) – generally lower mobility than fuels, moderate to high persistence, and moderate to	groundwater, surface water, indoor and ambient air.
abandoned construction site.			high toxicity to humans. PAH – low mobility, generally persistent, high toxicity associated with some PAH compounds, such as benzo(a)pyrene.	PAH – Soil, groundwater, surface water, indoor and ambient air.
Potential spillage/leakage of chemicals in the chemical storage room located in the	TRH/BTEX (oils/ lubricants), pesticides, chlorinated hydrocarbons	In the vicinity of the chemical storage room	Chlorinated hydrocarbons – highly mobile in the environment, moderate to high persistency, moderate to high toxicity to humans.	Chlorinated hydrocarbons - Soil, groundwater, surface
basement.	nydrocarbons		Pesticides – low mobility in the environment, high persistency, moderate to high toxicity to humans.	water, indoor and ambient air.
Underground petrol storage tank located approximately	TRH/ BTEX (fuels) and Lead	Groundwater Beneath	Herbicides – low mobility in the environment, moderate to high persistence, moderately toxic to humans.	Pesticides - Soil, surface water
30m east of the site (Budget Car and Truck Rental)		the site.		Herbicides – Soil, surface water

6.3. Potential Receptors

6.3.1. On-Site Receptors

It is understood that the site is to be redeveloped high density residential use. Therefore, future site residents, including adults and children, are considered to be receptors at the site.

Additionally, construction and maintenance workers are considered to be a receptor, as they may come into direct contact with contaminated soils during the construction works.

A review of the hydrogeological data for the well closest to the site has indicated that the site is underlain by groundwater, recorded at approximately 3-16m below ground level. Therefore, groundwater beneath the site is considered to be a potential on-site receptor.

6.3.2. Off-Site Receptors

The site is located in a predominantly commercial area; therefore workers on adjacent commercial properties are considered potential offsite receptors.

No other significant off-site receptors have been identified.

6.4. Potential Pathways

Table 6.4 details and discusses the potential and complete exposure pathways identified during the ESH investigation for contaminants that may be present in the ground at the site following the proposed residential redevelopment. The potential receptors identified for each pathway have been provided.

Some source-pathway-receptor linkages mentioned in the table are not considered likely to be active at the site for the reasons specified in the comments section.

Table 6.4: Potential Pathways and Receptors

Potential Pathway	Potential Receptor	Comment	Complete Exposure Pathway?	
Dermal contact with soil.				
Intake via direct ingestion of soil.	Construction workers	Construction workers will come into contact with soil during the redevelopment.	Yes	
Intake via inhalation and ingestion of contaminated dusts.		during the redevelopment.		
Intake via indoor and outdoor inhalation of vapours or gases.	Future site residents, maintenance workers and construction workers	Vapours from contaminated soils below buildings can accumulate within confined spaces inside houses. Vapours from contaminated soils can also accumulate in service trenches.	Yes	
Direct uptake from soil	Ecological receptors comprising planted vegetation	No Garden beds are proposed as part the development.	No	
Migration through soil / groundwater.	Groundwater beneath the site.	As the groundwater beneath the site ranges from 3.35-16m bgl, it is considered plausible that potential contaminants could migrate into the underlying groundwater through the soil profile.	Yes	
	Surface water.	The nearest surface water course is located approximately 550m north west of the site., therefore, due to the distance from the site is not considered to be a receptor.	No	

6.5. Tabulated Preliminary Conceptual Model

The conceptual model for the site identifies all of the potential pollutant linkages based on the information collated in the ESH Investigation and an understanding of the way that the potential contaminants at the site are likely to behave in the local environment.

On the basis of the available information, the preliminary CSM in terms of present site conditions is provided in Table 6.5.

Not all potential contaminants have been included within the tabulated form of the conceptual model if they are not considered to be significant at this stage (i.e. if a complete exposure pathway has not been identified).

The Key used within the table is as follows:

- LOW potential risks associated with the presence of the contaminant linkage are low and further assessment is not considered necessary.
- MOD potential risks associated with the presence of the contaminant linkage are moderate and further assessment should be considered.
- HIGH potential risks associated with the presence of the contaminant linkage are high and further assessment is considered necessary.
- N/A the contaminant has no potential to affect the receptor via this linkage.

Table 6.5: Preliminary Conceptual Site Model

Potentially Contaminating Activities	Potential importation/ dumping of fill whilst the site was an abandoned construction site and during construction.	Potential application of pesticides and herbicides whilst maintaining an abandoned construction site.	Chemical storage room located in the basement potential leakage/spillage of chemicals.	Off-site underground storage tank located approximately 30m east of the site. Potential leakage and migration via groundwater beneath the site.	Notes
Receptors and pathways					
Human health					
Dermal contact with soil	MOD	MOD	LOW	N/A	
Ingestion of soil	MOD	MOD	LOW	N/A	There is potential for exposure to contaminants within the soil at the site through exposure via inhalation of
Inhalation, ingestion of contaminated dusts.	MOD	MOD	LOW	N/A	vapours indoors, dermal contact and inhalation of dust outdoors during construction.
Inhalation of vapours / gases	MOD	N/A	LOW	MOD	
Controlled Waters					
Migration to groundwater	MOD	N/A	LOW	MOD	Groundwater is expected to be between 3.35-16m bgl therefore it may be impacted by contamination from on and off site.
Migration to surface water	N/A	N/A	N/A	N/A	Due to distance of surface water bodies, it is considered unlikely surface water could be impacted by the site.
Ecological Receptors					
Direct uptake from ecological receptors	N/A	N/A	N/A	N/A	No garden beds are proposed within the development.

7. Assessment of Data Gaps and Accuracy of Information

Schedule B2 of the ASC NEPM states that the ESH report should clearly identify any significant data gaps and include an assessment of the accuracy of the information collected.

The following data gaps have been identified during the ESH assessment:

- The ownership of the site prior to 1925;
- The contamination status of the soils at the site; and
- The contamination status of the groundwater beneath the site.

Based upon these data gaps it is considered that uncertainty exists within the assessment. Therefore, further investigation of the contamination status of the soils is warranted.

8. Conclusions and Recommendations

FMG completed an ESH assessment for the site located at 266-269 North Terrace, Adelaide, South Australia, 5000. The site occupies an area of approximately 700 square metres (m²) and currently comprises a church building occupied by the First Church of Christ Scientist.

The objective of the ESH was to identify any potential source(s) of contamination associated with current or historical site uses that may impact future development, as residential land use, and/or warrant further investigation and/or assessment.

Schedule B2, Guidelines on Site Characterisation of the ASC NEPM states that a PSI comprising an ESH should be sufficient to:

- Identify potential sources of contamination and determine potential contaminants of concern;
- Identify areas of potential contamination;
- Identify potential human and ecological receptors;
- Identify potentially affected media (soil, sediment, groundwater, surface water, indoor and ambient air).

The findings of the ESH are used to develop an initial conceptual site model (CSM). The components of the CSM have been discussed in detail within Section 6 of this report.

In summary, the CSM has identified several potential onsite **sources** of contamination. These have included:

- Potential importation/ dumping of fill whilst the site was an abandoned construction site and during construction;
- Potential application of pesticides and herbicides whilst maintaining an abandoned construction site; and
- Potential spillage/leakage of chemicals in the chemical storage room located in the basement.

Off-site sources of potential contamination identified within the investigation includes an underground petrol storage tank located approximately 30m east of the site.

The CSM has identified that there are potential human health and environmental **receptors** associated at the site. These include the future site residents (adults and children), construction and maintenance workers, groundwater beneath the site, and residents living the adjacent dwellings.

Further investigation of a site is required when the results of the ESH indicate that contamination is present or is likely to be present and the information available is insufficient to enable site management strategies to be devised.

Based upon the findings of the ESH, FMG considers that there is a low to moderate potential risk presented to the identified human health and environment receptors associated with the site. Potential pollutant linkages have been identified to exist, during and following the residential redevelopment of the site that warrant further investigation.

FMG recommends that a preliminary soil investigation, specifically targeting the identified areas of interest identified during the ESH, be undertaken to:

 assess the contamination status of the soils at these locations, allowing an assessment to be made of the nature and extent of site contamination at the identified areas of interest; and assess the potential risks posed to the identified future human receptors at the site, namely future site users, construction and site maintenance workers, as well as any offsite human receptors;

The intrusive investigation should be carried out in accordance with the Australian Standard, "Guide to the investigation and sampling of sites with potentially contaminated soil", AS4482.1-2005 and the ASC NEPM.



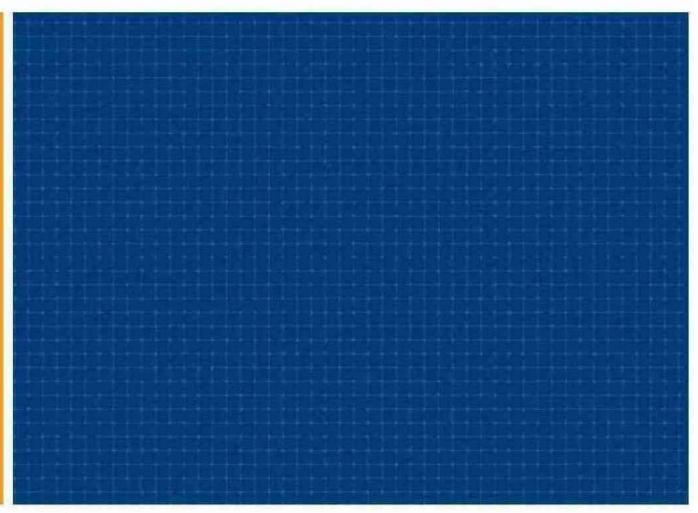


Figure 1

Site Location Plan

LEGEND

SITE BOUNDARY

SCALE 0 25 50 75 100 125 METRES

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					Kent Town SA 5071 Norwood SA 5067 F 08 8363 1555	img ,	
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CLIENT GSA AUSTRALIA
PROJECT TITLE
PRELIMINARY SITE INVESTIGATION
SITE ADDRESS
266-269 NORTH TERRACE,
ADELAIDE
DRAWING TITLE
SITE LOCATION PLAN

KS No. 0F SHEETS 1
SCALE 1:2500 @ A3 21.07.2017
SITE 10 & J09 No. 0F SHEETS 1 21.07.2017
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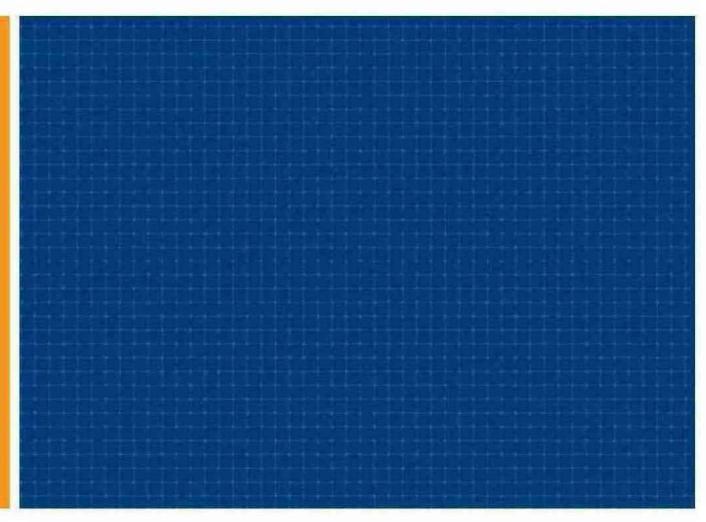
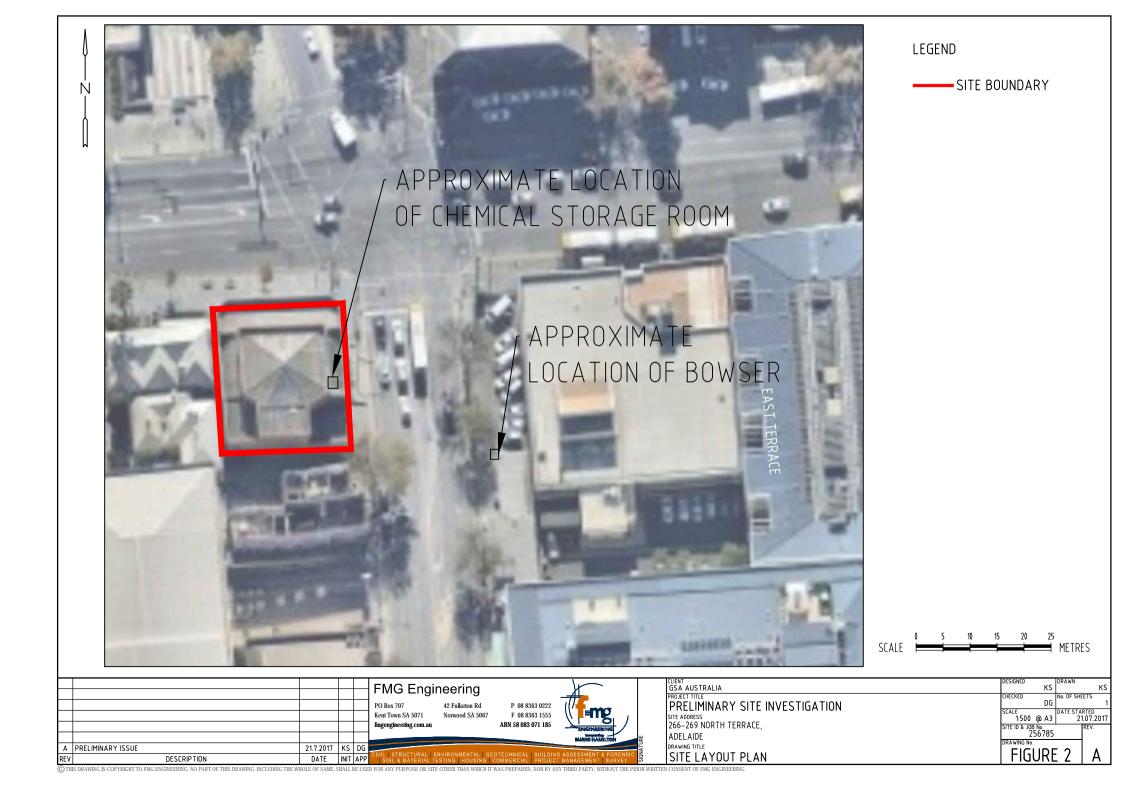
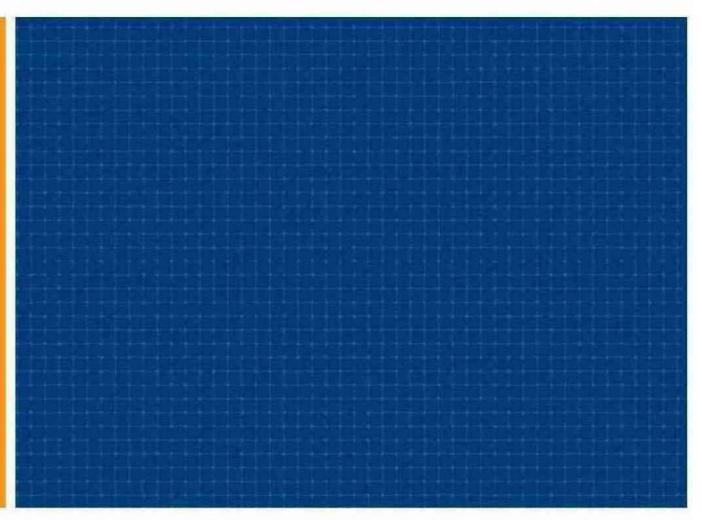


Figure 2

Site Layout Plan







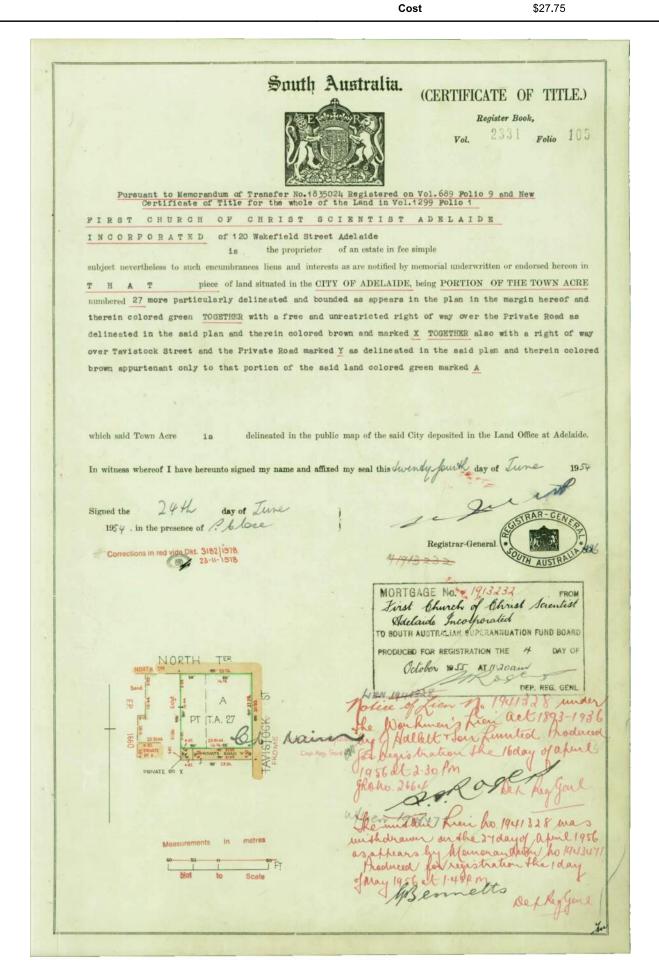
Appendix A

Certificates of Title

Product Date/Time **Customer Reference**

Register Search (CT 2331/105) 29/06/2017 05:02PM PO120364 20170629011965

Order ID





Product
Date/Time
Customer Reference
Order ID

Cost

Register Search (CT 2331/105) 29/06/2017 05:02PM PO120364 20170629011965 \$27.75

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Product
Date/Time
Customer Reference
Order ID

Register Search (CT 2331/105) 29/06/2017 05:02PM PO120364 20170629011965

Cost \$27.75

Notations

Dealings Affecting Title

Priority Notices

NIL

Registrar-General's Notes

NEW TITLE TO ISSUE (REDESIGNATION) VIDE FILED PLAN F181887

Administrative Interests

NIL

Land Services Page 3 of 3

South Australia

(CERTIFICATE OF TITLE.)

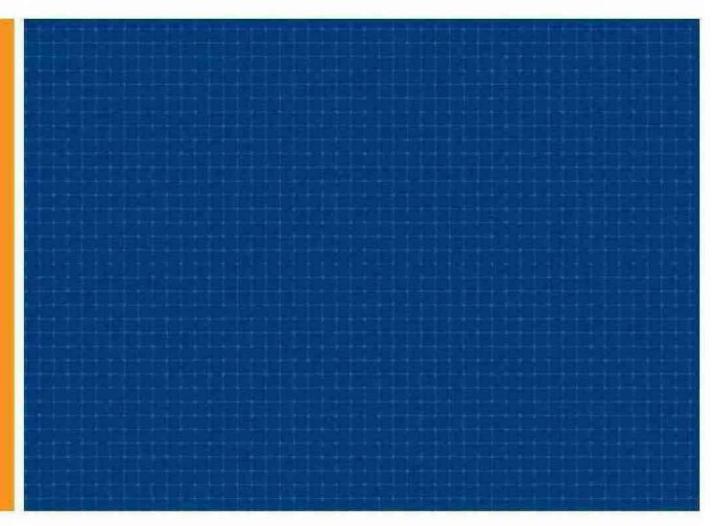


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which said Town Acre delineated in the public ma	p of the said City deposited in the Lands and Survey Office at Adelaide.
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Appendix B

Adelaide City Council Development Plan Extract



Existing Pedestrian Link

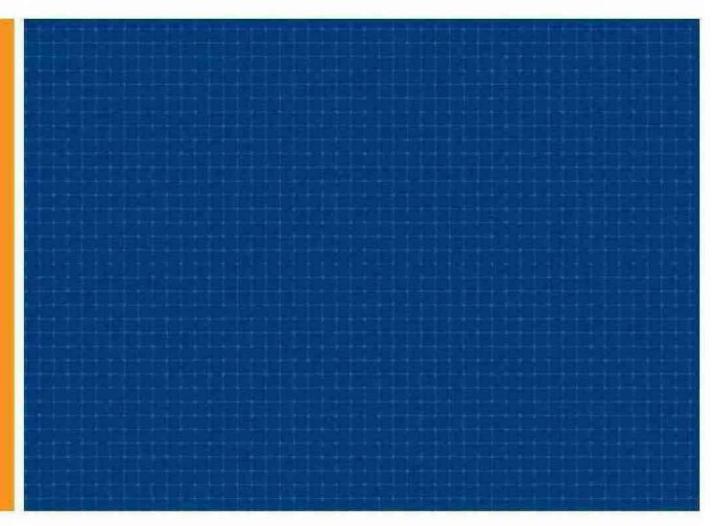
Policy Area Boundary

Proposed Pedestrian Link

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ADELAIDE (CITY)
POLICY AREAS
MAP Adel/50





Appendix C

Historical Aerial Photographs

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REV	DESCRIPTION	DATE	INIT	APF





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		DATE STARTED
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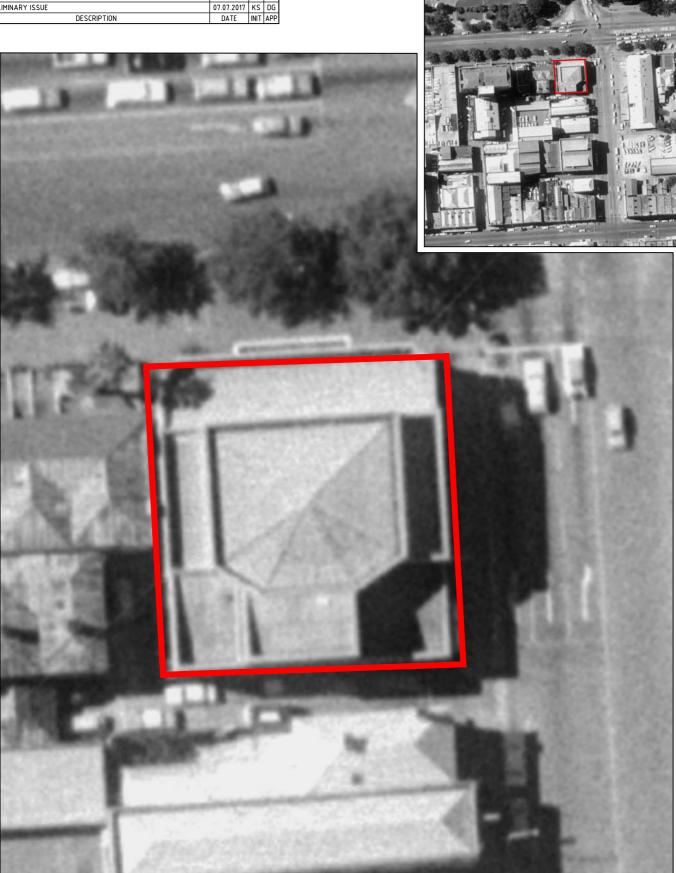
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PROJECT TITLE
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SITE ADDRESS
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AERIAL PHOTOGRAPH - 1959

SCALE NTS @ A3 SITE ID & JOB No. 256785 DATE STARTED 07.07.2017

APPENDIX

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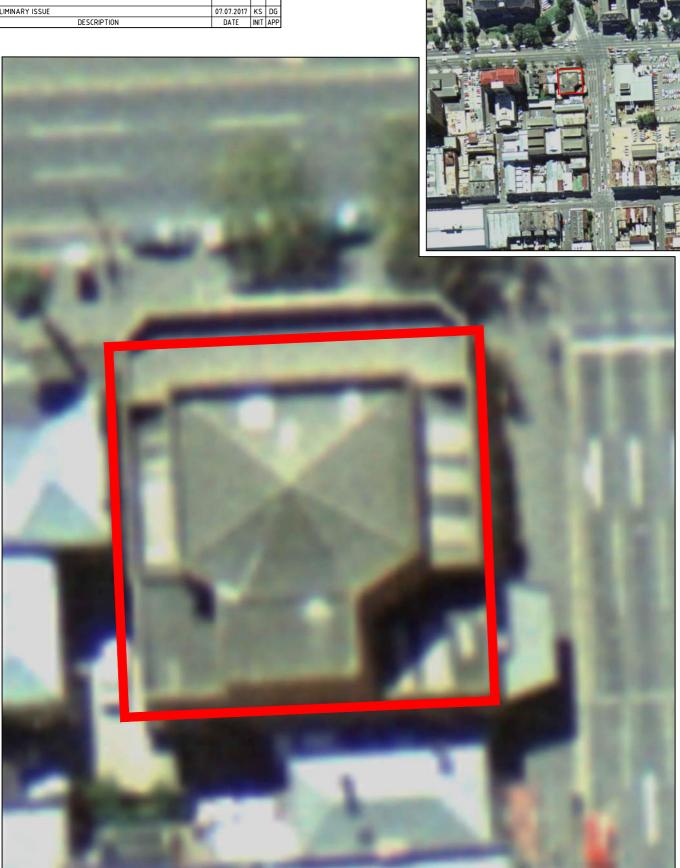
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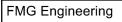
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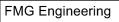
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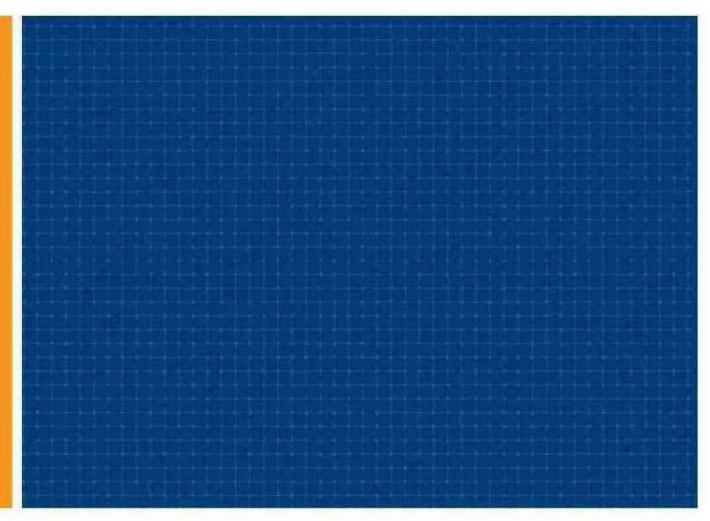
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Appendix D

EPA Section 7 Search Results





FMG Engineering 42 Fullarton Road NORWOOD SA 5067 Contact: Section 7 Telephone: (08) 8204 2026 Email: epasection7@sa.gov.au

Contact: Public Register Telephone: (08) 8204 9128 Email: epa.publicregister@sa.gov.au

05 July, 2017

EPA STATEMENT TO FORM 1 - CONTRACTS FOR SALE OF LAND OR BUSINESS

The EPA provides this statement to assist the vendor meet its obligations under section 7(1)(b) of the Land and Business (Sale and Conveyancing) Act 1994. A response to the questions prescribed in Schedule 1-Contracts for sale of land or business-forms (Divisions 1 and 2) of the Land and Business (Sale and Conveyancing) Act 1994 is provided in relation to the land.

I refer to your enquiry concerning the parcel of land comprised in

Title Reference CT Volume 2331 Folio 105

Address Allotment 235, 266-269 North Terrace, ADELAIDE SA 5000

Schedule - Division 1 - Land and Business (Sale and Conveyancing) Regulations 2010

PARTICULARS OF MORTGAGES, CHARGES AND PRESCRIBED ENCUMBRANCES AFFECTING THE LAND

7. Environment Protection Act 1993

Does the EPA hold any of the following details relating to the Environment Protection Act 1993:

7.1	Section 59 - Environment performance agreement that is registered in relation to the land.	NO
7.2	Section 93 - Environment protection order that is registered in relation to the land.	NO
7.3	Section 93A - Environment protection order relating to cessation of activity that is registered in relation to the land.	NO
7.4	Section 99 - Clean-up order that is registered in relation to the land.	NO
7.5	Section 100 - Clean-up authorisation that is registered in relation to the land.	NO
7.6	Section 103H - Site contamination assessment order that is registered in relation to the land.	NO
7.7	Section 103J - Site remediation order that is registered in relation to the land.	NO

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7.8 Section 103N - Notice of declaration of special management area in relation to the land (due to possible existence of site contamination).
 7.9 Section 103P - Notation of site contamination audit report in relation to the land.
 7.10 Section 103S - Notice of prohibition or restriction on taking water affected by site contamination in relation to the land.

Schedule - Division 2 - Land and Business (Sale and Conveyancing) Regulations 2010

PARTICULARS RELATING TO ENVIRONMENT PROTECTION

3-Licences and exemptions recorded by EPA in public register

0 2/00	moes and exemptions recorded by Er A in public register	
Does t	the EPA hold any of the following details in the public register:	
a)	details of a current licence issued under Part 6 of the <i>Environment Protection Act 1993</i> to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
b)	details of a licence no longer in force issued under Part 6 of the <i>Environment Protection Act</i> 1993 to conduct, at the land-	
i)	a waste or recycling depot (as referred to in clause 3(3) of Schedule 1 Part A of that Act); or	NO
ii)	activities producing listed wastes (as referred to in clause 3(4) of Schedule 1 Part A of that Act); or	NO
iii)	any other prescribed activity of environmental significance under Schedule 1 of that Act?	NO
c)	details of a current exemption issued under Part 6 of the <i>Environment Protection Act 1993</i> from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
d)	details of an exemption no longer in force issued under Part 6 of the <i>Environment Protection</i> Act 1993 from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
e)	details of a licence issued under the repealed South Australian Waste Management Commission Act 1979 to operate a waste depot at the land?	NO
f)	details of a licence issued under the repealed Waste Management Act 1987 to operate a waste depot at the land?	NO
g)	details of a licence issued under the repealed <i>South Australian Waste Management Commission Act 1979</i> to produce waste of a prescribed kind (within the meaning of that Act) at the land?	NO

CT V**olume** 2331 F**olio** 105 page 2 of 4

h)	details of a licence issued under the repealed <i>Waste Management Act 1987</i> to produce prescribed waste (within the meaning of that Act) at the land?	NO
4-Poll	ution and site contamination on the land - details recorded by the EPA in public register	
Does tand:	the EPA hold any of the following details in the public register in relation to the land or part of the	
a)	details of serious or material environmental harm caused or threatened in the course of an activity (whether or not notified under section 83 of the <i>Environment Protection Act 1993</i>)?	NO
b)	details of site contamination notified to the EPA under section 83A of the <i>Environment Protection Act 1993</i> ?	NO
c)	a copy of a report of an environmental assessment (whether prepared by the EPA or some other person or body and whether or not required under legislation) that forms part of the information required to be recorded in the public register?	NO
d)	a copy of a site contamination audit report?	NO
e)	details of an agreement for the exclusion or limitation of liability for site contamination to which section 103E of the <i>Environment Protection Act 1993</i> applies?	NO
f)	details of an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the <i>Environment Protection Act</i> 1993?	NO
g)	details of an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the <i>Environment Protection Act 1993?</i>	NO
h)	details of a notification under section 103Z(1) of the <i>Environment Protection Act 1993</i> relating to the commencement of a site contamination audit?	NO
i)	details of a notification under section 103Z(2) of the <i>Environment Protection Act 1993</i> relating to the termination before completion of a site contamination audit?	NO
j)	details of records, held by the former <i>South Australian Waste Management Commission</i> under the repealed <i>Waste Management Act 1987</i> , of waste (within the meaning of that Act) having been deposited on the land between 1 January 1983 and 30 April 1995?	NO
5-Poll	ution and site contamination on the land - other details held by EPA	
Does	the EPA hold any of the following details in relation to the land or part of the land:	
a)	a copy of a report known as a "Health Commission Report" prepared by or on behalf of the South Australian Health Commission (under the repealed South Australian Health Commission Act 1976)?	NO
b)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the <i>Environment Protection Act 1993?</i>	NO
c)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the <i>Environment Protection Act 1993</i> ?	NO

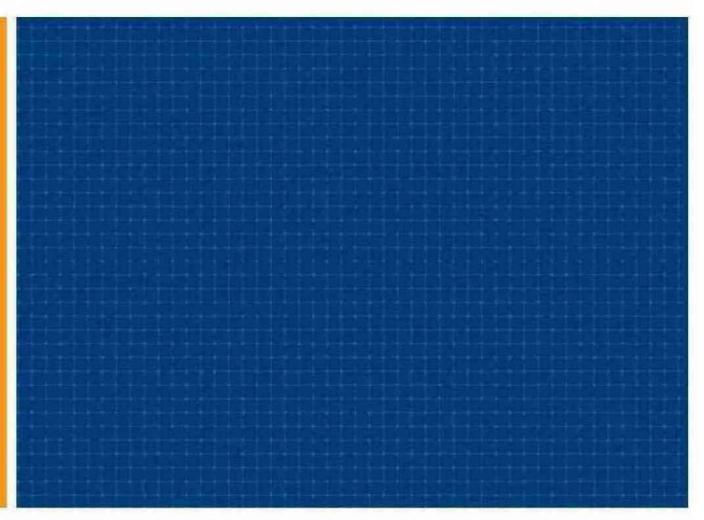
CT Volume 2331 Folio 105 page 3 of 4

- d) a copy of a pre-1 July 2009 site audit report?
- e) details relating to the termination before completion of a pre-1 July 2009 site audit?

All care and diligence has been taken to access the above information from available records. Historical records provided to the EPA concerning matters arising prior to 1 May 1995 are limited and may not be accurate or complete and therefore the EPA cannot confirm the accuracy of the historical information provided.

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Appendix E

Safe Work SA Dangerous Goods Search Results

Attorney-General's Department

12 July 2017

Jane Nunes **FMG** Engineering 42 Fullarton Road NORWOOD SA 5067 Licensing, Customer Services Team

Level 4 World Park A 33 Richmond Road Keswick SA 5035

GPO Box 465 Adelaide SA 5001

DX 715 Adelaide

Phone 1300 365 255

Email licensing.safework@sa.gov.au

ABN 50-560-588-327 www.safework.sa.gov.au

DANGEROUS SUBSTANCES LICENCE SEARCH

PROPERTY DETAILS: 266 North Terrace, ADELAIDE SA 5000

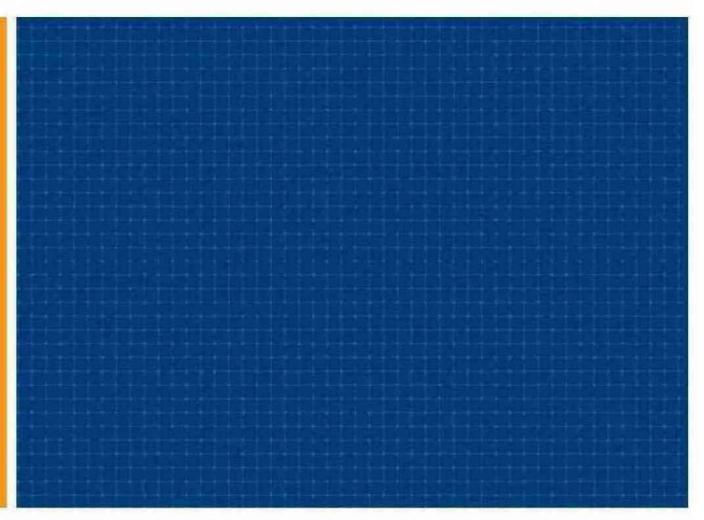
Further to your Application for a Dangerous Substance Search dated 11/07/2017 for the abovementioned site, I advise that there are no current or historical records for this site.

Yours sincerely

Dear Name

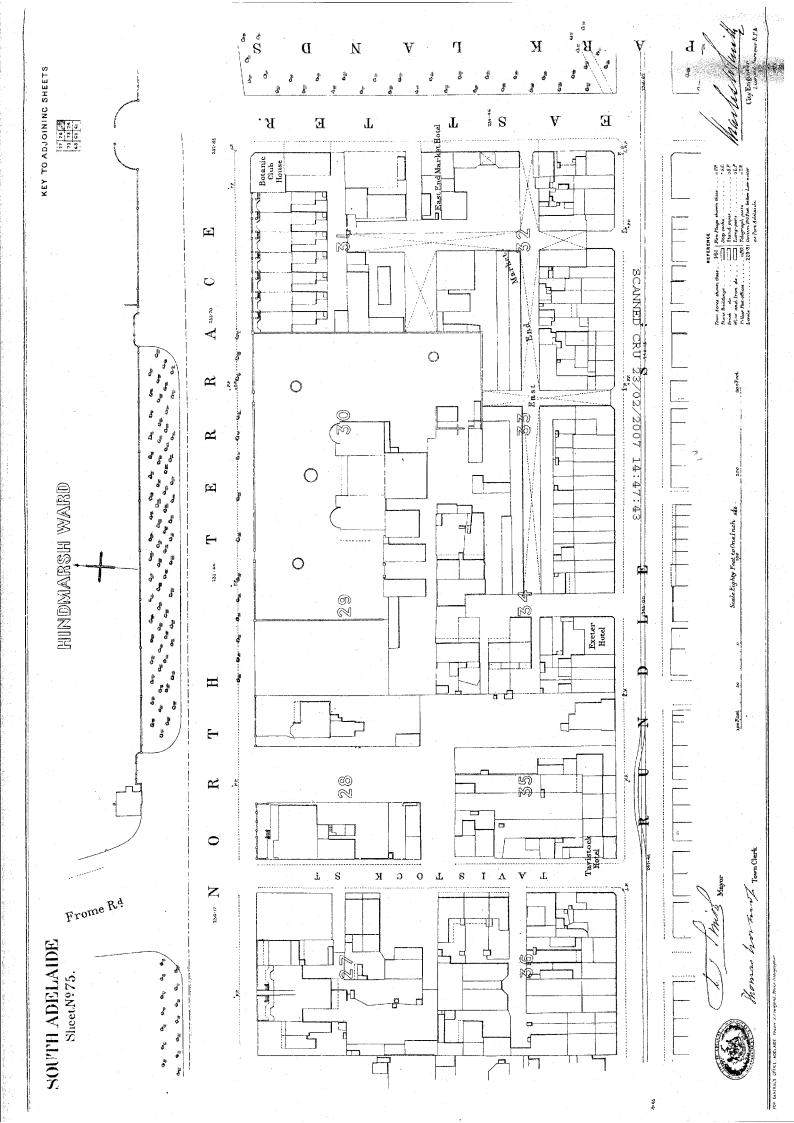
CUSTOMER SERVICES TEAM SAFEWORK SA



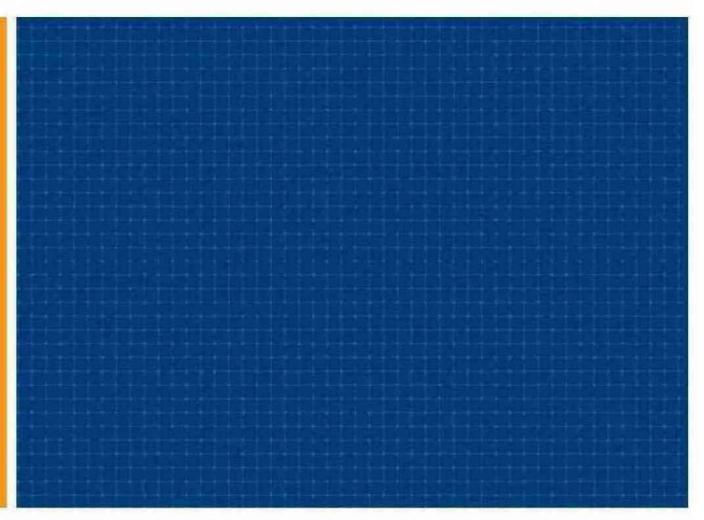


Appendix F

Smith Survey Extract

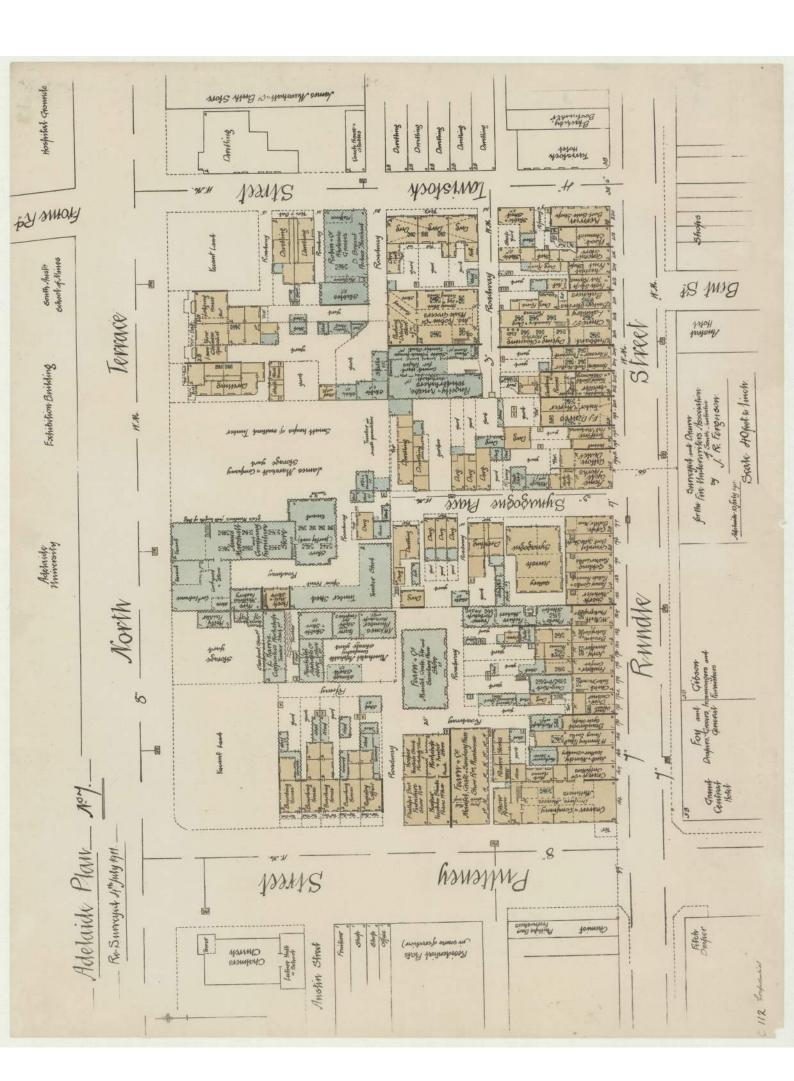




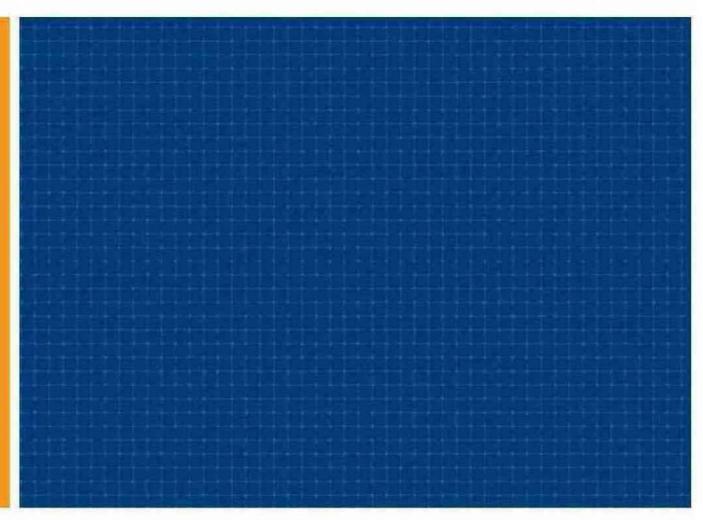


Appendix G

Fire Insurance Maps Extract







Appendix H

Anecdotal Information

First Church of Christ Scientist 266 North Terrace, Adelaide

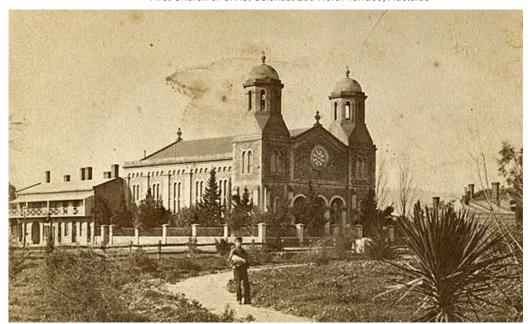
Whitehouse Bros, Brisbane, 1957
Enlarged 1989 George Stephens, Adelaide
2 manuals, 14 speaking stops, 7 couplers, electro-pneumatic action



First Church of Christ Scientist, Adelaide [Photograph by Trevor Bunning (March 2009)]

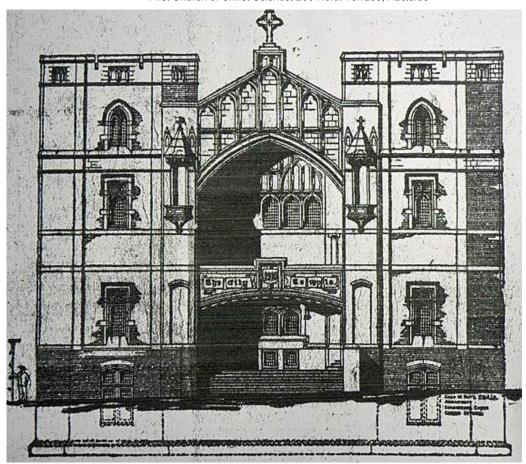
Historical and Technical Documentation by David Shield © OHTA 2009, 2017 (last updated April 2017)

The First Church of Christ Scientist literally stands on Congregational foundations. Apart from the fact that the denomination's founder Mary Baker Eddy was born into a Congregational family, the current building is sited on what was originally intended to be a new church for the Independents worshipping in Hindmarsh Square. Building work actually began but stopped owing to a legal challenge. The unfinished building remained derelict for some years before the First Church of Christ Scientist, who had been occupying premises in Wakefield Street, purchased it in 1939. It was 1953 before they were able to begin building operations on a structure far less expensive than the original design.¹



The Congregational Church, Hindmarsh Square (c.1870) opened in 1862 and sold to the ABC in 1928 [Photograph: State Library of South Australia (B-71558)]

The story of the building is quite tragic in its own way. It would appear that after the pastorate of J.T. Huston in 1913, the Hindmarsh Square Congregational Church was without settlement for a time. In that year, a young Tasmanian, Paul Joseph, had completed his studies at Parkin Theological College and succeeded the Revd Percy Watson at the Hindmarsh Church where he stayed till 1915. At some point he received a call to the Hindmarsh Square Church where he seems to have stayed for a few months and then rejected the call. However, by March 1916, we find he has not only accepted the call but also paid off a loan on the Hindmarsh Square Building of £1232 from the Congregational Chapel Building Society of SA (Inc), acquired ownership of the title deeds, raised a loan from the National Bank, advanced a grandiose scheme to build a Temple on North Terrace, and is about to build on his own. 3



The City Temple proposed by Paul Joseph in 1915 [Photograph: *The Mail* (Sat 25 March 1916), p. 19.]

Joseph's actions resulted from the belief that more people could be attracted to the Hindmarsh Square church if it were relocated to North Terrace. The media indicated the intention was "to inaugurate a new mission in Adelaide on quite modern, independent, and popular lines", and added, "the experiment will be watched with the greatest interest." Though no details are known there is evidence that Joseph approached W.L. Roberts to provide a pipe organ for the edifice and a contract had actually been let.⁴

The architect was Mr C.W. Rutt FAAIA, President of the SA Institute of Architects, and the contractors Messrs J. King & Son Hindmarsh.

It is unclear exactly when building commenced. Cameron suggests building began "on 6 March 1916 but stopped in June of that year". 5 The *Daily News* of 9 March indicated the scheme was to be launched immediately and take eight and a half months to completion. 6 In the final analysis it is of little consequence. The walls were raised a few feet and preparations made to lay the foundation stone on 24 June when building operations ceased. 7

Apparently Joseph was able to act in the way he did because he had been deluded into believing he was to receive a legacy from a Tasmanian uncle. The Bank investigated the claim and, finding it wanting, took legal action.

This led to the double tragedy. In the first place, at the tender age of 28, having wife and child, Paul Hamilton Morris Joseph, resigned as pastor of the church, severed his connection with the Congregational Union and enlisted in the AIF on 29 August 1916.⁸ Two years later, on 3 May, he was posted missing, believed killed.⁹

On the other hand, the congregation had no building or minister. The protracted legal case went all the way to the Privy Council in London, and the result was not

favourable for the church. Although compromise was reached there were still difficulties. Services ceased and the Hindmarsh Square building was sold to the ABC in 1928. The temple remained unfinished.

The building site lay derelict for some 36 years before being purchased by the First Church of Christ Scientist in 1939. Meeting informally in Adelaide since 1909, the church had grown and progressively used various halls in the city. The current building was designed by Mr L. Laybourne Smith and opened for the first service on Sunday 20 January 1957. Coincidentally this was the same day as the last service for the Scots Church in Flinders street, with its large Fincham & Hobday instrument, before the congregation transferred to Chalmers Church, on the corner of Pulteney Street and North Terrace. ¹⁰



First Church of Christ Scientist, Adelaide, opened in January 1957 [Photograph by Trevor Bunning (March 2009)]

The building itself cost £75,000 and was designed to hold 360 with a Sunday School in the basement capable of holding 300. A marble porch and foyer 70 feet long formed an impressive entrance to the new church. A reading room had a separate entrance from "Tavistock" Street, renamed Frome Road.

The *Advertiser* reporter waxed quite lyrical in describing the features of the new church. Sponge rubber seats, concealed lighting, sound proof walls, air conditioning and a fully equipped nursery were all mentioned. The bright colour scheme including a vivid blue ceiling in the porch and stepped primrose ceiling in the main church with its blue-covered theatre style seats was all noted. There was a public address system. The North Terrace façade was still incomplete, being attractively faced with white marble.¹¹

With declining congregation numbers, the decision was made to move to smaller premises, and the building was placed on the market early in 2017. 12



The Whitehouse organ in the First Church of Christ Scientist, Adelaide [Photograph by Trevor Bunning (March 2009)]

This organ is the only instrument in South Australia built by the Brisbane organbuilders Whitehouse Bros. As described in the *Sunday Mail* of 19 January 1957, it contained 641 pipes and cost £4,200. 13 It was made of Queensland maple and had imported metal pipes. The organ was enlarged in 1989 by George Stephens of Adelaide with the addition of a Fifteenth 2ft and Mixture II to the Great. The instrument is centrally located at the front of the building and is covered by grillwork.



The Whitehouse nameplate on the organ [Photograph by Trevor Bunning (March 2009)]

The Whitehouse firm secured contracts to build or rebuild organs for Christian Scientist churches throughout the country. After rebuilding the large three-manual Dodd organ at First Church of Christ Scientist, Darlinghurst, NSW in 1937, they built new organs for the same denomination not only in Brisbane (1940), but also in Chatswood, NSW (two-manuals, 1941-42), Perth, WA (three-manuals, 1953) and Adelaide, SA (two-manuals, 1957), as well as overhauling the three-manual Willis at First Church of Christ Scientist in Melbourne in 1953. All of these instruments used electro-pneumatic action. The strong association with Christian Science churches may have come through prominent Brisbane organist Miss Margery Horn, who was a member of the First Church of Christ Scientist, Brisbane, and played the organ there regularly.¹⁴

GREAT ORGAN

Open Diapason 8 Stop Diapason 8 Dulciana 8 Suabe Flute 4

Fifteenth 2 1989 Mixture II 1989

Great Octave Swell to Great Sub Swell to Great Swell to Great Super

SWELL ORGAN

Violin Diapason 8
Liebl. Gedact 8
Salicional 8
Voix Celeste 8 TC
Principal 4
Oboe 8
Tremulant
Swell Super Octave

PEDAL ORGAN

Bourdon 16 A
Bass Flute 8 A
Great to Pedal

Compass: 61/30

Swell to Pedal

3 thumb pistons to Great 3 thumb pistons to Swell Full organ by thumb piston

Reversible toe piston for Great to Pedal

Balanced swell pedal

Detached stopkey console. 15







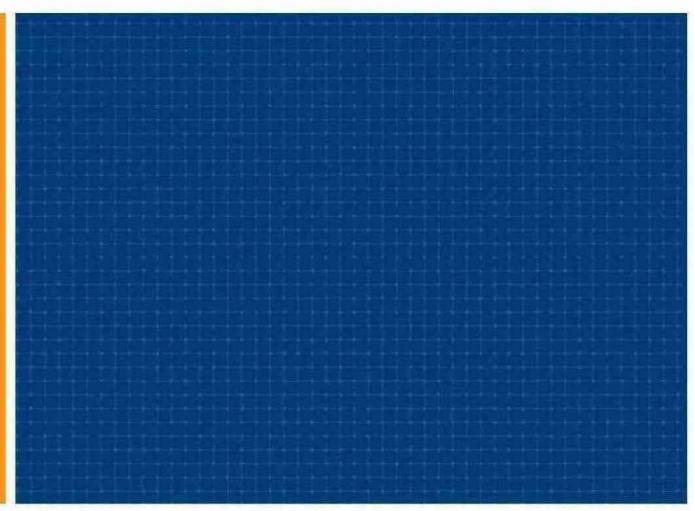


Console details of the 1957 Whitehouse organ, enlarged in 1989 by George Stephens, Adelaide [Photographs by Trevor Bunning (March 2009)]

- 1 J. R. Digance, *Congregationalism in SA 1837-1962* (Hindmarsh Square Congregational Church), p.185.
- 2 Advertiser, 15 January 1916, p.19, column 2; ibid,. 9 March 1916, p. 6, column 5.
- 3 Congregational Year Book for 1917 (Congregational Union and Home Mission of SA (Inc)), p.32; Congregational Chapel Building Society of SA (Inc) Report for the year ended March 31 [1916]; Advertiser, 9 March 1916; ibid., 21 June 1916, p. 5, column 7.
- 4 W.L. Roberts order book, p 85a, no further details. Roberts also had a newspaper copy of the building façade in his possession and an undated newspaper article indicating the contract had been let, 50 yea[rs ago] from Advertiser, 29 March 1916 (presumably dated 29 March 1966).
- 5 J. Cameron, In Stow's Footsteps (1987), p.120.
- 6 Advertiser, 9 March 1916, p. 6, column 5.
- 7 Digance, op. cit., p.182.
- 8 Ibid.; Congregational Union and Home Mission of SA (Inc) Year Book for 1917, p.28. The Revd Paul Joseph has resigned his connection with our ministry and Union; Australian Military Records Series no B2455, service no. 3451.
- 9 Digance, op. cit., p.182.
- 10 Advertiser, 21 January 1957, p.5.
- 11 Advertiser, 19 January 1957, p.4 article.
- 12 Personal communication to David Shield from Ruth Klose (organist), April 2017.
- 13 Sunday Mail, 19 January 1957 "From the Churches" no page.

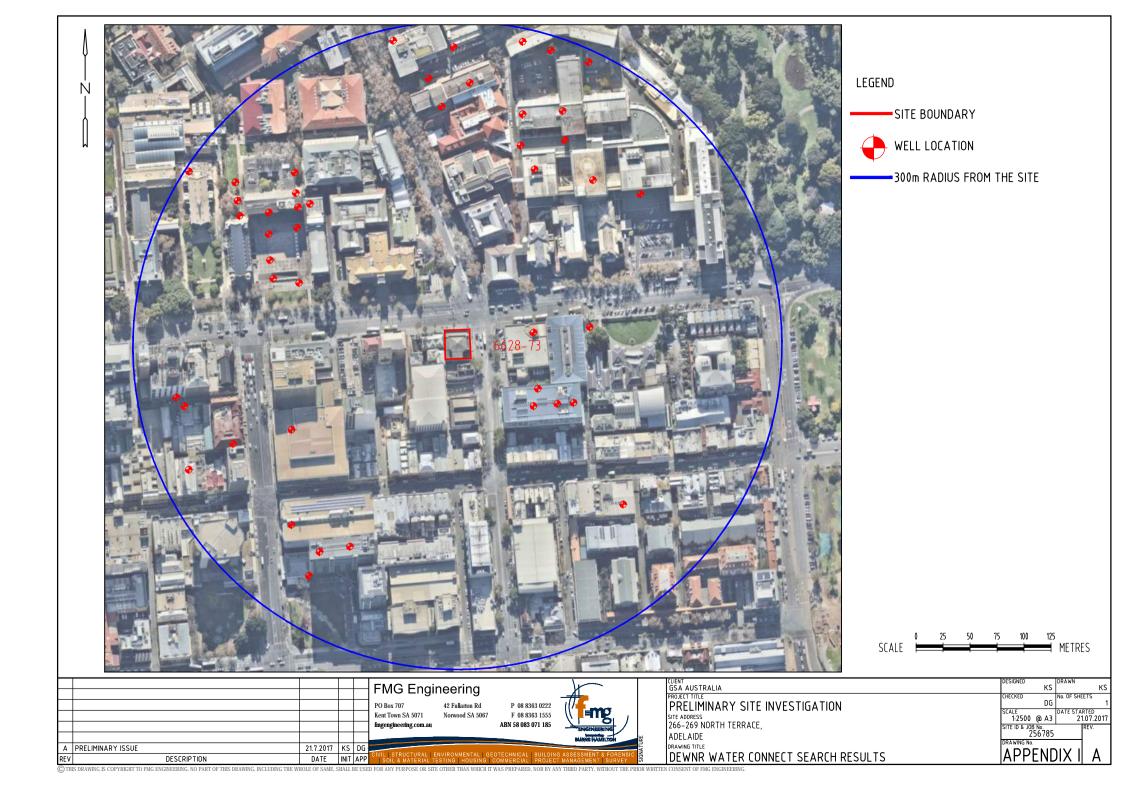
- 14 Personal communication to David Shield from Geoffrey Cox, April 2009.
- 15 Specification noted by David Shield, March 2009.





Appendix I

DEWNR WaterConnect Search Results

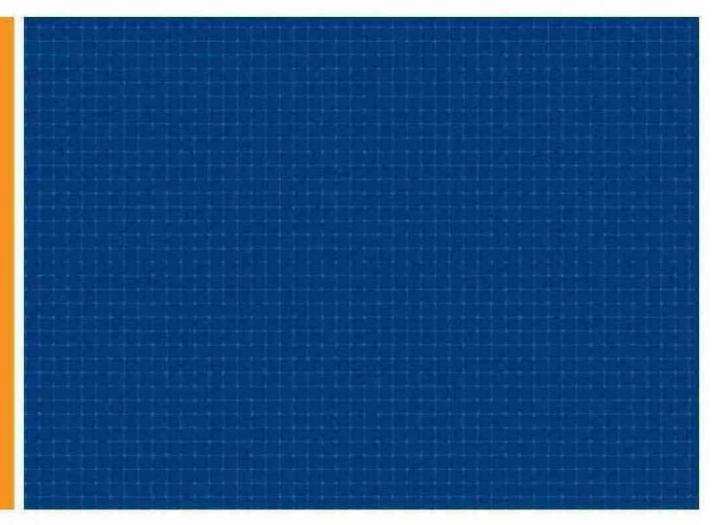




Appendix I DEWNR Water Connect Search Results

Well ID	Drilled Depth	Drilled Date	Purpose	Standing Water Level (m bgl)	Reduced Standing Water Level (mAHD)	Total Dissolved Soilids (mg/K)	Electrical Conductivity (mS/cm)	рН	Yield (I/s)
6628-21	18.52	13-12-62	-	5.49	32.05	1021	1849	7.7	-
6628-22	30.48	02-01-63	-	9.14	27.69	-	-	-	-
6628-23	18.29	08-01-63	-	7.8	27.27	1581	2851	7.5	-
6628-24	18.29	11-01-63	-	7.8	27.43	-	-	-	-
6628-25	18.29	16-01-63	-	7.11	28.85	-	-	-	-
6628-26	18.36	21-01-63	-	7.87	26.03	-	-	-	-
6628-27	18.36	24-01-63	-	7.21	26.82	-	-	-	-
6628-28	18.36	30-01-63	-	6.4	27.23	-	-	-	-
6628-29	18.36	05-02-63	-	7.11	25.09	-	-	-	-
6628-33	18.29	28-02-63	-	-	-	-	-	-	-
6628-34	18.9	18-06-64	-	6.1	23.9	1210	2191	-	0.38
6628-35	36.65	11-06-64	-	4.57	26.88	1100	1992	-	0.38
6628-37	18.29	28-05-64	-	-	-	1457	2631	-	-
6628-38	18.29	26-05-64	-	4.57	25.9	1671	3013	-	-
6628-39	5.79	02-08-66	-	-	-	-	-	-	-
6628-48	15.39	19-03-69	-	5.18	33.82	262	476	7.5	0.13
6628-73	20.42	13-10-71	-	-	-	2067	3715	8	0.13
6628-74	18.29	18-10-71	-	-	-	2909	5200	8	0.13
6628-75	15.15	14-06-74	-	-	-	1686	3038	7.6	-
6628-76	4.65	19-12-62	-	-	-	-	-	-	-
6628-77	5.64	20-12-62	-	-	-	-	-	-	-
6628-78	4.57	20-12-62	-	-	-	-	-	-	-
6628-79	12.19	04-12-64	-	3.66	40.47	-	-	-	-
6628-80	29.87	-	-	-	-	-	-	-	-
6628-81	10.97	-	-	3.35	41.69	-	-	-	-
6628-84	18.29	27-01-67	-	4.98	40.35	1760	3172	-	-
6628-85	6.4	27-01-67	-	4.57	40.43	2780	4975	-	2.02
6628-86	21.34	15-06-34	-	10.67	32.33	2385	4281	-	6.31
6628-115	25.6	24-09-59	-	10.36	27.3	1928	3470	7.4	-
6628-116	12.19	09-09-59	-	-	-	1928	3470	7.5	-
6628-117	9.14	01-09-59	-	6.71	33.33	1856	3343	-	-
6628-118	9.14	03-09-59	-	7.77	33.55	2070	3722	-	-
6628-119	9.14	04-09-59	-	7.62	28.85	1613	2909	-	-
6628-120	9.45	15-09-59	-	-	-	1172	2120	-	-
6628-121	9.14	06-12-61	-	-	-	-	-	-	-
6628-122	24.38	04-12-61	-	5.79	32.94	2241	4025	-	-
6628-123	8.94	23-08-65	-	-	-	-	-	-	-
6628-124	15.24	06-07-62	-	-	-	-	-	-	-
6628-125	8.74	25-08-65	-	-	-	-	-	-	-
6628-126	15.24	04-07-62	-	-	-	-	-	-	-
6628-127	9.14	26-08-66	-	-	-	-	-	-	-
6628-11284	18.8	09-10-75	-	-	-	-	-	-	-
6628-11285	19	08-10-75	-	-	-	-	-	-	-
6628-28445	25	23-08-16	-	16	-	-	-	-	-
6628-28628	28.5	05-07-16	INV	-	-	-	-	-	-





Appendix J

Preliminary Site Investigation Checklist – Site Inspection



OPCL-756

Version: 1

Issued: 29/05/2017

PSI Site Inspection Checklist

1. Job details

Client: GSA Australia.

Job number: 256785 .

Site name:

Site address: 266-269 North TCE, Adelaide

2. Pre-visit checklist

Element	✓ X	Comment (optional)
Site plan obtained?		
Aerial photographs reviewed and copies on hand?		
Topographic map checked for any sensitive receiving environment?	-	
Dangerous goods licensing reviewed?	/	
CT history reviewed?	-	
WaterConnect groundwater bore data reviewed?	/	
Council records reviewed?		
EPA Section 7 search results reviewed?		
Site access OK?	-	
Person with knowledge of site history available?		

3. Site inspection

Ref	Element	Site inspection observations
1	Inspection conducted by	Kate Stead and Jody Elsworth
2	Date of site inspection	12 July 2017
3	Meteorological conditions	15° max, overcast, calm.
4	Presence of stockpiles	None present, site overlæin by concrete stab, no soil exposed.
5	Evidence of cut and fill activity	No

Date reviewed: 29/05/2017



Document no: OPCL-756

Version: 1

Issued: 29/05/2017

PSI Site Inspection Checklist

Ref Element Site inspection observations 6 Topography Flat. 7 Overland flow Include presence of standing water and direction of water run-off. Nonepresent 8 Surface water Direction of water courses and rate of flow, water levels, flood levels, tidal fluctuations, quality of courses surface water eg sheens noted etc. None present. Receiving Include creeks, rivers, oceans etc. environment None present. 10 Groundwater Condition, number, measurement of groundwater table. None present. bores 11 Any Services contaminant preferential pathways identified? 12 Vegetation Include any evidence of disturbed, discoloured, distressed vegetation. None present.

Date reviewed: 29/05/2017



Document no: OPCL-756

Version: 1

Issued:

PSI Site Inspection Checklist

29/05/2017

Ref	Element	Site inspection observations
13	Obstructions	Eg transmission lines, trees subject to preservation orders, gas and water pipes etc. Electricula gas, and water pipes present as per DBYD plans.
14	Surface cover	Include evidence of fill, asphalt paving and condition, surface staining, earthworks, demolition activities, percentage of each surface cover etc. Concrete floor with basement
15	Soil type	Include comment about wetness of soil. None present.
16	Adjacent land uses	Include names and types of businesses, distance from site, apparent condition of properties etc. North North TCL, the SA university. East Frome Rol then Budget Car & Truck Rental. South Alley way then Eddel Bann (bar) and retails West Doctors Surgery homewares
17	Complaints from neighbours	None.
18	Odours	Stight hydro carbon odour in cleaning storage room.
19	Asbestos	None observed.

Date reviewed: 29/05/2017



Document no: OPCL-756

Version: 1

Issued: 29/05/2017

PSI Site Inspection Checklist

Ref	Element	Site inspection observations
20	Obvious evidence of contamination	Comment about staining, odours, wastes, spills etc. Sight odow in cleaning storage room - Flooring made of infor
21	Aboveground storage tanks:	Quantity: Volume: Content: Condition: Bunded:
22	Underground storage tanks:	Quantity: Volume: Vone present. Content: Condition: Bunded:
23	Pipelines	High voltage indergrand colling the Southern alley way (an water line). Gas line from Eas water, and con lil
24	Waste treatment, storage and disposal	Include details on liquid waste and solid waste. Area bunded? Describe condition. General cleaning products. In Small quantities storedin Cleaning storage room.
25	Means of heating and cooling in buildings	Electric cooling and heating.
26	Warehouses, sheds and buildings	Include information on quantity, conditions, location, size, construction materials eg concrete slab, timber floor etc. Bulling encompases the whole 5, te (2 levels above 3 moun dust busenest) Concrete flooring

Date reviewed: 29/05/2017



Document no: OPCL-756

Version: 1

Issued:

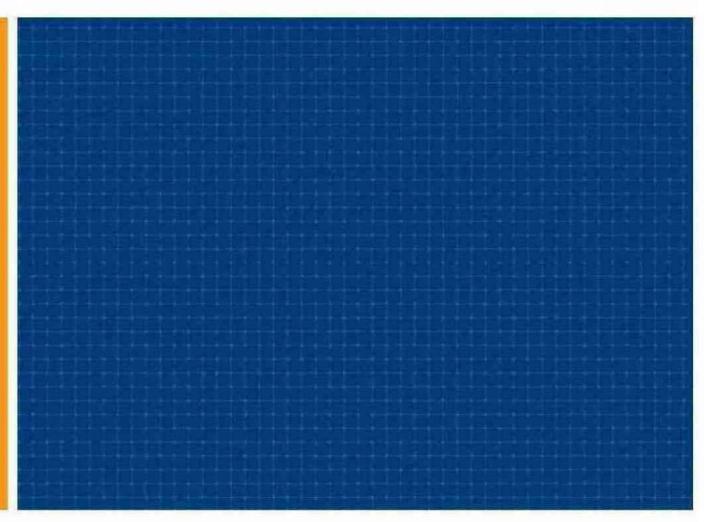
PSI Site Inspection Checklist

Ref	Element	Site inspection observations
27	Plant and equipment	Airconditioning/heating system on 2nd floor.
28	Transformers or substations	None observed.

28	Transformers or substations	None observed.
29	Pits or sumps:	None observed.
30	Septic system	None observed.
31	Incinerators	None posserved.
32	No. of employees: Operating hours/days:	vone observed.

Date reviewed: 29/05/2017





Appendix K

Site Inspection Photographs



Photograph 01: View within congregation area.



Photograph 02: View within basement congregation area.

FMG Engineering

PO Box 707 42 Fullarton Rd P 08 8363 0222 Kent Town SA 5071 Norwood SA 5067 F 08 8363 1555



Title: APPENDIX K SITE INSPECTION PHOTOGRAPHS

Project Reference: 256785

266-269 North Terrace, Adelaide



Photograph 03: View within chemical storage room.



Photograph 04: View within chemical storage room.

FMG Engineering

PO Box 707 42 Fullarton Rd P 08 8363 0222 Kent Town SA 5071 Norwood SA 5067 F 08 8363 1555

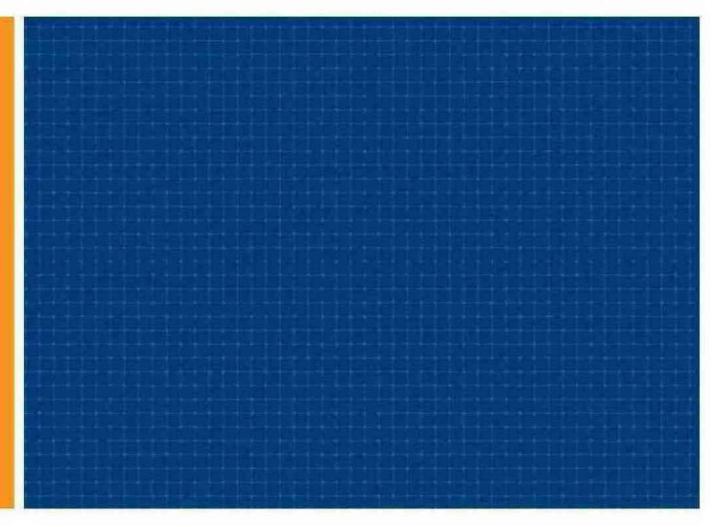


Title: APPENDIX K SITE INSPECTION PHOTOGRAPHS

Project Reference: 256785

266-269 North Terrace, Adelaide





Appendix L

Dial Before You Dig Plans



Job No 12555682

Phone: 1100 www.**1100.com.au**

Caller Details

Contact:Miss Jane NunesCaller Id:1724209Phone:0881326662Company:FMG EngineeringMobile:Not SuppliedFax:Not SuppliedAddress:42 Fullarton RoadEmail:fmg.environmental@fmgengineering.com.auNorwood SA 5067

Dig Site and Enquiry Details

WARNING: The map below only displays the location of the proposed dig site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.



Notes/Description of Works:

Not Supplied

User Reference: Not Supplied

Working on Behalf of:

Private

Enquiry Date: Start Date: End Date: 29/06/2017 04/07/2017 31/07/2017

Address:

266 North Terrace Adelaide SA 5000

Job Purpose: Excavation
Onsite Activity: Horizontal Boring

Location of Workplace: Both

Location in Road: CarriageWay,Footpath

- Check that the location of the dig site is correct. If not you must submit a new enquiry.
- Should the scope of works change, or plan validity dates expire, you must submit a new enquiry.
- Do NOT dig without plans. Safe excavation is your responsibility.
 If you do not understand the plans or how to proceed safely, please contact the relevant asset owners.

Your Responsibilities and Duty of Care

- If plans are not received within 2 working days, contact the asset owners directly & quote their Sequence No.
- ALWAYS perform an onsite inspection for the presence of assets. Should you require an onsite location, contact the asset owners directly. Please remember, plans do not detail the exact location of assets.
- Pothole to establish the exact location of all underground assets using a hand shovel, before using heavy machinery.
- Ensure you adhere to any State legislative requirements regarding Duty of Care and safe digging requirements.
- If you damage an underground asset you MUST advise the asset owner immediately.
- By using this service, you agree to Privacy Policy and the terms and disclaimers set out at www.1100.com.au
- For more information on safe excavation practices, visit www.1100.com.au

Asset Owner Details

The assets owners listed below have been requested to contact you with information about their asset locations within 2 working days. Additional time should be allowed for information issued by post. It is **your responsibility** to identify the presence of any underground assets in and around your proposed dig site. Please be aware, that not all asset owners are registered with the Dial Before You Dig service, so it is **your responsibility** to identify and contact any asset owners not listed here directly.

- ** Asset owners highlighted by asterisks ** require that you visit their offices to collect plans.
- # Asset owners highlighted with a hash require that you call them to discuss your enquiry or to obtain plans.

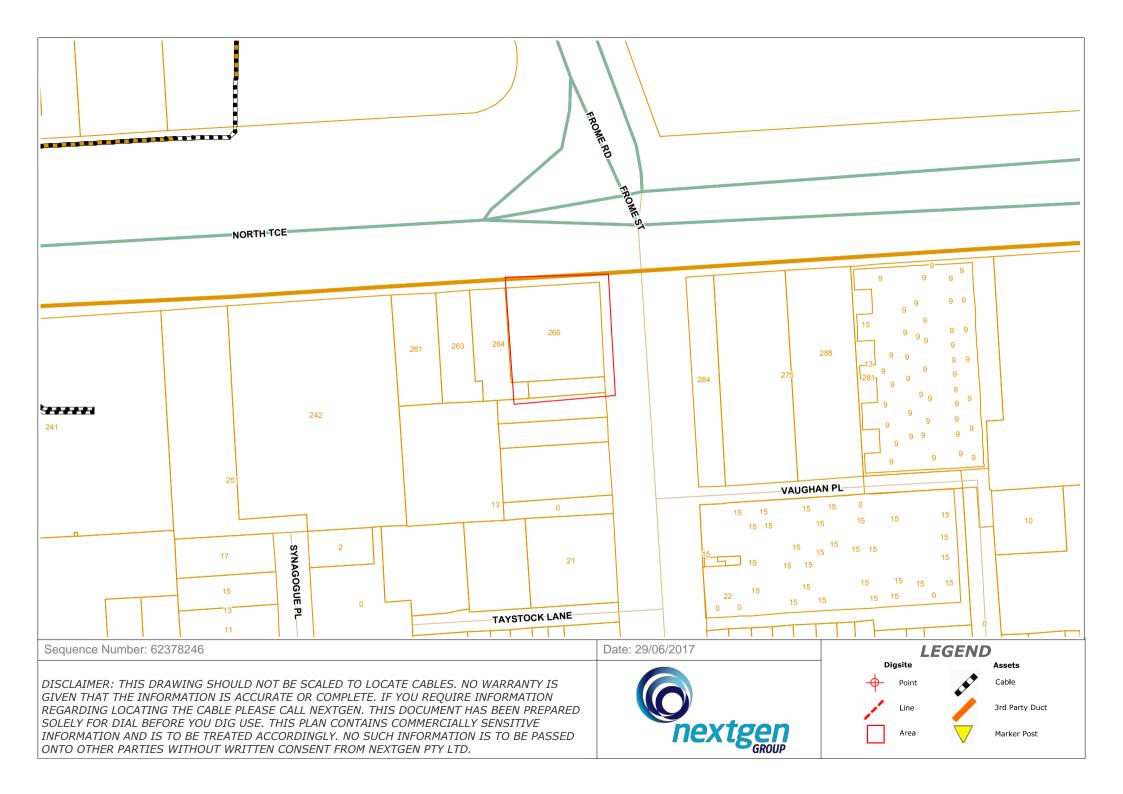
Seq. No.	Authority Name	Phone	Status
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62378249	Adelaide City Council - ICT	0882037203	NOTIFIED
62378255	APA, Sa	0881154500	NOTIFIED
62378251	Electranet Transmission Services	0884047966	NOTIFIED
62378260	NBN Co, SaNt	1800626762	NOTIFIED
62378246	Nextgen, NCC - SA	1800032532	NOTIFIED
62378253	Optus and/or Uecomm, Sa	1800505777	NOTIFIED
62378248	PIPE Networks, Sa	1800201100	NOTIFIED
62378250	SA Power Networks	0882920218	NOTIFIED
62378257	SA Water	0874241117	NOTIFIED
62378244	StateNet Services	0882072056	NOTIFIED
62378252	Telstra SANT	1800653935	NOTIFIED

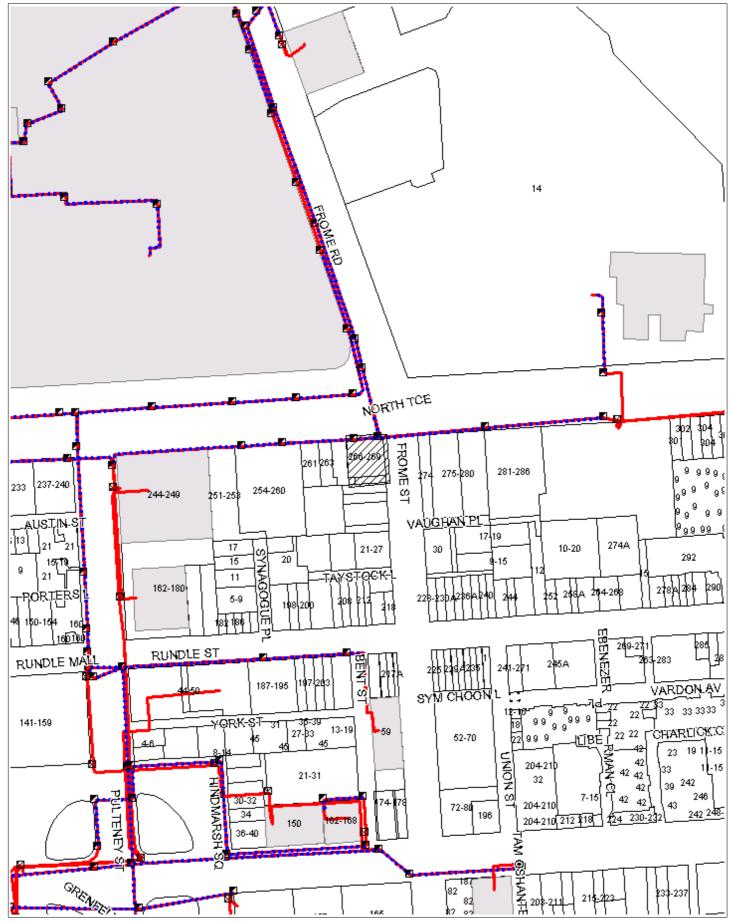




Emergency Contacts

You must immediately report any damage to **nbn**[™] network that you are/become aware of. Notification may be by telephone - 1800 626 329.





WARNING: This document is confidential and may also be privileged. Confidentiality nor privilege is not waived or destroyed by virtue of it being transmitted to an incorrect addressee. Unauthorised use of the contents is therefore strictly prohibited. Any information contained in this document that has been extracted from our records is believed to be accurate, but no responsibility is assumed for any error or omission.

Optus Plans and information supplied are valid for 30 days from the date of issue. If this timeline has elapsed please raise a new enquiry.

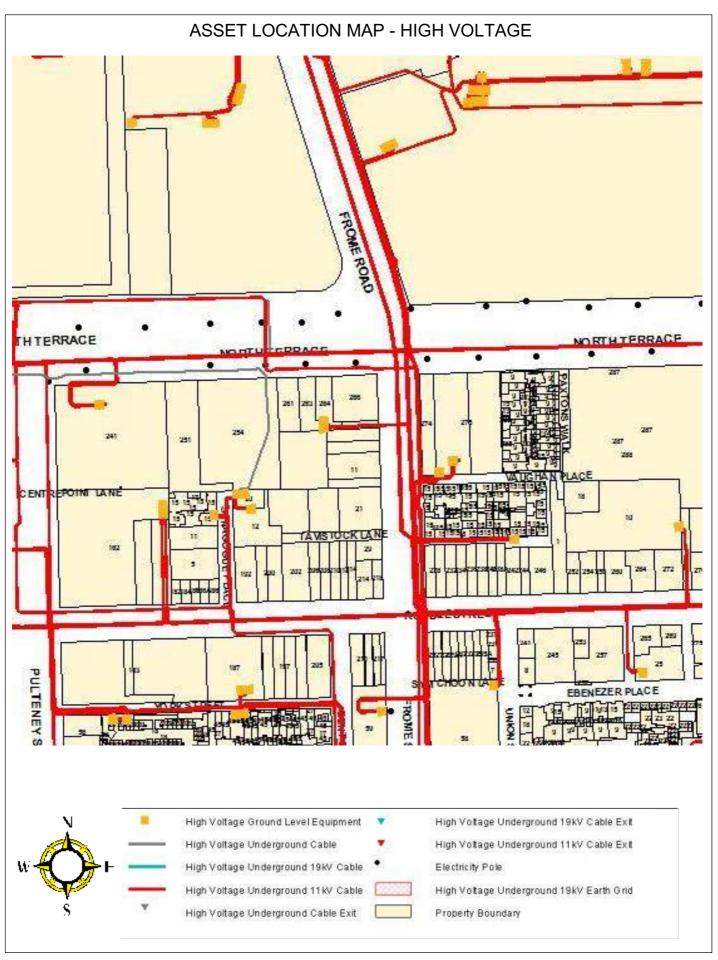
Sequence Number: 62378253

OPTUS

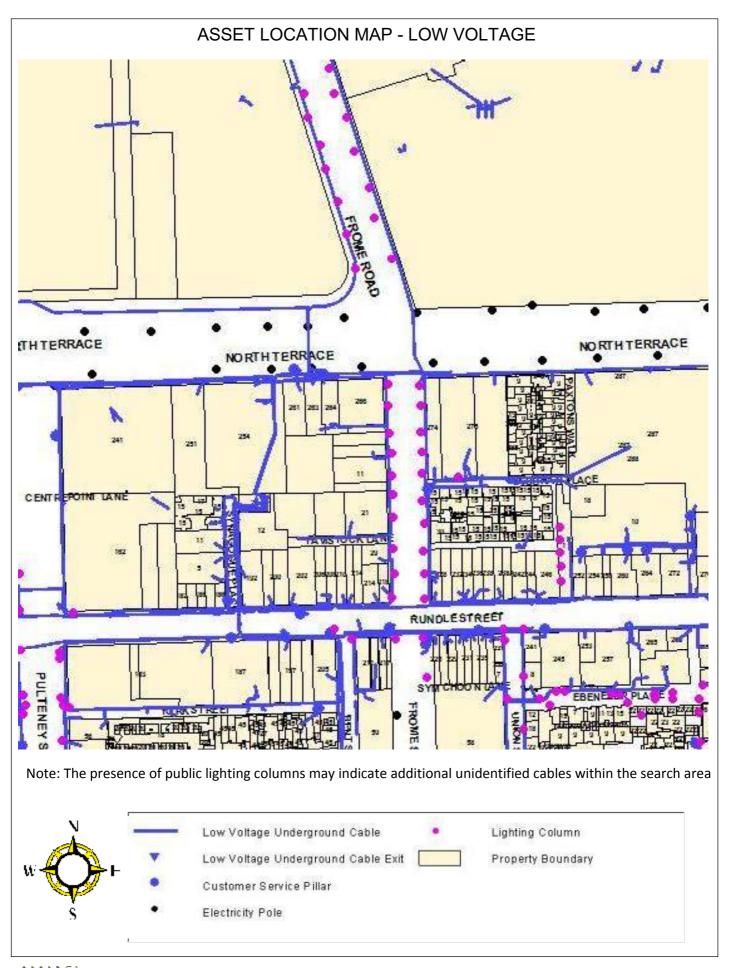
For all Optus DBYD plan enquiries – Email: Fibre.Locations@optus.net.au For urgent onsite assistance contact 1800 505 777 Optus Limited ACN 052 833 208



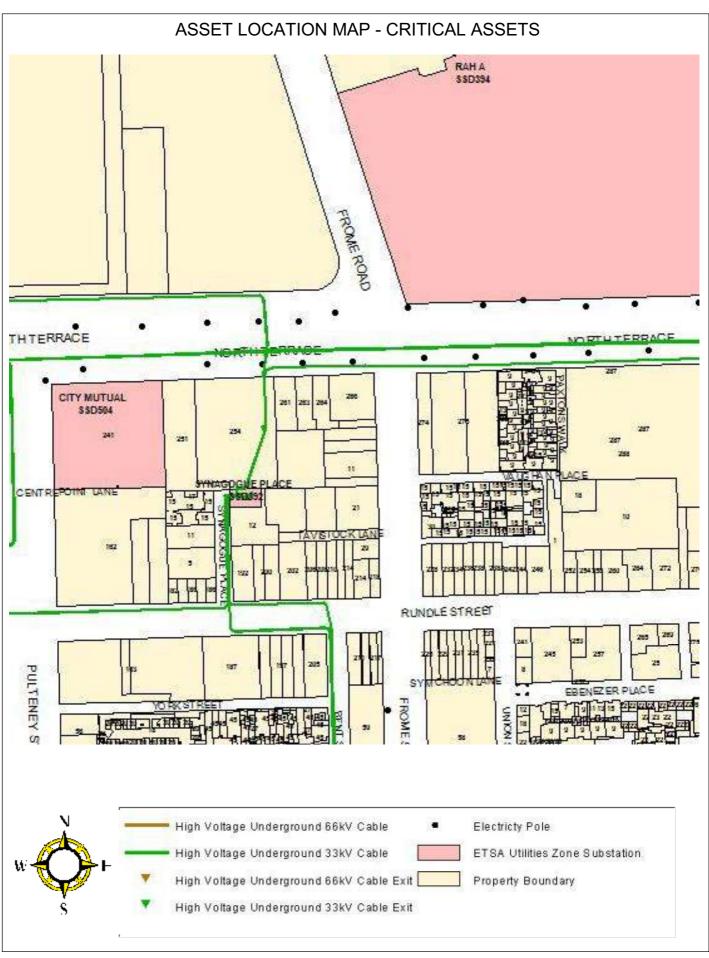
Date Generated: 29/06/2017



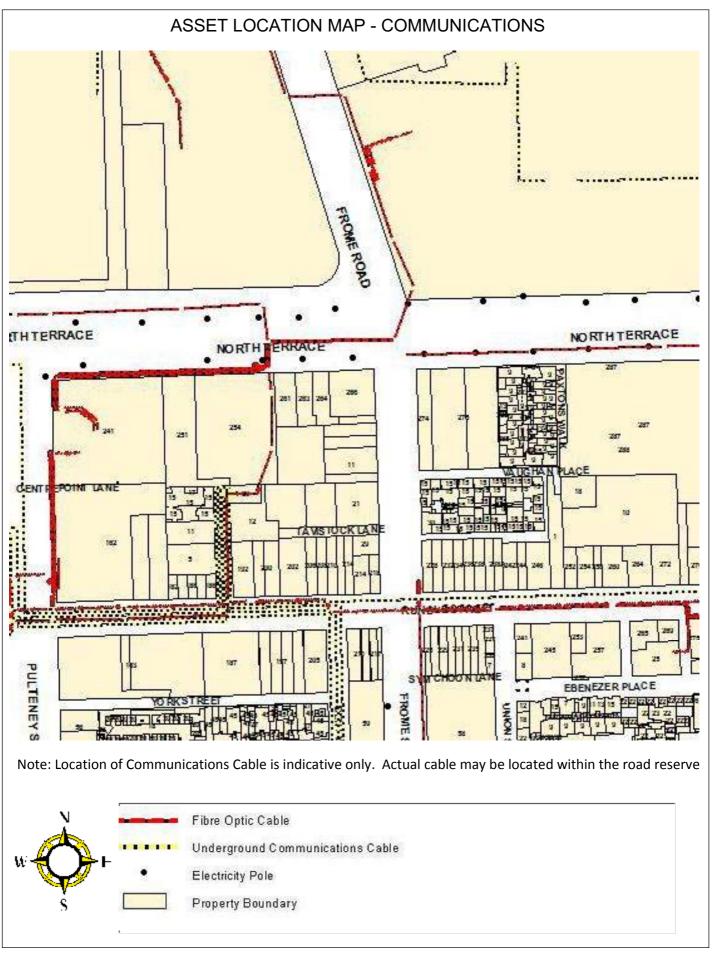














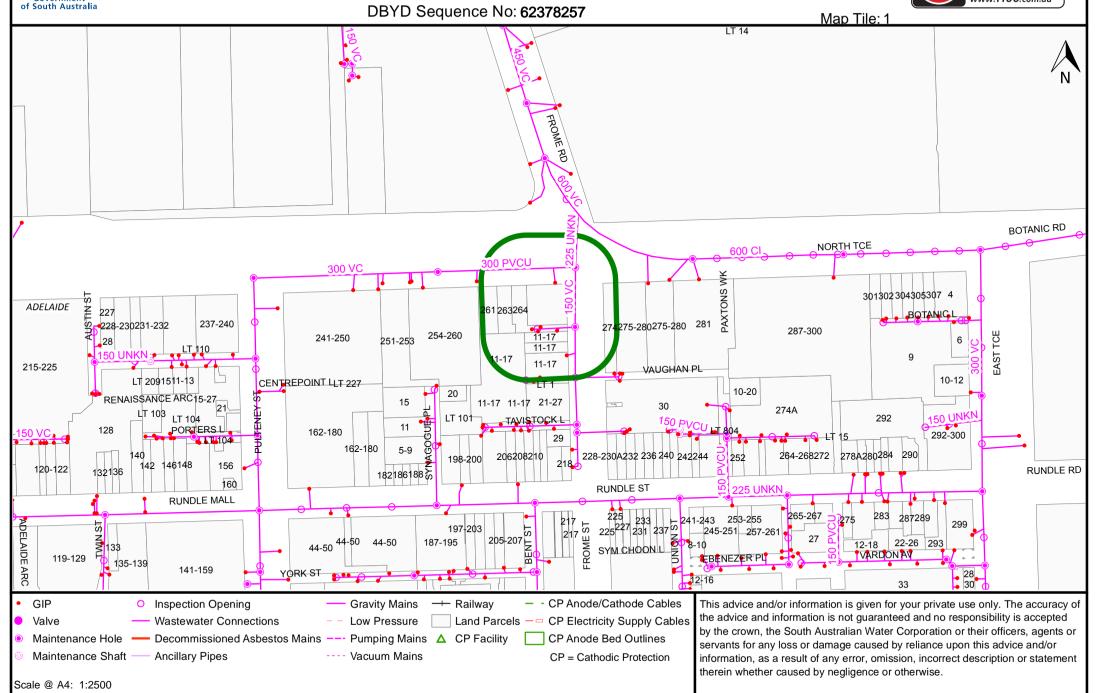
SA Water Government

South Australian Water Corporation

WASTEWATER RETICULATION



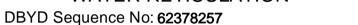






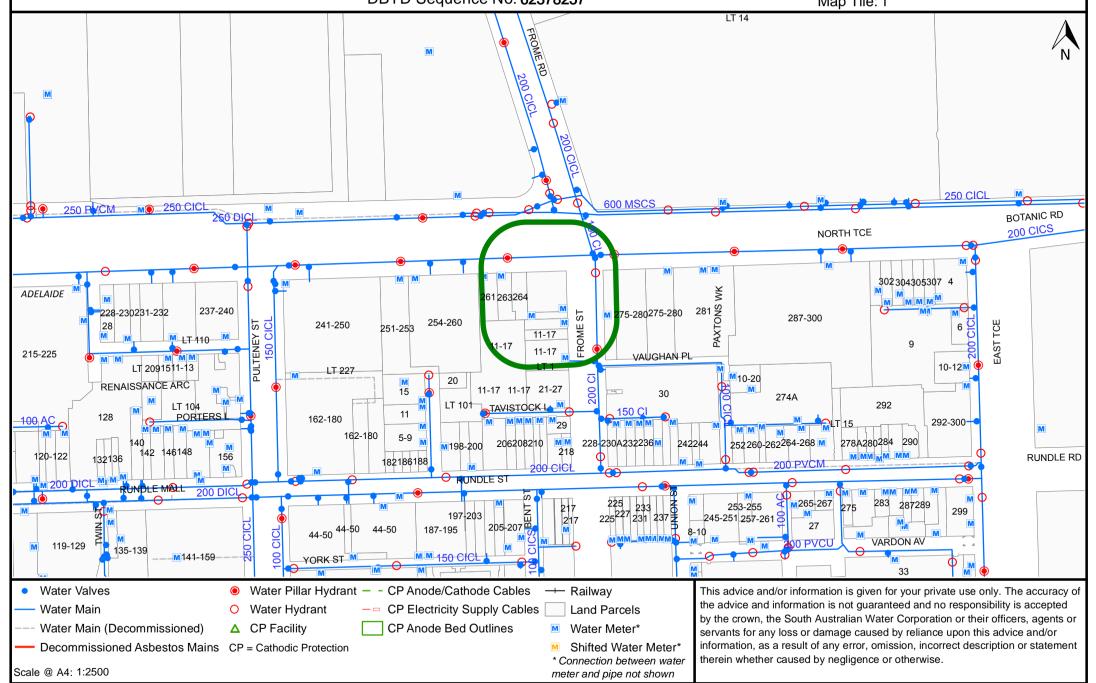
South Australian Water Corporation

WATER RETICULATION





Map Tile: 1

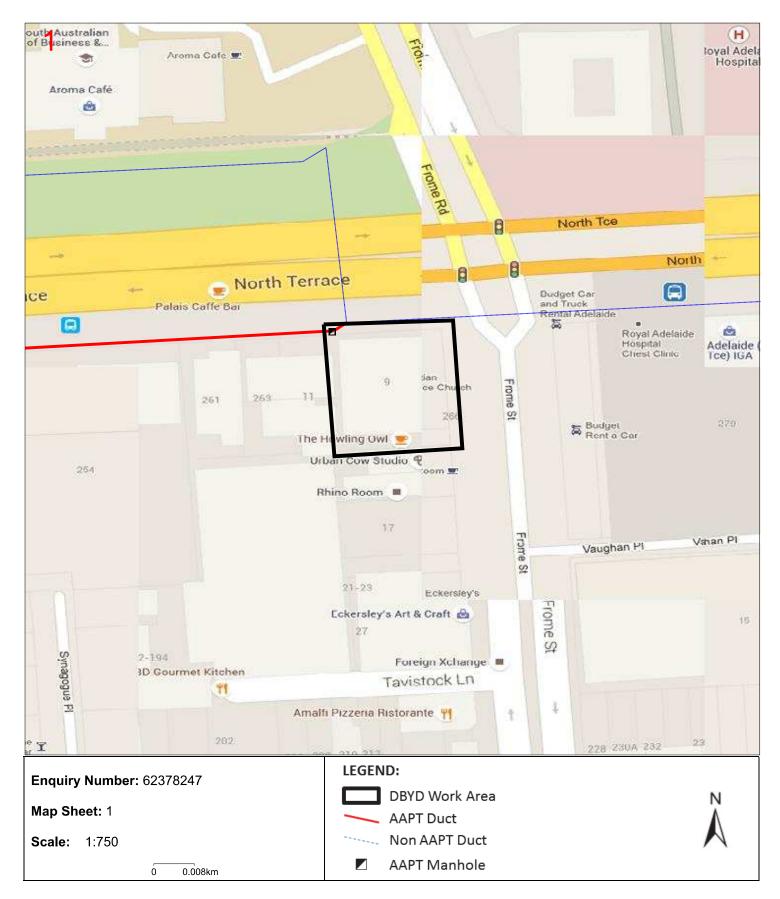








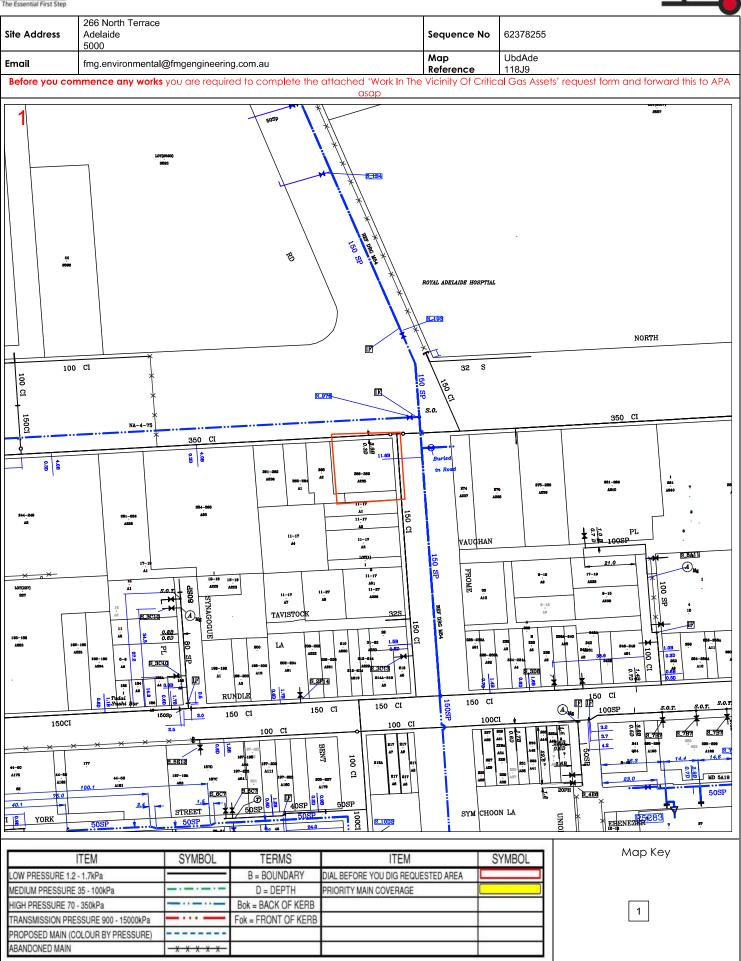
AAPT (PowerTel) Limited GPO Box 7041 Sydney 2001 Phone: 1800 786 306 A/H 1800 786 306







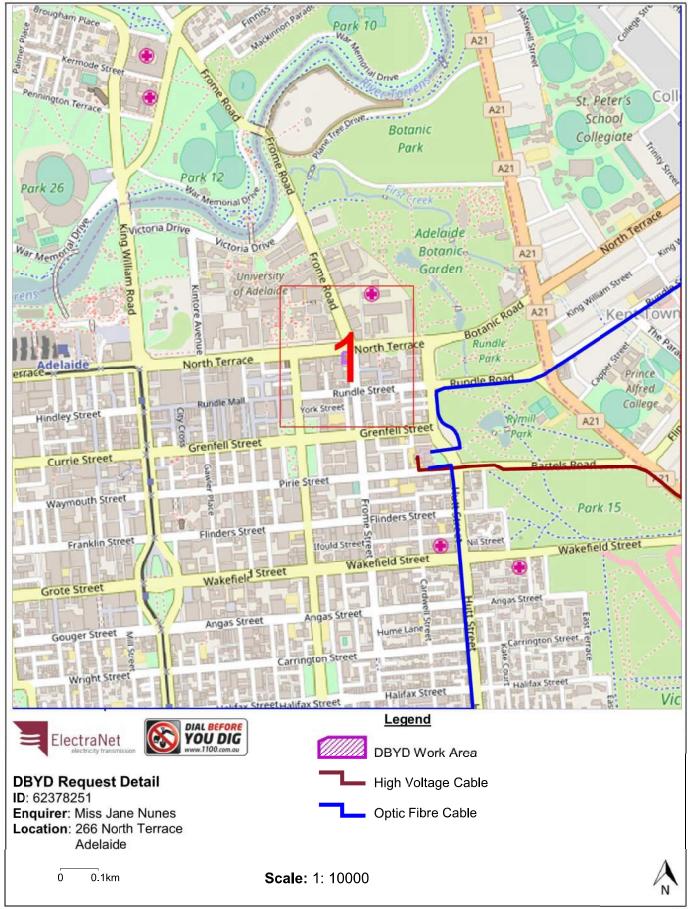
NORTH



Scale 1:1000



Dial Before You Dig Asset Owner Response



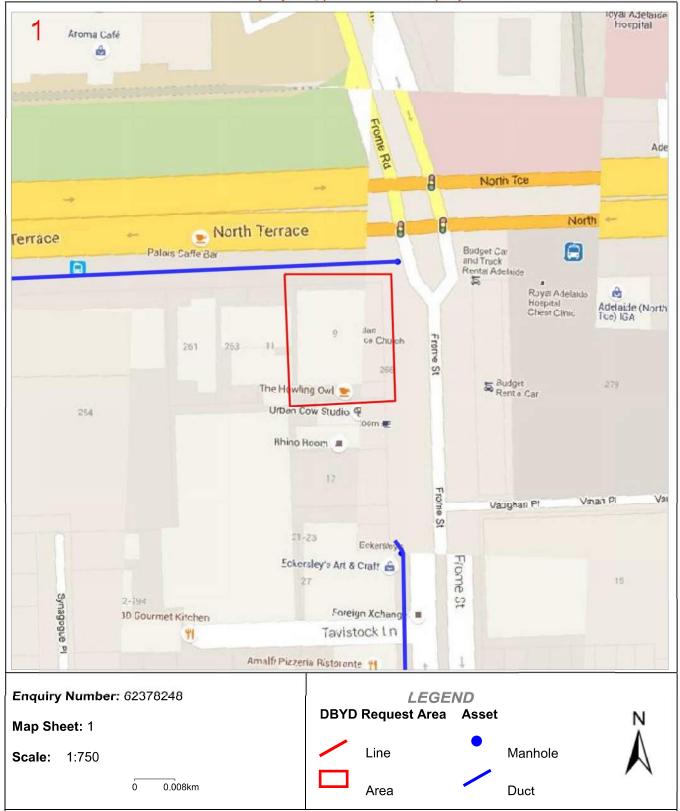
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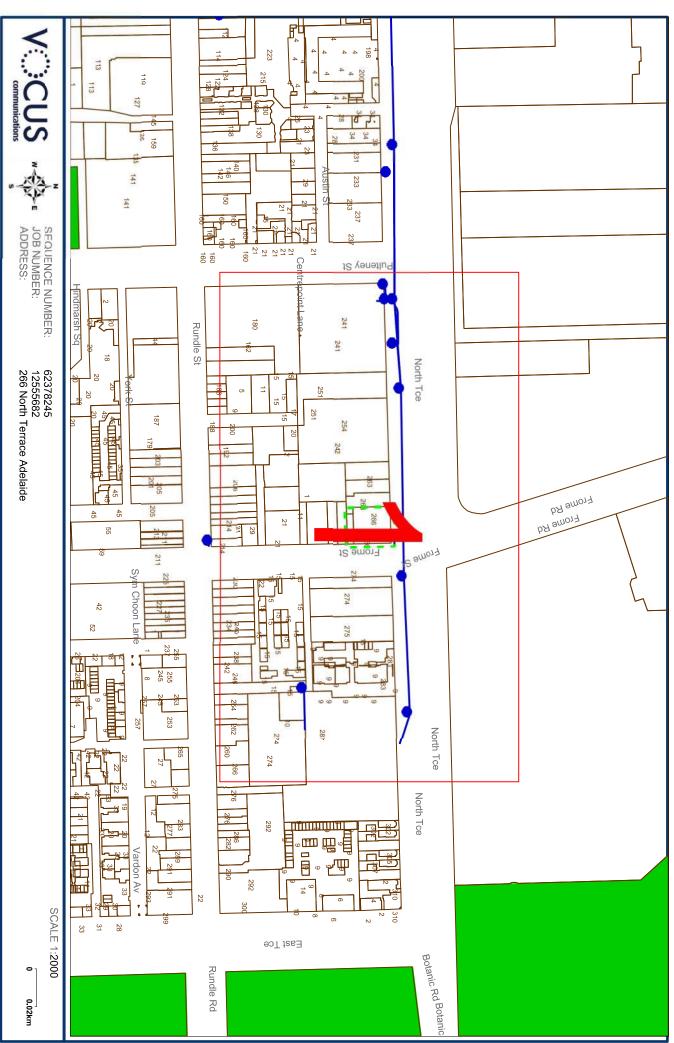
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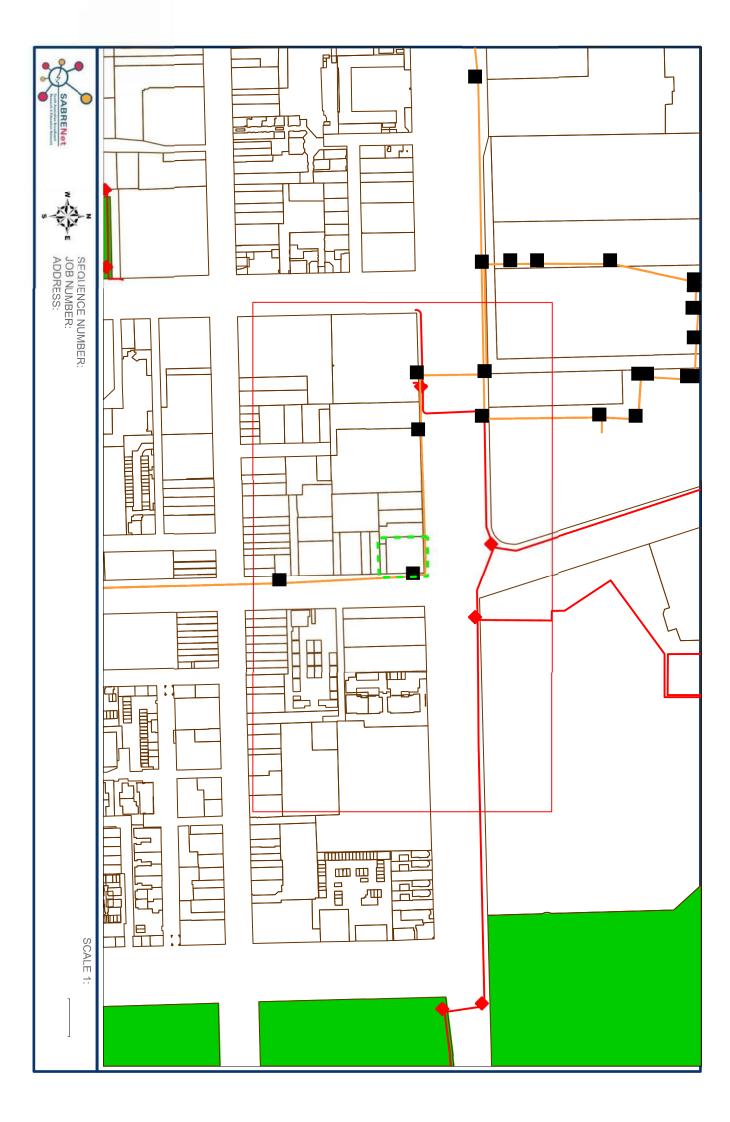
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Operational Management Plan 266 North Terrace, Adelaide









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1. Introduction to GSA and The Student Housing Company

1.1 GSA (Global Student Accommodation)

GSA are the only genuine global student accommodation provider in the world having built global communities for students in over 44 cities across the world. GSA's portfolio of operational, in-development and secured future assets totals in excess of 25,000 beds globally. Operational student residences are managed under the brands: The Student Housing Company, Uninest Student Residences and Nexo Residencias. Our key advantage can be summarised as follows:

25-year track record: we have acquired, operated and maintained over 60,000 beds in 44 cities in eight countries across three continents, managing over US\$8 billion in invested capital. In Australia, since 2008 we have delivered & owned over 7,000 beds in Australia including 500 beds in North Terrace Adelaide through our previous Urbanest platform. GSA has operations in Sydney, Tokyo, Hong Kong, Beijing, Dubai, London, Frankfurt and Dublin.

A premium, globally recognised brand & tested business model: that drives operating efficiency & service excellence resulting in safe and vibrant communities desired by students around the world (currently 97% occupancy across all our student communities).

We build integrated living and learning communities where students from multiple backgrounds live and learn. We have over 150 nationalities living with us globally and this has fostered a true sense of cultural awareness across our organisation.

Unrivalled product quality in premium locations: which allows us to offer students the best accommodation in convenient locations offering therefore an outstanding experience.

Extensive university and government relationships. Building strong, long term relationships with our stakeholders is at the heart of everything we do. We have strong relationships across the Higher Education sector, including universities and government which enables us to deliver and operate communities that complement strategic education aspirations. We work with Universities and government to develop their global partnerships through our network.

We pride ourselves on attention to detail and, using research gathered from our customers and universities, our buildings are designed in innovative ways to enhance the living experience of our residents. We truly understand our residents and strive to deliver continuous improvement in our service delivery.

We know how important accommodation is to a student's time at university but we also know that quality accommodation should be more about just four walls and a bed. That's why, from building design to accommodation management, we carefully consider and research every aspect of our communities to ensure that they really provide for students. At GSA, we like to keep things simple, we deliver the basics of operational management very well and are there, when our residents need us.





1.2 The Student Housing Company (TSHC)

TSHC is GSA's student facing operating brand within Australia. Set up in the UK in 2011 to develop purpose-built, high quality student accommodation, TSHC has brought a new energy and level of service to the student accommodation sector. The brand is currently home to over 4,000 students in nine UK cities, across 13 properties. The rapid growth is representative of the ambition and dynamism the Company has brought to the purpose-built student accommodation sector since 2011.

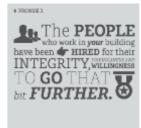
1.3 Our Promises

We make "Five Promises" to our customers and these promises are at the heart of our service ethos, and provide students with the assurance that their own high expectations for quality and service will be met. These promises feature specific measures such as hiring staff based on integrity, friendliness and willingness to go further, being upfront with accommodation costs, and listening to feedback. The friendly on-site management team are structured such that support is on hand 24 hours a day to help students make the most of student life, whether it's through advising on day-to-day issues, giving directions to the best restaurants, or planning events.

We make Five Promises to our students and these are embedded in everything we do.











1.4 Our Award Winning Operational Platform and Service Model

The Student Housing Company won the "Best Customer Service" Award 2016 at the National Student Housing Survey Awards, and was named "Best Private Halls Provider" in 2014, 2015 and 2016. In addition to successes at these awards, the company's Ablett House residence in





Liverpool UK won the "Highly Commended" prize in the "Best Halls of Residence" category of the 2016 Rate Your Landlord Awards.

Focused on delivering high levels of service, security and attention to detail, TSHC strives to implement innovative and industry-leading services based on ongoing student feedback obtained through surveys, setting it apart from other operators in the market.









AWARDS 2016







AWARDS 2015









AWARDS 2014 AND PREVIOUS









2. Wellbeing and Student Support Mission

2.1 GSA's Wellbeing Mission





To truly understand the nature of our student customers and the challenges they face as they make their way through the higher education experience and to provide an impactful and valuable framework of information, guidance and opportunity to ensure that they have the chance to thrive during their stay with us

2.2 GSA Leading the Way

GSA has always taken a pioneering approach to student accommodation: consistently pushing boundaries, innovating design and expanding our value and service offering. Our approach to wellbeing is no different.

- Being first to embed a holistic-in-residence wellbeing programme within our brand experience
- Placing students at the forefront of shaping the wellbeing programme
- Increasing understanding through our own research and supporting that of our partners
- Establishing the best practise guidelines for ourselves and the wider student accommodation sector
- Culturally adapting our wellbeing framework for each of our global markets
- Measuring and reporting on our impact

2.3 Unparalleled Cultural Competency

Our multi-national and multi-cultural network of students and employees creates a unique opportunity to gather understanding of the differences in attitudes and approaches to wellbeing globally. We can utilise this to better support our international students studying outside of their home country, in all of our markets

2.4 The Nine Pillars of Wellbeing

Our multi-national and multi-cultural network of students and employees creates a unique opportunity to gather greater understanding of the differences in attitudes and approaches to wellbeing globally. We can utilise this to better support our international students studying outside of their home country, in all of our markets.

During H1 2017, we embarked on a research project which looked at the issues and challenges that are currently affecting students. Coupled with our 26 years of experience owning, managing and operating PBSA we identified 9 core areas of wellbeing and support. These 9 areas have become the foundation pillars of our global wellbeing strategy that are tailored specifically for each market around the world. They include:





PILLAR	IN-RESIDENCE ACTIVITIES	OUT-OF-RESIDENCE ACTIVITIES	INFORMATION ADVICE AND GUIDANCE	PARTNERSHIPS
& Spiritual	Meditation masterclass	Visit to local Cathedral	List of local places of worship with directions and contacts	 University Chaplaincy Local places of worship
❤ Mental	'Look after your mate' training with Student Minds	Visit to theatre 'Every Brilliant Thing'	Techniques for managing stress and anxiety	» University Counselling » Student Minds
% Cultural	'Exploring my roots' workshop	Visit to Stonehenge	Living in harmony with people from unfamiliar cultures	 University Students Union CommunicAid
≪ Social	Pizza and games night	Boat party	Interest groups and clubs in the local community	University StudentsUnionLocal cinema
Environmental	'Staying safe in the local area' with local police	Tour of the local area with your Resident Assistants	Ways to make your bedroom comfortable	University Student ServicesLocal police
Æ Physical	Weekly yoga and Zumba classes	Visit to outdoor pursuits centre	Nutrition and hydration tips with free water bottles	 University Sports Centre Local nutritionist
Academic	Discover my research with resident Physics PhD student	Promoting university run masterclasses	Revision techniques with stationary give away	University Student ServicesStaples stationary
Career	'Careers in global banking' with HSBC	'Crisis at Christmas' – volunteering in the local homeless shelter	Information on university and local careers services	 University Careers Service Local volunteer service
Financial	'Planning a holiday on a shoestring' with STA Travel	Promoting university financial support sessions	Tips to make your student loan lasts all term	 University Student Services Money Advice Service

improvement and building design.

2.5 Creating Shared Value

Much more than corporate responsibility, GSA sees our wellbeing strategy as essential to the success of our global business. By learning how to serve and support our student residents better, we will create communities that become a student's first choice when considering their accommodation options.





3. Innovation and Product Design

GSA's product and service offering is research driven, having a clear understanding of global trends in education. Our innovation in product, design and service is inspired by our extensive global track record, strong focus on research and our ability to leverage from our global operational footprint in markets such as Japan, China, UAE, the UK and Germany. No other competitor can draw from this depth of experience and operational knowledge.

GSA aims to deliver a student living environment which encompasses a number of essential design principles:

- High quality contemporary designs
- Cultural and local market adaptation of products
- Innovation in accommodation types
- Extensive shared communal and social facilities
- Incorporating a mix of uses
- Communal external spaces, in the form of hard landscaped terrace providing outdoor living space connected to and complementing the internal shared kitchen dining and living spaces.
- Quality construction and efficient management of long term costs is a priority
- Sustainable development at the heart of the business

Our strategy is to use our expertise and knowledge to deliver the most culturally appropriate student living experience in every market. We will offer a variety of room types throughout the property to support independent and shared living as well as supporting a range of price points.

GSA accommodation type and mix has been designed considering the following design principles:

- Modern design with 'on-trend' look and feel to both the rooms and social & study spaces
- Minimum room sizes and natural light and ventilation requirements
- High quality materials including flooring types and joinery
- Floor to ceiling joinery to maximise useable space within the rooms
- Integrated lighting in the ceilings, kitchens, desks and beds
- High technology specification including USB ports and high capacity, fast connectivity
- Air conditioning throughout for comfort within the residence





4. Property Location

The site is located at 266 North Terrace Adelaide, SA 5000 on the corner of North Terrace and Frome Street, directly opposite the University of South Australia City East Campus, University of Adelaide and in very close proximity to Adelaide's main retail and hospitality precinct on Rundle Mall.

Key landmarks in close proximity to the site include:

- University of South Australia City East Campus (100m)
- University of Adelaide (200m)
- Rundle Mall Shopping precinct (400m)
- State Library of SA (600m)
- Parliament House (800m)
- Adelaide Train Station (1km)
- University of South Australia City West Campus (1.5kms)
- Hospital and University Medical Precinct (1.7kms)

The site is well serviced by public transport which provides convenient access throughout Adelaide CBD to the regions and airport via free bus routes, two of which run directly in front of the proposed residence and via the Light Rail System which is due to be extended along the full length of North Terrace in 2018.







5. The Proposed Development

5.1 Key Design Considerations

With GSA and TSHC principles in mind, the proposed scheme at 266 North Terrace has been designed with the following considerations:

- Principle entrance to the student accommodation scheme will be from the corner of North Terrace and Frome Street being the most prominent point for access and egress.
 Set back from the pavement and together with the substantial height of the ground floor will create a visually attractive entrance providing an enhanced sense of arrival and welcome to the main reception area.
- Management offices, reception foyer and cafe are located along the street level, activating the street frontage and providing casual surveillance to the site.
- The ground floor links directly to the L1 mezzanine level with visual connection between reception and common areas at ground level and the informal lounge and study breakout space. There are dedicated gaming and media rooms, open plan game lounge, cinema room, laundry and toilet facilities.
- The building will be serviced by 3 high speed lifts from Ground floor to the L33. All lift lobbies enjoy a high level of amenity having solar access and views to the North East and West on all floors.
- Bike stores are located at basement level having independent stair and ramp access to the rear lane at ground floor.
- Extensive additional social and study spaces are located on level 12 and 13 interconnected together providing residents' lounge, indoor and outdoor kitchen dining areas, all providing an abundance of communal spaces to all residents designed to boost the community spirit of all residents.
- Accommodation is to be provided offering a large variety of single and shared living options throughout the building. On the lower levels multi share communal living in single, twin and four bed options with each pair of floors sharing large interconnecting lounge and kitchen dining facilities. From Level 14 upwards self-contained share apartments offer self-contained student living with independent kitchen and living facilities.
- The studios and one bed units located on the top floors will have access to dedicated communal lounge facilities on Level 25 to enhance social interaction between occupiers of single occupancy units.







CGI image of ground floor and building entrance

5.2 Accommodation Schedule

Description	Unit size (m²)	Units	Beds	Mix
Co-living Single Bed	13.5	40	40	5.8%
Co-living Twin Share	28	36	72	10.5%
Co-living 4 Bed Share	48	40	160	23.3%
Co Living DDA	28	4	4	0.6%
5 Bed Duplex Share Apartment	100	5	25	3.6%
5 Bed Ensuite Share Apartment	92	44	220	32%
Standard Studio	18.5	129	129	19%
Large Studio	24	19	19	2.8%
1 Bed apartment	28	12	12	1.7%
DDA Studio	28	5	5	0.7%
Totals		334	686	100%





6. Onsite Management

6.1 Staff and 24-hour Management

The building will be managed by an on-site team comprising of a full-time general manager, supported by a team of full and part-time community networkers and customer service assistants. Members of the management team will be on duty between the hours of 8.00am and 8:00pm Monday to Friday, 8.00am and 5:00pm on weekends (times may vary across the academic year depending on needs of service).

In addition, maintenance operatives, security and cleaning staff will provide ancillary support. All staff will be employed directly by TSHC and further supported by third party contracted specialists, where required.

Out of hours building management will be covered by a 'live in' community manager and retained resident student wardens who will be recruited, trained and professionally developed in accordance to the TSHC staff recruitment and development guidelines.

The staff roster will allow for 24 hours - 7 day a week coverage of the site by TSHC personnel, all year around.

6.2 Staff Recruitment and Culture

A comprehensive recruitment, on-boarding, training and performance management program will be utilised to recruit and retain quality staff that espouse the vision. Staff will be recruited based on their ability to demonstrate suitability with the values, culture, behavioural competencies and technical requirements of the role.

The property manager and senior staff will also complete a TSHC designed 'international' induction where they will work in 'live and functional' properties in other parts of the word.

6.3 Reception/Concierge Desk

The principal student entrance to the building has been designed with a large reception area with concierge front desk supported by an adjacent staff office to create a distinct and welcoming 'sense of arrival'. This will allow visible on-duty staff to monitor and control the flow of both residents and visitors in and out of the building and provides a clear point of helpful, reassuring initial contact for students.

6.4 Day-to-day Staff Monitoring

The staff roster will be designed in a way that will allow for core and ancillary staff to move throughout the building to provide a discreet, but effective level of security, support and supervision within the building at all times.

Staff will act to maintain a good quality living environment within all communal areas of the building, including the common rooms, laundry, and lifts. All building common areas will be





inspected and cleaned regularly by retained cleaning staff - this also provides a further useful method for discreetly monitoring activity.

The residents are responsible for maintaining the cleanliness of their flats, and this is ensured through a program of flat inspections each term and ongoing advice from property staff.





7. Safety and Security

The safety and security of students and staff is paramount to TSHC. The following measures are implemented to ensure the safety and security of our students:

- Cloud Based Access Control System access card/ app based mobile key systems are
 installed in all properties to provide security access points throughout the building. Our
 cloud based technology can track if a student hasn't opened their door for a described
 period of time and sends an alert to staff. This technology can help to support the tracking
 of student wellbeing and particularly isolation in rooms;
- Automated door entry intercom system installed in every apartment to allow students to talk to their guests. This system cannot unlock the front door and requires students to meet their guests at the front reception area;
- **CCTV** installed internally and externally throughout the building in strategic and high traffic areas. This system is monitored by staff at the reception desk;
- Reception The principal student entrance to our buildings has been designed with a large
 reception area with concierge front desk supported by an adjacent staff office to create a
 distinct and welcoming 'sense of arrival'. This will allow visible on-duty staff to monitor
 and control the flow of both residents and visitors in and out of the building and provides
 a clear point of helpful, reassuring initial contact for students.

In addition to a 24-hour on-site staff presence at the Building, TSHC will also put in place the following security measures to ensure the safety of residents at all times:

7.1 Booking/Registration Process

All students who book accommodation at the Building are required by TSHC to complete an online 'Application for Accommodation' form in which the applicant must confirm he or she will be attending a specified university or college and supply critical information including their registered place of study, their course and year, emergency contact information, any disability that may affect their accommodation requirements and verifiable evidence of their registration including their issued reference number.

TSHC will work closely with partnering Universities to validate course enrolments throughout the year. This confidential information will be held by TSHC (in accordance with data protection legislation) for the duration of all student residents' stay at the Building and the requirement that it be supplied is an absolute pre-requisite before any student can be allowed to take up residence at the property.





7.2 Building Access Control System

Entry to and from the building, all common areas and individual studios or flats will be controlled by an advanced electronic key-access security system. Residents will be issued with personal access cards when they first arrive at the building and these are all individually registered and strictly controlled.

TSHC will be able to precisely control the extent of access around the building of all occupants and this can be tailored for specific larger groups of students living within a specific part of the building under group lettings to institutions, to encourage greater interaction and to build a sense of community. In the event of a key being lost or stolen, the original key will be cancelled on the system immediately and a new one issued to the resident.

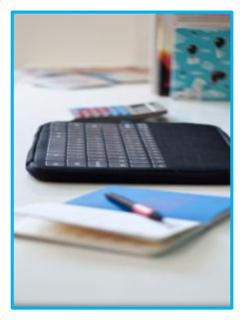
7.3 CCTV

The Building will have a comprehensive internal and external perimeter CCTV installation with full night vision capability, which is a major deterrent in the unlikely event of potential antisocial behaviour. TSHC will remotely monitor and store securely off-site recorded video data of all activity in and around the Building for permanent access should it be required. CCTV will supplement the on-site staff presence, but is not considered to be a replacement of physical staff.





8. The Student Housing Company Operational Processes



TSHC have developed operational procedures to ensure clarity and consistency within the way the building operates, ensuring that its student residents have a positive and safe experience during their stay.

To assist the day to day running of the building, TSHC will utilise its own tailored online management system to meet the requirements of its student residences. This system utilises online sales data, customer booking/account details, maintenance scheduling and offers customer communication options. This system is designed to improve the student's experience of arriving, settling in and living as well as providing a platform for emergency management.

8.1 Pre-Move-In

Once students have completed their online application form and have been offered a room at the building, they will have access to an individual portal which provides information on further requirements to be completed prior to arrival. Our website provides comprehensive details on the following topics:

- How the building operates
- Move in information the process and what customers need to prepare/ bring with them
- Full details relating to fire safety, both in individual rooms/ flats and in communal areas
- The local area transport links, the nearest food shops/ supermarkets, chemists, medical centres, hospitals, cultural services, etc.
- Key building contact details
- Short (15 30 second) films on how different aspects of the flats operate (oven, extraction system, etc.)

The website aims to provide all students with a full understanding of how their new home will operate, prior to moving in. The website also contains details about room inventories, inspections and any damage/ cleaning related information, so customers can be very clear about their responsibilities as a tenant, prior to moving in.





8.2 Annual Move-In Strategy

The principal move-in period for most THSC residents will be at the beginning of session one of the higher education academic year, usually February. Given the large proportion of international students anticipated, the move-in process will likely occur over an extended period. The process will be carefully planned and coordinated by the management team, ensuring that staff are available to welcome and induct each student to the building. TSHC's lease-up strategy is aimed at leading to an even distribution of check-in and tenancy commencement dates throughout the peak periods.

Based upon operational experience, TSHC can confidently estimate the daily student arrivals during the move-in period. TSHC will where necessary, liaise with local police and resident committees prior to the move-in period, to brief them on the planned move-in flows and where necessary agree a strategy for management of vehicle movements. To further ensure a trouble-free move-in process, additional staffing support will be provided as appropriate. These staff will be on hand to direct new students to the reception area where they can collect keys and welcome packs and accompany residents to their rooms for the first time.

As part of TSHC's pre-communication with students, parents and guardians prior to move-in, they are provided with details of public transport locations in the vicinity. This enables students and their parents to pre-plan their journey and next steps after unloading. In addition, TSHC will provide contact details for an airport pick up service for student residences arriving from interstate or overseas. TSHC will support students who do use their own vehicle by providing details in advance of local car parks within a short (10-15 minutes' walk). This offers students a variety of options and looks to help further minimise the impact on the local community.

During move-in periods additional assistance, support staff and student helpers may also be provided by universities or colleges that have block-booked significant numbers of rooms within the building. In our experience, this is a support service that many universities offer, and can further smooth the process for student move-ins.

8.3 Settling In

At the end of the main move-in period, a 'Meet & Greet' induction evening event for new student residents and the TSHC management team will be held. The 'Meet and Greet' session will provide a comprehensive orientation and induction to the premises including gymnasium, reception area, washing and drying facilities and other social/learning spaces.

Members of the Police and Fire Services and key University personnel, wherever possible, will also attend this meeting, and it is designed to introduce students to the practical realities of life in a student residence and what issues to consider. The meeting will provide an opportunity for the management team and Police to emphasise to students the need to act as good neighbours both within and around the building. The Fire Service will also be invited to make a presentation concerning fire risks and how to avoid them. In overall terms, this meeting delivers a strong message regarding acceptable behaviour and how students should live within





the community. TSHC will also provide students with hard-copy site-specific safety information and a strategy card which details how to focus on energy saving.

Internet services are a critical element of the service provision to student residents, and technical and sales staff from TSHC's chosen internet provider will also be on-site throughout the first week following move-in to provide technical support to students to address any connectivity or upgrade issues.





9. During the Tenancy



Once students have taken up residency at the property they will be able to interact with the on-site management team directly or remotely from their room via an individual on-line portal to engage on maintenance, Health and Safety, security, resident behaviour, general service requests and any other relevant issues. TSHC systems and processes will at all times consistently facilitate frequent, up-to-date communication with students to ensure the safe operation of the building.

9.1 Room Inspections

Room inspections are important in ensuring that buildings are well maintained and looked after. There will be two scheduled inspections for each flat throughout the course of the year, taking place after 3 months and then each subsequent 6

months. No other inspections are required unless results of previous inspections highlight the need for more involvement. The timings for scheduled room inspections by TSHC will allow tenants quiet enjoyment of their rooms and at least 24 hours' notice is given to tenants prior to room inspections taking place. The option for tenants to be present during inspections is always available.

9.2 Maintenance Issues

Where room repairs and/or maintenance is required, a TSHC online procedure will be in place to log the requirement and schedule a repair by on-site staff according to urgency. Information relating to all Service Level Agreements and response times for maintenance repair are communicated to customers via the online welcome guide, before they move-in.

Once a customer has reported a maintenance fault, information relating to the outcome/progress is also updated online, enabling customers to receive information without having to contact TSHC staff directly.

9.3 Waste and Recycling Management

The building will be cleaned to a standard cleaning specification. Communal areas including stairwells are cleaned regularly, and although cleaning within each flat is a tenant responsibility, regular inspections of each flat ensure acceptable standards are being maintained. Tenants will be provided access to professional cleaning services to utilise at their own expense should they prefer this option. At the end of each tenancy period, tenants are required to ensure professional cleaning of the property occurs and the property is returned





in the same condition it was provided allowing for reasonable wear and tear. Any additional cleaning required will be arranged and the cost deducted from the tenant's bond.

9.4 Bicycle and car Parking

The building will provide parking spaces for 128 Bicycles. The proximity of the property to the major train and bus stations (800m) and the universities is a significant factor in determining the appropriate number of bicycle spaces required. Internal research and experience from operating buildings in Adelaide and across Australia have informed the provision of spaces in needed in this property.

Information relating to the limited number of vehicle spaces and the restrictions placed on parking in the surrounding areas to the property will be communicated prior to the time of booking.

Unauthorized parking will be prohibited in the surrounding streets of the property and this will be clearly articulated in our building rules which is a documented referenced in the student lease. Internal parking lots will be assigned to our residents via an application and approval process.

9.5 Deliveries and Collections

The domestic nature of the building means that fewer deliveries and collections are needed. These are limited to vending machines, laundry services, maintenance, parcels etc. These typically involve small vehicles that can safely park nearby to the site with no disturbance or disruption to local residents and businesses. Waste collection would typically be undertaken by a specialist firm, with the timing and frequency agreed to suit the building requirements. The provision of the waste loading dock at the rear of the property ensures that the collections are efficient and non-obstructive to surrounding properties, residents and pedestrians.

9.6 Anti-Social Behaviour

The prevention and management of anti-social behaviour is a critical part of the property management team's responsibilities. TSHC publishes a comprehensive statement on resident rules and responsibilities and will work with students to create a social environment where all can live and enjoy their university living experience whilst considering and respecting others. A copy of TSHC's standard Rules and Responsibilities is issued to all Tenants upon arrival at any of its buildings. These regulations are also contained within each student's tenancy agreement, ensuring that they are legally bound to comply with them at all times during their stay.

Any anti-social behaviour - such as excessive noise — caused by tenants that is observed by the management team or reported to them by other tenants, residents or neighbouring building occupiers will be actively managed by the management team, security staff and student wardens in the following manner:





- Both a THSC online procedure and written procedure at the reception/ concierge desk
 will be in place for the benefit of tenants and local residents for staff to log and record
 complaints relating to anti-social behaviour in and around the building. In addition, GSA
 will also maintain a 24-hour telephone contact service for local residents should they
 need to get in touch with a member of the management team out of hours.
- Once details of an incidence of anti-social behaviour have come to their attention, members of the TSHC team will take direct action with any tenants involved. Initially staff will seek to hold 1:1 meetings with all individuals involved in such incidences to clarify the extent and seriousness of any misbehaviour. They will then respond in a number of ways as appropriate according to the offence, including:
 - 1. Issuing of a verbal warning, with a reminder to the tenant of any specific obligations under their tenancy agreement;
 - 2. A written warning detailing the same;
 - 3. In the case of disruptive behaviour that causes significant damage or offence to others, TSHC operates a system that can impose a series of financial penalties;
 - 4. In extreme circumstances, or where there are repeat incidents of anti-social or dangerous behaviour, TSHC will take action to terminate the tenancies of any students involved.
- Night wardens and/or professional security are on hand to enforce noise control from the property or other anti-social behaviour and will not hesitate to seek the assistance of the local police in extreme circumstances should they arise.
- A detailed summary of all legally-binding tenant obligations relating to standards of behaviour in and around the building that are contained in all currently-issued TSHC tenancy agreements are set out below:

The Tenant will:

- 1. Promptly notify the Landlord (and confirm in writing) of any damage to or defect in the Room and/or the Contents and/or the Flat and/or the Building.
- Operate the electrical appliances in the Flat in accordance with the manufacturer's
 instructions and not change, damage, alter or interfere with them in any way and
 ensure that any electrical appliances which do not belong to the Landlord comply
 with all relevant standards and regulations.
- 3. Pay on demand a fair and reasonable proportion, as determined by the Landlord acting reasonably, of the costs incurred by the Landlord in making good damage to the Room, the Flat, the Building Common Parts or the Flat Common Parts and/or in replacing any fixtures or fittings damaged therein which arises due to any act of the Tenant or any failure by the Tenant to observe and comply with the obligations of the Tenant under the Tenancy Agreement. If there is no evidence to the contrary, then the cost of repairing any damage shall be apportioned as if:





- (i) The Tenant caused the damage to the Room
- (ii) All the tenants of the Flat caused the damage to the shared facilities in the Flat Common Parts; and
- (iii) All the tenants entitled to use the Building Common Parts caused the damage to the Building Common Parts.
- 4. To allow the Landlord and those authorised by the Landlord upon reasonable written notice (except in cases of emergency when no notice needs to be given) to enter the Room and/or Flat at reasonable times to:
 - (i) inspect its condition;
 - (ii) carry out any necessary repairs or alterations to the Room and/or Flat and/or Building;
 - (iii) maintain, repair and, if necessary, replace the Service Media and any pipes, cables, wires, drains and sewers within the Room; and
 - (iv) carry out viewings of the Room and/or Flat with prospective tenants.
- Maintain the Room and, jointly and severally with the other tenants of the Flat, the Flat Common Parts in good tenantable repair and decorative order and clean condition (except for damage by accidental fire and water from the domestic services infrastructure);
- 6. Maintain the contents in at least as good repair and condition as they are in on the Tenancy Start Date except for fair wear and tear (and the inventory provided to the Tenant on moving in to the Room shall be evidence of their existing condition, and any defect shall be noted in such inventory);
- 7. Not remove any of the Contents from the Room or the Flat Common Parts, as the case may be;
- 8. Occupy the Room personally for residential purposes only;
- Not transfer or assign the tenancy created by the Tenancy Agreement to anyone else nor sublet the Room or part with possession or share occupation of the Room or any part of it under any circumstances.
- 10. Not carry on any profession, trade or business whatsoever in the Room or the Flat.
- 11. Not use the Room or the Flat for any improper, immoral or illegal purpose nor in any way which may, in the reasonable opinion of the Landlord, be a nuisance, damage or annoyance to the Landlord or to the other tenants of the Building or any adjoining premises and in particular, the Tenant will:
- 12. Not cause any noise which, if made within the Room, can be heard outside the Room or, if made within the Flat Common Parts, can be heard outside the Flat Common Parts;
- 13. Not keep or use drugs, the possession or use of which is prohibited by statute;





- 14. Not to keep or use any firearms, knives (other than domestic kitchen knives), or any weapons of any kind in the Room, Flat or Building;
- 15. Not harass, threaten or assault any other tenants of the Building or their guests or any personnel of the Landlord or any other person; and
- 16. Not damage or leave in a dirty or untidy state any parts of the Building.
- 17. Not to fix anything whatsoever to the interior of the Room or the Flat Common Parts in any manner which may damage the structure or decoration of the Room or the Flat Common Parts or to place anything outside the windows of the Room or the Flat Common Parts.
- 18. Ensure that any refuse is deposited in the receptacles provided for the purpose in the Building.
- 19. Not erect any external wireless or television aerial or satellite dish.
- 20. Not keep any animal, bird, insect or reptile in the Room.
- 21. Not do anything in the Room, the Building Common Parts or the Flat Common Parts which would prejudice or increase the premium payable for the policy of insurance of the Building for the time being in force.
- 22. Not to tamper with the Landlord's fire prevention and control equipment and to vacate the Building (and to ensure that any visitors of the Tenant do so) immediately whenever the fire alarm is sounded.
- 23. Not to use designated fire escapes except for the purposes of emergency escape.
- 24. To comply with any reasonable regulations of the Landlord which may be notified to the Tenant in writing from time to time and in the event of conflict between the terms of these Tenancy Terms and Conditions and any such regulations, the terms of the Tenancy Agreement shall prevail.
- 25. To report any accident or incident to the Landlord as soon as possible after it occurs and in any event within 48 hours after the accident or incident. Thereafter confirmed in writing if reasonably requested to do so by the Landlord, to complete an incident or accident form and return it to the Landlord.
- 26. All guests of the Tenant must respect the Room, the Flat, the Building Common Parts, the Flat Common Part, the Building and existing Tenants. The guest must not interrupt or disturb the Tenants in any way possible





10. Community Liaison



TSHC and GSA prides itself on proactively working with and developing a constructive relationship with its close residents, businesses and representatives of the local community.

We view this approach as critical to ensuring that as far as possible the broad range of local interest groups can co-exist harmoniously. This is particularly important where public perceptions of student residences and the likely impact they may have on local non-student residents and businesses may often be negative and give rise to undue concern and worry.

10.1 Contact with Property Management Team

It is important that local residents and businesses have a clear point of contact with the site to raise any concerns or specific problems that the on-site management team can then quickly respond to. Full contact details for the management office and key staff members — including the management suite opening hours - will be circulated to all nearby residents and business occupiers by post prior to the opening of the building.

In the very rare circumstances where one-off group events for residents may be held at the property giving rise to the potential for increased evening activity and/or noise outside the building, the on-site management team will give local residents written notice in advance.

10.2 Community Liaison Group

Six months prior to opening the completed building, TSHC will begin the process of forming, administering and chairing an ongoing community liaison group comprising representatives from a range of the following local interest groups and public bodies, which will include:

- Resident or management representatives of any adjoining / nearby public or private housing schemes.
- Occupiers of significant adjoining / nearby commercial properties
- The TSHC management team
- Universities and colleges in Adelaide with significant numbers of student's resident at the building
- Police community liaison officers
- Members of the TSHC on-site Management Team





It is envisaged that this group should comprise approximately 10 representatives drawn from these identified sources. TSHC will identify and actively approach a range of suitable individuals to become members of the group and request their participation as appropriate.

The clearly stated purpose and function of the community liaison group will be to provide a forum to hear and discuss any issues or concerns raised by representatives in connection with the management of the building and any potential impact the activities and behaviour of its residents may have from time-to-time on the local community. Wherever possible the group will work to determine workable solutions to any identified problems, with TSHC subsequently taking overall responsibility for ensuring appropriate action is taken by relevant group members.

Group meetings will be held in line with the student academic year cycle at the building, with the first to occur no later than two months prior to first occupation of the building – currently anticipated to be February. The meetings will be administered and chaired by TSHC, who will also be responsible for producing and circulating appropriate agendas and subsequent minutes to all group members. During every fourth quarterly meeting, the agenda shall include an annual review process where members can discuss how effective the group is and propose adjustments to its working practices where appropriate. Timings and frequency of meetings will be regularly reviewed in each community liaison group session.





11. Management of Health & Safety Issues

TSHC are extremely vigilant in its approach to all Health & Safety issues and legislation and will employ the services of an external specialist Health & Safety consultancy to undertake risk assessments of all relevant legislative areas. As part of the building commissioning phase a comprehensive critical incident plan and detailed emergency management and evacuation procedures will be developed for the building. Training for these plans and procedures will be addressed in both the employee and student induction process and then on an ongoing basis. In addition, scenario planning will be used to test and train on these critical building plans.

Comprehensive reports are commissioned annually if required by law and all site safety issues will be managed in-house. The initial assessments will be undertaken towards the end of the construction phase, and will enable all required safety measures to be put in place prior to the first student move in period.

TSHC will detail all site risk assessments, safety compliance issues, site specific task management, and will ensure that it maintains accurate safety data and compliance with legislation as governed by the Health & Safety Executive.

To safeguard staff safety and compliance, all on-site staff at the building will undertake training in general Health & Safety issues as appropriate for their area of responsibility. All employees required to work during the night will be eligible for night worker health assessments as required under the Work Health & Safety Act 2011.

Selected staff will be trained in first aid and student mental health to ensure an initial response is available whilst further specialist assistance is sought in the event of an incident. Full compliance with welfare requirements for students under the age of 18 will be assessed and implemented where required, however at a minimum all staff will be required to apply for and receive a working with children's check as a condition of employment.





12. The Student Housing Company Audit

At TSHC we believe it is important to continually improve upon the level of service we provide, not just to our Tenants but also our stakeholders.

To ensure that there is absolute transparency in the way that the building is being operated, TSHC would welcome the introduction of an audit to monitor the adherence to the information set out in this document. A solid audit platform, including sufficient feedback mechanisms will ensure that TSHC is delivering a successful service, whilst also learning and enhancing third party relationships.

It is suggested that a nominated member of Council is given ownership of the audit process and carries out the audit with support from members of the community liaison group. The content of the audit would be formally agreed by representatives of Council, TSHC and the community liaison group, and could include:

- Monitoring any customer anti-social behaviour issues and response/resolution by GSA
- Local business feedback
- Local community feedback
- University/Education institution feedback
- Effectiveness of community liaison relationships
- Customer feedback (student surveys) relating to their experience
- Police/Fire Service feedback



Aeronautical Impact Assessment

Proposed Development 266 North Terrace Adelaide, South Australia



LB00187

Draft Version No.001 15 February 2018



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001	Final report; no client comments, no amendments	PWW	23 February 2018	SK



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Appendix B – Glossary of Terms and Abbreviations



1 Introduction

GSA has tasked Landrum and Brown Worldwide Australia Pty Ltd to prepare an Aeronautical Impact Assessment (AIA) for a proposed building development at 266 North Terrace, Adelaide, South Australia.

The proposed building is located near the northern side of the central business district of Adelaide, approximately 6.2 kilometres northwest of the threshold of runway 23 at Adelaide Airport, at a proposed maximum height of 158.9 metres (521.36 feet) AHD.

Construction cranes to a maximum height of 188.9 m (620 ft) AHD are proposed.

Consideration of relevant Acts and Regulations applicable to developments in the vicinity of airports and air traffic routes were used as the basis of the assessment.

The major relevant documents include:

- Civil Aviation Safety Regulation (CASR) Part 139 Manual of Standards Aerodromes;
- Airservices Australia's Airways Engineering Instruction Navigation Aid Building Restricted Areas and Siting Guidance (BRA);
- International Civil Aviation Organisation (ICAO) DOC 8168 Procedures for Air Navigation Operations (PANS OPS); and
- Aeronautical Information Publication Australia (AIP).

All documents are current as at the date of this report.

These documents were used for:

- Analysis of Obstacle Limitation Surfaces (OLS);
- Analysis of Procedures for Air Navigation Services Aircraft Operations (PANS-OPS);
- Assessment of likely impacts on Navigation Aids and ATC Surveillance facilities.

Appendix A shows a plan view of the proposed building with elevation data.

Appendix B provides a glossary of aeronautical terms and abbreviations.

2 Nearby Airports

The AIP publishes instrument flight procedures for the following aerodromes with a 25 NM Minimum Safe Altitude (MSA):

- Adelaide Airport (YPAD) 2.9 nm (5.4) km southwest;
- Parafield (YPPF) 12.4 nm (13.6 km) north;
- RAAF Edinburgh (YPED) 7.4 nm (23 km) north.

3 Analysis of Obstacle Limitation Surfaces (OLS)

The OLS are imaginary surfaces surrounding an airport that should generally be kept clear from obstacles in order to protect aircraft from obstacles whilst the aircraft are operating in the take-off and landing phases of flight at an airport.

The Outer Horizontal Surface (OHS) of the OLS is a plane located 150 m above the reference elevation datum of the airport and extending from the upper edge of the extended conical surface for a distance of 15,000 m (radius) from the aerodrome reference point (ARP).

The portion of the OLS for Adelaide airport that exists above the proposed development is the OHS at a height of 153.5 m AHD, as shown in Figure 1.

The building, at an elevation of 158.9 m AHD, and the cranes at a maximum elevation of 188.9 m AHD will infringe the OHS.

As the OLS at Adelaide form part of the prescribed airspace detailed in The Airport's Act 1996, the Department of Infrastructure and Regional Development will need to approve this infringement, after seeking advice from Airservices Australia (ASA) and the Civil Aviation Safety Authority (CASA)

Figure 1 shows the approximate location of the proposed building development in relation to the OLS associated with Adelaide Airport.



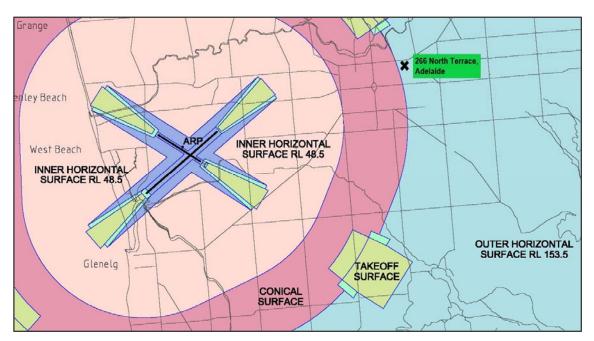


Figure 1: Approximate location in relation to the OLS.

4 Analysis of Instrument Flight Procedures (IFP)

There are several instrument flight procedures for Adelaide Airport published in the AIP.

Table 1 shows the elevations of the PANS OPS surfaces that exist overhead the proposed development site.

RELEVANT INSTRUMENT FLIGHT PROCEDURE	PANS OPS ELEVATION @ Site	BUILDING ELEVATION	BUILDING INFRINGEMENT	BUILDING AND CRANE ELEVATION	BUILDING AND CRANE INFRINGEMENT
SID ADELAIDE THREE RWY 05	224 m 736 ft	158.9 m 521.36 ft	N	188.9 m 620 ft	N
VOR RWY 05	304.7 m 1000 ft	158.9 m 521.36 ft	N	188.9 m 620 ft	N
VOR RWY 23	178 m 584 ft	158.9 m 521.36 ft	N	188.9 m 620 ft	Y
ILS RWY 23	197.9 m 649 ft	158.9 m 521.36 ft	N	188.9 m 620 ft	N
RNAV RWY 05	252.3 m 828 ft	158.9 m 521.36 ft	N	188.9 m 620 ft	N
RNAV RWY 23	186.2 m 611 ft	158.9 m 521.36 ft	N	188.9 m 620 ft	Y

Table 1: PANS OPS surfaces and infringements

The proposed building does not infringe any of the IFPs published for Adelaide.

The proposed building and the cranes do not infringe the following IFPs:

- All SIDS for RWY 05;
- All VOR and RNAV approaches to RWY 05;
- All ILS approaches to RWY 23.

The cranes will infringe the following IFPs:

- VOR RWY 23; and
- RNAV –Z RWY 23.

The assessment of these infringements are detailed below.



4.1 VOR Runway 23

The development site is located within the primary area of the final approach segment of the PANS OPS surfaces, prior to the 3.5 nm step. The minimum altitude in this part of the approach is 830 ft AMSL.

Aircraft conducting this approach and remaining on the descent profile will be at an approximate altitude of 1158 ft AMSL at 4.3 DME ADL, making an adjustment to the step altitude possible without imposing operational restrictions on aircraft operations using this approach.

Adjustment of the approach to a minimum altitude to 870 ft AMSL for the duration of the crane activity will ensure obstacle protection is assured for aircraft operations using this approach, without affecting operational efficiency.

4.2 RNAV-Z Runway 23

The development site is located approximately 3.3 nm from the missed approach point within the final approach segment of the PANS OPS surface and prior to the 2.5 nm PADNM step (PADNM is the missed approach point). The minimum altitude in this part of the approach is 800 ft AMSL.

The development site is located approximately 1.2 nm laterally from the final approach track, therefore the proposed development is located within the secondary area, and only a percentage of the full Minimum Obstacle Clearance (MOC) buffer for the segment applies. The development is sited at a point where approximately 77% of the full MOC of 246 ft applies. This then provides an MOC of 189 ft. Therefore, subtracting 189 ft from the minimum altitude of 800 ft results in the PANS OPS surface above the site at 611 ft, which is 9 ft below the top of the cranes.

Aircraft conducting this approach, and remaining on the descent profile, will be at an approximate altitude of 1147 ft AMSL at 3.37 nm from PADNM. An adjustment of 10 feet to the step altitude, increasing it to 810 ft AMSL, should be possible without imposing operational restrictions on aircraft operations using this approach without affecting operational efficiency.

4.3 Edinburgh and Parafield PANS OPS

PANS OPS surfaces for the 25 nm MSA at Edinburgh aerodrome and Parafield airport exist above the Adelaide CBD but are well in excess of the lowest PANS OPS surface related to Adelaide Airport, and are not affected by the proposed building development.

Due to the location of the proposed building within the Adelaide Control Zone (CTR), it will not have any impact upon Edinburgh aerodrome and Parafield airport. All aircraft operations with the CTR are controlled by air traffic control who ensure the safe and expeditious movement of aircraft arriving at and departing from Adelaide Airport.

4.4 IFP Conclusion

The proposed building at 266 North Terrace does not infringe Adelaide Airport's PANS OPS surfaces. It will not have an effect on any IFPs.

The proposed construction cranes will infringe the Adelaide Airport's PANS OPS surface, requiring a temporary adjustment to final approach segment altitudes. The necessary adjustments are not likely to impact upon flight operations using the two approaches shown above.

5 Analysis of Navigation Aid Performance

Airservices Australia operates the navigation aids at Adelaide Airport.

5.1 VOR/DME

ASA protect the operation and signal quality of the navigation aids in accordance with CASA requirements Airways Engineering Instruction AEI-7.1613 (Navigation Aid Building Restricted Areas and Siting Guidance - BRA). The BRA describes limits for development proposals within 1500 m of the VOR/DME antenna.

The VOR/DME is located approximately 8082 metres from the proposed development site and will not be affected by the proposed building.



5.2 ILS Equipment

5.2.1 ILS Localiser

The BRA document limits development proposals within a plane with a 2 degree elevation from the localiser antenna.

The development site is located 9430 m from the localiser antenna, placing the plane at least 329 m above the site.

5.2.2 ILS Glide Path

The BRA document limits development proposals within a plane with a 2 degree elevation from the glide path antenna.

The development site is located 6496 m from the glide path antenna, placing the plane at least 226 m above the site.

5.3 Navigation Aid Performance Conclusion

The proposed building is located beneath the protection surfaces of the ILS and outside the restricted area for the VOR, and therefore does not affect the operation of the navigation aids at Adelaide Airport.

6 Analysis of ATC Surveillance System Performance

Air Traffic Control surveillance systems are located on Adelaide Airport and at Summertown in the Adelaide Hills to the east of the city.

Airservices Airways Engineering Instruction AEI-7.4212 describes the clearance planes that protect ATC surveillance system signals from interference caused by structures.

6.1 ATC Surveillance Systems

The BRA describes a sensitive zone to a radius of 4 km from the antenna site.

As the proposed development is located approximately 7693 m from the antenna located on Adelaide Airport, and 10551 m from the antenna at Summertown, it does not infringe either sensitive zone.

The BRA also describes an "area of interest" extending to a 15 km radius from the Adelaide based antenna, with a plane of 0.25 degrees above the horizontal from the top of the antenna. The antenna elevation is 27.72 m AHD, providing an "area of interest" elevation of 60.72 m at the western edge of the proposed development.

Whilst the proposed development infringes this plane, so do the majority of the buildings between the airport and the Adelaide Hills to the east of the CBD.

The Airservices surveillance facility at Summertown, in the Adelaide Hills, has an antenna elevation of 612 m and the "area of interest" is therefore well above the top of the proposed development.

Whilst it is possible that the performance of the Adelaide Airport based ATS surveillance system may be affected by buildings in the vicinity of Adelaide Airport, other ATS surveillance sensors such as Automatic Dependent Surveillance - Broadcast (ADS-B) provide additional surveillance coverage that would minimise, or fully mitigate any accuracy degradation of the signals from the Adelaide Airport based sensor.

Airservices Australia should be invited to assess the proposed development's possible impact on the ATS surveillance systems.

6.2 Radar Terrain Clearance Chart (RTCC)

An RTCC protection surface of 182.90 m exists above the site.

The proposed building (158.9 m) does not infringe this protection surface.

At the maximum height of 188.9 m AHD, the proposed crane activity will infringe the RTCC surface by 6m.



Airservices Australia should be invited to assess the proposed development's possible impact on the RTCC altitudes.

7 Conclusions

This AIA concludes that the proposed building development at 266 North Terrace, Adelaide, at a height of 158.9 m AHD:

- Will infringe the OLS at Adelaide Airport and will require approval from aviation authorities;
- Will not infringe the PANS OPS surfaces at Adelaide Airport;
- Will not impact navigation aid systems located at Adelaide Airport;
- May affect ATS Surveillance system accuracy but other sensors in the area are likely to mitigate this impact. Advice from Airservices Australia's engineers will be required;
- Will not infringe the RTCC protection surface.

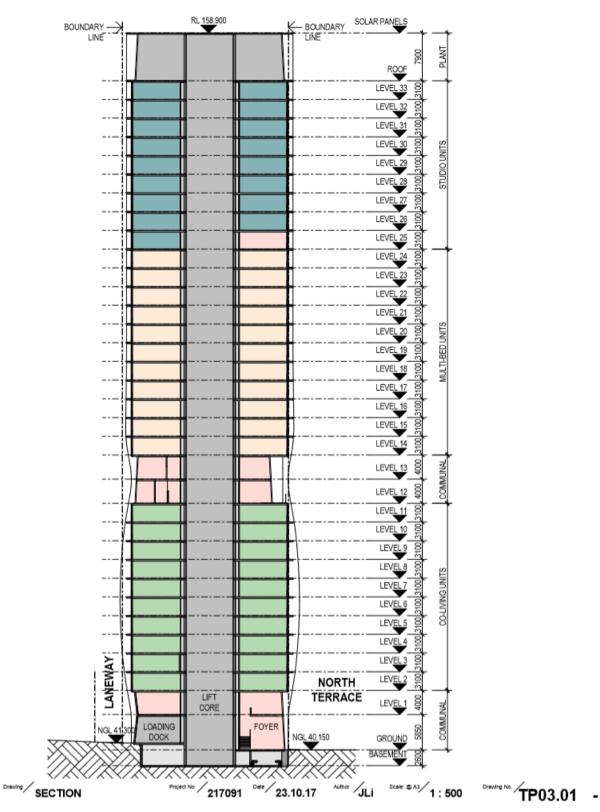
This AIA concludes that the crane activity, at a maximum height of 188.9 m;

- Will infringe the OLS at Adelaide Airport;
- Will infringe the PANS OPS surface for two of the approaches to runway 23, as described above;
- Will infringe the RTCC protection surface;
- Adjustments to segment altitudes of the RNAV and VOR approaches and to the RTCC are required to accommodate crane operations during the construction of the building;
- The adjustments and infringements will require approval from aviation authorities.



Appendix A

Building Elevation Details





Appendix B

Glossary of Aeronautical Terms and Abbreviations

To facilitate the understanding of aviation terminology used in this report, the following is a glossary of terms and acronyms that are commonly used in aeronautical impact assessments and similar aeronautical studies.

AC (Advisory Circulars) are issued by CASA and are intended to provide recommendations and guidance to illustrate a means, but not necessarily the only means, of complying with the *Regulations*.

Aeronautical study is a tool used to review aerodrome and airspace processes and procedures to ensure that safety criteria are appropriate.

AIPs (Aeronautical Information Publications) are publications promulgated to provide operators with aeronautical information of a lasting character essential to air navigation. They contain details of regulations, procedures and other information pertinent to flying and operation of aircraft. In Australia, AIP is issued by Airservices Australia on behalf of CASA.

Air routes exist between navigation aid equipped aerodromes or waypoints to facilitate the regular and safe flow of aircraft operating under IFR.

Airservices Australia is the Australian government-owned corporation providing safe and environmentally sound air traffic management and related airside services to the aviation industry.

Altitude is the vertical distance of a level, a point or an object, considered as a point, measured from mean sea level.

ATC (Air Traffic Control) service is a service provided for the purpose of:

- a. preventing collisions:
 - 1. between aircraft: and
 - 2. on the manoeuvring area between aircraft and obstructions; and
- b. expediting and maintaining an orderly flow of air traffic.

CASA (Civil Aviation Safety Authority) is the Australian government authority responsible under the *Civil Aviation Act 1988* for developing and promulgating appropriate, clear and concise aviation safety standards. As Australia is a signatory to the ICAO *Chicago Convention*, CASA adopts the standards and recommended practices established by ICAO, except where a difference has been notified.

CASR (Civil Aviation Safety Regulations) are promulgated by CASA and establish the regulatory framework (*Regulations*) within which all service providers must operate.

Civil Aviation Act 1988 (the Act) establishes the CASA with functions relating to civil aviation, in particular the safety of civil aviation and for related purposes.

ICAO (International Civil Aviation Organization) is an agency of the United Nations which codifies the principles and techniques of international air navigation and fosters the planning and development of international air transport to ensure safe and orderly growth. The ICAO Council adopts standards and recommended practices concerning air navigation, its infrastructure, flight inspection, prevention of unlawful interference, and facilitation of border-crossing procedures for international civil aviation. In addition, the ICAO defines the protocols for air accident investigation followed by transport safety authorities in countries signatory to the Convention on International Civil Aviation, commonly known as the *Chicago Convention*. Australia is a signatory to the *Chicago Convention*.

IFR (Instrument Flight Rules) are rules applicable to the conduct of flight under IMC. IFR are established to govern flight under conditions in which flight by outside visual reference is not safe. IFR flight depends upon flying by reference to instruments in the flight deck, and navigation is accomplished by reference to electronic signals. It is also referred to as, "a term used by pilots and controllers to indicate the type of flight plan an aircraft is flying," such as an IFR or VFR flight plan. Pilots must hold IFR qualifications and aircraft must be suitably equipped with appropriate instruments and navigation aids to enable flight in IMC.



IMC (Instrument Meteorological Conditions) are meteorological conditions expressed in terms of visibility, distance from cloud and ceiling, less than the minimum specified for visual meteorological conditions.

LSALT (Lowest Safe Altitudes) are published for each low level air route segment. Their purpose is to allow pilots of aircraft that suffer a system failure to descend to the LSALT to ensure terrain or obstacle clearance in IMC where the pilot cannot see the terrain or obstacles due to cloud or poor visibility conditions. It is an altitude that is at least 1,000 feet above any obstacle or terrain within a defined safety buffer region around a particular route that a pilot might fly.

MOS (Manual of Standards) comprises specifications (Standards) prescribed by CASA, of uniform application, determined to be necessary for the safety of air navigation.

NOTAMs (Notices to Airmen) are notices issued by the NOTAM office containing information or instruction concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to persons concerned with flight operations.

Obstacles. All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft or that extend above a defined surface intended to protect aircraft in flight.

OLS (Obstacle Limitation Surfaces) are a series of planes associated with each runway at an aerodrome that defines the desirable limits to which objects may project into the airspace around the aerodrome so that aircraft operations may be conducted safely.

PANS OPS (Procedures for Air Navigation Services - Aircraft Operations) is an Air Traffic Control term denominating rules for designing instrument approach and departure procedures. Such procedures are used to allow aircraft to land and take off under Instrument Meteorological Conditions (IMC) or Instrument Flight Rules (IFR). ICAO document 8168-OPS/611 (volumes 1 and 2) outlines the principles for airspace protection and procedure design which all ICAO signatory states must adhere to. The regulatory material surrounding PANS OPS may vary from country to country.

PANS OPS Surfaces. Similar to an Obstacle Limitation Surface, the PANS OPS protection surfaces are imaginary surfaces in space which guarantee the aircraft a certain minimum obstacle clearance. These surfaces may be used as a tool for local governments in assessing building development. Where buildings may (under certain circumstances) be permitted to penetrate the OLS, they cannot be permitted to penetrate any PANS OPS surface, because the purpose of these surfaces is to guarantee pilots operating under IMC an obstacle free descent path for a given approach.

Prescribed airspace is an airspace specified in, or ascertained in accordance with, the Regulations, where it is in the interests of the safety, efficiency or regularity of existing or future air transport operations into or out of an airport for the airspace to be protected. The prescribed airspace for an airport is the airspace above any part of either an OLS or a PANS OPS surface for the airport and airspace declared in a declaration relating to the airport.

Radar Terrain Clearance Chart (RTCC) is a chart that provides air traffic controllers with the lowest usable altitude that they can vector an aircraft using prescribed surveillance procedures within controlled airspace. There is a protection surface below this usable altitude which is shown in airport master plans.

Regulations (Civil Aviation Safety Regulations)

VFR (Visual Flight Rules) are rules applicable to the conduct of flight under VMC. VFR allow a pilot to operate an aircraft in weather conditions generally clear enough to allow the pilot to maintain visual contact with the terrain and to see where the aircraft is going. Specifically, the weather must be better than basic VFR weather minima. If the weather is worse than VFR minima, pilots are required to use instrument flight rules. Pilots must be specifically qualified and aircraft specifically equipped to enable flight in IMC,

VMC (Visual Meteorological Conditions) are meteorological conditions expressed in terms of visibility, distance from cloud and ceiling, equal or better than specified minima.



Abbreviations

Abbreviations used in this report, and the meanings assigned to them for the purposes of this report are detailed in the following table.

Abbreviation	Meaning			
AC	Advisory Circular (document support CAR 1998)			
ACFT	Aircraft			
AD	Aerodrome			
ADS-B	Automatic Dependent Surveillance - Broadcast			
AHD	Australian Height Datum			
AIP	Aeronautical Information Publication			
Airports Act	Airports Act 1996, as amended			
AIS	Aeronautical Information Service			
ALT	Altitude			
AMSL	Above Mean Sea Level			
APARs	Airports (Protection of Airspace) Regulations, 1996 as amended			
ARP	Aerodrome Reference Point			
ASA	Airservices Australia			
ATC	Air Traffic Control(ler)			
ATM	Air Traffic Management			
BRA	Building Restricted Area			
CAO	Civil Aviation Order			
CAR	Civil Aviation Regulation			
CASA	Civil Aviation Safety Authority			
CASR	Civil Aviation Safety Regulation			
Cat	Category			
DAP	Departure and Approach Procedures (charts published by AsA)			
DER	Departure End of (the) Runway			
DME	Distance Measuring Equipment			
Doc nn	ICAO Document Number nn			
DIT	Department of Infrastructure and Transport. (Formerly Dept. of Infrastructure, Transport, Regional Development and Local Government and Department of Transport and Regional Services (DoTARS))			
DOTARS	See DIT above			
ELEV	Elevation (above mean sea level)			
ENE	East North East			
ERSA	Enroute Supplement Australia			
FAF	Final Approach Fix			
FAP	Final Approach Point			



Abbreviation	Meaning		
ft	feet		
GBAS	Ground Based Augmentation System (satellite precision landing system)		
GNSS	Global Navigation Satellite System		
GP	Glide Path		
IAS	Indicated Airspeed		
ICAO	International Civil Aviation Organisation		
IHS	Inner Horizontal Surface, an Obstacle Limitation Surface		
ILS	Instrument Landing System		
ISA	International Standard Atmosphere		
km	kilometres		
kt	Knot (one nautical mile per hour)		
LAT	Latitude		
LLZ	Localizer		
LONG	Longitude		
m	metres		
MAPt	Missed Approach Point		
MDA	Minimum Descent Altitude		
MGA94	Map Grid Australia 1994		
MOC	Minimum Obstacle Clearance		
MOS	Manual of Standards, published by CASA		
MSA	Minimum Sector Altitude		
MVA	Minimum Vector Altitude		
NASAG	National Airports Safeguarding Advisory Group		
NDB	Non Directional Beacon		
NE	North East		
NM	Nautical Mile (= 1.852 km)		
nnDME	Distance from the DME (in nautical miles)		
NNE	North North East		
NOTAM	NOtice to AirMen		
OAS	Obstacle Assessment Surface		
OCA	Obstacle Clearance Altitude		
OCH	Obstacle Clearance Height		
OHS	Outer Horizontal Surface		
OIS	Obstacle Identification Surface		
OLS	Obstacle Limitation Surface		
PANS OPS	Procedures for Air Navigation Services – Operations, ICAO Doc 8168		
PBN	Performance Based Navigation		



Abbreviation	Meaning		
PRM	Precision Runway Monitor		
QNH	An altimeter setting relative to height above mean sea level		
REF	Reference		
RL	Relative Level		
RNAV	aRea NAVigation		
RNP	Required Navigation Performance		
RPA	Rules and Practices for Aerodromes — replaced by the MOS Part 139 — Aerodromes		
RPT	Regular Public Transport		
RTCC	Radar Terrain Clearance Chart		
RWY	Runway		
SFC	Surface		
SID	Standard Instrument Departure		
SOC	Start Of Climb		
STAR	STandard ARrival		
SGHAT	Solar Glare Hazard Analysis Tool		
TAR	Terminal Approach Radar		
TAS	True Air Speed		
THR	Threshold (Runway)		
TNA	Turn Altitude		
TODA	Take-Off Distance Available		
Vn	aircraft critical Velocity reference		
VOR	Very high frequency Omni directional Range		
WAC	World Aeronautical Chart		



File No:

2014/11234/01

7 February 2018

Ref No: 12321183

Brett Miller
Team Leader – CBD & Inner Metro
Development Division
Department of Planning, Transport and Infrastructure
Level 5, 50 Flinders Street
Adelaide SA 5000

For the attention of the State Commission Assessment Panel

266 North Terrace, Adelaide

Further to the referral 020/A074/17 received 23 November 2017 and the revised drawings received 23 January 2018 pertaining to the development application at the above address and in my capacity as a statutory referral in the State Commission Assessment Panel, I would like to offer the following comments for your consideration.

The project was not presented to the Design Review panel. From considering the material supplied with the referral and evaluating the design merit of the project I am unable to offer my support to the planning application in its current form.

In principle, I support the project team's aspiration to deliver a high density student residential facility in this location. This proposal has the potential to become a landmark development due to its scale and the significance of the site location, and therefore must be supported by high quality design, particularly in relation to contextual response, architectural expression, public realm and cityscape contribution. In my opinion, the proposed built form and architectural expression in its current form greatly departs from the established character of North Terrace.

The subject site is located on the southwest corner of North Terrace and Frome Street. The site has a third frontage to a privately owned laneway to the south. North Terrace is described as a 'Ceremonial Boulevard' in the Adelaide Design Manual, with buildings defined by their grand scale, institutional architecture and that reflect the symmetry and order of Colonel Light's Plan. The location of the site is considered significant as the City's gateway and it offers a unique opportunity for a corner development. There are a number of State heritage places proximate to the subject site, including former houses at 263-265 North Terrace and 261 North Terrace, which are located directly to the west of the subject site. The Grand Lodge of Freemasons Adelaide Masonic Centre is located further west at 254 North Terrace.

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File No: 2014/11234/01

Ref No: 12321183

The overall height of the proposal is approximately 119 metres, which I support in principle, as the site is located within the 'No Prescribed Height Limit' area as described by the Development Plan, and a 134 metre tall development is currently under construction on the site immediately to the south of the private lane. However, in order to justify development of this scale on this site, it will be critical that the proposal presents a convincing response to the established character of the City's premier boulevard, which in my opinion, is yet to be successfully demonstrated. I support the incorporation of the rooftop plant to the overall built form composition.

The built form of the proposal is characterised by continuous vertical fins, which gradually change thickness and depths as they travel up the building, resulting in the overall form with apparently curved edges. While the majority of the building is built to the north and east boundaries, the northern and eastern walls are geometrically indented in plan on the bottom two levels and levels 12 and 13. I do not object to the provision of recessed elements with the intent to break down the building scale and acknowledge historic datum heights, however I do not support the current setbacks of the bottom two floors. It is my view that the setting back of the walls at the street level is inconsistent with the established built form pattern of the precinct and is contrary to the ambition of the Development Plan to provide a continuous built form to frame the City edge. I am particularly concerned by the setback at the prominent street corner, which in my opinion, erodes the building's corner presence. I recommend review of the built form response at the street level, with the view to provide a strong corner built form to the City edge. I am also concerned by the encroachment of vertical fins over the north and east boundaries, as in my opinion the encroachments are not 'minor' as described within the Adelaide City Council's operating guidelines. Furthermore, the fins form a critical part of the overall built form, architectural expression and the identity of the proposal, which in my view, should be accommodated within the site boundaries.

Active use spaces, such as the cafe, foyer and reception areas are positioned along the street frontages as a means of street activation, which I strongly support. I also support the location of the services infrastructure on the southern boundary to be accessed off the private lane. While I support the setback on the northwest corner of the site to maintain the sightline for the adjoining State heritage place, I do not support the other geometrical setbacks along the North Terrace and Frome Street frontages. The indentations have created small and unusable landscaped spaces, which in my opinion, compromise the visual and physical permeability of the building at the street level and prohibits the meaningful engagement between the development and adjoining streets. I recommend fundamental rethink of the ground floor organisation along the street frontages, informed by urban design principles to maximise the development's engagement with the public realm.

The architectural expression of the proposal is characterised by a skeleton of vertical concrete fins infilled with glazing and light weight metal panels. I do not support the proposed expression, as in my view, its low solid to void ratio is highly inconsistent with the established character of North Terrace, particularly in this cultural precinct with a number of significant historic buildings. The facade treatments of the proposal are generally consistent on all four elevations. While I support the notion of delivering the building 'in the round', I am yet to be convinced that the building and its architectural expression sufficiently address the significant

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Ref No: 12321183

corner location and the City's edge. I am also concerned about the expression of the recessed floors, where the walls are set back to form angled built form edges. While I do not object to the design intent to break down the overall scale of the building and provide an 'architectural counterpoint', I am of the view that the scale of the angled indentation is disproportionately small in comparison to the scale of the overall building to be visually meaningful. Furthermore, the complex setback pattern has resulted in the usability of the adjacent spaces being compromised both internally and externally. Overall, I recommend fundamental rethink of the architectural expression with the view to provide more appropriate response to the specific context of North Terrace and the site's location as a key corner to the CBD. A clarification has been provided that the materiality of the vertical fins is non load bearing pre-finished concrete. I request further information provided regarding the class of concrete to ensure the envisaged finish can be realised.

The residential floors offer a mix of student accommodation options, including two-bedroom clusters, four-bedroom clusters, five-bedroom clusters, one-bedroom apartments, studio rooms and DDA compliant rooms. I support the variety of residential options proposed. While I consider the proposed sizes of student rooms small, I acknowledge the planning is based on the established business models for the student accommodation. I support the provision of outlook and natural ventilation to all bedrooms. Communal lounge, kitchen and dining spaces are provided on the 'co-living' floors on levels two to five and level 25, as well as the indoor/outdoor communal facilities on levels 12 and 13. I support the provision of shared student spaces and infrastructure throughout the building. Buildings of the scale and nature of this proposal have the potential to be communities in themselves. I recommend development of an overall strategy to demonstrate the usability of communal spaces, including green spaces to ensure successful user amenity.

The proposal includes the provision of 128 secure bicycle parking spaces and no car parking spaces. I support the decision to remove car parking from the development, given the site's location and use.

The submitted materials includes the Sustainability report, which identifies proposed sustainability measures such as high performance glazing and energy efficient massing. However I am yet to be convinced that the proposal has fully explored the opportunities to incorporate the principles of ecologically sustainable development (ESD), particularly given the significant scale of the development. The proposal includes highly glazed walls on all elevations. While the facades include vertical fins and horizontal shading canopies, I recommend further consideration be given to solar control strategies informed by the environmental conditions and respond to each orientation.

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To ensure the most successful design outcome is achieved the State Commission Assessment Panel may like to consider particular aspects of the project, which would benefit from protection as part of the planning permission, such as:

- Review of the wall setbacks along the North Terrace and Frome Street frontages, including the corner setback.
- Review of vertical fin encroachments over site boundaries.
- Fundamental rethink of the architectural expression.
- Development of an overall strategy for communal spaces, including green spaces.
- Incorporation ESD principles.
- Final samples of selected materials and finishes for exterior of the building and communal and publicly accessible open spaces.

Yours sincerely

Nick Tridente

Associate Government Architect

Level 1 26-28 Leigh Street Adelaide SA 5000

GPO Box 1533 Adelaide SA 5001

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Shirai-Doull, Aya (DPTI) From:

Sent: Wednesday, 28 February 2018 4:30 PM

To: Miller, Brett (DPTI)

266 North Terrace - AGA informal response Subject:

Brett,

This email is in response to the amended drawings and additional documents forwarded on 26 and 28 February 2018.

I acknowledge that the design amendments are proposed and additional information provided to address some of the concerns outlined in the Associate Government Architect's referral letter dated 7 February 2018.

These changes include;

Provision of 'Communal Living Concept' report.

In addition, I acknowledge the following improvements are made, however I am of the view that further development of the proposal is required to fully address the concerns. These changes include;

- Review of the wall setbacks along the North Terrace and Frome Street frontages.
- Reduction of vertical fin encroachments to 1200mm.

Most importantly, the following concerns are not addressed.

- Setback at the northeast corner.
- Architectural expression.

I also acknowledge the architectural opinion by Mr Sam Hosking in response to the referral letter.

On the whole, I welcome the amendments proposed. However I remain concerned about the appropriateness of the proposed architectural expression in its location.

Kind regards,

Aya Shirai-Doull on behalf of Nick Tridente (Associate Government Architect)

Aya Shirai-Doull

Senior Design Advisor

Office for Design + Architecture SA

Department of Planning, Transport and Infrastructure

T 08 8402 1853 (internal 21853) • E aya.shirai-doull@sa.gov.au

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Ref: SH/10956D Date: 25 January 2018

Secretary – Ms Alison Gill State Commission Assessment Panel

GPO Box 1815 ADELAIDE SA 5001

Attention: Brett Miller

Heritage South Australia

Economic and Sustainable Development Group

Level 8

81-91 Waymouth Street Adelaide SA 5000

GPO Box 1047 Adelaide SA 5001 Australia DX138

Ph: +61 8 8124 4960 Fax: +61 8 8124 4980 www.environment.sa.gov.au

Dear Mr Miller

DESCRIPTION: DEVELOPMENT MATERIALLY AFFECTING CONTEXT OF A STATE HERITAGE PLACE: DEMOLITION OF ALL EXISTING STRUCTURES AND THE CONSTRUCTION OF A 34-STOREY MIXED-USE BUILDING COMPRISING STUDENT ACCOMMODATION ASSOCIATED STUDENT SERVICES/AMENITY SPACES AND GROUND FLOOR COMMERCIAL LAND USES - 266-269 NORTH TERRACE, ADELAIDE

Application number: 020/A074/17 Referral received: 23/11/2017

Additional and amended documentation received 5/12/2017 Further information requested 19/12/2017 and received 23/01/2018

State heritage place: SH/13376—Two storey dwelling (an elaborately detailed classical

villa), 261 North Terrace ADELAIDE

SH/13377—Office (former dwelling), 263-264 North Terrace ADELAIDE SH/10956—Grand Lodge of Freemasons Adelaide Masonic Centre,

254 North Terrace ADELAIDE

The above application has been referred to the Minister for Sustainability, Environment and Conservation in accordance with Section 37 of the Development Act 1993 as development that directly affects a State heritage place or, in the opinion of the relevant authority, materially affects the context within which a State heritage place is situated.

The proposed development site abuts a State heritage place to the west at 263-264 North Terrace (SH/13377). The other two State heritage places identified above are located immediately to the west of this as adjoining titles.

The application includes a Heritage Impact Statement (received 5/12/2017). I generally concur with its analysis and recommendations in relation to the contextual impact of the proposed development on these three State heritage places and on the State heritage-listed Brookman Building and Royal Adelaide Hospital buildings on the northern side of North Terrace.

Subject to the recommendation set out below, the proposed development (as amended 22/01/2018) is considered to be acceptable in relation to the above State heritage places for the reasons described in the Heritage Impact Statement and as follows.

- Other than the construction management issues covered by conditions recommended below, the proposed development does not directly affect the physical fabric or material heritage values of the State heritage places.
- The two-storey boundary wall of the proposed building is set back from the common side boundary with the State heritage place at 263-264 North Terrace to allow sufficient clearance for projections beyond its eastern wall face (such as footings, plinth and eaves). The two-storey western wall of the proposed building establishes a comfortable visual juxtaposition with the State heritage place by finishing just below its eaves line, and by its

- front setback sitting behind the two-storey vernadah and balcony in line with the front wall alignment of the State heritage place.
- Visually, the pronounced articulation of the building's form sets up a satisfactory relationship with the scale of the two-storey State heritage places (SH/13376 and SH/13377), and the inset faceted infill of these levels provides eye-level visual interest and detail that responds to the fine-grained detail of the heritage places. The articulation with a similar inset at levels 12 and 13 generally acknowledges the various heights and scale of more recent built form in the vicinity (including the State heritage-listed Grand Lodge of Freemasons, Brookman Building and Royal Adelaide Hospital buildings).

Recommendation

- A. The following condition/s should be incorporated into any consent or approval.
 - Condition 1: A dilapidation survey recording the condition of the State heritage place at 263-264 North Terrace shall be prepared prior to the commencement of work on site, to the satisfaction of the relevant authority. As well as recording fabric in good condition, the survey shall also record the location, type and dimensional extent of any existing physical damage to the place that might be affected by the proposed demolition, excavation and construction works.

Reason for condition: To provide a record prior to the commencement of the proposed works, as a reference for the assessment of any subsequent damage.

- Condition 2: A Construction Management Plan outlining measures to minimise ground vibrations in the proximity of the heritage building is to be prepared to the satisfaction of the relevant authority in consultation with Heritage South Australia (Department of Environment, Water and Natural Resources) prior to final Development Approval being granted. The Management Plan shall include:
 - a) proposals for the ongoing monitoring of the condition of the heritage place during the works;
 - b) proposals for protective measures against accidental damage to the heritage place; and
 - c) procedures to be taken if any structural distress or accidental damage is identified in the heritage fabric.

Reason for condition: To protect the physical integrity of the fabric of the State heritage place.

Condition 3: During ground works, the short term vibration levels at the heritage-listed structure shall be monitored, and shall not exceed the velocity limits for structural vibration in buildings established for Group 3 structures in the German Standard DIN 4150 Part 3.

Reason for condition: To protect the heritage-listed structure from structural movement due to the proximity of new construction.

General notes

- 1. Should Council not adopt the above recommendation in full, it will be necessary to obtain the concurrence of the State Commission Assessment Panel before a decision is conveyed to the applicant.
- 2. Any changes to the proposal for which planning consent is sought or granted may give rise to heritage impacts requiring further consultation with the Department of Environment, Water and Natural Resources, or an additional referral to the Minister for Sustainability, Environment and Conservation. Such changes would include for example (a) an application to vary the planning consent, or (b) Building Rules documentation that incorporates differences from the proposal as documented in the planning application.

- 3. To ensure a satisfactory heritage outcome, Council is requested to consult the Department of Environment, Water and Natural Resources in finalising any conditions or reserved matters above.
- 4. In accordance with Regulation 43 of the Development Regulations 2008, please send the Department of Environment, Water and Natural Resources a copy of the Decision Notification.
- 5. Council is requested to inform the applicant of the following requirements of the Heritage Places Act 1993.
 - (a) If an archaeological artefact believed to be of heritage significance is encountered during excavation works, disturbance in the vicinity shall cease and the SA Heritage Council shall be notified.
 - (b) Where it is known in advance (or there is reasonable cause to suspect) that significant archaeological artefacts may be encountered, a permit is required prior to commencing excavation works.

For further information, contact the Department of Environment, Water and Natural Resources.

- 6. Council is requested to inform the applicant of the following requirements of the Aboriginal Heritage Act 1988.
 - (a) If Aboriginal sites, objects or remains are discovered during excavation works, the Aboriginal Heritage Branch of the Aboriginal Affairs and Reconciliation Division of the Department of the Premier and Cabinet (as delegate of the Minister) should be notified under Section 20 of the Aboriginal Heritage Act 1988.

For any enquiries in relation to this application, I can be contacted on telephone 8124 4935 or e-mail <u>peter.wells@sa.gov.au</u>.

Yours sincerely

Peter Wells

Principal Conservation Architect

DEPARTMENT OF ENVIRONMENT, WATER AND NATURAL RESOURCES

as delegate of the

MINISTER FOR SUSTAINABILITY, ENVIRONMENT AND CONSERVATION

18 December 2017

Department of Planning, Transport & Infrastructure GPO Box 1815 ADELAIDE SA 5001

To Whom It May Concern,

DEVELOPMENT NUMBER: 020/A074/17

APPLICANT: GSA Australian Pty Ltd c/- Intro Design Pty Ltd

NATURE OF DEVELOPMENT: 34 storey mixed-use building comprising student accommodation

SUBJECT LAND: 266-269 North Terrace, Adelaide, 5000

The application has been assessed and at a height of RL 158.90m AHD the application will penetrate the Adelaide Airport Obstacle Limitation surfaces (OLS) which is protected airspace for aircraft operations.

The application will require approval in accordance with the Airports Act 1996 and the Airports (Protection of Airspace) Regulations 1996 and therefore will be forwarded to the Department of Infrastructure and Regional Development for their approval.

An Aeronautical Impact Assessment Study will need to be provided by the applicant before commencement of the airspace approval process in support of the application.

The developments will penetrate the OLS by approximately 8 metres.

If the development is approved by the Department of Infrastructure and Regional Development any associated lighting would also need to conform to the airport lighting restrictions and shielded from aircraft flight paths.

Crane operations associated with construction, if approved, will also be subject to a separate application and are to remain below the PANS-OPS height of RL 182m AHD.

Should you require any additional information or wish to discuss this matter further please contact the undersigned on 8308 9245.

Yours sincerely,

Brett Eaton

Airside Operations Manager



Miller, Brett (DPTI)

From: Seb Grose <S.Grose@cityofadelaide.com.au>

Sent: Monday, 5 February 2018 2:31 PM

To: Miller, Brett (DPTI)
Cc: Rebecca Rutschack

Subject: S10/40/2017 - 266 North Terrace, Adelaide (SCAP Ref: 020/A074/17) **Attachments:** SK10.21-FACADE AT NORTH TERRACE & FROME ST BOUNDARIES(P2).pdf

Hi Brett

I write regarding the abovementioned application to provide information regarding the proposed encroachments and also Council's referral response.

Encroachments

Rebecca Rutschack met with the applicant regarding the proposed sunshade encroachments on 29 November 2017. Further clarification/information was requested at this meeting and an encroachment study (attached) was recently provided by the applicant on 29 January 2018.

The application documents, including the encroachment study, were presented to Shanti Ditter for review last week to determine if the proposed encroachments could possibly be supported.

Shanti has finalised her review and has confirmed the vertical sunshade encroachments are unable to be supported. However, it should be noted the horizontal sunshades, which are proposed to extend a maximum 1.2 metres beyond both the North Terrace and Frome Street boundaries, do satisfy Section 3.2.2 of the policy.

As you are aware Council's encroachment policy is currently under review and whilst this is occurring waivers to the policy are not being considered by Council. Consequently, the vertical 'sunshades' which extend up to 1.89 metres beyond the boundary (690mm beyond the maximum requirement), will need to be amended so they extend no more than 1.2 metres beyond the boundary.

Other Council Referral Comments

Traffic

- There exists a narrow section of footpath at the front entrance between an upright column and part of the sloping façade, which presents a potential tripping risk. This area should be further examined/refined to minimise risk of tripping.
- The bifold doors for the cafe al-fresco area appear to encroach onto the footpath. This should be amended to ensure there is no encroachment onto the footpath.
- Whist outdoor seating is nominally shown on the plans, this needs to be dealt with separately outside the development application process. The City of Adelaide Outdoor Dining Policy should be considered and it is noted that mid-path dining as shown would not be permitted under this policy.

Waste

Council has reviewed the waste management plan and is satisfied with this plan.

Conclusion

If you have any further questions regarding this matter, particularly regarding the encroachment issue, please do not hesitate to contact me.

Regards

Seb Grose Planner - Development Assessment Planning & Development 4th Floor 25 Pirie Street

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From: Seb Grose <S.Grose@cityofadelaide.com.au>

Sent: Monday, 19 February 2018 4:55 PM

To: Miller, Brett (DPTI)

Subject: S10/40/2017 - 266 North Terrace - Revised Plans

Thanks Brett.

I write to confirm the amended plans now satisfy Council's Encroachment Policy. Consequently, we have no further comments to make in addition to those already provided via email on 5 February 2018.

Regards

Seb Grose
Planner - Development Assessment
Planning & Development
4th Floor 25 Pirie Street
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From: Miller, Brett (DPTI) [mailto:Brett.Miller@sa.gov.au]

Sent: Friday, 16 February 2018 1:10 PM

To: Shirai-Doull, Aya (DPTI) < <u>Aya.Shirai-Doull@sa.gov.au</u>>; Seb Grose

<<u>S.Grose@cityofadelaide.com.au</u>>

Subject: HPRM: S10/40/2017 - 266 North Terrace - Revised Plans

Good Afternoon,

Please find attached amended plans to inform the discussion with the AGA next week. The applicant has advised that "In preparing these plans we have responded to some of the issues raised and would like to use the meeting to discuss options about resolving the balance of the RFI."

It is noted that there is also revised shadowing plans to correct a timing error reflected in previous issue.

It is also noted that the applicant has reduced the vertical 'fins' to 1200mm to appease both Council and the AGA.

Let me know if you need anything further.

Kind Regards

Brett Miller

Team Leader – Inner Metro Development Assessment **Development Division** Department of Planning, Transport and Infrastructure T (08) 8343 2988 (22988) • E brett.miller@sa.gov.au

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Central Business Policy Area 13

Introduction

The Objectives and Principles of Development Control that follow apply to the Policy Area as shown on Maps Adel/49, 50, 55 and 56. They are additional to those expressed for the Zone and, in cases of apparent conflict, take precedence over the Zone provisions. In the assessment of development, the greatest weight is to be applied to satisfying the Desired Character for the Policy Area.

DESIRED CHARACTER

The Central Business Policy Area is the pre-eminent economic, governance and cultural hub for the State. This role will be supported by educational, hospitality and entertainment activities and increased opportunities for residential, student and tourist accommodation.

Buildings will exhibit innovative design approaches and produce stylish and evocative architecture, including tall and imposing buildings that provide a hard edge to the street and are of the highest design quality. A wide variety of design outcomes of enduring appeal are expected. Complementary and harmonious buildings in individual streets will create localised character and legible differences between streets, founded on the existing activity focus, building and settlement patterns, and street widths.

OBJECTIVES

Objective 1: A concentration of employment, governance, entertainment and residential land uses that form the heart of the City and central place for the State.

Objective 2: Development of a high standard of design and external appearance that integrates with the public realm.

Objective 3: Development that contributes to the Desired Character of the Policy Area.

PRINCIPLES OF DEVELOPMENT CONTROL

Land Use

- 1 Development should contribute to the area's role and function as the State's premier business district, having the highest concentration of office, retail, mixed business, cultural, public administration, hospitality, educational and tourist activities.
- 2 Buildings should be of a height that ensures airport operational safety is not adversely affected.
- 3 To enable an activated street level, residential development or similar should be located above ground floor level.

CAPITAL CITY ZONE

Introduction

The Desired Character, Objectives and Principles of Development Control that follow apply in the whole of the Capital City Zone shown on Maps Adel/17 to 20, 23 to 26 and 29 to 31. They are additional to those expressed for the whole of the Council area and in cases of apparent conflict, take precedence over the more general provisions. In the assessment of development, the greatest weight is to be applied to satisfying the Desired Character for the Zone.

DESIRED CHARACTER

This Zone is the economic and cultural focus of the State and includes a range of employment, community, educational, tourism and entertainment facilities. It is anticipated that an increased population within the Zone will complement the range of opportunities and experiences provided in the City and increase its vibrancy.

The Zone will be active during the day, evening and late night. Licensed entertainment premises, nightclubs and bars are encouraged throughout the Zone, particularly where they are located above or below ground floor level to maintain street level activation during the day and evening.

High-scale development is envisaged in the Zone with high street walls that frame the streets. However an interesting pedestrian environment and human scale will be created at ground floor levels through careful building articulation and fenestration, frequent openings in building façades, verandahs, balconies, awnings and other features that provide weather protection.

In important pedestrian areas, buildings will be set back at higher levels above the street wall to provide views to the sky and create a comfortable pedestrian environment. In narrow streets and laneways the street setback above the street wall may be relatively shallow or non-existent to create intimate spaces through a greater sense of enclosure. In the Central Business Policy Areas, upper level setbacks are not envisaged.

Non-residential land uses at ground floor level that generate high levels of pedestrian activity such as shops, cafés and restaurants will occur throughout the Zone. Within the Central Business Policy Area, residential land uses at ground level are discouraged. At ground level, development will continue to provide visual interest after hours by being well lit and having no external shutters. Non-residential and / or residential land uses will face the street at the first floor level to contribute to street vibrancy.

New development will achieve high design quality by being:

- (a) **Contextual** so that it responds to its surroundings, recognises and carefully considers the adjacent built form, and positively contributes to the character of the immediate area.
- (b) **Durable** by being fit for purpose, adaptable and long lasting, and carefully considers the existing development around it.
- (c) **Inclusive** by integrating landscape design to optimize pedestrian and cyclist usability, privacy, and equitable access, and also promote the provision of quality spaces integrated with the public realm that can be used for access and recreation and help optimize security and safety both internally and into the public realm, for occupants and visitors alike.
- (d) **Sustainable** by integrating sustainable systems into new buildings and the surrounding landscape design to improve environmental performance and minimise energy consumption.
- (e) **Amenable** by providing natural light and ventilation to habitable spaces.

Contemporary juxtapositions will provide new settings for heritage places. Innovative design is expected in areas of identified street character with an emphasis on contemporary architecture that responds to site context and broader streetscape, while supporting optimal site development. The addition of height, bulk and massing of new form should be given due consideration in the wider context of the proposed development.

There will also be a rich display of art that is accessible to the public and contextually relevant.

Adelaide's pattern of streets and squares

The distinctive grid pattern of Adelaide will be reinforced through the creation of a series of attractive boulevards as shown on Concept Plan Figures CC/1 and 2. These boulevards will provide a clear sense of arrival into the City and be characterised by buildings that are aligned to the street pattern, particularly at ground level.

Views to important civic landmarks, the Park Lands and the Adelaide Hills will be retained as an important part of the City's charm and character.

The City's boulevards, terraces and Squares will be developed as follows:

- (a) North Terrace will be reinforced as an important pedestrian promenade and cultural boulevard that provides an important northern edge to the City square mile.
- (b) King William Street will be enhanced as the City's principal north-south boulevard and will be reinforced as the City's commercial spine.
- (c) Grote Street-Wakefield Street will be enhanced as the City's principal east-west boulevard and will be developed to provide a strong frame that presents a sense of enclosure to the street.
- (d) East Terrace will be characterised by buildings that maximise views through to the Park Lands and provide a distinct City edge.
- (e) West Terrace will be reinforced as the western 'gateway' to the City centre and will form an imposing frontage to the western City edge. Buildings will be constructed to the front and side boundaries, and designed to maximise views through to the Park Lands. Corner sites at the junctions of West Terrace and the major east-west streets will be developed as strongly defined visual gateways to the City. This will provide an imposing frontage to the western edge of the City, which comprises a mixture of commercial, showroom and residential development.
- (f) Pulteney and Morphett streets are key north-south boulevards. A sense of activation and enclosure of these streets will be enhanced through mixed use development with a strong built form edge. Pulteney Street will include residential, office and institutional uses, and retail activities. These boulevards will become important tree-lined commercial corridors.
- (g) Currie, Grenfell, Franklin and Flinders streets, as wider east-west boulevards provide important entry points to the City. Currie and Grenfell streets will become a key focus for pedestrians, cycling and public transport. These streets also provide long views to the hills as their closing vistas and these view corridors should remain uncluttered.
- (h) Victoria, Hindmarsh and Light Squares will have a continuous edge of medium to high-scale development that frames the Squares and increases ground level activity.

The Zone also includes a number of Main Street areas, encompassing Rundle Mall, Rundle Street, Hindley Street and Gouger Street, which are envisaged to have a wide range of retail, commercial and community uses that generate high levels of activity. These areas will have an intimately scaled built form with narrow and frequent building frontages. These areas are shown on Concept Plan Figures CC/1 and 2.

Development fronting North Terrace, King William Street, Wakefield Street, Grote Street, the Squares, and in the Main Street Policy Area, will reflect their importance though highly contextual design that reflects and responds to their setting and role.

Minor streets and laneways will have a sense of enclosure (a tall street wall compared to street width) and an intimate, welcoming and comfortable pedestrian environment with buildings sited and composed in a way that responds to the buildings' context. There will be a strong emphasis on ground level activation through frequent window openings, land uses that spill out onto the footpath, and control of wind impacts.

Development in minor streets and laneways with a high value character will respond to important character elements and provide a comfortable pedestrian environment, particularly in the following streets: Gray, Leigh, Union, Chesser, Coromandel, Tucker, Cardwell, Kenton, Market, Ruthven, Cannon, Tatham, Benthem streets, Murrays Lane and Wright Court.

A comprehensive, safe and convenient movement network throughout the City will develop, focusing on the provision of linkages on both public and private land between important destinations and public

transport. A high quality system of bicycle or shared pedestrian and bicycle routes will be established within the Zone.

OBJECTIVES

General

Objective 1: The principal focus for the economic, social and political life of metropolitan

Adelaide and the State.

Objective 2: A vibrant mix of commercial, retail, professional services, hospitality,

entertainment, educational facilities, and medium and high density living.

Objective 3: Design and management of City living to ensure the compatibility of residential

amenity with the essential commercial and leisure functions of the Zone.

Objective 4: City streets that provide a comfortable pedestrian environment.

Objective 5: Innovative design approaches and contemporary architecture that respond to a

building's context.

Objective 6: Buildings that reinforce the gridded layout of Adelaide's streets and respond to

the underlying built-form framework of the City.

Objective 7: Large sites developed to their full potential while ensuring a cohesive scale of

development and responding to a building's context.

Objective 8: Development that contributes to the Desired Character of the Zone.

PRINCIPLES OF DEVELOPMENT CONTROL

Land Use

1 The following types of development, or combinations thereof, are envisaged:

Affordable housing

Aged persons accommodation

Community centre

Consulting room

Convention centre

Dwelling

Educational establishment

Emergency services facility

Hospital

Hotel

Indoor recreation centre

Licensed entertainment premises

Library

Motel

Office

Pre-school

Personal service establishment

Place of worship

Serviced apartment

Restaurant

Residential flat building

Student accommodation

Shop or group of shops

Tourist accommodation

- 2 Land uses that are typically closed during the day should be designed to maximise daytime and evening activation at street level and be compatible with surrounding land uses, in particular residential development.
- 3 Low impact industries should be located outside the Central Business Policy Area and have minimal off-site impacts with respect to noise, air, water and waste emissions, traffic generation and movement.
- 4 Development listed as non-complying is generally inappropriate.

Form and Character

5 Development should be consistent with the Desired Character for the Zone.

Design and Appearance

- 6 Development should be of a high standard of architectural design and finish which is appropriate to the City's role and image as the capital of the State.
- 7 Buildings should achieve a high standard of external appearance by:
 - (a) the use of high quality materials and finishes. This may be achieved through the use of materials such as masonry, natural stone, prefinished materials that minimise staining, discolouring or deterioration, and avoiding painted surfaces particularly above ground level;
 - (b) providing a high degree of visual interest though articulation, avoiding any large blank facades, and incorporating design features within blank walls on side boundaries which have the potential to be built out;
 - (c) ensuring lower levels are well integrated with, and contribute to a vibrant public realm; and
 - (d) ensuring any ground and first floor level car parking elements are sleeved by residential or non-residential land uses (such as shops, offices and consulting rooms) to ensure an activated street frontage.
- **8** Buildings should present an attractive pedestrian-oriented frontage that adds interest and vitality to City streets and laneways.
- **9** The finished ground floor level of buildings should be at grade and/or level with the footpath to provide direct pedestrian access and street level activation.
- 10 Providing footpath widths and street tree growth permit, development should contribute to the comfort of pedestrians through the incorporation of verandahs, balconies, awnings and/or canopies that provide pedestrian shelter.
- 11 Buildings should be positioned regularly on the site and built to the street frontage, except where a setback is required to accommodate outdoor dining or provide a contextual response to a heritage place.
- **12** Buildings should be designed to include a podium/street wall height and upper level setback (in the order of 3-6 metres) that:
 - (a) relates to the scale and context of adjoining built form;
 - (b) provides a human scale at street level;
 - (c) creates a well-defined and continuity of frontage;
 - (d) gives emphasis and definition to street corners to clearly define the street grid;
 - (e) contributes to the interest, vitality and security of the pedestrian environment;

- (f) maintains a sense of openness to the sky for pedestrians and brings daylight to the street;
 and
- (g) achieves pedestrian comfort by minimising micro climatic impacts (particularly shade/shelter, wind tunnelling and downward drafts);

other than (h) or (i):

- (h) in the Central Business Policy Area;
- (i) where a lesser (or zero) upper level setback and/or podium height is warranted to correspond with and complement the form of adjacent development, in which case alternative design solutions should be included to achieve a cohesive streetscape, provided parts (b) to (g) are still achieved.
- 13 Buildings north of Rundle Mall, Rundle Street, Hindley Street and Gouger Street should have a built form that incorporates slender tower elements, spaces between buildings or other design techniques that enable sunlight access to the southern footpath.
- 14 Buildings, advertisements, site landscaping, street planting and paving should have an integrated, coordinated appearance and should enhance the urban environment.
- 15 Building façades should be strongly modelled, incorporate a vertical composition which reflects the proportions of existing frontages, and ensure that architectural detailing is consistent around corners and along minor streets and laneways.
- Development that exceeds the maximum building height shown in Concept Plan Figures CC/1 and 2, and meets the relevant quantitative provisions should demonstrate a significantly higher standard of design outcome in relation to qualitative policy provisions including site configuration that acknowledges and responds to the desired future character of an area but that also responds to adjacent conditions (including any special qualities of a locality), pedestrian and cyclist amenity, activation, sustainability, and public realm and streetscape contribution.

The Squares (Victoria, Hindmarsh and Light)

- 17 Outdoor eating and drinking facilities associated with cafés and restaurants are appropriate ground floor uses and should contribute to the vitality of the Squares and create a focus for leisure.
- 18 Buildings fronting the Squares should:
 - (a) provide a comfortable pedestrian and recreation environment by enabling direct sunlight to a minimum of 75 percent of the landscaped part of each Square at the September equinox; and
 - (b) reinforce the enclosure of the Squares with a continuous built-form with no upper level setbacks.

The Terraces (North, East and West)

- 19 Development along the terraces should contribute to a continuous built form to frame the City edge and activate the Park Lands.
- 20 Development along North Terrace should reinforce the predominant scale and 'City wall' character of the Terrace frontage.

Building Height

21 Development should not exceed the maximum building height shown in Concept Plan Figures CC/1 and 2 unless;

- (a) it is demonstrated that the development reinforces the anticipated city form in Concept Plan Figures CC/1 and 2, and
- (b) only if:
 - (i) at least two of the following features are provided:
 - the development provides an orderly transition up to an existing taller building or prescribed maximum building height in an adjoining Zone or Policy Area;
 - (2) the development incorporates the retention, conservation and reuse of a building which is a listed heritage place;
 - (3) high quality universally accessible open space that is directly connected to, and well integrated with, public realm areas of the street;
 - universally accessible, safe and secure pedestrian linkages that connect through the development site as part of the cities pedestrian network on Map Adel/1 (Overlay 2A);
 - (5) on site car parking does not exceed a rate of 0.5 spaces per dwelling, car parking areas are adaptable to future uses or all car parking is provided underground;
 - (6) residential, office or any other actively occupied use is located on all of the street facing side of the building, with any above ground car parking located behind;
 - (7) a range of dwelling types that includes at least 10% of 3+ bedroom apartments;
 - (8) more than 15 per cent of dwellings as affordable housing.
 - (ii) plus all of the following sustainable design measures are provided:
 - a rooftop garden covering a majority of the available roof area supported by services that ensure ongoing maintenance;
 - (2) a greenroof, or greenwalls / façades supported by services that ensure ongoing maintenance;
 - (3) innovative external shading devices on all of the western side of a street facing facade; and
 - (4) higher amenity through provision of private open space in excess of minimum requirements, access to natural light and ventilation to all habitable spaces and common circulation areas.
- 22 Development should have optimal height and floor space yields to take advantage of the premium City location and should have a building height no less than half the maximum shown on Concept Plan Figures CC/1 and 2, or 28 metres in the Central Business Policy Area, except where one or more of the following applies:
 - (a) a lower building height is necessary to achieve compliance with the Commonwealth Airports (Protection of Airspace) Regulations;
 - (b) the site is adjacent to the City Living Zone or the Adelaide Historic (Conservation) Zone and a lesser building height is required to manage the interface with low-rise residential development:
 - (c) the site is adjacent to a heritage place, or includes a heritage place;

(d) the development includes the construction of a building in the same, or substantially the same, position as a building which was demolished, as a result of significant damage caused by an event, within the previous 3 years where the new building has the same, or substantially the same, layout and external appearance as the previous building.

Interface

- 23 Development should manage the interface with the City Living Zone or the Adelaide Historic (Conservation) Zone in relation to building height, overshadowing, massing, building proportions and traffic impacts and should avoid land uses, or intensity of land uses, that adversely affect residential amenity.
- 24 Development on all sites on the southern side of Gouger Street Angas Street and adjacent to a northern boundary of the City Living Zone or the Adelaide Historic (Conservation) Zone should not exceed 22 metres in building height unless the Council Wide overshadowing Principles of Development Control are met.
- Parts of a development that exceed the prescribed maximum building height shown on Concept Plan Figures CC/1 and 2 that are directly adjacent to the City Living, Main Street (Adelaide) and Adelaide Historic (Conservation) Zone boundaries should be designed to minimise visual impacts on sensitive uses in the adjoining zones and to maintain the established or desired future character of the area. This may be achieved through a number of techniques such as additional setback, avoiding tall sheer walls, centrally locating taller elements, providing variation of light and shadow through articulation to provide a sense of depth and create visual interest, and the like.

Movement

- Pedestrian movement should be based on a network of pedestrian malls, arcades and lanes, linking the surrounding Zones and giving a variety of north-south and east-west links.
- 27 Development should provide pedestrian linkages for safe and convenient movement with arcades and lanes clearly designated and well-lit to encourage pedestrian access to public transport and areas of activity. Blank surfaces, shutters and solid infills lining such routes should be avoided.
- 28 Development should ensure existing through-site and on-street pedestrian links are maintained and new pedestrian links are developed in accordance with Map Adel/1 (Overlay 2A).
- 29 Car parking should be provided in accordance with Table Adel/7.
- **30** Multi-level car parks should locate vehicle access points away from the primary street frontage wherever possible and should not be located:
 - (a) within any of the following areas:
 - (i) the Core Pedestrian Area identified in Map Adel/1 (Overlays 2, 2A and 3)
 - (ii) on frontages to North Terrace, East Terrace, Rundle Street, Hindley Street, Currie Street, Waymouth Street (east of Light Square), Victoria Square or King William Street;
 - (b) where they conflict with existing or projected pedestrian movement and/or activity;
 - (c) where they would cause undue disruption to traffic flow; and
 - (d) where it involves creating new crossovers in North Terrace, Rundle Street, Hindley Street, Currie Street and Waymouth Street (east of Light Square), Grenfell Street and Pirie Street (west of Pulteney Street), Victoria Square, Light Square, Hindmarsh Square, Gawler Place and King William Street or access across primary City access and secondary City access roads identified in Map Adel/1 (Overlay 1).

- 31 Multi-level, non-ancillary car parks are inappropriate within the Core Pedestrian Area as shown on Map Adel/1 (Overlays 2, 2A and 3).
- 32 Vehicle parking spaces and multi-level vehicle parking structures within buildings should:
 - (a) enhance active street frontages by providing land uses such as commercial, retail or other non-car park uses along ground floor street frontages;
 - (b) complement the surrounding built form in terms of height, massing and scale; and
 - (c) incorporate façade treatments along major street frontages that are sufficiently enclosed and detailed to complement neighbouring buildings consistent with the Desired Character of the locality.

Advertising

- **33** Other than signs along Hindley Street, advertisements should use simple graphics and be restrained in their size, design and colour.
- 34 In minor streets and laneways, a greater diversity of type, shape, numbers and design of advertisements are appropriate provided they are of a small-scale and located to present a consistent message band to pedestrians.
- **35** There should be an overall consistency achieved by advertisements along individual street frontages.
- 36 In Chesser Street, French Street and Coromandel Place advertisements should be small and preferably square and should not be located more than 3.7 metres above natural ground level or an abutting footpath or street. However, advertisements in these streets may be considered above 3.7 metres at locations near the intersections with major streets.
- 37 Advertisements on the Currie Street frontages between Topham Mall and Gilbert Place and its north-south prolongation should be of a size, shape and location complementary to the desired townscape character, with particular regard to the following:
 - (a) On the southern side of Currie Street, advertisements should be fixed with their underside at a common height, except where the architectural detailing of building façades precludes it. At this 'canopy' level advertisements should be of a uniform size and fixed without the support of guy wires. Where architectural detailing permits, advertisements may mark the major entrances to buildings along the southern side of Currie Street with vertical projecting advertisements 1.5 metres high by 1.2 metres wide at, or marginally above, the existing canopy level. Painted wall or window signs should be restrained.
 - (b) On the northern side of Currie Street, advertisements should be of a uniform fixing height and consistent dimensions to match those prevailing in the area.

PROCEDURAL MATTERS

Complying Development

38 Complying developments are prescribed in Schedule 4 of the *Development Regulations 2008*.

In addition, the following forms of development are assigned as **complying**:

- (a) Other than in relation to a State heritage place, Local heritage place (City Significance), or Local heritage place, work undertaken within a building which does not involve a change of use or affect the external appearance of the building;
- (b) Temporary depot for Council for a period of no more than 3 months where it can be demonstrated that appropriate provision has been made for:

- (i) dust control;
- (ii) screening, including landscaping;
- (iii) containment of litter and water; and
- (iv) securing of the site.
- (c) Change in the use of land from a non-residential use to an office, shop or consulting room (excluding any retail showroom, adult entertainment premises, adult products and services premises or licensed premises).

Non-complying Development

39 The following kinds of development are non-complying:

A change in use of land to any of the following:

Amusement machine centre

Advertisements involving any of the following:

- (a) third party advertising except on Hindley Street, Rundle Mall or on allotments at the intersection of Rundle Street and Pulteney Street, or temporary advertisements on construction sites;
- (b) advertisements located at roof level where the sky or another building forms the background when viewed from ground level;
- (c) advertisements in the area bounded by West Terrace, Grote Street, Franklin Street and Gray Street;
- (d) animation of advertisements along and adjacent to the North Terrace, King William Street and Victoria Square frontages.

Total demolition of a State Heritage Place (as identified in Table Adel/1).

Vehicle parking except:

- (a) where it is ancillary to an approved or existing use;
- (b) it is a multi-level car park located outside the Core Pedestrian Area as indicated on Map Adel/1 (Overlay 2, 2A and 3); or
- (c) it is within an existing building located outside the Core Pedestrian Area as indicated on Map Adel/1 (Overlay 2, 2A and 3).

Public Notification

40 Categories of public notification are prescribed in Schedule 9 of the *Development Regulations* 2008.

In addition, the following forms of development, or any combination of (except where the development is non-complying), are assigned:

(a) Category 1, public notification not required:

All forms of development other than where it is assigned Category 2.

(b) Category 2, public notification required. Third parties do not have any appeal rights.

Any development where the site of the development is adjacent land to land in the City Living Zone or Adelaide Historic (Conservation) Zone and it exceeds 22 metres in building height.

Note: For Category 3 development, public notification is required. Third parties may make written representations, appear before the relevant authority on the matter, and may appeal against a development consent. This includes any development not classified as either Category 1 or Category 2.

Council Wide

Environmental

Crime Prevention Through Urban Design

OBJECTIVES

Objective 24: A safe and secure, crime resistant environment that:

- (a) ensures that land uses are integrated and designed to facilitate natural surveillance;
- (b) promotes building and site security; and
- (c) promotes visibility through the incorporation of clear lines of sight and appropriate lighting.

PRINCIPLES OF DEVELOPMENT CONTROL

- **82.** Development should promote the safety and security of the community in the public realm and within development. Development should:
- (a) promote natural surveillance of the public realm, including open space, car parks, pedestrian routes, service lanes, public transport stops and residential areas, through the design and location of physical features, electrical and mechanical devices, activities and people to maximise visibility by:
 - orientating windows, doors and building entrances towards the street, open spaces, car parks, pedestrian routes and public transport stops;
 - (ii) avoiding high walls, blank facades, carports and landscaping that obscures direct views to public areas;
 - (iii) arranging living areas, windows, pedestrian paths and balconies to overlook recreation areas, entrances and car parks;
 - (iv) positioning recreational and public space areas so they are bound by roads on at least two road frontages or overlooked by development;
 - (v) creating a complementary mix of day and night-time activities, such as residential, commercial, recreational and community uses, that extend the duration and level of intensity of public activity;
 - (vi) locating public toilets, telephones and other public facilities with direct access and good visibility from well-trafficked public spaces;
 - (vii) ensuring that rear service areas and access lanes are either secured or exposed to surveillance; and
 - (viii) ensuring the surveillance of isolated locations through the use of audio monitors, emergency telephones or alarms, video cameras or staff eg by surveillance of lift and toilet areas within car parks.

- (b) provide access control by facilitating communication, escape and path finding within development through legible design by:
 - (i) incorporating clear directional devices;
 - (ii) avoiding opportunities for concealment near well travelled routes;
 - (iii) closing off or locking areas during off-peak hours, such as stairwells, to concentrate access/exit points to a particular route;
 - (iv) use of devices such as stainless steel mirrors where a passage has a bend;
 - (v) locating main entrances and exits at the front of a site and in view of a street;
 - (vi) providing open space and pedestrian routes which are clearly defined and have clear and direct sightlines for the users; and
 - (vii) locating elevators and stairwells where they can be viewed by a maximum number of people, near the edge of buildings where there is a glass wall at the entrance.
- (c) promote territoriality or sense of ownership through physical features that express ownership and control over the environment and provide a clear delineation of public and private space by:
 - clear delineation of boundaries marking public, private and semi-private space, such as by paving, lighting, walls and planting;
 - (ii) dividing large development sites into territorial zones to create a sense of ownership of common space by smaller groups of dwellings; and
 - (iii) locating main entrances and exits at the front of a site and in view of a street.
- (d) provide awareness through design of what is around and what is ahead so that legitimate users and observers can make an accurate assessment of the safety of a locality and site and plan their behaviour accordingly by:
 - (i) avoiding blind sharp corners, pillars, tall solid fences and a sudden change in grade of pathways, stairs or corridors so that movement can be predicted;
 - (ii) using devices such as convex security mirrors or reflective surfaces where lines of sight are impeded;
 - (iii) ensuring barriers along pathways such as landscaping, fencing and walls are permeable;
 - (iv) planting shrubs that have a mature height less than one metre and trees with a canopy that begins at two metres;
 - adequate and consistent lighting of open spaces, building entrances, parking and pedestrian areas to avoid the creation of shadowed areas; and
 - (vi) use of robust and durable design features to discourage vandalism.
- 83 Residential development should be designed to overlook streets, public and communal open space to allow casual surveillance.

To maximise security and safety, buildings should be designed to minimise access between roofs, balconies and windows of adjacent buildings.

- 85 Security features should be incorporated within the design of shop fronts to complement the design of the frontage and allow window shopping out of hours. If security grilles are provided, these should:
 - (a) be transparent and illuminated to complement the appearance of the frontage;
 - (b) provide for window shopping; and
 - (c) allow for the spill of light from the shop front onto the street.

Solid shutters with less than 75 percent permeability are not acceptable.

- **86** Public toilets should be designed and located to:
 - (a) promote the visibility of people entering and exiting the facility by avoiding recessed entrances and dense shrubbery which obstructs passive surveillance;
 - (b) limit opportunities for vandalism through the use of vandal proof lighting on the public toilet buildings and nearby;
 - (c) avoid features which facilitate loitering, such as seating or telephones immediately adjacent the structure; and
 - (d) maximise surveillance through location near public transport links, pedestrian and cyclist networks.

Noise Emissions

OBJECTIVES

- **Objective 26:** Development that does not unreasonably interfere with the desired character of the locality by generating unduly annoying or disturbing noise.
- **Objective 27:** Noise sensitive development designed to protect its occupants from existing noise sources and from noise sources contemplated within the relevant Zone or Policy Area and that does not unreasonably interfere with the operation of non-residential uses contemplated within the relevant Zone or Policy Area.

PRINCIPLES OF DEVELOPMENT CONTROL

Noise Sources

- 89 Development with potential to emit significant noise (including licensed entertainment premises and licensed premises) should incorporate appropriate noise attenuation measures in to their design to prevent noise from causing unreasonable interference with the amenity and desired character of the locality, as contemplated in the relevant Zone and Policy Area.
- 93 Mechanical plant or equipment should be designed, sited and screened to minimise noise impact on adjacent premises or properties. The noise level associated with the combined operation of plant and equipment such as air conditioning, ventilation and refrigeration systems when assessed at the nearest existing or envisaged noise sensitive location in or adjacent to the site should not exceed
 - (a) 55 dB(A) during daytime (7.00am to 10.00pm) and 45 dB(A) during night time (10.00pm to 7.00am) when measured and adjusted in accordance with the relevant environmental noise legislation except where it can be demonstrated that a high background noise exists.
 - (b) 50 dB(A) during daytime (7.00am to 10.00pm) and 40 dB(A) during night time (10.00pm to 7.00am) in or adjacent to a City Living Zone, the Adelaide Historic (Conservation) Zone, the North Adelaide Historic (Conservation) Zone or the Park Lands Zone when measured and

adjusted in accordance with the relevant environmental noise legislation except where it can be demonstrated that a high background noise exists.

- 94 To ensure minimal disturbance to residents:
 - (a) ancillary activities such as deliveries, collection, movement of private waste bins, goods, empty bottles and the like should not occur:
 - (i) after 10.00pm; and
 - (ii) before 7.00am Monday to Saturday or before 9.00am on a Sunday or Public Holiday.
 - (b) typical activity within any car park area including vehicles being started, doors closing and vehicles moving away from the premises should not result in sleep disturbance when proposed for use after 10.00pm as defined by the limits recommended by the World Health Organisation.

Noise Receivers

- 95 Noise sensitive development should incorporate adequate noise attenuation measures into their design and construction to provide occupants with reasonable amenity when exposed to noise sources such as major transport corridors (road, rail, tram and aircraft), commercial centres, entertainment premises and the like, and from activities and land uses contemplated in the relevant Zone and Policy Area provisions.
- Noise sensitive development in mixed use areas should not unreasonably interfere with the operation of surrounding non-residential uses that generate noise levels that are commensurate with the envisaged amenity of the locality.

Waste Management

OBJECTIVE

Objective 28: Development which supports high local environmental quality, promotes waste minimisation, re-use and recycling, encourages waste water, grey water and stormwater re-use and does not generate unacceptable levels of air, liquid or solid pollution.

- **101** A dedicated area for on-site collection and sorting of recyclable materials and refuse should be provided within all new development.
- **102** A dedicated area for the collection and sorting of construction waste and the recycling of building materials during construction as appropriate to the size and nature of the development should be provided and screened from public view.
- 103 Development greater than 2 000 square metres of total floor area should manage waste by:
 - (a) containing a dedicated area for the collection and sorting of construction waste and recyclable building materials;
 - (b) on-site storage and management of waste;
 - (c) disposal of non-recyclable waste; and
 - (d) incorporating waste water and stormwater re-use including the treatment and re-use of grey water.

- 104 Development should not result in emission of atmospheric, liquid or other pollutants, or cause unacceptable levels of smell and odour which would detrimentally affect the amenity of adjacent properties or its locality. Land uses such as restaurants, shops, cafés or other uses that generate smell and odour should:
 - (a) ensure extraction flues, ventilation and plant equipment are located in appropriate locations that will not detrimentally affect the amenity of adjacent occupiers in terms of noise, odours and the appearance of the equipment;
 - (b) ensure ventilation and extraction equipment and ducting have the capacity to clean and filter the air before being released into the atmosphere; and
 - (c) ensure the size of the ventilation and extraction equipment is suitable and has the capacity to adequately cater for the demand generated by the potential number of patrons.

Energy Efficiency

OBJECTIVE

Objective 30: Development which is compatible with the long term sustainability of the environment, minimises consumption of non-renewable resources and utilises alternative energy generation systems.

PRINCIPLES OF DEVELOPMENT CONTROL

All Development

106 Buildings should provide adequate thermal comfort for occupants and minimise the need for energy use for heating, cooling and lighting by:

- (a) providing an internal day living area with a north-facing window, other than for minor additions*, by:
 - (i) arranging and concentrating main activity areas of a building to the north for solar penetration; and
 - (ii) placing buildings on east-west allotments against or close to the southern boundary to maximise northern solar access and separation to other buildings to the north.
- (b) efficient layout, such as zoning house layout to enable main living areas to be separately heated and cooled, other than for minor additions;
- (c) locating, sizing and shading windows to reduce summer heat loads and permit entry of winter sun;
- (d) allowing for natural cross ventilation to enable cooling breezes to reduce internal temperatures in summer;
- (e) including thermal insulation of roof, walls, floors and ceilings and by draught proofing doors, windows and openings;
- (f) ensuring light colours are applied to external surfaces that receive a high degree of sun exposure, but not to an extent that will cause glare which produces discomfort or danger to pedestrians, occupants of adjacent buildings and users of vehicles;
- (g) providing an external clothes line for residential development; and

^{*}Minor additions have a floor area less than 50 percent of the existing dwelling and do not include a day living area.

- (h) use of landscaping.
- **107** All development should be designed to promote naturally ventilated and day lit buildings to minimise the need for mechanical ventilation and lighting systems.
- **108** Energy reductions should, where possible, be achieved by the following:
 - (a) appropriate orientation of the building by:
 - (i) maximising north/south facing facades;
 - (ii) designing and locating the building so the north facade receives good direct solar radiation;
 - (iii) minimising east/west facades to protect the building from summer sun and winter winds;
 - (iv) narrow floor plates to maximise the amount of floor area receiving good daylight; and/or
 - (v) minimising the ratio of wall surface to floor area.
 - (b) window orientation and shading;
 - (c) adequate thermal mass including night time purging to cool thermal mass;
 - (d) appropriate insulation by:
 - (i) insulating windows, walls, floors and roofs; and
 - (ii) sealing of external openings to minimise infiltration.
 - (e) maximising natural ventilation including the provision of openable windows;
 - (f) appropriate selection of materials, colours and finishes; and
 - (g) introduction of efficient energy use technologies such as geo-exchange and embedded, distributed energy generation systems such as cogeneration*, wind power, fuel cells and solar photovoltaic panels that supplement the energy needs of the building and in some cases, export surplus energy to the electricity grid.
- **109** Orientation and pitch of the roof should facilitate the efficient use of solar collectors and photovoltaic cells.
- **110** Buildings, where practical, should be refurbished, adapted and reused to ensure an efficient use of resources.
- **111** New buildings should be readily adaptable to future alternative uses.
- **112** Selection of internal materials for all buildings should be made with regard to internal air quality and ensure low toxic emissions, particularly with respect to paint and joinery products.

Office Development

- 115 The following principles of sustainable design and construction are required for new office development, and additions and refurbishments to existing office development, to minimise energy consumption and limit greenhouse gas emissions:
 - (a) passive solar consideration in the design, planning and placement of buildings;
 - (b) re-using and/or improving existing structures or buildings;

- (c) designing for the life-cycle of the development to allow for future adaptation;
- (d) considering low levels of embodied energy in the selection and use of materials;
- developing energy efficiency solutions including passive designs using natural light, solar control, air movement and thermal mass. Systems should be zoned to minimise use of energy;
- using low carbon and renewable energy sources, such as Combined Heat and Power (CHP) systems and photovoltaics; and
- (g) preserving and enhancing local biodiversity, such as by incorporating roof top gardens.

Renewable Energy

OBJECTIVES

- **Objective 31:** The development of renewable energy facilities, such as wind and biomass energy facilities, in appropriate locations.
- **Objective 32:** Renewable energy facilities located, sited, designed and operated to avoid or minimise adverse impacts and maximise positive impacts on the environment, local community and the State.

- 116 Renewable energy facilities, including wind farms, should be located, sited, designed and operated in a manner which avoids or minimises adverse impacts and maximises positive impacts on the environment, local community and the State.
- **117** Renewable energy facilities, including wind farms, and ancillary developments should be located in areas that maximise efficient generation and supply of electricity.
- 118 Renewable energy facilities, including wind farms, and ancillary development such as substations, maintenance sheds, access roads and connecting power-lines (including to the National Electricity Grid) should be located, sited, designed and operated in a manner which:
 - (a) avoids or minimises detracting from the character, landscape quality, visual significance or amenity of the area;
 - (b) utilises elements of the landscape, materials and finishes to minimise visual impact;
 - (c) avoids or minimises adverse impact on areas of native vegetation, conservation, environmental, geological, tourism or built or natural heritage value;
 - (d) does not impact on the safety of water or air transport and the operation of ports, airfields and designated landing strips;
 - (e) avoids or minimises nuisance or hazard to nearby property owners/occupiers, road users and wildlife by way of:
 - (i) shadowing, flickering, reflection and blade glint impacts;
 - (ii) noise;
 - (iii) interference to television and radio signals;
 - (iv) modification to vegetation, soils and habitats; and
 - (v) bird and bat strike.

Micro-climate and Sunlight

OBJECTIVES

Objective 33: Buildings which are designed and sited to be energy efficient and to minimise micro-climatic and solar access impacts on land or other buildings.

Objective 34: Protection from rain, wind and sun without causing detriment to heritage places, street trees or the integrity of the streetscape.

PRINCIPLES OF DEVELOPMENT CONTROL

- 119 Development should be designed and sited to minimise micro-climatic and solar access impact on adjacent land or buildings, including effects of patterns of wind, temperature, daylight, sunlight, glare and shadow.
- **120** Development should be designed and sited to ensure an adequate level of daylight, minimise overshadowing of buildings, and public and private outdoor spaces, particularly during the lunch time hours.
- **121** Development should not significantly reduce daylight to private open space, communal open space, where such communal open space provides the primary private open space, and habitable rooms in adjacent City Living Zone, Adelaide Historic (Conservation) Zone and North Adelaide Historic (Conservation) Zone.
- **122** Glazing on building facades should not result in glare which produces discomfort or danger to pedestrians, occupants of adjacent buildings and users of vehicles.
- **123** Buildings within the Core and Primary Pedestrian Areas identified in Map Adel/1 (Overlays 2, 2A and 3), unless specified otherwise within the relevant Zone or Policy Area, should be designed to provide weather protection for pedestrians against rain, wind and sun. The design of canopies, verandahs and awnings should be compatible with the style and character of the building and adjoining buildings, as well as the desired character, both in scale and detail.
- **124** Weather protection should not be introduced where it would interfere with the integrity or heritage value of heritage places or unduly affect street trees.
- **125** Development that is over 21 metres in building height and is to be built at or on the street frontage should minimise wind tunnel effect.

Stormwater Management

OBJECTIVES

Objective 35: Development which maximises the use of stormwater.

Objective 36: Development designed and located to protect stormwater from pollution sources.

Surface water (inland, marine, estuarine) and ground water has the potential to be detrimentally affected by water run-off from development containing solid and liquid wastes. Minimising and possibly eliminating sources of pollution will reduce the potential for degrading water quality and enable increased use of stormwater for a range of applications with environmental, economic and social benefits.

Objective 37: Development designed and located to protect or enhance the environmental values of receiving waters.

Objective 38: Development designed and located to prevent erosion.

Development involving soil disturbance may result in erosion and subsequently sedimentation and pollutants entering receiving waters. Design techniques should be incorporated during both the construction and operation phases of development to minimise the transportation of sediment and pollutants off-site.

Objective 39: Development designed and located to prevent or minimise the risk of downstream flooding.

PRINCIPLES OF DEVELOPMENT CONTROL

- 126 Development of stormwater management systems should be designed and located to improve the quality of stormwater, minimise pollutant transfer to receiving waters, and protect downstream receiving waters from high levels of flow.
- 127 Development affecting existing stormwater management systems should be designed and located to improve the quality of stormwater, minimise pollutant transfer to receiving waters, and protect downstream receiving waters from high levels of flow.
- **128** Development should incorporate appropriate measures to minimise any concentrated stormwater discharge from the site.
- **129** Development should incorporate appropriate measures to minimise the discharge of sediment, suspended solids, organic matter, nutrients, bacteria and litter and other contaminants to the stormwater system and may incorporate systems for treatment or use on site.
- **130** Development should not cause deleterious affect on the quality or hydrology of groundwater.
- **131** Development should manage stormwater to ensure that the design capacity of existing or planned downstream systems are not exceeded, and other property or environments are not adversely affected as a result of any concentrated stormwater discharge from the site.

Infrastructure

OBJECTIVES

Objective 40: Minimisation of the visual impact of infrastructure facilities.

Objective 41: Provision of services and infrastructure that are appropriate for the intended development and the desired character of the Zone or Policy Area.

- 132 Provision should be made for utility services to the site of a development, including provision for the supply of water, gas and electricity and for the satisfactory disposal and potential re-use of sewage and waste water, drainage and storm water from the site of the development.
- **133** Service structures, plant and equipment within a site should be designed to be an integral part of the development and should be suitably screened from public spaces or streets.
- **134** Infrastructure and utility services, including provision for the supply of water, gas and electricity should be put in common trenches or conduits.
- 135 Development should only occur where it has access to adequate utilities and services, including:
 - (a) electricity supply;
 - (b) water supply;
 - (c) drainage and stormwater systems;

- (d) effluent disposal systems;
- (e) formed all-weather public roads;
- (f) telecommunications services; and
- (g) gas services.

Heritage and Conservation

OBJECTIVES

- **Objective 42:** Acknowledge the diversity of Adelaide's cultural heritage from pre-European occupation to current time through the conservation of heritage places and retention of their heritage value.
- **Objective 43:** Development that retains the heritage value and setting of a heritage place and its built form contribution to the locality.
- **Objective 44:** Continued use or adaptive reuse of the land, buildings and structures comprising a heritage place.
- **Objective 45:** Recognition of Aboriginal sites, items and areas which are of social, archaeological, cultural, mythological or anthropological significance.

PRINCIPLES OF DEVELOPMENT CONTROL

General

- **136** Development of a heritage place should conserve the elements of heritage value as identified in the relevant Tables.
- 137 Development affecting a State heritage place (<u>Table Adel/1</u>), Local heritage place (<u>Table Adel/2</u>), Local heritage place (Townscape) (<u>Table Adel/3</u>) or Local heritage place (City Significance) (<u>Table Adel/4</u>), including:
 - (a) adaptation to a new use;
 - (b) additional construction;
 - (c) part demolition;
 - (d) alterations; or
 - (e) conservation works;

should facilitate its continued or adaptive use, and utilise materials, finishes, setbacks, scale and other built form qualities that are complementary to the heritage place.

- 138 A local heritage place (as identified in <u>Tables Adel/2</u>, <u>3 or 4</u>) or the Elements of Heritage Value (as identified in <u>Table Adel/2</u>) should not be demolished unless it can be demonstrated that the place, or those Elements of Heritage Value that are proposed to be demolished, have become so distressed in condition or diminished in integrity that the remaining fabric is no longer capable of adequately representing its heritage value as a local heritage place.
- **140** Development on land adjacent to a heritage place in non-residential Zones or Policy Areas should incorporate design elements, including where it comprises an innovative contemporary design, that:

- (a) utilise materials, finishes, and other built form qualities that complement the adjacent heritage place; and
- (b) is located no closer to the primary street frontage than the adjacent heritage place.
- 142 Development that abuts the built form/fabric of a heritage place should be carefully integrated, generally being located behind or at the side of the heritage place and without necessarily replicating historic detailing, so as to retain the heritage value of the heritage place.

Advertising

- **144** Advertisements or signs on the site of a heritage place should be located to complement, rather than dominate or conceal, the appearance and detailing of the heritage place by being:
 - (a) integrated with architectural elements of the heritage place, including within parapets or wall panels, and at canopy level or within fascias, end panels or windows; and
 - (b) below the silhouette of the heritage place.

Built Form and Townscape

OBJECTIVES

Objective 46: Reinforcement of the city's grid pattern of streets through:

- (a) high rise development framing city boulevards, the Squares and Park Lands
- (b) vibrant main streets of a more intimate scale that help bring the city to life
- (c) unique and interesting laneways that provide a sense of enclosure and intimacy.

Objective 47: Buildings should be designed to:

- (a) reinforce the desired character of the area as contemplated by the minimum and maximum building heights in the Zone and Policy Area provisions;
- (b) maintain a sense of openness to the sky and daylight to public spaces, open space areas and existing buildings;
- (c) contribute to pedestrian safety and comfort; and
- (d) provide for a transition of building heights between Zone and Policy Areas where building height guidelines differ.

Objective 48: Development which incorporates a high level of design excellence in terms of scale, bulk, massing, materials, finishes, colours and architectural treatment.

PRINCIPLES OF DEVELOPMENT CONTROL

Where development significantly exceeds quantitative policy provisions, it should demonstrate a significantly higher standard of design outcome in relation to qualitative policy provisions including pedestrian and cyclist amenity, activation, sustainability and public realm and streetscape contribution.

Height, Bulk and Scale

- 2 Development should be of a high standard of design and should reinforce the grid layout and distinctive urban character of the City by maintaining a clear distinction between the following:
 - (a) the intense urban development and built-form of the town acres in the Capital City, Main Street, Mixed Use, City Frame and City Living Zones;
 - (b) the less intense and more informal groupings of buildings set within the landscaped environment of the Institutional Zones:
 - (c) the historic character of the Adelaide and North Adelaide Historic (Conservation) Zones and groups of historic housing within the City Living Zone; and
 - (d) the open landscape of the Park Lands Zone.
- 3 The height and scale of development and the type of land use should reflect and respond to the role of the street it fronts as illustrated on Map Adel/1 (Overlay 1).
- 4 The height, scale and massing of buildings should reinforce:
 - (a) the desired character, built form, public environment and scale of the streetscape as contemplated within the Zone and Policy Area, and have regard to:
 - maintaining consistent parapet lines, floor levels, height and massing with existing buildings consistent with the areas desired character;
 - (ii) reflecting the prevailing pattern of visual sub-division of neighbouring building frontages where frontages display a character pattern of vertical and horizontal sub-divisions; and
 - (iii) avoiding massive unbroken facades.
 - (b) a comfortable proportion of human scale at street level by:
 - building ground level to the street frontage where zero set-backs prevail;
 - (ii) breaking up the building facade into distinct elements;
 - (iii) incorporating art work and wall and window detailing; and
 - (iv) including attractive planting, seating and pedestrian shelter.
- Where possible, large sites should incorporate pedestrian links and combine them with publicly accessible open space.
- Buildings and structures should not adversely affect by way of their height and location the long-term operational, safety and commercial requirements of Adelaide International Airport. Buildings and structures which exceed the heights shown in Map Adel/1 (Overlay 5) and which penetrate the Obstacle Limitation Surfaces (OLS) should be designed, marked or lit to ensure the safe operation of aircraft within the airspace around the Adelaide International Airport.
- Buildings within the Capital City Zone should be built to the street edge to reinforce the grid pattern, create a continuity of frontage and provide definition and enclosure to the public realm whilst contributing to the interest, vitality and security of the pedestrian environment.

Composition and Proportion

- 8 Development should respect the composition and proportion of architectural elements of building facades that form an important pattern which contributes to the streetscape's distinctive character in a manner consistent with the desired character of a locality by:
 - (a) establishing visual links with neighbouring buildings by reflecting and reinforcing the prevailing pattern of visual sub-division in building facades where a pattern of vertical and/or horizontal sub-divisions is evident and desirable, for example, there may be strong horizontal lines of verandahs, masonry courses, podia or openings, or there may be vertical proportions in the divisions of facades or windows; and
 - (b) clearly defining ground, middle and roof top levels.
- **9** Where there is little or no established building pattern, new buildings should create new features which contribute to an areas desired character and the way the urban environment is understood by:
 - (a) frontages creating clearly defined edges;
 - (b) generating new compositions and points of interest;
 - (c) introducing elements for future neighbouring buildings; and
 - (d) emphasising the importance of the building according to the street hierarchy.

Articulation and Modelling

- 10 Building facades fronting street frontages, access ways, driveways or public spaces should be composed with an appropriate scale, rhythm and proportion which responds to the use of the building, the desired character of the locality and the modelling and proportions of adjacent buildings.
- 11 Building services such as drainage pipes together with security grills/screens, ventilation louvres and car park entry doors, should be coordinated and integrated with the overall facade design.

Materials, Colours and Finishes

- 12 The design, external materials, colours and finishes of buildings should have regard to their surrounding townscape context, built form and public environment, consistent with the desired character of the relevant Zone and Policy Area.
- Development should be finished with materials that are sympathetic to the design and setting of the new building and which incorporate recycled or low embodied energy materials. The form, colour, texture and quality of materials should be of high quality, durable and contribute to the desired character of the locality. Materials, colours and finishes should not necessarily imitate materials and colours of an existing streetscape
- 14 Materials and finishes that are easily maintained and do not readily stain, discolour or deteriorate should be utilised.
- 15 Development should avoid the use of large expanses of highly reflective materials and large areas of monotonous, sheer materials (such as polished granite and curtained wall glazing).

Sky and Roof Lines

OBJECTIVE

Objective 49: Innovative and interesting skylines which contribute to the overall design and performance of the building.

PRINCIPLES OF DEVELOPMENT CONTROL

- Where a prevailing pattern of roof form assists in establishing the desired character of the locality, new roof forms should be complementary to the shape, pitch, angle and materials of adjacent building roofs.
- 17 Buildings should be designed to incorporate well designed roof tops that:
 - (a) reinforce the desired character of the locality, as expressed in the relevant Zone or Policy Area:
 - (b) enhance the skyline and local views;
 - (c) contribute to the architectural quality of the building;
 - (d) provide a compositional relationship between the upper-most levels and the lower portions of the building;
 - (e) provide an expression of identity;
 - (f) articulate the roof, breaking down its massing on large buildings to minimise apparent bulk;
 - (g) respond to the orientation of the site; and
 - (h) create minimal glare.
- 18 Roof top plant and ancillary equipment that projects above the ceiling of the top storey should:
 - (a) be designed to minimise the visual impact; and
 - (b) be screened from view, including the potential view looking down or across from existing or possible higher buildings, or be included in a decorative roof form that is integrated into the design of the building.
- 19 Roof design should facilitate future use for sustainable functions such as:
 - (a) rainwater tanks for water conservation;
 - (b) roof surfaces orientated, angled and of suitable material for photovoltaic applications; and/or
 - (c) "green" roofs (ie roof top gardens structurally capable of supporting vegetation) or water features.

Active Street Frontages

OBJECTIVES

- **Objective 50:** Development that enhances the public environment and, where appropriate provides activity and interest at street level, reinforcing a locality's desired character.
- **Objective 51:** Development designed to promote pedestrian activity and provide a high quality experience for City residents, workers and visitors by:
 - (a) enlivening building edges;
 - (b) creating welcoming, safe and vibrant spaces;
 - (c) improving perceptions of public safety through passive surveillance; and

(d) creating interesting and lively pedestrian environments.

PRINCIPLES OF DEVELOPMENT CONTROL

- 20 Development should be designed to create active street frontages that provide activity and interest to passing pedestrians and contribute to the liveliness, vitality and security of the public realm.
- 21 Commercial buildings should be designed to ensure that ground floor facades are rich in detail so they are exciting to walk by, interesting to look at and to stand beside.

Landscaping

OBJECTIVE

Objective 55: Water conserving landscaping that enhances the local landscape character and creates a pleasant, safe and attractive living environment.

PRINCIPLES OF DEVELOPMENT CONTROL

- 22 Landscaping should:
 - (a) be selected and designed for water conservation;
 - (b) form an integral part of the design of development; and
 - (c) be used to foster human scale, define spaces, reinforce paths and edges, screen utility areas and enhance the visual amenity of the area.
- 23 Landscaping should incorporate local indigenous species suited to the site and development, provided such landscaping is consistent with the desired character of the locality and any heritage place.
- 24 Landscaping should be provided to all areas of communal space, driveways and shared car parking areas.
- 25 Landscaping between the road and dwellings should be provided to screen and protect the dwellings from dust and visual impacts of the road.

Advertising

OBJECTIVE

Objective 56: Outdoor advertisements that are designed and located to:

- (a) reinforce the desired character and amenity of the locality within which it is located and rectify existing unsatisfactory situations;
- (b) be concise and efficient in communicating with the public, avoiding a proliferation of confusing and cluttered displays or a large number of advertisements; and
- (c) not create a hazard.

- **26** Advertisements should be designed to respect and enhance the desired character and amenity of the locality by the means listed below:
 - (a) the scale, type, design, location, materials, colour, style and illumination of any advertisements should be compatible with the design and character of the buildings and

- land to which it is related, and should be in accordance with provisions for the Zone and Policy Area in which it is situated and any relevant adjacent Zones or Policy Areas;
- advertisements should be integrated with the architectural form, style and colour of buildings and wherever possible, requirements for advertisements should be considered in the design of new buildings;
- (c) advertisements should be artistically interesting in terms of graphics and construction with intricacy and individuality in design encouraged while maintaining consistency in design and style where co-ordinated advertisements are appropriate;
- (d) structural supports should be concealed from public view or of minimal visual impact;
- (e) advertisements on individual premises should be co-ordinated in terms of type and design and should be limited in number to minimize visual clutter;
- (f) advertisements should be displayed on fascia signs or located below canopy level;
- (g) advertisements on buildings or sites occupied by a number of tenants should be coordinated, complementary and the number kept to a minimum; and
- (h) advertisements on or adjacent to a heritage place should be designed and located to respect the heritage value of the heritage place.

Transport and Access

Access and Movement

OBJECTIVE

Objective 60: Access to and movement within the City that is easy, safe, comfortable and convenient with priority given to pedestrian and cyclist safety and access.

PRINCIPLES OF DEVELOPMENT CONTROL

- 224 Development should provide safe, convenient and comfortable access and movement.
- 225 Vehicle access points along primary and secondary city access roads and local connector roads, as shown on Map Adel/1 (Overlay 1) should be restricted.

Pedestrian Access

OBJECTIVES

- **Objective 61:** Development that promotes the comfort, enjoyment and security of pedestrians by providing shelter and reducing conflict with motor vehicles.
- **Objective 62:** Development that contributes to the quality of the public realm as a safe, secure and attractive environment for pedestrian movement and social interaction.
- **Objective 63:** Safe and convenient design of and access to buildings and public spaces, particularly for people with disabilities.

- 226 Development should reflect the significance of the paths and increase the permeability of the pedestrian network identified within Map Adel/1 (Overlay 2) by ensuring:
 - (a) pedestrians are not disrupted or inconvenienced by badly designed or located vehicle access ramps in footpaths or streets; and

- (b) vehicle and service entry points are kept to a minimum to avoid adverse impact on pedestrian amenity.
- 224 Within the Core, Primary and Secondary Pedestrian Areas identified within Map Adel/1 (Overlays 2, 2A and 3), development should be designed to support the establishment and maintenance of continuous footpaths so that pedestrian flow is free and uninterrupted. Pedestrian access should be provided at ground level mid-block between all streets.
- 228 Development should provide and maintain pedestrian shelter, access and through-site links in accordance with the walking routes identified within Map Adel/1 (Overlays 2, 2A and 3) and the provisions of the Zone or Policy Area in which it is located. Such facilities should be appropriately designed and detailed to enhance the pedestrian environment, have regard to the mobility needs of people with disabilities, and be safe, suitable and accessible.
- 229 Corner buildings in the Central Business Policy Area of the Capital City Zone, buildings adjacent to street intersections and buildings along a high concentration public transport route or along public transport pedestrian routes identified within Map Adel/1 (Overlay 4) should provide weather protection for pedestrians in the form of verandahs, awnings or canopies. Where verandahs or awnings are provided which block street lighting, they should include additional lighting beneath the canopy.
- **230** Permanent structures over a footpath should have a minimum clearance of 3.0 metres above the existing footpath level, except for advertisements which should have a minimum clearance of 2.5 metres and temporary structures and retractable canopies which should have a minimum clearance of 2.3 metres above the existing footpath level.
- 231 Where posts are required to support permanent structures, they should be located at least 600 millimetres from the kerb line.
- 232 Access for people with disabilities should be provided to and within all buildings to which members of the public have access in accordance with the relevant Australian Standards. Such access should be provided through the principal entrance, subject to heritage considerations and for exemptions under the relevant legislation.

Bicycle Access

OBJECTIVES

- **Objective 64:** Greater use of bicycles for travel to and within the City and the improvement of conditions, safety and facilities for cyclists.
- **Objective 65:** Adequate supply of secure, short stay and long stay bicycle parking to support desired growth in City activities.

- 233 Development should have regard to the bicycle routes identified within Map Adel/1 (Overlay 3) by:
 - (a) limiting vehicular access points; and
 - (b) ensuring that vehicles can enter and leave the site in a forward direction, thereby avoiding reverse manoeuvres.
- 234 An adequate supply of on-site secure bicycle parking should be provided to meet the demand generated by the development within the site area of the development. Bicycle parking should be provided in accordance with the requirements set out in Table Adel/6.
- 235 Onsite secure bicycle parking facilities for residents and employees (long stay) should be:

- (a) located in a prominent place;
- (b) located at ground floor level;
- (c) located undercover;
- (d) located where passive surveillance is possible, or covered by CCTV;
- (e) well lit and well signed;
- (f) close to well used entrances;
- (g) accessible by cycling along a safe, well lit route;
- (h) take the form of a secure cage with locking rails inside or individual bicycle lockers; and
- (i) in the case of a cage have an access key/pass common to the building access key/pass.
- 236 Onsite secure bicycle parking facilities for short stay users (i.e. bicycle rails) should be:
 - (a) directly associated with the main entrance;
 - (b) located at ground floor level;
 - (c) located undercover;
 - (d) well lit and well signed;
 - (e) located where passive surveillance is possible, or covered by CCTV; and
 - (f) accessible by cycling along a safe, well lit route.
- 237 Access to bicycle parking should be designed to:
 - (a) minimise conflict with motor vehicles and pedestrians;
 - (b) ensure the route is well signed and well lit including the use of road markings such as a bicycle logo if appropriate to help guide cyclists; and
 - (c) ensure the route is unhindered by low roof heights.
- 238 To facilitate and encourage the use of bicycles and walking as a means of travel to and from the place of work, commercial and institutional development should provide on-site shower and changing facilities.

Public Transport

OBJECTIVES

- **Objective 66:** Development that promotes the use of sustainable transport consistent with State Government objectives and initiatives.
- **Objective 67:** Accessible public transport for all metropolitan residents and visitors and safe and attractive facilities for public transport users.

PRINCIPLES OF DEVELOPMENT CONTROL

239 Development along a high concentration public transport route should be designed to ensure that activity and interest for public transport passengers is maximised through the incorporation of active street frontages.

- 234 Development along high concentration public transport routes identified in Map Adel/1 (Overlay 4) should:
 - (a) ensure there are pedestrian links through the site if needed to provide access to public transport;
 - (b) provide shelter (e.g. verandahs) for pedestrians against wind, sun and rain;
 - (c) provide interest and activity at street level; and
 - (d) where possible, avoid vehicle access across high concentration public transport routes identified in Map Adel/1 (Overlay 4). Where unavoidable, vehicle access should be integrated into the design of the development whilst retaining active street frontages.

Traffic and Vehicle Access

OBJECTIVES

Objective 68: Development that supports a shift toward active and sustainable transport modes (i.e. public transport, cycling and walking).

Objective 69: An enhanced City environment and the maintenance of an appropriate hierarchy of roads to distribute traffic into the City to serve development in preference to through traffic.

Objective 70: Adequate off-street facilities for loading and unloading of courier, delivery and service vehicles and access for emergency vehicles.

- 241 Development should be designed so that vehicle access points for parking, servicing or deliveries, and pedestrian access to a site, are located to minimise traffic hazards and vehicle queuing on public roads. Access should be safe, convenient and suitable for the development on the site, and should be obtained from minor streets and lanes unless otherwise stated in the provisions for the relevant Zone or Policy Area and provided residential amenity is not unreasonably affected.
- **242** Facilities for the loading and unloading of courier, delivery and service vehicles and access for emergency vehicles should be provided on-site as appropriate to the size and nature of the development. Such facilities should be screened from public view and designed, where possible, so that vehicles may enter and leave in a forward direction.
- 243 Where practicable, development sites should contain sufficient space for the location of construction equipment during the course of building construction, so that development does not rely on the use of Council road reserves to locate such equipment.
- **244** Vehicular access to development located within the Core and Primary Pedestrian Areas identified in Map Adel/1 (Overlay 2A) should be limited and designed to minimise interruption to street frontages.
- 245 Where vehicular access to a development is gained by an existing crossing in the Core Pedestrian Area identified in Map Adel/1 (Overlay 2A), there should be no increase in the number of parking spaces served by the crossing, nor any increase in the number of existing crossings serving that development.
- 246 There is no minimum setback required from a rear access way where the access way is wider than 6.5 metres. Where the access way is less than 6.5 metres in width, a setback distance equal to the additional width required to make the access way 6.5 metres or more, is required to provide adequate manoeuvrability for vehicles.

- 247 The number of access points on primary city access roads identified in Map Adel/1 (Overlay 1) should be limited to minimise traffic and pedestrian inconvenience, interference with public transport facilities and adverse effects on the environment.
- **248** Buildings located along primary and secondary access roads should be sited to avoid the need for vehicles to reverse on to the road (unless the dimensions of the site make this impractical).

Car Parking

OBJECTIVES

- **Objective 71:** To meet community expectation for parking supply while supporting a shift toward active and sustainable transport modes.
- **Objective 72:** An adequate supply of short-stay and long-stay parking to support desired growth in City activities without detrimental affect on traffic and pedestrian flows.

PRINCIPLES OF DEVELOPMENT CONTROL

- 251 Car parking areas should be located and designed to:
 - (a) ensure safe and convenient pedestrian movement and traffic circulation through and within the car parking area;
 - (b) include adequate provision for manoeuvring and individually accessible car standing areas;
 - (c) enable, where practical, vehicles to enter and leave the site in a forward direction;
 - (d) minimise interruption to the pattern of built form along street frontages;
 - (e) provide for access off minor streets and for the screening from public view of such car parking areas by buildings on the site wherever possible;
 - (f) minimise adverse impacts on adjoining residential properties in relation to noise and access and egress;
 - (g) minimise loss of existing on-street parking spaces arising through crossovers and access;
 - (h) incorporate secure bicycle parking spaces and facilitate convenient, safe and comfortable access to these spaces by cyclists; and
 - (i) provide landscaping, such as semi-mature trees, to shade parked vehicles and reduce the visual impact of the car parking area while maintaining direct sight lines and informal visual surveillance.
- 252 All development should provide car parking spaces for people with disabilities in accordance with the requirements in the Building Code of Australia (BCA). For classes of buildings not covered by the requirements of the BCA, the number of spaces should be provided in accordance with Table_Adel/7 and such car parking spaces should comply with Australian Standard 2890.1: 'Parking Facilities Off-street Car Parking'.

254 Off-street parking should:

- (a) be controlled in accordance with the provisions for the relevant Policy Area;
- (b) be located away from street frontages or designed as an integral part of buildings on the site. Provision of parking at basement level is encouraged; and
- (c) not include separate garages or carports in front of buildings within front set-backs.

- **258** Off-street parking in the Core Pedestrian Area identified in Map Adel/1 (Overlay 2A) will only be appropriate where:
 - (a) parking is ancillary to another activity carried out on the land;
 - (b) it can be provided without loss of pedestrian amenity; and
 - (c) it is not separately created on a strata title or community title basis (unless in association with another title held on the site).
- **259** Multi-level car parks or non-ancillary car parking use of an existing building should only be established where it can be demonstrated that there is a need which is not adequately satisfied by other parking facilities in the locality.
- 260 Multi-level car parks and short stay public use of ancillary car parking spaces are discouraged at ground floor street frontages in the Primary Pedestrian Area identified in Map Adel/1 (Overlays 2, 2A and 3). Multi-level car parks, short stay public use of ancillary car parking spaces or non-ancillary car parking use of an existing building may be appropriate where it:
 - (a) is located away from ground floor street frontages to major streets;
 - (b) ensures vehicle access is from the road with less pedestrian activity in instances where a site has access to more than one road frontage;
 - (c) has no more than one entry lane and one exit lane;
 - (d) has a controlled exit at the property boundary to stop vehicles before travelling across the footpath;
 - (e) has no more than one left in and one left out access point;
 - (f) avoids access points along high concentration public transport routes identified in Map
 Adel/1 (Overlay 4); and
 - (g) with respect to ancillary parking, is provided at basement level, or undercroft if located behind other uses which provide activity on the street frontage.
- 261 Multi-level car parks should be designed to:
 - (a) provide active street frontages and land uses such as commercial, retail or other non-car park uses, along ground floor street frontages to maintain pedestrian interest and activity at street level:
 - (b) be of a high quality design and complement the surrounding built form in terms of height, bulk and scale:
 - (c) provide surveillance, lighting and direct sightlines along clearly defined and direct walkways, through and within car parking areas and to lift and toilet areas;
 - (d) on a corner site with two major street frontages, be set back from the major street frontages, with commercial or other non-car park floor space in front of and screening the car parking building;
 - (e) on a site with only one major street frontage, include screening so that any car parking is not visible from the public realm either day or night, and detailed to complement neighbouring buildings in a manner consistent with desired character in the relevant Zone and Policy Area;
 - (f) incorporate treatments to manage the interface with adjacent housing, such as careful use of siting and use of materials and landscaping;

- (g) not have vehicle access points across major walking routes identified in Map Adel/1 (Overlay 2); and
- (h) provide safe and secure bicycle parking spaces in accordance with the requirements of Table Adel/6.

Economic Growth and Land Use

OBJECTIVES

Objective 73: The role of the City enhanced as:

- (a) the community, civic and cultural heart of South Australia and as a driving force in the prosperity of the State;
- (b) the State centre for business, administration, services, employment, education, political and cultural activities, government and public administration;
- a welcoming, secure, attractive and accessible meeting place for the people of metropolitan Adelaide and beyond for leisure, entertainment, civic and cultural activity, specialty shopping, personal and community services;
- (d) a centre for education and research built on key academic strengths and on the excellent learning environment and student accommodation available in the City;
- (e) a supportive environment for the development of new enterprises drawing on the cultural, educational, research, commercial and information technology strengths of the City centre;
- (f) the gateway to the attractions of South Australia for international and interstate visitors by developing a wide range of visitor accommodation, facilities and attractions, particularly attractions which showcase the particular strengths of South Australia; and
- (g) a great place to live, with a growing diversity of accommodation for different incomes and lifestyles.
- **Objective 74:** A business environment which encourages investment from domestic and foreign sources, business development and employment.
- **Objective 75:** Development which reinforces clusters and nodes of activity and distinctive local character.
- **Objective 76:** A diverse mix of commercial, community, civic and residential activities to meet the future needs of the Capital City of South Australia.

PRINCIPLES OF DEVELOPMENT CONTROL

266 Development, particularly within the Capital City and Institutional Zones, is encouraged to:

- (a) provide a range of shopping facilities in locations that are readily accessible;
- (b) provide for the growth in economic activities that sustain and enhance the variety and mix of land uses and the character and function of the City;
- (c) maximise opportunities for co-location, multiple use and sharing of facilities;
- (d) be accessible to all modes of transport (particularly public transport) and safe pedestrian and cycling routes; and
- (e) have minimal impact on the amenity of residential areas.

- 268 Development is encouraged to develop and expand upon the existing or create new tourism activities to maximise employment and the long-term economic, social and cultural benefits of developing the City as a competitive domestic and international tourist destination.
- **269** Tourist facilities should be compatible with the prevailing character of the area, within close proximity to public transport facilities and well designed and sited.
- **270** Development located either abutting, straddling or within 20 metres of a Zone or Policy Area boundary should provide for a transition and reasonable gradation from the character desired from one to the other.
- **271** Development should not unreasonably restrict the development potential of adjacent sites, and should have regard to possible future impacts such as loss of daylight/sunlight access, privacy and outlook.