

Catcorp Pty Ltd C/- Future Urban Group
7 Storey mixed use building comprising of commercial/retail tenancies, residential apartments, ancillary car parking, landscaping and associated site works.

244-246 Unley Road, Unley - 090/M008/17

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OVERVIEW

Application No	090/M008/17		
Unique ID/KNET ID	Appian 2397 2017/18253/01		
Applicant	Catcorp Pty Ltd C/- Future Urban Group		
Proposal	Mixed use development comprising of commercial tenancies,		
	residential apartments, ancillary car parking, landscaping and		
	associated building works		
Subject Land	244-246 Unley, Road Unley		
Zone/Policy Area	Urban Corridor Zone, High Street Policy Area		
Relevant Authority	State Commission Assessment Panel		
Lodgement Date	14 August 2017		
Council	City of Unley		
Development Plan	Unley (City) Development Plan [Consolidated 4 th July 2017]		
Type of Development	Merit		
Public Notification	Category 2		
Representations	Nine (9) representations of which four (4) are valid, no		
	representors wish to be heard.		
Referral Agencies	Associate Government Architect and Commissioner of		
	Highways (DPTI)		
Report Author	Karl Woehle		
RECOMMENDATION	Development Plan Consent subject to conditions		

EXECUTIVE SUMMARY

The applicant seeks Development Plan Consent for the construction of a 7 storey mixed use building comprising of commercial / retail tenancies, residential apartments, ancillary car parking, landscaping and associated building works in the High Street (Unley Road) Policy Area of the Urban Corridor Zone at 244-246 Unley Road, Unley

The proposed development is a merit kind of a development that triggers a statutory referral to the Associated Government Architect (AGA), Commissioner of Highway (DPTI) and a non-mandatory referral to the City of Unley Council. The application is a Category 2 form of development. During the public notification nine (9) representations were received, four (4) were valid and were generally in support of the proposed development.

The overall building height is 7 storeys (including ground) or 24.5m to the roofline, which exceeds the maximum height of 18.5 metres or 5 storeys set out in the High Street (Unley Road) Policy Area. It is acknowledged that the proposed development does not adjoin the Residential Streetscape (Built Form) Zone to west and has been sited to ensure significant separation distances. As a result the apartment balconies on level one are setback approximately 15 metres from the boundary and 30 metres to the Residential Streetscape (Built Form) Zone. The proposed built form is within the 30 degree envelope plane, as required by the Development Plan.

The Associate Government Architect (AGA) responded to the referral and is of the opinion that the proposed development does not exhibit an exemplary design outcome. Particularly in terms of massing and architectural expression to manage the physical and visual impacts of the scale and bulk. Concern was also raised on the lack of setback to Hart Avenue boundary beyond 20 metres from Unley Road.

The proposed development is contemporary in nature and exhibits a material palette that is considered robust and generally neutral. The podium and tower elements of the development attempt to respond to the built scale and form within the locality. Notwithstanding the proposed height the overall architectural expression, level of articulation, range of external materials and built form, is considered suitable for the Urban Corridor Zone.



The ground floor of the proposed development presents a continuous row of narrow fronted commercial/retail tenancies along Unley Road and down Hart Avenue, consistent with the High Street Policy Area. The proposed development provides canopies over the footpaths and should provide a comfortable and appealing pedestrian environment.

The proposal generally achieved appropriate performance outcomes in respect to technical matters such as pedestrian and vehicle access, bicycle parking, energy efficiency, waste management and stormwater management. The residential apartments generally exceed the minimum apartment size and the shortfall in private open space has been justifiably offset by the communal open space supplied. The proposed development generally offers appropriate apartment amenity.

Notwithstanding the height and minor shortfalls of the development, the proposal generally satisfies the policy provisions of the High Street (Unley Road) Policy Area and relevant development control policies. Council are of the opinion that the nature of the large scale mixed use development generally accords with the Urban Corridor Zone intent. It is consequently considered that the proposed development is not at significant variance with the Development Plan and warrants Development Plan Consent subject to conditions.

ASSESSMENT REPORT

1. BACKGROUND

1.1 Strategic Context

In October 2013, the Stage 3A Main Corridors and Mixed use and Residential Vitalisation (Greenhill and Unley Roads) DPA was gazetted, which allows for medium density residential living above mixed use development

This rezoning included the introduction of the *Urban Corridor Zone* within the City of Unley to be rolled out over two of the City's major corridors in Greenhill Road and Unley Road. The policies were introduced to encourage a new form of urban living that enables more people to enjoy the benefits of an inner city lifestyle.

Policies encourage mixed-use forms of development complemented by well-designed and contemporary housing close to public transport, jobs and vibrant places. Two policy areas were introduced, including the High Street (Unley Road) Policy Area applicable to this site.

The DPA also included the introduction of the Air and Noise Emission Overlay that enables applicants to move noise assessment to the building stage of the approval process. This Overlay also contains planning policies to protect sensitive development from noise and air emissions generated from major transport corridors and mixed land use. The designated noise source in this case is Unley Road.

1.2 Pre-Lodgement Process and Background

The applicant did not participate in the pre-lodgement process. It is noted the Development Assessment Commission previously granted Development Plan Consent for (DA 090/M003/15) a 7 storey mixed use building comprising of retail, 140 apartment and ten (10) two storey townhouses. The previous application was approved across a larger amalgamation of sites between Hart and Opey Avenue.



2. DESCRIPTION OF PROPOSAL

The proposal consists of the construction of a 7 storey mixed use development comprising commercial/retail tenancies, residential apartments, ancillary car parking, landscaping and associated site works. Application details are contained in the **ATTACHMENTS.**

A summary of the proposal is as follows:

Land Use	Mixed use development containing commercial/retail, residential			
Description	apartments and associated car parking			
Building Height	7 Storey / 24.5 metres to the r	oofline		
Description of levels	Basement Levels: Building se	rvices, storage, bicycle racks and		
-	car parks	, ,		
	Ground Floor: Five commercia	al tenancies, residential		
	apartment foyer, building servi	ces, waste services, bicycle		
	parking and car parking	, , ,		
	Level 1 - 6: A total of 59 resid	dential apartments consist of 10		
		apartment and 4 three bedroom		
	apartments			
	·			
Apartment floor	Dwelling Type	Floor Area (excluding POS)		
Apartment floor area (excluding	Dwelling Type 1 Bedroom apartments	Floor Area (excluding POS) 60 square metres		
•				
area (excluding	1 Bedroom apartments	60 square metres		
area (excluding	1 Bedroom apartments 2 Bedroom apartments 3 bedroom apartments	60 square metres 73-98 square metres		
area (excluding balconies)	1 Bedroom apartments 2 Bedroom apartments 3 bedroom apartments Vehicle parking is accessed via	60 square metres 73-98 square metres 152-155 square metres		
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3. SITE AND LOCALITY

3.1 Site Description

The subject site is located at 244 – 246 Unley Road, Unley. The subject site consist of four allotments located on the western side of Unley Road. Hart Avenue is located to the immediate north of the subject site. The allotment is regular in shape and has a 42 metre frontage to Unley Road, a 59.2 metre frontage to Hart Avenue and a total site area of approximately 2,494m².

On the allotment fronting Hart Avenue is a single storey detached dwelling and associated outbuilding. The site has a free and unrestricted right of way over the laneway to the east. The three allotments fronting Unley Road contain commercial tenancies which has a floor area of approximately $1500 \mathrm{m}^2$. Businesses currently operating from these sites include F45 Training Unley, Plaster Fun House and Connekt Plumbing. Access to these commercial tenancies is obtained via a single crossover off Hart Avenue.

Lot No	Section	Street	Suburb	Hundred	Title
A1	D1221	Unley	Unley	Adelaide	CT 5380/232
A2	D1221	Unley	Unley	Adelaide	CT 6067/119
А3	D1221	Unley	Unley	Adelaide	CT 6134/955
A4	D1221	Hart Ave	Unley	Adelaide	CT 5380/234

The figure below illustrates the subject land highlighted in blue in the context of the immediate locality.





Figure 1 - Location Map
The subject site gains vehicle access via Hart Avenue located to the immediate north

Figure 2: Site Photographs



Unley Road – looking west to subject land



Unley Road – looking north



Unley Road – looking south



Unley Road - looking east









Hart Avenue - looking east to Unley Road



Unley Road – looking southwest at subject site



Unley Road – looking northwest at subject site

3.2 Locality

The locality is characterised by a mixture of land-uses, which range from commercial, retail and residential uses. The site is bound by Unley Road to the east and Hart Avenue to the North. Unley Road is a two way arterial road which supports two lanes of vehicle traffic and a bicycle lane in both directions. Hart Avenue is approximately 8.8m wide and supports one lane of vehicle traffic in both directions

Unley Road is generally characterised by narrow frontage commercial buildings with majority of the buildings exhibiting little to no setback to the Unley Road. Many of these buildings are single storey and some of which are heritage listed. The Local Heritage listed Soldiers Memorial Garden is located approximately 100 metres north of the subject site and the State and Local Heritage listed Unley Town Hall and Church are located a further 100 metres north. The built form in Hart Avenue is generally low scale character fronted residential dwellings.

4. **COUNCIL COMMENTS**

4.1 City of Unley Council

Advice was sought from Council administration regarding technical matters. The following points were raised for consideration:

- Building height (and setbacks);
- Overlooking minimisation;
- Podium façade detailing and extent of footpath canopies
- On-site parking provision, allocation, design and dimensions;
- Site landscaping and lack of medium to large trees and roof-top gardens;
- Hart Avenue traffic and on-street parking management;



- Hart Avenue public realm implications including road configuration, lack of room for outdoor dining, loss of on-street parking, street trees pruning and planting
- Waste and service vehicle limitations
- Survey plan to confirm dimensions of site, buildings, Unley Road and Hart Avenue.

Council highlighted that it is the authority to negotiate appropriate outcomes in regard to street trees, future public realm upgrades, canopy encroachments and outdoor dining arrangements should the application be approved.

The applicant responded to Council comments and provided amended plans that consolidated the vehicle crossovers on Hart Avenue into one. Additionally the transformer was moved from the Unley Road frontage to Hart Avenue and an additional commercial tenancy was provided along Hart Avenue. It was also noted on the amended plans that the proposed public realm treatment and seating on the Hart Avenue was not part of the application.

Council provided revised comments, however still remained concerned with a number of aspects of the development including the height proposed. The Council did however supply eight planning conditions for SCAP's consideration should the application be supported. Council's referral response is contained in the **ATTACHMENTS** and are further discussed in the Planning Assessment.

5. STATUTORY REFERRAL BODY COMMENTS

5.1 Commissioner of Highways [Department of Planning, Transport and Infrastructure (Traffic Operations)]

The Commissioner of Highways is a mandatory referral in accordance with Schedule 8 of the Development Regulation 2008. The Panel must have regard to this advice. A general support of the type of development proposed was expressed however, the following points were raised for consideration:

- All development being setback a minimum of 2.13 metres from the Unley Road property boundary and being kept clear of the 4.5 x 4.5 metres corner cut-off at the Unley Road / Hart Avenue junction.
- Access to Hart Avenue being consolidated to a single point located as far from the Unley Road / Hart Avenue junction as practicable.
- Provision of a vehicle link between Opey Avenue and Hart Avenue for all vehicles associated with the development in order to enable better traffic distribution to these two streets and their junction.

The applicant reviewed and responded to DPTI's comments and provided amended plans. DPTI's statutory referral response is contained in the **ATTACHMENTS** and are further discussed in the Planning Assessment.

5.2 Government Architect

The Government Architect is a mandatory referral in accordance with Schedule 8 of the Development Regulation 2008. The Panel must have regard to this advice. The Associate Government Architect (AGA) responded to the referral by citing a number of perceived deficiencies and nominated the following elements which he believed would benefit from protection as part of any consent granted:

- Review of the building height
- Review of the built form composition along the Hart Avenue frontage
- Further information on site context to demonstrate the relationship between the proposal and the existing and future context
- Review of massing and three dimensional articulation strategy of the built form above the podium to reduce the apparent bulk



- Review of the presentation to Hart Avenue with the view to increase the extent of active use spaces
- Consideration of crossover consolidation
- Development of effective strategies to manage residential interface impacts, including overlooking
- Review of apartment entry sequence
- Review of the podium expression at the northeast and southeast corners
- Further information that demonstrates how the proposed vegetation in the central courtyard and atrium will be sustained and maintained
- Refinement of apartment layouts to eliminate inboard bedrooms
- Review of apartment typology to ensure all apartments have access to adequately sized private open spaces
- Relocation of air conditioning condensers from balconies
- Further information that demonstrates the environmental performance of the atrium and communal circulation spaces
- A high quality of external materials for building and landscaped areas supported by the provision of a materials sample board.

The applicant reviewed and responded to the comments of the Associate Government Architect and provided amended plans which were resubmitted to the AGA for further review. It was concluded that further design development and refinement are required to obtain the AGA's full support.

The AGA's statutory referral response is contained in the **ATTACHMENTS** and are further discussed in the Planning Assessment.

6. PUBLIC NOTIFICATION

The application is a Category 2 form of development. During the public notification period some nine (9) representations were received. It is noted, that of the nine (9) representations, four (4) were received from owners/occupiers of adjacent land pursuant to the definition within the Development Act 1993, as follows:

adjacent land in relation to other land, means land-

- (a) That abuts on the other land; or
- (b) That is no more than 60 metres from the other land and is directly separated from the other land only by-
 - (i) a road, street, footpath, railway or thoroughfare; or
 - (ii) a watercourse; or
 - (iii)a reserve or other similar open space

The representation prepared by Mr Philip Goodyear is in support for the proposed development however he opposed a component of the development. The remaining three (3) representations are in support of the proposal.

The follow matters were raised by Mr Philip Goodyear which generally relates to:

- Poor design quality at ground level
- Negative impact upon streetscape to Hart Avenue
- A lack of landscaping at ground floor on Unley Road
- Limited canopies on Unley Road
- Limited shelter for bus stop

The applicant provided a response to the matters raised by Philip Goodyear and the proposal has been amended as follows:

- Consolidation of the two crossovers on Hart Avenue
- Introduction of an active retail shop along Hart Avenue
- Provision of temporary landscaping adjacent to the future development site along Hart Avenue to minimise and screen the car parking area
- General increase in canopy width to 1.8m over the Unley Road and Hart Avenue footpaths.



All representations received during the public notification process, together with the applicant's response, are contained within the **Attachments.**

7. POLICY OVERVIEW

The subject site is within the High Street (Unley Road) Policy Area 20 of the Urban Corridor Zone as described within the Unley Council Development Plan Consolidated 30 May 2017.

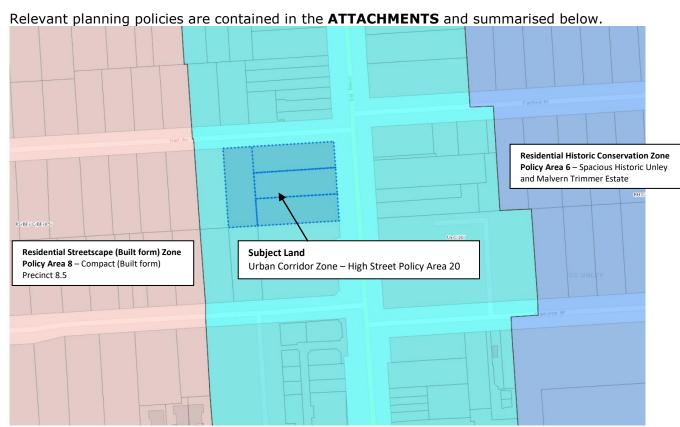


Figure 3 - Zoning Map

7.1 Policy Area

The High Street (Unley Road) Policy Area envisages moderate scaled buildings that are intended and should compromise of predominately small scale shops, mixed business services and hospitality at ground, with upper levels comprising of residential apartments.

7.2 Zone

The Urban Corridor Zone encourages a diverse range of land-uses, providing opportunity for compatible non-residential and medium and high density residential land uses orientated towards a high frequency public transport corridor; Unley Road in this instance.

Buildings of three or more storeys will be the predominant built form, with key strategic sites developed with landmark buildings that will feature prominent, attractive and activating road facades. At ground level the zone seeks a high level of pedestrian amenity for Unley Road, which provides integrated linkages to adjacent centres, public transport stops and spaces.

The Zone seeks overlooking, overshadowing and emission impacts to be moderated through good design and mitigating techniques. Impacts on adjoining zones will be minimised through appropriate land uses, building envelopes, transition of building



heights, design and location of on-site activities / windows / balconies and uses of landscaping.

Car parking to the rear of development is emphasized, with access and parking areas to be design to minimise impacts on adjoining residential areas. Water sensitive urban design (WSUD) for harvest, treatment, storage and reuse of stormwater, and environmentally sustainable design (ESD) for reduction in energy consumption is encouraged within the Zone

7.3 Council Wide

The Council Wide provisions detail a range of policy guidelines for consideration with respect to medium and high rise residential development in the City of Unley, and specifically the Urban Corridor Zone. These matters will be discussed in greater detail within the body of the assessment below.

7.4 Overlays

7.4.1 Affordable Housing

The proposal is subject to the affordable housing overlay. The applicant noted that the proposed development does not contain any affordable housing.

7.4.2 Noise and Air Emissions

This site is located within the designated area for the Noise and Air Emissions Overlay, and as such requires assessment against *Minister's Specification SA 78B for Construction Requirements for the Control of External Sound.*

8. PLANNING ASSESSMENT

The application has been assessed against the relevant provisions of the Unley Development Plan [Consolidated 4 July 2017], which are contained in **ATTACHMENTS**.

8.1 Quantitative Provisions

	Development	Proposed	Guideline	Comment
	Plan Guideline	Proposed	Achieved	Comment
Building Height	Zone PDC 12 Prescribes a maximum height of 5 Storeys (up to 18.5 metres)	7 Storeys (24.5 metres)	YES NO PARTIAL	
Land Use	Zone and Policy Area envisages compatible mixed use developments	Mixed use retail/commercial and residential building	YES NO DARTIAL D	
Car Parking	Required 21 carparks (commercial) 66 carparks residential plus 15 visitors Requirement of 102 carparks	79 carparks proposed, shortfall of 23 carparks	YES	Shortfall in car parking – discussed in assessment
Bicycle Parking	Required 8 non-residential bicycle spaces 40 residential bicycle spaces	36 bicycle parks proposed, shortfall of 12 bicycle parks	YES	Shortfall in bicycle parking discussed assessment



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	/: I II	Ι			
	(including visitors)				
Front Setback	Policy area does not seek a front setback	No front setback has been proposed	YES NO PARTIAL	\square	
Rear Setback	3 Metres	Development has been setback 15m from rear boundary	YES NO PARTIAL		
Side Setback	Om up to 20m from primary road junction and 2m thereafter (Hart Avenue) Om for south boundary	Development not setback from southern boundary or Hart Avenue	YES NO PARTIAL		Discussed further in the assessment
Apartments Size	1B/R - 50m ² 2B/R - 65m ² 3B/R - 80m ² (Adelaide City Council guideline)	Proposed 1B/R - 60-86m ² 2B/R - 73-98m ² 3B/R - 152-155m ²	YES NO PARTIAL		
Private Open Space	20m² for dwellings in non- residential zone	Proposed 1B/R - 8-39m ² 2B/R - 12-24m ² 3B/R - 48-70m ²	YES NO PARTIAL		Discussed further in the assessment

8.2 Land Use and Character

The Urban Corridor Zone envisages integrated mixed use developments is the form of medium and high rise building with ground floor uses that create active and vibrant streets with residential development above. The High Street (Unley Road) Policy Area seeks buildings to be sited and provide a continuous and consistent built edge with verandas/awnings over the public footpath. There is a strong focus in the Policy Area to create an intimate public realm with active street frontages.

The proposal involves the development of a mixed use building with commercial/retail tenancies on ground and residential apartments above. The proposed land-use and composition of the development is consistent with the Urban Corridor Zone and High Street (Unley Road) Policy Area.



8.3 Building Height and Interface

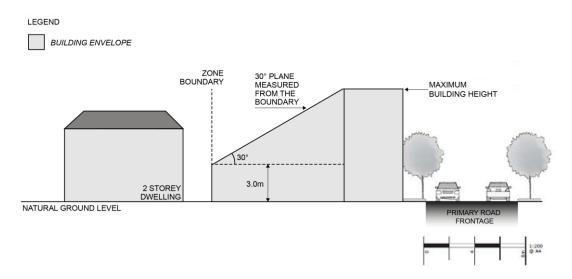
The Urban Corridor Zone - High Street (Unley Road) Policy Area envisages the following building height and interface provisions:

Policy area	Minimum building height	Maximum building height
Boulevard (Greenhill Road) Policy Area 19	3 storeys (11.5 metres), or 4 storeys (15 metres) for land that is directly adjacent to or facing the Adelaide Park Lands.	7 storeys and up to 25.5 metres
High Street (Unley Road) Policy Area 20	3 storeys (11.5 metres)	5 storeys and up to 18.5 metres
Transit Living (Anzac Highway) Policy Area 24	3 storeys or no less than 11.5 metres for sites fronting Anzac Highway, and 2 storeys or no less than 8 metres for sites fronting Leader Street or Maple Avenue	6 storeys and up to 22 metres.
Business (Leader Street and Maple Avenue) Policy Area 25	2 storeys or no less than 8 metres	6 storeys and up to 22 metres.

Interface Height Provisions

PDC 13 To minimise building massing at the interface with development outside of the zone, buildings should be constructed within a building envelope provided by a 30 degree plane, measured from a height of 3 metres above natural ground level at the zone boundary (except where this boundary is a primary road frontage, as illustrated in Figure 1).

Figure 1



The overall building height is 7 storeys (including ground) or approximately 24.5 metres to the roofline excluding roof details, which exceeds the maximum five storey limit. However there are several aspects of the proposed development that provide support for the proposed height, which are:

- The design and appearance of the proposed development attempts to reduce the scale and bulk of the building through the use of a two storey podium form, which references the existing lower scale built form in the locality.
- The substantive bulk of the building when viewed from Unley Road could be defined by the 5 level (which presents as a datum line) as a response to the



zone policies. The projected datum line is strengthened by the setback of the top apartment floor

- The top apartment floor is setback 5.3 metres from Unley Road and clad with dark coloured metal cladding to reduce the visual impact which is supported by the AGA.
- Vertical green screens included on all facades, should visually soften the mass and scale of the development.
- The development has been sited to ensure maximum separation distances from the adjoining residential dwelling and the Residential Streetscape (Built Form) Zone to the west.
- The subject site does not adjoin the Residential Streetscape (Built Form) Zone and it is noted that the proposed built form is within the 30 degree envelope plane, consistent with Urban Corridor Zone PDC 13.

It is acknowledged that the AGA does not support the height. The AGA is of the opinion that the architectural expression does not manage the physical and visual impacts of the scale and bulk of the proposal.

The proposed development exhibits the intent to reduce the scale and bulk through the use of a podium/tower element, materials, setbacks and separation distances. Whist the proposed development exceeds the maximum envisaged height of the Policy Area it is not considered fatal to the application.

8.4 Setbacks

The Development Plan provides the following setback guidelines for the subject site:

- Unley Road 0 metres
- Hart Avenue 0 metres for a distance of 20 metres from the primary road junction and 2 metres thereafter
- Southern Boundary 0 metres
- Western Boundary 3 metres

The proposed development generally satisfies the required setbacks as prescribed in the High Street (Unley Road) Policy Area. It is noted that the secondary frontage to Hart Avenue is not setback 2 metres after a distance of 20 metres from Unley Road intersection. It is assumed that the intent of the transitional setback of 2 metres is to gradually acknowledge the adjoining residential zone to the west, which can be characterised by larger front setbacks.

Whist the proposed development does not provide a 2 metre setback, it is acknowledged that the development site does not adjoin the residential zone. It is also noted that the built form is 15 metres from the closest dwelling to the west and in excess of 30 metres from the closest dwelling in the Residential Streetscape (Built Form) Zone.

The lack of setback from Hart Avenue is not ideal, however the separation distances to the dwellings and residential zone should provide adequate transition in scale and setback. On balance it is considered that the development is unlikely to detrimentally impact the immediate locality within Hart Avenue and the adjoining residential zone.

8.5 Design and Appearance

The Desired Character Statement of the Urban Corridor Zone provides the following guidance with respect to the built form of the building

High Street Policy Area – where more moderate scaled buildings of mixed use are intended along Unley Road with predominantly small scale shops, mixed business services and hospitality uses at ground and low building levels and upper level comprising residential apartments.



Council-wide policy broadly seeks developments of a high architectural standard that complements the existing buildings and locality. Developments are encouraged to minimise visual bulk of the building, whilst achieving human scale at ground level. Balconies should be incorporated into the architectural expression of the building.

The proposed development is contemporary in nature and exhibits material palette that is robust and generally neutral. The podium and tower elements of the development attempts to responds to the built scale and form within the locality as well as the desired character of the Urban Corridor Zone. The AGA supports the two storey podium which references the height of the former National Bank building. The proposed masonry used in the podium responds to the fine grain materials in the locality and is supported by the AGA.

The tower element is setback from all sides, which helps define the built form and is further strengthened by the change in materials. The architectural expression of the tower element is articulated by framed balconies in a contrasting colour and layers of concrete slab edges which provides a sense of depth to the facades. Vertical 'green' screens have been provided on all sides to help soften the mass and visual bulk of the development. The AGA is of the opinion that the bold framing of the balconies over the multiple levels does not assist in achieving a recessive built form above the podium as intended.

The ground floor of the proposed development presents a continuous row of narrow fronted commercial/retail tenancies along Unley Road and down Hart Avenue, consistent with the High Street Policy Area which seeks activation at ground through the use of small scaled shops. This activation at ground is strengthened with canopies over the footpaths of Unley Road and Hart Avenue, consistent with PDC 4 (Medium and High Rise Development). The building services have been located and strategically incorporated into the podium form which is supported by the AGA. The commercial/retail tenancy along Hart Avenue sleeves the ground level car parking area and is generally considered a good design outcome and also supported by the AGA. It is acknowledged that the applicant intends to develop the Hart Avenue footpath by incorporating alfresco dining opportunities. The development of the public realm along Hart Avenue is supported, however it is noted that these works are outside of the development site and are not part of this application.

The overall architectural expression, level of articulation, range of external materials and overall form is considered suitable for the Urban Corridor Zone. The design of the building should provide a comfortable and appealing pedestrian environment that is sheltered by canopies. On balance the design and appearance of the proposed development is considered appropriate and should positively contribute to the streetscape.

8.6 Apartment Amenity

The Development Plan seeks medium to high scale residential development to provide a high standard of apartment amenity with functional internal layouts. All residential developments should have direct access to natural light and ventilation.

The proposed development consists of 30 one bedroom, 25 two bedroom and 4 three bedroom apartments and is considered consistent with PDC 16 Medium and High Rise Development which seeks development comprising of 10 or more dwellings to provide a variety of dwelling sizes and configures. The main entrance and lobby area for the residential apartments is located centrally and can be accessed via Unley Road or the undercover carpark and is supported by the AGA.

PDC 15 Medium and High Rise Development seeks living rooms to have a satisfactory short range visual outlook to public, communal or private open space. All apartment living rooms within the proposed development have direct and unrestricted views to private open space. All apartments have windows with natural light and ventilation



into all habitable rooms and bedrooms. Apartment type 3 and 4 have internal rooms that receive access to light and ventilation via a high level window to the internal atrium. The applicant noted that these internal rooms are multi-purpose that which can be used for a variety of functions, further enhancing the adaptability of apartment.

Air-conditioning condenser units on the balcony are generally not supported due to the potential adverse impacts on the apartment amenity and the street. In this instance the applicant has provided a screening strategy to ensure the air-conditioning units are less visible from the street, however it is noted the air-conditioning units will still impact the usable balcony space and amenity of the apartment.

The Development Plan is silent on minimum apartment sizes, however when reviewed against the relevant provisions outlined in the Adelaide City Council Development Plan, all the apartments exceed the minimum requirements. The setback of the upper levels generally demonstrate appropriate separation from current and future developments.

The proposal provides an extensive landscaped communal courtyard area on level one, with a 5 level atrium above. The atrium is proposed with a translucent roof and operable louvers at the top to allow for light and ventilation. The atrium will be greened through balcony edge planting and vertical trellis climbers. The applicant has highlighted that the communal area has been designed for shared use. The communal area will provide a space for individuals and small group gatherings and could provide an extension of the residents' back yard. The communal open space and associated landscaping are considered a positive feature to the residential apartment amenity. The AGA supports the landscaping on balance, however it is contingent on the resolution and full delivery of all the landscape concepts within the courtyard and atrium spaces.

On balance the generous apartment sizes, communal open space coupled with functional adaptable layouts provides the proposed development with appropriate apartment amenity and is generally considered consistent with the Development Plan.

8.7 Private Open Space

Residential PDC 20 seeks 20 square metres of private open space to be provided to each dwelling under 300 square metres in floor area, within a non-residential zone. While Residential Development PDC 22 seeks balcony areas to be a minimum dimension of 2 metres, be screened to 1.7 metres high and have at least 70 percent of the area uncovered.

All private open space areas within the development are directly accessible from a living rooms and satisfy the minimum dimension of 2 metres with a significant number having northerly orientations. It is noted that screening devices are absent from most of the balconies, however due to the orientation and separation to the Residential Zone is generally considered acceptable and should not result in a detrimental impact to the lower scale residential dwellings to the west.

Apartment types 2, 5 and 6 do not meet the minimum private open space requirements set out in the Development Plan. It is noted that whilst the apartments present a shortfall in private open space, there is a communal space on level 1 that is considered appropriate to offset these shortfalls. Furthermore the location of the apartments within the Urban Corridor coupled with the generous apartment sizes could further offset the shortfalls in private open space.

On balance the balconies are generally of sufficient size and depth to accommodate outdoor seating and the shortfall in private open space is not considered fatal to the apartment amenity.



8.8 Traffic Impact, Access and Parking 8.8.1 Car parking

Table Un/5 provides Off Street Vehicle Parking Requirements These requirements state

Location of development	Desired minimum number of vehicle parking spaces	Maximum number of vehicle parking spaces
All Designated Areas (unless otherwise stated)	3 spaces per 100 square metres of gross leasable floor area	6 spaces per 100 square metres of gross leasable floor area
Urban Corridor Zone	3 spaces per 100 square metres of gross leasable floor area	5 spaces per 100 square metres of gross leasable floor area

Kind of Development	In Non-residential Zones and mixed use development
Small (1bedroom or floor area <75m ²)	0.75
Medium (2 bedroom or floor area <150m ²	1.25
Large (3 or more bedrooms or floor area >150m ²	1.75
Additional visitor carparking	0.25

The Development Plan does not depict a residential parking rate for development in the Urban Corridor, as such the residential car parking rates recommended for mixed use development located in non-residenital zones were used to calculated the require residential car parks.

Based on the proposed $692m^2$ of gross leaseable floor areas the development will require a minimum of approximately 21 carparking spaces for the commercial/retail tenancies. A total of 66 residential carparking spaces are required in addition to the 15 car parking spaces for residential visitors.

Council in principle supported the provision of 85 carparks originally proposed, the amended plans reduced the number of carparks to 78. Council are of the opinion any on-site shortfall is significant and compounds the problems with inadequate and major loss of potential on-street parking.

The proposed development has 60 residential car parking spaces in the basement levels and 18 carparks at ground level presenting a shortfall of approximately 24 carparks. However it is noted in Transport PDC 29, the policy comtemplates a lesser number of parking spaces in mixed use buildings where the operating hours of commercial activities complement residential use of the site, which would be applicable in this instance.

It is also noted that the development site is located in close proximity to high frequency bus services, walking and bicycle paths. Whilst the proposed developmet presents a shortfall in carparking, there is a potential for shared parking between the land uses which could offset this shortfall and should not result in a detrimental impact to the proposed development or the immediate locality.

8.8.2 Bicycle Parking

Table Un/6 provides bicycle parking requirements for the whole Council. These requirements state:



Form of development	Employee/resident (bicycle parking spaces)	Visitor/shopper (bicycle parking spaces
Residential component of multi-storey building/residential flat building	1 for every 2 dwellings	1 for every 6 dwellings
Office	1 for every 150 square metres of gross leasable floor area	2 plus 1 per 500 square metres of gross leasable area
Shop	1 for every 300 square metres of gross leasable floor area	1 for every 600 square metres of gross leasable floor area
Tourist accommodation	1 for every 20 employees	2 for the first 40 rooms plus 1 for every additional 40 rooms
Other non-residential development	1 for every 150 square metres of gross leasable floor area	2 plus 1 per 500 square metres of gross leasable floor area

As per the relevant Development Plan requirements the following bicycle spaces will be necessary:

- 30 bicycle parking spaces for the residential apartments
- 10 bicycle parking spaces for visitors of the apartments
- 6 bicycle spaces for office (3 spaces for employees and 3 for customers)
- 2 bicycle space for retail (1 space for employee and 1 for customer)

Assuming an approximately 50:50 split between office and retail uses of the tenancies, the proposal needs to provide a total of 8 non-residential bicycle spaces and 40 residential bicycle spaces (including visitors). The proposed development has 36 bicycle parks which presents a shortfall of approximately 12 bicycle parks.

It is noted in the Development Plan that in residential and mixed-use development, the provision of bicycle parking may be reduced in number where the operating hours of commercial activities complement the residential use of the site. As such the shortfall of 12 bicycle parks is not considered to be fatal in this instance. Council were of the opinion that the bicycle parking provided coupled with each apartment's storage area should generally exceed the policy requirements.

It is noted that all the bicycle parks are undercover and are located where some surveillance is possible. The residential bicycles parking spaces located in the basement can be readily accessed via ramp and the security roller door which should ensure the residential bicycles are secure during afterhours.

The proposal is considered on balance to satisfy the Development Plan requirements for bicycle parking.

8.8.3 Traffic

The Urban Corridor Zone generally seeks developments to minimise the number of access point on an arterial road and where possible be from local streets including rear lane access. Additionally the access points from the side streets should be located and designed to minimise the impacts of headlight glare and noise on nearby residents.

The proposed development was referred to the Commissioner of Highways (DPTI) for comments. DPTI were generally supportive of the proposed development but requested that a setback of 2.13 metres from the Unley Road



property boundary is provided for potential UnleyLink tram extension. Aswell as a 4.5 metres x 4.5 metres corner cut off at the Unley Road/Hart Avenue junction. Additionally DPTI suggested that the access to Hart Avenue should be consolidated to a single point and located as far from the Unley Road/Hart Avenue junction as practical. DPTI also encouraged the provision of a vehicle link between Opey Avenue and Hart Avenue to enable better traffic distribution.

There are several buildings within the locality along Unley Road (including State & Local Heritage), that align with the Unley Road Boundary. Whilst a setback of 2.13m would be ideal for the potential UnleyLink, it is not considered fatal to the application.

The applicant responded highlighting that the transparent nature of the north-eastern edge of the built form should allow sightlines through the building avoiding the need for a corner cut-off. It was also noted that a vehicular link has been provided from Hart Avenue which provides the opportunity for the adjacent owner to integrate access to establish the link through to Opey Avenue. Amended plans were provided which consolidated the two access points off Hart Avenue to the western end of the site. It is also noted there is the provision of landscaping and fencing adjacent to the development site and along Hart Avenue, reducing views into the carpark as well as further mitigating headlight glare on the adjoining residents.

Phil Weaver and Associates were engaged to conduct a traffic and parking assessment. The report summarised that the proposed development will result in only minor increases in traffic flows on the road network and should not result in any significant change to the operation of the Unley Road / Hart Avenue intersection. It was also highlighted in the report that the proposed car parking area has been appropriately designed in accordance with relevant offstreet parking standards and will include appropriate levels of car parking for use by the disabled. Council were of the general opinion that the traffic increase will be noticeable but it is envisaged to have a minor impact on traffic performance and efficiency.

Overall the access arrangements for the site and resulting minor increase in vehicle traffic in the locality is considered consistent with the land-use and Urban Corridor Zone.

8.9 Environmental Factors

8.9.1 Crime Prevention

The Development Plan generally seeks development to integrate and maintain sight lines between building and streets to improve safety and passive surveillance. Building should be orientated to overlook public and communal open spaces and streets to allow casual surveillance.

The proposed development is orientated regularly within the development site promoting passive surveillance from ground level and upper level balconies onto the public realm (Unley Road and Hart Avenue). The commercial tenancies on ground level utilise extensive glazing to ensure visibility to and from the street. The applicant has confirmed that entrance to the residential levels will be controlled with a key card or remote control and visitor access will be controlled by residents via an intercom system.

These measures are considered to address the principles of personal safety and provided sufficient levels of passive surveillance to the public and private realms of the development.



8.9.2 Noise Emissions

Council Wide Development Plan Policies seeks developments with noise generating sources to be located, and attenuated to avoid adverse impacts on existing and potential future land uses in the immediate locality. Additionally residential development close to high noise sources should be designed with appropriate noise attenuation measures to mitigate any negative impacts on residential amenity.

The site is also located in a 'Designated Area' and adjacent to a 'Designated Road: Type B Road' in the Noise and Air Emissions overlay in the Development Plan.

Resonate Acoustics were engaged by the applicant to prepare an Acoustic Design Advice Report for the proposed development. The consultant's acoustic report acknowledged that the main acoustic issues will relate to the façade constructions to control mixed use noise sources, road noise and mitigation treatments to control noise emissions from external plant.

The report recommends noise mitigation treatments to the residential apartments in the form of specified glazing and materials that should attenuate noise intrusion from traffic on Unley Road in accordance with the *Minister's Specification SA 78B*. It was acknowledged in the report that detailed information on the air-conditioning and mechanical services is not available.

The applicant has agreed to the inclusion of the specified acoustic attenuation recommendations and indicated that appropriate noise attenuation enclosures for mechanical services and plants will be finalised during the detailed design phase.

The recommendations contained within the Resonate Acoustics report is proposed to be dealt with as a condition of consent. It is anticipated noise impacts are considered acceptable subject to adherence to the Resonated Acoustics recommendation.

8.9.3 Waste Management

The Development Plan encourages medium and high rise development to provide a dedicated area for on-site collection and sorting of recyclable materials, that is appropriately screened and should not detract from the visual appearance of the ground floor.

The proposed development utilises a waste chute system for the residential component, which is to be managed and maintained by building services. Commercial tenants on ground will be responsible for manually transporting their waste directly to the appropriate bins in the waste storage room. The waste storage rooms are not directly visible from Hart Avenue or Unley Road consistent with the Development Plan requirements.

The proposed development includes a waste storage room and chute room large enough to accommodate 4x1100 litre general waste bins, 4x660 litre organic waste bins, 2x660 litre cardboard waste bins and 2x1100 litre comingled recycling. The applicant noted that whilst the waste room can accommodate separate organic waste bins, the waste arrangements will be reassessed once the building is functioning to determine if organic waste stream is required. A bin wash area has been included in the waste collection room.

The collection vehicles expected for waste collection at the proposed development will consist of rear lift trucks for collection of routine waste, Pan tech or flatbed trucks for collection of at call waste streams. The consultant's



report estimated that there would be approximately 13 waste collection vehicles per week at the site.

A commercial waste contractor will be responsible for the collection of waste from the development. Waste collection is proposed to occur on-site in the Private Lane, which is owned by the site. It is noted that the waste truck would need to reverse into the Private Lane from Hart Avenue and will leave in a forward direction.

On balance the proposed waste management is acceptable and generally consistent with the Development Plan.

8.9.4 Energy Efficiency

The Desired Character Statement for the Urban Corridor states:

Water sensitive urban design (WSUD) for the harvest, treatment, storage and reuse of stormwater, and environmentally sustainable design (ESD) for reduction in energy consumption through passive design, construction and operation is envisaged with development. Green (vegetated) places will assist urban heat island effects and roof top gardens will provide opportunities for private and communal open space

D2 were engaged by the applicant to conduct an ESD Report on the proposed development. The report outlined that the proposed dwellings are designed to achieve a 7 Star average National Housing Energy Rating (NatHers), which is achieved through a combination of passive design (cross ventilation and daylight control) and good quality design.

All apartments within the proposed development have access to natural ventilation and light, reducing the reliance on mechanical cooling, heating and lighting. Double glazing will be utilised within the building to further increase the energy efficiency. Energy efficient LED light fittings with automated lighting control systems will be utilised in common areas.

Stormwater will be captured in two storage tanks at ground level and will be reused for landscape irrigation. Photovoltaic solar panels are proposed to be installed on the roof and will provide power to common areas. The communal area and extensive landscaping on level one should assist in reducing the urban heat island effect.

The proposed development demonstrates appropriate energy efficiency consideration and generally satisfies the Zones Desired Character Statement.

8.9.5 Wind Analysis

Development Plan PDC 22 (Medium and High Rise Development) seeks development of 5 or more storeys, or 21 metres or more in building height (excluding the rooftop location of mechanical plant and equipment), should be designed to minimise the risk of wind tunnelling effects on adjacent streets by adopting one or more of the following:

- (a) a podium at the base of a tall tower and aligned with the street to deflect wind away from the street;
- (b) substantial verandas around a building to deflect downward travelling wind flows over pedestrian areas;
- (c) the placement of buildings and use of setbacks to deflect the wind at ground level.

The proposed development utilises 1.4-1.8 metre canopies at ground level that provides weather protection to the Unley Road and Hart Avenue footpath. The



canopies should also deflect and mitigate downward traveling wind onto the public realm. The podium at the base of the development along with articulation of the tower element should further mitigate the potential for wind tunnelling.

The proposed development demonstrates appropriate measures to reduce the potential for wind tunnelling at lower pedestrian levels and is considered consistent with PDC 22.

8.9.6 Landscaping

The Urban Corridor encourages developments to provide well designed landscaping to visually soften large building facades, screen and buffer parking/services and provide amenity. This should be in the form of plants with a mature height, scale and form to complement and relate to the development

The applicant has engaged Hassel to provide an extensive landscaping concept for the proposed development. The proposed landscaping seeks to link the existing street tree canopies through the use of facade greening to the podium mass. The proposed landscaping also utilises vertical green screens on the tower facade to assist with softening the building mass and presence within the streetscape. The atrium and communal space on level 1 provides an extensive landscaped shared area of high amenity for the building occupants. It is noted that the development intends on harvesting stormwater and reusing it as irrigation for the landscaping which is a positive outcome.

The AGA's supports for the proposed landscaping is contingent on the resolution and delivery of all the landscape concepts within the proposed development. Overall, the proposed landscaping treatment for the proposed development is considered appropriate and should assist in visually softens the hard surfaces of the external built form.

8.9.7 Stormwater

The Development Plan policies generally seeks stormwater management systems to be designed and located to improve the quality of stormwater, minimise pollutant transfer to receiving waters. Additionally developments are encouraged to incorporate on-site detention and retention facilities.

The applicant engaged Structural Systems Pty Ltd to prepare a stormwater management report for the proposed development. The consultant's report concluded that the proposed development will result in a minor increase in impervious and peak flow rates. The proposed development includes above ground 22,000 litre retention tank to ensure post development discharges rates are mitigated. Water quality improvements systems have been installed to all grated sumps and the captured stormwater is to be used for irrigation consistent with the Development Plan.

Council noted that the 5 proposed stormwater outlets onto Unley Road and Hart Avenue could result in an undesirable flow and suggested that 8 outlets are provided. This has been proposed to be dealt with as a planning condition included in the recommendation of this report.

The proposed development demonstrates appropriate stormwater provisions and is generally considered consistent with the Development Plan.

8.9.8 Site Contamination

The development site is currently being used for commercial/retail uses as such it is considered that there would be a very low risk of contamination being present. As such it is unlikely there would be unacceptable health or environmental risk to future residents, visitors and tenants.



8.10 Overlooking and Overshadowing

It is noted within the Desired Character Statement from the Urban Corridor Zone

Overlooking, overshadowing and emission impacts will be moderated through good design and mitigation techniques, however, it is noted noise and air amenity cannot be expected to be equivalent to a purely residential area. Impacts on adjoining zones will be minimised through appropriate land uses, building envelopes, transition of building heights, design and location of on-site activities/windows/balconies, and use of landscaping.

Overlookina

The proposed development has included a designated private laneway to the rear of the development which provides vehicle access as well as separation to the existing dwelling at 3 Hart Avenue. As a result the residential apartment balconies on level one are setback approximately 15.4 metres from the boundary. The upper levels and penthouse are setback further to increase separation from the lower density residential dwellings to the west.

It is noted that the development is separated from the adjoining Residential Streetscape (Built Form) Zone a minimum of 30 metres, which is generally consistent with Overlooking PDC 39 which seeks separation of 30 metre radius to private open space. It is also noted that direct views would be further reduced by the significant landscaping exhibited within the immediate locality.

On balance the development displays sufficient separation from the adjoining Residential Streetscape (Built Form) Zone and 3 Hart Avenue to the immediate west to minimise any potential overlooking impact.

Overshadowing

The Urban Corridor Zone recognises that some level of overshadowing will occur, which can be moderated through different design techniques. The Shadow Study prepared by Tectvs illustrates the potential overshadowing the proposed development could create during the winter and summer solstices.

During the winter solstice at 9AM the proposed development cast shadows over the dwellings at 3 Hart Avenue and 6 Opey Avenue, it is noted that by 12PM the shadows are predominately cast over the existing commercial buildings, carparks and Unley Road to the south east.

The extent of the overshadowing as a result of the proposed development is not considered unreasonable and is not considered to detrimentally impact the amenity of the surrounding residential dwellings.

9. CONCLUSION

The proposal is for the construction of a 7 storey mixed use development consisting of commercial/retail tenancies, residential apartments, ancillary car parking, landscaping and associated site works, which is considered to generally align with both the Urban Corridor Zone and more specifically the High Street (Unley Road) Policy Area.

The proposed development exceeds the maximum envisaged height of the High Street Policy Area, however, it is noted that the subject site is separated from the Residential Streetscape (Built Form) Zone to west by 30 metres. The architectural expression and articulation of the proposed development attempts to reduce the perceived visual bulk and scale of the building. The development has been sited and designed to reduce impacts upon the surrounding properties and locality. The built form is contained wholly within the 30 degree building envelope plane and is



considered to provide appropriate separation and transition to the Residential Zone to the west. The extent of the overshadowing as a result of the proposed development is not considered unreasonable and should not detrimentally impact the amenity of the surrounding residential dwellings.

The proposed development is considered to positively contribute to the desired character of the Urban Corridor Zone and is worthy of conditional Development Plan Consent on the basis of the following:

- building design incorporates a large number of energy efficiency initiatives with the aim to achieve a 7 Star average NatHer rating, which should result in positive energy and water usage savings
- the development positively contributes to the ground level activation whilst presenting narrow-fronted commercial tenancies consistent with the desired character of the High Street (Unley Road) Policy Area
- the development provides a high quality pedestrian experience through the use of a podium and human scale at ground level, glazed ground floor tenancies and canopies above the pedestrian footpath
- the development presents a range of apartment types in close proximity to public transport and amenities
- the proposed apartments have been configured to provide natural light and ventilation and are considered to provide a high level of adaptability and apartment amenity
- the extensively landscaped communal space is considered to provide a high level of residential amenity
- all car parking is located underground or to the rear of the site and is screened from the public realm, with an ability to link to the neighbouring property to the south as per the Development Plan requirements

When assessed against the relevant Development Plan policies the proposal is not considered to be significantly at variance with the policy provisions. The proposal is consistent with the desired character of the High Street Policy Area in the Urban Corridor Zone and is not considered to result in or cause unacceptable impacts on the local amenity. Accordingly, the proposal warrants Development Plan Consent subject to conditions.

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 Unley [City] Development Plan.
- 3) RESOLVE to grant Development Plan Consent to the proposal by Future Urban Group for DA 090/M008/17 at 244-246 Unley Road, Unley subject to the following 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 090/M008/17.



Drawing Title	Drawing No.	Rev.	Date
Floor Plan	P01	1.0	August 2017
Floor Plan	P02	1.0	August 2017
Floor Plan	P03	1.0	August 2017
Floor Plan	P04	1.0	August 2017
Floor Plan	P05	1.0	August 2017
Floor Plan	P06	1.0	August 2017
Floor Plan	P07	1.0	August 2017
Section	P08	1.2	December 2017
Section	P09	1.2	December 2017
Elevations	P10	1.2	December 2017
Elevations	P11	1.0	August 2017

Reports / Correspondence

- Planning Statement by Future Urban Group dated 2 August 2017
- 246 Unley Road Landscape Concept Design by Hassell dated 5 July 2017
- Traffic and Parking Assessment by Phil Weaver & Associates dated 20 July 2017
- Waste Management Plan by Rawtec Pty Ltd dated July 2017
- Building Services Design Report by Lucid Consulting dated 7 July 2017
- ESD Report by D² dated 2 August 2017
- Stormwater Management Report by Structural Systems dated 7 July 2017
- Acoustic Design Advice by Resonate Acoustics date 30 June 2017
- Response to reps, Council and ODASA by Future Urban Group dated 19 December 2017
- 2. Prior to Development Approval for superstructure works, the applicant shall submit a final detailed schedule of external materials and the screening devices for the air-conditioning units on balconies in consultation with the Associate Government Architect to the reasonable satisfaction of the State Commission Assessment Panel.
- 3. All vehicle car parks, driveways and vehicle entry and manoeuvring areas shall be designed and constructed in accordance with Australian Standards (AS/NZS 2890.1:2004 and AS/NZS 2890.6.2009) and be constructed, drained and paved with bitumen, concrete or paving bricks in accordance with sound engineering practice and appropriately line marked to the reasonable satisfaction of the SCAP prior to the occupation or use of the development.
- 4. All bicycle parks shall be designed and constructed in accordance with Australian Standard 2890.3-2015.
- 5. The recommendations detailed in the Traffic and Parking Assessment, dated 20 July 2017 by Phil Weaver & Associates, forming part of this consent shall be fully incorporated into the development to the reasonable satisfaction of the SCAP. Such measures shall be made operational prior to the occupation or use of the development.
- 6. A detailed landscaping plan shall be submitted to the reasonable satisfaction of the SCAP prior to Building Rules Consent being granted for superstructure works. This shall identify planting medium depths, irrigation methods and other features of the landscaping scheme to demonstrate viability of all plantings and lawn. The updated detailed landscaping plan shall be reflected, as necessary, in all other relevant plans and drawings (including, for example, sectional drawings).
- 7. Landscaping shown on the approved plans shall be established prior to the operation of the development and shall be maintained and nurtured at all times with any diseased or dying plants being replaced.



- 8. A watering system shall be installed at the time landscaping is established and operated so that all plants receive sufficient water to ensure their survival and growth.
- 9. All external lighting on the site shall be designed and constructed to conform to Australian Standard (AS 4282-1997).
- 10. 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.
- 11. A proprietary stormwater treatment device (i.e. Gross Pollutant Trap) shall be installed within the carpark in accordance with Council and EPA Water Quality Guidelines. This system shall be regularly inspected, cleaned and maintained in good working order, with gross pollutants, sediments, oil and grease removed by the facility operator (at regular intervals) for the life of the development.
- 12. Stormwater management on-site accords with submitted details with a maximum of 8 outlets distributed equi-distant along Unley Road and Hart Avenue frontages
- 13. The hours for waste collection vehicles to enter and exit the site shall be restricted to Monday to Friday: 7am to 5pm; with no collection on a Saturday or Sunday
- 14. Prior to Development Approval for superstructure works, the applicant shall submit a final detailed schedule of external materials and finishes in consultation with the Government Architect to the reasonable satisfaction of the SCAP.
- 15. The acoustic attenuation measures recommended in the Acoustic Design Advice, dated 30 June 2017 by Resonate Acoustics, shall be fully incorporated into the building rules documentation to the reasonable satisfaction of the SCAP. Such acoustic measures shall be made operational prior to the occupation or use of the development.
- 16. 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.

ADVISORY NOTES

- a. 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.
- b. 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.
- c. 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).



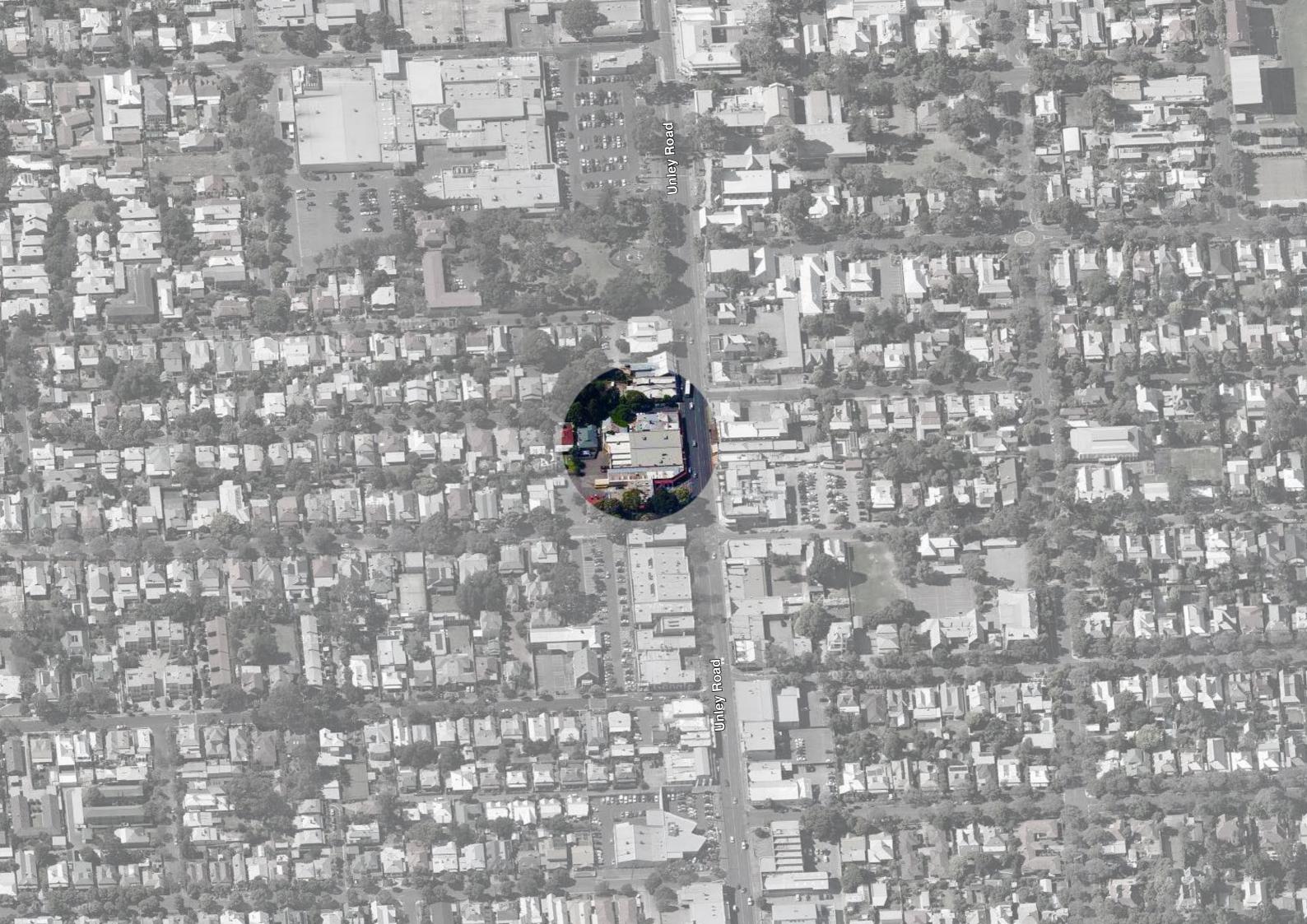
- d. Due consideration should be given to the residential context of the subject site. In particular, consideration should be given to management of noise associated with patron behaviour, vehicle movements etc outside of normal operating business hours.
- e. The Unley (City) Council has advised that an authorisation may be required under Section 221 of the Local Government Act 1999 for the encroachment of your structure or building in, on, across, under or over the public road. Please note that the council may charge an annual fee and that the authorisation may be issued on an annual basis for any encroachment that attracts such a fee. The council may also require any unauthorised encroachments to be removed.
- f. Development Approval will not be granted by Unley (City) Council until Building Rules Consent and/or Encroachment Consent under the Development Act 1993 have been obtained. The Unley Council has advised that a separate application must be submitted for such consents. No building work or change of building classification is permitted until the Development Approval has been obtained.
- g. 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.
- h. Any proposed works with the public realm adjacent to the site, including the installation of street furniture, bicycle parking infrastructure and planting of street trees shall be undertaken in consultation with Unley (City) Council.

Karl Woehle
Planning Officer
DEVELOPMENT D

DEVELOPMENT DIVISION

DEPARTMENT OF PLANNING, TRANSPORT and INFRASTRUCTURE





246 Unley Road

We propose responsively designed mixed-use apartments that bring a high level of amenity to increased density that can serve as a model for future developments.

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Summary

Tectvs have prepared this report in association with Catcorp for Development Assessment. The development site is located at 246 Unley Road, Unley, amalgamating existing allotments to form a development site with frontages on Unley Road and Hart Avenue.

This package includes a detailed site and contextual analysis, with design elaboration including proposed plans, and visualisations.

We propose responsively designed mixed-use apartments that bring a high level of amenity to increased density that can serve as a model for future developments.

Team

Catcorp | Tectvs | Future Urban Group | Hassell | Rawtec | Phil Weaver | Dsquared | Resonate | Lucid Consulting | Structural Systems

Description

The proposed development includes a seven storey mixed-use apartment building that includes a commercial tenancies on the ground floor (with associated car parking).

Yield

- Retail tenancies (with associated car parking)
- 59 private apartments (with associated car parking)

Details

- Mixed-use development (including proposed commercial tenancies at ground level)
- Ground and basement level car parking (private and public)
- Separate access points

Street Frontages

- Unley Road
- Hart Avenue

Capability

Tectvs

Mixed-Use Apartments

Tectvs has delivered a wide range of projects that form a body of expertise proven in its ability to yield innovative design solutions across multiple building and facility types, in harmony with commercial realities, environmental and community sensitivities. Tectvs has been at the forefront of the successful transformation of the inner-city Adelaide market for mixed-use apartment developments for almost 30 years.









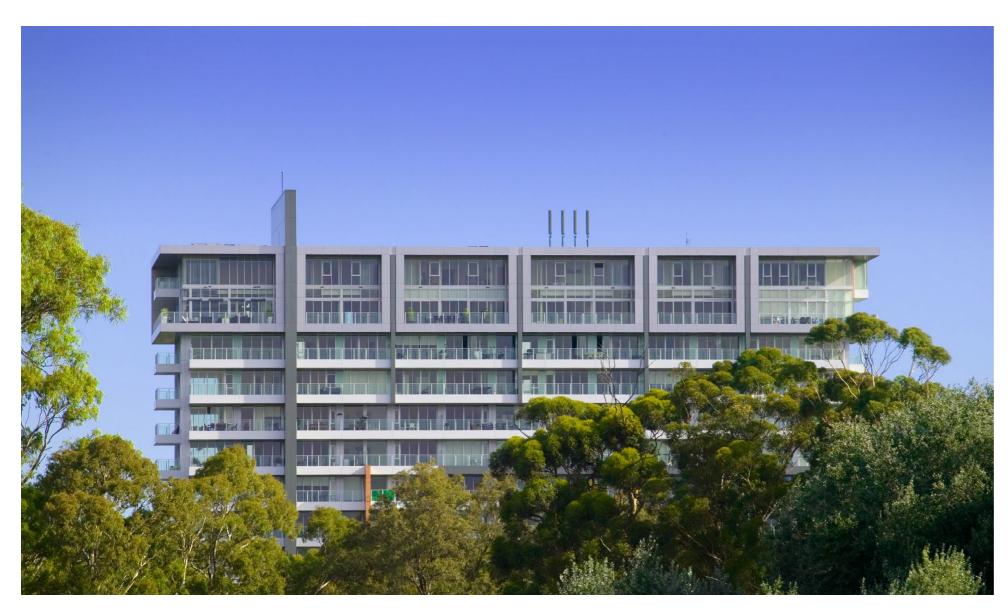
















Air Apartments, Glen Osmond Road (2005)

Australian Institute of Architects - Commendation (Commercial Interiors) 2006

A series of mid-rise apartments with public open spaces redefine the city fringe, speaking to the river through parkland views and well-designed residencies.

The "old ETSA building" had stood in empty neglect on the edge of the Adelaide Park Lands for a decade. The twin-towers of the 1960's Modernist office development on Greenhill Road had been the subject of a succession of ill-fated redevelopment schemes, with the failures adding a layer of notoriety to the decaying site.

In 2002, a new owner, The Pickard Group, came with both the vision and the resources to breath new life into the saga. It charged Tectvs with turning the 40-year-old cream brick edifice into Adelaide's premier apartment complex, incorporating the high level of amenity and servicing that 'empty nesters' and young professionals were demanding in their migration to a convenient urban lifestyle.

The outcome was Air, a \$100-million transformation comprising 140 apartments with unsurpassed panoramic views across Adelaide, the Park Lands and the inner suburbs, from the hills to the sea. Tectvs also incorporated a new basement car park, inserted a new floor level into the existing double-height ground floor to accommodate communal facilities, and placed two-level penthouse modules atop the 10-storey north tower.

University of Adelaide architecture academic Dr Katherine Bartsch's critique of the redevelopment said Tectvs had realised a Corbusian vision with its design solution and that its "revision of radiant ideals is exceptional given the plethora of debased Corbusian imitations across the post-War globe". Redesigning the office building also provided a number of commercial and environmental benefits. It incorporated large, continuous balcony overhangs to maximize shading and minimize heat load and energy use, and to provide generous outdoor living areas sheltered from the weather.

Tectvs







Alta Residential Apartments, South Terrace (2012)

Australian Institute of Architects - Architecture Award (Residential - Multiple Housing) 2013

New city residential developments tend to take their design references from their neighbours or the streetscape. The strict grid that defines Adelaide and the uniformity of its low-rise forms beyond the city centre shape most design responses. Precious exceptions occur when the landscape is a collaborator not a constraint. South Terrace gave Tectvs the design clues for a distinctive apartment building.

As the southern boundary of the original Adelaide city plan, South Terrace is a historic presence defined by its large old street trees and enduring and exclusive views of the southern parklands. Trees, foliage, the seasons and light provide a continuum of change and movement for South Terrace dwellings and dwellers.

Tectvs designed six-storey Alta as an embroidered reflection of its setting on the edge of a natural landscape. A band of natural finish copper perforated by irregular openings of white translucent glass simulates the interplay between light, air and leaves

Interiors are spacious, bright and feature piercing views of the Southern Parklands framed to collaborate with the individual dwellings. A sculptural laser-cut metal screen provides a similar texture at ground level and the parklands presence is capped with a roof garden.

Alta apartments provide a refined luxury that contributes to the city from both street-level and balcony level.

Tectvs







Residential Apartments, Gilbert Street (2007)

Australian Institute of Architects - Newell Platten Award (Residential Architecture - Multiple Housing) 2009

The twin pressures of a narrowing development approval process for residential development in inner-city Adelaide, and increasingly complex compliance with the Building Code of Australia as it moved closer to addressing accessibility and environmental issues, resulted in Tectvs working with developer Forme Projex to re-invent the old 'walk-up flats' model for city apartment developments.

The site at 115-119 Gilbert Street provided the perfect opportunity to move into the gap between the increasingly marginalised townhouse development model and the oversupplied high-rise apartment building.

Tectvs refreshed a simple and time-honored model for medium-to-high-density housing that had been lost in the late 20th-century dash into expensively glitzy and highly serviced apartment complexes. The design provided the expected mod-cons of intercom and sleek kitchen and appliances, plus undercover car parking and secure bike parking. But the apartments were still essentially 'walk-ups', with no gimmicks and few gadgets, and traditional passive design - north facing, sun shading, robust building fabric, flow-through ventilation, natural light, low-energy fittings, rainwater tanks, gas hot water, low toxicity materials. Tectvs created simple and affordable amenity.

The bright and youthful addition to the streetscape in the gritty mix of the city's South West corner contributed to a new awareness of an old precinct.







The Artisan Apartments, Bowden (In-Progress)

The successful and ongoing urban renewal of Bowden demonstrates the potential of design-led and people-focused architecture. Responsive apartments tied to a pedestrian orientated public realm have contributed to a built program tied to place-making. We are continuing the success of Bowden by contributing to this new form of city living. We believe in good design which gains a social role as part of the community.

Tectvs and Bowden

The Artisan is the most recent addition to the Bowden precinct by Tectvs, having successfully completed the neighbouring apartment series 'Luminaire' in 2016. Tectvs's ongoing commitment to Bowden has been recognised in the shared design values of urban living, public spaces, high amenity apartments and integrated design solutions.

Introduction

Tectvs with Catcorp









Luminaire Apartments (2016)

National Award for Medium Density Housing, Urban Development Institute of Australia Awards for Excellence (2016) - Catcorp

Two energetic residential apartments overlook a tree-lined piazza between 5th and 6th street at the new Bowden development. At four and five storey's respectively, Luminaire caters to a wide-range of residencies - from studio to 3 bedroom - revealing themselves within the striking facade that draws on the Industrial topology of the former Clipsal Electronics site. With Luminaire apartments Tectvs provided the spark to light up the burgeoning site, redefining city living in a suburb that will eventually be home to 3,500 residents.

Harkening back to similar techniques used in industrial brick making, Tectvs drew on the heritage of former Clipsal factory site by working Luminaire's aesthetics with industrial rigour. Stacking, stepping and framing became key form generators, surfacing bold geometries into the materiality and form of the facade. The re-appearing forms were coloured, with windows variably and contemporarily inserted to render a postmodern overlay of geometric elements.

Inside, light is key to the high quality of amenity in the end-product. Designing light into open-plan living and bedroom spaces drove the program of the building. Rather than being corridors, the central passageways are treated like bridges in the sky. Individual apartments are governed around full width balconies of a generous 2-2.5m depth, allowing them to function as outdoor rooms. Communal corridor spaces are bathed in brightness from light wells. Natural light is coupled with a mix of active and passive ventilation strategies to provide a comfortable living atmosphere and a 5-star greenstar rating.

The success of the form is underpinned by a semi-depressed, semi-naturally ventilated basement parking undercroft; a simple engineering solution which has allowed activation of the ground plane in-line with Bowden's community atmosphere.

Situated at a key arterial entrance, Luminaire's 87 apartments and generous central plaza presents the developing Bowden precinct with design confidence to set the conversation high on the future of city living.

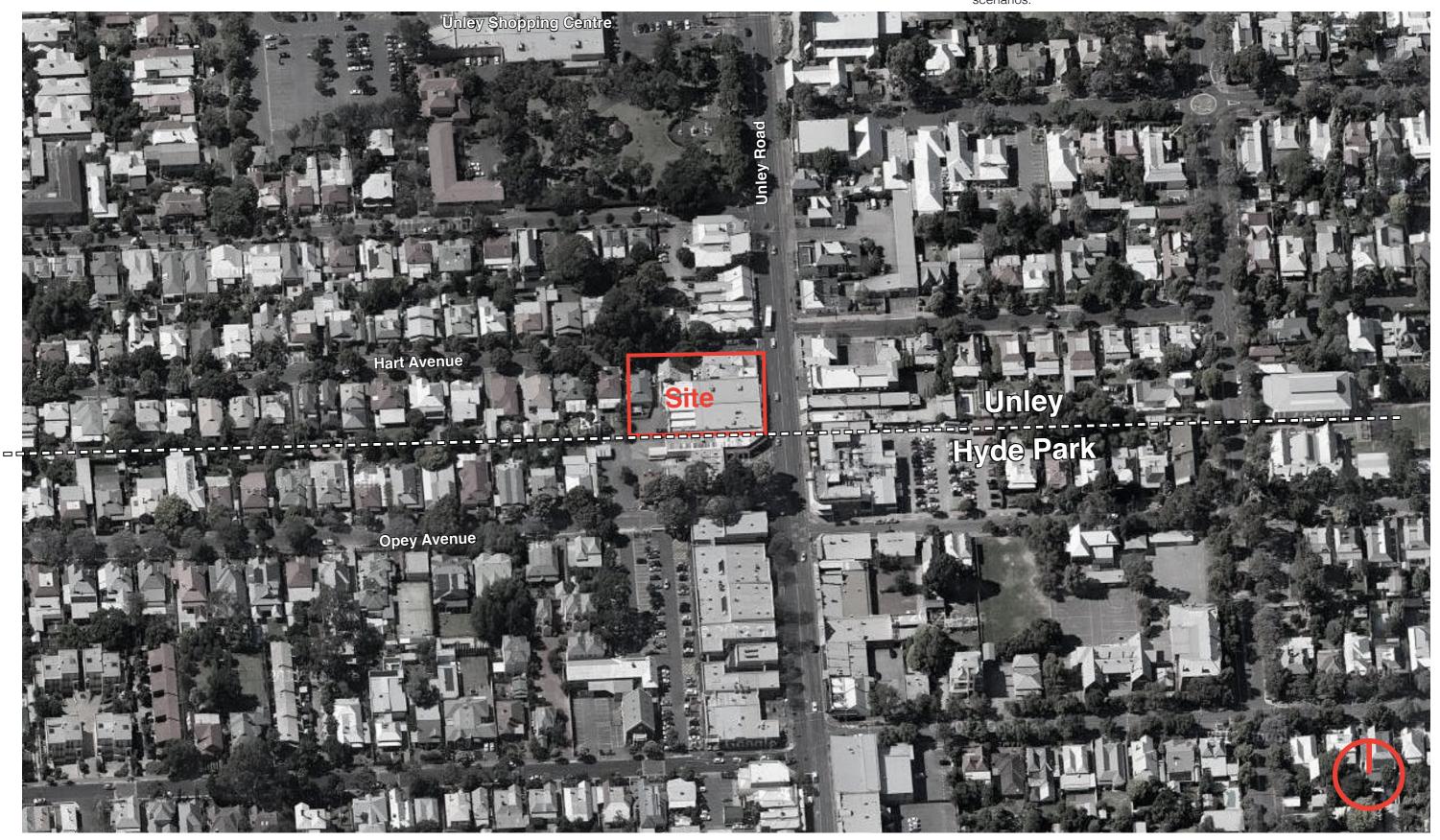
Urban Context

Urban Context

Unley Road

Urban Corridor

The proposal sits comfortably within the Urban Corridor zone that speaks to increased intensity and scale, but critically also mixed use, medium and high rise buildings with ground floor uses that create active and vibrant streets with residential development above. Within this framework, new developments in Unley can serve as a model for successful urban renewal and inner city living by promoting higher density living and place-making within these mixed-use



Urban Context

Site Conditions

246 Unley Road

The site proposal fronts two key streets of variable built and urban character: Unley Road on it's Eastern side and Hart Avenue on its Northern.





246 Unley Road

The site proposal fronts two key streets of variable built and urban character: Unley Road on it's Eastern side and Opey Street on its Northern.

















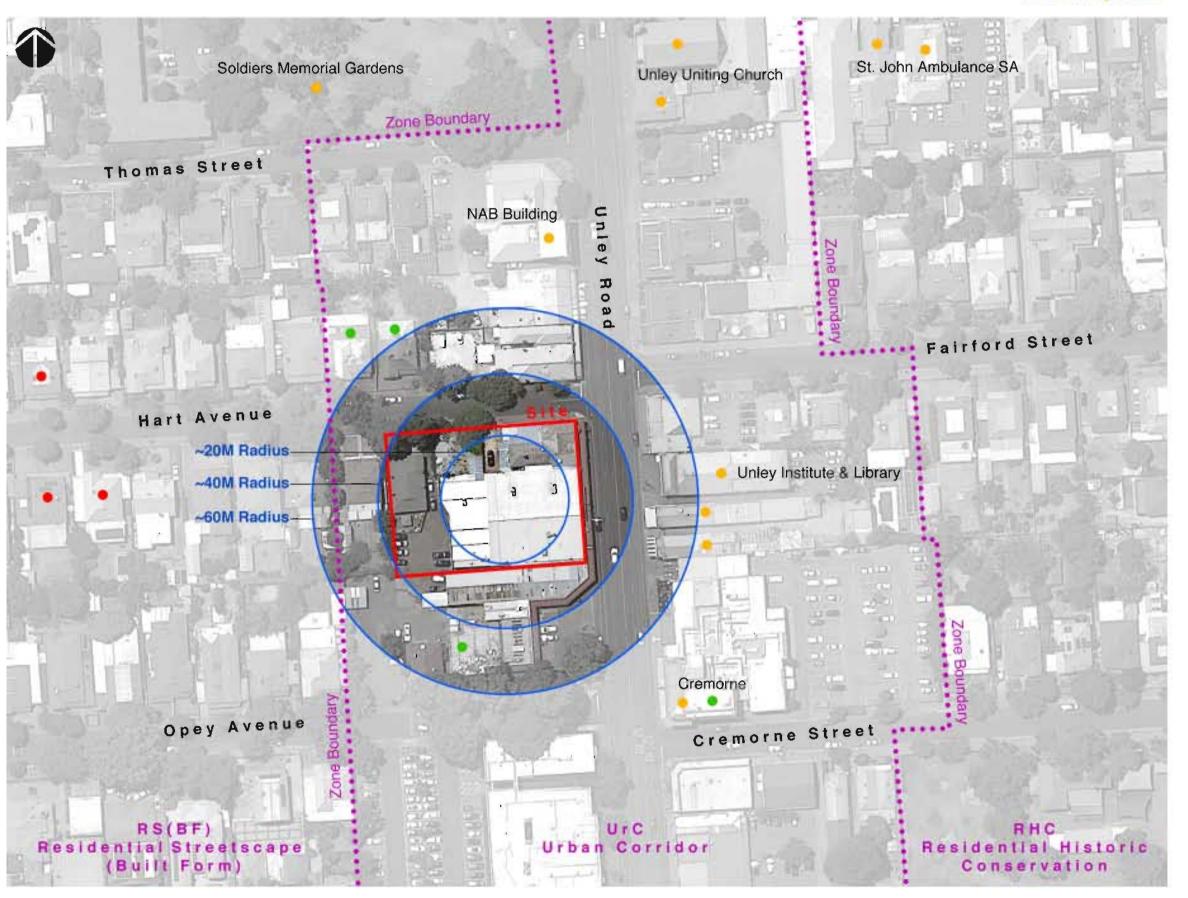


Site Analysis

Supporters

Objectors

Local Heritage Place





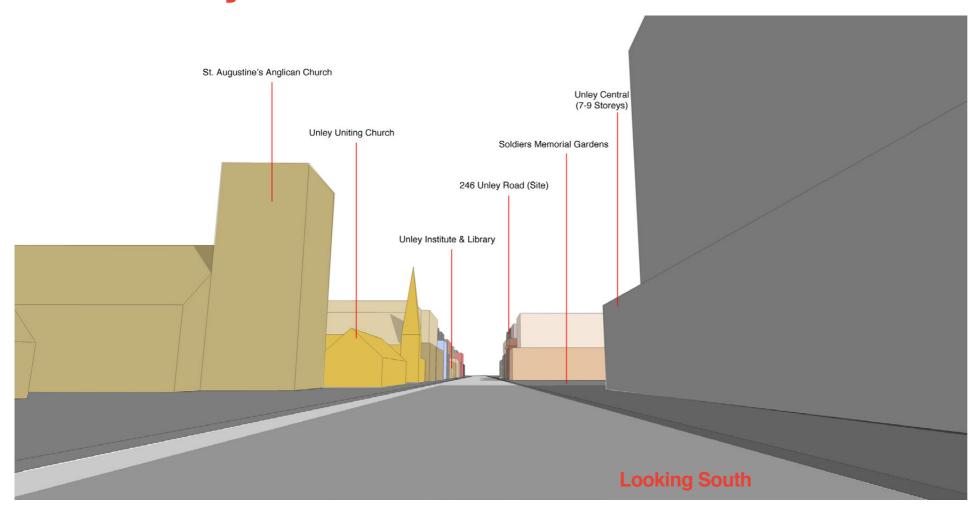
Future

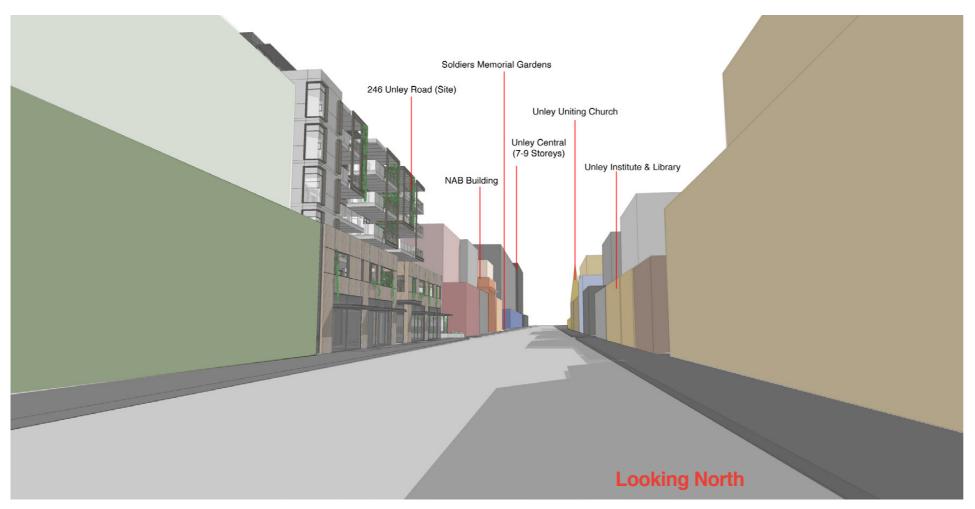


Existing



Unley Road







The proposed development addresses the material character of Unley, with clever articulation of massing, programmatic distribution, and material choice situate the development within the broader urban interface.

Development of a high design standard and appearance responds to and reinforces positive aspects of the local environment and built form.

Design Response

246 Unley Road Mixed Use Development

General Strategic Vision

In alignment with Unley Council Development Plan (5th May 2016), the proposal targets increased development intensity and scale, with a broader contribution to urban design quality being improved by reinforcing distinctive parades of building along Unley Road, with pedestrian amenity and integrated parking areas to the rear of the village strips through the creation of new laneway at the rear of the site.

Replacing existing buildings and land uses not contributing to a locality's character within areas of historic and valued streetscape character where revitalisation is warranted;

The proposal focuses on the development on the improvement of character buildings and new buildings respecting their context and complementing surrounding streetscape and desired character

Design Objectives

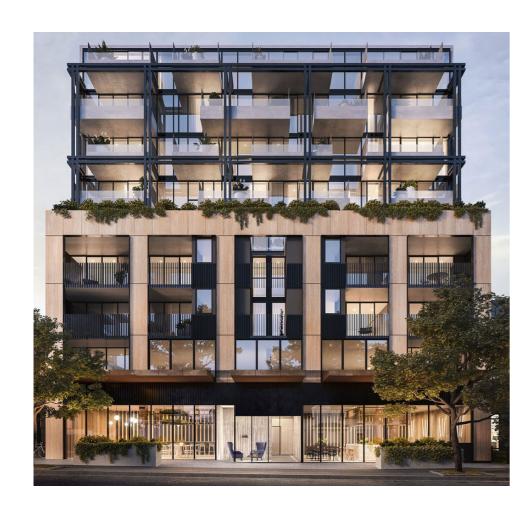
- building height, mass, proportion and siting;
- external materials, patterns, colours and decorative elements;
- roof form and pitch;
- facade articulation and detailing;



Precedents

Mixed-Use Massing Opportunities

Opportunity exists for a podium to adopt material integration with the variable character of Unley Street. Set-backs between residential apartments and the ground floor commercial tenancy has scope to be articulated formally as well as spatially.







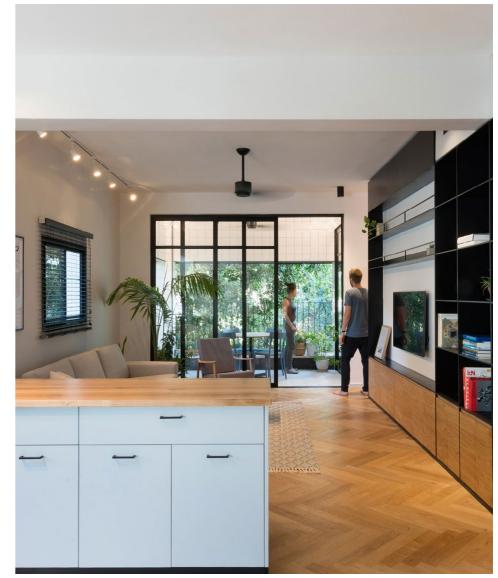




Interior Urban Character

Apartment interiors that speak to an urban lifestyle through access to light, a relationship to materiality, and a commitment to urban living.









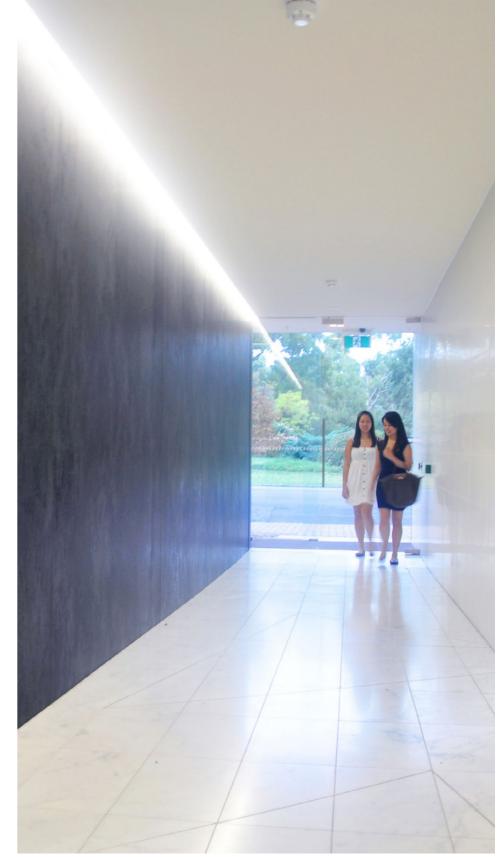


Ground Floor Entrances

Entrances that speak to the urban character of Unley through historic interfaces and contemporary treatments.







External Finishes & Textures

Details of proposed external materials and finishes.

Interfaces

Exterior material choices focus on interfacing with the variable character of Unley Road

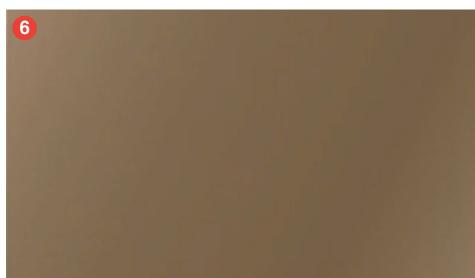














Material List

- 1. Metal Screening
- 2. Metal cladding
- 3. Steel
- 4. Stained pre-cast
- 5. Stonework
- 6. Tinted glass
- 7. Clear glass

Internal Finishes & Textures

Details of proposed internal materials and finishes.

Upmarket & Urban

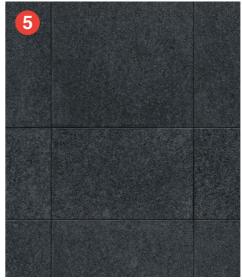
Interior material choices provide a contemporary reading on urban, with emphasis on a high quality of finish.

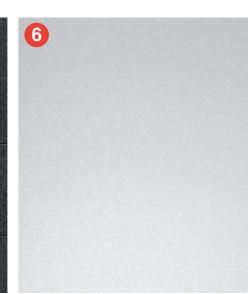
















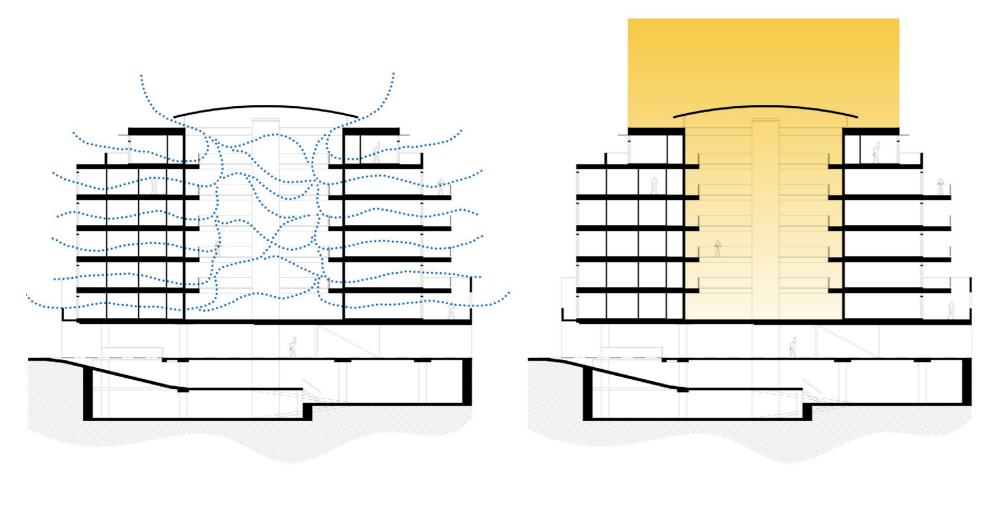
Material List

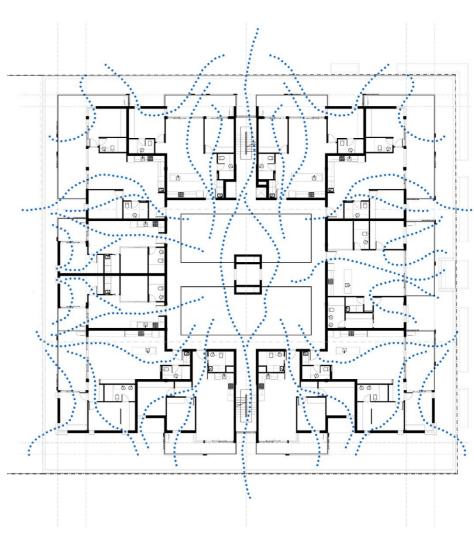
- 1. Stone composite bench-top
- 2. Timber floorboards
- 3. Wall tile
- 4. Timber veneer
- 5. Floor Tile
- 6. Clear glass
- 7. Carpet

ESD

Sustainable Design Solutions

The intent of our ESD initiatives is to reduce the demands on active systems by enhancing the passive performance of the building. This includes optimising the network of installed systems with the development's built form, including orientation, shading, insulation, natural light, ventilation and lifespan.





CROSS VENTILATION

NATURAL LIGHT / CENTRAL ATRIUM

CROSS VENTILATION

ESD

Shadow Study

Summer and Winter Solstice shown.









Movement

Public Transport, Bicycle & Pedestrian Linkages

A public transport, bicycle and pedestrian linkage plan showing the proximity of green transport services and solution. The site is located centrally to a broad network of bus and bicycle arterial networks all within close walking distance.

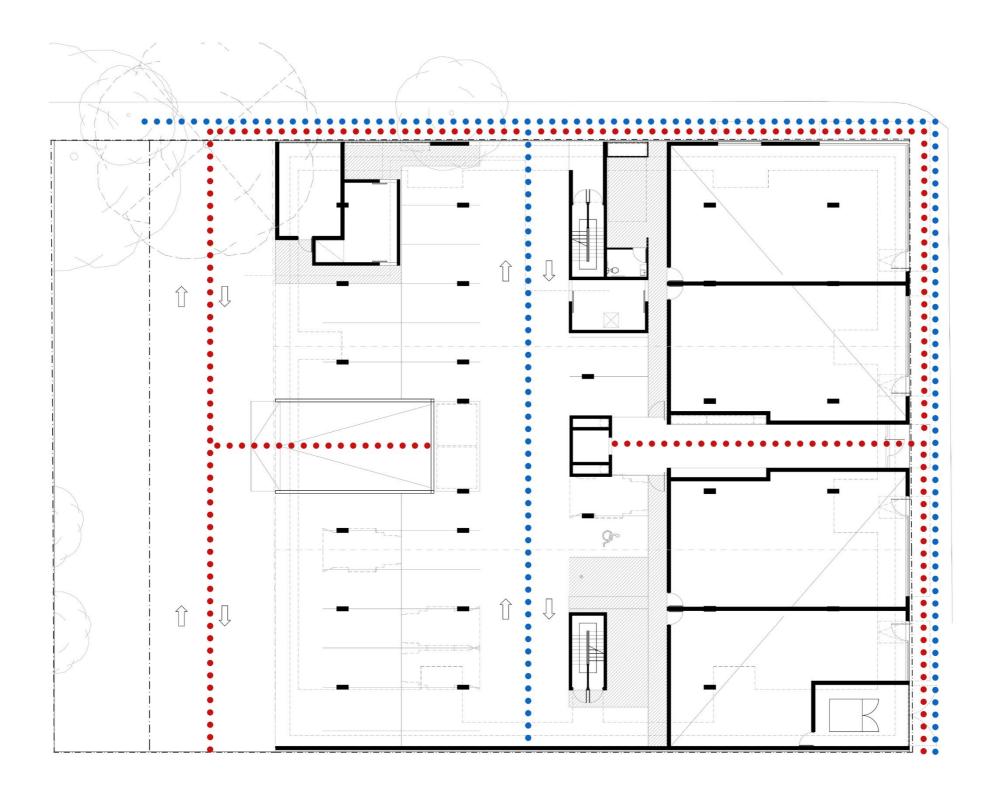


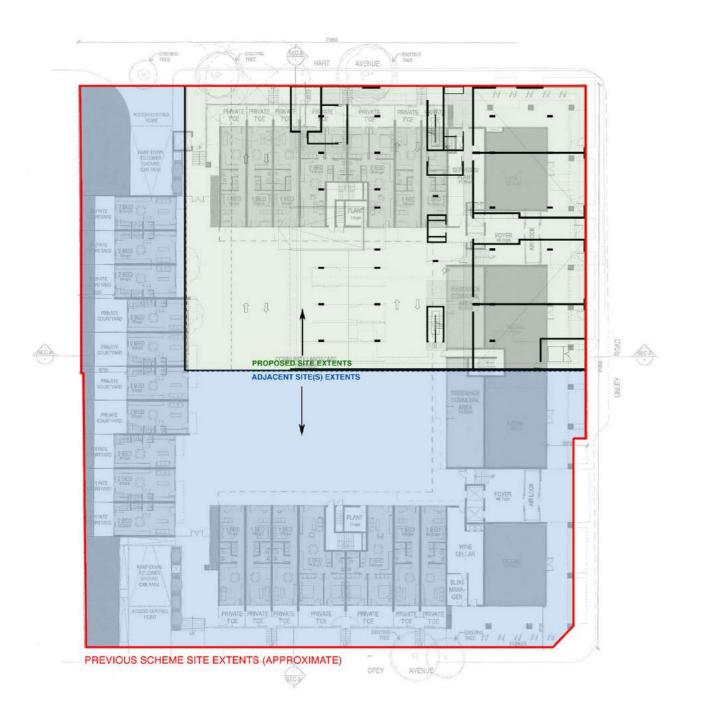
Movement

Vehicular & Pedestrian Access

A vehicular and pedestrian access plan showing the an integrated strategy for vehicle services and pedestrian access.

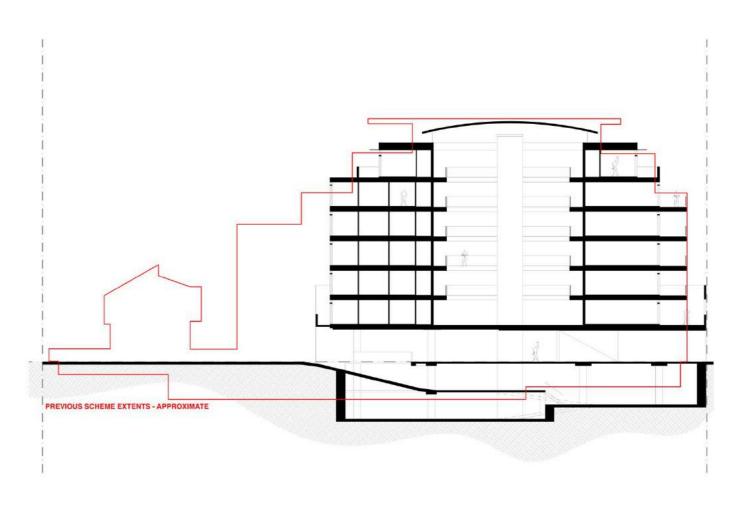






Previous Development Scheme

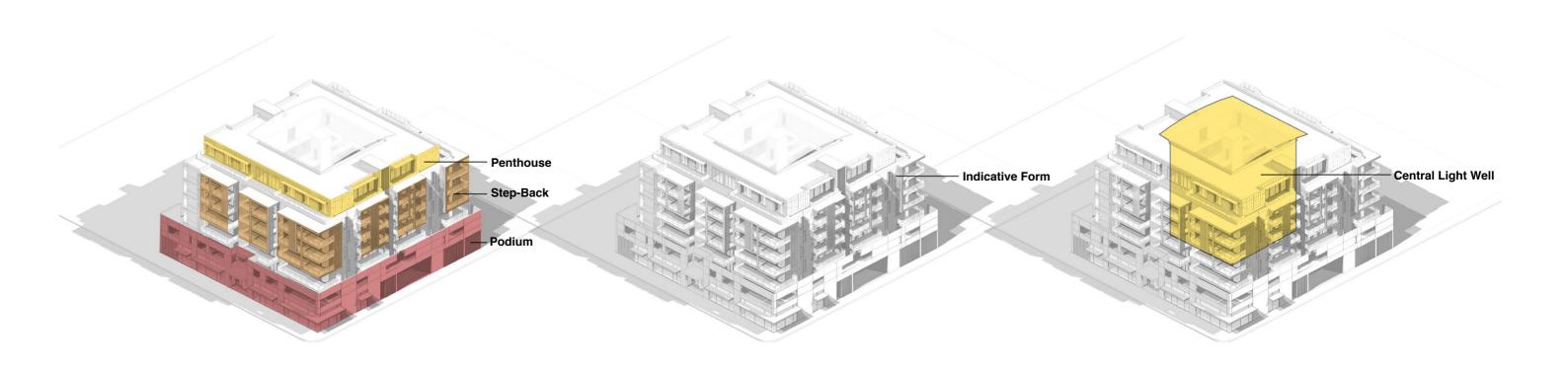
Overlay



Massing

Podium & Light Wells

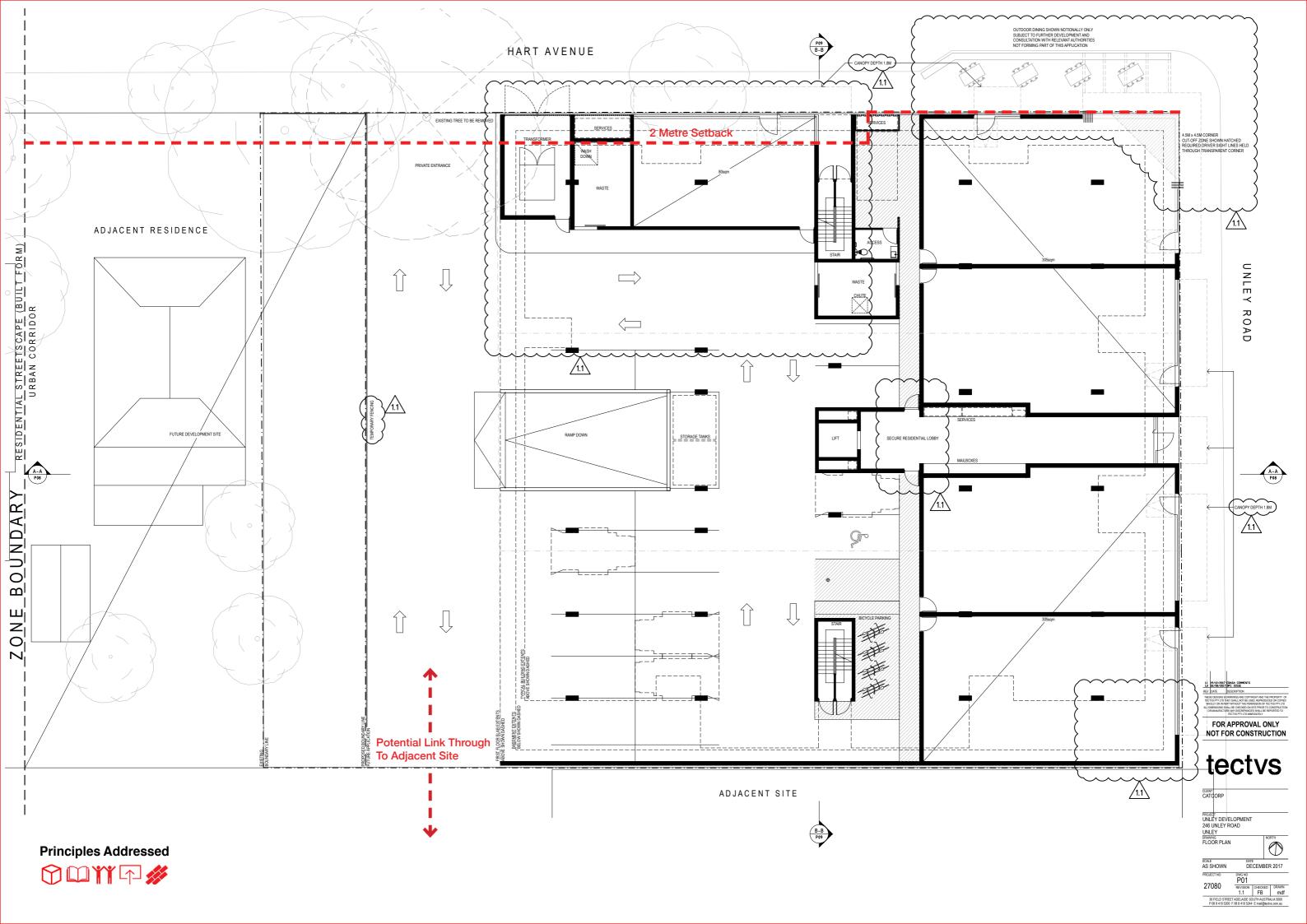
Articulation of massing.

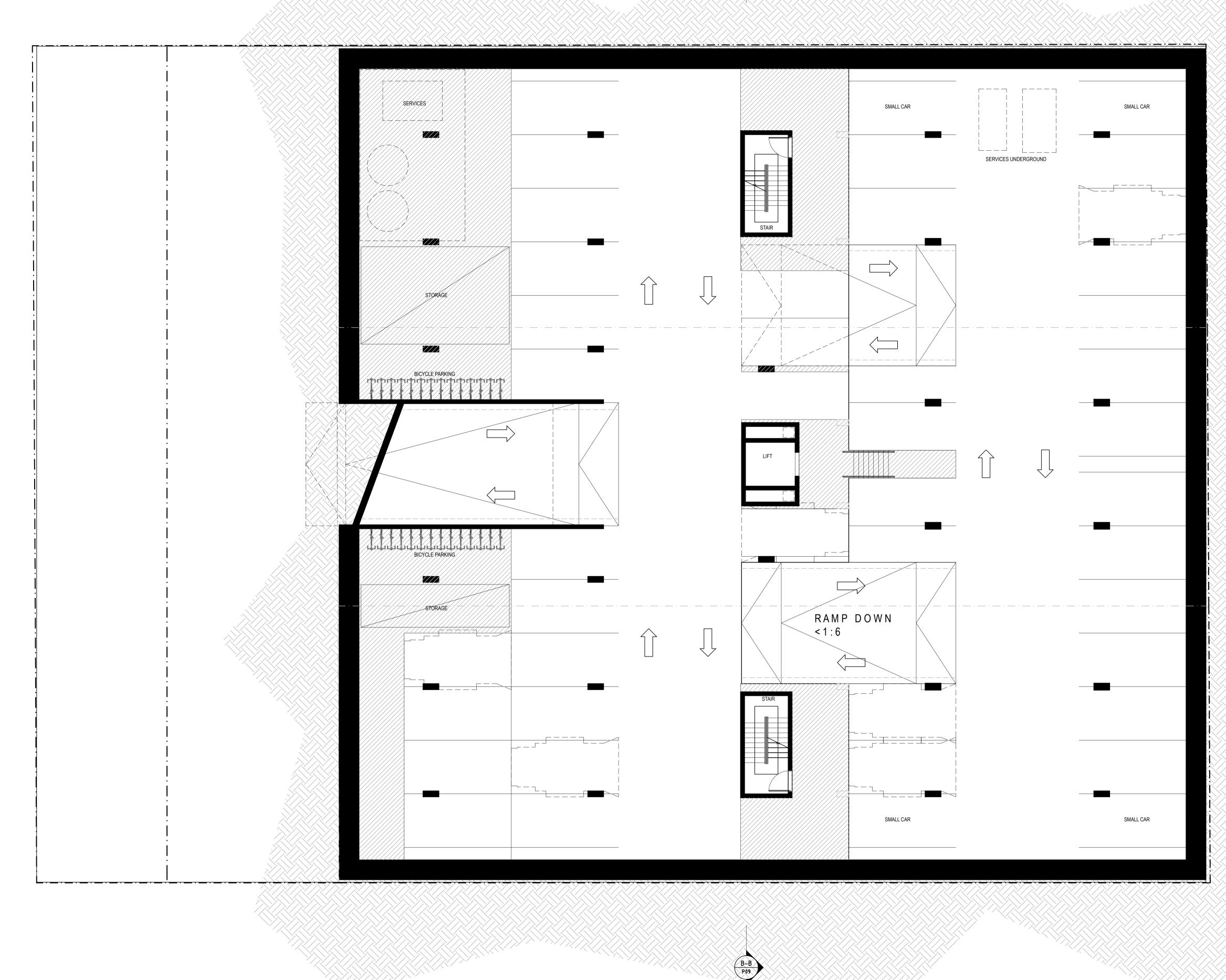


Architectural Drawings

Executive Summary

Principle		ODASA	City Of Unley	DPTI	Representors (objectors only)	Addressed	Solution	Reference
Height	<u></u>	Review of the building height	Building height (and selbacks)		5 slorey zone only	N	A more substantial proposal was previously approved for this Site Ample selback above 2 storey podium Ample selback and appropriate colour and material selection to top storey given	Refer architectural drawings Refer architectural perspective
Built Form	\Diamond	Review of the built form composition along the Hart Avenue frontage Review of massing and three dimensional articulation strategy of the built form above the podium to reduce the apparent bulk Review of the podium expression at the northwest and southeast corners	Podium facade detailing and extent of foolpath canopies	All development being setback a minimum of 2.13 metres from the Unley Road property boundary and being kept clear of the 4.5 metres x 4.5 metres corner cut-off at the Unley Road / Hart Avenue junction		Ÿ	Increased shopfront and activation along both Unley Road and Hart Avenue frontages and canopies increased to 1.8m where viable Driver sight lines held through transparency within 4.5 metre x 4.5 metre corner cut-off with all structural (opaque) elements located outside nominated zone	Refer amended drawings [P01-v1-1, P10-v1-2]
Context		Further information on site context to demonstrate the relationship between the proposal and the existing and future context		-	-	Υ	Additional information provided highlighting existing and future contexts	Refer existing streetscape diagram Refer future streetscape diagram
Public Realm	**	Review of the presentation to Hart Avenue with the view to increase the extent of the active use spaces	Hart Avenue public realm implications including road configuration, lack of room for outdoor dining, loss of on-street parking, street trees pruning and planting			Υ	Secondary crossover deleted and additional shopfront provided along Hart Avenue frontage	Refer amended drawings [P01-v1-1, P10-v1-2]
Access	个	Consideration of crossover consolidation		Access to Hart Avenue being consolidated to a single point located as far from the Unley Road / Hart Avenue junction as practicable Provision of a vehicular link between Opey Avenue and Hart Avenue for all vehicles associated with the development in order to enable better traffic distribution to these two streets and their junctions		Y	Crossovers consolidated into single point and located as far as possible from noted junction Provision for potential link from Hart Avenue to Opey Avenue provided - subject to development of adjacent southern site	Refer amended drawing [P01-v1-1]
Overlooking	(Development of effective strategies to manage residential interface impacts, including overlooking	Overlooking minimisation	-	-	N	Ample distance between proposal and adjacent residences	Refer amended drawing [P08-v1-2] Refer site analysis highlighting distances
Apartments		Review of apartment entry sequence Refinement of apartment layouts to eliminate inboard bedrooms Review of apartment typology to ensure all apartments hae access to adequately sized private open spaces Relocation of air conditioning condensers from balconies	_	·	-	Y	Residential lobby is secure Study areas given natural light through central void Balconies increased where needed to satisfy minimum requirements Air conditioning condensers on balconies sufficiently screened	Refer amended drawing [P01-v1-1] Refer amended apartment type drawings [T03-v1-1, T04-v1-1] Refer amended drawing [P05-v1-1] Refer typical air conditioning condense unit screening strategy diagram
Landscaping	9	Further information that demonstrates how the proposed vegetation in the central courtyard and atrium will be sustained and maintained Further information that demonstrates the environmental performance of the atrium and comminal circulation spaces	Sile landscaping and lack of medium to large trees and rooftop gardens			Y	Screening above central courtyard provided to increase privacy and amenity to residents and users	Refer amended drawing [P08-v1-2]
Materiality	#	A high quality of external materials for building and landscaped areas supported by the provision of a materials sample board		-	Lack of clarity and unsympathetic	Y	Material samples board provided demonstrating external material selections of high quality and integrity avoiding applied finishes (eg. paint)	Refer material samples board
Parking		-	On-site parking provision, allocation, design and dimensions Hart Avenue traffic and on-street parking management	-	Lack of private carparking Compromise access along Hart Avenue Increased traffic patterns	N	On-site parking satisfies the demand	Refer provided Traffic Report
Waste	Ü		Waste and service vehicle limitations		Waste removal frequency	N	Waste pick-up frequency has been kept to a minimum	Refer provided Traffic Report Refer provided Waste Management Pla









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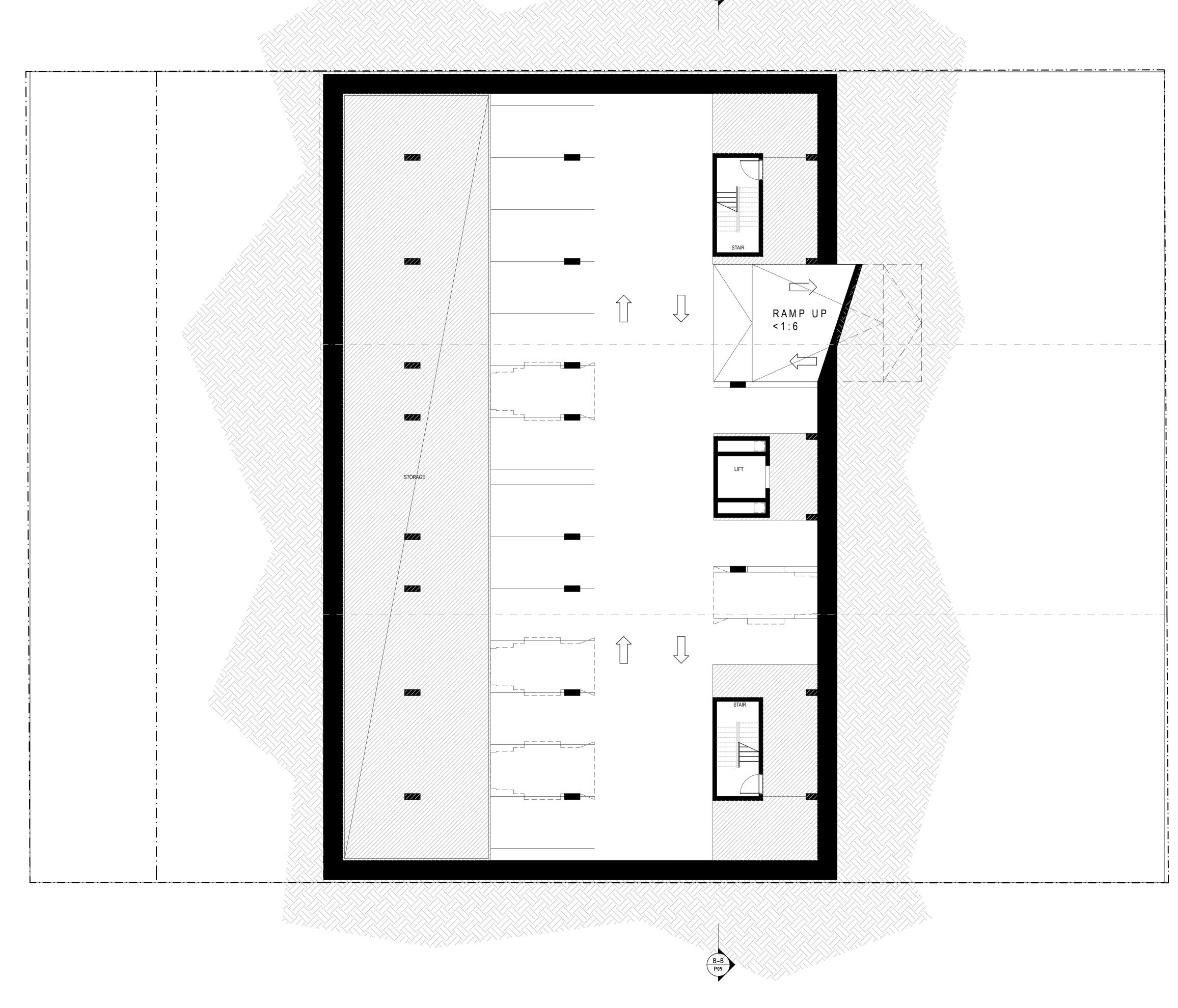
PROJECT UNLEY DEVELOPMENT 246 UNLEY ROAD UNLEY

DRAWING
FLOOR PLAN

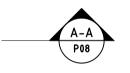
SCALE
AS SHOWN

DATE
AUGUST 2017

- BASEMENT
- 1:100 @ A1 1:200 @ A3







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PROJECT
UNLEY DEVELOPMENT
246 UNLEY ROAD
UNLEY

DRAWING FLOOR PLAN

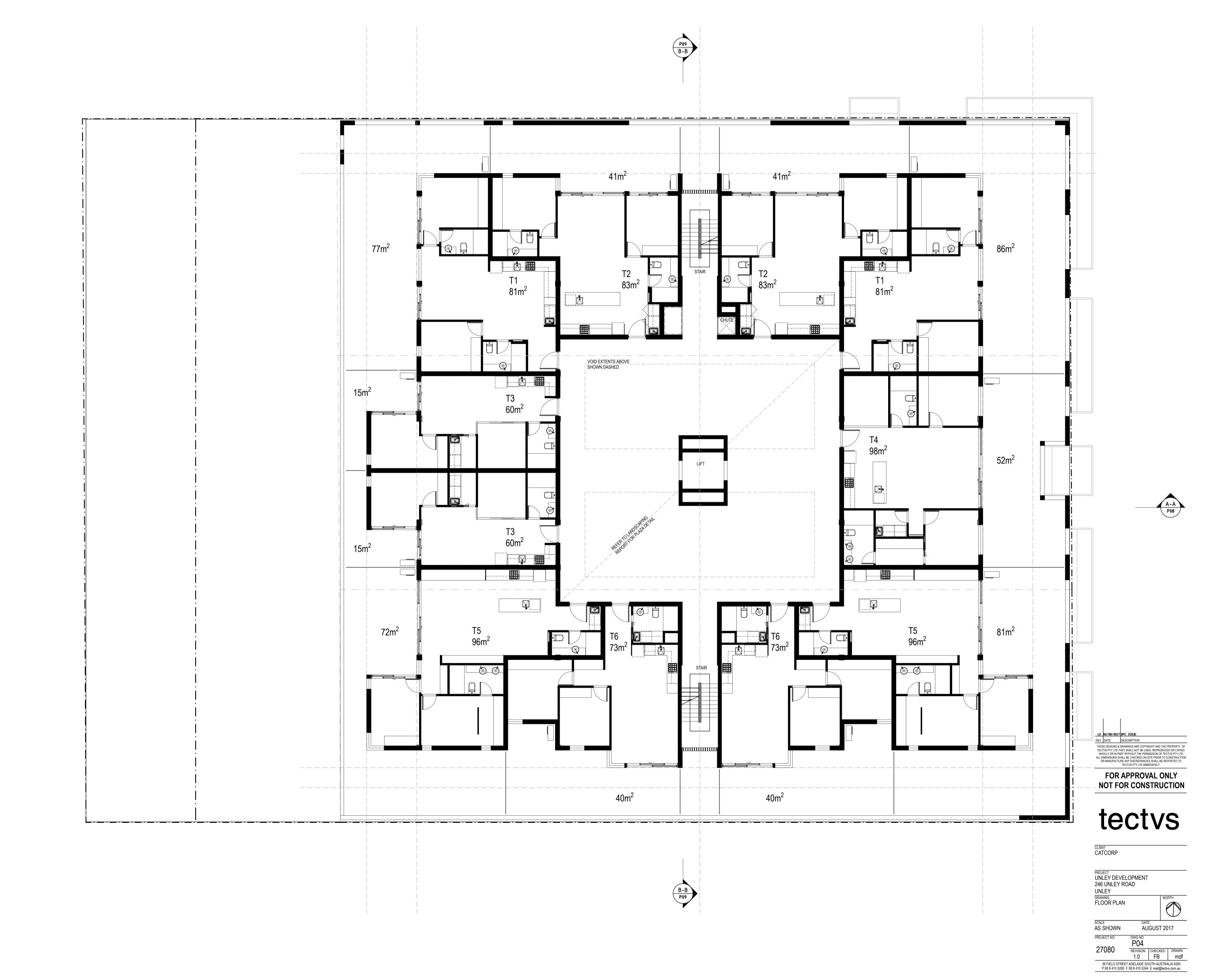
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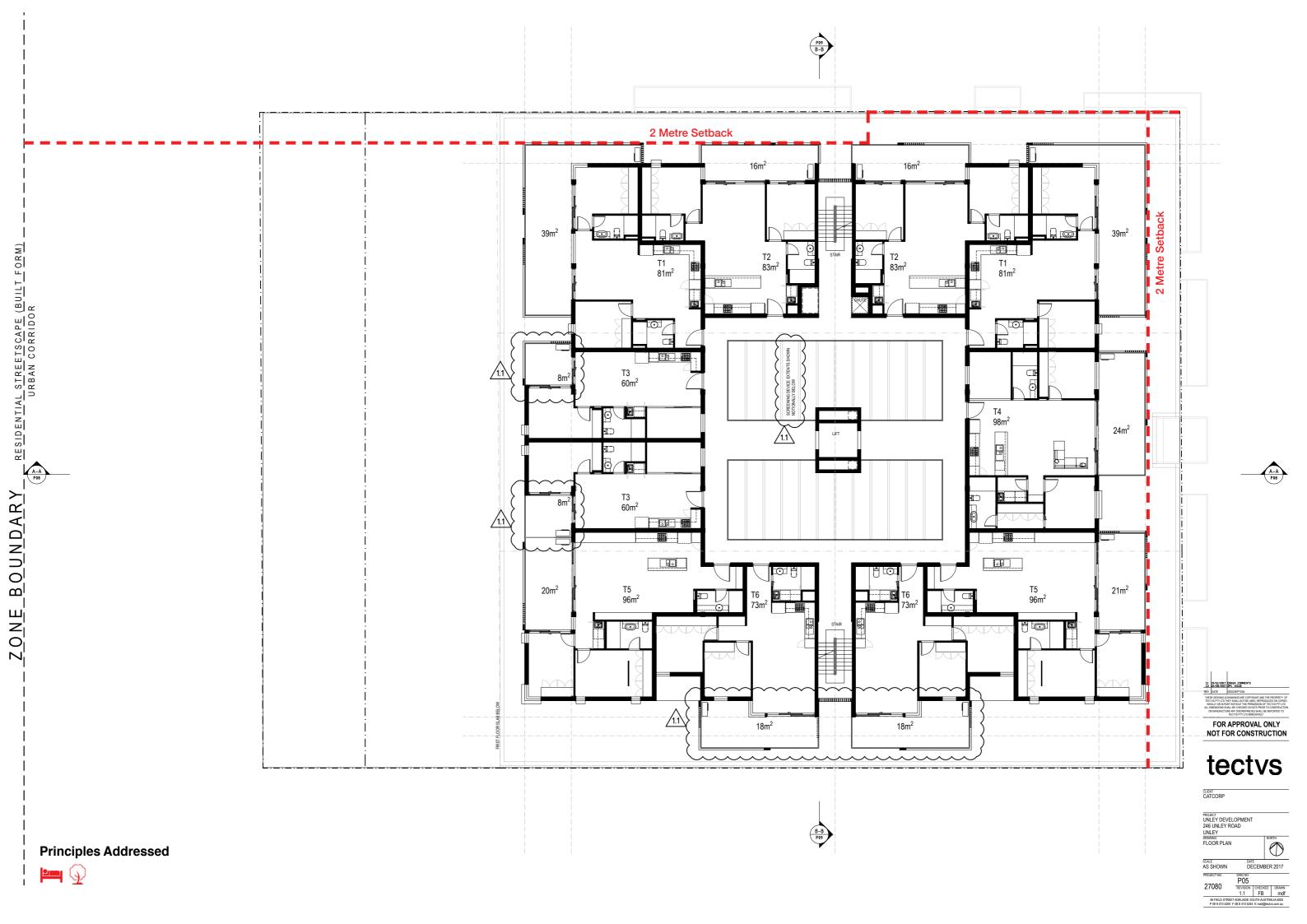
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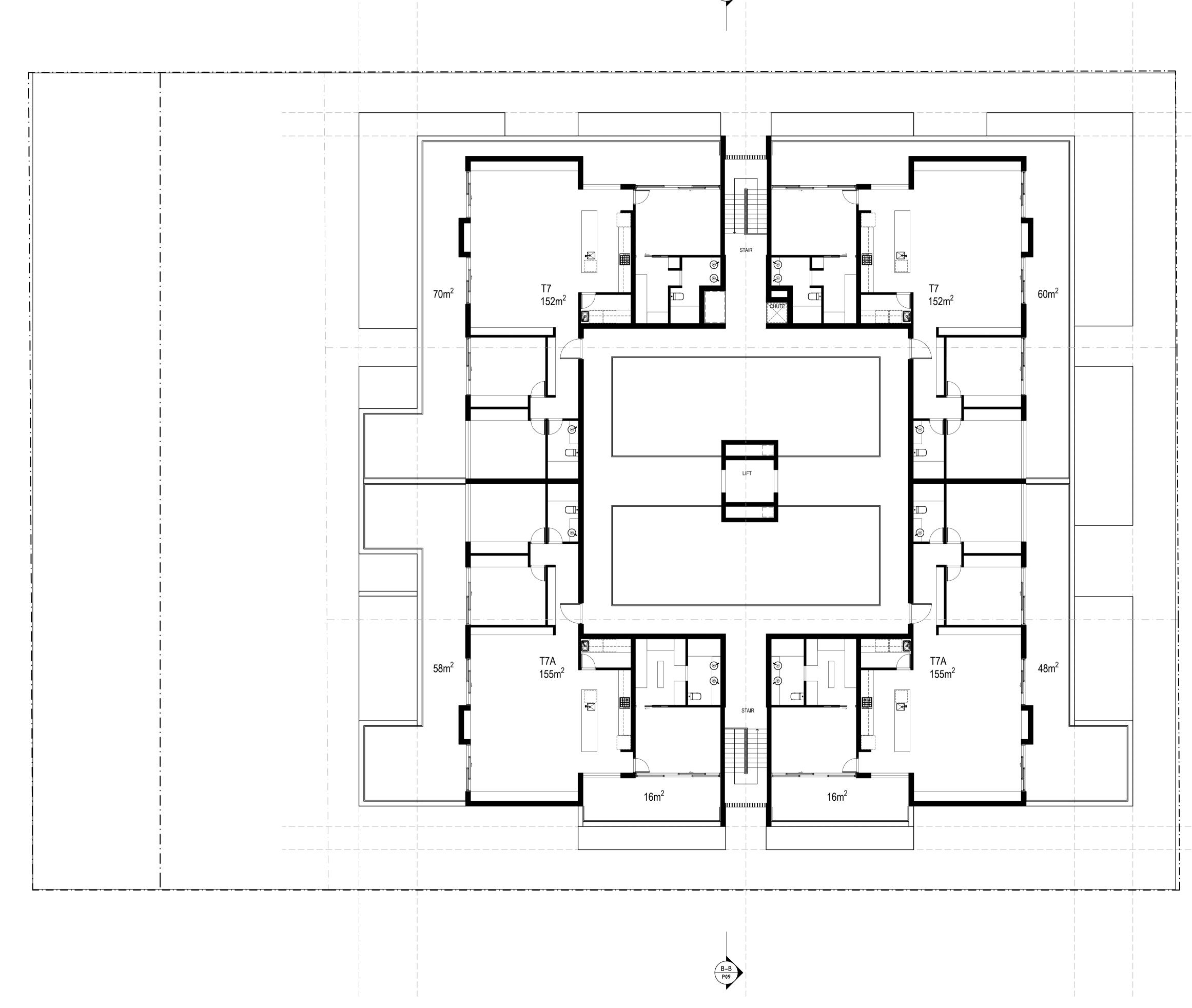
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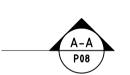












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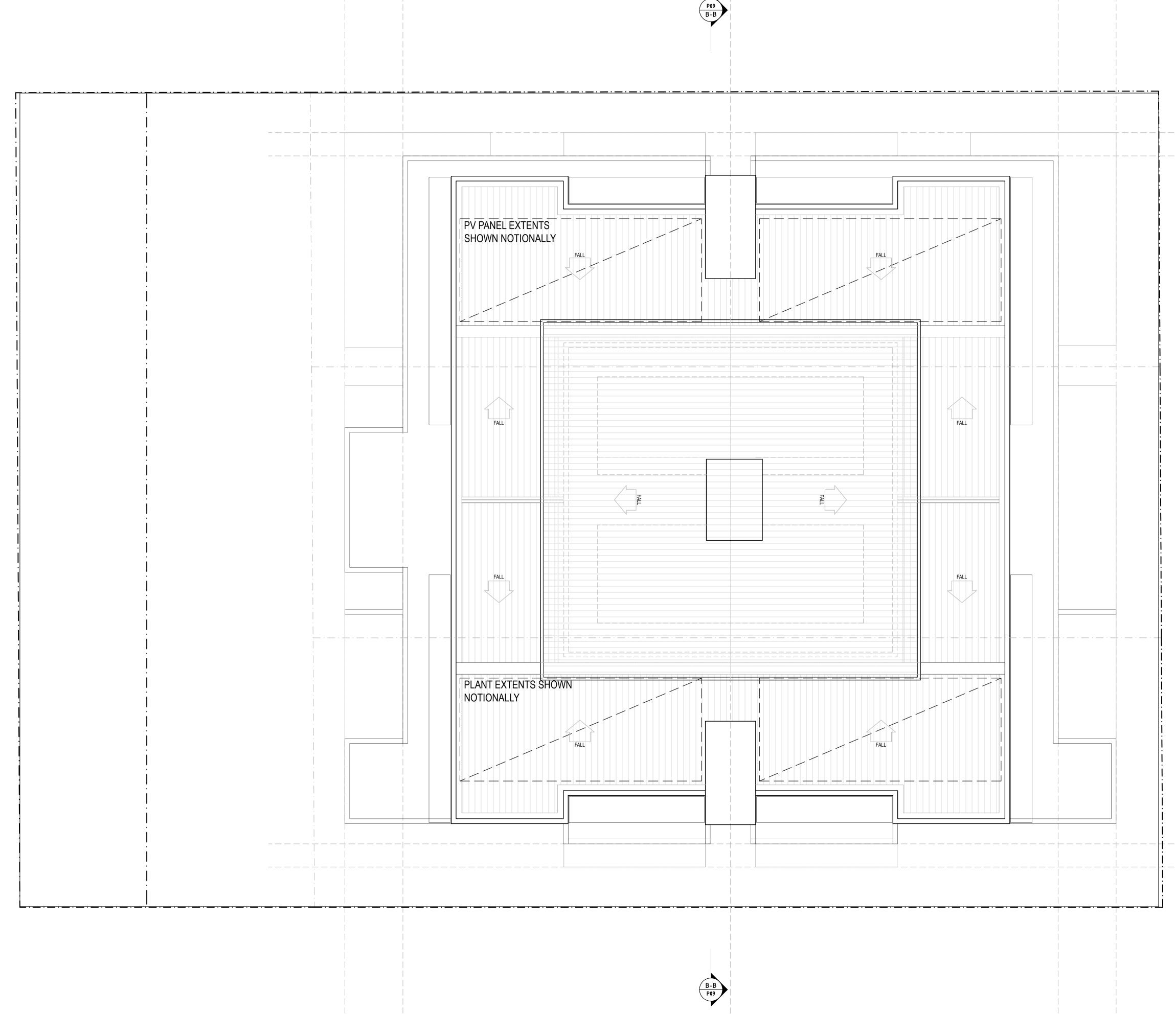
PROJECT
UNLEY DEVELOPMENT
246 UNLEY ROAD
UNLEY

UNLEY
DRAWING
FLOOR PLAN

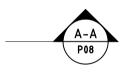
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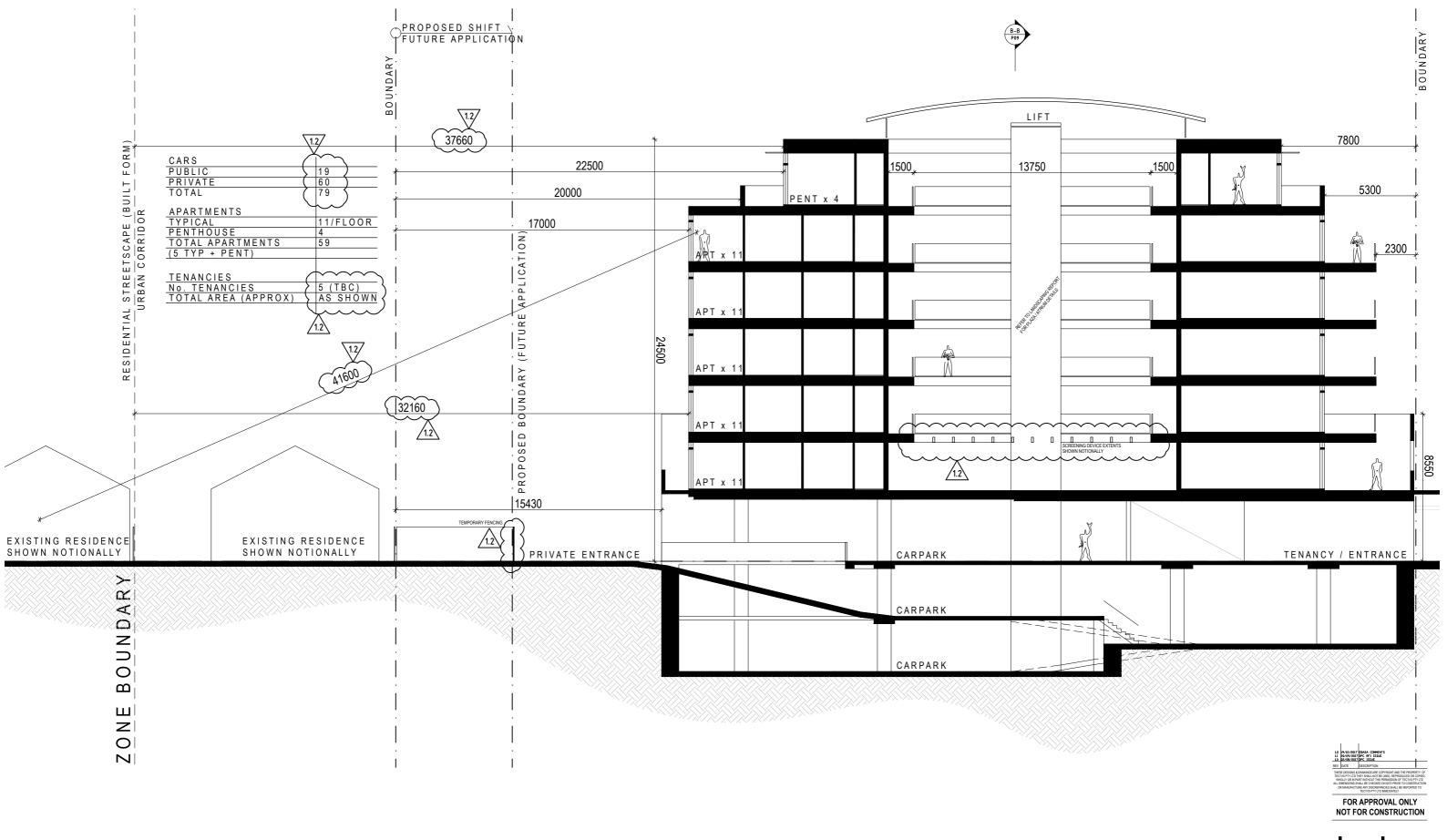
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PROJECT UNLEY DEVELOPMENT 246 UNLEY ROAD UNLEY

SCALE AS SHOWN AUGUST 2017



Principles Addressed







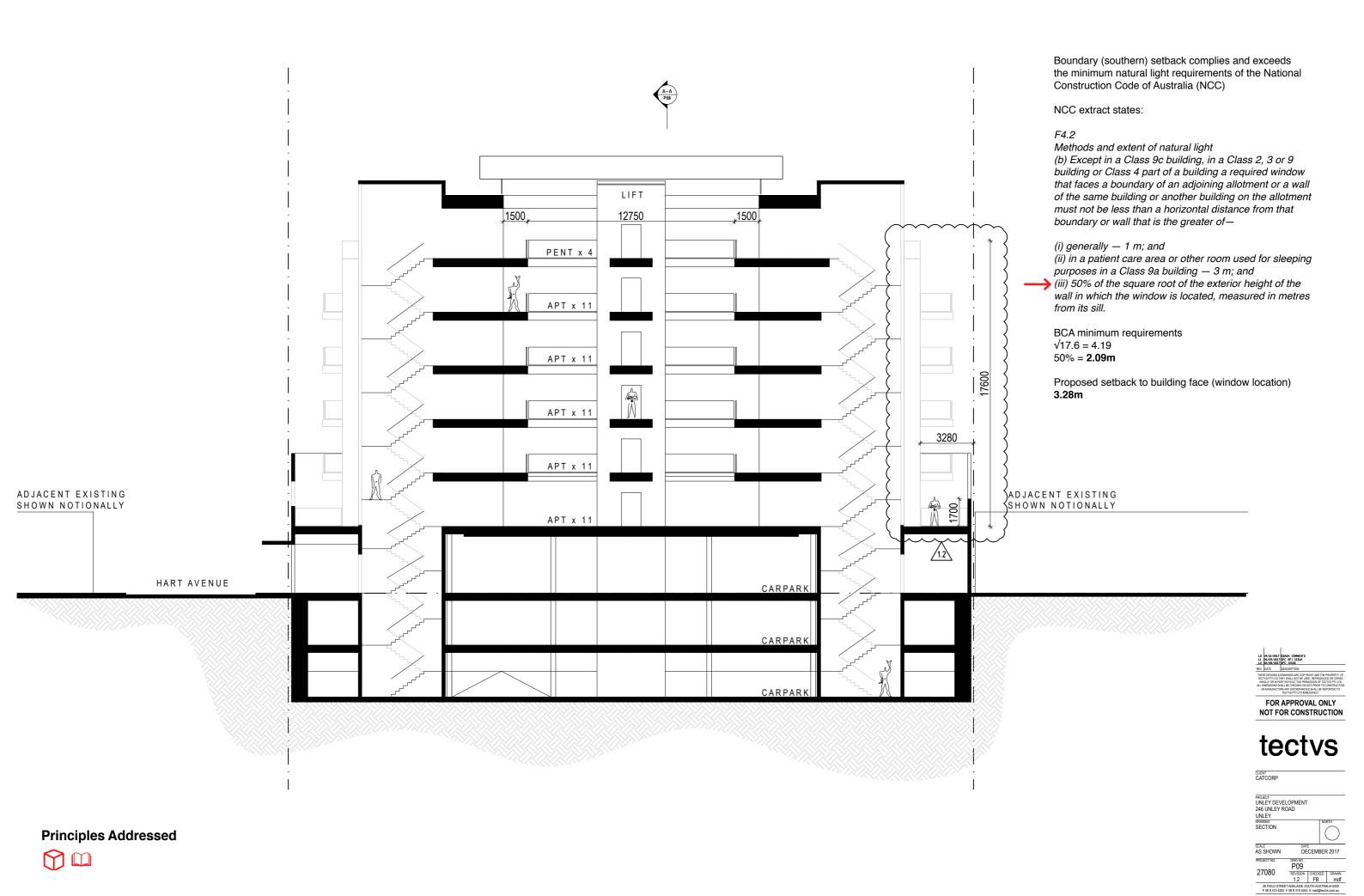


PROJECT UNLEY DEVELOPMENT 246 UNLEY ROAD UNLEY SECTION

CLIENT

SCALE AS SHOWN DECEMBER 2017

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MATERIALITY LEGEND

1 METAL SCREENING 2 METAL CLADDING

3 STEEL

4 STAINED PRECAST

5 STONEWORK

6 TINTED GLASS

7 CLEAR GLASS

NOTES:
- GREENWALLS / PLANTING AND LANDSCAPING SHOWN CONCEPTUALLY ONLY
- SUBJECT TO DEVELOPMENT REFER TO LANDSCAPE REPORT FOR DETAIL

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PROJECT
UNLEY DEVELOPMENT
246 UNLEY ROAD
UNLEY

ELEVATIONS

SCALE AS SHOWN DECEMBER 2017

P10

REVISION CHECKED DRAWN
1.2 FB mdf 27080



ELEVATION WEST 1:100 @ A1 1:200 @ A3 UNLEY ROAD

MATERIALITY LEGEND

- 1 METAL SCREENING
- 2 METAL CLADDING
- 3 STEEL 4 STAINED PRECAST
- 5 STONEWORK
- 6 TINTED GLASS
- 7 CLEAR GLASS

NOTES:
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UNLEY DEVELOPMENT 246 UNLEY ROAD UNLEY

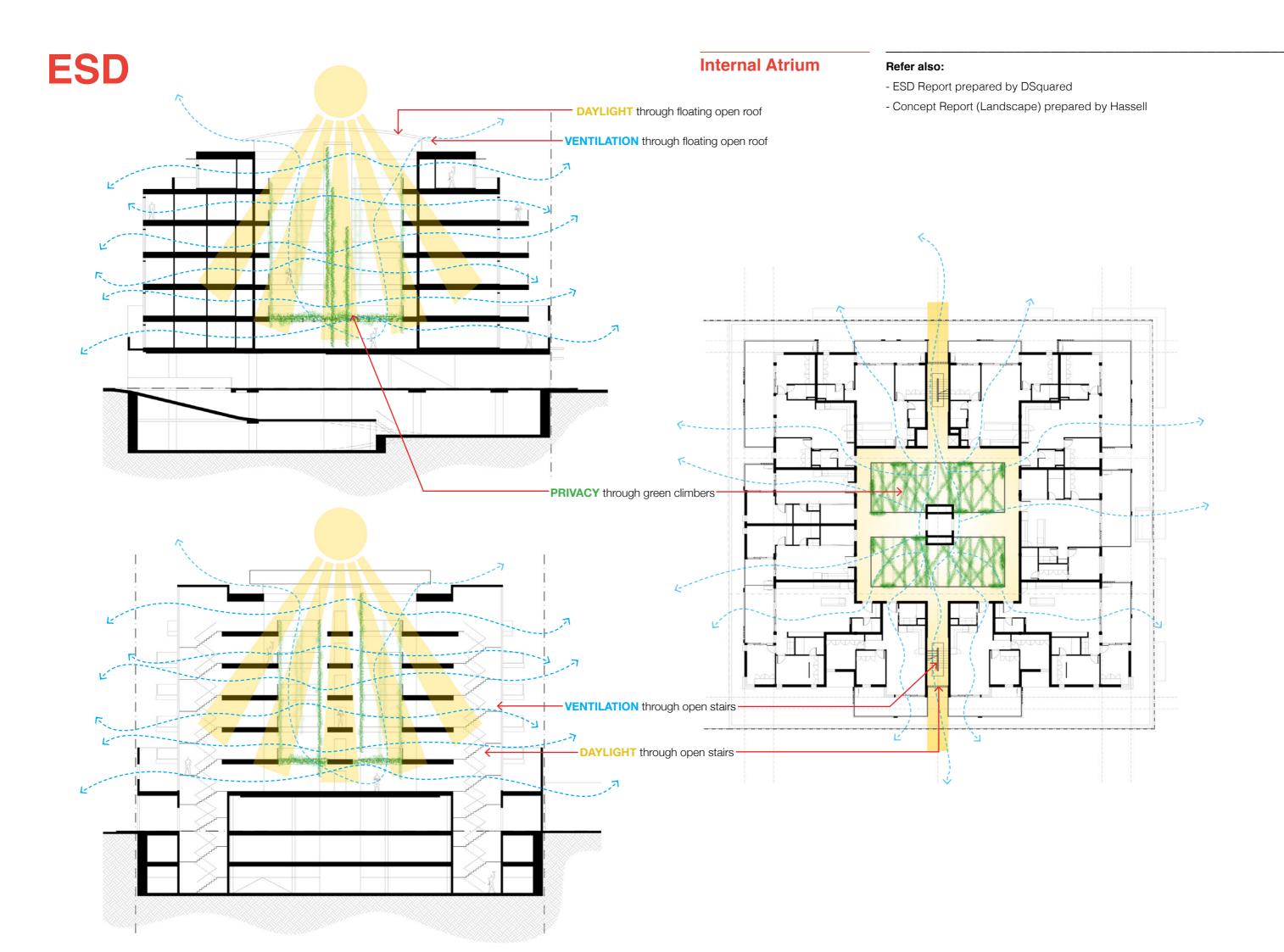
ELEVATIONS

AS SHOWN AUGUST 2017 PROJECT NO DWG NO P11 27080 REVISION CHECKED DRAWN 1.0 FB mdf

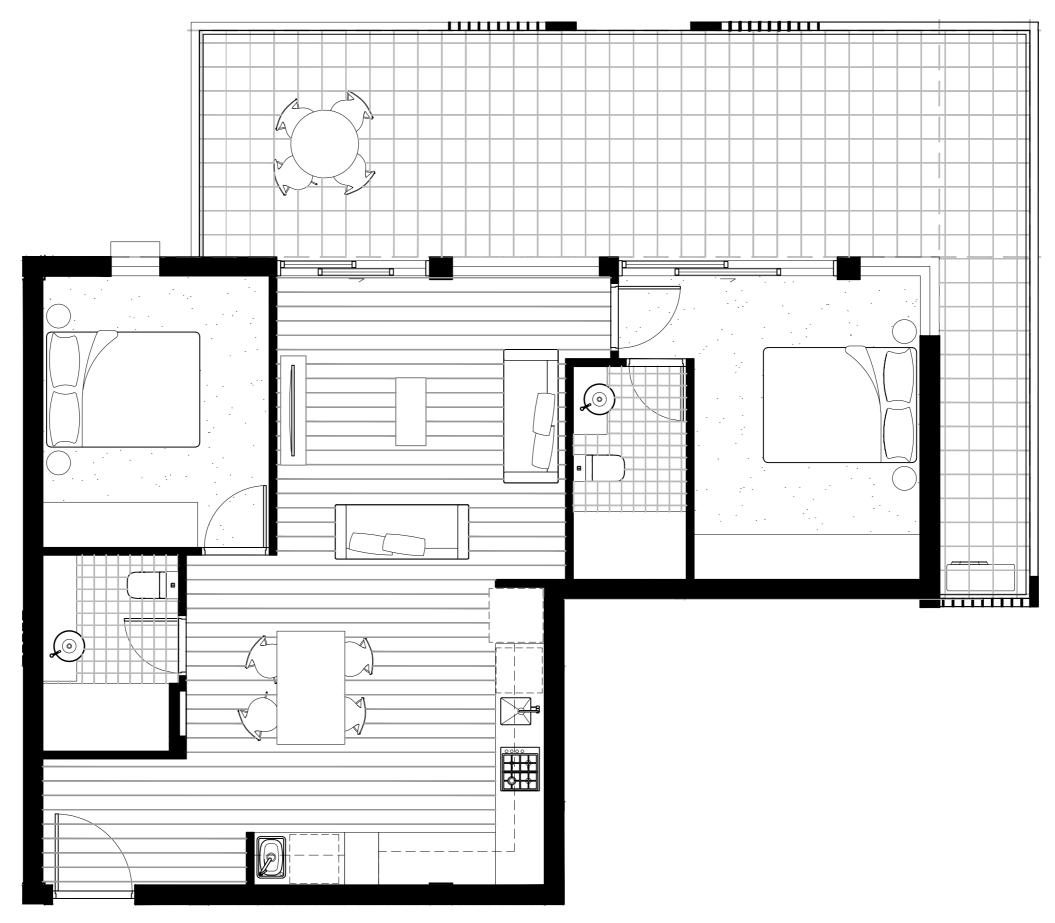
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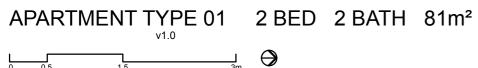
ELEVATION SOUTH 1:100 @ A1 1:200 @ A3







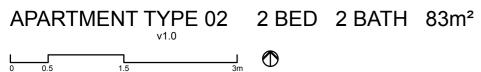




Disclaimer: This floor plan was produced prior to completion of construction. Dimensions and areas are approximate. Changes may be made during construction and dimensions, tile setout, areas, fittings, finishes and specifications are subject to change without notice in accordance with the provisions of the Contract of Sale. The furniture, curtains and light fixtures depicted are not included with any sale. August 2017.

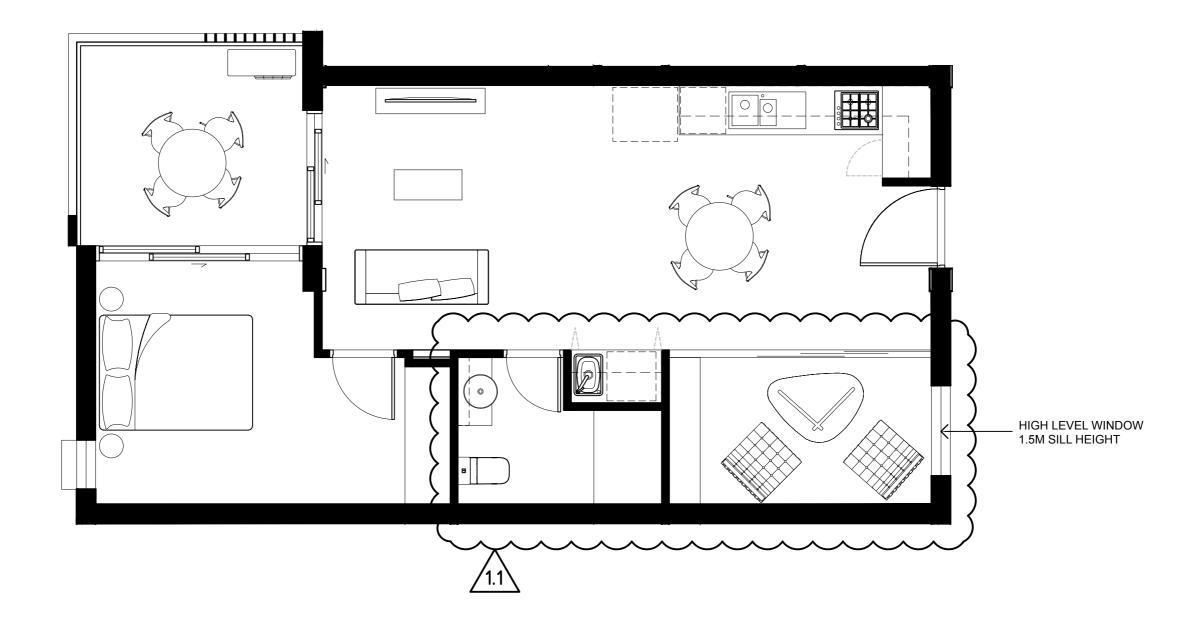
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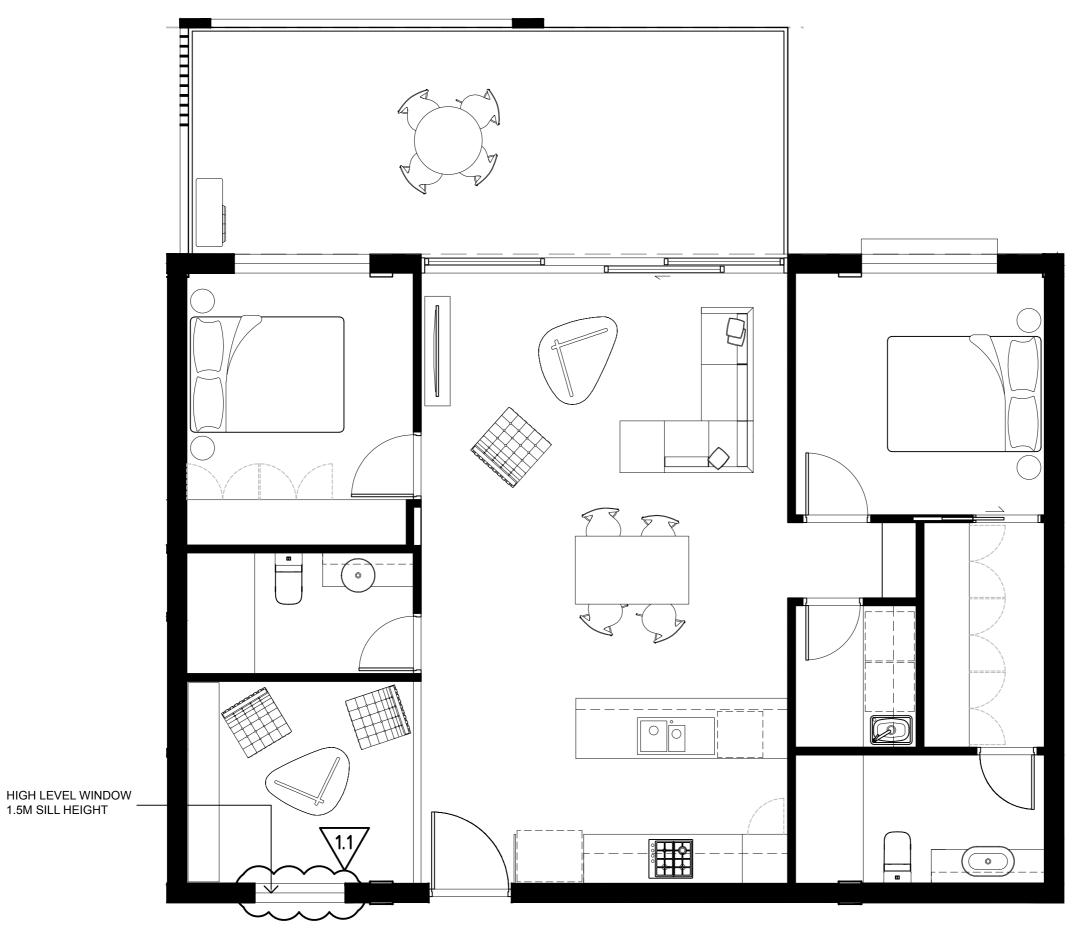
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Principles Addressed



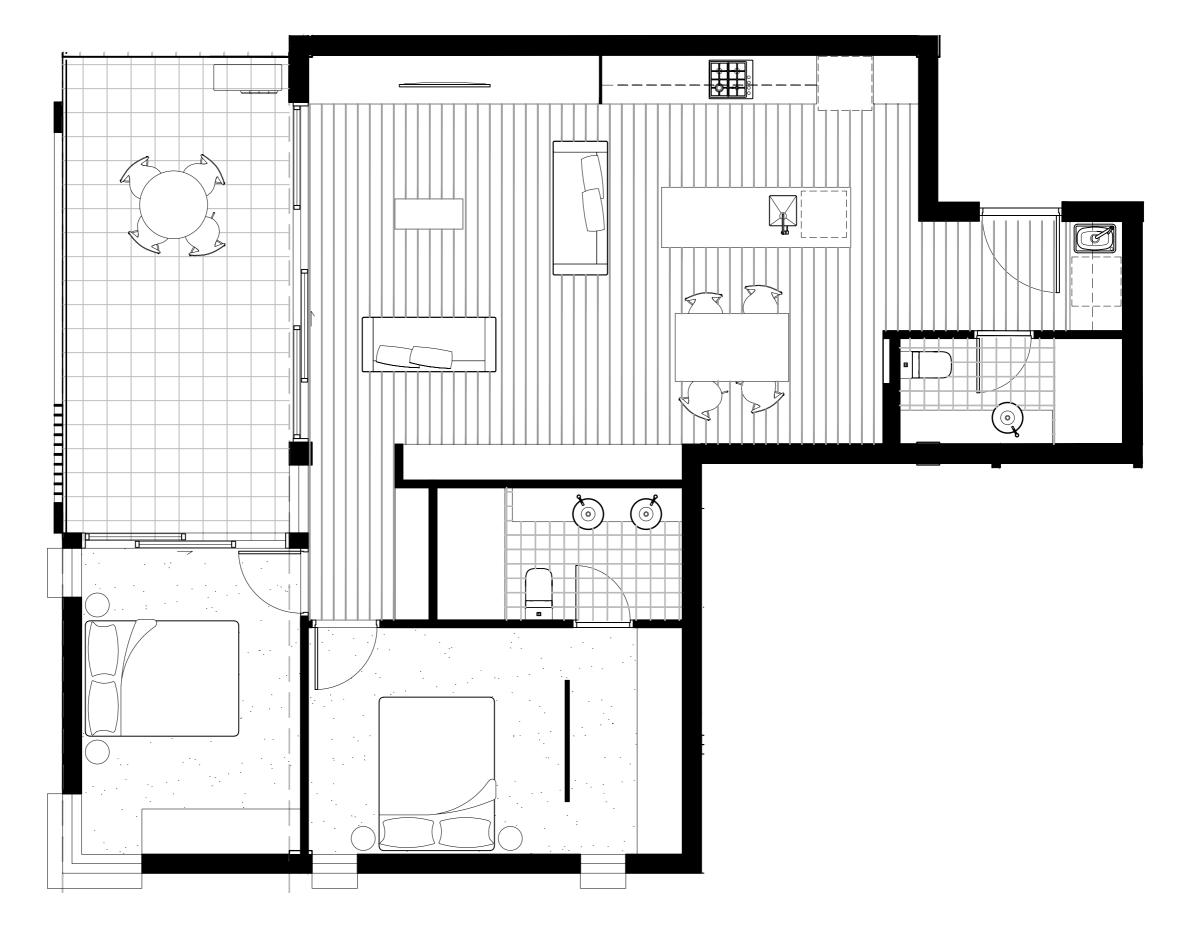


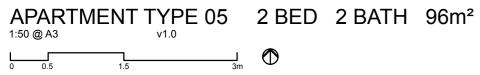
APARTMENT TYPE 04 2 BED 2 BATH 1 STUDY 98m²



Principles Addressed



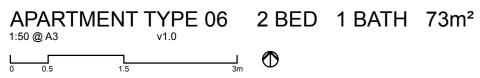




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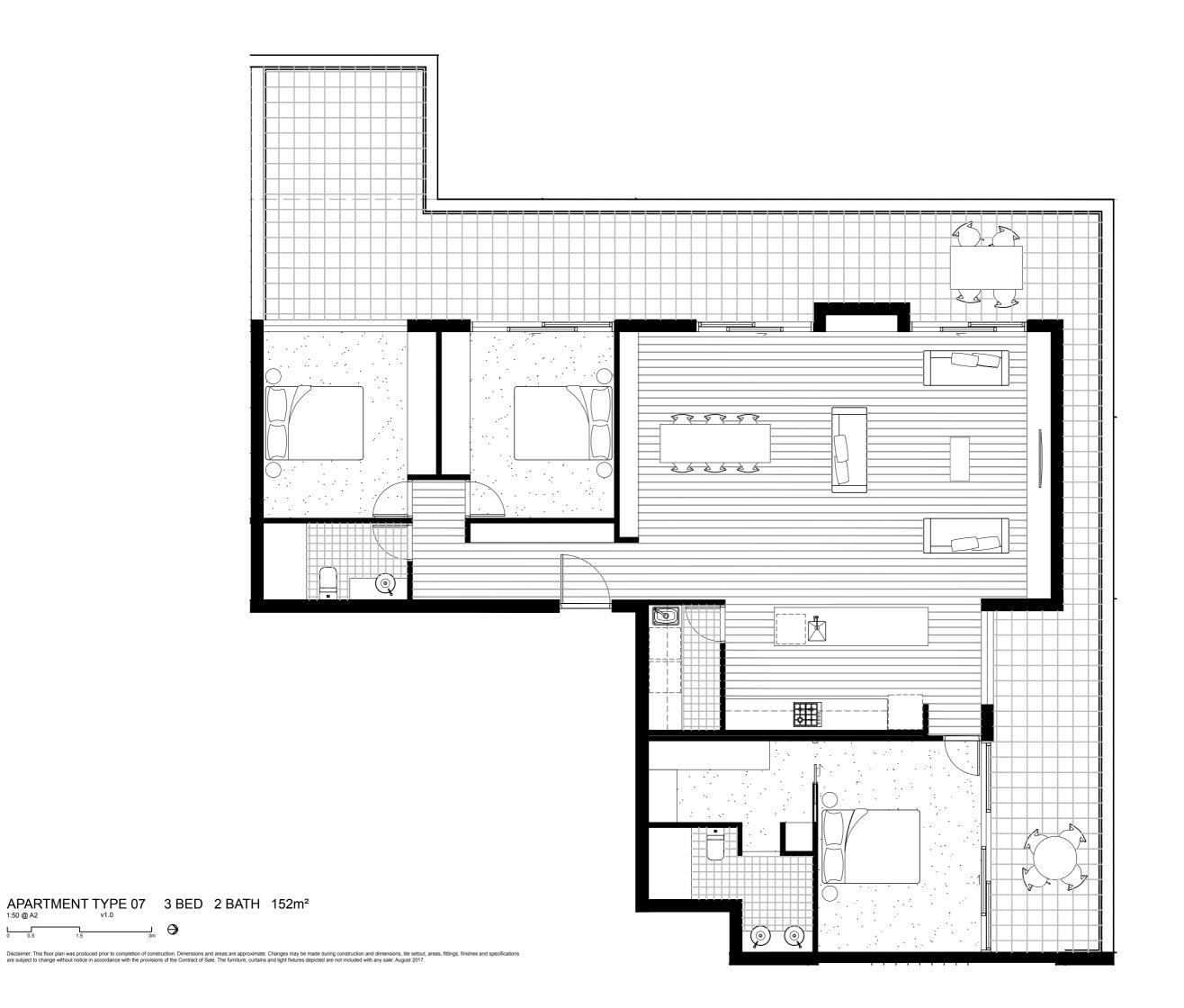
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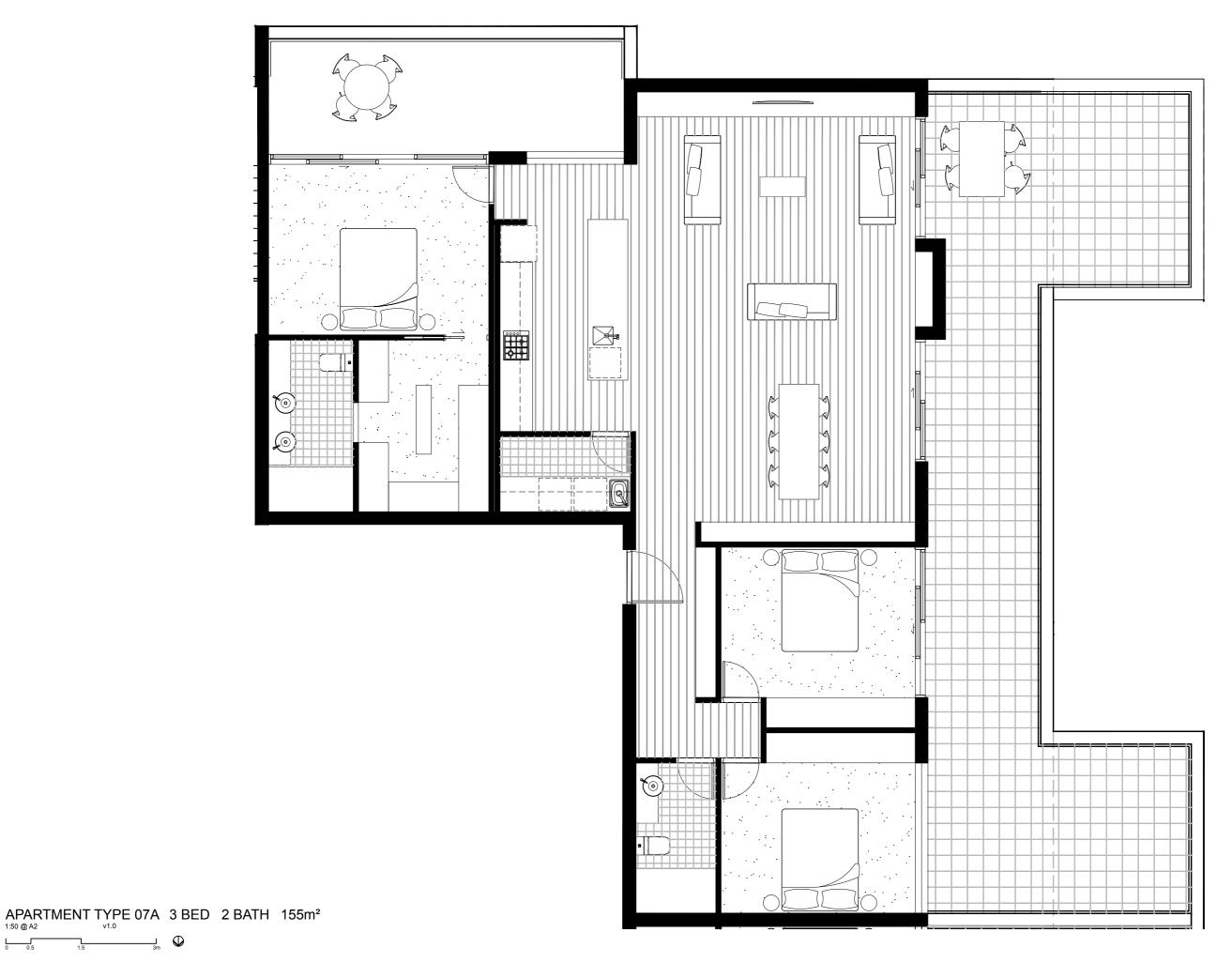




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Building Matrix

Including storage (+ robe) area breakdown.

246 Unley Road Building Matrix

Tenancies

	Net Lettable Area (m²)
	Ground
Tenancy 1	153
Tenancy 2	147
Tenancy 3	157
Tenancy 4	122

Private Apartments	. [Net Floor	Area (m²)				1									
		Property Council Guidelines									Balconies (m²)							Gross Floor Area (m²)	
	Apartments	TYPE 01	TYPE 02	TYPE 03	TYPE 04	TYPE 05	TYPE 06	TYPE 07	TYPE 07A	Circulation (m²)	TYPE 01	TYPE 02	TYPE 03	TYPE 04	TYPE 05	TYPE 06	TYPE 07	TYPE 07A	Property Council Guidelines
		81	86	60	98	96	73	152	155		39	16	7	24	20	12	60-70	48-58	
Ground	0	0	0	0	0	0	0	0	0	96 (lobby / core only)	0	0	0	0	0	0	0	0	
First Level (Terrace)	11	2	2	2	1	2	2	0	0	296	2 (77-86)	2 (41)	2 (15)	1 (52)	2 (72-81)	2 (40)	0	0	1830
Second Level	11	2	2	2	1	2	2	0	0	161	2	2	2	1	2	2	0	0	1274
Third Level	11	2	2	2	1	2	2	0	0	161	2	2	2	1	2	2	0	0	1274
Fourth Level	11	2	2	2	1	2	2	0	0	161	2	2	2	1	2	2	0	0	1274
Fifth Level	11	2	2	2	1	2	2	0	0	161	2	2	2	1	2	2	0	0	1274
Sixth Level	4	0	0	0	0	0	0	2	2	161	0	0	0	0	0	0	2	2	1094
Total	59									1197									

						Separate	Storage x +
	Bed 1	Bed 2	Bed 3	Bathroom 1	Bathroom 2	Laundry	robe (m³)
TYPE 01	✓	✓	-	✓	✓	-	7.2 + 8
TYPE 02	✓	✓	-	/	/	✓	7 + 8.3
TYPE 03	✓	-	-	1	-	✓	6+3
TYPE 04	✓	✓	-	✓	✓	✓	7.4 + 9.6
TYPE 05	✓	✓	-	/	/	✓	8.5 + 8
TYPE 06	✓	✓	-	1	/	-	7.4 + 9.2
TYPE 07	✓	✓	✓	1	/	✓	10 + 18
TYPE 07A	✓	✓	✓	✓	✓	✓	10 + 22.4

Development Team

Team

Development Team

CATCORP

tectvs



Tectvs with Catcorp with Future Urban Group

Combining decades of inner city mixed-use development experience with commercial development expertise

- Catcorp: Developer
- Tectvs: Architects
- Future Urban Group: Planner
- Hassell: Landscaping
- Rawtec: Waste
- Phil Weaver: Traffic
- DSquared: ESD & Sustainability
- Resonate: Acoustics
- Lucid Consulting: Building Services
- Structural Systems: Civil / Structural







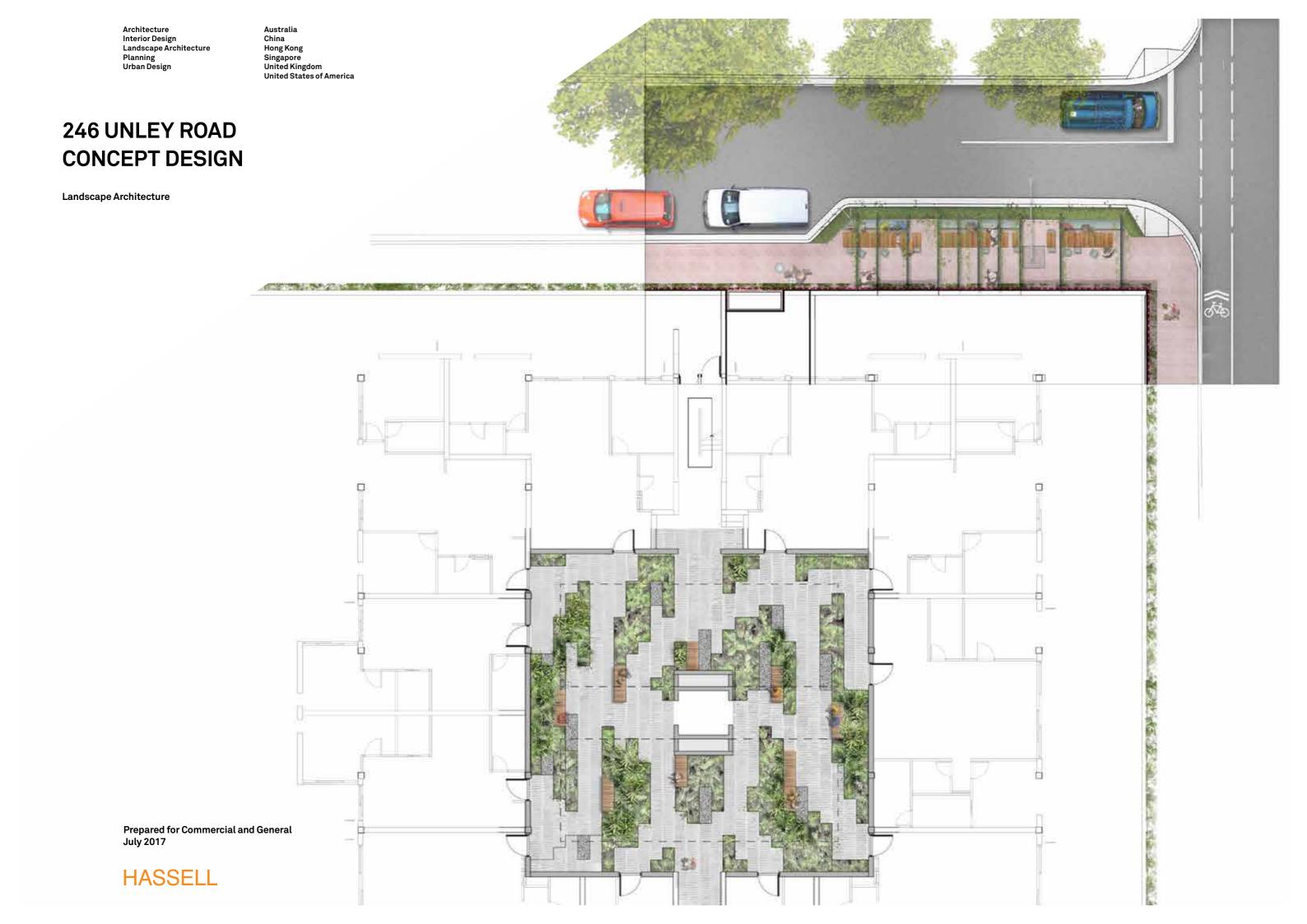


Think beyond the square.









01

02

03

04

Introduction

Page 3

Street Presence

Page 4-6 Spatial Framework Landscape Concept Precedent Imagery Facade Greening **Green Void**

Page 7 Spatial Framework Concept Section Precedent Imagery **Communal Courtyard**

Page 8-9 Landscape Concept Precedent Imagery Spatial Framework

Front cover image: Landscape Concept Plan Image Source: HASSELL

Contact

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Document control							
Rev	Date	Approved by	Description				
01	5th July 2017	Nick Pearson	Client Issue				

01 Introduction

Design Statement

Located just south of the Unley Central Precinct, the development has its primary street frontage with Unley Road and the northern side of Hart Avenue.

This section of Unley Road is predominantly commercial premises with minimal setbacks and awnings. The narrow footpath widths and awning presence results in no street trees, although south and north of the development trees are present, where building frontages have an increased set back from the road corridor.

Facade Greening

With limited opportunity for street trees to the development frontage onto Unley Road, the approach is to link the existing street tree canopies north and south of the development through the use of facade greening to the horizontal podium mass.

Additional green filigree provided to vertical screens on the tower facade assist with softening the development's mass and presence within the Unley Road streetscape.

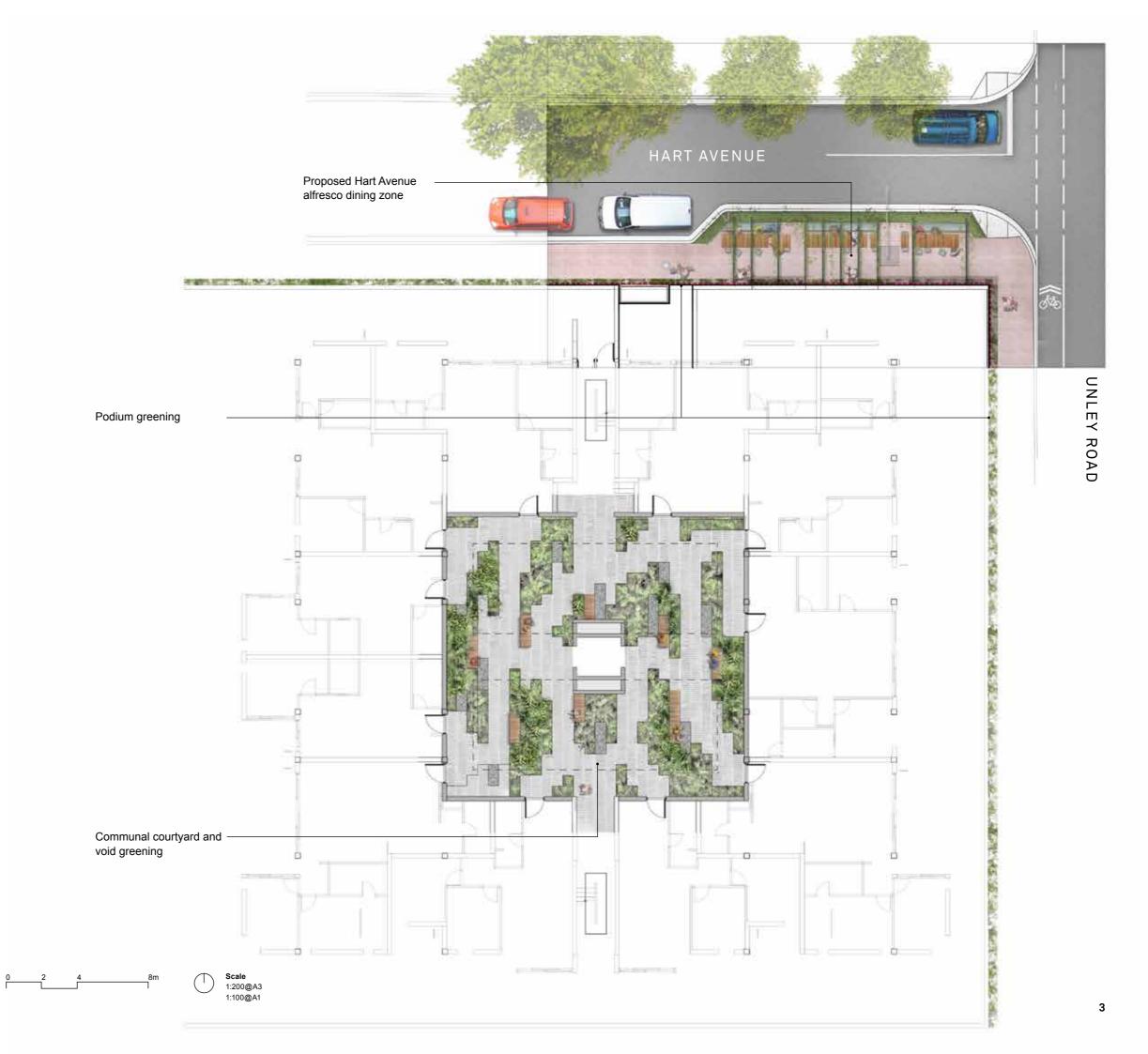
Hart Avenue Street presence

With minimal footpath width to the development frontage on Unley Road, an opportunity has been identified to enable the development to actively engage with the streetscape, creating a vibrant cosmopolitan dining experience which enhances the street life around the development.

Adjustments to side street parking would be required to facilitate the protuberance, to create sufficient space for the proposed outdoor dining area. This design move would be subject to further discussions and agreements with City of Unley.

Communal Courtyard and Void Greening

A communal green courtyard space is provided for residents within a 5 level void. A verdant garden setting provides intimate moments for relaxation and contemplation, small group gatherings and is provided as an extension of the residents' backyard. The void is greened through balcony edge planting and vertical trellis climbers creating an attractive outlook and arrival experience for guests and residents.



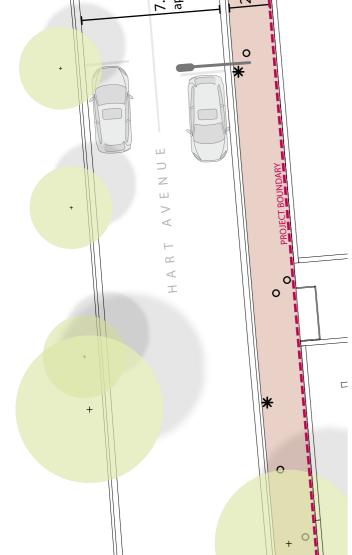
02 Street Presence Spatial Framework

Existing

The corner vantage offers an under utilised opportunity for street presence with an a-symmetrical regular tree planting on the northern side and key views into the building ground floor.

_Street tree planting (Lophostemon confertus) _Clay paving

*o _Services and Infrastructure —_Street Lighting



246 Unley Road Development Landscape Architecture Concept

Proposed Alignment and Greening

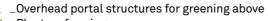
The corner vantage offers an under utilised opportunity for street presence with key views into the building ground floor. Pushing out the kerb provides opportunity for outdoor dining experiences



_Proposed Street tree planting, to match existing _Clay paving, to match existing



_Services and Infrastructure, relocated to suit kerb



_Planters framing corner

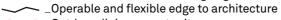


Activation and Flexibility

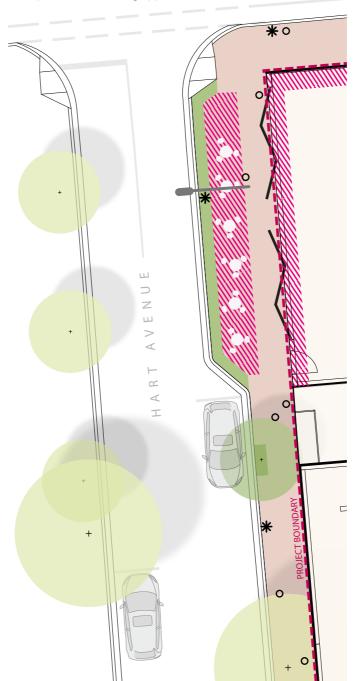
"To provide social and cultural dining experiences and create a cosmopolitan ambiance and enhance street life"

City of Unley Outdoor Dining Policy





_Outdoor dining opportunity



Access and Circulation

Maintaining key pedestrian, cyclist and vehicular circulation around the development, pushing out the kerb allows for additional outward activation with people moving from within the building to the outside dining area. Adjustments to vehicle on street parking will be required to maintain two way side street access allowing for the protuberance.

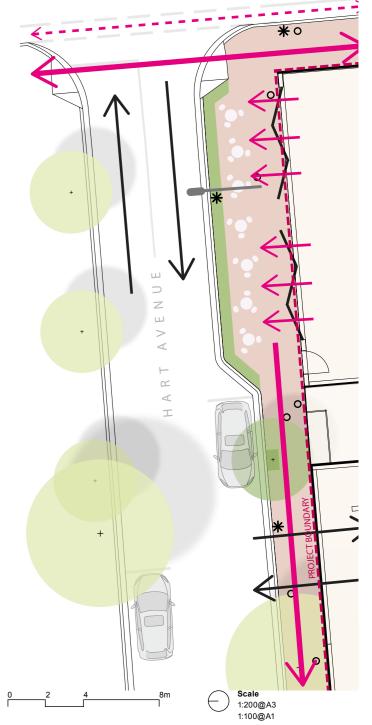


_Vehicular movement

_Major pedestrian circulation

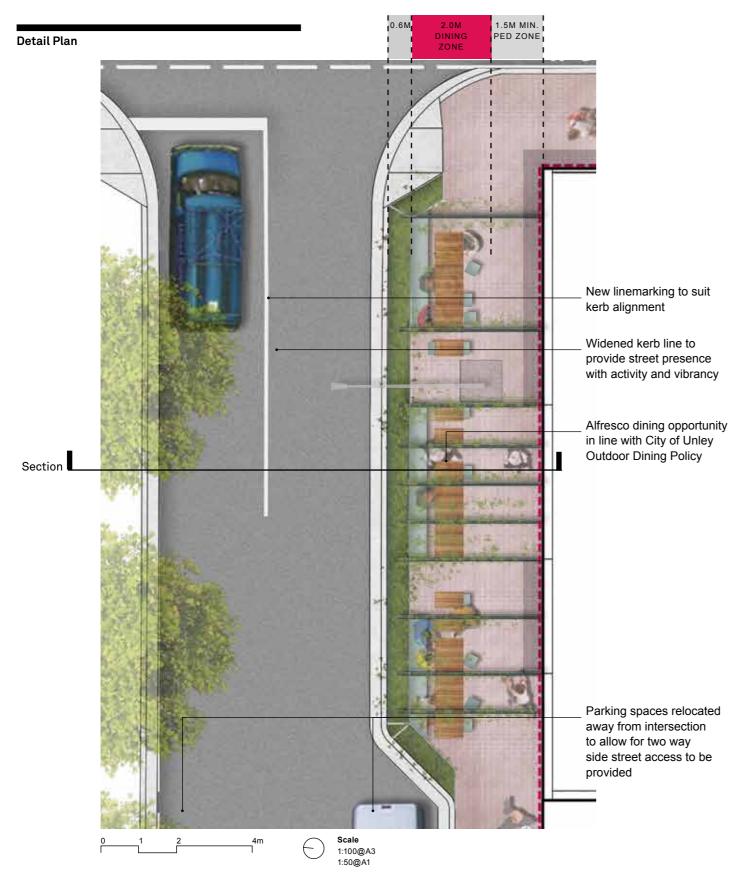
_Cyclist path

_Pedestrian activation



02 Street Presence

Landscape Concept







Medium, evergreen tree to tie in with existing Lophostemon confertus - Brush Box



Raised planters with Understorey planting To provide street presence and act as vehicular deterrents. Materiality to match architecture



Traditional format Clay paving To match and tie in with existing



Outdoor dining and activation *To align with City of Unley Outdoor Dining Policy



Overhead arbor greening To provide street presence, shade and amenity



Arbor climbing planting Sun Parasol - White

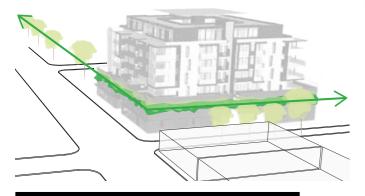
HASSELL © 2017

02 Street Presence

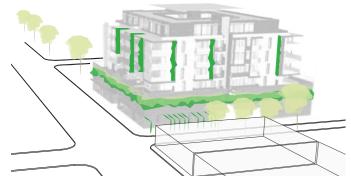
Facade Greening



Linking canopies



Added green filigree













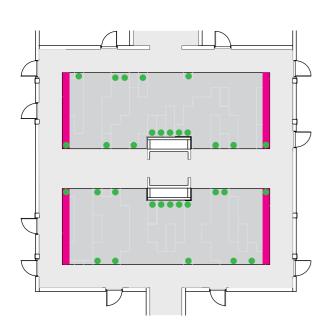


03 Green Void

Landscape Concept

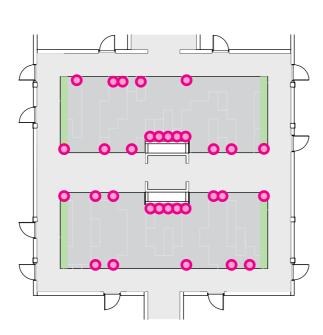
Balcony green curtains

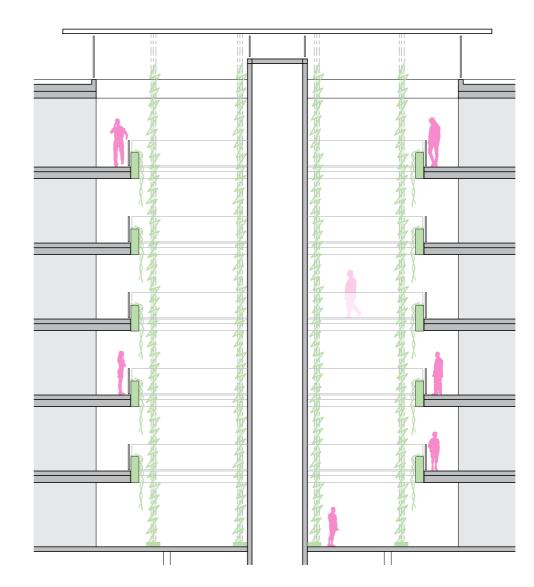
Planters on each level with planting cascading down over the edge to create a curtain of filtered light. Expressed boldly along the walls that face the lift exit to create a dramatic effect as you exit the lift and move through the central void space.



Vertical green columns

Vertical columns reaching from the lobby space up through the central void, creates an immersive experience. Layout of columns responds to the communal courtyard creating shifting filtered light within the void and amplifies the verticality of the space.





Plant palette





Syngonium 'White Butterfly'

um Piper k





Adiantum sp.

n sp. Epipremr aureus













04 Communal Courtyard Landscape Concept

Detail Plan

Plant palette



Philodendron 'Xanadu'



soleirolii



Bamboo sp.

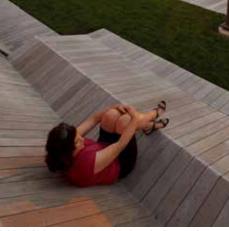








Linear language within courtyard with folded timber seating elements providing tables, seats and lounges



Folded timber seating provided a relaxing setting



Raised steel, painted planters with planting Colour and materiality to match architecture Height varies between 225mm, 450mm & 900mm



Shade loving, lush greening planting



Natural stone linear paving (150mm x 600mm bands) with feature gravel bands



Planting of varying levels

and intimacy for the

communal spaces

provide a sense of enclosure

Typical Seat Detail

Bamboo species to provide height and provide sense of enclosure to the communal areas

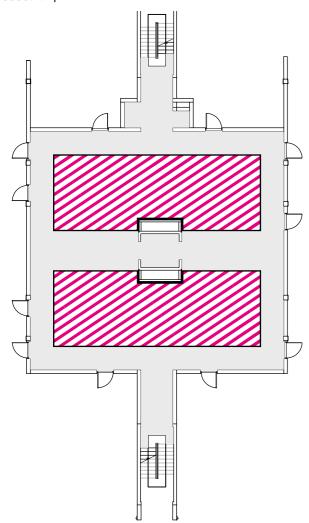


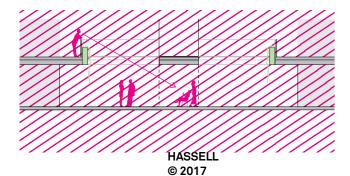
04 Communal Courtyard Spatial Framework

View from above and Vertical Volume

A sense of enclosure is provided with the vertical volume of surrounding levels for those within the courtyard. The walkways above provide viewing points to appreciate the communal courtyard and offer opportunity to exploit it as a beautiful viewing experience.

__Open void area visible from above





Access and Circulation

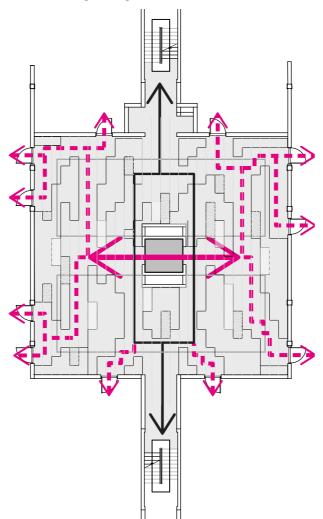
A clear central access from the lift circulates through the communal seating area before teeing off to grouped private entry routes. The emergency egress route circulates around the central core with linking pathways.

→

_Major circulation from lift core



_Emergency egress



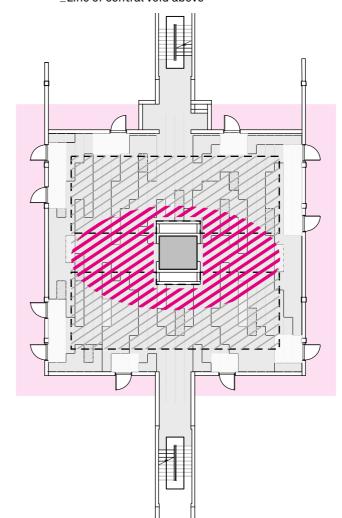
Privacy Zoning

Garden beds located around the perimeter and bordering entry zones to doors provide sense of privacy by screening whilst also providing a sense of green enclosure to the communal areas.

_Private zones (within building)

__Communal zone

--- Line of central void above



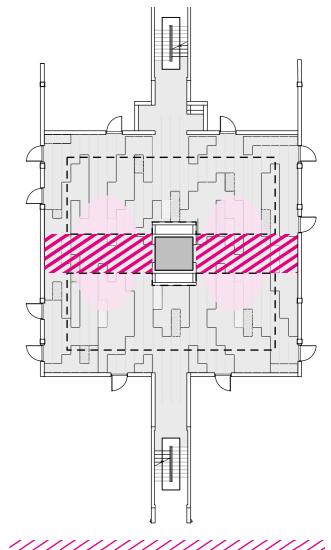
Communal Intimacy and Privacy

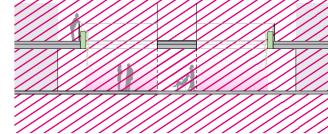
Communal areas located beneath the central walkway have a 'ceiling' to the landscape which provides a level of intimacy and privacy.

__Zone underneath central walkway

_Communal areas in open air

--- _Line of central void above





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London

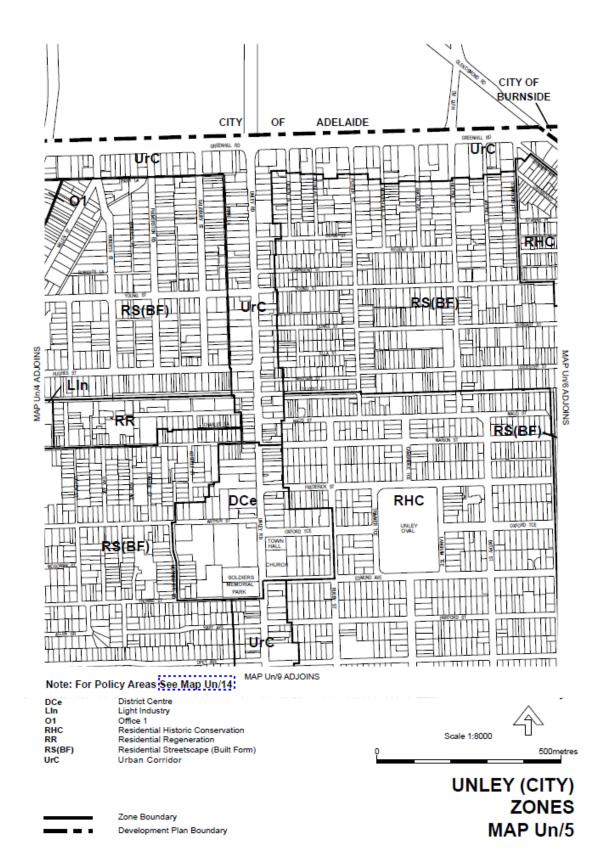
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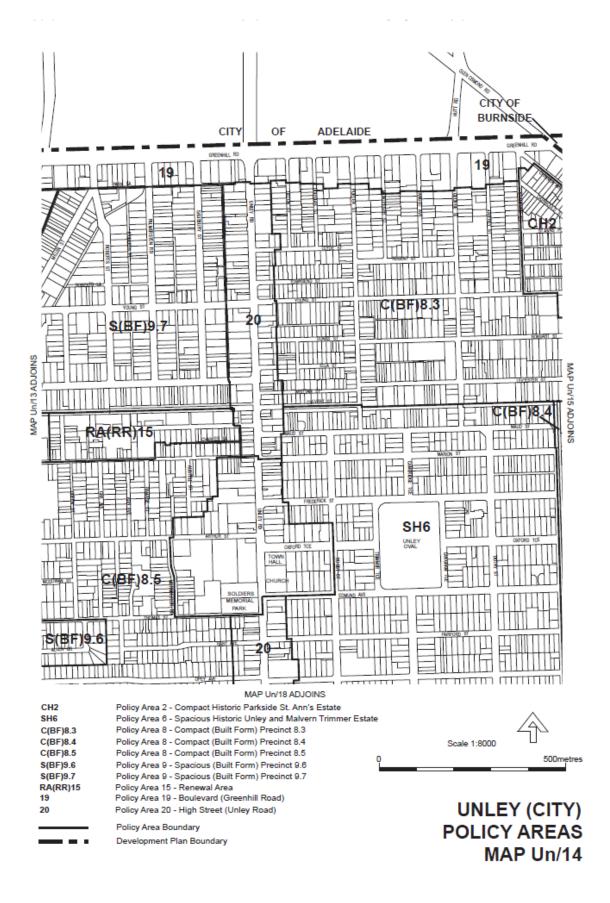
United States of America

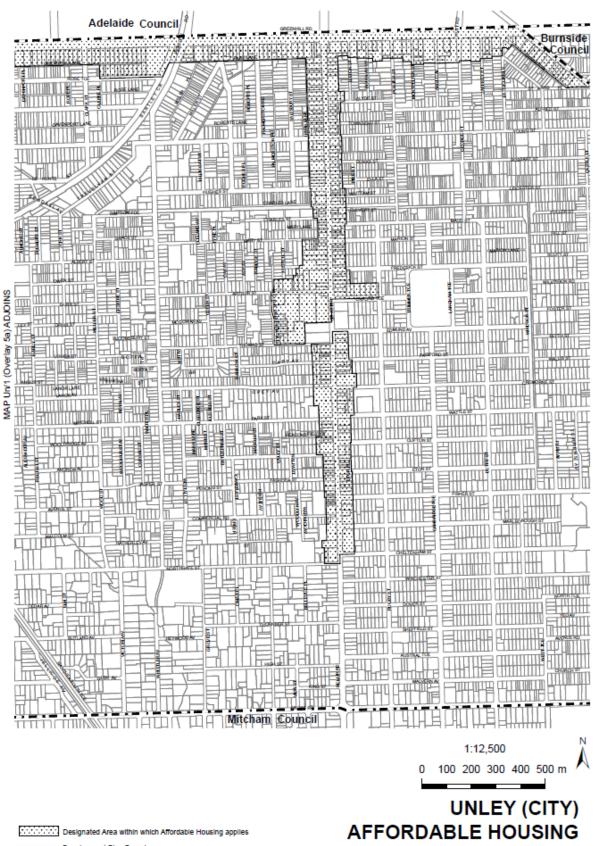
San Francisco

HASSELL Level 7 25 Taylor Street San Francisco CA 94102 United States of America +1 415 860 7067

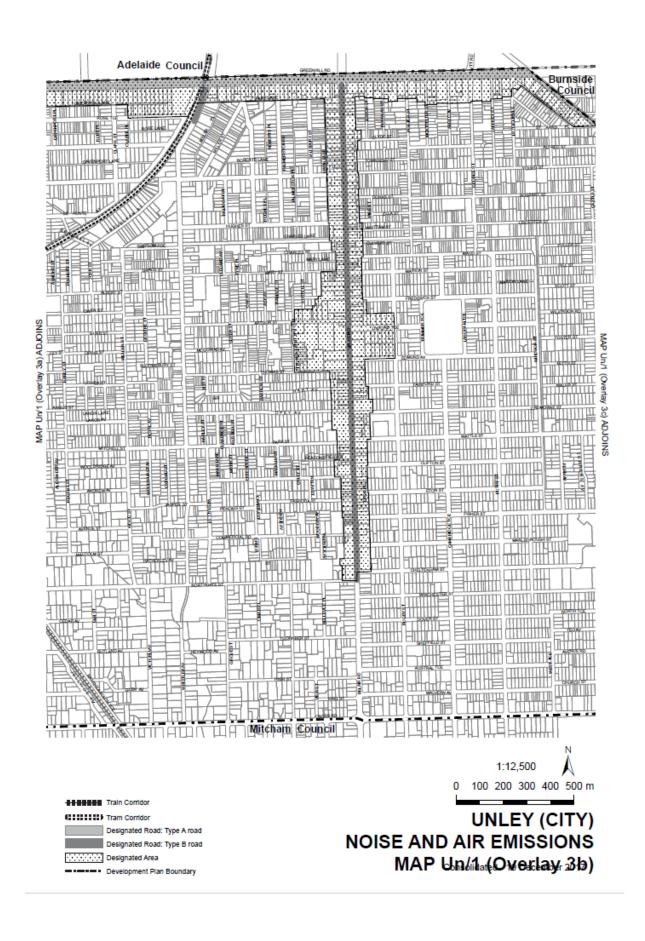
E sanfrancisco@hassellstudio.com

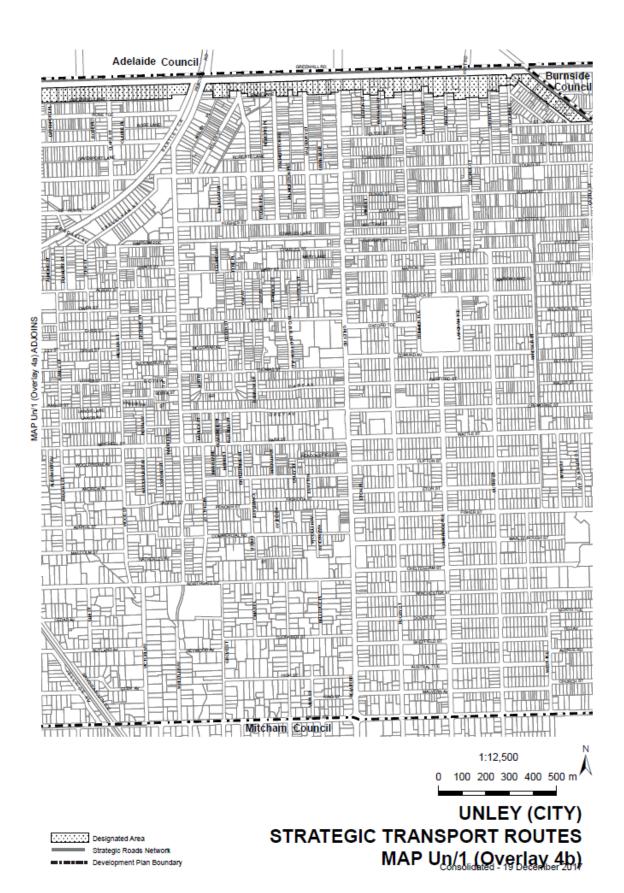






MAP Un/1 (Overlay 5b)







Mixed Use (Medium - High Density)

Local Neighbourhood and Specialty Goods Centres

Other Residential

DCe ŭ

Excluded District Centre

Development Plan Boundary Primary Arterial Road Secondary Arterial Road Major Collector Road Local Collector Road

MAP Un/1 (Overlay 1)

STRUCTURE PLAN

CITY OF UNLEY

Higher Intensity Residential

Streetscape Character Residential

Industrial

Office/Mixed Use

Site Photographs



Unley Road - looking west to subject land



Unley Road – looking north



Unley Road – looking south



Unley Road - looking east



Hart Avenue – looking west



Hart Avenue – looking east to Unley Road





Unley Road – looking southwest at subject site Unley Road – looking northwest at subject site



Product Date/Time **Customer Reference**

Order ID

Register Search 14/02/2017 03:30PM

20170214010395

27080-04

Cost \$27.75

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.



Registrar-General

REAL PROPERTY ACT, 1886

South Australia

Certificate of Title - Volume 6134 Folio 955

Parent Title(s) CT 6067/120

Dealing(s) Creating Title DDA 12097068

Title Issued 28/03/2014

Edition 2

Edition Issued 24/03/2015

Estate Type

FEE SIMPLE

Registered Proprietor

3X UNLEY ROAD PTY. LTD. (ACN: 161 696 448) OF CARE LEVEL 1/162 GREENHILL ROAD PARKSIDE SA 5063

Description of Land

ALLOTMENT 3 DEPOSITED PLAN 1221 IN THE AREA NAMED UNLEY **HUNDRED OF ADELAIDE**

Easements

TOGETHER WITH FREE AND UNRESTRICTED RIGHT(S) OF WAY OVER THE LAND MARKED A

Schedule of Dealings

Dealing Number Description

MORTGAGE TO BENDIGO & ADELAIDE BANK LTD. 11908881

12291586 AGREEMENT UNDER DEVELOPMENT ACT, 1993 PURSUANT TO SECTION 57(1)

Notations

Dealings Affecting Title

NIL

Priority Notices

Land Services Page 1 of 3



Product
Date/Time
Customer Reference

Order ID

Cost

14/02/2017 03:30PM 27080-04

\$27.75

Register Search

27080-04 20170214010395

NIL

Notations on Plan

NIL

Registrar-General's Notes

PLAN FOR LEASE PURPOSES VIDE G104/1986

Administrative Interests

NIL

Land Services Page 2 of 3

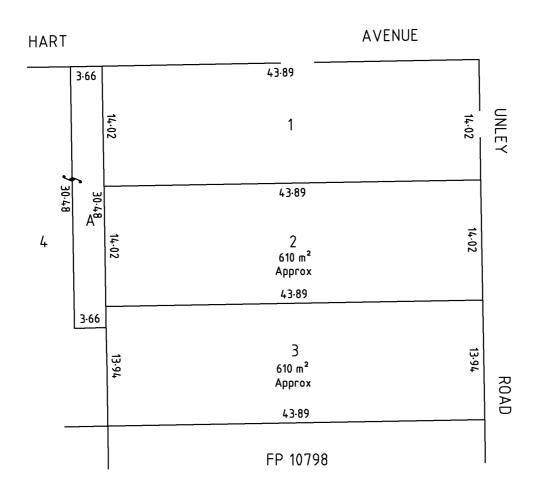
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Date/Time
Customer Reference
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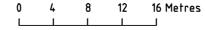
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Register Search 14/02/2017 03:30PM 27080-04 20170214010395

\$27.75









Product
Date/Time
Customer Reference

Order ID

Register Search 14/02/2017 03:22PM

20170214010193

nce 27080-02

Cost \$27.75

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REAL PROPERTY ACT, 1886

South Australia

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Parent Title(s) CT 5177/810

Dealing(s)
Creating Title

PS 8126223

Title Issued

25/11/1996

Edition

13

Edition Issued

24/03/2015

Estate Type

FEE SIMPLE

Registered Proprietor

1X UNLEY ROAD PTY. LTD. (ACN: 161 696 555)
OF CARE LEVEL 1/162 GREENHILL ROAD PARKSIDE SA 5063

Description of Land

ALLOTMENT 1 DEPOSITED PLAN 1221 IN THE AREA NAMED UNLEY HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number Description

11908869 MORTGAGE TO BENDIGO & ADELAIDE BANK LTD.

12291586 AGREEMENT UNDER DEVELOPMENT ACT, 1993 PURSUANT TO SECTION 57(1)

Notations

Dealings Affecting Title

NIL

Priority Notices

Land Services Page 1 of 3



Product
Date/Time

Customer Reference Order ID 27080-02 20170214010193

Register Search

14/02/2017 03:22PM

Cost \$27.75

NIL

Notations on Plan

NIL

Registrar-General's Notes

PLAN FOR LEASE PURPOSES VIDE G180/1984

Administrative Interests

NIL

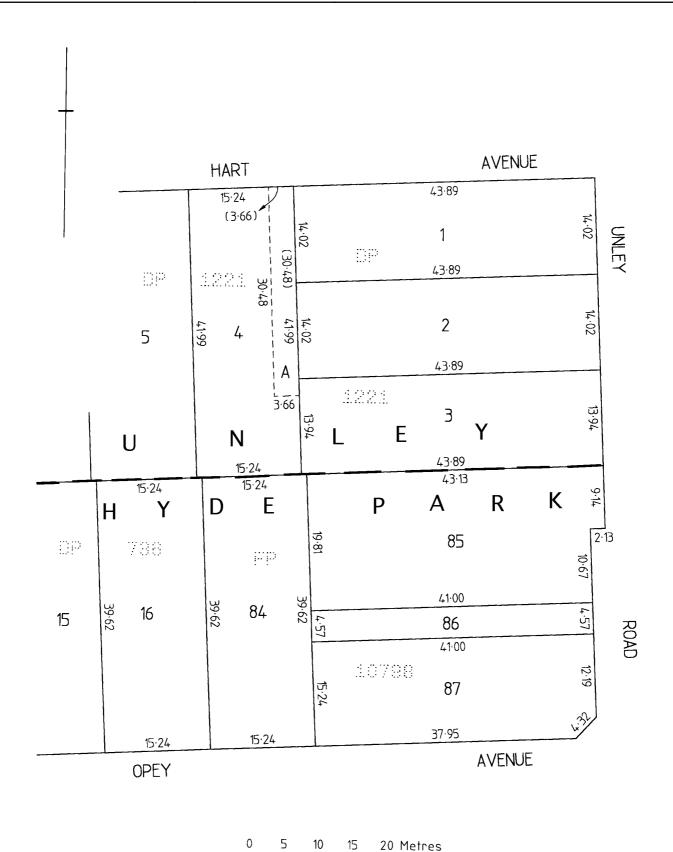
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Product
Date/Time
Customer Reference
Order ID

Cost

Register Search 14/02/2017 03:22PM 27080-02 20170214010193

\$27.75





Product
Date/Time
Customer Reference

Order ID

Register Search 14/02/2017 03:34PM

20170214010483

er Reference 27080-05

Cost \$27.75

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REAL PROPERTY ACT, 1886

South Australia

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Parent Title(s) CT 5177/809

Dealing(s)
Creating Title

PS 8126223

Title Issued

25/11/1996

Edition

12

Edition Issued

24/03/2015

Estate Type

FEE SIMPLE

Registered Proprietor

4 HART AVENUE PTY. LTD. (ACN: 161 696 582)
OF CARE LEVEL 1/162 GREENHILL ROAD PARKSIDE SA 5063

Description of Land

ALLOTMENT 4 DEPOSITED PLAN 1221 IN THE AREA NAMED UNLEY HUNDRED OF ADELAIDE

Easements

SUBJECT TO FREE AND UNRESTRICTED RIGHT(S) OF WAY OVER THE LAND MARKED A

Schedule of Dealings

Dealing Number Description

11908875 MORTGAGE TO BENDIGO & ADELAIDE BANK LTD.

12291586 AGREEMENT UNDER DEVELOPMENT ACT, 1993 PURSUANT TO SECTION 57(1)

Notations

Dealings Affecting Title

NIL

Priority Notices

Land Services Page 1 of 3



Product
Date/Time
Customer Reference

14/02/2017 03:34PM 27080-05

Register Search

27080-05 20170214010483

 Order ID
 201702

 Cost
 \$27.75

NIL

Notations on Plan

NIL

Registrar-General's Notes

NIL

Administrative Interests

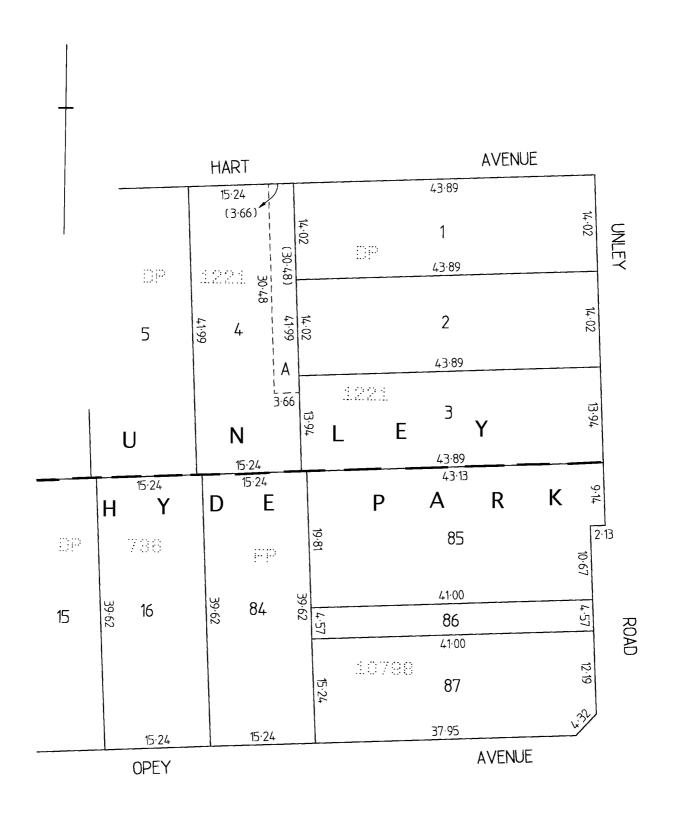
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Product
Date/Time
Customer Reference
Order ID

Cost

Register Search 14/02/2017 03:34PM 27080-05 20170214010483

\$27.75



0 5 10 15 20 Metres



Product
Date/Time
Customer Reference

Order ID

Register Search 14/02/2017 03:27PM

stomer Reference 27080-03

20170214010312

Cost \$27.75

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Parent Title(s) CT 5380/233

Dealing(s) Creating Title RT 11419076, T 11419077

Title Issued 02/11/2010

Edition 3

Edition Issued 24/03/2015

Estate Type

FEE SIMPLE

Registered Proprietor

2X UNLEY ROAD PTY. LTD. (ACN: 161 696 546)
OF CARE LEVEL 1/162 GREENHILL ROAD PARKSIDE SA 5063

Description of Land

ALLOTMENT 2 DEPOSITED PLAN 1221 IN THE AREA NAMED UNLEY HUNDRED OF ADELAIDE

Easements

TOGETHER WITH FREE AND UNRESTRICTED RIGHT(S) OF WAY OVER THE LAND MARKED A

Schedule of Dealings

Dealing Number Description

11908878 MORTGAGE TO BENDIGO & ADELAIDE BANK LTD.

12291586 AGREEMENT UNDER DEVELOPMENT ACT, 1993 PURSUANT TO SECTION 57(1)

Notations

Dealings Affecting Title

NIL

Priority Notices

Land Services Page 1 of 3



Product Date/Time

Customer Reference Order ID

Cost

20170214010312 \$27.75

Register Search

27080-03

14/02/2017 03:27PM

NIL

Notations on Plan

NIL

Registrar-General's Notes

PLAN FOR LEASE PURPOSES VIDE G104/1986

Administrative Interests

NIL

Land Services Page 2 of 3

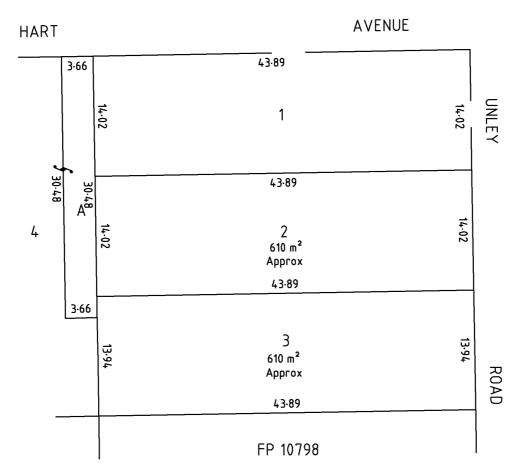
Product
Date/Time
Customer Reference
Order ID

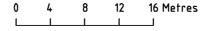
Cost

Register Search 14/02/2017 03:27PM 27080-03 20170214010312

\$27.75







DEVELOPMENT REGULATIONS 2008

Form of Declaration (Schedule 5 clause 2A)

TO: THE DEVELOPMENT ASSESSMENT COMMISSION
From: CATCORP PTY LTD C/- FUTURE URBAN GROUP.
Date of Application: 2/8/2017
Location of Proposed Development:
House No: 146. Lot No: 1-4 Street: UNLEY ROAD Town/Suburb. UNLEY
Section No (full/part):
Nature of Proposed Development: CONSTRUCTION OF 7-STOREY MIXED USE BUILDING COMPRISING GROUND LEVEL COMMERCIAL/RETAIL TENANCIES GLEVELS OF RESIDENTIAL APARTMENTS (59 APARTMENTS), BASEMENT &
GROUND LEVEL CAR PARKING.
I MILLY NOTI (OF FUTURE UKBAN GRO being the applicant)
a person acting on behalf of the applicant (delete the inapplicable statement) for the development described above declare that the proposed development will involve the construction of a building which would, if constructed in accordance with the plans submitted, not be contrary to the regulations prescribed for the purposes of section 86 of the <i>Electricity Act 1996</i> . I make this declaration under clause 2A(1) of Schedule 5 of the <i>Development Regulations 2008</i> .
Date: 2/8/2017
Signed: Alway

Note 1

This declaration is only relevant to those development applications seeking authorisation for a form of development that involves the construction of a building (there is a definition of 'building' contained in section 4(1) of the *Development Act* 1993), other than where the development is limited to –

- a) an internal alteration of a building; or
- b) an alteration to the walls of a building but not so as to alter the shape of the building.

Note 2

The requirements of section 86 of the *Electricity Act 1996* do not apply in relation to:

- a) a fence that is less than 2.0 m in height; or
- b) a service line installed specifically to supply electricity to the building or structure by the operator of the transmission or distribution network from which the electricity is being supplied.

Note 3

Section 86 of the *Electricity Act 1996* refers to the erection of buildings in proximity to powerlines. The regulations under this Act prescribe minimum safe clearance distances that must be complied with.

Note 4

The majority of applications will not have any powerline issues, as normal residential setbacks often cause the building to comply with the prescribed powerline clearance distances. Buildings/renovations located far away from powerlines, for example towards the back of properties, will usually also comply.

Particular care needs to be taken where high voltage powerlines exist; where the development:

- is on a major road;
- commercial/industrial in nature; or
- built to the property boundary.

Note 5

Information brochures 'Powerline Clearance Declaration Guide' and 'Building Safely Near Powerlines' have been prepared by the Technical Regulator to assist applicants and other interested persons. Copies of these brochures are available from council and the Office of the Technical Regulator. The brochures and other relevant information can also be found at www.technicalregulator.sa.gov.au

Note 6

In cases where applicants have obtained a written approval from the Technical Regulator to build the development specified above in its current form within the prescribed clearance distances, the applicant is able to sign the form.

PLN/06/0024

DEVELOPMENT APPLICATION FORM

APPLICANT: CATUURY PTY LTD	Development No				
APPLICANT: CATCORY PTY LTD	Previous Develo			_	
		pment No:			
Postal Address: C/- FUTURE URBAN GROUP	Assessment No:	:			
GPO BOX 2403, ADELAIDE SA 5000					
Owner: CATCORP PTY LTD					
Postal Address: AS ABOVE.	Complying		Application	n forwarded to	DA
Postal Address. No TIDOVO:	☐ Non Comply	ying	Commissi	on/Council on	
BUILDER: TBA	☐ Notification	Cat 2	,	/	
	☐ Notification	Cat 3	Decision:		
Postal Address:	☐ Referrals/Co	oncurrences	Туре:		
	☐ DA Commis	sion	Date:	/ /	
Licence No:					
CONTACT PERSON FOR FURTHER INFORMATION		Decision required	Fees	Receipt No	Date
Name: MININ (milly 6) Fish years he was a says (mas)	Planning:				
Name: MILLY (milly & frhreurbangroup. com)	Building:				
Telephone: 08 8221 5511 [work] 0450 965 358 [Ah]	Land Division:				
Fax:[work][Ah]	Additional:				
EXISTING USE: COMMERCIAL RESIDENTIAL	Development Approval				
DESCRIPTION OF PROPOSED DEVELOPMENT: 7-STOREM	MIXED USE BU	ILDING WI	TH GROU	NO FLOOR	unr
LOCATION OF PROPOSED DEVELOPMENT: COMMERCIAL	RETAIL CAR F	PARKING (8	BASEMEN	17) & 6 RESIX	DENNAL
House No: 146 Lot No: 1-4 Street: UNUTY R	. 0A0 To	own/Suburb: <u>(</u>	INLEY		
Section No [full/part] Hundred: _AOELAIDE		olume: <u>538</u>	0	Folio: <u>232</u>	
Section No [full/part] Hundred:	F Vo	olume: <u>606</u>		Folio: 111	
LAND DIVISION:		613 53	80	9 5 5 234	
Site Area [m²] Reserve Area [m²]					_
Number of additional allotments [excluding road and reserve]:		.ease:	YES	☐ NO	
BUILDING RULES CLASSIFICATION SOUGHT:					
If Class 5,6,78 or 9 classification is sought, state the proposed nu				Female:	
If Class 9a classification is sought, state the number o persons fo		·			
If Class 9b classification is sought, state the proposed number of		·			
DOES EITHER SCHEDULE 21 OR 22 OF THE DEVELOPMENT				□ NO	_
HAS THE CONSTRUCTION INDUSTRY TRAINING FUND ACT			YES	LJ NO	Y
	20 MILLION				
I acknowledge that copies of this application and supporting document Development Regulations 2008.	umentation may be	e provided to in	terested pe	rsons in accord	ance with
SIGNATURE: Amin .	\	Dat	ed: 2 /	8 1 20	17





246 UNLEY ROAD, UNLEY

PLANNING STATEMENT

Prepared for: CATCORP PTY LTD

Date:

2 August 2017



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Proprietary Information Statement

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1. INTRODUCTION

The proposed development seeks to demolish all existing buildings and construct a seven storey mixed use building comprising ground level retailing/commercial tenancies, six levels of residential apartments (59 apartments in total), basement and ground level car parking.

Included as appendices to this planning statement are the following documents:

- Appendix 1 Development Application form;
- Appendix 2 Electricity Act Declaration;
- Appendix 3 Certificates of title;
- Appendix 4 Traffic and Parking Assessment prepared by Phil Weaver and Associates dated 20 July 2017;
- Appendix 5 Waste Management Plan prepared by RawTec Pty Ltd dated 11 July 2017;
- Appendix 6 Building Services Design Report prepared by Lucid Consulting Australia dated
 7 July 2017;
- Appendix 7 ESD Report prepared by D-Squared Consultants Pty Ltd dated 2 August 2017; and
- Appendix 8 Stormwater Management Report prepared by Structural Systems Pty Ltd dated
 7 July 2017;
- Appendix 9 Acoustic Design Advice prepared by Resonate Acoustics dated 30 June 2017;
- Appendix 10 Landscaping Concept Design prepared by Hassell dated 5 July 2017; and
- Appendix 11 Plans and Drawings prepared by Tectvs dated 2 August 2017.

As a result of the high quality design; the specialist inputs; our site and locality inspection; and, our assessment of the proposal against the relevant provisions of the Unley (City) Development Plan (consolidated 30 May 2017), we have formed the opinion that the proposal displays significant planning merit and therefore warrants Development Plan Consent.



2. BACKGROUND

On the 26 March 2015, the Development Assessment Commission granted Development Plan Consent for Development Application 090/M003/15 involving a 7 level mixed use building comprising ground floor retail, 140 apartments and ten (10) two-storey townhouses, together with landscaped communal areas, basement car parking and associated works (DA/090/M003/15).

The Development Plan Consent was never acted upon and has expired. However, the previously approved development provides important background context in relation to the overall height, scale and form that was supported by the Government Architect (by way of Pre-Lodgement Agreement) and the Development Assessment Commission's granting of Development Plan Consent.

It should be noted that the previous development was approved across a much larger amalgamated site between Hart Street to the north and Opey Avenue to the south. The site was also located adjacent to the Residential Interface (Built Form) Zone to the west. Figure 2.1 depicts the approved Unley Road elevation and Figure 2.2 depicts the side elevation with the 30 degree building envelope plane anticipated by the Urban Corridor Zone.

Figure 2.1 Unley Road elevation



Figure 2.2 Side elevation and 30 degree building envelope





The subject proposal has effectively used the previously approved development as a guide to prepare a much more deliverable and marketable product of lower scale and which has no Residential Streetscape (Built Form) Zone interface. The proposal is also contained wholly within the 30 degree building envelope plane despite it not being applicable in this particular instance (as the site does not adjoin the Residential Streetscape (Built Form) Zone).



3. PROPOSAL DESCRIPTION

3.1 Proposal Summary

The proposed development seeks to demolish all existing buildings and construct a seven storey mixed use building comprising ground level retailing/commercial tenancies, six levels of residential apartments (59 apartments in total), basement and ground level car parking.

As identified in the drawings prepared by Tectvs, the western boundary of the subject site (currently the western boundary of 1 Hart Avenue) is proposed to be realigned under a future and separate land division application. This realignment will increase the site area of the neighbouring allotment at 3 Hart Avenue (also owned by the applicant) and provide an even greater separation distance between the subject site and the Residential Streetscape (Built Form) Zone to the west.

The proposed development will be discussed in greater detail below.

3.2 Design Philosophy

The proposed development seeks an increased development intensity and scale in a manner that will contribute to a positive urban design quality by commencing the desired framing of Unley Road and offering pedestrian comfort and amenity, integrated and screened car parking areas to the rear, accessible via Hart Avenue.

The proposal seeks to revitalise the locality through the replacement of low scale buildings and underutilised land which does not contribute positively to the desired future character envisaged along this part of Unley Road. As the first development to be constructed along this part of Unley Road, the design does however ensure that it responds positively to both the existing and future urban contexts.

The heavier stone base or podium reinforces the existing lower scale context. The predominately glazed and active ground floor is bordered by dark steel frames and canopies which complement the stone and contribute positively to pedestrian amenity and comfort.

The lighter, glazed upper storeys with balconies projecting from the facades create a greater sense of depth and set in place the new future urban form. The proposal is also contained wholly within the 30 degree building envelope plane despite it not being applicable in this particular instance (as the site does not adjoin the Residential Streetscape (Built Form) Zone).

The building also comprises a number of other external high quality and robust materials including:

- metal screening;
- metal cladding;
- steel;
- stained pre-cast;
- stonework;
- tinted glass; and
- clear glass.



The proposal provides an extensively landscaped communal courtyard area, with a grand, 5-level void above. This area has been designed for shared use, to provide a space for individuals and small group gatherings, and is provided as an extension of the residents' backyard. The void is greened through balcony edge planting and vertical trellis climbers creating an attractive outlook and sense of arrival for guests and residents. Planters on each level allow plants to cascade down over the edge to create a curtain of filtered light.

3.3 Ground, Basement and Lower Basement Levels

The car parking area for the proposed development is provided over 1.5 basement levels and ground level providing an overall total of 86 car parks. Access to the undercroft carparking area will be gained via a proposed two-way crossover from Hart Avenue. Another two-way crossover is proposed further west (closer to the western boundary of the site), and will provide access to 9 ground floor carparking spaces, and the basement and lower basement levels. Two-way ramps and their associated landings will connect the basement levels, and will be expressed as a gradient of 1:6 metres. Pedestrian access to the lift and stairs is permitted at each level, and appropriately separated from the vehicle turning paths.

A total of 26 car parking spaces are provided at ground level, of which 20 car parking spaces (including 1 for use by disabled persons) will be allocated for public use associated with the commercial/retail tenancies and residential visitors. The remaining 6 car parking spaces on ground level, plus all 60 car parking spaces in the basement levels will be allocated for residents. Specifically, the 4 pairs of stacked car parking spaces located in the basement level will be allocated to apartments which are sold with two car parking spaces.

There are also 28 wall-mounted bicycle racks in the basement level and 8 bicycle racks at ground level.

Services and external apartment storage will be located over the ground, basement and lower basement levels. Waste will be stored in 2 separate rooms both located on ground level. The eastern waste room contains the waste chute system which is connected to the residential levels above, whilst the other room is used for storage of waste prior to collection and the bin wash down area. The waste arrangements will be further detailed in the Environmental Considerations section of this Statement.

At ground level, four commercial/retail tenancies are proposed to front Unley Road, with a combined total floor area of approximately 580 square metres. The floor area is distributed as follows:

- Tenancy 1 153 square metres;
- Tenancy 2 147 square metres;
- Tenancy 3 157 square metres; and
- Tenancy 4 122 square metres.

For the purposes of this application, the uses are envisaged to include a shop/restaurant, two retail tenancies and an office/consulting room, however the exact operation of these land uses will be confirmed under separate future development applications.

The opportunity for outdoor dining at the Unley Road/Hart Avenue corner has been identified, and a potential design for this space has been included as part of the Landscaping Concept Plan prepared by Hassell and included in Appendix 10. This space could provide outdoor dining associated with a future café/restaurant, enabling the development to further engage with the streetscape, and provide a more active and comfortable pedestrian experience. Adjustments to side street parking would be required to facilitate the protuberance, to create sufficient space for a potential outdoor dining area.

REF 0141 | 2 August 2017



We acknowledge that these alterations would be subject to further consultations with the City of Unley Council for their ultimate approval as these changes affect the public realm.

A shared bathroom/toilet has also been provided behind the tenancies in the undercroft car parking area.

The main entrance and lobby area for the residential apartments is located centrally on the ground floor fronting Unley Road. This room also includes resident mailbox facilities and a central lift which enables access to all residential floors and basement parking levels. Access to residential levels will be restricted to residents and their visitors only through the use of a key card and/or intercom system. The lobby is directly accessible via doors to the undercroft carparking area.

3.4 Level 1

On Level 1, a total of 11 apartments are proposed comprising of the following:

- one, two bedroom, two bathroom, and study apartment of 98 square metres and a 52 square metre balcony;
- two, one bedroom, one bathroom and study apartments of 60 square metres and a 15 square metre balcony;
- two, two bedroom and one bathroom apartments of 73 square metres and a 40 square metre balcony; and
- six, two bedroom and two bathroom apartments between 81 and 96 square metres in area with balconies between 41 and 86 square metres in area.

Air conditioning units will be located against the building, on apartment balconies so as to not be seen from pedestrian level.

A total of between 6 and 8.5 cubic metres of internal and external storage space will be provided to each dwelling.

Level 1 is setback from 0 metres from Unley Road, Hart Avenue and the southern boundary. There will be a 15.4 metre setback from the western boundary to the store room fronting Hart Avenue, and the remainder of the undercroft carpark.

3.5 Level 2 to Level 5

Across Levels 2 to 5, a total of 11apartments are proposed on each floor, comprising of the following:

- one, two bedroom, two bathroom and study apartment of 98 square metres and a 24 square metre balcony;
- two, one bedroom, one bathroom and study apartments of 60 square metres and a 7 square metre balcony;
- two, two bedroom and one bathroom apartments of 73 square metres and a 12 square metre balcony; and
- six, two bedroom and two bathroom apartments ranging between 81 and 96 square metres in floor area with balconies ranging between 16 and 39 square metres in area.





Air conditioning units will be located against the building, on apartment balconies so as to not be seen from pedestrian level.

A total of between 6 and 8.5 cubic metres of internal and external storage space will be provided to each dwelling.

Levels 2 to 5 will be setback from all boundaries as follows:

- Unley Road 2.4 metres to balcony (and part of façade) and 5.2 metres to the main façade generally;
- Hart Avenue 2 metres to balcony and 3.2 metres to facade;
- Southern boundary 2 metres to balcony and 3.2 metres to facade; and
- Western boundary 16.8 metres.

3.6 Level 6

At Level 6 there are four, three bedroom, two bathrooms apartments between 152 and 155 square metres in floor area with balconies ranging between 60 and 74 square metres in area.

Air conditioning units will be located against the building, on apartment balconies so as to not be seen from pedestrian level.

A total of 10 cubic metres of internal and external storage space will be provided to each dwelling.

Level 6 will be setback from all boundaries as follows:

- Unley Road 2.4 metres to balcony and 7.3 metres to main building façade;
- Hart Avenue 3.2 metres to balcony and 4.2 metres to main building façade;
- Southern boundary 3.2 metres to balcony and 4.2 metres to building façade; and
- Western boundary 16.8 metres to balcony and 22.4 metres to building façade.

3.7 Landscaping

A Landscaping Concept Plan has been prepared by Hassell and is included in Appendix 10. This plan details the proposed landscaping for the development, which includes external façade greening and a communal internal courtyard.

Externally, the northern, eastern and western façades will feature greening over the podium element, and all facades will also include green filigree to the vertical screens on the upper levels.

A communal green courtyard space with a 5 level void above is also provided centrally within the building. The verdant garden setting provides seating areas for individuals and small groups as somewhat of an extension to the private open space provided to each apartment. The void is greened through balcony edge planting and vertical trellis climbers creating an attractive outlook and sense of arrival for guests and residents. These planters are located in front of the walls that face the lift to produce a dramatic entrance effect whilst encouraging filtered light penetration as they cascade down to lower levels.





Vertical columns reaching from the lobby space up through the central void have also been included in this central atrium to create an immersive experience for visitors and residents. The layout of columns responds to the communal courtyard creating shifting filtered light within the void to amplify the verticality of the space.

3.8 Environmental Considerations

3.8.1 Waste

A Waste Management Plan for the proposed development has been prepared by RawTec Pty Ltd, and is included in Appendix 5.

The proposed development utilises a chute system which is to be managed by building services and collected via a private waste contractor.

Residents will be required to transport their waste to the chute located on each residential level, behind a door near the northern staircase. The chute will include a diverter, allowing residents to allocate their waste as either 'general' or 'recycling'. Waste will then travel down to ground level, and distributed into the corresponding bin.

Commercial tenancies will be required to manually transport their waste directly to the waste storage room.

Waste from the subject site is proposed to be separated into general waste and comingled recycling waste. Although RawTec have recommended provision of separate bins for organic waste, inclusion of this waste stream will not be accommodated as a part of this application, and instead will be re-assessed for potential inclusion once the building is developed and in operation. Hard waste, e-waste, office paper and CFL/Lighting will be collected from the subject site by separate contractors on an "as needs" basis, or privately arranged to be dropped off to their respective waste disposal locations.

Building services will be responsible for monitoring the levels of waste in the chute room, and will move full bins to the larger waste storage room in the north western corner of the proposed building when required. Building services will also coordinate the collection of waste and washing down of bins.

At the time of collection, the private contractor will reverse into the private laneway adjacent to the western boundary from Hart Avenue, load the waste, then exit the site onto Hart Avenue in a forward direction. Based on predicted volumes, there will be up to 9 collections per week for general waste and co-mingled recycling. This estimated number of collections includes the collection of predicted organic waste volumes, whether these are combined within the general waste stream or included as a separate stream at a later date.

3.8.2 ESD

D Squared Consulting have been engaged to prepare an ESD Report for the proposed development (included in Appendix 7). The report confirms that the proposed development will be water and energy efficient, whilst achieving a high level of thermal comfort for future occupants. Dwellings have been designed to achieve a 7 National House Energy Rating (NatHERS), through passive design and good quality building materials. Further, communal areas encourage social interaction, whilst also providing residents with green spaces for personal enjoyment.



The energy efficiency of the building is achieved through optimising the network of installed systems including orientation, shading, insulation, natural light, ventilation and lifespan considerations, including:

- double glazing;
- energy efficient LED lighting;
- day/night energy efficient air conditioning system;
- solar gas boosted hot water system;
- energy efficient appliances such as induction cooktops and energy efficient dishwashers;
- energy Metering;
- demand controlled car park ventilation systems;
- photovoltaic panels on roof;
- low environmental impact by use of low embodied energy materials and finishes and low water usage features and plantings;
- using zero ODP refrigerants and insulation;
- battery connection to support use of renewable energy to common areas;
- high level of indoor environment and air quality through natural ventilation strategies;
- interactive solar shading to encourage the use of natural light;
- infrastructure for connection to embedded network if deemed beneficial to future residents;
- selection of materials with a high recycled material content;
- section of materials with a comparatively low embodied energy/carbon profile wherever possible;
- a connection for future e-charging for cars; and
- managing construction waste such that a minimum of 90 percent of all waste is diverted from landfill.

D Squared estimate that as a result of including the above energy initiatives, it is expected that the apartments will have an annual energy usage of approximately 50 percent of a standard NCC compliant dwelling (excluding internal equipment loads and occupant behaviours). Further, apartments are also predicted to have an annual water usage of approximately 30 percent of a standard NCC compliant dwelling.

3.8.3 Noise

Resonate Acoustics have been engaged to assess various noise impacts. A copy of their report is included in Appendix 9. Resonate Acoustics have concluded that the proposal will be able to achieve the required Environment Protection (Noise) Policy 2007 noise levels by utilising specific building materials, glazing and sealants. Some of these noise attenuation strategies include:

- Use of 500 millimetre cavities over bedrooms in the penthouse apartments facing Unley Road (400 millimetre cavities for all other areas are satisfactory);
- Either 1 or 2 sheets of 13 millimetre sound rated plasterboard internal lining for top floor external walls (depending on what level of sound insulation is desired);





- Glazing with a specific weighted sound reduction rating;
- All openable windows and doors are to have rubber compression or contact seals (or acoustically equivalent seals); and
- Appropriate noise attenuation enclosures/barriers for the mechanical services and plants which will be finalised during the detailed design phase.

3.8.4 Contamination

Given the existing and historical use of the site, it is considered that there would be a very low risk of contamination being present which would pose unacceptable health or environmental risks to future residents, visitors and pedestrians and other users accessing the site.

3.9 Category of Development

According to the Procedural Matters section of the Urban Corridor Zone the proposed development is not located on land adjacent to the Residential Zone and should therefore be assessed as a category 1 development.



4. SITE AND LOCALITY

The subject site is located on the western side of Unley Road between Hart Avenue to the north and Opey Avenue to the south. The site comprises of 4 allotments, legally described as:

- Allotment 1 in Certificate of Title Volume 5380 Folio 232;
- Allotment 2 in Certificate of Title Volume 6067 Folio 119;
- Allotment 3 in Certificate of Title Volume 6134 Folio 955; and
- Allotment 4 in Certificate of Title Volume 5380 Folio 234.

Figure 4.1 Site and Locality



The site is otherwise known as 244-246 Unley Road and 1 Hart Avenue Unley, has a 42 metre frontage to Unley Road, a 59.2 metre frontage to Hart Avenue and a total site area of 2,494 square metres. The subject site is located within the Urban Corridor Zone and specifically in High Street (Unley Road) Policy Area 20. The subject land is not located adjacent to land within the Residential Zone.

On the allotment fronting Hart Avenue is a single storey detached dwelling and associated outbuilding. This site has a free and unrestricted right of way over the laneway to the east of the dwelling.

Fronting Unley Road are four commercial tenancies of around 1,500 square metres of floor area. Businesses currently operating from these sites include F45 Training Unley, Plaster Fun House and Connekt Plumbing. Rear access to these sites is obtained via a single crossover off Hart Avenue.



The locality is characterised by a range of commercial businesses along Unley Road predominantly of single storey form with a few two storey buildings together with low-scale residential development in the surrounding local streets. Residential development in the locality comprises mostly of single storey detached dwellings, however recent development in the area also reflects a two storey built form.

Unley Road is characterised by narrow-fronted commercial buildings with the majority including little to no setbacks from each other or front boundaries. These long-standing buildings present a continuous frontage along Unley Road with verandahs generally extending over the pedestrian footpaths. Many of these buildings are single storey in form, some of which are heritage listed. Two storey developments also appear intermittently along Unley Road. The Local Heritage listed Soldiers Memorial Garden is located approximately 100 metres north of the subject site, and the State and Local Heritage listed Unley Town Hall and Church are located a further 100 metres north.

These significant buildings are located within the District Centre Zone. This Zone also includes the Unley Shopping Centre which supports the surrounding residential area.

To the south, there is further commercial development including the Unley Metro Centre and the Cremorne Hotel (Local Heritage Place), both located approximately 50 metres from the subject site.

Unley Road is a two-way arterial road which supports two vehicle lanes and a bike lane in both directions. Traffic is restricted to 60 kilometres per hour. The bicycle lane operates between 7:30am and 9:00am Monday to Friday on the western side of the road and between 4:30pm and 6:00pm Monday to Friday on the eastern side of the road. The road reserve is approximately 14 metres wide with time restricted onstreet car parking permitted along both sides between 9:00am and 5:00pm Monday to Friday and between 9:00am and 12:00 noon on Saturday. A 30 metre parking embayment is also provided to the south, and a bus zone is located in front of the subject site, as well as along the eastern side of Unley Road in front of the Cremorne Hotel.

Hart Avenue is approximately 8 metres in width, and features approximately 2 metres of landscaped verge on either side. On the southern side, parking is permitted for one hour periods between 9:00am and 5:00pm Monday to Friday and between 9:00am and 12:00 noon on Saturday, then is unrestricted further west of the subject site. A loading zone is provided on the northern side, west of the Unley Road intersection, for a distance of approximately 10 metres. Parking further west then becomes unrestricted.

The subject site is highly accessible by public transport, with "Go Zone" bus stops located directly in front of the site and along both sides of Unley Road.

Unley Road does not include regular landscaping, however there are pockets where the built form has been setback, which has allowed for the inclusion of street trees, shrubs and public seating. The residential streets off Unley Road, including Hart Avenue, are generally lined with mature trees of varying species.



5. DEVELOPMENT PLAN

The proposed development is located within High Street Policy Area 20 of the Urban Corridor Zone as identified in the City of Unley Development Plan (consolidated version 30 May 2017).

Our planning assessment focuses on the matters which we consider most relevant in determining the merit, or otherwise, of the proposal, namely:

- Desired character;
- Height and scale;
- Building appearance and design;
- Setbacks;
- Apartment design;
- Parking, access and traffic;
- Crime prevention;
- Environmental Considerations; and
- Affordable Housing.

Our following assessment should be read in conjunction with the proposal plans and specialist reports accompanying the development application and included as appendices to this planning report.

5.1 Desired Character

5.1.1 Land Use and Form

The desired character envisaged for the Urban Corridor Zone supports mixed use development along Unley Road. Development is encouraged to create a linear corridor that frames Unley Road and which creates an active street frontage. Buildings of 3 or more storeys will be the predominant built form. The proposal achieves the desired character at this general level.

The siting and design of new buildings are encouraged to achieve high quality urban design outcomes. Development is expected to be designed within defined building envelopes where buildings at the periphery of the zone are to provide an appropriate height and scale transition to development in adjacent zones of a lower scale and intensity. Impacts on adjoining zones will also be minimised through appropriate land uses, design and location of on-site activities/windows/balconies, and use of landscaping. Specifically, the desired character for the High Street Policy Area suggests that overlooking, overshadowing and emission impacts will be moderated through good design and mitigation techniques, however, it is noted that noise and air amenity cannot be expected to be equivalent to that which is experienced within a purely residential area. Whilst not adjacent to a zone of lower scale and intensity, the overall form of the development satisfies the defined building envelope set out under Urban Corridor Zone PDC 13. The proposed development is also separated from the Residential Streetscape (Built Form) Zone by approximately 30.4 metres which is a considerable distance to mitigate the aforementioned impacts, including traffic and access.



5.1.2 Heritage

Contextual qualities, including the setting and juxtaposition of heritage places/character items with new or refurbished development are to be respected. The proposed development is located opposite local heritage places, however due to the width of Unley Road and the separation this affords to such places, we are of the opinion that the proposal will not detrimentally effect the setting of these places.

5.1.3 Car Parking and Access

The desired character also recommends that access will occur mainly from secondary road frontages such as Hart Avenue; and, through-site integrated and shared rights-of-way should be established. Building design is encouraged to be people orientated, providing safe and convenient access to and through buildings from roads and parking areas. There is a strong a desire for parking areas to be consolidated, shared and screened from public view and which minimise negative impacts on adjoining residential areas through measures such as appropriate separation, screens and buffer landscaping. In our opinion, the proposed development satisfies all these outcomes whereby residents and visitors will have direct, safe, convenient and comfortable access between the residential/non-residential land uses and the car park. The car parking area is also appropriately screened (with the exception of the public and private car park entrances along Hart Avenue) and there is the potential to link the private access way to a future development to the south.

In order to achieve the desired building design outcomes and car parking and access links, the desired character for the High Street Policy Area states that it will be necessary for existing small and narrow sites to be amalgamated and their redevelopment co-ordinated. The proposed development assists this process.

5.1.4 Pedestrian Environment

A high amenity pedestrian environment is to be established that provides integrated linkages to adjacent centres, public transport stops and public spaces. The desired character for the High Street Policy Area seeks to maintain a safe and efficient movement system (for significant private vehicle numbers as well as critical public transport links) in manner that is balanced with the desire to transform these strips into vibrant, intimate and appealing mixed use pedestrian friendly corridors of small scale retail, mixed business and entertainment facilities at ground and lower levels with medium to high density living at upper levels of multi-storey buildings. The proposed development is consistent with these aspects of the desired character statement.

5.1.5 Environmental

Well-designed landscaping is encouraged to assist in visually softening large building façades, to screen and buffer parking/service areas/zone interface areas, and provide amenity, biodiversity and micro-climate benefits. Water sensitive urban design (WSUD) for the harvest, treatment, storage and reuse of stormwater, and environmentally sustainable design (ESD) for reduction in energy consumption through passive design, construction and operation is envisaged within a new development. Green (vegetated) places will assist urban heat island effects and roof top gardens will provide opportunities for private and communal open space. The proposal provides a substantial internal atrium space that will be landscaped and will offer significant micro-climate benefits. The proposal also provides rainwater tanks. These matters are addressed in the landscape plan, stormwater plan and ESD report striking a chord with these particular aspects of the desired character statement.





5.1.6 Design

The High Street Policy Area demands high quality buildings and associated site works that seek to improve the comfort, safety, convenience and appeal of the public realm and the pedestrian environment for visitors and residents through a variety of measures. The proposal achieves this by:

- creating visually interesting, highly transparent and varied shop fronts and building entries;
- providing pedestrian shelter along Unley Road and Hart Avenue adjacent shop fronts;
- providing an accessible and appealing link between shops and businesses along Unley Road and the car parking area to the rear or underneath the building;
- allowing the opportunity to provide occasional outdoor dining for the restaurant/café tenancy (if required by the operator);
- providing a private access way that is paved and well-lit to provide an attractive entrance that will
 integrate with Hart Avenue; and
- locating parking areas under and behind the building to ensure ground floor levels match public footpath levels along Unley Road to provide for level access and direct interaction to the public realm.

5.1.7 Existing Built Form Context

The High Street Policy Area requires development to respect the predominant, traditional rhythm of narrow–fronted shop tenancies and the siting, height and street format. The proposal achieves this by:

- incorporating a dominant street level podium building form along Unley Road reflecting a two storey form with the upper levels offset and setback behind to reinforce a comfortable human scale;
- using modern materials and finishes within the podium to complement the key traditional building and shop-front elements including verandahs, parapet facades and clear-glazed narrow shop front displays;
- creating a largely continuous built edge to Unley Road whilst reflecting the traditional narrowfronted tenancies within the podium form reflecting a fine-grain character and detailing; and
- reinforcing the nil street boundary setback to frame the Unley Road corridor.

5.1.8 Living Environment

The High Street Policy Area also seeks to create high quality living environments. The proposal achieves this by:

- applying sustainable design solutions to optimise natural ventilation and capture of sun or natural daylight;
- optimising resident and visitor safety, convenience and amenity by providing secure private and publicly accessible car parks, lighting and surveillance of public and common spaces;
- locating and screening goods storage, refuse collection areas in a sensitive manner; and





• locating and designing sensitive habitable rooms and balconies to optimise the utility of those spaces and minimise noise intrusion.

Overall, we have formed the opinion that the proposed development achieves the intent of the desired character statement set out for both the Urban Corridor Zone and High Street Policy Area.

5.2 Height and Scale

Urban Corridor Zone

PDC 5 Residential development shou

Residential development should achieve a minimum net residential site density in accordance with the following:

Policy Area	Minimum net residential site density
High Street (Unley Road) Policy Area 20	60 dwellings per hectare net

PDC 12

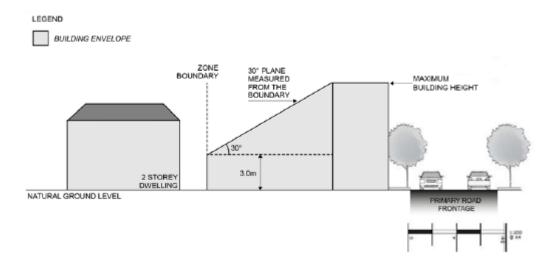
Except where airport building height restrictions prevail, the interface height provisions require a lesser height, or an alternative maximum building height is shown on Concept Plan Maps Un/1 to 7, building heights (excluding any rooftop mechanical plant or equipment) should be consistent with the following parameters:

Policy Area	Minimum Building Height	Maximum Building Height
High Street (Unley Road) Policy Area 20	3 storeys (11.5 metres)	5 storeys and up to 18.5 metres

PDC 13

To minimise building massing at the interface with development outside of the zone, buildings should be constructed within a building envelope provided by a 30 degree plane, measured from a height of 3 metres above natural ground level at the zone boundary (except where this boundary is a primary road frontage, as illustrated in Figure 1).

Figure 1







Medium and High Rise Development

Objective 1: Medium and high rise development that provides housing choice and employment opportunities.

The proposed development is seven storeys (24.5 metres) exceeding the maximum five storey limit (18.5 metres) prescribed by PDC 12. Notwithstanding the fact that the Government Architect and Development Assessment Commission previously supported a seven storey building of much larger scale, bulk and mass than that proposed, we are of the opinion that the height of this particular development is acceptable in its existing and future context for the following reasons:

- The substantive component of the proposed building will be 18.5 metres in height (measured from Unley Road ground level to the top of balustrade at Level 5) which is the maximum building height envisaged by Urban Corridor Zone PDC 12;
- The height of the building is moderated through the strong podium element which is sited on the street boundary; the 5.2 metre building setback and 2.4 metre balcony setback above podium level to Level 5; and, the 7.8 metre building setback and 5.2 metre balcony setback of the upper level;
- While the subject site does not adjoin the Residential Streetscape (Built Form) Zone, the overall
 form of the building sits comfortably within the 30 degree building envelope plane anticipated by
 Urban Corridor Zone PDC 13;
- The proposed development is separated from the Residential Streetscape (Built Form) Zone between 30.4 metres (podium) and 35.2 metres (upper levels) which is a considerable distance to mitigate any potential overlooking, overshadowing or visual impacts that may occur as a result of the additional height;
- The subject site is located less than 100 metres south of the newly created Unley Central Precinct which will contemplate buildings of a higher scale than that proposed;
- The proposed development respects the existing low scale context through the strong and
 prominent podium form and will sit comfortably in the future context which will progressively
 overtime give rise to a new urban form in accord with the High Street Policy Area;
- There is potential for buildings within the zone to penetrate the Adelaide International Airport
 Obstacle Limitation Surface as stated in the desired character statement of the Urban Corridor
 Zone. This height is substantially higher than the proposed building height;
- The 18.5 metre height of the building to Unley Road (measured from Unley Road ground level to
 the top of balustrade at Level 5) relates to the width of the Unley Road carriageway to ensure a
 comfortable human scale is achieved and no overbearing bulk or mass overwhelms the public
 realm:
- The proposed development represents a density of 236 dwellings per hectare which is consistent with Urban Corridor Zone PDC 5; and
- The development will provide housing choice and employment opportunities satisfying Medium and High Rise Development Objective 1.



In addition to the above, there are a number of design features that should be recognised in the context of height, including:

- an accessible, safe and secure linkage is provided off Hart Avenue which has the potential to be integrated with a development on the adjacent southern site;
- all car parking is provided underground or to the rear and screened from the public realm;
- a range of adaptable dwelling types is provided;
- a high quality internal green atrium supported by services that ensure ongoing maintenance is provided which also assists in bringing in natural light and ventilation into the core of the building;
- innovative external shading in the form of green filigree provided to vertical screens has been
 provided along the western side of the building, along with balconies and windows which are
 recessed under the upper level slab;
- a higher level of apartment amenity is provided through the provision of private open space mostly in excess of minimum requirements;
- All habitable rooms and common circulation areas have access to natural light and ventilation.

In consideration of all the above, we have formed the opinion that the height of the proposed building is acceptable from an urban form perspective and warranted through the incorporation of high quality design features.

5.3 Building Appearance and Design

For ease of assessment, we have grouped the relevant Development Plan provisions relating to Building appearance and design under the following key themes:

- ground plane;
- relationship with heritage places;
- car parking;
- landscaping;
- materials;
- building appearance; and
- service areas and site facilities.

5.3.1 Ground Plane

High Street Unley Policy Area 20

PDC 1 Development should provide continuity of predominately narrow small ground floor shops, and limited offices and other non-residential land uses along the road corridor at ground level or first floor level, and residential development above.



PDC 3 Shops or group of shops contained in a single building should have a maximum gross leasable area in the order of 450 square metres (per tenancy).

PDC 6 The ground floor of buildings should be built to dimensions including a minimum floor to ceiling height of 3.5 metres to allow for adaptation to a range of land uses including retail, office and residential without the need for significant change to the building.

PDC 7 A minimum of 50 per cent of the ground floor primary frontage of buildings should be visually permeable, transparent or clear glazed to promote active street frontages and maximise passive surveillance.

PDC 8 Buildings should maintain a pedestrian scale at street level, and on land identified on Concept Plan Maps Un/1, 2A and 2B, should:

- (a) include a clearly defined podium or street wall fronting the High Street (Unley Road) Policy Area 20 main road and side streets where appropriate, of a height consistent with traditional one and two storey facades and no greater than two storeys or 8.5 metres in height;
- (b) have levels above the defined podium or street wall setback a minimum of 3 metres from that wall.

Design and Appearance

PDC 16 In mixed use and medium and high density residential areas, development facing the street should be designed to provide interesting and pedestrian friendly street frontages by:

- (a) including features such as frequent doors and display windows, retail shopfronts and/or outdoor eating or dining areas;
- (b) minimising the frontage for fire escapes, service doors, plant and equipment hatches;
- (c) avoiding undercroft, semi-basement or ground floor vehicle parking that is visible from the primary street frontage;
- (d) using colour, vertical and horizontal elements, roof overhangs and other design techniques to provide visual interest and reduce massing.

PDC 17 Where zero or minor setbacks are desirable, development should incorporate shelter over footpaths to enhance the quality of the pedestrian environment.

Medium and High Rise Development

PDC 11 To contribute to direct pedestrian access and street level activation, the finished ground level of buildings should be no more than 1.2 metres above the level of the footpath, except for common entrances to apartment buildings which should be at ground level or universally accessible.



The narrow-fronted commercial tenancies proposed at ground level maintain the continuous row of shop frontages which characterise Unley Road, and seek to activate the development at pedestrian level. The carpark will be screened from the public, and residential apartments are proposed to be included at the upper levels behind a highly articulated façade. Respecting this, the overall building design satisfies Policy Area PDC 1.

It is envisaged that new development in the Urban Corridor Zone will deliver a high quality pedestrian environment (Design and Appearance PDC 16). The proposal seeks to achieve this through glazing along the entire commercial frontage at ground level, locating services and car parking behind the main face of the building, and including canopies to provide visual interest and pedestrian comfort. All these elements assist in creating a comfortable human scale and appearance at pedestrian level.

The defined podium to Unley Road of 8.6 metres in height (relative to two storeys) will contribute positively to a high quality pedestrian scale and assist with integrating the development into its existing context. Behind this podium, the balcony of Level 2 is setback approximately 2 metres and the façade of the building is setback 5 metres. Although not strictly consistent with the minimum 3 metre setback prescribed by Policy Area PDC 8(b), the contrast between the stonework in the podium and stained pre-cast concrete for the building will visually strengthen the appearance of the podium and assist in creating the distinct separation this principle seeks to achieve.

In addition to the above, the proposal achieves the following:

- the floor areas for each commercial/retail tenancy is less than 450 square metres (Policy Area PDC 17);
- the ground level includes a floor to ceiling height of 3.4 metres to permit a range of land uses without requiring major internal works (Policy Area PDC 6); and
- the proposed finished ground level will be no more than 1.2 metres above the level of the footpath (Medium and High Rise Development PDC 11).

5.3.2 Relationship with Heritage Places

High Street Unley Policy Area 20

PDC 10

The integrity and spatial setting of a heritage place, and positive character facades, be respected by adjacent development providing appropriate setbacks, wall heights, format and features, and new and taller building elements being distinctly further setback and of lightweight subservient appearance.

The proposed development is located a substantial distance from any heritage places and as such will not detrimentally effect the setting of those places.

The proposed development also respects buildings which contribute positively to the existing streetscape. The materials and proportions of the podium element and the recessed upper levels allow the building to respond and respect the existing and future urban contexts.





5.3.3 Car parking

Urban Corridor Zone

PDC 6

Vehicle parking should be located to the rear of development or not be visible from public land along the primary road frontage.

Transportation (Movement of People and Goods)

PDC 28

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
- (c) incorporate facade treatments along major street frontages that are sufficiently enclosed and detailed to complement neighbouring buildings consistent with the desired character of the locality.

PDC 32

Landscaping should be provided and maintained in order to screen, shade and enhance the appearance of car parking areas. To this end, grade level car parking areas should not be located closer than two metres to the street alignment and 1.2 metres to the common boundary of adjoining property located within a residential zone.

Vehicle parking is accessible via Hart Avenue, and is located at ground level (behind the commercial/retail tenancies) and at basement level. The parking areas will be adequately screened from public view and setback from the street and adjoining properties so as to not negatively impact upon the amenity of the Hart Avenue streetscape or occupants.

The proposed arrangement provides convenient vehicle parking for the building occupants whilst also permitting activation of the ground level frontage to Unley Road as envisaged by the Development Plan.

5.3.4 Landscaping

Urban Corridor Zone

PDC 20

Development should incorporate landscaping as an integral part of the design of the development and include plants with a mature height, scale and form to complement and relate to that of the development.

Landscaping

PDC 1

Landscaping of development should:

- (a) be provided to soften the appearance of built form;
- (b) complement the scale of the built form;
- (c) be consistent with any particular desired character or important contextual features of the landscape setting in the locality;





- (d) define spaces and edges;
- (e) provide microclimate benefits such as shade and shelter;
- (f) retain existing landscaping, where practicable;
- (g) use species and techniques that require low water use and support and enhance local biodiversity;
- (h) enhance the appearance of development, establish visual buffers to adjacent development and screen service, loading, outdoor storage and parking areas.

Medium and High Rise Development

PDC 21

Green roofs (which can be a substitute for private or communal open space provided they can be accessed by occupants of the building) are encouraged for all new residential commercial or mixed use buildings.

PDC 23

Deep soil zones should be provided to retain existing vegetation or provide areas that can accommodate new deep root vegetation, including tall trees with large canopies.

One way of achieving this is in accordance with the following table:

Site area	Minimum deep soil area	Minimum dimension	Tree/ deep soil zones
<300m ²	10m ²	1.5 metres	1 small tree / 10m² deep soil
300-1500m ²	7% site area	3 metres	1 medium tree / 30m² deep soil
>1500m ²	7% site area	6 metres	1 large or medium tree / 60m² deep soil
Tree size and site area definitions			
Small tree:	< 6 metres mature height and < less than 4 metres canopy spread		
Medium tree:	6-12 metres mature height and 4-8 metres canopy spread		
Large tree:	12 metres mature height and > 8 metres canopy spread		
Site area:	The total area for development site, not average area per dwelling		

PDC 24 Deep soil zones should be provided with access to natural light to assist in maintaining vegetation health.

Landscaping is envisaged to be an integral part of the design of new development to complement the built form and landscape character, improve environmental performance and sustainability, promote safety and causal surveillance, and/or provide a landscaping buffer.



No front setback is envisaged for the subject site (as this is the consistent development pattern for the majority of Unley Road). The proposal therefore seeks to link the greenery of the existing street tree canopies north and south of the subject site through the use of façade greening to the horizontal podium mass. Additional green filigree provided to vertical screens on the tower facade assist with softening the development's mass and presence within the Unley Road streetscape.

In addition, the communal courtyard provided centrally within the proposed building is anticipated to deliver an extensively landscaped, high quality area for the shared enjoyment of building occupants and visitors.

Specifically in relation to Landscaping PDC 1, the landscaping included in the proposed development achieves the following:

- the proposal enhances the attractive site attributes by linking the greenery of the existing street tree canopies north, south and west of the subject site with greening treatment to the podium;
- the communal courtyard area is subject to casual surveillance from the upper levels, whilst garden beds located around the perimeter and bordering entry zones to doors provide a sense of privacy through screening, and also a sense of (green) enclosure to the communal area;
- the green filigree provided to vertical screens will assist with the shading and cooling of the building, therefore assisting in the overall sustainability of the development; and
- the Level 1 courtyard includes attractive and coordinated seating which is suitable for individual or group use for either formal or informal activities.

Despite the fact that the proposed development does not include landscaping at ground level or deep soil areas, we believe that proposed landscaping, stormwater arrangements and energy efficiency more than satisfy the intention of this provision.

We note that, green roofs are encouraged in new developments as they can be suitable for private or communal open space. Although the proposed communal courtyard area is not technically a green roof, it remains to provide an extensively landscaped shared area of high amenity for use by the building occupants. Respecting this, and given the proximity of the subject site to public open space and recreational areas, inclusion a green roof is not considered necessary for this particular development.

Respecting the above, we believe that the proposed development has appropriately included landscaping as an integral part of the building design.

5.3.5 Materials

Design and Appearance

PDC 3 The external walls and roofs of buildings should not incorporate highly reflective materials which will result in glare to neighbouring properties, drivers or cyclists.





Medium and High Rise Development

PDC 6

Materials and finishes should be selected to be durable and age well to minimise ongoing maintenance requirements. 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.

High quality and durable materials have been selected for the building both internally (stone, timber, glass) and externally (stone, metal screening and cladding, steel, pre-cast concrete) to ensure that a low level of maintenance is required to ensure the long term preservation of the building's appearance (Medium and High Rise Development PDC 6). Further, these materials will not be overly luminous so as to result in glare to neighbouring properties, drivers or cyclists (Design and Appearance PDC 3).

5.3.6 Building Appearance

PDC 4

Design and Appearance

Structures located on the roofs of buildings to house plant and equipment should be screened from view to the street and adjacent building viewing points (existing or envisaged) and should form an integral part of the building and roof top design in relation to creating an attractive appearance, external finishes and colours.

PDC 11 Permanently fixed external screening devices should be designed and coloured to complement the associated building's external materials and finishes.

PDC 14 Buildings should be designed and sited to avoid extensive areas of uninterrupted walling facing areas exposed to public view.

Medium and High Rise Development

PDC 1

Buildings should be designed to respond to key features of the prevailing local context within the same zone as the development. This may be achieved through design features such as vertical rhythm, proportions, composition, material use, parapet or balcony height, and use of solid and glass.

PDC 3 Windows and doors, awnings, eaves, verandas or other similar elements should be used to provide variation of light and shadow and contribute to a sense of depth in the building façade.

PDC 7 Balconies should be integrated into the overall architectural form and detail of the development and should:

- (a) utilise sun screens, pergolas, louvres and openable walls to control sunlight and wind;
- (b) be designed and positioned to respond to daylight, wind, and acoustic conditions to maximise comfort and provide visual privacy;
- (c) allow views and casual surveillance of the street while providing for safety and visual privacy of nearby living spaces and private outdoor areas;
- (d) be of sufficient size, particularly depth, to accommodate outdoor seating.





- PDC 8 Development facing the street should be designed to provide attractive, high quality and pedestrian friendly street frontage(s) by:
 - (a) incorporating active uses such as shops or offices, prominent entry areas for multi-storey buildings (where it is a common entry), habitable rooms of dwellings, and areas of communal public realm with public art or the like, where consistent with the zone and/or policy area provisions;
 - (b) providing a well landscaped area that contains a deep soil zone space for a medium to large tree in front of the building (except in a High Street Policy Area or other similar location where a continuous ground floor façade aligned with the front property boundary is desired). One way of achieving this is to provide a 4 metre x 4 metre deep soil zone area in front of the building;
 - (c) designing building façades that are well articulated by creating contrasts between solid elements (such as walls) and voids (for example windows, doors and balcony openings);
 - (d) positioning services, plant and mechanical equipment (such as substations, transformers, pumprooms and hydrant boosters, car park ventilation) in discreet locations, screened or integrated with the façade;
 - (e) ensuring ground, semi-basement and above ground parking does not detract from the streetscape;
 - (f) minimising the number and width of driveways and entrances to car parking areas to reduce the visual dominance of vehicle access points and impacts on pedestrian areas.

PDC 10 Entrances to multi-storey buildings should:

- (a) be oriented towards the street;
- (b) be visible and clearly identifiable from the street, and in instances where there are no active or occupied ground floor uses, be designed as a prominent, accentuated and welcoming feature;
- (c) provide shelter, a sense of personal address and transitional space around the entry;
- (d) provide separate access for residential and non-residential land uses;
- (e) be located as close as practicable to the lift and/or lobby access;
- (f) avoid the creation of potential areas of entrapment.

The proposed building responds to its context by including a podium element which respects the existing low scale development and includes materials which complement those existing in the locality. The development will also revitalise the pedestrian experience along Hart Avenue and Unley Road through the inclusion of active ground floor commercial/retail tenancies and presentation of a visually interesting, highly articulated building that is unified in its expression across all facades.





In addition to the above, the proposal:

- will not present extensive areas of uninterrupted walling to public spaces, nor will walls and/or
 roofs be constructed with materials which may result in unreasonable glare to neighbouring
 properties, drivers or cyclists (Design and Appearance PDC 14);
- provides structures on the roof which have been thoughtfully included in the roof design and which will not be visible from the street (Design and Appearance PDC 4);
- incorporates screening devices that are integrated as part of the overall building design and will comprise of durable, low maintenance materials (Design and Appearance PDC 11);
- provides windows and balconies which have been located and designed to create visual interest
 offering a play of light and shadow which will contribute to the sense of depth to the building
 (Medium and High Rise Development PDC 3);
- integrates balconies into the overall architectural form of the building and located so as to ensure adequate sunlight, shading, wind exposure and views in order to create high amenity, comfort, functionality and visual privacy for future residents (Medium and High Rise Development PDC 7); and
- separates the main public and private building entrances which are clearly identifiable through the
 clever use of materials and built form. Further, they will be practically located near lifts and
 stairwells, avoid entrapment areas and provide shelter (Medium and High Rise Development
 PDC 10).

5.3.7 Services and Site Facilities

Design and Appearance

PDC 18 Outdoor storage, loading and service areas should be:

- (a) screened from public view by a combination of built form, solid fencing and/or landscaping;
- (b) conveniently located and designed to enable the manoeuvring of service and delivery vehicles;
- (c) sited away from sensitive land uses.

Residential Development

PDC 52 Site facilities for group dwellings and residential flat buildings should include:

- (a) a common mailbox structure located close to the major pedestrian entrance to the site;
- (b) garbage and recyclable material storage areas; and
- (c) for dwellings which do not incorporate ground level private open space:
 - (i) an external clothes drying area; and
 - (ii) a safe and secure bicycle storage and parking area;





which are readily accessible to each dwelling and complement the development and streetscape character.

The proposed development has appropriately located services, storage areas and waste storage areas and site facilities (i.e. mailboxes) so as to be accessible and convenient for all building occupants, and not impact upon the amenity of neighbouring developments. Further, adequate space has also been provided for external clothes drying on balconies and bicycle storage in the basement parking areas.

We have formed the opinion that the proposed development has been appropriately designed in relation to its existing context, as well as the envisaged future context for the Urban Corridor Zone.

5.4 Setbacks

Urban Corridor Zone

PDC 14

Buildings (excluding verandahs, porticos and the like) should be set back from the primary road frontage (exclusive of any land required under the Metropolitan Road Widening Act) in accordance with the following parameters

Policy Area	Minimum setback from the primary road frontage
High Street (Unley Road) Policy Area 20	No minimum (3 metre maximum setback where extended
	outdoor dining/licensed area only is proposed forward of
	the building)

PDC 15

Buildings (excluding verandahs, porticos and the like) should be set back from the secondary road frontage or a vehicle access way in accordance with the following parameters:

Policy Area	Minimum setback from secondary road	Minimum setback from rear access way
High Street Policy Area	0 metres for a distance of 20 metres from the primary road junction and 2 metres thereafter	No minimum where the access way is 6.5 metres or more OR Where the access way is less than 6.5 metres in width, the distance equal to the additional width required to make the access way 6.5 metres or more, to provide adequate manoeuvrability for vehicles

PDC 16 Buildings (excluding verandahs, porticos and the like) should be set back in accordance with the following parameters:

Designated Area	Minimum setback from rear allotment boundary	Minimum setback from side boundaries (where not on a road boundary)
High Street Policy Area	5 metres where the subject land directly abuts an allotment of a different zone 3 metres in all other cases, except where the development abuts the wall of an existing or simultaneously constructed building on the adjoining land.	0 metres





The Unley (City) Development Plan provides the following setback guidelines for the subject site:

- Unley Road 0 metres;
- Hart Avenue 0 metres for a distance of 20 metres from the primary road junction and 2 metres thereafter;
- Southern boundary 0 metres; and
- Western Boundary 3 metres.

The proposed development generally satisfies the above setback requirements and achieves the desired character for High Street Policy Area.

The secondary setback proposed from Hart Avenue is not setback 2 metres after a distance of 20 metres from the intersection with Unley Road. We have formed the opinion that the lack of setback is not detrimental to the proposal in this instance as the ground level beyond 20 metres from the primary frontage at Unley Road, is generally open (being the undercroft car park). Further west, a private rear access creates additional separation between the proposed development and the neighbouring residential allotment which is also located within the Urban Corridor Zone.

In our opinion, the proposal achieves the intent of the setback guideline, which is to step back secondary frontages towards the gradually deeper front setbacks which characterise the Residential Zone. We believe a 2 metres setback would be necessary if the subject site adjoined an allotment within the Residential Zone, however the future redevelopment of the adjacent western property will act as the transition development between the proposal and the Residential Streetscape (Built Form) Zone to its immediate west.

5.5 Apartment Design

PDC 20

Residential Development

Private open space should be provided for each dwelling and sited and designed to be:

- (a) located adjacent or behind the primary street facing building facade and be exclusive of storage areas, outbuildings, carports, driveways, parking spaces and roofed pergolas and associated structures;
- (b) screened from public areas and adjoining properties with fencing of not less than 1.8 metres above finished ground level;
- (c) sited to receive direct winter sunlight;
- (d) of sufficient area with a minimum of 20 percent of the site area (>300 square metre site area per dwelling) and 35 square metres (≤300 square metres site area per dwelling) within a residential zone and 20 square metres for each site within a non-residential zone;
- (e) useable for residents and visitors with a minimum of 4 metres (residential zone) and 3 metres (non-residential zone) in any one direction, a maximum grade of 1:10, and directly accessible from a habitable room.





PDC 21

Communal open space shared by more than one dwelling should be provided onsite for medium and higher density development without direct access to ground level private outdoor living areas and sited and designed to be:

- (a) screened from public areas and adjoining properties by fencing to a height of no less than 1.8 metres above finished ground level;
- (b) capable of receiving direct winter sunlight and good natural daylighting;
- (c) only located on elevated gardens or roof tops where acoustic, safety, visual privacy and amenity issues have been addressed;
- (d) of sufficient area with no less than 25 square metres for each dwelling (residential zone) and 15 square metres for each dwelling (non-residential zone) in combination with indoor communal facilities provided to supplement the primary outdoor living spaces;
- (e) safe, convenient and usable space for residents and visitors with a minimum dimension of 4 metres (residential zone) and 3 metres (non-residential zone) in any one direction.

PDC 22

Private and communal open space may also include balcony areas, roof patios and similar structures provided the area:

- (a) is screened to 1.7 metres high;
- (b) has a minimum dimension of 2 metres;
- (a) has at least 70 percent uncovered by roofed structures.

Medium and High Rise Development

PDC 14

Residential buildings (or the residential floors of mixed use buildings) should have habitable rooms, windows and balconies designed and positioned with adequate separation and screening from one another to provide visual and acoustic privacy and allow for natural ventilation and the infiltration of daylight into interior and outdoor spaces.

One way of achieving this is to ensure any habitable room windows and/or balconies are separated by at least 6 metres from one another where there is a direct 'line of sight' between them and be at least 3 metres from a side or rear property boundary. Where a lesser separation is proposed, alternative design solutions may be applied (such as changes to orientation, staggering of windows or the provision of screens or blade walls, or locating facing balconies on alternating floors as part of double floor apartments), provided a similar level of occupant visual and acoustic privacy, as well as light access, can be demonstrated.

PDC 15

Living rooms should have a satisfactory short range visual outlook to public or private open space.





PDC 16 Buildings comprising more than 10 dwellings should provide a variety of dwelling sizes and a range in the number of bedrooms per dwelling.

PDC 18 Dwellings with 3 or more bedrooms, should, where possible, have the windows of habitable rooms overlooking internal courtyard space or other public space.

PDC 25 Dwellings should provide a covered storage area of not less than 8 cubic metres in one or more of the following areas:

(a) in the dwelling (but not including a habitable room)

(b) in a garage, carport, outbuilding or an on-site communal facility and be conveniently located and screened from view from streets and neighbouring properties.

Residential apartments should be designed and sited to provide a high level of amenity for occupants through the inclusion of adequate private open space, storage and flexibility in internal floor areas. The proposed development includes a range of 1, 2 and 3 bedroom apartments, with some also including a 'study' which can be used for a variety of functions. The sliding doors featured to these rooms further enhance the adaptability of these spaces. It should also be considered that all apartments have the potential to be amalgamated to form larger apartments, if required.

We note that there are no prescribed minimum areas for apartment types and therefore the suitability of the proposed areas will be determined by the ability of apartments to deliver high quality internal living areas such as maximising natural light and ventilation penetration, providing an adequate level of internal storage space and access to private open space of sufficient area to satisfy likely occupant needs.

All habitable rooms will receive natural light and are capable of being naturally ventilated. Each apartment has direct access to private open space in the form of balconies of between 7 square metres and 86 square metres in area. Residential Development PDC 20 prescribes that 20 square metres of private open space should be provided to each dwelling of under 300 square metres in floor area, within a non-residential zone. Where this space is provided in the form of a balcony area, Residential Development PDC 22 recommends that these spaces should have a minimum dimension of 2 metres, be screened to 1.7 metres high, and have at least 70 percent of the area uncovered.

Although some of the balconies are less than 20 square metres in area and do not include screening to the prescribed height, we have formed the opinion that the location of the development in the Urban Corridor Zone; its relationship to surrounding dwellings; and the overall amenity, orientation, outlook, dimensions, and connectivity of these spaces to internal rooms will achieve the high quality and functional areas envisaged. As such, we believe that private open space has been well designed.

These apartments also have access to the high quality communal courtyard area which could can accommodate individual needs, as well as small gatherings whether formal or informal in nature. With respect to Residential Development PDC 21, the communal open space will:

- not be visible from adjacent sites or public areas;
- will be capable of receiving direct winter sunlight and natural daylighting; and
- will be a safe, convenient, functional space of adequate dimensions for use by residents and visitors.





Accessible public open space also exists in the locality should occupants require more substantive open space for leisure and/or recreational activities.

Respecting the above, we have formed the opinion that the proposal achieves the minimum apartment standards and private open space requirements to achieve a high standard of amenity.

Internal and external storage of between 6 cubic metres and 10 cubic metres in total is provided to each apartment (excluding storage located in habitable rooms). In addition to this, apartments provided with a study have the ability to utilise this space for additional storage (should it be required), and further, the large living areas allow adequate space for furniture which would enable future occupants to customise their storage needs. In light of this, we have formed the opinion that the provision of storage to each apartment is adequate.

We consider the proposed apartments to be of a high quality design standard and of suitable areas to satisfy likely occupant needs. Accordingly, we are of the opinion that the proposed development satisfies the expectations outlined by the relevant provisions of the Development Plan.

5.6 Parking, Access and Traffic

Phil Weaver and Associates were engaged by the applicant to assess the proposed vehicle parking arrangements, as well as the potential impacts of the development on the existing traffic network (report included in Appendix 4).

For ease of assessment, we have grouped the relevant Development Plan provisions relating to parking, access and traffic under the following key themes:

- car parking;
- bike parking;
- traffic and access; and
- servicing.

5.6.1 Car Parking

Urban Corridor Zone

PDC 20

Vehicle parking should be provided in accordance with the rates set out in Table Un/5 - Off Street Vehicle Parking Requirements or Table Un/5A - Off Street Vehicle Parking Requirements for Designated Areas (whichever applies)

Transportation (Movement of People and Goods)

PDC 24

Development providing 25 or more car parking spaces should provide at least one car parking space in every 25 spaces for the use of the disabled, up to a maximum of five spaces. (See Table Un/5).

PDC 25

Parking for the disabled should be allocated and located within a short distance and convenient to major building entrances, ramps and other pedestrian access facilities useable by disabled people.





PDC 28 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;
- (c) incorporate facade treatments along major street frontages that are sufficiently enclosed and detailed to complement neighbouring buildings consistent with the desired character of the locality.

PDC 29 In mixed use buildings, the provision of vehicle parking may be reduced in number and shared where the operating hours of commercial activities complement the residential use of the site.

Urban Corridor Zone PDC 20 suggests that vehicle parking should be provided in accordance with the rates set out in *Table Un/5 - Off Street Vehicle Parking Requirements* or *Table Un/5A - Off Street Vehicle Parking Requirements for Designated Areas*. The relevant table (Table Un/5A) depicts a vehicle parking rate for non-residential development in the Urban Corridor Zone, however does not identify a residential parking rate. We have therefore considered the residential car parking rate recommended for mixed use developments located in non-residential zones in *Table Un/5 - Off Street Vehicle Parking Requirements*.

Table Un/5A suggests that non-residential development in the Urban Corridor Zone should be provided with a minimum of 3 vehicle parking spaces per 100 square metres of gross leasable floor area. As there is a total of 580 square metres of commercial/retail floor area proposed, 18 spaces are required. These can be accommodated within the ground level car parking area. In addition, the proposed development has also provided one conveniently located car parking space for use by disabled persons (Transportation PDC 24 and PDC 25).

The residential component of the proposed development generates the following car parking demands:

- 20 apartments under 75 square metres in floor area = 15 car parking spaces (0.75 x 20);
- 35 apartments over 75 square metres, but under 150 square metres in floor area = 43.75 car parking spaces (1.25 x 35);
- 4 apartments over 150 square metres in floor area = 7 car parking spaces (1.75 x 4); and
- 14.75 visitor car parking spaces in total (0.25 x 59).

A total of 66 residential car parking spaces are to be provided in addition to the 15 car parking spaces for residential visitors. 60 residential car spaces are proposed to be accommodated in the basement levels, and the remaining 6 spaces are proposed to be accommodated in the ground floor car parking area.

In relation to the residential visitor car parking spaces, we believe that it is appropriate in this instance for these spaces to be shared with the non-residential component. These 20 car spaces are capable of being shared due to complementary peak periods associated with non-residential and residential land uses as envisaged by Transportation PDC 29.





Having regard to the location of the subject site in an Urban Corridor Zone, its proximity to bus services, the encouragement of cycling through provision of adequate bicycle parking and the potential for shared parking between the land uses of the building fronting Unley Road, we have formed the opinion that the parking provision for the development as a whole is acceptable.

The Traffic and Parking Assessment prepared by Phil Weaver also confirms that the car park design (including car parking space dimensions and aisle widths) is acceptable, satisfying the relevant Australian Standards.

Respecting the above, we are comfortable that the proposed development has provided sufficient onsite car parking to support the proposed land uses.

5.6.2 Bicycle Parking

Transportation (Movement of People and Goods)

PDC 9 Development should encourage and facilitate cyclin

Development should encourage and facilitate cycling as a mode of transport by incorporating end-of-journey facilities including:

- (a) showers, changing facilities and secure lockers
- (b) signage indicating the location of bicycle facilities
- (c) bicycle parking facilities provided at the rate set out in Table Un/6 Offstreet Bicycle Parking Requirements for Mixed Use and Corridor Zones.

PDC 10 On-site secure bicycle parking facilities should be:

- (a) located in a prominent place;
- (b) located at ground floor level;
- (c) located undercover;
- (d) located where surveillance is possible;
- (e) well lit and well signed;
- (f) close to well used entrances;
- (g) accessible by cycling along a safe, well lit route.

PDC 11 Pedestrian and cycling facilities and networks should be designed and provided in accordance with relevant provisions of the Australian Standards and Austroads Guides.

According to the bicycle parking rates set out in *Table Un/6 – Off-street Bicycle Parking Requirements for Mixed Use and Corridor Zones*, Mr Weaver has concluded that the proposed development is required to provide the following number of spaces (based on two commercial, and two retail tenancies):

- 30 spaces for residents;
- 10 spaces for residential visitors;





- Office: 3 spaces (i.e. 2 spaces for employees and 1 space for clients); and
- Retail: 2 spaces (i.e. 1 space for staff and 1 space for customers).

Respecting the above, the proposal needs to provide a total of 40 residential bicycle spaces and a total of 5 non-residential bicycle spaces.

Mr Weaver has outlined that the required visitor and commercial/retail bicycle parking can easily be accommodated using the 8 ground level spaces and 7 of the basement bicycle parking spaces. The remaining 21 spaces in the basement can be allocated for use by residents. In addition, the large apartment floor areas and the provision of a study to some apartments results in adequate space for the remaining 9 required bicycle parking spaces to be accommodated within the apartments.

In addition, if Council supports changes to the width of the Hart Avenue footpath, there may be further opportunities for bicycle parking in the public realm.

Both bicycle parking space locations external to apartments are secure, accessible and convenient for residents, visitors, and commercial/retail staff and customers.

We are comfortable that the proposed development is adequately provided with bicycle parking spaces.

5.6.3 Access and Traffic

Urban Corridor Zone

PDC 10 Development should minimise the number of access points onto an arterial road, and where possible access points should be:

- (a) from local streets (including rear lane access) as identified on Concept Plan Maps Un/1 to 7;
- (b) shared between developments.
- **PDC 11** Vehicle access points on side streets and rear access ways should be located and designed to:
 - (a) minimise the impacts of headlight glare and noise on nearby residents;
 - (b) avoid excessive traffic flows into residential streets.

Transportation (Movement of People and Goods)

PDC 3 Development should:

- (a) provide safe and convenient access for private cars, cyclists, pedestrians, service vehicles, emergency vehicles and public utility vehicles;
- (b) include access points located and designed in such a way as to minimise traffic hazards, vehicle queuing on public roads and intrusion of vehicles into adjacent residential areas; and
- (c) provide off-street loading, service and vehicle manoeuvring areas.





PDC 5

Development should ensure that a permeable street and path network is established that encourages walking and cycling through the provision of safe, convenient and attractive routes with connections to adjoining streets, paths, open spaces, schools, pedestrian crossing points on arterial roads, public and community transport stops and activity centres.

PDC 13

Development should be provided with safe and convenient access which:

- (a) avoids unreasonable interference with the flow of traffic on adjoining roads
- (b) provides appropriate separation distances from existing roads or level crossings
- (c) accommodates the type and volume of traffic likely to be generated by the development or land use and minimises induced traffic through overprovision
- (d) is sited and designed to minimise any adverse impacts on the occupants of and visitors to neighbouring properties.

PDC 21 Car parking areas should:

- (a) be located and designed in such a way as to ensure safe and convenient pedestrian access from vehicles to facilities; safe and convenient traffic circulation; include adequate provision for manoeuvring into and out of parking bays, and, in the case of centre-type development, result in minimal conflict between customer and service vehicles; and
- (b) be designed so as to obviate the necessity for vehicles to back onto public roads.

PDC 30

Undercroft and below ground garaging of vehicles should only occur where envisaged in the relevant zone or policy area or precinct and ensure:

- (a) the overall height and bulk of the undercroft structure does not adversely impact on streetscape character of the locality or the amenity of adjacent properties
- (b) vehicles can safely enter and exit from the site without compromising pedestrian or cyclist safety or causing conflict with other vehicles
- (c) driveway gradients provide for safe and functional entry and exit
- (d) driveways and adjacent walls, fencing and landscaping are designed to provide adequate sightlines from vehicles to pedestrians using the adjacent footpath
- (e) openings to undercroft areas are integrated with the main building so as to minimise visual impact
- (f) landscaping, mounding and/or fencing is incorporated to improve its presentation to the street and to adjacent properties





(g) the overall streetscape character of the locality is not adversely impaired (e.g. visual impact, building bulk, front setbacks relative to adjacent development).

The Traffic and Parking Assessment Report undertaken by Mr Weaver reviews the estimated traffic flows associated with the proposed development. The report concludes that the development will result in only a minor increase in traffic utilising Hart Avenue and Unley Road.

Importantly, the report determines that the development will not result in a substantial change in the existing traffic flow or operation of Unley Road or Hart Avenue. The most significant delays resulting from the proposed development will relate to the waiting times for vehicles turning right from Unley Road onto Hart Avenue (increase by 0.2 seconds) or from Hart Avenue onto Unley Road. These estimated wait times reflect the worst case scenario. Mr Weaver has concluded that the anticipated wait times are acceptable.

Mr Weaver has also determined that the design of the vehicle car parking areas is generally in accordance with the relevant off-street car parking standards.

In addition to the above, the proposed development:

- will reduce the number of on-street car parking spaces available on Hart Avenue as a result of extending the existing crossovers, however visitor parking is provided within the subject site in excess of the minimum requirements;
- utilises access from a local street (Hart Avenue) as opposed to an arterial Road (Unley Road) (Zone PDC 10);
- avoids excessive headlamp glare and traffic flows into residential streets (Zone PDC 11); and
- includes ramps of acceptable grade, design and clearance; and
- promotes future shared access between Hart Avenue and the adjacent allotment to the south of the subject site.

Respecting the above, we are comfortable that the proposed access and traffic arrangements will not detrimentally impact the existing road network.

5.6.4 Servicing

Transportation (Movement of People and Goods)

PDC 27 Loading areas and designated parking spaces for service vehicles should:

- (a) be provided within the boundary of the site
- (b) not be located in areas where there is parking provided for any other purpose.

The waste and recycling bins will be collected by a private waste contractor by reversing into the rear access adjacent to the proposed building from Hart Avenue. The private contractor will then load/collect waste, then exit the site in a forward direction. Figure 3 of the report shows the turning path diagram for a vehicle completing this movement. As shown, the movement can still be made whilst there are cars parked on the northern side of Hart Avenue.

This turning path is considered acceptable by Mr Weaver.





5.7 Crime Prevention

Urban Corridor Zone

PDC 9

To maintain sight lines between buildings and the street, and to improve safety through passive surveillance, solid fencing should not be constructed between the front building line and the primary or secondary street.

Crime Prevention

PDC 1 Development should promote the personal safety of people by:

- (a) enabling them to be seen, to see and to interpret their surrounds, through:
 - (i) adequate lighting;
 - (ii) clear sightlines;
 - (iii) the elimination of entrapment spots;
 - (iv) the design of buildings to overlook public space;
 - (v) the mixing of activities which facilitate more constant public use; and
 - (vi) appropriate use and design of landscaping and fencing; and
- (a) enabling them to leave an area or seek assistance when in danger, through legible design and comprehensive signage.

PDC 2 Development should promote the security of property by:

- (a) clearly defining ownership and legitimate use of private, public and community space;
- (b) minimising access between roofs, balconies and windows of adjacent buildings;
- (c) avoiding the use of materials which are likely to be susceptible to damage and vandalism; and
- (d) avoiding landscaping and fencing which may present a security risk by obscuring doors and windows.

Medium and High Rise Development

PDC 9

Common areas and entry points of the ground floor level of buildings should be designed to enable surveillance from public land to the inside of the building at night.

Council Wide PDC 24 outlines that development should maximise safety by encouraging clear lines of sight, using appropriate lighting, and designing buildings which do not include entrapment areas and which overlook public and communal streets. Onsite security can also be improved through clearly defining public and private spaces, use of robust materials not susceptible to damage or vandalism, and avoiding the use of obscuring landscaping and fencing in building design.





The built form, lighting, use of high quality materials, and casual surveillance promoted through the proposed design is anticipated to create an environment which deters crime. In our opinion, the proposed development achieves the intent of the Development Plan provisions through the following:

- promoting natural surveillance of the public realm (Unley Road and Hart Avenue) from upper level balconies;
- promoting passive surveillance internally from upper levels down into the central courtyard;
- glazing of the ground level commercial tenancies to ensure visibility to/from the street;
- enabling direct sightlines between Unley Road and the building entrance and lobby;
- avoiding any opportunities for concealment;
- entrance to the residential levels will be controlled with a key card or remote control, with visitor
 access being controlled by residents via an intercom system. This control promotes territoriality
 and a sense of ownership through the clear delineation between public and private areas;
- the use of robust and durable design features to discourage vandalism; and
- built form and signage clearly defining private and public areas.

As such, we have formed the opinion that the proposal satisfies the relevant provisions relating to crime prevention.

5.8 Environmental Considerations

5.8.1 Waste

Form of Development

PDC 13 All non-residential development should be provided with adequate waste receptacles and waste storage areas which should be:

- (a) conveniently located;
- (b) screened from public view;
- (c) distanced from any adjacent residential development; and
- (d) of a total area in accord with the following ratio:
 - i. one square metre for each 30 square metres, or part thereof, of total floor area of the development up to 120 square metres total floor area.
 - ii. an additional one square metre for each 50 square metres, or part thereof, of total floor area of the development over 120 square metres total floor area; and
 - iii. an additional 1.5 square metres for a premises occupied by a restaurant or takeaway food premises to accommodate additional receptacles for their special needs





Medium and High Rise Development

PDC 26	Development should provide a dedicated area for the on-site collection and sorting of recyclable materials and refuse, green organic waste and wash-bay facilities for the ongoing maintenance of bins. This area should be screened from view from public areas so as to not to detract from the visual appearance of the ground floor.
PDC 27	Where the number of bins to be collected kerbside is 10 or more at any one time, provision should be made for on-site commercial collection.

PDC 28 The size of lifts, lobbies and corridors should be sufficient to accommodate movement of bicycles, strollers, mobility aids and visitor waiting areas.

The Development Plan envisages waste arrangements which are adequate for the land uses they are to service. Specifically, waste should be stored in appropriately designed and located areas, and collected in an efficient and safe manner.

As outlined in the Proposal Description, RawTec have prepared a Waste Management Plan for the proposed development, as included in Appendix 5. It is proposed that the development will be serviced by private waste collection in line with Medium and High Rise Development PDC 27, and include an appropriately located waste storage area screened from the public, yet conveniently accessible for commercial tenants and residents in line with Form of Development PDC 13.

At previously mentioned, separate organic waste bins have not been accommodated within the development at this stage. Instead, the waste arrangements will be reassessed once the building is functioning, to determine the practicality of including organic waste as a separate stream. As the proposal includes separate bins for general waste and co-mingled recycling waste, along with a wash down area for the bins, we have formed the opinion that the proposal is reasonably consistent with PDC 26.

The Waste Management Plan also recommends the following, which are adopted in the proposal:

- provision for multiple waste streams including general waste and co-mingled recycling waste;
- a waste transfer pathway between the chute waste area and the stored waste area,
- a 4 metre clearance above the private laneway to the rear of the site to ensure adequate room for waste collection;
- a minimum floor to ceiling height of 3 metres in the chute waste room to accommodate the chute diversion; and
- a wash down area to control odour which is sloped to drain into sewer system, installed with a tap and mains supply of water, more than 2 metres by 2 metres in area, and slip resistant.

The proposed waste arrangements as recommended by RawTec are practical and consistent with the relevant Development Plan provisions. As such, we are have formed the opinion that the proposed development will be able to appropriately manage all anticipated waste streams.





5.8.2 Services

Form of Development

PDC 12 Development should be capable of economic and effective servicing, including garbage collection and fire protection.

Lucid Consulting Australia have prepared a Building Services Design Report for the proposed development, which has been included in Appendix 6. Lucid Consulting have concluded that the site has access to all relevant utilities and services including water, gas and sewer connections.

Lucid Consulting have confirmed the locations of all relevant meters, fire services, transformers, electrical risers, communications rooms, hydraulic services and switchboards.

The basement and ground floor carparks will be mechanically ventilated utilising carbon monoxide sensors and variable speed controls, and exhaust systems will also be provided to toilet, laundry, kitchen, plants, back of house facilities and amenity areas. Air conditioning will be supplied to each commercial tenancies and residential apartments, with units being located on balconies and in service rooms.

All required fire services are included in the proposed development, including fire hydrants, automatic sprinkler systems, smoke detection systems, fire hose reels and portable fire extinguishers.

Hydraulic services are also provided including a sanitary drainage system, trade waste drainage system, domestic cold water break tanks and boost pumps, central hot water plant, and hot/cold reticulation.

Respecting the above, the proposed development will be provided with adequate utilities and services.

5.8.3 Energy Efficiency

Energy Efficiency

PDC 1 Development should provide for efficient solar access to buildings and open space all year around.

PDC 2 Buildings should be sited and designed:

- (a) to ensure adequate natural light and winter sunlight is available to the main activity areas of adjacent buildings;
- (b) so that open spaces associated with the main activity areas face north for exposure to winter sun;
- (c) to allow for cross ventilation and natural cooling of buildings and zoning of building layouts to enable main living room areas to be separately heated and cooled;
- (d) to incorporate roof top gardens and green 'living' walls, particularly for multistorey and large developments, to reduce the 'urban heat island effect';
- (e) to use energy efficient building materials or the re-use of existing materials (embodied energy).





PDC 3 Development should facilitate the efficient use of photovoltaic cells and solar hot water systems by:

- (a) taking into account overshadowing from neighbouring buildings;
- (b) designing roof orientation and pitches to maximise exposure to direct sunlight.

Medium and High Rise Development

PDC 20 Multi-storey buildings should:

- (a) minimise detrimental micro-climatic and solar access impacts on adjacent land or buildings, including effects of patterns of wind, temperature, daylight, sunlight, glare and shadow;
- (b) incorporate roof designs that enable the provision of photovoltaic cells and other features that enhance sustainability (including landscaping).

Multi-storey developments are encouraged to reduce their detrimental micro-climatic impacts through building design. Further, developments should also include sustainable initiatives such as solar hot water and photovoltaic cells.

According to the ESD Report prepared by D Squared Consulting (included in Appendix 7), the proposal has been designed to achieve a 7 National House Energy Rating (NatHERS), through passive design and use of good quality building materials. The ESD initiatives listed in the Proposal Description will ensure the long-term sustainability of the building by reducing the building's reliance on mechanical heating/cooling, using energy efficient appliances and air conditioners, enabling the reuse of energy and stormwater, and using locally sourced, highly recycled, low embodied energy building materials.

We have formed the opinion that these adaptable initiatives go above and beyond what is required by the Development Plan. As such, we believe the proposal exceeds the standard in relation to energy efficiency and sustainable design.

5.8.4 Overshadowing

PDC 9

Design and Appearance

Design and Appearance

The design and location of buildings should enable direct winter sunlight into adjacent dwellings and private open space and minimise the overshadowing of:

- (a) windows of habitable rooms;
- (b) upper-level private balconies that provide the primary open space area for a dwelling;
- (c) solar collectors (such as solar hot water systems and photovoltaic cells).

The Shadow Study drawing prepared by Tectvs and contained in Appendix 11 identify the extent of overshadowing associated with the proposed development during the winter and summer solstices.





It is clear from these drawings that the shadows will not prevent sunlight access to habitable rooms and/or private open space of surrounding dwellings. The shadow of the proposed building is predominately cast over existing commercial buildings, carparks and Unley Road.

Specifically, the dwelling at 3 Hart Avenue (located within the Urban Corridor Zone) is most affected at 9:00am during the winter solstice (21 June), with over half of the private open space in the shadow of the proposed development. This situation improves throughout the day where by 12:00 noon the shadow has well and truly receded.

We note that 6 Opey Avenue is also affected by overshadowing at 9:00am during the winter solstice, however the shadow is cast predominately over existing structures in the rear yard of this site. Similarly, this situation improves significantly during the course of the day, and as such, is not considered unreasonable.

The shadow of the proposed development covers the beer garden of the Cremorne Hotel completely from 3:00pm during the winter solstice. However, throughout the morning and the majority of the early afternoon, the area will receive almost full sunlight. This, along with the fact that the Cremorne Hotel is a commercial use (therefore exempt from the overshadowing provisions), is not fatal to the overall merits of the proposal.

Respecting the above, the extent of overshadowing created by the proposal will not have an unreasonable impact on the amenity of the locality or surrounding residential dwellings.

5.8.5 Overlooking

PDC 10

Design and Appearance

3 11

Development should minimise direct overlooking of the habitable rooms and private open spaces of dwellings through measures such as:

- (a) appropriate site layout and building orientation;
- (b) off-setting the location of balconies and windows of habitable rooms with those of other buildings so that views are oblique rather than direct to avoid direct line of sight;
- (c) building setbacks from boundaries (including building boundary to boundary where appropriate) that interrupt views or that provide a spatial separation between balconies or windows of habitable rooms;
- (d) screening devices (including fencing, obscure glazing, screens, external ventilation blinds, window hoods and shutters) that are integrated into the building design and have minimal negative effect on residents' or neighbours' amenity.





Residential Development

PDC 38

Direct overlooking from upper level (above ground floor level) habitable room windows and external balconies, roof patios, terraces and decks to habitable room windows and useable private open space of other dwellings should be minimised through adoption of one or more of the following:

- (a) building layout;
- (b) location and design of windows, balconies, roof patios and decks;
- (c) screening devices;
- (d) adequate separation distances;
- (e) existing landscaping and supplementary screen tree planting.

Overlooking is encouraged to be prevented between existing and proposed buildings through the use of building layout, location and design of windows and balconies, screening devices, landscaping and adequate separation between developments (Residential Development PDC 38).

The proposed development has been designed to be separated from the existing dwelling at 3 Hart Avenue, in order to prevent overlooking to a significant degree. At the upper levels, the building has been further setback to increase this separation as the height of the proposed building increases. The building itself is separated from the neighbouring Residential Streetscape (Built Form) Zone a minimum of 30.4 metres, with the majority of the building (to balconies) setback 32.4 metres. This considerable distance is anticipated to alleviate any potential issues relating to overlooking.

In addition, the existing landscaping in the locality (and specifically that surrounding the private open space at 3 Hart Avenue) will also mitigate overlooking.

Respecting the above, we do not consider the potential for overlooking from the proposed development unacceptable, or detrimental to the amenity of 3 Hart Avenue.

5.8.6 Stormwater

PDC 5	Development should be designed to maximise conservation, minimise consumption and encourage reuse of water resources.
PDC 9	Development should include stormwater management systems to protect it from damage during a minimum of a 1-in-100 year average return interval flood.
PDC 10	Development should have adequate provision to control any stormwater over- flow runoff from the site and should be sited and designed to improve the quality of stormwater and minimise pollutant transfer to receiving waters.
PDC 11	Development should include stormwater management systems to mitigate peak flows and manage the rate and duration of stormwater discharges from the site to ensure the carrying capacities of downstream systems are not overloaded.





- PDC 12 Development should include stormwater management systems to minimise the discharge of sediment, suspended solids, organic matter, nutrients, bacteria, litter and other contaminants to the stormwater system.
- **PDC 14** Stormwater management systems should:
 - (a) maximise the potential for stormwater harvesting and re-use, either on-site or as close as practicable to the source;
 - (b) utilise, but not be limited to, one or more of the following harvesting methods:
 - i. the collection of roof water in tanks;
 - ii. the discharge to open space, landscaping or garden areas, including strips adjacent to car parks;
 - iii. the incorporation of detention and retention facilities;
 - iv. aquifer recharge.
- **PDC 15** Where it is not practicable to detain or dispose of stormwater on site, only clean stormwater runoff should enter the public stormwater drainage system.

Structural Systems Pty Ltd were engaged to prepare a stormwater management report for the proposed development. A copy of this report has been included in Appendix 8.

Structural Systems identified in their report that the proposed development results in a minor increase in impervious area and peak flow rate in the proposed development, as compared to the existing situation on site.

In order to satisfy Council's stormwater requirements, the report recommends the following:

- inclusion of an above ground 22,000 litre retention tank (or a combination of a 10,000 litre and 14,000 litre tank) or to capture and reuse runoff on site, as well as mitigate the discharge rate;
- inclusion of five outlet points (two directing stormwater to the Unley Road street water table and three outlets to the Hart Avenue water table); and
- water quality improvement systems are to be installed in all grated sumps to capture the target contaminants.

These recommendations have been adopted by the proposed development and are shown in the plans and drawings prepared by Tectvs. The proposed stormwater management plan achieves the following:

- reduces the pre-development (existing) peak stormwater flows and improves flood management;
- enables stormwater detention, retention, and re-use within the site (for irrigation of landscaping); and
- improvement of stormwater quality from surface and ground water runoff.





Further to the above, D Squared also conclude in the ESD report that the proposed development is expected to have an annual water usage of approximately 30 percent of a standard NCC compliant dwelling.

Respecting the above, we believe that the proposal satisfies the relevant development plan provisions in relation to stormwater management.

5.8.7 Wind

Medium and High Rise Development

PDC 22

Development of 5 or more storeys, or 21 metres or more in building height (excluding the rooftop location of mechanical plant and equipment), should be designed to minimise the risk of wind tunnelling effects on adjacent streets by adopting one or more of the following:

- (a) a podium at the base of a tall tower and aligned with the street to deflect wind away from the street;
- (b) substantial verandas around a building to deflect downward travelling wind flows over pedestrian areas;
- (c) the placement of buildings and use of setbacks to deflect the wind at ground level.

The proposal has adopted the following measures to minimise the risk of wind tunnelling effects:

- a podium at the base which is aligned with the street to deflect wind away from the street;
- canopies to ground level facades fronting Unley Road and Hart Avenue to deflect downward travelling wind flows over pedestrian footpaths; and
- use of balconies and building articulation.

Respecting this, we are satisfied that the proposed development adequately mitigates the potential for wind tunnelling at lower/pedestrian levels.

5.8.8 Noise

Overlay – Noise and Air Emissions

PDC 1

Noise and air quality sensitive development located adjacent to high noise and/or air pollution sources should:

- (a) shield sensitive uses and areas through one or more of the following measures:
 - i. placing buildings containing less sensitive uses between the emission source and sensitive land uses and areas;
 - ii. within individual buildings, place rooms more sensitive to air quality and noise impacts (e.g. bedrooms) further away from the emission source;





- iii. erecting noise attenuation barriers provided the requirements for safety, urban design and access can be met;
- (b) use building design elements such as varying building heights, widths, articulation, setbacks and shapes to increase wind turbulence and the dispersion of air pollutants provided wind impacts on pedestrian amenity are acceptable;
- (c) locate ground level private open space, communal open space and outdoor play areas within educational establishments (including childcare centres) away from the emission source.

Given the proximity of the subject site adjacent Unley Road (within the Noise and Air Emissions Designated Area), it is accepted that noise levels and air emissions enjoyed in Residential Zones may not be achieved on the subject site.

Resonate Acoustics were engaged to prepare Acoustic Design Advice for the proposed development, in order to mitigate the noise impacts from Unley Road and any mechanical services required for the development. A copy of this advice is included in Appendix 9.

The advice provided by Resonate Acoustics allocated each building façade to a sound exposure category based on its proximity to Unley Road and other noise sources. Based on these categories, recommendations on how to achieve the required internal sound levels were then made for each façade. These recommendations are listed in the Proposal Description section of this report, and the applicant agrees to their inclusion in the development to ensure that the EPP noise guidelines are achieved.

Respecting the above, we have formed the opinion that apartments within the proposed development will be able to achieve the necessary internal noise levels, and will not result in any detrimental noise impacts.

5.9 Affordable Housing

The Affordable Housing Overlay applies to the proposal. The Overlay is not mandatory, and given the intent to deliver high quality owner occupier apartments at a price point well beyond the affordable housing price threshold, affordable housing will not be provided in this particular instance.





6. CONCLUSION

In our opinion, while the height of the proposed development exceeds the maximum height envisaged for the policy area, the proposed development is located on a site and within a locality which can support an increased height and scale. Further, the proposal substantially accords with all other the relevant Development Plan provisions. Specifically, the proposal will:

- represent an appropriate density of development given the proximity of the subject site to public transport, amenities, local services and facilities;
- contribute positively to ground level activation and revitalisation, whilst continuing to maintain the narrow-fronted commercial tenancies which characterise Unley Road;
- create a high quality pedestrian experience through the inclusion of a podium element, a predominately glazed ground floor, and canopies above the pedestrian footpath;
- provide an overall building appearance and design that represents a high architectural standard responding to both the existing and future character of Unley Road;
- although not adjacent to land within the Residential Zone, the development is contained within the envisaged 30 degree building envelope plane;
- be of an overall height and scale that will not unreasonably impact surrounding residential properties by way of overshadowing, overlooking, or visual impacts;
- be sited and designed in a manner that will not present any unreasonable impacts upon surrounding properties or the character of adjacent roads;
- include a communal courtyard area of high amenity, which is extensively landscaped to present as a grand entrance for residents and visitors;
- present a range of apartment types in close proximity to public transport links and public facilities;
- create a high quality apartment offering with excellent views;
- provide apartment layouts which achieve all relevant passive design principles with natural daylight to all habitable rooms, natural ventilation and shading;
- provide high quality apartments which adequately provide private open space and storage;
- provide sufficient car and bicycle parking;
- allow safe, convenient and effective movement for all vehicle types and pedestrians;
- provide for safe and effective waste management and stormwater plans;
- adequately control noise emissions, whilst ensuring internal noise levels meet the EPP requirements;
- mitigate the potential for wind tunnelling through building articulation and use of setbacks;
- incorporate a large number of energy efficiency initiatives which aim to achieve a 7 Star average NatHER rating and result in annual energy usage of approximately 50 percent and an annual water usage of approximately 30 percent of a standard NCC compliant home; and
- create a safe, secure and crime resistant environment.

In addition, whilst the proposed development exceeds the prescribed maximum building height for High Street Policy Area, we do not consider the proposal to be "seriously at variance".





The Supreme Court has considered the "seriously at variance" test on several occasions and has set out the following further guidance on the scope and meaning of the test under section 35 of the Development Act, 1993.

- 1. Mere variance from the Development Plan is not the test; it is a question of whether there is "...an important or grave departure in either quality or degree from the Development Plan...";
- 2. "The question ... requires an examination on what is the essential thrust and objective of the Development Plan..." and it is necessary to look at the Development Plan as a whole to determine the extent of the variance²;
- 3. The extent of variance is judged in the context in which the project will be implemented³;
- 4. The assessment is likely to involve a judgement as to planning merit based on matters of fact and degree⁴;
- 5. If the development will entirely defeat the purpose of the zone, then it will be seriously at variance⁵; and
- 6. "The calculation... is not to be resolved simply by mathematical calculation... those calculations should not receive undue weight. It is important also to have regard to the spirit and intent of the Development plan..."⁶.

For example, whether or not the proposed development satisfies the envisaged building height, the location, overall design and impacts of the proposal are clearly envisaged by the desired character statement for High Street Policy Area 20.

When considering the issue of "seriously at variance" against the Development Plan as a whole, regard must be had to the intent and purpose of the Plan and the effect of the proposal on the attainment of that planning purpose.

Put simply, while the proposed development exceeds the envisaged maximum building height, the proposal will not defeat the fundamental purpose of the Zone or Policy Area or create any patent fatal planning issues in the immediate locality.

It is also important to note that the Government Architect previously issued a Pre-Lodgement Agreement and the DAC granted Development Plan Consent for a much larger development adjacent to the Residential Streetscape (Built Form) Zone. The subject proposal has effectively used this previously approved development as a guide to prepare a much more deliverable and marketable product of lower scale; which has no Residential Streetscape (Built Form) Zone interface; and which is contained wholly within the 30 degree building envelope plane.



¹ Courtney Hill Pty Ltd v SAPC (1990) 59 SASR 259 at p261; Mar Mina (SA) Pty Ltd v City of Marion & Others (2008) 163 LGERA 24 at [33].

² Mar Mina (SA) Pty Ltd v City of Marion & Others (2008) 163 LGERA 24 at [40]; Courtney Hill Pty Ltd v SAPC (1990) 59 SASR 259 at p262.

³ Courtney Hill Pty Ltd v SAPC (1990) 59 SASR 259 at p263.

⁴ City of Kensington & Norwood v DAC & Boscaini Investments Pty Ltd (1988) 70 SASR 471 at p480.

⁵ Paradise Development (Investments) Pty Ltd v DC Yorke Peninsula & Anor [2008] SASR 139 at [63].

⁶ Hayes v DAC (no. 4) Unreported SASC Judgement S6155 15 May 1997 at p24.



Exceeding the maximum building height does not make this proposal "seriously at variance". When considering as a whole and taking all of the Development plan into account, the proposal is clearly not seriously at variance with the Development Plan.

Accordingly, we believe the Development Assessment Commission should grant Development Plan Consent.



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20 July 2017

Mr Anthony Catinari Commercial and General Level 7, 2 King William Street ADELAIDE SA 5000

Dear Mr Catinari,

PROPOSED MIXED USE DEVELOPMENT - 244 - 246 UNLEY ROAD, UNLEY - TRAFFIC AND PARKING ASSESSMENT

I refer to the proposed construction of a multi-level building to accommodate residential and commercial land uses together with basement and undercroft car parking on the above site.

As requested I have undertaken the following review of the traffic and parking related aspects of the subject development.

Existing Situation

The subject site is located on the south-western corner of the intersection of Unley Road with Hart Avenue, Unley.

The site of the proposed development currently accommodates:-

- Commercial tenancies with a total floor area of approximately 1640m². These include: -
 - Connekt Plumbing,
 - A fitness studio (F45 Training),
 - Plaster Funhouse, and
 - A vacant tenancy.
- One residential dwelling fronting onto Hart Avenue, namely 1 Hart Avenue, and
- An informal car parking area at the rear of the tenancies fronting Unley Road, with access provided off Hart Avenue. This car parking area provides a capacity to accommodate approximately 10 cars.

The proposed development site has frontages of approximately 42m to Unley Road and approximately 59.2m to Hart Avenue.

There are currently two access points associated with the subject site. These include an individual driveway to the residential dwelling fronting Hart Avenue and one access point off Hart Avenue into the car parking area at the rear of the building located at 244 Unley Road.

Unley Road, adjacent to the subject site, provides two traffic lanes and a bicycle lane in each direction. The bicycle lane operates between 7.30am and 9.00am Monday to Friday on the western side of this road and between 4.30pm and 6.00pm Monday to Friday on the eastern side of this road i.e. during the morning and afternoon Clearway periods, respectively.

Parking is restricted to one-hour periods between 9.00am and 5.00pm Monday to Friday and between 9.00am and 12 noon on Saturday on the western side of Unley Road, for a distance of approximately 55m north of Opey Avenue. A bus zone is located to the north of the one-hour parking area i.e. in the area in front of the subject site.

A bus zone / No Stopping Anytime restriction is located along the eastern side of Unley Road in front of the Cremorne Hotel which is almost directly opposite the subject site.

A parking embayment is provided on the western side of Unley Road immediately to the north of Opey Avenue, for a distance of approximately 30m.

Hart Avenue, adjacent to the subject site, has a kerb to kerb width of approximately 8m with verge widths of approximately 2m on each side of this road. Parking is restricted to one-hour periods between 9.00am and 5.00pm Monday to Friday and between 9.00am and 12 noon on Saturday on the southern side of this road from Unley Road up to the existing access point to the east of 1 Hart Avenue. Further to the west, parking is unrestricted along the southern side of Hart Avenue.

A loading zone is provided on the northern side of Hart Avenue to the west of Unley Road for a distance of approximately 10m. This loading zone is operational from 7.00am to 2.00pm Monday to Friday with parking permitted in this area outside of these periods. Further to the west along this side of Hart Avenue, parking is also unrestricted.

Details of traffic volumes on Unley Road have been obtained from the Department of Planning, Transport and Infrastructure, (DPTI). From a traffic count undertaken at the intersection of Unley Road with Park Street / Wattle Street on Wednesday 6th August 2014 it is identified that the two-way Annual Average Daily Traffic (AADT) volume to the south of the subject site is approximately 36,200 vpd on Unley Road.

Traffic Surveys

Traffic surveys have previously been conducted at the intersection of Unley Road with Hart Avenue and Fairford Street. These surveys were conducted over the following periods:-

- From 3.00pm to 6.00pm on Thursday 10th April 2014, and
- From 7.30am to 9.30am on Friday 11th April 2014.

Analysis of the 2014 survey results identified that the peak hour periods occurred between 5.00pm and 6.00pm on the Thursday evening and between 8.30am and 9.30am on the Friday morning.

It was further identified that:-

- During the pm peak hour period on the Thursday there were 26 traffic movements (14 in and 12 out) at the intersection of Unley Road and Hart Avenue, with no movements occurring between Hart Avenue and Fairford Street, and
- There were 17 traffic movements (11 in / 6 out) at the intersection of Unley Road and Hart Avenue, in the am peak hour period, with again no movements occurring between Hart Avenue and Fairford Street.

Figure 1 summarises the peak hour traffic flows entering/ exiting Hart Avenue in both the am and pm survey periods.

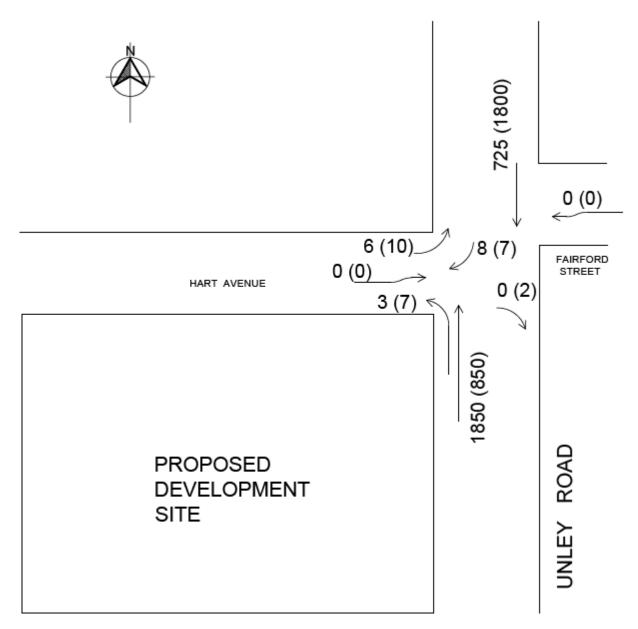


Figure 1: Existing am (pm) peak hour volumes on adjoining road network

The above surveys were undertaken at a time when all of the tenancies on the site were occupied. The results of the surveys are considered to be appropriate for use in determining the traffic impacts of the proposed development, given that:-

- The existing land uses were understood to be fully occupied at the time of the surveys, and
- There would not have been any significant change in traffic on the adjoining road network in the period since the surveys were conducted.

Proposed Development

The proposed development is identified on a series of plans prepared by Tectvs including:-

- A Ground Floor Plan (Drawing No. 27080 P01)
- A Basement Plan (Drawing No. 27080 P02), and
- A Lower Basement Plan (Drawing No. 27080 P03),

I note that the proposed development includes:-

- Demolition of the commercial tenancies fronting Unley Road and the residential dwelling located at 1 Hart Avenue,
- Construction of a multi-level building which will provide a total of 86 car parking spaces comprising:-
 - An undercroft parking area accommodating a total of 26 spaces,
 - ➤ A basement car parking area providing 42 spaces,
 - ➤ A lower basement car parking area providing 18 spaces,
- Construction of a total of 59 apartments over 6 levels, including:-
 - 10 one bedroom apartments,
 - 45 two bedroom apartments,
 - > 4 three bedroom apartments,
- Construction of four commercial tenancies to be located on the ground floor level fronting onto Unley Road with a total commercial area of approximately 580m², and
- Two vehicular access points on the southern side of Hart Avenue. There will be no vehicular access provided into or out of the subject site directly off Unley Road.

The undercroft car park will be primarily accessed via a two-way crossover to be located approximately 23m west of the Unley Road boundary i.e. in a similar location to the existing access point into the informal car park at the rear of the existing tenancies fronting Unley Road. However, 9 of these spaces will be accessed via the western access point on Hart Avenue.

The basement and lower basement car parking areas will be accessed off Hart Avenue via the western access point. This access point will be located approximately 43m to the west of the eastern boundary of the site.

The proposed basement car parking areas will include:-

- Vehicle ramps to provide access between the ground level and lower basement / basement car parking areas. The design of the ramp into the basement car park will include a maximum grade of approximately 1 in 4.5 based upon an overall change in level of approximately 3.2m. The minimum clearance within the basement areas will be 2.3m,
- 28 wall mounted bicycle parking spaces to be located in the basement car park, and 8 bicycle
 parking spaced to be provided to the east of the undercroft parking area on the ground level of the
 subject development,
- Refuse areas to be located within the ground floor area adjacent to Hart Avenue,
- Lift and stair access from both car parking levels to the apartments on the upper levels.

The design of the on-site basement and lower basement car parking areas provide:-

- Car parking spaces of 2.4m in width,
- Car parking spaces of 5.4m in length, and
- Aisle widths of 6.2m with provision made for an additional 300mm clearance adjacent to stairs and other building elements adjacent to the aisles.

The undercroft car parking areas will provide a mixture of primarily 2.4m and 2.55m wide spaces with the narrower spaces suitable for staff / tenant parking. However, I recommend that the two spaces adjacent to the ramp linking the ground and basement car parking levels should be denoted for small car use by means of pavement markings and / or signage.

I also note that the design identifies a column on the western side of the easternmost access point which intrudes into the 2m wide by 2.5m deep sight distance splay requirement of the relevant off-street car parking standard (AS/NZS 2890.1:2004). I recommend that the location / shape of this column be adjusted during detailed design. I understand that this can be accommodated.

The disability parking space will provide a width of 2.4m with an adjacent shared area of the same width.

As such, I consider that the design of the on-site car parking areas would generally conform to the requirements of the relevant off-street car parking standards (AS/NZS 2890.1:2004 and AS/NZS 2890.6:2009) for long term (resident / tenant) car parking.

Parking Assessment

The subject site is located within an Urban Corridor Zone as identified within the Unley (City) Development Plan as consolidated on 4th July 2017.

Table Un/5A - Off Street Vehicle Parking Requirements for Designated Areas within the Unley (City) Development Plan identifies car parking requirements for the non-residential land uses relevant to the subject development, as follows:-

Table 1: Non-residential development excluding tourist accommodation

Location of development	Desired minimum number of vehicle parking spaces	Maximum number of vehicle parking spaces
Urban Corridor Zone	3 spaces per 100m ² of gross leasable floor area	5 spaces per 100m ² of gross leasable floor area

On the above basis, the non-residential components of the proposed development would require the provision of 18 spaces based on a floor area of 580m².

Therefore, the provision of 26 spaces to be provided within the undercroft area would exceed the required level of parking for the commercial components.

Table Un/5A does not include car parking rates for residential land use. I therefore considered the car parking rate outlined for mixed use developments located in non-residential zones within Table Un/5 – Off Street Vehicle Parking Requirements in relation to the residential component of the current development.

On this basis, I calculate that the proposed development demands the following car parking rates for the residential land use according to *Table Un/5 – Off Street Vehicle Parking Requirements* would be as follows: -

- 20 apartments (under 75 square metres in floor area) = 15 car parking spaces (0.75 x 20 apartments),
- 35 apartments (over 75 square metres, but under 150 square metres in floor area) = 44 car parking spaces (1.25 x 35 apartments),
- 4 apartments over 150 square metres in floor area = 7 car parking spaces (1.75 x 4 apartments),
 and
- 15 visitor car parking spaces in total (0.25 x 59 apartments).

Hence, there would be a requirement for a total of 66 car parking spaces to be provided for the occupants of the residential apartments in addition to 15 car parking spaces for residential visitors. The car parking requirement generated by residents could be accommodated in the basement levels (60 spaces), with the remaining 6 spaces accommodated in the ground floor car parking area.

In relation to the visitor car parking spaces, I consider that the spaces can be accommodated within the 20 remaining car parking spaces at ground level, and shared with the commercial/retail uses as envisaged by Transportation PDC 29. Such shared use is appropriate given that visitor car parking typically occurs outside of business hours when the commercial/retail tenancies are closed, and would be exceeded by the provision of 20 spaces at ground level. The apartments are less likely to receive visitors during commercial business hours. It is therefore it is likely that these spaces will be available for commercial/retail use during this time..

Given that the proposed development is located within an Urban Corridor Zone, I consider that the actual car parking demand should be less than the above requirements, noting in particular: -

- The close proximity of the proposed development to frequent and convenient bus services.
- The provision of on-site bicycle parking in excess of the minimum requirements of Council's Development Plan, and
- The complementary nature of the residential and non-residential land uses to be accommodated on site.

Furthermore, I note that the "Guide to Traffic Generating Developments" report produced by the former Roads and Traffic Authority (RTA) of NSW identifies lesser rates for high density residential flat buildings such as that proposed on site.

The definition of a high density residential flat building being "a building containing 20 or more dwellings". This does not include aged or disabled persons housing. *High density residential flat buildings* are usually more than five levels, have basement level car parking and are located in close proximity to public transport services. The building may contain a component of commercial use."

The above standard recommends a minimum number of off-street resident parking spaces as follows:-

Metropolitan Sub-Regional Centres:

- 0.6 spaces per 1 bedroom unit,
- 0.9 spaces per 2 bedroom unit,
- 1.4 spaces per 3 bedroom unit, and
- 1.0 space per 5 units (visitor parking).

On the above basis, I calculate that the apartment component of the proposed development would generate a requirement for approximately 64 spaces comprising 52 spaces for residents and 12 visitor parking spaces. Such a level of car parking is less than the 66 spaces required for residents but comparable in terms of visitor parking demand based on the relevant provisions within Council's Development Plan relating to the residential component of the subject development.

Taking into account that the parking requirement of the non-residential component is equivalent to 18 spaces, application of the above RTA rates would generate an estimated peak demand for approximately 82 car parking spaces associated with the subject development. This level of car parking would be readily accommodated within the basement levels and undercroft car parking area which will provide a total of 86 spaces.

Bicycle Parking

Table Un/6 - Off Street Bicycle Parking Requirements for Mixed Use, Corridor and District Centre Zones within the Unley (City) Development Plan identifies bicycle parking requirements as follows:

Form of development	Employee / resident (bicycle parking spaces)	Visitor / shopper (bicycle parking spaces)
	parking spaces	` ' ' ' ' '
Residential component of multi- storey building / residential flat building	1 space for every 2 dwellings	1 space for every 6 dwellings
Shop	1 space for every 300 square metres of gross leasable floor area	1 spaces for every 600 square metres of gross leasable floor area
Office	1 space for every 150 square metres of gross leasable floor area	2 spaces plus 1 space per 500 square metres of gross leasable floor area

Assuming an approximately 50:50 split of office and retail use within the non-residential component of the proposed development, there would be a theoretical requirement for 45 bicycle parking spaces as follows:-

- 30 resident spaces.
- 10 visitor spaces,
- Office: 3 spaces (i.e. 2 spaces for employees and 1 space for clients),
- Retail: 2 spaces (i.e. 1 space for staff and 1 space for customers)

Provision has been made to accommodate bicycles used by residents within their respective apartments. Hence, there would be a requirement to provide a total of 15 spaces associated with visitors to the residential apartments and staff/clients or customers of the non-residential land uses. This level of bicycle parking would be accommodated by the provision of 28 wall mounted bicycle parking spaces within the basement area and 8 bicycle parking spaces within the undercroft parking area.

Traffic Assessment

The existing development on the subject site has a capacity to generate a <u>pm peak</u> hour traffic volume of the order of: -

- One trip per existing residential dwelling, and
- At least 2.5 trips per 100m² of floor space assuming a trip generation rate similar to that of a retail showroom or similar land use.

On the above basis, I calculate that the existing development on the site has the capacity to generate in the order of 40 trips in the pm peak hour including:-

- 1 peak hour trips associated with the one residential dwelling, and
- Approximately 41 trips associated with the commercial tenancies (1640m²) <u>currently on site</u>, albeit some of these trips would access the rear of the site via a driveway off Opey Avenue.

By way of comparison, I estimate that the proposed redevelopment of the subject site should generate of the order of 42 trips in the am peak hour based upon:-

- 290m² of non-office commercial space @ 6 peak hour trips / 100m² in the pm peak hour period = 17 trips,
- 290m² of office area @ 2 peak hour trips / 100m² = 6 trips, and
- 59 residential units generating an average of approximately 0.32 trips/dwelling in the pm peak hour period = 19 trips. This rate is based on an average trip generation rate of 0.32 trips / dwelling for high density developments and reports and average rate for regional NSW based upon data provided by Roads and Maritime Services (the former RTA). Such a rate is considered more applicable to Adelaide than the average trip generation rate of 0.15 trips per dwelling for the Sydney CBD.

The proposed non-office component of the subject development should generate minimal traffic in the am peak hour period and the office component should generate of the order of 2 trips / 100m² i.e. approximately 6 traffic movements in this period.

The residential component should generate of the order of 0.53 trips / dwelling in the am peak hour period (based on the Roads and Maritime Services data). This would be equivalent to a volume of approximately 31 vph generated by this component.

On the above basis, I consider that the subject development would generate a total of 37 trips in the am peak hour period.

I therefore consider that:-

- there would be no significant change to the approximately 40 trips generated as a result of the subject development in the am peak (37 forecast trips compared to 40 potential trips), and
- potentially there would be minimal increase in the pm peak hour based on the forecast volume of 42 trips less the approximately 40vph currently being generated by the subject development.

A review of the current and potential operation of the intersection of Unley Road with Hart Avenue has been undertaken using SIDRA Intersection Analysis Software. The forecast am and pm peak hour traffic volumes used in this analysis have been based on Figure 2 (below). However, for the purpose of this review I have allowed for a "worst case" scenario, i.e. that the forecast am and pm traffic volume will all be <u>additional</u> to the existing volume of traffic entering/exiting the Unley Road / Hart Avenue intersection.

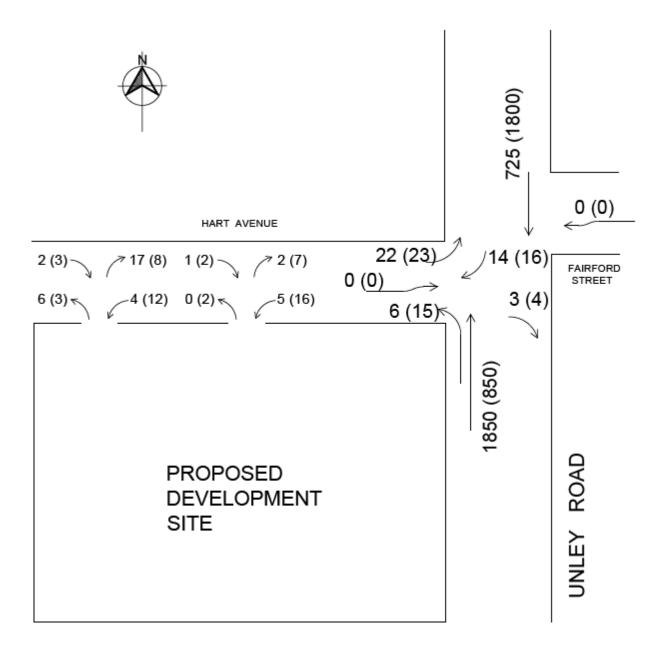


Figure 2: Forecast am (pm) peak hour volumes entering / exiting the subject site and on adjoining road network

For the purpose of the following intersection analysis it has been considered that the intersection of Unley Road / Hart Avenue has been treated as a T-junction.

Based on the review of the above intersection using SIDRA Intersection analysis software, it is identified that there would be comparatively minimal impact relating to the forecast additional movements using this intersection to access the site.

For example, comparison of the existing volumes and forecast volumes identifies that:-

• the average delay to drivers turning right from the northern approach of Unley Road into Hart Avenue would not increase in the am peak hour period and would increase from 15.7 seconds to 15.9 seconds in the pm peak hour period (subject to review),

- the length of queues associated with the right and through movements on Unley Road would remain acceptable,
- there would be some increase in the delays to drivers turning right from Hart Avenue onto Unley Road in both the am and pm peak hour periods, but such increases would have minimal impact on the level of service on Unley Road.

Copies of the movement summaries at the above intersection are included with this report.

It is proposed that waste and recycling will be collected on site by a private waste contractor with the relevant design vehicle reversing in of Hart Avenue and driving forward out onto this roadway once the collection is complete

Figure 3 shows the turning movement of the design vehicle restricted to the southern half of Hart Avenue only, allowing for cars to be parked on the northern side of this roadway.

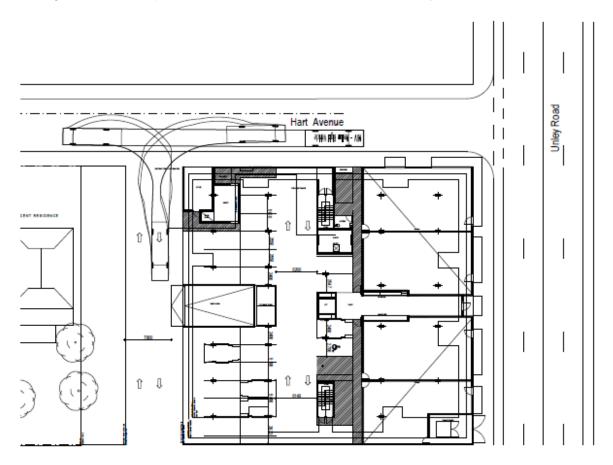


Figure 3: Turning path of MRV Service vehicle

A Waste Management Plan has been prepared by Rawtech in relation to the subject development. This report identifies that the number of truck movements for regular waste and recycling collections is anticipated to be of the order of up to 9 collections a week, namely:-

- 3 collections / week of General waste, and
- 3 collections / week Dry Recycling, and
- 3 collections / week of Organics. Although this proposal does not include a separate organic waste steam, provision for these collections has been included in the calculations to accommodate for the potential inclusion of organics as a separate waste stream in the future.

Some additional truck movements will be required on an infrequent basis for:-

- The servicing of the grease arrestor, and
- Irregular collections of hard waste and e-waste. This is anticipated every four to six weeks.

I therefore anticipate that there would be a requirement to service waste and recyclables on average twice a day.

Summary and Conclusions

In summary, the proposed development will result in the construction of a mixed use development on the site including:-

- 59 residential apartments.
- Commercial areas of approximately 580m², and
- A total on-site car parking provision equivalent to 86 spaces.

All traffic accessing the subject development will enter / exit the site via Hart Avenue and there will be no access into or out of the site directly from Unley Road. The undercroft car parking areas will be accessed via either of the two proposed access points. The basement car parking areas will be accessed only by the westernmost of the two access points on Hart Avenue.

Based on the above assessment it is considered that the on-site car parking areas would meet the peak parking demands of the subject development.

The proposed car parking areas have been designed in accordance with relevant off-street parking standards and will include appropriate levels of car parking for use by the disabled.

The proposed development will result in only minor increases in traffic flows on the road network and would result in minimal change to the operation of the Unley Road / Hart Avenue intersection.

A comparative analysis of the existing and forecast peak hour traffic volumes at the intersection of Unley Road with Hart Avenue indicates that there will be minimal increase in delays and queuing associated with traffic turning into this side road.

There will be some increase in peak hour volumes generated by the subject site compared to the existing recorded volumes of traffic in both the am and pm peak hours. However, the extent of this increase is not considered as being overly significant. In any event, the current levels of traffic do not reflect the potential traffic volumes associated with the current land uses on the site.

There should be minimal increase in the volumes of traffic travelling on Hart Avenue to and from the west of the site, given the relatively indirect nature of Hart Avenue to the west of the site.

Given the mostly residential nature of the subject development together with a small commercial component, the subject development should generate a lower level of delivery movements than the existing development on the site. The subject development will include on-site storage facilities for waste and recycling. These facilities will be located within the ground floor level and will be serviced by private waste contractor. It is understood that these vehicles would be able to reverse into the site via the western access point off Hart Avenue. These vehicles will then be driven forward out of the site. On this basis, it is anticipated that these vehicles would access the site via Hart Avenue, both to and from Unley Road.

Based on the above assessment the proposed development is supported on traffic engineering grounds.

Yours sincerely

Phil Weaver

Phil Weaver and Associates Pty Ltd

2 Grave

Enc

Site: 244 Unley Road development – Unley Road / Hart Avenue - existing am period

Unley Road / Hart Avenue - existing am peak hour period Giveway / Yield (Two-Way)

Move	ement Per	formance	- Vehic	les							
Mov I	D ODMo	Demand	Flows D	eg. Satn	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
		Total	HV		Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South	n: Unley Roa	d - souther	n approa	ch							
1	L2	3	0.0	0.510	5.6	LOS A	0.0	0.0	0.00	0.00	58.2
2	T1	1947	2.9	0.510	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
Appro	oach	1951	2.9	0.510	0.1	NA	0.0	0.0	0.00	0.00	59.8
North	: Unley Road	d - northern	approac	h							
8	T1	763	3.4	0.237	3.7	LOS A	2.1	15.4	0.10	0.01	56.2
9	R2	8	0.0	0.237	47.4	LOS E	2.1	15.4	0.26	0.02	50.2
Appro	oach	772	3.4	0.237	4.2	NA	2.1	15.4	0.11	0.01	56.1
West	: Hart Avenu	е									
10	L2	6	0.0	0.394	113.4	LOS F	1.0	6.9	0.99	1.01	12.0
12	R2	1	0.0	0.394	1016.8	LOS F	1.0	6.9	0.99	1.01	12.0
Appro	oach	7	0.0	0.394	242.5	LOS F	1.0	6.9	0.99	1.01	12.0
All Ve	ehicles	2729	3.0	0.510	1.9	NA	2.1	15.4	0.03	0.01	58.1

Level of Service (LOS) Method: Delay (HCM 2000).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Site: 244 Unley Road development – Unley Road / Hart Avenue - existing pm period

Unley Road / Hart Avenue - existing pm peak hour period Giveway / Yield (Two-Way)

Move	ement Per	formance	- Vehic	les							
Mov I	D ODMo	Demand	Flows D	eg. Satn	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
		Total	HV		Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South	: Unley Roa	d - souther	n approa	ch							
1	L2	7	0.0	0.236	5.6	LOS A	0.0	0.0	0.00	0.01	58.2
2	T1	895	3.0	0.236	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Appro	ach	902	3.0	0.236	0.1	NA	0.0	0.0	0.00	0.00	59.9
North	: Unley Road	d - northern	approac	h							
8	T1	1895	3.0	0.502	0.2	LOS A	0.3	2.4	0.02	0.00	59.8
9	R2	7	0.0	0.502	15.7	LOS C	0.3	2.4	0.03	0.00	57.9
Appro	ach	1902	3.0	0.502	0.2	NA	0.3	2.4	0.02	0.00	59.8
West:	Hart Avenu	е									
10	L2	11	0.0	1.000	554.5	LOS F	3.7	25.8	0.99	1.21	4.3
12	R2	2	0.0	1.000	1989.4	LOS F	3.7	25.8	0.99	1.21	4.3
Appro	ach	13	0.0	1.000	793.6	LOS F	3.7	25.8	0.99	1.21	4.3
All Ve	hicles	2817	3.0	1.000	3.7	NA	3.7	25.8	0.01	0.01	56.5

Level of Service (LOS) Method: Delay (HCM 2000).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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▽ Site: 244 Unley Road development – Unley Road / Hart Avenue - forecast am period

Unley Road / Hart Avenue - forecast am peak hour period Giveway / Yield (Two-Way)

Move	ment Perf	formance	- Vehic	les							
Mov ID	ODMo	Demand	Flows D	eg. Satn	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
		Total	HV		Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South:	Unley Roa	d - souther	n approa	ch							
1	L2	6	0.0	0.511	5.6	LOS A	0.0	0.0	0.00	0.00	58.2
2	T1	1947	3.0	0.511	0.1	LOS A	0.0	0.0	0.00	0.00	59.8
Approa	ach	1954	3.0	0.511	0.1	NA	0.0	0.0	0.00	0.00	59.8
North:	Unley Road	d - northern	approac	h							
8	T1	763	3.4	0.266	5.5	LOS A	6.9	49.8	0.34	0.02	54.5
9	R2	15	0.0	0.266	46.7	LOS E	6.9	49.8	1.00	0.06	45.2
Approa	ach	778	3.4	0.266	6.3	NA	6.9	49.8	0.35	0.02	54.3
West:	Hart Avenu	е									
10	L2	23	0.0	1.000	321.0	LOS F	4.7	33.2	1.00	1.21	7.4
12	R2	3	0.0	1.000	1240.9	LOS F	4.7	33.2	1.00	1.21	7.4
Approa	ach	26	0.0	1.000	431.4	LOS F	4.7	33.2	1.00	1.21	7.4
All Veh	nicles	2758	3.1	1.000	6.0	NA	6.9	49.8	0.11	0.02	54.6

Level of Service (LOS) Method: Delay (HCM 2000).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Site: 244 Unley Road development – Unley Road / Hart Avenue - forecast pm period

Unley Road / Hart Avenue - forecast pm peak hour period Giveway / Yield (Two-Way)

Move	ement Per	formance	- Vehic	les							
Mov I	D ODMo	Demand	Flows D	eg. Satn	Average	Level of	95% Back	of Queue	Prop.	Effective	Average
		Total	HV		Delay	Service	Vehicles	Distance	Queued	Stop Rate	Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South	n: Unley Roa	d - souther	n approa	ch							
1	L2	16	0.0	0.238	5.6	LOS A	0.0	0.0	0.00	0.02	58.1
2	T1	895	3.0	0.238	0.0	LOS A	0.0	0.0	0.00	0.01	59.9
Appro	oach	911	2.9	0.238	0.1	NA	0.0	0.0	0.00	0.01	59.8
North	: Unley Road	d - northern	approac	h							
8	T1	1895	3.0	0.510	0.3	LOS A	0.8	5.5	0.03	0.01	59.6
9	R2	17	0.0	0.510	15.9	LOS C	0.8	5.5	0.07	0.01	57.4
Appro	oach	1912	3.0	0.510	0.4	NA	0.8	5.5	0.04	0.01	59.6
West:	: Hart Avenu	е									
10	L2	24	0.0	1.000	325.9	LOS F	4.9	34.2	0.97	1.37	7.4
12	R2	4	0.0	1.000	1057.2	LOS F	4.9	34.2	0.97	1.37	7.4
Appro	oach	28	0.0	1.000	434.3	LOS F	4.9	34.2	0.97	1.37	7.4
All Ve	ehicles	2851	2.9	1.000	4.7	NA	4.9	34.2	0.03	0.02	55.7

Level of Service (LOS) Method: Delay (HCM 2000).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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CATCORP

Unley Road Development Waste Management Plan

July 2017





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- IMPORTANT NOTES-

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Document verification

Date	Version	Title	Prepared by	Approved by
20/6/17	V1	Unley Road Development, Waste Management Plan Draft	Matt Allan and Kat Heinrich	Kat Heinrich
6/7/17	V2	Unley Road Development, Waste Management Plan	Matt Allan and Kat Heinrich	Kat Heinrich
11/7/17	V3	Unley Road Development, Waste Management Plan	Matt Allan and Kat Heinrich	Kat Heinrich



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1. Introduction

1.1 Purpose

This document provides a waste management plan (WMP), for the proposed development identified in Table 1-1 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 1-1: Proposed development's details

Site Location	246 Unley Road, Unley, SA 5061
Development Project	Unley Road Development
Client	CATCORP
Project Architect	Tectvs

1.2 What this Waste Management Plan Contains

Table 2: WMP overview

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 – Design Approach & Assumptions	Sets out the design approach and assumptions that have been used in preparing this WMP.
Section 4 – Estimated Volumes, Storage Area and considerations for the development	Provides estimates of the waste and recycling volumes likely to be generated at the site which will require storage, collection and disposal. Better practice waste management considerations for the development are also provided.
Section 5 – 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 6 – Collection Requirements	Includes relevant information on collection requirements, including number of collections per week and provision for access and maneuverability for waste collection vehicles.
Section 7 – Supporting Documentation & Design Details	This section outlines the required supporting documentation & design details that need to be confirmed in addition to the WMS outlined in this WMP.
Appendix 1 – Estimated Waste Generation Volumes by Land Use & Waste Stream	This appendix shows the estimated waste and recycling volumes generated by individual land uses and waste streams across the development, used in the preparation of the WMP.



1.3 WMP Status

1.1.1. Currently proposed WMS & 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 at the site. To support this WMP, the Client will need to provide the additional documentation or details on their plans as listed in Section 7.

1.1.2. Further development of WMS & Finalisation of WMP

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.

1.4 Important Notes

This WMP has been developed in conjunction with the Client, 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 proposed uses and waste management arrangements for the development are altered, the WMP may need to be reconsidered.



2. Description of the Development

2.1 Land Uses and Occupancy Data

CATCORP and Tectvs have provided Rawtec with a description of the development and plans showing the proposed layout of the site, buildings and land uses, which can be found in Table 2-1 below. Note that based on discussions with CATCORP, the land uses in the commercial areas on the ground floor are assumed to be a café, retailer and offices.

Table 2-1: Land use and occupancy overview

Land Use	Location	Land Use Type According to Plans	Land Use Type for waste generation calculation (commercial are assumed)	Occupancy Data
		Commercial tenancy	Café/ Restaurant	150m ²
Commercial	Ground	Commercial tenancy	Retail (greater than 100 m ²)	150m ²
Commercial	Floor	Commercial tenancy	Retail (greater than 100 m ²)	150m ²
		Commercial tenancy	Offices or consulting rooms	125m ²
Total comme	ercial			575m ²
Residential	Levels 1 - 5	11 Apartments per floor, 55 apartments total	Residential (high density)	100 bedrooms
	Level 6	4 Apartments	Residential (high density)	12 bedrooms
Total Reside	Total Residential			

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 2-2). 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 2-2: Site requirement summary

Waste Management Requirement	Description
Waste Storage	The plans allocate room for a single chute throughout the building. There is currently no chute room on each floor, with the chute accessible via a chute doorway in the hallway on each floor. The waste collection room is located on the north-west corner of the ground floor, adjacent the store and near Hart Avenue and the private entrance lane. There will also be a chute room, located at the chute exit point in the ground floor car park.



Building Services	Building services would manage waste movement from the chute room to the waste storage room. Building services would also communicate with commercial collection agencies for waste collection.
Collection Service types	Collection of the waste generated at the Unley Road Development would be undertaken via a commercial collection, as we understand that the City of Unley does not collect waste at multi-unit dwellings of this size.
Source separation of materials	We understand that to minimise the number of collections per week, the client may choose to discard cardboard and paper materials into the comingled recycling stream.
Collection point	All waste collection would occur from the waste collection room in the north-west corner of the ground floor. There is no on-site loading zone for the waste truck. We understand that the preference is for waste trucks to park on the Private Lane, which is owned by the site, while collecting waste. The waste truck would need to reverse into the Private Lane from Hart Avenue, park, load the bins, and drive back into Hart Avenue in a forward direction after collecting waste. The Traffic Consultant would need to confirm swept paths and safe vehicle access for this movement.



3. Design Approach and Assumptions

3.1 Policy, Design and/or Operational 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, 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.

3.2 Estimating Waste & Recycling Services, Volumes and Sizing Storage Areas

This WMP includes an estimate of waste & recycling volumes likely to be generated by the development, which can be found in Section 4 below. The estimation of waste and recycling volumes is based on:

- The proposed land use data;
- Client and regulatory expected services for different land uses in the development; 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.

3.3 Stream/Service Types Requiring Collection of Drop-Off Options

To achieve effective waste and recycling management at the site, Table 3-1 overleaf outlines the recommended waste and recycling services that should be collected from the development. These recommended services align with SA Better Practice Guide mentioned above, which the City of Unley uses as a guide.



Table 3-1: Proposed stream/ service types based on land use activity within the hotel

	Required/Desired Waste and Recycling Collection Services						
	Land Use	Residential	Commercial	Commercial	Commercial		
		Apartments	Café	Retail	Office		
		Residential (High Density)	Café/Restaurant	Retail (Greater than 100m2)	Offices or Consulting Rooms		
Service type	Waste and Recycling Stream						
	General Waste	X	X	X	X		
	Co-mingled Recycling	Х	Х	Х	х		
	Organics (Food) Recycling	Х	X	Х	Х		
Routine collection	Cardboard Recycling	NS	Х	Х	NS		
(e.g. rear-lift collection)	Paper Recycling	NS	NS	NS	X		
	Glass Recycling	NS	NS	NS	NS		
	Plastic Recycling	NS	NS	NS	NS		
	Confidential Paper Recycling	NS	NS	NS	X		
*On-call collection (pick-up by contractor) or	Hard Waste	х	X	х	х		
External drop-off (by building services)	E-waste	Х	Х	х	х		
	CFL/Lighting	Х	Х	Х	Х		
	Printer Cartridges	X	Х	Х	Х		
	Batteries	X	X	Χ	X		

X = Required/Desired

NS = Not serviced as not required/desired

Note: 'X' indicates required/desired as per The SA Better Practice Guide – Waste Management in Residential or Mixed Use Developments (Green Industries SA, 2014).

The following waste and recycling streams will not be included within the waste management system:

E-waste (batteries and printer cartridges etc.) and CFL/Lighting – These waste streams
would be either be temporarily stored within the land use area/room where they are
generated (i.e. within dwellings) and dropped off at an appropriate external location (e.g.
local recycling depot or office supply store) by building services when required, or
managed through an external contractor (e.g. for carpark lighting replacement).



4. Estimated volumes and storage areas

4.1 Estimated volumes

Table 4-1 below identifies preliminary estimates for the total waste and recycling stream volumes generated by the land uses. This table also includes the 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. A table showing estimated waste and recycling volumes generated by individual land uses can be found in Appendix 1.

The below waste volume estimations assume the commercial spaces on the ground floor are for a café, two retail outlets and offices. It also assumes commercial collection for all waste generated at the site.

Table 4-1: Preliminary estimates of waste and recycling volumes (litres/ week) across all land uses with proposed services and collection frequency

	Catina ata d		Proposed	Services			
Waste stream	Estimated Waste Volume (Litres Per Week)*	Bin Size (Litres)	Collection Frequency	Estimated no. of bins required	Proposed waste collection service provider	Proposed location where bins/ waste is presented for collection	
General Waste	7,995	1100	3 x per week	3 + 1 spare			
Co-mingled recycling	3,737	1100	4 x per week	1 + 1 spare		Presentation within the waste collection room, adjacent the store room	
Organics (Food) recycling	5,421	660	3 x per week	3	Commercial Contractor		
Cardboard Recycling	2,520	660	2 x per week	2	(Regular Collection)		
Paper Recycling	114	240	1 x per week	1	,		
Confidential Paper Recycling	13	140	As required	1			
Hard Waste	783	NA (allow 10-15 m² floor space plus sufficient access to the area)	As required	Not applicable	Commercial Contractor (On call)	At this stage, presentation is in resident apartments. Recommend providing aggregation area on ground floor	
E-Waste	138	NA	Residents may dispose of their E-Waste and other hazardous waste via available public drop-off points, or arrange collection by a commercial contractor, which could be conducted with the hard waste collection.			arrange collection	
Total	20,700 (estimated)	-	13 collections per week**	13			

^{*}Note: Totals have been rounded to better reflect estimation of the volumes and may not equate

^{**} Note: To minimise collections, an option is to place cardboard and paper materials in the comingled recycling bins. If this was to occur, co-mingled recycling bins would take approx. 6,400 litres per week, requiring 2 x 1100L bins plus 1 spare 1100L bin (or 2 x 1100L bins and 2 x 660L bins as this may fit better in the waste rooms), and 3 collections per week (rather than the current 7 collections per week). This would reduce the total collections per week from 13 to 9.



4.2 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, which includes one example of bin configuration, can be found in Figure 4-1. Our measurements estimate the waste collection room to be approximately 27 m^2 , with a large door on the south wall. As can be seen in Figure 4-1, the $2 \times 1100 \text{L}$ general waste bins, $1 \times 1100 \text{L}$ co-mingled recycling bin, $3 \times 660 \text{L}$ food organics bins and $2 \times 660 \text{L}$ cardboard bins fit into the allocated space. The paper and confidential paper bins can be stored in the offices and collected from the offices by the waste contractor. The remaining $2 \times 1100 \text{L}$ general waste bins and $1 \times 1100 \text{L}$ recycling bin can be stored in the chute room (see Figure 4-2). Note that an additional 660L food organics bin would also fit in this room if required (see Figure 4-2).

1.1.3. Better Practice Considerations for Waste Management

Based on the plans presented at this stage, some key considerations and options for the site from a waste management perspective include:

- The plans provide no allocated space for hard waste storage.
 - It is recommended that 10 15 m² of space be allocated for storage of hard waste prior to collection (based on once a month collection). Building Services can then organise temporary storage of hard waste until it is collected. The Store room may provide this space, but this has not been confirmed.
 - Alternatively, collection may occur directly from apartments. Note that for this to occur, the building services manager, resident and collection contractor would all need to be present, which can be logistically difficult and an inconvenience for the resident. If a 10 15 m² area was provided in the Store room it would be possible to aggregate hard waste on the ground floor, allowing collection for multiple apartments at the same time which can reduce costs while increasing convenience for residents.
- The plans include a single chute for residents to dispose of their waste. This chute exits on the ground floor in the chute room (see Figure 4-2). We understand that this will be a single chute with a diverter, so residents can choose between general waste or recycling. The SA Better Practice Guide indicates that organics (food and/or garden) is a required or expected service for residents and cafés/ restaurants in South Australia. At this stage, food organics bins are available to the café, but not residents. Some options include:
 - Better practice suggests making food organics disposal an option for residents on each floor. This reduces transport distances for residents and the potential for food waste to leak out in lifts while moving the food organics throughout the building. This could be done by adding another chute for food organics, or by providing small (e.g. 80L) food organics disposal bins within a waste room on



- each floor. This waste would then be transported to the ground floor for collection by building services via lifts/walkways.
- An alternative option is to provide residents with access to a food organics bin on the ground floor (e.g. within the chute room). Residents could either access this bin by entering the room where it is located, or via a drop-off window in the hallway (with a bin positioned within a room on the other side of the wall).
- Another consideration is the chute location. In the plans, this is located in the hallway of floors 1 - 6, rather than in an allocated chute room. This may present odour issues and building services may need to clean the chute door on both sides on occasion.
 - An option is to ensure tiling is used below the chute entrance point, to make clean up easier should residents drop/spill their waste before disposing into the chute. Other developments have small chute rooms (a small area behind a door), which can be an effective way to separate waste disposal from the hallway and other residents. Should this option be elected, it is important that consideration is given for access to this room by mobility impaired persons.
- Safe access for Building Services between the chute room and the waste collection room is recommended, as bins are transported across a car park. A pedestrian crossing or allocated pathway for pedestrians and traffic controls between the two rooms would make this pathway safer. Note that it is important to ensure clear access to the waste collection room when transporting the bins. As indicated in section 5.2, these transfer pathways should be free of obstructions and steps, at least 1.25m wide and a slope of no more than 1:10. Obstructions include car parks, as cars may be parked and subsequently block access. A potential access pathway has been provided in Figure 4-3. This pathway does not require access through a carpark. Note that an additional door in the waste collection room would be required on the northern wall, which has been included in Figure 4-1. This access pathway would need to be confirmed by the architect/developer in consultation with the Traffic Consultant and other specialists from relevant disciplines, and then indicated on the plans along with the additional door on the waste room.
- We understand that there are no height restrictions above the waste collection point on the private lane. If there were to be objects above the lane, we recommend a clearance of 4 metres for maximum flexibility in regards to potential waste collection vehicles that can access the site. It is also understood that there is no loading space allocated for the waste collection vehicle. It is recommended that a loading area be allocated for waste trucks to park while collection occurs.
- To allow diversion of the chute in the chute room, it is recommended that the height from ground to ceiling is at least 3 metres.



Figure 4-1: Preliminary drawing of the waste storage and collection room with an example

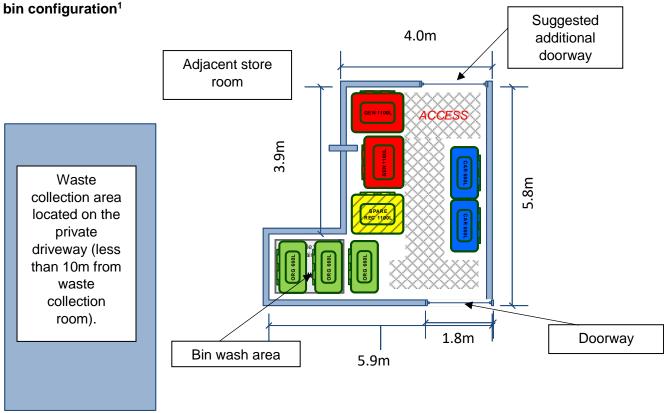
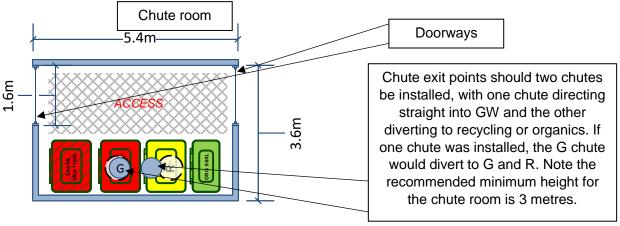


Figure 4-2: Preliminary drawing of the chute room with an example bin configuration



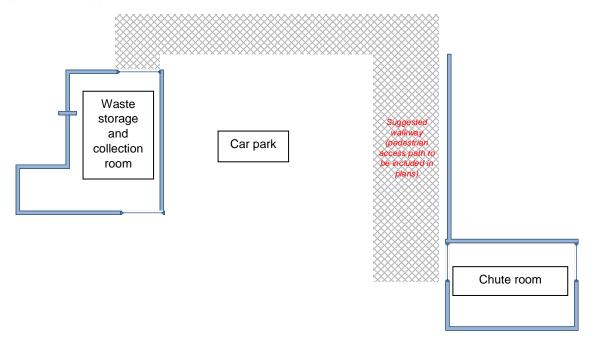
Note: These bin sizes are for **illustration purpose only** and are based on the standard MASTEC Australia bin sizes (http://www.mastec.com.au). Bin sizes and shapes may differ depending on manufacturer, collection contractor or local waste authority. Please allow extra room (e.g. >10%) for differences in bin sizes, bin access, opening and closing and manoeuvring etc.

LEGEND
GEN = General
Waste
REC = Comingled
Recycling
ORG = Organics
CAR = Cardboard

¹ Note that an additional door (making a total of two doors in the waste collection room) has been included on the northern wall to allow safe access from the chute room to the waste collection room



Figure 4-3: Suggested access pathway from the chute room to the waste collection room



4.3 Bin Wash Area

A bin wash area is recommended to keep the bins clean and reduce odour. We note that the updated plans include a bin wash area in the waste collection room. For reference, it is recommended the bin wash area:

- 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. We have included a potential bin wash area in the indicative drawing above within the waste room (see Figure 4-1).

Please note that alternatively, it is possible for the bin wash area to 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).



5. Waste Management System (WMS)

5.1 Overview of the System

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 below tables provide an outline of the waste management system for each land use. This is based on the site yield data collected and waste management steps recommended in the South Australian Better Practice Guide – Waste Management in Residential or Mixed Use Developments (Office of Green Industries SA, 2014).

5.2 Residents

	WMS step	WMS Notes
	1 – User disposal and storage	Each apartment would have their own bins consisting of small-medium general waste and recycling bins (e.g. 20-40L), as well as kitchen caddies with compostable bags for food scraps to sort and temporarily store waste.
Waste storage and transfer pathways for: • General waste	2 - Transfer pathway to common disposal area	 Residents would transfer waste from their apartments to the chute on their respective floor. The chute is located in the hallway to the northern stairwell and the distance from the front door to the chute ranges up to approximately 25 metres. If two chutes or a food organics bin on each floor were available, residents could dispose general waste, comingled recycling and food scraps on each floor. Alternatively, food scraps would need to be taken to a food organics bin located in the ground floor chute room. This would be accessed via the lift and through the corridor behind the commercial tenancies. Note that the Better Practice Guide recommends common disposal points be no more than 30 metres from front door to disposal point.
Co-mingled recyclingFood organics	3 – Aggregation and storage	 The waste would be stored in the chute room on the ground floor and then transferred to the waste collection room on the ground floor by Building Services. Note that 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.
	4 - Waste Collection	 Waste may be collected via the private lane, less than 10 metres from the waste collection area on the ground floor. Note again that 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. The truck will reverse from Hart Avenue into the private lane, park, load bins to the rear of the vehicle from the waste room, return the bins to the waste room, exit the private lane onto Hart Avenue in a forward direction. Truck swept paths and potential parking restrictions are to be confirmed by the Traffic Engineer.



5.3 Commercial entities within the building

	WMS step	WMS Notes
Waste storage and transfer pathways for:	1 – User disposal and storage	 Each land use would have its own bin station to temporarily store waste. These bins will be small-medium size (e.g. 40-80L general waste in bags and food organics in compostable bags and cardboard to be placed within the comingled recycling bins within or near the room where it is generated) to sort and temporarily store waste. Bulky cardboard items can be taken directly to the bin room and disposed of within the 660L cardboard recycling bins. Offices would store paper and confidential paper recycling in 240L and/or 140L bins in the offices.
 General waste Co-mingled recycling Organics (food) recycling Cardboard recycling 	2 – Transfer pathway to common disposal area 3 – Aggregation and storage	 Staff from each commercial tenancy would transfer the waste from respective premise to the waste storage room on the ground floor. This would be via the rear hallway and into the car park. The waste would be stored in the waste collection room on the ground floor.
Paper and confidential paper recycling.	4 – Waste Collection	 Waste may be collected via the private lane, less than 10 metres from the waste collection area on the ground floor. Note that 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. The truck will reverse from Hart Avenue into the private lane, park, load bins to the rear of the vehicle from the waste room, return the bins to the waste room, exit the private lane onto Hart Avenue in a forward direction. Truck swept paths and potential parking restrictions are to be confirmed by the Traffic Engineer. Office paper bins would be collected from the offices and loaded into the truck by the waste contractor.



6. Collection Requirements and Vehicle Movements

6.1 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 food organics streams;
- Pan-tech or flat-bed trucks for collection of at-call waste streams, if required.

Examples of the likely truck dimensions are provided in the Table 6-1 below to assist the Traffic Engineer/Consultant in ensuring that the Service Yard 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.

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 Service Yard and other requirements before collection can begin.

Table 6-1: Likely dimensions and turning circles of waste collection vehicles that would be required to access the Service Yard.

Likely dimensions and turning circles of waste collection trucks					
Rear-lift truck Pan-tech/flat-bed* (to collect bins up to 1100L) (to collect hard waste/E-waste)					
Dimensions	3.4m (h) x 2.5m (w) x 8m (l) plus 2m space at the rear to load bins 4.5m (h) x 2.5m				
Vehicle height in operation Up to 4m Up to 4.5m					
Vehicle turning circle 18-25m 10m					

^{*}Note: Pantech/flatbed vehicle dimensions are based on Australian MRV standard specifications - AS 2890.2-2002

6.2 Estimated number of waste vehicle movements per week

We have estimated that there would be approximately 13 waste collection vehicle movements per week at the site (including paper pick up services). This is based on the estimated waste and recycling volumes and service frequency described above. Note that the total waste collection vehicle movements per week is estimated to be 9 if paper and cardboard was placed in the comingled recycling bins, instead of having separate collections for these streams. These estimated vehicle movements do not include an on-call of infrequent services such as hard waste/E-waste collection and confidential paper recycling.



7. Supporting Documentation and Design Details

The following information would need to be provided in support of this WMP.

- 1. Building plans confirming:
 - The size and layout of the waste rooms, including doorways.
 - Transfer pathways for safe and efficient movement of bins/waste between waste rooms and locations for collection.
 - Other land uses.
- 2. Traffic Consultant to confirm:
 - Parking, loading/unloading and manoeuvring for waste collection vehicles utilising the Service Yard.



Appendix 1: Estimated Waste Generation Volumes by Land Use and Waste Stream

	Estimated Waste Generation Volumes (Litres Per Week) by Land Use & Waste Stream (All Land Uses)						
	Land Use	Residential	Commercial	Commercial	Commercial		
	Development Land Use	Apartments	Café	Retail	Office	Totals (Litres Per	
	WRGR Classification	Residential (High Density)	Café/Restaurant	Retail (Greater than 100m2)	Offices or Consulting Rooms	Week)	
	General Waste	3,400	3,200	1,300	200	8,100	
	Co-mingled Recycling	2,800	500	300	100	3,700	
	Organics (Food) Recycling	1,100	4,200	60	40	5,400	
Stream	Cardboard Recycling	NE	1,600	900	NE	2,500	
Stre	Paper Recycling	NE	NE	NE	100	100	
	Glass Recycling	NE	NE	NE	NE	0	
Waste	Plastic Recycling	NE	NE	NE	NE	0	
_	Confidential Paper Recycling	NE	NE	NE	10	10	
	Hard Waste	800	NE	NE	NE	800	
	E-waste	100	NE	NE	NE	100	
To	otal Site Volume (Litres per Week)	7,300	9,500	2,600	500	20,700	

*Note: Totals have been rounded to better reflect estimates and may not equate

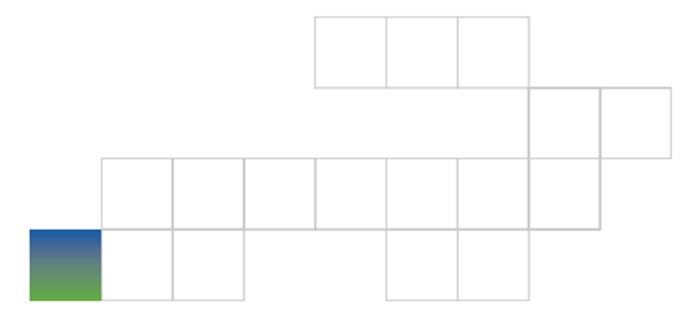
NE = Not Estimated as Not Required





Project No: LCE13020

Building Services Design Report



DOCUMENTATION ISSUE REGISTER

REVISION	DESCRIPTION	DATE ISSUED	ENGINEER	REVIEWED
А	Draft Issue	16/06/2017	PC / JZ	-
В	Planning Issue	07/07/2017	PC / JZ	-

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1 INTRODUCTION

1.1 BUILDING DESCRIPTION

The project involves the development of the existing site at 246 Unley Road, Unley comprising of ground floor retail tenancies and 6 floors of apartments. A total of 59 apartments are proposed.

Based on project design team meetings we understand that the breakdown of the building will generally be as follows:

Building Level	Building Function
Basement 1 and 2	Services plant areas
	Carparking
	Bike store
	Amenities
Ground	Residential Entrance Lobbies
	Transformer Enclosure
	Residential and Commercial Bin Rooms
	Carparking
	Bike store
	Amenities
	Retail Tenancies
Level 1 - 5	Apartments (11 off per level)
Level 6	Penthouse Apartments (4 off)

2 AUTHORITIES

2.1 SA POWER NETWORKS ELECTRICAL SUPPLY

The permanent power supply to the site shall be sourced from a new high voltage (HV) extension along Unley Road from the existing HV supply located on Cremorne Street to the site. The site will be supplied via a new SA Power Networks transformer located on the south-eastern corner of the site in a purpose-built transformer room to the requirements of SAPN.

2.2 COMMUNICATIONS

NBN Co have confirmed that an NBN connection can be provided to the site. Alternative communication services solutions to NBN shall be considered prior to entering into an agreement with NBN.

2.3 SA WATER CORPORATION

2.3.1 SEWER INFRASTRUCTURE

SA Water Corporation (SAWC) have been requested to investigate the capacity of the existing waste water (sewer) infrastructure adjacent the proposed development site, based on approximate increased fixture loading for the planned development. A formal response is due in July.

Preliminary assessment indicates that 2 x 150mm new sewer connections will be required to service the site via connections to the 150mm sewer main in Hart Avenue or the 450mm VC sewer main in Unley Road. All new sewer connections will incorporate a government inspection point in the adjoining footpath. An existing connection (believed to be 100mm) will be disconnected as part of works.

2.3.2 DOMESTIC COLD WATER INFRASTRUCTURE

SA Water Corporation (SAWC) have been requested to investigate the capacity of the existing town water mains infrastructure adjacent the proposed development site, based on approximate increased site peak water demand for the planned development. A formal response is due in July.

The existing buildings are currently serviced via water meters with connections (size unknown) to the 100mm and 200mm mains in Hart Avenue and Unley Road respectively. Existing water meters will be disconnected by SAWC following temporary use to serve builder's site amenities.

Preliminary assessment indicates that a 50mm water meter and connection will be required to service the planned development. The water meter will be housed in a cast iron footpath boxes by SAWC. The incoming water main extending from the proposed new 50mm water meter will extend to a break tank and associated domestic cold water pressure pump assembly, which will be utilised to service all floors.

A 150mm fire services connection is proposed off the 200mm main in Unley Road to service on site booster assembly, attack hydrants located within stairwells and sprinkler system.

2.4 APA GROUP NATURAL GAS INFRASTRUCTURE

A medium pressure 80mm cast iron gas main is located in Hart Avenue, and an existing 100mm cast iron gas main is located in Unley Road. A new tapping is proposed to be derived from the 80mm diameter main in Hart Avenue which will extend to a gas meter enclosure facing onto Hart Avenue. APA Group have confirmed that the natural gas infrastructure in Hart Avenue has adequate capacity to cater for the development's natural gas loading.

3 BUILDING SERVICES

3.1 ELECTRICAL SERVICES

- Electrical distribution systems including consumers mains, main switchboard, submains and distribution boards.
- Electrical authority transformer.
- Retailer metering
- Lighting control system
- Exit and emergency lighting system complying with the requirements of AS2293.
- Electronic security and access control systems.
- NBN fibre optic network infrastructure servicing the apartments
- Reticulated MATV system to apartments
- Audio and visual intercom system apartments.
- PV solar collection system to generate power for the building common areas.

3.2 FIRE SERVICES

- Fire hydrants generally located within the fire isolated stairs, providing coverage to all areas of the building.
- Automatic fire sprinkler systems to AS1670 in carparks, retail tenancies and apartments.
- Smoke detection system throughout for activation of the smoke control system and early activation of the occupant warning systems.
- Fire hose reels and portable fire extinguishers.
- Interfaces with other services for control of building fire mode operations.

3.3 HYDRAULIC SERVICES

- Connection to SA Water Corporation Authority water and sewer infrastructure
- Connection to APA Group Authority gas infrastructure including gas meter enclosure
- Sanitary drainage system extending from authority connections to serve apartments, base building amenities and ground floor retail tenancies.
- Trade waste drainage system serving ground floor retail tenancies (where required) and extending to inground pre-treatment devices on Basement Level.
- Domestic Cold Water Break Tanks and Boost Pumps for building water reticulation.
- Central Hot Water Plant for hot water supply to apartments.
- Hot/Cold reticulation to all areas of the development including back flow prevention in accordance with AS/NZ 3500 and sub water meters to apartments.

3.4 MECHANICAL SERVICES

- Provision of mechanical carpark exhaust system to the basement carpark utilising carbon monoxide (CO) sensors for fan on/off and variable speed control.
- Supply and exhaust systems to plant, Back of House (BOH) and amenity areas as required
- Provision for air conditioning to Retail tenancies
- Provision of air conditioning to each apartment
- Provision of exhaust systems to serve toilet, laundry and kitchen areas of each apartment
- Natural ventilation of each above ground car park level with assistance of supplementary mechanical ventilation as required to achieve compliance



Think beyond the square

ESD and Sustainability Consultants Master Planning Resource Management Strategic Advice Governance Advocacy

246 Unley Road, Unley

ESD Report Development Approval

D Squared Consulting Pty Ltd Trading as dsquared ACN 159 612 067 ABN 38 159 612 067

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Think beyond the square

Document Control

Issue	Date	Change	Checked	Approved
1	8/06/2017	First draft issue for review	PD	DD
2	7/07/2017	Final report	PD	DD
3	13/07/2017	Amendment for DA	PD	DD
4	2/08/2017	Updated NatHERS	PD	DD

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Think beyond the square

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1 Introduction

This document describes the Ecologically Sustainable Design (ESD) Vision which will be applied to the residential development at 246 Unley Road, Unley, and the ESD strategies which will be employed to reduce the project's impact on the environment in both construction and operation.

This report is based on a review of the building design prepared by Tectvs Architects and the commitments made at planning stage by the client.

The report has been prepared by Deborah Davidson, a Director of consultancy firm dsquared. Deborah has over 15 years' experience in sustainability and building design in the UK and Australia. She has been involved in some of Adelaide's most significant urban master plans and new buildings, including several Green Star ratings for residential buildings at Bowden and in the Adelaide CBD.

1.1 ESD Summary

The project is being designed to be energy and water efficient, whilst achieving a high level of thermal comfort for future occupants. It is anticipated that residents will have energy utility bills approximately 50% lower than a standard residential apartment.

The dwellings are designed to achieve a 7 Star average National House Energy Rating (NatHERS), which is a significant improvement over the National Construction Code minimum of 6 Stars. This is being achieved through a combination of good passive design (cross ventilation and daylight control) and good quality building materials.

Priority is being given to durable, sustainable and local products where possible.

Public spaces are being designed to encourage social interaction and connection with the environment through green spaces and productive gardens.

2 ESD Initiatives

2.1 Energy and Green House Gas Emissions

The following energy initiatives are proposed:

- Passive design each elevation and the building orientation has been considered separately and glazing and facade treatments optimised, with external shading used to minimise summer solar gains.
- Cross ventilation to all apartments though opening above doors.
- All dwellings will be provided with opening windows and doors to allow full natural ventilation as required by the occupants.
- Glazing to be double glazed with large overhangs from balcony above.
- Selection of energy efficient lighting fittings (LED) with automated lighting control systems to common areas.
- Air conditioning using high efficiency ducted reverse cycle systems. Ensure fan setting to allow distribution of air without heating/cooling energy use when not needed.
- Centralised hot water generated by a gas boosted system.
- Induction cooktops.
- Energy efficient dishwasher and internal clothes drying space.
- Extensive metering and sub-metering for energy management, connected to a fully integrated Energy Management System.
- Demand controlled car park ventilation systems with inverter controlled variable speed fans and carbon monoxide sensor control.
- Using light coloured external finishes (in particular roof coverings) to reflect heat and reduce solar gain, and reduce the heat island effect.
- Using zero ODP refrigerants and insulation.
- PV array on roof to power common areas.
- Provide a battery connection to support use of renewable energy to common areas.
- Infrastructure will be included to allow for connection to an embedded network if deemed beneficial to future residents.

2.2 Water, Waste Water, and Stormwater

The following water initiatives are proposed:

- Rainwater will be captured in two storage tanks at ground level and used for landscape irrigation.
- Water efficient fittings with the minimum WELS ratings:
 - o Taps 6 Stars
 - o WCs 4 Stars
 - o Showers 3 Stars
- Stormwater systems designed such that historic peak stormwater outflows should not be exceeded, and all stormwater is appropriately treated before discharge to sewer.

2.3 Waste

- The common waste storage area has bins for:
 - o General Waste
 - Glass, plastic and paper recycling
- Each floor includes a waste chute with segregation at source for waste and recycling.
- Each kitchen will be designed to accommodate split bins for general, recycling, and compost waste.
- Organic waste, compost, e-waste and bulky waste will be collected as required, in accordance with the project Waste Management Plan prepared by Rawtec.

2.4 Indoor Environment Quality

The following indoor environment initiatives are proposed:

- Using paints, sealants, adhesives, carpets, and other coverings which have low off-gassing properties (low VOC, low formaldehyde).
- Maximising access to daylight to all living areas (including translucent glazing to kitchen splashbacks) whilst minimising glare to all dwellings.
- All dwellings will be provided with opening windows and doors to allow full natural ventilation as required by the occupants.

2.5 Construction

The following construction initiatives are proposed:

- Selecting locally sourced materials wherever viable.
- Selecting materials with a comparatively low embodied energy/carbon profile, wherever viable.
- Selecting building materials with a recycled material content e.g. thermal insulation, reinforcement bar, and recycled content floor coverings, wherever viable.

- Utilising an Environmental Management Plan and Environmental Management System (EMS) that is certified to ISO 14001 standards.
- Managing construction waste (including demolition) such that a minimum of 90% of all waste (excluding soil, contaminated waste, and green waste) is diverted from landfill.

2.6 Transport and Social Sustainability

The following transport and social sustainability initiatives are proposed:

- Utilise courtyard space for edible plants, vegetable gardens, fruit trees (where viable), alongside areas for socialising and rest.
- Accessible apartments should follow Liveable Housing guidelines (Silver level)
- Include bike parks within apartments and visitor parking.
- Include connection for future e-charging for cars.

3 Sustainability Benchmarks

3.1 Sustainability Rating Tools

NatHERS

The development is designed to achieve a 7 Star average NatHERS rating, which is a significant improvement over the code minimum of 6 Stars.

Green Star

The development is not seeking a Green Star rating. However, the project team has recent experience of a Green Star rated residential building and has adopted many of the successful ESD initiatives from this project into the sustainability strategy for the Unley development.

dsquared have carried out a self-assessment of the development using the Green Star Design & As Built v1.1 tool and believe that this project has the potential to obtain equivalent to a 5 Star rating.

3.2 Energy Benchmark

Based on the energy initiatives listed above, it is expected that the dwellings will have an annual energy usage of approximately 50% of a standard NCC compliant home. Note that this does not allow for internal equipment loads and occupant behaviours.

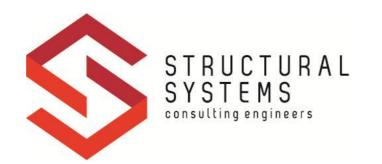
3.3 Water Benchmark

Based on the water initiatives listed above, it is expected that the dwellings will have an annual water usage of approximately 30% of a standard NCC compliant home.



Date Issued	Friday, 7 July 2017
Job No	DT 170510
Site	244-246 UNLEY ROAD, HYDE PARK
Client	COMMERCIAL & GENERAL
Proposed	7-STOREY with UNDERCROFT RESIDENTIAL DEVELOPMENT

STORMWATER MANAGEMENT REPORT



Date Issued	Friday, 7 July 2017
Job No	DT 170510
Site	244-246 UNLEY ROAD, HYDE PARK
Client	COMMERCIAL & GENERAL
Drangad	7-STOREY with UNDERCROFT RESIDENTIAL
Proposed 	DEVELOPMENT

INTRODUCTION

Structural Systems Pty Ltd has been engaged by Commercial & General to prepare a stormwater management report for the proposed residential development at 244-246 Unley Road, Hyde Park.

The purpose of this report is to assess the stormwater control of the site. It covers the assessment of the stormwater runoff before and after the development, and the possible impacts to the Council drainage system.

SITE LOCATION AND PROPOSED DEVELOPMENT

The subject land is located within the City Of Unley Council district and is situated at the corner of Unley Road and Hart Avenue, Hyde Park. The eastern frontage of the site is facing Unley Road, while the northern side is facing Hart Avenue. The southern and western sides of the property are bounded by an existing shop and an existing residential property respectively. The site currently consists of a row of shops facing Unley Road with a communal driveway at the rear, and a single storey dwelling facing Hart Avenue. All existing structures are to be demolished to accommodate the proposed development of a seven storey residential apartment building with two level basement carpark.

SITE TOPOGRAPHY

The fall of the site is a gentle fall from South East toward Norh West direction. The existing levels at boundaries are similar to the neighbouring Western and Southern sides. The Councils eastern side footpath sloping along Unley Road South–North direction is approximately 1:100 fall towards the North. The Council's northern side footpath sloping along Hart Avenue East–West direction is approximately 1:170 fall toward the West.

The highest Kerb Water Table level at property road frontage is approximately 47.02 at Unley Road.

The lowest Kerb Water Table level at property road frontage is approximately 46.23 at Hart Avenue.

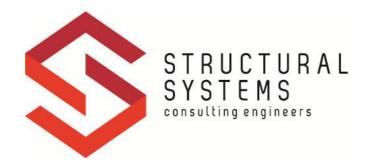
STORMWATER

Hydrology

For this site, the rational method was used to determine the stormwater runoff and peak discharge for a 1 in 10 year ARI pre-development storm event and a 1 in 10 year ARI post-development event. The rational method calculates the peak flow at an outlet point. The peak flow can be defined as Q = C*I*A.

Where C is the runoff coefficient, I is the average rainfall intensity appropriate for the time of concentration, and A is the catchment area. The time of concentration "tc" is defined as the travel time for flow from the most remote part of the catchment to reach the outlet, or the time taken from the start of the rainfall event until all of the catchment is simultaneously contributing to the outlet.

The estimated time of concentration for this site is 7 minutes.



Date Issued	Friday, 7 July 2017
Job No	DT 170510
Site	244-246 UNLEY ROAD, HYDE PARK
Client	COMMERCIAL & GENERAL
Proposed	7-STOREY with UNDERCROFT RESIDENTIAL
, .opood	DEVELOPMENT

Existing Site Conditions

The total site area is estimated as: $A = 2482m^2$

The site currently has a high percentage of roof cover, comprising of the shops and the existing house roofs. The total roof area is estimated as 1826m².

The uncovered area of the site consists of pervious and impervious surfaces, with the impervious paving areas making up an estimated 461m², while the remaining 196m² of the site can be considered as pervious area. The total percentage of impervious area of the site is approximately 97%.

Proposed Development

The proposed development has a slightly less roof area, whilst having an increase in paving area.

Proposed roof and balcony area: $1244 + 608 \text{ m}^2$ Proposed paving area: 351 m^2

The total percentage of impervious area is approximately 99%.

Based on the calculated impervious surface, there are some changes in the impervious surface between the predevelopment and post-development conditions for this site, and therefore it is expected that the stormwater runoff volume and flow rate will slightly increase between pre and post development.

Catchment Runoff Coefficient

The following runoff coefficients have been adopted for the design calculations:

First class impervious area (roof & balconies): C10 = 0.9Second class impervious area: C10 = 0.75Pervious area: C10 = 0.1

Based on the adopted runoff coefficients and measured catchment area, the equivalent runoff coefficient for the full site for a 1 in 10 year ARI storm event is as below:

For pre-development: Cequiv = 0.85For post-development: Cequiv = 0.87

Estimated Peak Total Discharge Rate

The pre-development discharge rate for the whole site is calculated as:

 $Q_{10} \ pre = C_{10} * I_{10} \ 7mins * A / 0.36$

= 0.85 * 85.10 * 0.2213ha / 0.36

 $= 44.33 \, \text{L/s}$

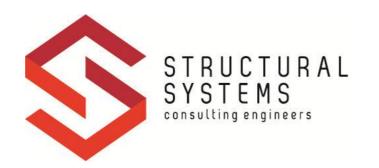
The post-development discharge rate for the whole site is calculated as:

 $Q_{10} post = C_{10} * I_{10} 6mins * A / 0.36$

= 0.87 * 85.10 * 0.2213ha / 0.36

= 45.68 L/s

Page 2 of 6



Date Issued	Friday, 7 July 2017
Job No	DT 170510
Site	244-246 UNLEY ROAD, HYDE PARK
Client	COMMERCIAL & GENERAL
	7-STOREY with UNDERCROFT RESIDENTIAL
Proposed _	DEVELOPMENT

There is a slight increase in the peak flow rate of the site between post-development and pre-development conditions, and therefore it can be predicted that even without any new stormwater improvement systems installed, the proposed development will have minor impact to the Council stormwater system.

COUNCIL STORMWATER MANAGEMENT REQUIREMENTS

The following conditions are extracted from "City of Unley – Development and stormwater management design quide". The full document can be obtained from the Council

The guideline seeks to show how developments can accomplish:

reduced peak stormwater flows and improved flood management stormwater detention, retention, re-use and ground infiltration stormwater quality improvement for surface and ground waters improved micro climate benefits and reduced heat island affects, through enhanced streetscapes, landscaping and increased urban greening.

For the effective and practical implementation of the standard provisions of the Development Plan, Building Code and best practice standards as outlined in this Guide, it is required that:

stormwater runoff generated from impervious areas discharged from the site is to be less than current predevelopment conditions using a volumetric 5 year ARI 45 min event

Impervious surfaces are to be less than the equivalent of 40% for residential areas and 80% for commercial areas

a minimum 1,000L retention tank for residential development, however larger volumes are typically required for applicable development to enable more effective and efficient utilisation of the investment and availability of water for re-use (Refer Table 3.1).

stormwater runoff to be treated to remove 90% of gross pollutants, 80% suspended solids, 60% total phosphorous, and 45% total nitrogen of the typical urban stormwater annual load. These requirements apply to larger developments (Commercial developments), to car parks of equal to or greater than 6 parking spaces, as well as large areas of hard paving (> 20m2).

Table 3.1 (Appendix 1) has been extracted from the design guide, and provides the following requirements:

The development has an allotment size of 1501-2000m² and falls into the Apartment Buildings / Commercial site categories, and hence requires:

Retention Rainwater Harvest Tank (L): 12000 L
Detention Storage (L): 8000 L
Total Stormwater Storage Volume for Site: 20000 L

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Date Issued	Friday, 7 July 2017
Job No	DT 170510
Site	244-246 UNLEY ROAD, HYDE PARK
Client	COMMERCIAL & GENERAL
Description	7-STOREY with UNDERCROFT RESIDENTIAL
Proposed	DEVELOPMENT

The following has been extracted from the Council document "Specification – Modification to Property Access Stormwater, Cross over and Footpath"

1 The size of the drain may be a maximum of 80mm diameter PVC Pressure Pipe Class 12.

Where the volume of water to be discharged at a single outlet exceeds the capacity of a 80mm stormwater pipes (or the area drained per outlet exceeds 350 square meters) and no underground drainage is adjacent to the site then a second 80mm stormwater pipe or a rectangular section steel drain must be provided in accordance with the Council Drawings.

Based on the above requirement, the maximum discharge rate is estimated as 4L/s for a single pipe outlet and 8L/s for a dual pipe outlet. Without a connection to the Council underground stormwater system, the discharge to the street water table must be divided into multiple outlet points to avoid exceeding the allowable discharge rate at each outlet.

Other general relevant Council requirements are shown in Appendix 2, an extract from "City of Unley – Development and stormwater management design guide" chapter 2.4. To satisfy Council requirements, the proposed development will have to improve flow rate and water quality.

STORMWATER MANAGEMENT

Stormwater Runoff Volume

The proposed development has some increase in impervious area when compared to the existing site, but the total site area is unchanged. Because of this, the volume of the runoff is increased slightly for any storm event with any duration.

By installing a large retention tank, the runoff volume will be reduced drastically as stormwater collected by the tank is to be reused for irrigation and landscaping throughout the development. This will also reduce the need for using main water for irrigation. Therefore, it is satisfying the Council requirement regarding the runoff volume.

Stormwater Runoff Flow Rate

Similar to above, the peak discharge flow rate will be very similar between pre and post development conditions. However, the Council requires the discharge rate of new developments not to exceed the discharge rate corresponding to the equivalent site with 80% impervious area. To meet this requirement, a detention tank is proposed.

The estimated discharge rate from the same site with equivalent 80% impervious site cover is calculated as:

For 7 minutes duration, 1 in 10 year ARI storm event:

Q10 = 38.7 L/s.

- For 7 minutes duration, 1 in 100 year ARI storm event:

Q100 = 81.7 L/s.

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Date Issued	Friday, 7 July 2017
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Site	244-246 UNLEY ROAD, HYDE PARK
Client	COMMERCIAL & GENERAL
Dropocod	7-STOREY with UNDERCROFT RESIDENTIAL
Proposed	DEVELOPMENT

Its recommended the detention tank be an above ground tank which discharges to the street water table via a gravity feed pipe system, with a restriction orifice to limit the flow to meet Council requirements. An above ground tank has the advantage of ease of installation and is simple to maintain during its service life.

To accommodate the design outflow rate, the discharge is to be distributed to five outlet points, and at each point the discharge rate is to be at or below 8L/s during the most critical 1 in 10 year ARI storm event. The design intention is to provide two discharge outlets the Unley Road street water table and three outlets to the Hart Avenue water table.

Referring to the attached design calculations, the designed detention tank size is 14000L with 12000L use for detention, which is larger than the Council minimum requirement. For the preliminary proposed tank size, the required orifice size for each tank is 72mm diameter. An alternative tank size and setup can be substituted for the nominated tank, however the design retention and detention volume must be maintained and the maximum total design discharge rate must be not exceed the allowable discharge rate as outlined above.

Water Quality

The stormwater runoff from the proposed development site is mostly from roof surface, while a small portion is from the common driveway. The expected contaminants are comprised of: gross pollutants (trash, packaging, cigarette butts etc.), dust and other smaller particles, and hydrocarbon from cars (oil and grease).

Most activities that are the source of phosphorus and nitrogen in runoff water are contained to internal building spaces. Common examples include laundry waste, pet waste and fertiliser. This contaminated water does not contribute to stormwater runoff as it is collected and discharged to a separate sewer system, and the pollutants are treated and removed at a sewer treatment plant.

Another common source of phosphorus and nitrogen is from tree leaves. As the percentage area of landscaping is very small compared to the site area and there are no large trees within the site, it is reasonable to expect the levels of nitrogen and phosphorus in the stormwater runoff to be very low.

Due to the site constraints, it is not practical to adopt a treatment system that requires a large footprint and is costly to operate to treat the low amount of phosphorus and nitrogen expected in the stormwater runoff. It is a sensible approach to use a water quality improvement system that targets the main pollutants (gross pollutants, suspended solids and hydrocarbon) at the source.

Prenco Drain Warden units are recommended to be installed in all grated sumps within the site to capture these target contaminants. These units can be serviced and maintained regularly by the site occupant without the need for expensive and specialised equipment.



Date Issued	Friday, 7 July 2017
Job No	DT 170510
Site	244-246 UNLEY ROAD, HYDE PARK
Client	COMMERCIAL & GENERAL
Proposed	7-STOREY with UNDERCROFT RESIDENTIAL
	DEVELOPMENT

Groundwater

There is one and a half levels of underground car parking in the proposed development and it is expected that there will be some groundwater collected at the retaining structure. The collected groundwater will be directed to a pump, and pumped to the sewer system to the service engineer's documentation and SA Water approval.

Safeguard Against 1 in 100 year ARI Major Storm Event Flow and gutter flow entry to property

Based on the Draft flood mapping: 100 year ARI base case - figure 2 and 100 year ARI flood mapping for 2011 stormwater management plan – figure 28, the subject site locates just outside the flood zone. The different in height from high side to low site of the site is approximately 800mm. And the site does not slope away from the road by grade of more than 5%. Generally, the site slope toward the road.

Council requirement regard the protection against inundation is adopted. All Finished Floor Level are minimum 300mm above the street water table level.

Driveway and property levels along the property /road reserve boundary are minimum 100mm above adjacent street top of kerb.

Heavy duty grated strip drains are provided at the bottom of the access ramp to ensure any excess water runoff is captured and directed to the appropriate outlet.

Yours faithfully,

Jim Tsagouris BE., MIErg., CP Eng., REPQ., JP

Managing Director

STRUCTURAL SYSTEMS PTY LTD

APPENDIX

- » Stormwater Detention Calculations
- » Site Plan
- » Appendix 1
- Appendix 2 + 2(2)

REFERENCES

- "City of Unley Development and stormwater management design guide"

 - Library%2FPlanning%2520and%2520Development%2FBuilding%2520and%2520Renovating%2FCity-of-Unley-Stormwater-
- » City of Unley Flood Mapping http://www.unley.sa.gov.au/webdata/resources/files/FloodMapping.pdf.
- » FLOODING IN THE CITY OF UNLEY FREQUENTLY ASKED QUESTIONS (FAQs) http://www.unley.sa.gov.au/webdata/resources/files/Flooding_FAQs.pdf

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2.4 Stormwater Management Guidelines

The stormwater management plan shall be developed using the principles of Australian practice, Australian Rainfall and Runoff and the Building Code requirements. In addition, the Development submission shall consider where relevant the requirements listed in the table below. The requirements are in accordance with the City of Unley Development Plan. The adoption and sizing of WSUD elements refers to the acceptable solutions in Sections 3 and 4. A process to prepare your stormwater management plan is provided at the end of this Section. The next page provides a flow chart for the process to prepare your stormwater management plan.

9	GENERAL REQUIREMENTS	GUIDELINES	REFERENCE	
ri .	. New development will be required to control runoff for a 5yr AR! event.	 New developments must control stormwater runoff for a 5 year ARI event 	Refer to Section 3 for storage size / volume requirements based on development area for the relevant case.	ts based
6	No run-off shall be directed from the development site to adjacent properties.	 Runoff shall be controlled on site up to a 1 in 20 year ARI event. Paved area runoff should be directed into landscape areas and controlled to prevent it entering adjacent properties 		
mi		Methods of Detention / Retention Rainwater harvesting tanks Detention tank	Refer to Sections 3 for storage size / volume requirements based on development area for the relevant case. Refer to Section 4 for WSUD elements	nts based
		Soakage swale Soakage Trench or well(s) Permeable Paving Rain garden		
4	. The floor levels shall be designed to provide 100 -year ARI protection against inundation	 This applies to a 100 year ARI storm over the development site and from street or watercourse If the site does not slope away from the road by a grade of more than 0.5%, all finished floor levels shall be a minimum of 300mm above the street water table level (taken at the midpoint of the property frontage). 	Check if site is located within a flood prone area. Refer to Council for advice.	to Council
ıń	. Measures shall be incorporated within the proposed development boundary to prevent gutter flow entry to property.	 Driveway and property levels along the property/road reserve boundary shall be specified at least 100mm above the adjacent street top of kerb. 		
ý		 Use stormwater treatment devices that are installed within the development to remove solid and liquid pollutants, prior to discharge to Council's drainage system. For car parks exceeding 150m² a suitably sized stormwater quality device is required. Using green initiatives is encouraged. 	Refer Section 4 for the relevant case.	
7.	 Soakage systems shall be appropriately iccated, and provide effective detention / retention. These systems shall be environmentally appropriate for the site and soil conditions. 	Soakage systems: Soakage systems: Soakage systems:	Refer to Development Act 1993 Ministers specification SA78AA (Planning SA 2003)	SA78AA
		 Shall not be located on ground sloping more than 1 in 10. Shall collect only roof runoff (and include leaf and sediment interceptor). Shall collect surface runoff from paved areas that have first been intercepted by a silt and debris trap and or a lawn area. Shall be demonstrated to be empty within 1 5 days after a 1 in 5 year A8I 45 minute storm. 	Bore logs required as part of approval process. Refer to WSUD Basic procedures for source control of stormwater Argue, J)	tormwater
		Shall incorporate an overflow for exceedance of the storage capacity Bore logs required		
66	When pump system failure may result in inundation of any building or adjacent property, measures shall be incorporated to minimise the risk of failure during a storm.	 If failure of the pump system is likely to result in flooding of a building, under-croft or adjacent properties then the following shall apply: Two pumps shall be provided, each capable of the design flow rate. The pumps shall be configured to automatically alternate as the duty pump. The system shall be configured to automatically alternate as the duty pump. Either a back-up power supply or incorporate storage (in pump chamber and/or above ground) with a volume equal to a 100 year. ARI 30 minute event or as negotiated with Council. Run-off without pump operation and without flooding of buildings, under-crofts or any properties shall be demonstrated and 	PPEND	
တ်	. All works necessary beyond the property boundaries shall be to Council's requirements and standard details.	accommedated to discharge safely to street. All works (e.g. connections across Council's footpath and connection to Council's drains) should be underground, and should meet Councils requirements and standard details.	Refer to Council standard details.	
10	10. All drainage infrastructures within the development site shall be		1	

^{10.} An drainage infrastructures within the development site snat be maintained, serviced, cleaned and sustained operational for the life of the development to by the owner.
* Pre-development rate – Pre-development rate has been determined based on traditional residential allotment with 40% impervious surface.

Table 3.1: Stormwater Detention and Retention Requirements for developments

Area of Allotment (m²)		Storage Met	-	Maximum	
		Retention Rain Water Harvest Tank, RWH (L)	Detention Storage, DS (L)	Total Stormwater Storage Volume for Site, SSV (L)	Discharge Rate to Kerb* (L/s)
		Single Residentia (Total storage requi	Dwellings/Town	\$2000 CESTS December Company C	
Up to 400	Ť	2000	1000	3000	4
401-500		2000	1500	3500	4
501 – 600		2500	1500	4000	4
601 – 700	- 1	2500	2000	4500	4
701 – 800	3	3000	2000	5000	4
800 +		3500	2500	5500	4
	Exte	ensions to residential dw	ellings (>50m² roo	f area)	
		al storage requirement pe		10.000 (0.000)	
51 - 100		2000	1000	3000	N/A
101 - 150		2500	1500	4000	N/A
151 - 200	12	3000	2000	5000	N/A
201 - 250+	9	3000	2500	5500	N/A
U		ulti-Unit Developments (it area, number of dwellir		The second secon	
Up to 1000	3	2000	1000	3000	4 per outle
1001 – 1500	3	2500	1500	4000	4 per outle
	4	2000	1000	3000	4 per outle
	3	3000	1500	4500	4 per outle
1501 - 2000	4	2500	1000	4000	4 per outle
	5	2000	1000	3000	4 per outle
	SE 4000	777543336	nent Buildings uirements for the	full site)	
Up to 1000		5000	3500	8500	TBC
1001 - 1500	2	8000	4500	12500	TBC
1501 - 2000		10000	6500	16500	TBC
2001 - 2500		12000	8000	20000	TBC
		Commercia (Total storage requirement		e)	
Up to 1000		5000	1500	6500	TBC
1001 - 1500 1501 - 2000 2001 - 2500		8000	2000	10000	TBC
		10000	2500	12500	TBC
		12000	3000	15000	TBC

^{*}Connection to underground Council infrastructure requires Council approval.



SHEET NO	· 	1	JOB N	0.	170510
DECICNI	316)		DATE	7	16/2017

ROIECT	244-246 UNLEY ROAD, HYDE PARK
KOIECI	

Carchment analysis.
Site area 2213 m²
New proposed voof area lave leverong
And = 925 + 41 + 15 + 13.2 x 2
Typer may + 38 + 195
$=$ 1011. $m^2 + 233m^2 = 1244 m^2$
Proposed balcony area:
Ami = 1852 - 1244 = 608 m²
Land Scape area;
Apar = 10 m² the site is mostly sealed
Pavily area: April = 2213 - 1852 -10
= 351 ma
Estimated time of concentration to = 7 mins.



SHEET NO.	2	IOB NO	T	170510
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DESIGN _______ NN DATE _____ 28.6.17

PROJECT

244-246 UNLEY ROAD, HYDE PARK

Estimate the c	lischar	ge now	to out	iet p	ooin	t - Post c	evelop	ment				
Catchment analy	/sis											
Total Catchment A	rea =			m²				120.00		C10		
1st grade paving				m ²		equivalent		83.7 9	6	0.9		
2nd grade paving			351	m ²	,	equivalent		15.9 9	6	0.75		
Pervious area			10	m ²		equivalent		0.5 9	6	0.1		
Cv = C	10*Fv											
Design ARI	1	2	5		10	20	40	50	60	80	100	(years)
Fy	0.8	0.85	0.95		1	1.05	1.13	1.15	1.17	1.19	1.2	
Equivalent CA at	ARI (yea	rs)										
1000	1	2	- 5		10	20	40	50	60	80	100	
(m²) CA =	1545	1641	1834	1	931	2028	2151	2156	2161	2166	2169	
(ha) CA ≃	0.154	0.164	0.183	0.	193	0.203	0.215	0.216	0.216	0.217	0.217	
Cequiv =	0.70	0.74	0.83	0	.87	0.92	0.97	0.97	0.98	0.98	0.98	

Storm Duration	11	Outflow	I ₅	Outflow	110	Outflow	120	Outflow	1100	Outflow	Runoff V
(min)	(mm/hr)	1y ARI	(mm/hr)	5y ARI	(mm/hr)	10y ARI	(mm/hr)	20y ARI	(mm/hr)	100y AR	(m3)
5	42.80	18.38	80.80	41.21	97.80	52.50	120.80	68.09	186.30	112.34	33.70
6	39.90	17.14	75.10	38.30	90.80	48.74	112.10	63.19	172.50	104.02	37.45
7	37.50	16.10	70.50	35.95	85.10	45.68	105.00	59.19	161.20	97.21	40.83
8	35.40	15.20	66.50	33.91	80.20	43.05	98.90	55.75	151.60	91.42	43.88
9	33.70	14.47	63.00	32.13	76.00	40.80	93.60	52.76	143.40	86.47	46.69
10	34.42	14.78	60.06	30.63	72.33	38.83	89.02	50.18	136.07	82.05	49.23
12	31.61	13.58	55.01	28.05	66.17	35.52	81.34	45.85	124.05	74.80	53.86
15	28.33	12.17	49.13	25.06	59.00	31.87	72.43	40.83	110.14	66.42	59.77
18	25.80	11.08	44.61	22.75	53.50	28.72	65.59	36.97	99,49	59.99	64.79
2Ô	24.40	10.48	42.12	21.48	50.46	27.09	61.83	34.85	93.65	58.47	67.77
24	22.09	9.49	38.02	19.39	45.49	24.42	55.56	31.32	84.08	50.70	73.01
30	19.48	8.37	33.39	17.03	39.88	21.41	48.71	27.46	73.34	44.22	79.60
45	15.33	6.58	36.08	18.40	31.03	16.66	37.79	21.30	56.54	34.09	92.05
60	12.84	5.51	21.72	11.08	25.78	13.84	31.32	17.65	46.84	28.12	101.25
90	10.03	4.31	16.80	8.57	19.85	10.66	24.02	13.54	35.48	21.39	115.53
120	8.38	3.60	13.95	7.11	16.43	8.82	19.83	11.18	29.10	17.55	126.34
180	6.50	2.79	10.70	5.46	12.55	6.74	15.08	8.50	21.95	13.24	142,95
270	5.03	2.16	8.20	4.18	9.57	5.14	11.45	6.45	16.53	9.97	161,48
360	4.19	1.80	6.79	3.46	7.90	4.24	9.42	5.31	13.52	8.15	176,10
540	3.25	1.40	5.21	2.66	6.03	3.24	7.16	4.04	10.19	8.14	199.09
720	2.71	1.16	4.32	2.20	4.98	2.67	5.90	3.33	8.34	5.03	217.26
1080	2.02	0.87	3.21	1.84	3.69	1.98	4.37	2.46	6.17	3.72	241.09
1440	1.63	0.70	2.59	1.32	2.98	1.60	3.52	1.98	4.96	2.99	258.42
1800	1.38	0.59	2.18	1.11	2.51	1.35	2.97	1.67	4.18	2.52	272.22
2160	1.30	0.56	1.90	0.97	2.18	1.17	2.58	1.45	3.62	2.18	282.90
2880	0.95	0.41	1.51	0.77	1.73	0.93	2.04	1.15	2.87	1.73	299.05
4320	0.67	0.29	1.06	0.54	1.22	0.65	1.44	0.81	2.02	1.22	315.73



SHEET NO.	3	_ JOB NOT 170510

244-246 UNLEY ROAD, HYDE PARK

Predevelyment catchment analysis:
Site area 2213 m
Kod area
Aron = 1650 + 86 + 2 = 1738 m
Aros = 1650 + 86 + 2 = 1738 cm² Ex. shops Ex lunge
Paring area: Apar = 283 + 120 = 403 m²
Gardon & parising area
Apr = 2213- 17.38- 403= 72 m2
te = Tenins.
Refer next page for outflow estimation.



SHEET NO.	4	_JOB NOT 170510

DESIGN NN DATE 28.6.17

PROJECT .

244-246 UNLEY ROAD, HYDE PARK

Catchment anal	<u>vsis</u>								.,		
Total Catchment	Area =		2213	m ²					Cio		
1st grade paving			1738	m ²	equivalent		78.5	%	0.9		
2nd grade paving			403	m ²	equivalent		18.2	%	0.75		
Pervious area			72	m ²	equivalent		3.3	%	0.1		
Cy = (010*Fy									-	
Design ARI	1	2	5	5 10	20	40	50	60	80	100	(years)
Fy	0.8	0.85	0.95	5	1 1.05	1.13	1.15	1.17	1.19	1.2	
Equivalent CA at	ARI (yea	irs)								1	
	1	2	5	5 10	20	40	50	60	80	100	
(m²) CA =	1499	1593	1780	187	1967	2088	2094	2100	2106	2109	
(ha) CA =	0.150	0.159	0.178	0.18	7 0.197	0.209	0.209	0.210	0.211	0.211	
Cequiv =	0.68	0.72	0.80	0.8	5 0.89	0.94	0.95	0.95	0.95	0.95	

Storm Duration	I _t	Outflow	15	Outflow	110	Outflow	120	Outflow	I ₁₀₀	Oulflow	Runoff V
(min)	(mm/hr)	1y ARI	(mm/hr)	5y ARI	(mm/hr)	10y ARI	(mm/hr)	20y ARI	(mm/hr)	100y AR	(m3)
5	42.80	17.83	80.80	39.98	97.80	50.94	120.80	66.07	186,30	109.25	32.77
6	39.90	16.63	75.10	37.16	90.80	47.30	112.10	61.31	172.50	101.15	36.42
7	37.50	15.63	70.50	34.89	85.10	44.33	105.00	57.43	161.20	94.63	39.70
8	35.40	14.75	66.50	32.91	80.20	41.77	98.90	54.09	151.60	88.90	42.67
9	33.70	14.04	63.00	31.17	76.00	39.59	93.60	51.19	143.40	84.09	45.41
10	34.42	14.34	60.06	29.72	72.33	37.67	89.02	48.69	136.07	79.79	47.87
12	31.61	13.17	55.01	27.22	66.17	34.47	81.34	44.49	124.05	72.74	52.37
15	28.33	11.81	49.13	24.31	59.00	30.73	72.43	39.61	110.14	64.59	58.13
18	25.80	10.75	44.61	22.07	53.50	27.87	65.59	35.87	99.49	58.34	63.01
20	24.40	10.17	42.12	20.84	50.46	26.28	61.83	33.82	93.65	54.92	65.90
24	22.09	9.20	38.02	18.81	45.49	23.69	55.56	30.39	84.08	49.30	71.00
30	19.48	8.12	33.39	16.52	39.88	20.77	48.71	26.64	73.34	43.01	77.41
45	15.33	6.39	36.08	17.85	31.03	16.16	37.79	20.67	56.54	33.15	89.52
60	12.84	5.35	21.72	10.75	25 78	13.43	31.32	17.13	46.64	27.36	98.46
90	10.03	4.18	16.80	8.31	19.85	10.34	24.02	13.14	35.48	20.81	112.35
120	8.38	3.49	13.95	6.90	16.43	8.56	19.83	10.85	29.10	17,06	122.86
180	6.50	2.71	10.70	5.29	12.55	6.54	15.08	8.25	21.95	12.87	139.01
270	5.03	2.10	8.20	4.06	9.57	4.98	11.45	6.26	16.53	9.69	157.03
360	4.19	1.75	6.79	3.36	7.90	4.11	9.42	5.15	13.52	7.93	171.25
540	3.25	1.35	5.21	2.58	6.03	3.14	7.16	3.92	10.19	5.98	193.60
720	2.71	1.13	4.32	2.14	4.98	2.59	5.90	3.23	8.34	4.89	211.27
1080	2.02	0.84	3.21	1.59	3.69	1.92	4.37	2.39	6.17	3.62	234.45
1440	1.63	0.68	2.59	1.28	2.98	1.65	3.52	1.93	4.96	2.91	251.30
1800	1.38	0.58	2.18	1.08	2.51	1.31	2.97	1.62	4.18	2.45	264.72
2160	1,30	0.54	1.90	0.94	2.18	1.14	2.58	1.41	3.62	2.12	275.11
2880	0.95	0.40	1.51	0.75	1.73	0.90	2.04	1.12	2.87	1.68	290.82
4320	0.67	0.28	1.06	0.52	1.22	0.64	1.44	0.79	2.02	1.18	307.03



sheet no	5	$_JOBN \overline{Q}$	170510
DESIGN	NN	_ Date	28.6.17

roject	244-246 UNLEY ROAD, HYDE PARK
	Compare to predevelopment and post development
	there is uninor difference between estimated flow.
	Post development is slightly increased compare with pre-development.
	However, both situation are more than 80% impero
	To enatch this requirement, defention people one required.
	Breed on Conneil table 3.1
	Reference for refused 12 m2 Determine require for Inteste 8 m3
	total tank col 20 m².
	Estente 22000 1 - tank is sufficient. or combine 10000L + 10000L tank are sufficient Check defantion calculation.



SHEET NO6_JOB NO. $f D$	DT	JOB NO. D 7	170510
-------------------------	----	--------------------	--------

DESIGN ______ NN DATE _____ 28.6.17

PROJECT_

244-246 UNLEY ROAD, HYDE PARK

Estimate the	TOTAL	discha	rge flo	w to ou	tlet point	s if site	have 8	10% im	perviou	s	8
Catchment analy											
Total Catchment /	Area =		2213 1770.4	m ² m ²	eguivalent		80.0 4	%	C10 0.9		
2nd grade paving			0	m ²	equivalent		0.0	%	0.75		
Pervious area			442.6	m ²	equivalent		20.0	%	0.1		
Cy = (010*Fy										
Design ARI	1	2	5	10	20	40	50	60	80	100	(years)
Fy	8.0	0.85	0.95	1	1.05	1.13	1.15	1.17	1.19	1.2	
Equivalent CA at	ARI (yea	ars)									
100	1	2	5	10	20	40	50	60	80	100	-
(m²) CA =	1310	1392	1556	1638	1720	1820	1821	1822	1823	1824	
(ha) CA =	0.131	0.139	0.156	0.164	0.172	0.182	0.182	0.182	0.182	0.182	
Cequiv =	0.59	0.63	0.70	0.74	0.78	0.82	0.82	0.82	0.82	0.82	

Storm Duration	I _t	Outflow	I ₅	Outflow	110	Outflow	120	Outflow	I ₁₀₀	Outflow	Runoff V
(min)	(mm/hr)	1y ARI	(mm/hr)	5y ARI	(mm/hr)	10y ARI	(mm/hr)	20y ARI	(mm/hr)	100y AR	(m3)
5	42.80	15.59	80.80	34.95	97.80	44.52	120.80	57.74	186.30	94.44	28.33
6	39.90	14.53	75.10	32.48	90.80	41.34	112.10	53.59	172.50	87.45	31.48
7	37.50	13.66	70.50	30.49	85.10	38.74	105.00	50.19	161.20	81.72	34.32
8	35.40	12.89	66.50	28.76	80.20	36.51	98.90	47.28	151.60	76.85	36.89
9	33.70	12.27	63.00	27.25	76.00	34.60	93.60	44.74	143.40	72.69	39.26
10	34.42	12.54	60.06	25.98	72.33	32.93	89.02	42.55	136.07	68.98	41.39
12	31,61	11.δ1	55.01	23.79	66.17	30.12	81.34	38.88	124.05	62.89	45.28
15	28 33	10.32	49,13	21.25	59.00	26.86	72.43	34.62	110.14	55.83	50.25
18	25.80	9.40	44.61	19.29	53.50	24.36	65.59	31.36	99.49	50.44	54.47
20	24.40	8.89	42.12	18.22	50.46	22.97	61.83	29.56	93.65	47,47	56.97
24	22.09	8.05	38.02	16.44	45.49	20.71	55.56	26.56	84.08	42.82	61.38
30	19.48	7.09	33.39	14.44	39.88	18.16	48.71	23.28	73.34	37.18	66,92
45	15.33	5.58	36.08	15.60	31.03	14.13	37.79	18.06	56.54	28.66	77.39
60	12.84	4.68	21.72	9.39	25.78	11.74	31.32	14.97	46.64	23.64	85.12
90	10.03	3.65	16.80	7.27	19.85	9.04	24.02	11.48	35.48	17.99	97.12
120	8.38	3.05	13.95	6.03	16.43	7.48	19.83	9.48	29.10	14.75	106.21
180	6.50	2.37	10.70	4.63	12.55	5.71	15.08	7.21	21.95	11.13	120.17
270	5.03	1.83	8.20	3.55	9.57	4.36	11.45	5.47	16.53	8.38	135.75
360	4.19	1.63	6.79	2.94	7.90	3.80	9.42	4.50	13,52	6.85	148.04
540	3.25	1.18	5.21	2.25	6.03	2.75	7.16	3.42	10,19	5.17	167.37
720	2.71	0.99	4.32	1.87	4.98	2.27	5.90	2.82	8.34	4.23	182,64
1080	2.02	0.74	3.21	1.39	3,69	1.68	4.37	2.09	6.17	3.13	202.68
1440	1.63	0.59	2.59	1,12	2.98	1.36	3.52	1.68	4.96	2.51	217.24
1800	1.38	0.50	2.18	0.94	2.51	1.14	2.97	1.42	4.18	2.12	228.85
2160	1.30	0.47	1.90	0.82	2.18	0.99	2.58	1.23	3.62	1.84	237.83
2880	0.95	0.35	1.51	0.65	1.73	0.79	2.04	0.98	2.87	1.45	251.41
4320	0.67	0.24	1.06	0.46	1.22	0.56	1.44	0.69	2.02	1.02	265.42



SHEET NO.	7 JOB NO	DT 170510
		00 0 47
DESIGN	NN DATE	28.6.17

PROJECT	244-246 UNLEY ROAD, HYDE PARK
	Assump max disclosed wite at one point from Connect requirement 13 8L/S
	from Consoil requirement 13 86/5
	for in 10 years ARI.
	Require ortlets are 3 ortlets.
	- For painty & land scape area only to stard Avenue.
	Estimated flow ant rate is 7.2 kg, It is sufficient for one artlet
	- Roof only owner to detertion table.
	de charge vote out to 7 min allowable: $Coulon = 38.7 - 6.25 = 32.45 \text{ M/s}$
	Adapa to ontlet with once, out let ware discharge rate = 8 L/s
	For major Garan event 1 in 100 years ART Collow 100 = 81,72 - 14,2 = 67,545
	Equivalent each artlest allowable discharge



SHEET NO.	8	TOB ME	170510
DESIGN	NN	_ Date	28.6.17

PROJECT

244-246 UNLEY ROAD, HYDE PARK

P-414- (In-	Allert Langua Black A	Alak malman I	Tank days Lamband	at a company flavor and or
Esumate the	discriarge flow to	outlet points - r	rost development	at surface flow only.

Catchment analys	is												
Total Catchment Are	ea =		361	m²	F	Paving and	Landsca	pe only		C10			
1st grade paving			0	m ²	6	equivalent		0.0 %	6	0.9			
2nd grade paving			351	m ²	6	equivalent		97.2 9	6	0.75			
Pervious area			10	m ²	6	equivalent		2.8 %	6	0.1			
Cy = C1	0*Fy												
Design ARI	1	2	5		10	20	40	50	60	80	100	(years)	
Fy	0.8	0.85	0.95		1	1.05	1.13	1.15	1.17	1.19	1.2		
Equivalent CA at A	RI (yea	rs)											
	1	2	5		10	20	40	50	60	80	100		
(m²) CA =	211	225	251		264	277	299	304	309	314	317		
(ha) CA =	0.021	0.022	0.025	0.	026	0.028	0.030	0.030	0.031	0.031	0.032		
Cequiv =	0.59	0.62	0.70	(0.73	0.77	0.83	0.84	0.86	0.87	0.88		

Storm Duration	I ₁	Outflow	Is	Outflow	110	Outflow	120	Outflow	1,00	Outflow	Runoff V
(min)	(mm/hr)	1y ARI	(mm/hr)	5y ARI	(mm/hr)	10y ARI	(mm/hr)	20y ARI	(mm/hr)	100y AR	(m3)
5	42.80	2.52	80.80	5.64	97.80	7.18	120.80	9.32	186.30	16.42	4.93
6	39.90	2.34	75.10	5.24	90.80	6.67	112.10	8.65	172.50	15.21	5.47
7	37.50	2.20	70.50	4.92	85.10	6.25	105.00	8.10	161.20	14.21	5.97
8	35.40	2.08	66.50	4.64	80.20	5.89	98.90	7.63	151.60	13.36	6.41
9	33.70	1.98	63.00	4.40	76.00	5.58	93.60	7.22	143.40	12.84	6.83
10	34.42	2.02	60.06	4.19	72.33	5.31	89.02	6.87	136.07	12.00	7,20
12	31.61	1.86	55.01	3.84	66.17	4.86	81.34	6.27	124.05	10.94	7.87
15	28.33	1.66	49.13	3.43	59.00	4.33	72.43	5.59	110.14	9.71	8.74
18	25.80	1.52	44.61	3.11	53.50	3.93	65.59	5.06	99.49	8.77	9.47
20	24.40	1.43	42.12	2.94	50.46	3.71	61.83	4.77	93.65	8.26	9.91
24	22.09	1.30	38.02	2.65	45.49	3.34	55.56	4.29	84.08	7.41	10.67
30	19.48	1.14	33.39	2.33	39.88	2.93	48,71	3.76	73.34	6.47	11.64
45	15.33	0.90	36.08	2.52	31.03	2.28	37.79	2.91	56.54	4.98	13.46
60	12.84	0.75	21.72	1.52	25.78	1.89	31.32	2.42	46.64	4.11	14.80
90	10.03	0.59	16.80	1.17	19.85	1.46	24.02	1.85	35.48	3.13	16.89
120	8.38	0.49	13.95	0.97	16.43	1.21	19.83	1.53	29.10	2.57	18.47
180	6.50	0.38	10.70	0.75	12.55	0.92	15.08	1.16	21.95	1.93	20.90
270	5.03	0.30	8.20	0.57	9.57	0.70	11.45	0.88	16.53	1.46	23.61
360	4.19	0.25	6.79	0.47	7.90	0.58	9.42	0.73	13.52	1.19	25.74
540	3.25	0.19	5.21	0.36	6.03	0.44	7.16	0.55	10.19	0.90	29.10
720	2.71	0.16	4.32	0.30	4.98	0.37	5.90	0.46	8.34	0.74	31.76
1080	2.02	0.12	3.21	0.22	3.69	0.27	4.37	0.34	6.17	0.54	35.25
1440	1.63	0.10	2.59	0.18	2.98	0.22	3.52	0.27	4.96	0.44	37.78
1800	1.38	0.08	2.18	0.15	2.51	0.18	2.97	0.23	4.18	0.37	39.80
2160	1.30	0.08	1.90	0.13	2.18	0.16	2.58	0.20	3.62	0.32	41.36
2880	0.95	0.06	1.51	0.11	1.73	0.13	2.04	0.16	2.87	0.25	43.72
4320	0.67	0.04	1.06	0.07	1.22	0.09	1,44	0.11	2.02	0.18	46.16



SHEET NO.	9	_JOB NC	31 170510
DESIGN	NN	_ Date	28.6.17

PROJECT	244-246 UNLEY ROAD, HYDE PARK									
	Initial conculation (43m × 2,24 m t) inlet total 2.45th Determine try 14000 L with 12000 postions for determine with 4 antlets \$72 mine orifice to Sixcet ext. of 320 mine height invert									
	Tank overflow to forking and common triveway									
	Maximum detentions height: 2240-320 = 1320m. Adapt 1850 mm max WL for defendion design									
	Incose blockage, took overflow to sanface System and discharge to Hort Avenue without flood the building.									



sheet no	10	_ JOB NE	T 170510
DESIGN	NN	_ Date	28.6.17

PROJECT _

244-246 UNLEY ROAD, HYDE PARK

DESIGN ______

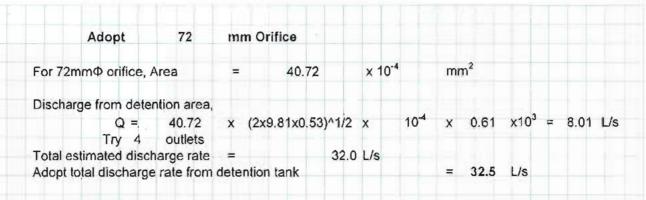
-Total Roof Area = 1852 m² -Paved Area = 0 m³ -Garden Area = 0 m² 1) Discharge from major area of roof ==> Detention Tank Roof Area = 1852 m² 2) Discharge from Ground ==> Street Water Table C to Roof Area 0.9 Paved Area 0.75 Garden Area 0.1 Qallowable for detention tank discharge = 32.45 L/s Total depth to orifice pipe = 0.53 m Orifice Required A = 8.11 x 10³ 0.61 (2 x 9.81 x 0.53) ^{1/2} = 41.24 x 10⁴ m Diameter = 72.5 mm	Total Catchment Are	ea =	1852	m²									
-Paved Area = 0 m² -Garden Area = 0 m² 1) Discharge from major area of roof ==> Detention Tank Roof Area = 1852 m² 2) Discharge from Ground ==> Street Water Table C10 Roof Area 0.9 Paved Area 0.75 Garden Area 0.1 Qallowable for detention tank discharge = 32.45 L/s Total depth to orifice pipe = 0.53 m Orifice Required A = 8.11 x 10 ⁻³ 0.61 (2 x 9.81 x 0.53) ^{1/2} = 41.24 x 10 ⁻⁴ m Diameter = 72.5 mm	Total Doof Area		1050	m ²									
-Garden Area = 0 m² 1) Discharge from major area of roof ==> Detention Tank Roof Area = 1852 m² 2) Discharge from Ground ==> Street Water Table C10 Roof Area 0.9 Paved Area 0.75 Garden Area 0.1 Qallowable for detention tank discharge = 32.45 L/s Total depth to orifice pipe = 0.53 m Orifice Required A = 8.11 x 10 ⁻³ 0.61 (2 x 9.81 x 0.53) ^{1/2} = 41.24 x 10 ⁻⁴ m Diameter = 72.5 mm	The state of the s												
1) Discharge from major area of roof ==> Detention Tank Roof Area = 1852 m² 2) Discharge from Ground ==> Street Water Table C10 Roof Area	The second secon										+		
Roof Area	Odi dolli / ded			- 111						+			
2) Discharge from Ground ==> Street Water Table C10		najor are	a of roof	==>	Detenti	on Tar	ık		ED				
Roof Area 0.9 Paved Area 0.75 Garden Area 0.1 Qallowable for detention tank discharge = 32.45 L/s Total depth to orifice pipe = 0.53 m Orifice Required $A = \frac{8.11 \times 10^{-3}}{0.61 (2 \times 9.81 \times 0.53)^{1/2}} = 41.24 \times 10^{-4} \text{ m}$ Diameter = 72.5 mm	Roof Area	=	18	52 m ²									
Roof Area 0.9 Paved Area 0.75 Garden Area 0.1 Qallowable for detention tank discharge = 32.45 L/s Total depth to orifice pipe = 0.53 m Orifice Required $A = \frac{8.11 \times 10^{-3}}{0.61 (2 \times 9.81 \times 0.53)^{1/2}} = 41.24 \times 10^{-4} \text{ m}$ Diameter = 72.5 mm	2) Discharge from G	round =	=>	Str	eet Wa	ter Tak	ole						
Roof Area Paved Area Paved Area Qallowable for detention tank discharge = 32.45 L/s Total depth to orifice pipe = 0.53 m Orifice Required A = \frac{8.11 \times 10^3}{0.61 (2 \times 9.81 \times 0.53)^{1/2}} = 41.24 \times 10^4 m Diameter = 72.5 mm													
Paved Area 0.75 Garden Area 0.11 Qallowable for detention tank discharge = 32.45 L/s Total depth to orifice pipe = 0.53 m Orifice Required 8.11×10^{-3} $0.61 (2 \times 9.81 \times 0.53)^{1/2}$ = 41.24 $\times 10^{-4}$ m Diameter = 72.5 mm													
Garden Area 0.1 Qallowable for detention tank discharge = 32.45 L/s Total depth to orifice pipe = 0.53 m Orifice Required $A = \frac{8.11 \times 10^{-3}}{0.61(2 \times 9.81 \times 0.53)^{1/2}} = 41.24 \times 10^{-4} \text{ m}$ Diameter = 72.5 mm													
Qallowable for detention tank discharge = 32.45 L/s Total depth to orifice pipe = 0.53 m Orifice Required $A = \frac{8.11 \times 10^{-3}}{0.61 \left(2 \times 9.81 \times 0.53\right)^{1/2}} = 41.24 \times 10^{-4} \text{ m}$ Diameter = 72.5 mm													
Total depth to orifice pipe = 0.53 m Orifice Required $A = \frac{8.11 \times 10^3}{0.61(2 \times 9.81 \times 0.53)^{1/2}} = 41.24 \times 10^4 \text{ m}$ Diameter = 72.5 mm	531991954465												
Total depth to orifice pipe = 0.53 m Orifice Required $A = \frac{8.11 \times 10^3}{0.61(2 \times 9.81 \times 0.53)^{1/2}} = 41.24 \times 10^4 \text{ m}$ Diameter = 72.5 mm	103) all av	abla fa	datan	dian le	ماد مانم	aborao	Ш	22.46	1./0	
Orifice Required A =				MOIIRE	aoie 10	geten	tion te	IIIK GIS	charge		32.40	L/S	
Orifice Required A =						Total o	depth	to orifi	ce pipe	=	0.53	m	
Diameter = 72.5 mm	Orifice Require	ed											
Diameter = 72.5 mm		A =						>1/2		-=	41.24	x 10 ⁻⁴	m
			0.6	1 (2 x S	.81 x C	1.53)					
	Diamete	er =	72.5	mr	n			-					
						4							
								-					
								-					

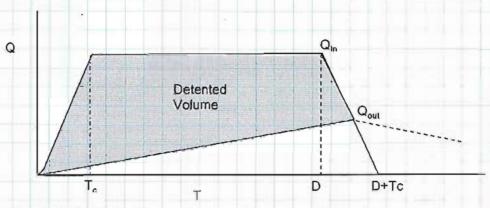


DESIGN ______ NN _ DATE _____ 28.6.17

PROJECT

244-246 UNLEY ROAD, HYDE PARK





Assumed time of concentration, T_c = 7 minutes

Stor	1 (mm/hr)	Maximum Roof	Max Detention	Inlet Volume	Outlet Volume	Detented
m	I ₁₀ (mm/hr)	Discharge, Qin	Discharge, Qout (L/s)	(L)	(L)	Volume
7	85.1	39.43	32.50	16562	13650	2912
10	72.33	33.52	32.50	20109	16575	3534
20	50.46	23.38	32.50	28058	26325	1733
30	39.88	18.48	32.50	33263	36075	-2812
45	31.03	14.38	32.50	38822	50700	-11878
60	25.78	11.95	32.50	43004	65325	-22321
120	16.43	7.61	32.50	54815	123825	-69010
180	12.55	5.82	32.50	62805	182325	-119520
270	9.57	4.43	32.50	71838	270075	-198237

Provide a detention area have minimum 3535 L volumn to capture stormwater with outlet 72mm diameter orifice diverted to street water table.

As big capacity storm water tank 12000L. It is always have sufflecient additional capacity for detention.

Therefore, in reality actual discharge rate to Council streetwater table is much less For storm event greater than 1 in 10 year ARI, water building up in the tank.

Adopt detention tank, V

14000 L (2.24m H x 3.0 m diameter)

Reserve 2000L for retention



I	SHEET NO	 12	_JOB NO. !	170510
L				00 6 47
	DESIGN	 NN	DATE	28.6.17

244-246 UNLEY ROAD, HYDE PARK

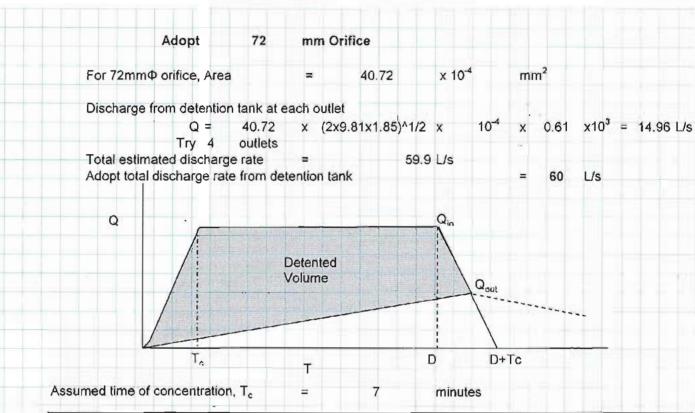
1 1 11 2	al Catchm	ent Area	-	1852	m²				
	otal Roof A		=	1852	m ²				
	aved Area		Ŧ.	0	m ²				
-Ga	arden Area	а	=	0	m²				
1) [Discharge	from 100%	of roo	f==> De	tention	Tank			
	Roof Ar	rea	=	185	52 m ²				
2) [Discharge	from Groun	nd ==>		Stree	et Water Table			
						C ₁₀₀			
	Roof Ar					1			
	Paved /					0.9			
	Garden	Area				0.36			
) allowal	ble for detention	tank discharge	= 675	L/s
					Kanowai				
	0 15					Total depth	to orifice pipe	= 1.85	m
	Orifice	Required		10.0		· 0-3			
		,	A = -	0.61		10 ⁻³ 2 x 9.81 x 1.85)1/2	-= 45.92	x 10 ⁻⁴
				0.01	(2 X 9.01 X 1.05	,		
		Diameter	r =	76.5	mm				
			+						
			*						



SHEET NO.	13	_JOB NE	T 170510
DESIGN	NN	_ Date	28.6.17

PROJECT

244-246 UNLEY ROAD, HYDE PARK



Stor m Dura tion	I _{too} (mm/hr)	Maximum Roof Discharge, Q _{in} (L/s)	Max Detention Discharge, Q _{out} (L/s)	Inlet Volume (L)	Outlet Volume (L)	Detented Volume (L)
7	161.2	82.99	60.00	34858	25200	9658
10	136.07	70.06	60.00	42034	30600	11434
20	93.65	48.22	60.00	57860	48600	9260
30	73.34	37.76	60.00	67967	66600	1367
45	56.54	29.11	60.00	78597	93600	-15003
60	46.64	24.01	60.00	86446	120600	-34154
120	29.1	14.98	60.00	107873	228600	-120727
180	21.95	11.30	60.00	122052	336600	-214548
270	16.53	8.51	60.00	137871	498600	-360729

Provide a detention area have minimum 11434 L volumn to capture stormwater with outlet 72mm diameter orifice diverted to street water table.

For storm event greater than 1 in 100 year ARI, overflow water to be diverted to the street water table.

Adopt detention tank, V

14000 L (2.24m H x 3.0 m diameter)

Reserve 2000L for retention

Total available detention volume

12000 L > Required detention volume OK

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Details

Designed primarily for rural applications, this very high-capacity, robust tank comes in a range of colours to sult your exertor decor. Tank height: 2400nm, diameter: 2580mm, inlet height: 2150mm, These tanks are designed for aboveground installations on a solid, flat base (concrete or boxed and sanded). Capacities and dimensions are approximate due to variable shrinkage during the manufacturing process. Tenks are supplied with a leaf strainer, 90mm overflow culter, and brass outlet min ball valve.

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Additional Information

Capacity 10.000L 2350mm Height Lengtle N/A

Width/Dianieter 2550n/m diameter Inlet Helght 21SOnym

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Job Number

Site

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Additional Information

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Height	2-50mm
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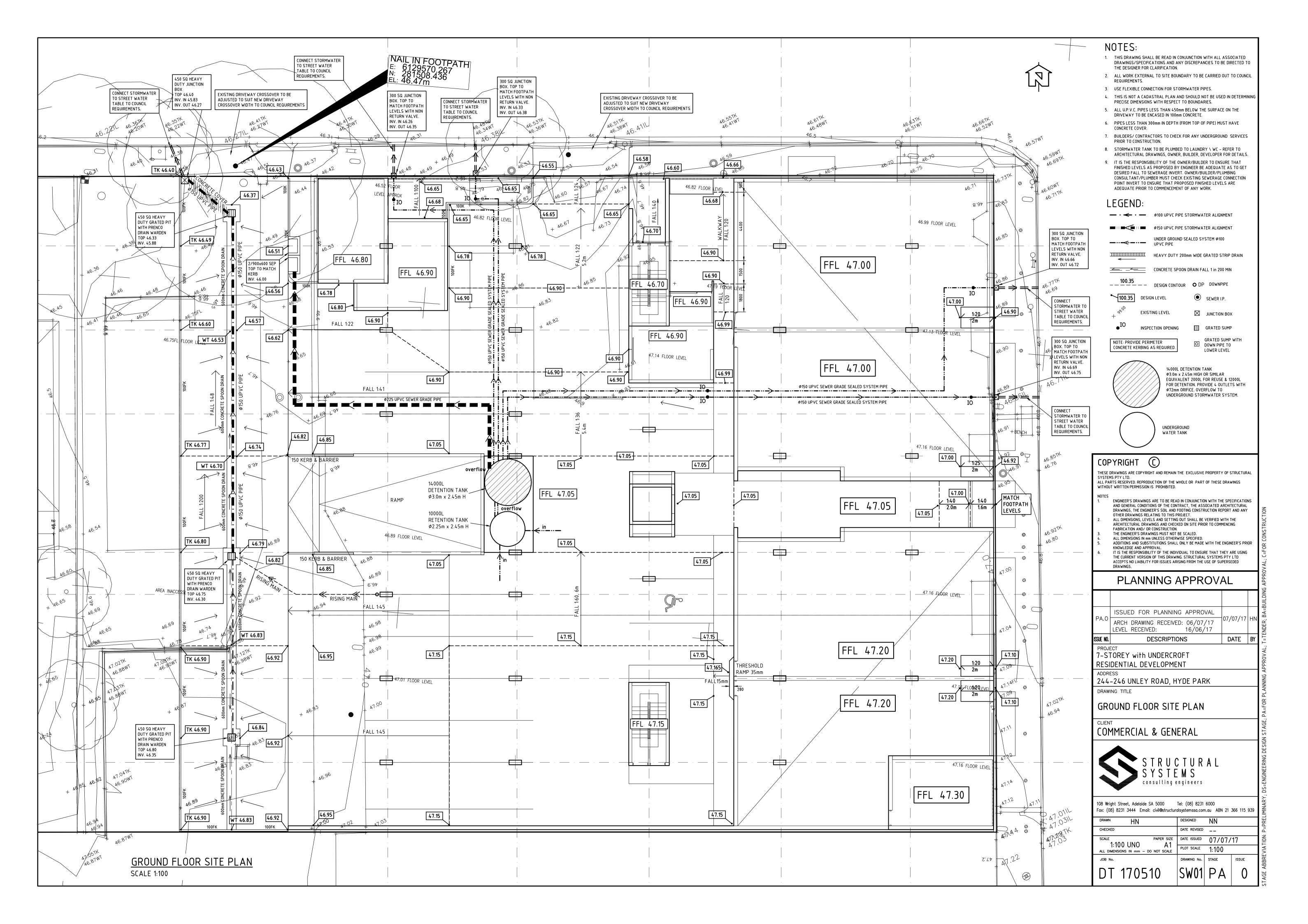


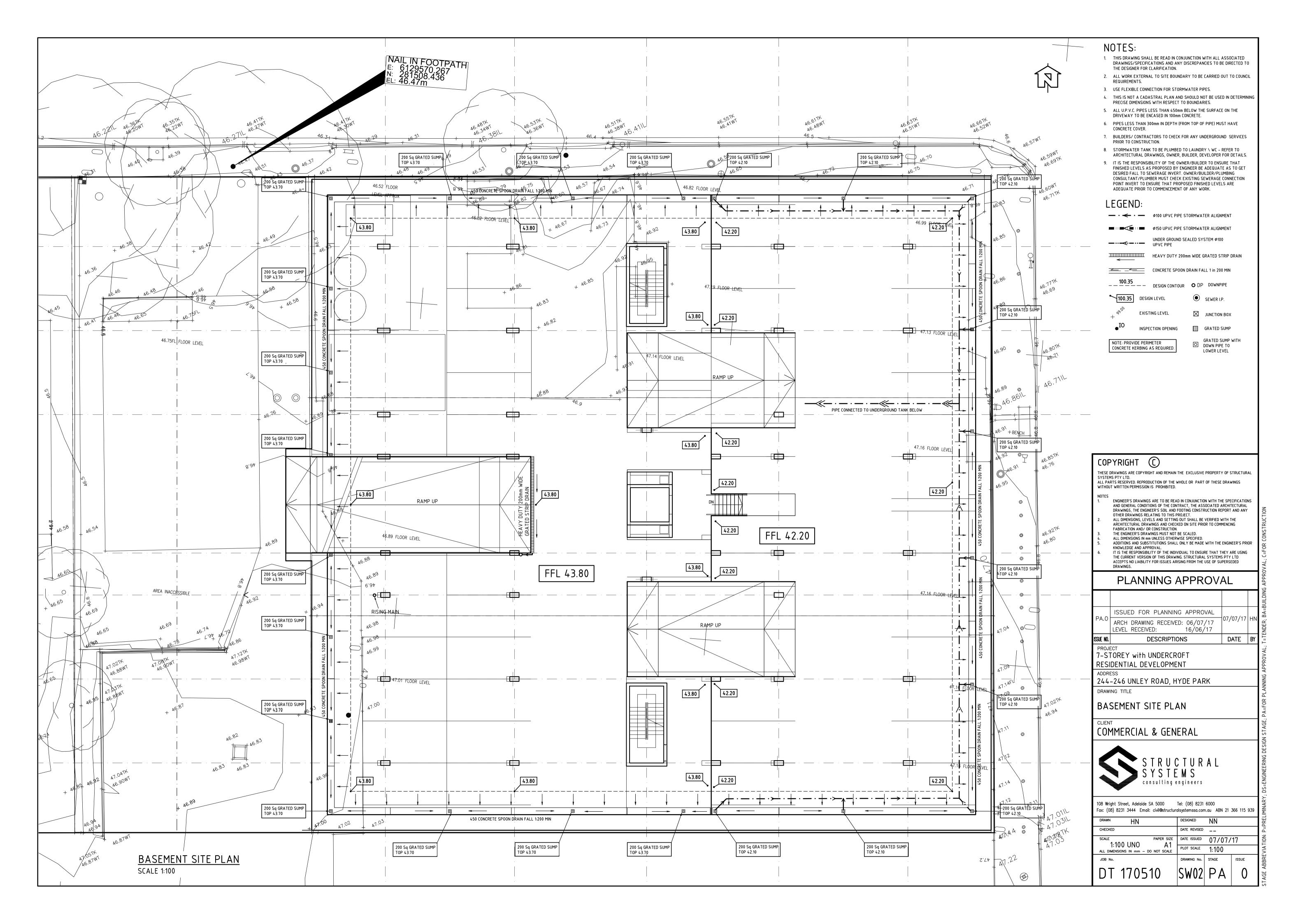
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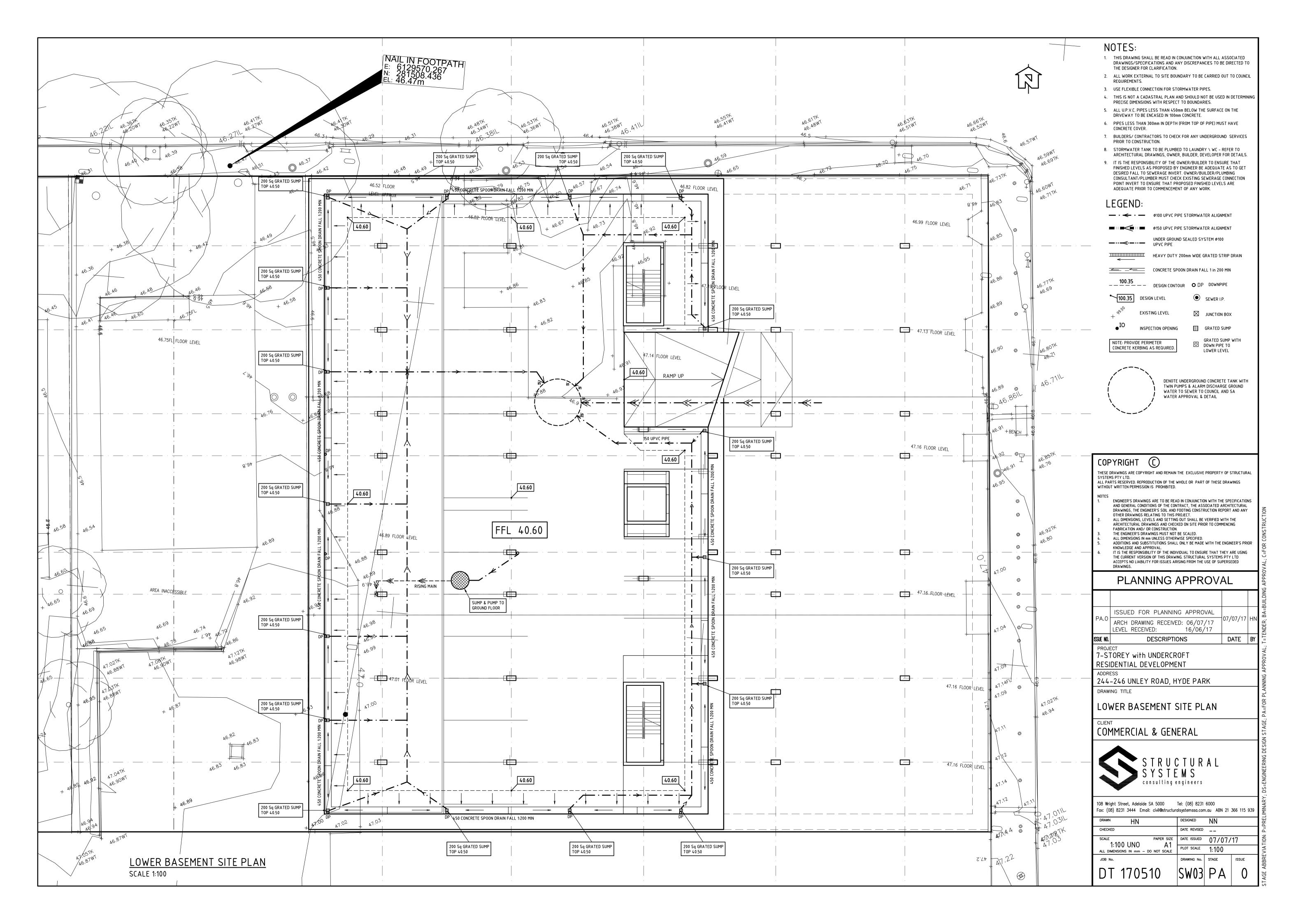
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244-246 UNLEY ROAD, HYDE PARK

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Unley Road Residential Development Minister's Specification SA 78B Acoustic Design Advice

Report Date: Friday, 30 June 2017 Reference: A17471RP1, Revision 0 Unley Road Residential Development Minister's Specification SA 78B Acoustic Design Advice A17471RP1 Revision 0



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Revision Table

Report revision	Date	Comments
0	30 June 2017	First Issue



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Glossary

A-weighting A spectrum adaption that is applied to measured noise levels to represent

human hearing. A-weighted levels are used as human hearing does not

respond equally at all frequencies.

Characteristic Associated with a noise source, means a tonal, impulsive, low frequency or

modulating characteristic of the noise that is determined in accordance with the Guidelines for the use of the Environment Protection (Noise) Policy (Noise EPP) to be fundamental to the nature and impact of the noise.

Continuous noise level A-weighted noise level of a continuous steady sound that, for the period

over which the measurement is taken using fast time weighting, has the same mean square sound pressure as the noise level which varies over time when measured in relation to a noise source and noise-affected

premises in accordance with the Noise EPP

Day Between 7 am and 10 pm as defined in the Noise EPP

dB Decibel—a unit of measurement used to express sound level. It is based on

a logarithmic scale which means a sound that is 3 dB higher has twice as much energy. We typically perceive a 10 dB increase in sound as a

doubling of that sound level.

dB(A) Units of the A-weighted sound level.

Facade sound reduction means the reduction in external to internal sound level provided by the building

envelope.

Floor area means, in relation to a room, the area of the room measured within the finished

surfaces of the walls, and includes the area occupied by any cupboard or other

built-in furniture, fixture or fitting.

Frequency (Hz) The number of times a vibrating object oscillates (moves back and forth) in

one second. Fast movements produce high frequency sound (high pitch/tone), but slow movements mean the frequency (pitch/tone) is low. 1

Hz is equal to 1 cycle per second.

Indicative noise level
Indicative noise level determined under clause 5 of the Noise EPP.

L₉₀ Noise level exceeded for 90 % of the measurement time. The L₉₀ level is

commonly referred to as the background noise level.

 $\mathsf{L}_{\mathsf{eq}} \qquad \qquad \mathsf{Equivalent} \; \mathsf{Noise} \; \mathsf{Level} \mathsf{-\!Energy} \; \mathsf{averaged} \; \mathsf{noise} \; \mathsf{level} \; \mathsf{over} \; \mathsf{the}$

measurement time.

 L_{max} The maximum instantaneous noise level.

Night Between 10.00 p.m. on one day and 7.00 a.m. on the following day as

defined in the Noise EPP

Noise source Premises or a place at which an activity is undertaken, or a machine or

device is operated, resulting in the emission of noise



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R_W Weighted Sound Reduction Index—means a measure of the sound attenuation

performance of a building element, measured in controlled conditions in a

laboratory.

R_w+C_{tr} means a weighted sound reduction index with spectrum adaptation placing

greater emphasis on low frequency performance.

Separation distance means the shortest distance (to the nearest metre), from an existing or future

designated sound source to the nearest exposed point of the building envelope

bounding a habitable room.

Sound Exposure means the degree to which a *habitable room* within a building is likely to be

Category (SEC) affected by external sound received by the building envelope.



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1 Introduction

This report outlines the external noise intrusion and environmental noise emission assessment for the proposed development at 246 Unley Road, Unley. The proposed development is mixed use with commercial uses on the ground floor and residences on the first to sixth floors.

This report details the acoustic requirements and recommended construction requirements for this proposed development. The acoustic requirements are based on:

- Unley Council Development Plan (consolidated 30 May 2017)
- Minister's Specification SA 78B Construction Requirements for the Control of External Sound
- Environment Protection (Noise) Policy 2007.

The main acoustic issues addressed in this report are:

- facade constructions to control mixed use noise sources and road noise
- mitigation treatments to control noise emissions from external plant.



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2 Development Plan

The proposed development is located within the Unley Council Area and the development needs to have regard to the Unley Council Development Plan.

Zoning

The proposed site and adjacent land uses along Unley Road are located in an Urban Corridor Zone, Policy Area 17 - High Street (Unley Road). The residences to the west of the site are located in a Residential Streetscape (Built Form) Zone, Policy Area 8 - Compact (Built Form), Precinct 8.5.

The land uses principally promoted in the Urban Corridor Zone are residential and commercial, and those in the Residential Streetscape (Built Form) Zone are residential.

There are no relevant objectives and PDCS in the Urban Corridor Zone relating to noise emissions.

Interface between land uses

There are some council wide objectives and PDCs that relate to noise, and they are included in 'Interface between Land Uses'.

Objective29: Development located and designed to minimize adverse impact and conflict between land uses.

Objective30: Protect community health and amenity from adverse impacts of development.

Objective31: Protect desired land uses from the encroachment of incompatible development.

PRINCIPLES OF DEVELOPMENT CONTROL

PDC 96 Development should not detrimentally affect the amenity of the locality or cause unreasonable interference through any of the following:...(b) noise

PDC 97 Development should be sited and designed to minimise negative impacts on existing and potential future land uses desired in the locality.

PDC 98 Development adjacent to a **Residential Zone** should be designed to minimise overlooking and overshadowing of adjacent dwellings and private open space.

PDC 99 Residential development adjacent to non-residential zones and land uses should be located, designed and/or sited to protect residents from potential adverse impacts from non-residential activities.

PDC 100 Sensitive uses likely to conflict with the continuation of lawfully existing developments and land uses desired for the zone should be designed to minimise negative impacts.

Noise Generating Activities

PDC 102 Development that emits noise (other than music noise) should include noise attenuation measures that achieve the relevant *Environment Protection (Noise) Policy* criteria when assessed at the nearest existing noise sensitive premises.

Assessment of environmental noise emissions in accordance with the *Environment Protection (Noise) Policy* 2007 (Noise EPP) will demonstrate compliance with the objectives and PDCs relating to noise emissions.



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Air and Noise Overlay

The site is also located in a 'Designated Area' and adjacent to a 'Designated Road: Type B road' in the Noise and Air Emissions overlay in the Development Plan. Relevant Objectives and Principles of Development Control for sites affected by the overlay are:

Objective 1: Protect community health and amenity from adverse impacts of noise and air emissions.

PDC 1 Noise and air quality sensitive development located adjacent to high noise and/or air pollution sources should:

- (a) shield sensitive uses and areas through one or more of the following measures:
 - (i) placing buildings containing less sensitive uses between the emission source and sensitive land uses and areas;
 - (ii) within individual buildings, place rooms more sensitive to air quality and noise impacts (e.g. bedrooms) further away from the emission source;
 - (iii) erecting noise attenuation barriers provided the requirements for safety, urban design and access can be met;
- (b) use building design elements such as varying building heights, widths, articulation, setbacks and shapes to increase wind turbulence and the dispersion of air pollutants provided wind impacts on pedestrian amenity are acceptable;
- (c) locate ground level private open space, communal open space and outdoor play areas within educational establishments (including childcare centres) away from the emission source.

Application of Minister's Specification SA 78B *Construction Requirements for the Control of External Sound* will demonstrate compliance with the PDCs relating to the Noise and Air Emissions overlay.



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3 Noise emission assessment

3.1 Environmental noise policy

Environmental noise emissions from the proposed development will have to comply with the *Environment Protection (Noise) Policy* 2007 (Noise EPP) and this is the most relevant guideline to address the requirements of the Development Plan.

The noise goals in the Noise EPP are based on the zoning of the development and the closest noise affected premises in the relevant development plan. The land uses primarily promoted by the zones are used to determine the environmental noise criteria with the indicative noise factors shown in Table 1.

Table 1 Excerpt from Noise EPP—Table 2(subclause(1)(b))

Land use category	Indicative noise factor dB(A)		
	Day (7 am to 10 pm)	Night (10 pm to 7 am)	
Rural living	47	40	
Residential	52	45	
Rural industry	57	50	
Light industry	57	50	
Commercial	62	55	
General industry	65	55	
Special industry	70	60	

As noted in Section 2, the development and the most affected noise sensitive premises are located in the Urban Corridor Zone and in the Residential Streetscape (Built Form) Zone, for which a mix of residential and commercial land uses and residential land uses only are primarily promoted respectively.

In accordance with Part 5 of the Noise EPP, the relevant criteria for this development will be an average of the relevant indicative noise factors less 5 dB(A). The application of Part 5 results in the following environmental noise criteria:

- 50 dB(A) during the day, 7 am to 10 pm
- 43 dB(A) at night, 10 pm to 7 am.



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3.2 Mechanical services noise

The main noise source for this development is the operation of external mechanical plant. At this stage of the development process, detailed information on the air conditioning and ventilation equipment is not available. Sound power levels, noise attenuation and enclosures or barriers are to be designed during detailed design stage to ensure compliance with required noise emission levels.

During the detailed design phase, noise emissions from the external plant will be assessed and mitigation treatments adopted to ensure that noise emissions are limited to 50 dB(A) during the day (7 am to 10 pm) and 43 dB(A) at night (10 pm to 7 am) at the most affected residence, when assessed in accordance with the South Australian Environment Protection (Noise) Policy 2007.



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4 Minister's Specification SA 78B

To determine the noise impacts of Unley Road and mixed use nature of the area, the assessment methodology outlined in the Minister's Specification SA 78B *Construction Requirements for the Control of External Sound* (SA 78B) has been adopted. SA 78B has been developed to address noise ingress from road, rail and mixed land use into residential developments. The internal noise criteria provided in SA 78B has been approved by the EPA and it is consistent with future policy regarding noise intrusion into dwellings.

4.1 Separation to road and sound exposure categories

SA 78B specifies minimum construction requirements for building facades based on a 'sound exposure category' (SEC), which is determined based on the separation distance to the road.

Unley Road is classified as a Type B road in the Unley Council Development Plan, and the relevant SEC for different separation distances to the road are shown in Table 2.

Table 2 Relevant sound exposure categories based on separation distances for Type B Roads (50 - 60 km/hr)

Sound exposure category	Separation distance from road (m) ⁽¹⁾
No treatment required	> 60 m
1	35 < 60 m
2	20 < 35 m
3	10 < 20 m
4	< 10 m
5	N/A

⁽¹⁾ Distance from 3 m within the transport corridor boundary.

The facades facing Unley Road have a separation distance of $9-27\,\mathrm{m}$ (varying with the height of the building). As such, the range of applicable SECs is 1-4. The SEC varies with distance and for facades that are not directly exposed to the noise source (in accordance with the application of SA 78B). The minimum SEC applicable for the development is SEC 1 as the site is located in a 'Designated Area'. The relevant SECs for the development are shown in Figure 1, Figure 2, Figure 3, and Figure 4.



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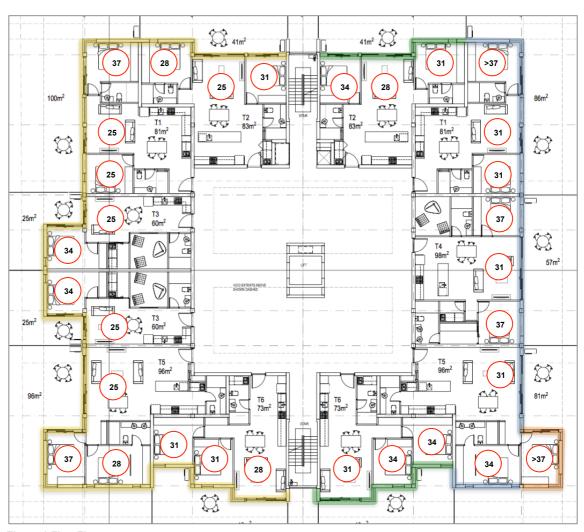


Figure 1 First Floor



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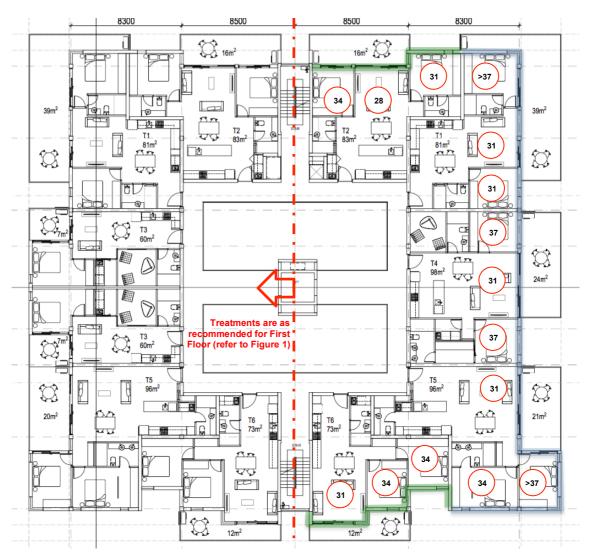


Figure 2 Typical floors—Level 2 – 4 requirements

Note that the SEC and glazing requirements for apartments T2 and T6 (on the eastern side of the stairwells) can have progressively less stringent requirements for the higher floors. However, as the requirements for SEC 2 walls and the glazing ratings as shown are not overly onerous, they have been kept as required for Level 2 for simplicity. This can be revisited if required.



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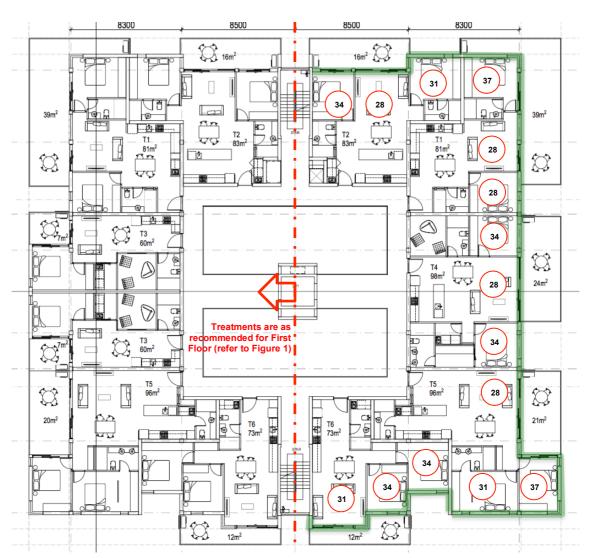


Figure 3 Level 5 requirements



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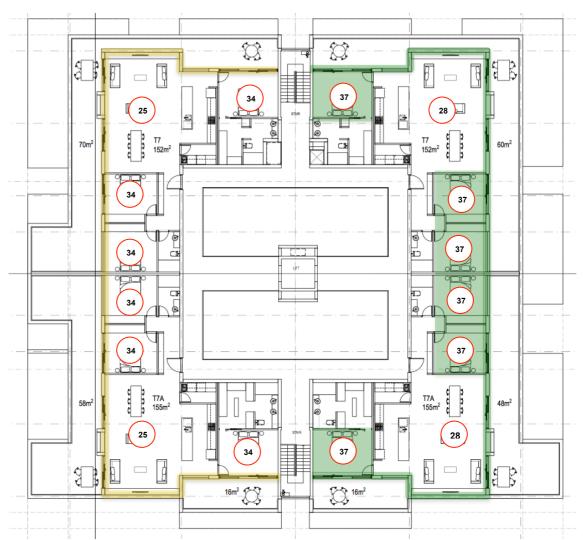


Figure 4 Top floor - Penthouses



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4.2 Sound insulation ratings

The appropriate sound insulation ratings for the different relevant SECs are outlined in Table 3.

Table 3 Minimum acoustic requirements for habitable rooms

SEC	Building element	Location	Acoustic rating		
1	External walls	All habitable rooms	R _W + C _{tr} ≥ 45		
	Windows & external glass doors	Refer to Table 4 and as shown in	Figures above		
2	Ground floor	All habitable rooms	R _W + C _{tr} ≥ 50		
	External walls	All habitable rooms	R _W + C _{tr} ≥ 50		
	Windows & external glass doors	Refer to Table 4 and as shown in	n Figures above		
	External doors other than glass doors	All habitable rooms	R _W ≥ 27		
	Roof and ceiling	Bedrooms	R _W + C _{tr} ≥ 35		
3	Ground floor	All habitable rooms	R _W + C _{tr} ≥ 50		
	External walls	All habitable rooms	R _W + C _{tr} ≥ 50		
	Windows & external glass doors	Refer to Table 4 and as shown in	Figures above		
	External doors other than glass doors	All habitable rooms	R _W ≥ 30		
	Roof and ceiling	Bedrooms	$R_W + C_{tr} \ge 40$		
		All other habitable rooms	R _W + C _{tr} ≥ 35		
4	Ground floor	All habitable rooms	R _W + C _{tr} ≥ 50		
	External walls	All habitable rooms	R _W + C _{tr} ≥ 50		
Windows & external glass doors External glass doors are not permitted in bedrooms Refer to		Refer to Table 4 and as shown in Figures above			
	External doors other than glass doors	All other habitable rooms	R _W ≥ 30		
	Roof and ceiling	Bedrooms	R _W + C _{tr} ≥ 45		
		All other habitable rooms	R _W + C _{tr} ≥ 40		

The sound insulation ratings for windows and external glass doors are outlined in Table 4 based on the area of the window/glass door based on floor area. The required glazing ratings are also shown in in Figure 1, Figure 2, Figure 3, and Figure 4.



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Table 4 Minimum acoustic requirements for windows and external glass doors

Room	Area of window and external glass doors as a percentage of the floor area of the room	Designated sound exposure category				
		1	2	3	4	5
Bedroom and	Not more than 20%	25	28	31	34	*
attached non- habitable rooms	More than 20% but not more than 40%	28	31	34	*	*
	More than 40% but not more than 60%	31	34	*	*	*
	More than 60% but not more than 80%	34	*	*	*	*
	More than 80%	37	*	*	*	*
Habitable rooms	Not more than 20%	22	25	28	31	34
(other than bedrooms and	More than 20% but not more than 40%	25	28	31	34	*
enclosed kitchens)	More than 40% but not more than 60%	28	31	34	*	*
and attached non- habitable rooms	More than 60% but not more than 80%	31	34	*	*	*
	More than 80%	34	*	*	*	*

^{*} Windows and external glass doors are outside the scope of the Deemed-to-Satisfy provisions.

4.3 Construction requirements

Roof and ceiling

The indicative roof and ceiling construction is:

- Metal deck roof
- Bulk insulation
- Variable ceiling cavity (varying from approximately 1200 400 mm)
- Suspended 13 mm plasterboard ceiling.

The proposed ceiling will achieve $R_w + C_{tr} \ge 35$ rating with a minimum 500 mm cavity. A cavity of at least 500 mm will be required over bedrooms for the penthouse apartments facing Unley Road (refer to Figure 4). For all other areas, a minimum 400 mm cavity will be appropriate.



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External walls

The external walls are for Level 1 – Level 5 are to have the following indicative construction

- 175 200 mm precast concrete
- 92 mm steel stud frame with 20 mm cavity to concrete
- bulk insulation
- plasterboard internal lining.

This construction will achieve the minimum $R_w + C_{tr} \ge 50$ airborne noise requirement for SEC 2 and 3 walls.

The external walls are for the top floor are to be lightweight double stud walls with top hats and an external metal cladding. To achieve the required ratings with this type of construction, the following is recommended:

- For SEC 2—R_w + C_{tr} ≥ 50:
 - 2 x 13 mm sound rated plasterboard internal lining
 - two sets of 92 mm steel stud frame with minimum 50 mm cavity to concrete
 - bulk insulation
 - 1 x 13 mm plasterboard or 1 x 6 fibre cement sheet lining (or equivalent)
 - external metal cladding on top hats.
- For SEC 1—R_w + C_{tr} ≥ 45:
 - 1 x 13 mm sound rated plasterboard internal lining
 - two sets of 92 mm steel stud frame with minimum 50 mm cavity to concrete
 - bulk insulation
 - 1 x 13 mm plasterboard or 1 x 6 fibre cement sheet lining (or equivalent)
 - external metal cladding on top hats.

External windows and doors

The recommended constructions for the external windows and doors are outlined in Table 5. Note that acoustically equivalent constructions (such as thermal double glazing) can be adopted; however, the constructions are provided in Table 5 as a guide as to the types of constructions required.

Table 5 Example external window and door constructions

Acoustic criteria	Example external windows and doors construction
$R_w+C_{tr} > 37$	Where the resultant rating is >37 we recommend that the area of glazing be reduced so that the R _W +C _{tr} rating be reduced to at least 34 (refer to the area requirements in Table 4).
R _w +C _{tr} 37	 12.5 mm VLam Hush glass windows and side hinged doors No sliding doors—where sliding doors are nominated, we recommend that the area of glazing be reduced so that the R_W+C_{tr} rating be reduced to at least 34 (refer to the area requirements in Table 4)
R _w +C _{tr} 34	10 mm glass windows and side hinged doors 12.5 mm VLam Hush glass sliding doors



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Acoustic criteria	Example external windows and doors construction
R _w +C _{tr} 31	6 mm glass windows and side hinged doors 10 mm glass sliding door
R _w +C _{tr} 28	6 mm glass windows and side hinged doors 6 mm glass sliding door
R _w +C _{tr} 25	 3 mm glass windows and side hinged doors 6 mm glass sliding door

All openable windows and doors are to have the following or acoustically equivalent seals:

- sliding doors are to have:
 - Schlegel Q-Lon T-Slot seals on the lock and mullion
 - Schlegel Fin-Seal on the rails
- windows awning style with rubber compression seals around the perimeter such as Schlegel Q-Lon
 T-Slot seals, or sliding with seals as indicated for the sliding doors
- hinged doors are to have:
 - high quality rubber contact seals for the head and the jambs acoustically equivalent to Kilargo IS1212/1515 or Raven RP120/150
 - dropdown seal at the bottom acoustically equivalent to Kilgaro IS8090si or Raven RP38.

Ventilation

Natural ventilation

In SEC 1 - 3 natural ventilation must be provided in accordance with the NCC.

Mechanical ventilation

In SEC 4 SA 78B states that the following must be provided:

A mechanical ventilation system that complies with AS 1668.2 - The use of mechanical ventilation and air-conditioning in buildings must be provided; and

- (a) Relief air paths (or evaporative air conditioning) must be fully ducted to allow for the operation of the system with windows and external doors closed; and
- (b) The fresh air (or make up air) inlets and exhaust air outlets must be at a point on the building furthest from the designated sound source where practicable.

Penetrations

For building facade penetrations, SA 78B states that:

- (a) Where a part of the *building envelope* has a *sound exposure category*, any plant or service, such as an air-conditioning unit, ventilation device or ductwork that pass through that part, or any permanent opening in that part, must not diminish the $R_W + C_{tr}$ of the part.
- (b) Penetrations of the *building envelope* by pipes, ducts, or conduits or the like must have the space between the *building envelope* and the pipes, ducts, or conduits or the like caulked or filled with mortar.



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5 Conclusion

An external noise intrusion and environmental noise emission assessment has been undertaken for the proposed mixed used development at 246 Unley Road, Unley. The assessment has taken into account the relevant noise requirements of the Unley Council Development Plan, Minister's Specification SA 78B, and the *Environment Protection (Noise) Policy 2007*.

This assessment has demonstrated the following:

- The Unley Council Development Plan has specific noise requirements relating to noise ingress and noise emissions, and references the Minister's Specification SA 78B and the *Environment* Protection (Noise) Policy 2007.
- Facade noise mitigation treatments detailed in this report are suitable to attenuate noise intrusion from traffic on Greenhill Road into the residences in accordance with Minister's Specification SA 78B Construction Requirements for the Control of External Sound.
- External mechanical plant located on the plant platforms will be designed and treated at detailed design stage to achieve appropriate levels at the most affected receptors in accordance with the requirements of the *Environment Protection (Noise) Policy 2007*.

On this basis the proposed mixed used development at 246 Unley Road will be able to be constructed and operate within the noise requirements of the Unley Council Development Plan, Minister's Specification SA 78B, and the *Environment Protection (Noise) Policy 2007*.



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2014/11235/01

25 October 2017

Ref No: 12018639

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For the attention of the State Commission Assessment Panel (SCAP)

246 Unley Road, Unley

Further to the referral 090/M008/17 received 22 August 2017 and the additional information received 25 September 2017 pertaining to the development application at the above address and in my capacity as a statutory referral in the State Commission Assessment Panel (SCAP), I would like to offer the following comments for your consideration.

In principle, I support the project team's aspiration to deliver a high quality mixed used development in this location. The proposed scale of development will result in a significant structure in the current context and has a potential to set a precedent for future developments. Therefore in my opinion, a responsibility exists for the project team to deliver a high quality design outcome, particularly in relation to contextual response and residential amenity. The project was not presented to the Design Review panel, however 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. I recommend that further emphasis is given to undertaking of a detailed contextual analysis with the view to demonstrate how the proposal responds to the current and future context of the site.

The subject site, of approximately 2,500 square metres, is located on the corner of Unley Road and Hart Avenue. Unley Road is currently characterised by one and two storey retail and commercial tenancies, however the site is within the Urban Corridor Zone, High Street (Unley Road) Policy Area, which envisages developments up to five storeys and 18.5 metres. There are a number of Local heritage places in the site's proximity, including the single storey Unley Institute and Library building immediately opposite on Unley Road. The existing building on the subject site physically abuts a single storey retail building to the south. To the west of the project site, there is a single storey dwelling presenting to Hart Avenue, which is located within the Urban Corridor Zone.

The proposal is for a seven storey building with an overall above ground height of 26.8 metres, which is significantly above the maximum envisaged height of

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five storeys and 18.5 metres for the site. Acknowledging that the built form is within the 30 degree building envelope with the intent to manage interface issues with the adjoining residential zone, I do not support the proposed height. In my opinion, the proposal is yet to demonstrate an exemplary design outcome, particularly in terms of massing and architectural expression to manage the physical and visual impacts of the scale and bulk of the proposal. In addition, the development does not offer significant merit in terms of public realm contribution or residential amenity to justify the over height. I am also concerned about the lack of setback on the Hart Avenue boundary beyond 20 metres from Unley Road as envisaged by the Development Plan. In my opinion, the setback requirement along Hart Avenue is particularly important given the narrowness of the street and the established front setback pattern of existing residential properties to the east. I recommend review of the built form composition along the Hart Avenue frontage to better integrate the proposal to the established scale, pattern and character of the residential surroundings.

The proposal includes a two storey podium that extends to the north, east and south boundaries. Levels two to five are set back on all sides with the intent to define the podium from the built form above. The top apartment floor is further setback presenting a five level datum line as a response to the zone policies and to reduce the visual impact, which I support. I also support the provision of the podium, however the submitted documentation does not include sufficient contextual information, including the information on the abutting building to the south, to demonstrate the relationship between the proposed podium and the existing streetscape. I recommend additional information be provided to demonstrate how the site context has informed the modelling and articulation of the podium and overall built form. I am also of the opinion that the solid expression of the balconies does not assist in achieving a recessive built form above the podium as intended. I recommend review of the massing and three dimensional articulation strategy for the built form above the podium to further reduce the apparent bulk.

The documents provided indicate a future application to shift the western boundary eastward. Acknowledging that the boundary realignment and a potential development on the adjoining site do not form part of this application, I note that informed comments on the interface conditions cannot be provided without the information regarding the anticipated development. Currently the proposal does not include any strategies to mitigate overlooking of the neighbouring residential properties apart from creating separation from the residential zone boundary. I recommend development of additional effective strategies to manage residential interface impacts, including overlooking.

I support the provision of the commercial and retail tenancies on the ground floor along the Unley Road frontage. However I am concerned that more than half of the ground floor is dedicated to car parking and crossovers. I am particularly concerned about the presentation to Hart Avenue, which includes two two-lane crossovers and Back of House structures. While the services structures are incorporated into the podium form, the width of the driveways are such that the at grade car parking area is highly visible from the street. Acknowledging the design intent to develop the Hart Avenue footpath to create alfresco dining opportunities as described by the Landscape Concept drawings, I note the works are outside the site boundaries and

do not form part of this application. I recommend review of the ground floor

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configuration to increase the extent of active use spaces along Hart Avenue to positively contribute to the public realm. Consolidation of the crossovers is also recommended to minimise the visibility of the car parking area and to reduce the detrimental effect on local traffic conditions.

The apartment entry is located centrally on the Unley Road frontage and the apartment lobby is accessed by a corridor between the central tenancy spaces. While I support the generous width of the entry corridor, I do not support the location of the residential lobby, which is placed in the car parking area. In addition, I am concerned that access and way finding through the car park compromise the safety and amenity of the residents. I recommend review of the residential entry sequence strategies to provide a high quality entry experience cognisant of the high amenity apartment offerings as envisaged.

The proposed podium is masonry in character, which I support. However, an opportunity exists to strengthen the solidity and vertical connectivity of the podium by anchoring the built form to the ground. I recommend review of the podium expression at the northeast and southeast corners.

The architectural expression of the built form above the podium is articulated by framed balconies in a contrasting colour and layers of concrete slab edges. Vertical 'green' screens are also included on all facades. I support the intent to address the scale of the building by providing a breakdown in built form. However in my opinion, I am yet to be convinced that the scale of the bold cubic forms are informed by the established character and fine grain of the locality. I recommend development of the architectural expression to mitigate the visual impact of the built form bulk, referencing the fine grain, small scale and vertical proportions typical of the area. The top apartment floor is setback and clad with dark coloured metal cladding to reduce the visual impact, which I support.

The apartments are positioned on the four edges of rectangular floor plates around the central atrium above the communal courtyard on the first floor. The atrium is approximately 17 metres by 16 metres in size and includes central bridge links on upper floors to connect apartments with the centrally located lift. The atrium is proposed with a translucent roof and openable louvres at the top to allow for light and ventilation. Vertical greening is also proposed to the full height of the atrium. While I am concerned that the proposed configuration has contributed to the large footprint and the massing of the building, I support the layout on balance as it includes variety of landscape elements in communal areas that can offer high quality residential amenity. My ongoing support is contingent on the resolution of the design details to ensure the full delivery of all the landscape concepts within the courtyard and the atrium spaces during the upcoming phases of design development.

I support the mix of apartment types proposed. While the apartments are convincing in terms of size and functional layouts, I do not support the provision of internal bedrooms as shown in apartment type T4. I recommend refinement of apartment layouts to ensure a high level of residential amenity for all habitable rooms. While I support the size and dimensions of many of the balconies, I note that the balconies for apartment types T3 and T6 are significantly undersized for two bedroom apartments. While the proposal includes the communal courtyard on the

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first floor, in my opinion, the courtyard is not designed for outdoor activities to supplement the shortfall in private open spaces. I recommend review of apartment typology to ensure adequate private open space is provided for all apartments. In addition, I do not support the location of air-conditioning condenser units on balconies, due to adverse impacts on the amenity of that space and the street. I recommend relocation of the air conditioning condensers.

The proposal lacks clarity in regards to the threshold treatments at building edges along the street frontage. It is important for the success of the overall proposal to include a well-considered threshold response, including paving transitions, that contributes positively to the public realm. I request additional information be provided regarding the materials and finishes of the external and interface areas. I also recommend ongoing discussion with the City of Unley regarding the development of the Hart Avenue footpath, with the view to achieve a mutually appropriate outcome, informed by a building management, maintenance and public safety requirements, lighting and landscaping strategies.

The proposal includes car parking spaces on the ground and one and a half basement levels. I support the provision of car parks in the basement. However I recommend development of sleeving and/or screening strategy for the ground level car parking spaces to minimise the risk of poor urban design outcomes.

The proposal is characterised by the central atrium with the associated vertical greening and the landscaped courtyard, with the intent to positively contribute to the residential amenity by providing natural light and ventilation. A convincing demonstration of the successful workings of the atrium will be critical to my support for this project. In addition, it will be important for the success of the overall proposal to clearly demonstrate the environmental performance of the atrium and the building as a whole.

To ensure the most successful design outcome is achieved the State Commission Assessment Panel (SCAP) 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 building height.
- Review of the built form composition along the Hart Avenue frontage.
- Further information on site context to demonstrate the relationship between the proposal and the existing and future context.
- Review of massing and three dimensional articulation strategy of the built form above the podium to reduce the apparent bulk.
- Review of the presentation to Hart Avenue with the view to increase the extent of active use spaces.
- Consideration of crossover consolidation.
- Development of effective strategies to manage residential interface impacts, including overlooking.
- Review of apartment entry sequence.
- Review of the podium expression at the northeast and southeast corners.
- Further information that demonstrates how the proposed vegetation in the central courtyard and atrium will be sustained and maintained.

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- Refinement of apartment layouts to eliminate inboard bedrooms.
- Review of apartment typology to ensure all apartments have access to adequately sized private open spaces.
- Relocation of air conditioning condensers from balconies.
- Further information that demonstrates the environmental performance of the atrium and communal circulation spaces.
- A high quality of external materials for building and landscaped areas supported by the provision of a materials sample board.

Yours sincerely

Nick Tridente

Associate Government Architect

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File No: 2014/11235/01

10 January 2018

Ref No: 12253916

Karl Woehle
Planning Officer - CBD & Inner Metro Team
Strategic Development Assessment
Planning and Development
Department of Planning, Transport and Infrastructure
Level 5, 50 Flinders Street
Adelaide SA 5000

For the attention of the State Commission Assessment Panel (SCAP)

246 Unley Road, Unley

Further to the referral 090/M008/17 received 22 August 2017, the additional information received 25 September 2017, and the revised documents received 19 December 2017 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. This letter supersedes the previous referral letter dated 25 October 2017.

In principle, I support the project team's aspiration to deliver a high quality mixed used development in this location. The proposed scale of development will result in a significant structure in the current context and has a potential to set a precedent for future developments. Therefore in my opinion, a responsibility exists for the project team to deliver a high quality design outcome, particularly in relation to contextual response and residential amenity. The project was not presented to the Design Review panel, however from considering the material supplied with the referral and evaluating the design merit of the project, I remain concerned regarding certain aspects of the project, including the height, the architectural expression and the project's relationship to the current and future context of the site.

The subject site, of approximately 2,500 square metres, is located on the corner of Unley Road and Hart Avenue. Unley Road is currently characterised by one and two storey retail and commercial tenancies, however the site is within the Urban Corridor Zone, High Street (Unley Road) Policy Area, which envisages developments up to five storeys and 18.5 metres. There are a number of Local heritage places in the site's proximity, including the single storey Unley Institute and Library building immediately opposite on Unley Road. The existing building on the subject site physically abuts a single storey retail building to the south. To the west of the project site, there is a single storey dwelling presenting to Hart Avenue, which is located within the Urban Corridor Zone.

The proposal is for a seven storey building with an overall above ground height of 26.8 metres, which is significantly above the maximum envisaged height of

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five storeys and 18.5 metres for the site. Acknowledging that the built form is within the 30 degree building envelope with the intent to manage interface issues with the adjoining residential zone, I do not support the proposed height. In my opinion, the proposal is yet to demonstrate an exemplary design outcome, particularly in terms of massing and architectural expression to manage the physical and visual impacts of the scale and bulk of the proposal. I am also concerned about the lack of setback on the Hart Avenue boundary beyond 20 metres from Unley Road as envisaged by the Development Plan. In my opinion, the prescribed minimum setback along Hart Avenue is particularly important given the narrowness of the street and the established front setback pattern of existing residential properties to the east. I recommend review of the building setback along the Hart Avenue frontage to better integrate the proposal to the established scale, pattern and character of the residential surroundings.

The proposal includes a two storey podium that extends to the north, east and south boundaries. Levels two to five are set back on all sides with the intent to define the podium from the built form above. The top apartment floor is further setback presenting a five level datum line as a response to the zone policies and to reduce the visual impact, which I support. I also support the provision of the podium, and acknowledge that the podium height and proportion is set to respond to the height of the former National Bank building, a Local heritage place along Unley Road to the north of the subject site. However, I am of the opinion that the bold framing of the balconies over multiple levels does not assist in achieving a recessive built form above the podium as intended. I recommend review of the massing and three dimensional articulation strategy for the built form above the podium to further reduce the apparent bulk.

The documents provided indicate a future application to shift the western boundary eastward. Acknowledging that the boundary realignment and a potential development on the adjoining site do not form part of this application, I note that informed comments on the interface conditions cannot be provided without the information regarding the anticipated development. Currently the proposal does not include any strategies to mitigate overlooking of the neighbouring residential properties apart from creating separation from the residential zone boundary. I recommend development of additional effective strategies to manage residential interface impacts, including overlooking.

I support the provision of the commercial and retail tenancies on the ground floor along the Unley Road and Hart Avenue frontages. I also strongly support the consolidation of driveways on Hart Avenue into one. The relocation of the transformer from the Unley Road frontage to the Hart Avenue frontage and incorporation of the services structures to the podium form is also supported.

The apartment entry is located centrally on the Unley Road frontage and the apartment lobby is accessed by a corridor between the central tenancy spaces. I support the generous width of the entry corridor. I recommend further development of the access and wayfinding strategies through the car parking levels during the next phase of design development to ensure the safety and amenity of the residents.

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The proposed podium is masonry in character, which I support. The architectural expression of the built form above the podium is articulated by framed balconies in a contrasting colour and layers of concrete slab edges. Vertical 'green' screens are also included on all facades. I support the intent to address the scale of the building by providing a breakdown in built form. However, I am yet to be convinced that the scale of the bold cubic forms are informed by the established character and fine grain of the locality. I recommend development of the architectural expression to mitigate the visual impact of the built form bulk, referencing the fine grain, small scale and vertical proportions typical of the area. The top apartment floor is setback and clad with dark coloured metal cladding to reduce the visual impact, which I support.

The apartments are positioned on the four edges of rectangular floor plates around the central atrium above the communal courtyard on the first floor. The atrium is approximately 17 metres by 16 metres in size and includes central bridge links on upper floors to connect apartments with the centrally located lift. The atrium is proposed with a translucent roof and openable louvres at the top to allow for light and ventilation. Vertical greening and horizontal screening are also proposed to the full height of the atrium. While I am concerned that the proposed configuration has contributed to the large footprint and the massing of the building, I support the layout on balance as it includes a variety of landscape elements in communal areas that can offer high quality residential amenity. My ongoing support is contingent on the resolution of the design details to ensure the full delivery of all the landscape concepts within the courtyard and the atrium spaces during the upcoming phases of design development.

I support the mix of apartment types proposed. While the apartments are convincing in terms of size and functional layouts, I do not support the provision of habitable rooms that rely on the communal circulation spaces for light and ventilation, as shown in apartment types T3 and T4. In my opinion, this configuration poses privacy issues for the residents. I recommend refinement of apartment layouts to ensure a high level of residential amenity for all habitable rooms. Generally, I do not support the location of air-conditioning condenser units on balconies, due to adverse impacts on the amenity of that space and the street. While I acknowledge the intent to screen the condensers, further information is required to demonstrate that the proposed arrangement successfully mitigates the environmental impacts on balcony user amenity.

The proposal lacks clarity in regards to the threshold treatments at building edges along the street frontage. It is important for the success of the overall proposal to include a well-considered threshold response, including paving transitions, that contributes positively to the public realm. I request additional information be provided regarding the materials and finishes of the external and interface areas. Acknowledging the design intent to develop the Hart Avenue footpath to create alfresco dining opportunities as described by the Landscape Concept drawings, I note the works are outside the site boundaries and do not form part of this application. I recommend ongoing discussion with the City of Unley regarding the development of the Hart Avenue footpath, with the view to achieve a mutually appropriate outcome, informed by a building management, maintenance and public safety requirements, lighting and landscaping strategies.

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The proposal includes car parking spaces on the ground and one and a half basement levels. I support the provision of car parks in the basement, and sleeving of the ground level car parking spaces with an active use space.

The proposal is characterised by the central atrium with the associated vertical greening, horizontal green screening and the landscaped courtyard, with the intent to positively contribute to the residential amenity by providing natural light and ventilation. A convincing demonstration of the successful workings of the atrium will be critical to my support for this project. In addition, it will be important for the success of the overall proposal to clearly demonstrate the environmental performance of the atrium and the building as a whole.

To ensure the most successful design outcome is achieved the State Commission Assessment Panel (SCAP) 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 building height.
- Review of the building setback along the Hart Avenue frontage.
- Review of massing and three dimensional articulation strategy of the built form above the podium to reduce the apparent bulk.
- Development of effective strategies to manage residential interface impacts, including overlooking.
- Further information that demonstrates how the proposed vegetation in the central courtyard and atrium will be sustained and maintained.
- Refinement of apartment layouts to address privacy issues.
- Relocation of air conditioning condensers from balconies, or provision of additional information to demonstrate effective screening of condensers and successful mitigation of environmental impacts.
- Further information that demonstrates the environmental performance of the atrium and communal circulation spaces.
- A high quality of external materials for building and landscaped areas supported by the provision of a materials sample board.

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T-+61(0)8 8402 1884 E- odasa@sa.gov.au Nick Tridente
Associate Government Architect



In reply please quote 2017/01926/01, Process ID: 480920 Enquiries to Vittorio Varricchio Telephone (08) 8226 8393 Facsimile (08) 8226 8330 E-mail dpti.luc@sa.gov.au



SAFETY AND SERVICE – Traffic Operations

GPO Box 1533 Adelaide SA 5001

Telephone: 61 8 8226 8222 Facsimile: 61 8 8226 8330

ABN 92 366 288 135

30/11/2017

Mr Karl Woehle State Commission Assessment Panel GPO Box 1815 ADELAIDE SA 5001

Dear Mr Woehle,

SCHEDULE 8 - REFERRAL RESPONSE

Development No.	090/M008/17
Applicant	Catcorp Pty Ltd
Location	246 Unley Road, Unley
Proposal	Seven Storey Mixed Use Building

I refer to the above development application forwarded to the Safety and Service Division of the Department of Planning, Transport and Infrastructure (DPTI) in accordance with Section 37 of the *Development Act 1993*. The proposed development involves development adjacent a main road as described above.

The following response is provided in accordance with Section 37(4)(b) of the Development Act 1993 and Schedule 8 of the Development Regulations 2008.

THE PROPOSAL

The application proposes to demolish all existing structures and construct a seven storey mixed use building including parking and landscaping. DPTI has previously provided comments regarding a previous application upon this site (DA 090/001/15) in a letter dated 19/01/2015.

CONSIDERATION

The subject site abuts Unley Road, an arterial road under the care control and management of DPTI, as well as Hart Avenue, a local road under the care, control and management of City of Unley. Unley Road is identified as a Major Cycling Route, High Activity Pedestrian Area, High Frequency Public Transport Corridor and Peak Hour Route under DPTI's 'A Functional Hierarchy for South Australia's Land Transport Network'. At this location Unley Road has an AADT of 26,100 vehicles per day (2.5% commercial vehicles).

Road Safety and Access

It is DPTI policy to minimise the number of access points on the arterial road network in the interests of road safety. The subject site currently has no direct access to/from Unley Road. As all access is via Hart Avenue, the access arrangement is consistent with the above policy. No direct access to/from Unley Road should be permitted.

It is noted that, unlike the previous proposal on the subject site, no connection is proposed between Hart Avenue and Opey Avenue. This results in a poorer outcome as traffic will not be able to distribute across the two roads and their associated junctions. Furthermore, 12006304

the location of the public car park access is substantially closer to the Unley Road / Hart Avenue junction than the previous proposal and may be affected by queues at the junction during peak periods. It is considered that as the site is being redeveloped, the development should provide an access configuration that actively creates connectivity between Opey Avenue and Hart Avenue for both the public and residential car parks and maximises the separation between the vehicular access to the site and the adjacent junction. It is also recommended that the number of access points be reduced to a single access on Hart Avenue in order to maximise separation form the junction and to improve pedestrian safety. Failure to achieve the above is contrary to good design and is also inconsistent with Development Plan policy. Consequently, it is strongly recommended an integrated access arrangement with the land to the south be pursued.

The applicant has also provided turn paths of a Medium Rigid Vehicle (MRV), which would be the largest vehicle expected on-site. Turn paths show that a MRV is intended to reverse into the site from Hart Avenue to access the site. However, this may lead to vehicular conflict adjacent the access and may impact on the safety and efficiency of the adjacent road network. Therefore, consideration should be given to servicing the site with a vehicle that could manoeuvre on-site to enter and exit the site in a forward direction.

Furthermore, it is noted that Hart Avenue is relatively narrow and that simultaneous two-way access is limited to immediately adjacent the Unley Road / Hart Avenue junction due to the presence of on-street parking along Hart Avenue. This parking also impacts on the potential for service vehicles to safely access the site. Consequently, in order to ensure that simultaneous two-way vehicle movements are achievable along the subject section of Hart Avenue, on-street parking on both sides of the road should be banned between the Unley Road / Hart Avenue junction and the westernmost access to the site.

UnleyLINK

On 6 July 2015, the Minister for Transport and Infrastructure released the revised Integrated Transport and Land Use Plan (ITLUP). The Plan is designed to guide private, Federal, State and Local Government investments into the transport system for the next 30 years, and play a key role in ensuring this is fully integrated with land use and strategic infrastructure planning.

The Plan identifies UnleyLINK (a tram line running from the City, along Unley Road and Belair Road) as a medium to long term project. The exact timing of this project has yet to be determined and details of the road and tram track layout along Unley Road will be subject to further investigations and consultation. Subsequently, a number of potential access impacts for Unley Road and therefore the subject site may occur.

Road Widening

This site is affected by a possible requirement shown on the Metropolitan Adelaide Road Widening Plan (MARWP) for a 4.5 metres x 4.5 metres cut-off at the Unley Road / Hart Avenue corner of this site for future road purposes. The consent of the Commissioner of Highways under the Metropolitan Adelaide Road Widening Plan Act is required to all building works on or within 6.0 metres of the possible requirement.

Plans provided to DPTI show that the development would not provide any setback from the Unley Road property boundary and would encroach within the 4.5 metre by 4.5 metre cut-off at the Unley Road / Hart Avenue corner. It is also noted that the development would result in some encroachment into the road reserve of Unley Road.

It is also noted that the allotments along Unley Road immediately south of the site have had a 2.13 metres strip of land taken previously and dedicated to road. This area forms part of the parking bay on Unley Road. Furthermore, the development on the southern side of Opey Avenue is also set back approximately 2.0 metres from the Unley Road property boundary. It is also noted that the footpath at the subject location is relatively narrow and is kinked adjacent the south eastern corner of the site due to the footprint of

the existing buildings. In view of the above, it is strongly recommended that all structural elements associated with the development be located a minimum of 2.13 metres from the Unley Road property boundary (in line with the property boundaries to the south) and be kept clear of the 4.5 metres x 4.5 metres corner cut-off at the Unley Road / Hart Avenue corner.

The provision of increased setback would provide additional area adjacent Unley Road to enable improvements to the existing on-street parking bay on-street parking on Unley Road, facilitate future removal of the kink in the footpath to improve pedestrian comfort and amenity and potentially enable an increase the width of the Unley Road footpath in order to permit on-street retail or dining. This would substantially improve the opportunity for activation of this section of Unley Road. The exclusion of building works within the Unley Road / Hart Avenue corner cut-off would also improve driver sight lines at the Unley Road / Hart Avenue junction. This is consistent with SSD's previous comments regarding DA 090/001/15. It should also be noted that SSD directs all building works to be located outside of the 4.5 metres x 4.5 metres corner cut-off.

CONCLUSION

Whilst DPTI is generally supportive of the type of development proposed, DPTI considers that the development should be amended to show:

- All development being setback a minimum of 2.13 metres from the Unley Road property boundary and being kept clear of the 4.5 metres x 4.5 metres corner cutoff at the Unley Road / Hart Avenue junction.
- Access to Hart Avenue being consolidated to a single point located as far from the Unley Road / Hart Avenue junction as practicable.
- Provision of a vehicular link between Opey Avenue and Hart Avenue for all vehicles associated with the development in order to enable better traffic distribution to these two streets and their junctions.

In view of the above, DPTI requires the above to be addressed prior to approval and in particular directs that all building works be located outside of the 4.5 metres x 4.5 metres corner cut-off at the Unley Road / Hart Avenue junction.

Yours sincerely,

MANAGER, TRAFFIC OPERATIONS For COMMISSIONER OF HIGHWAYS

Unley

9 October 2017

The Secretary State Commission Assessment Panel **GPO Box 1815** ADELAIDE SA 5001

Attention: Karl Woehle

Planning Officer

CBD & Inner Metro Team

Strategic Development Assessment

Planning and Development

Department of Planning, Transport and Infrastructure

Dear Sir/Madam

INFORMAL REFERRAL COMMENTS - DA 090/M008/17 (APPIAN ID 2397) 244-246 UNLEY ROAD UNLEY

Thank you for the informal referral received on the 28 August 2017 of the abovementioned application lodged with the State Commission Assessment Panel, and invitation for comment within 6 weeks (9 October 2017) to assist the assessment process.

In accord with the Heads of Agreement with the State Government in relation to such applications, Council now provides informal comment on designated Council matters and observations on key local planning matters that require further analysis and assessment.

Proposed Comments Summary

The Council has concerns with the degree of variation from key planning policy parameters and local road and infrastructure impacts of the proposed redevelopment of 244-246 Unley Road, Unley, in its current form.

It is requested the range of matters raised in this report be given further consideration as part of the assessment process, including:

- Building height (and setbacks);
- Overlooking minimisation;
- Podium façade detailing and extent of footpath canopies;
- On-site parking provision, allocation, design and dimensions;

- Site landscaping and lack of medium to large trees and roof-top gardens;
- Hart Avenue traffic and on-street parking management;
- Hart Avenue public realm implications including road configuration, lack of room for outdoor dining, loss of on-street parking, street trees pruning and planting;
- Waste and service vehicle limitations;
- Survey plan to confirm dimensions of site, buildings, Unley Road and Hart Avenue;
- Public notification categorisation;
- Planning Consent conditions.

Council has delegated to the Chief Executive Officer or his nominee(s) the authority to negotiate appropriate outcomes in regard to street trees, future public realm upgrades, canopy encroachments and outdoor dining arrangements should the application be approved.

Background

The Urban Corridor Zone – High Street (Unley Road) Policy Area, allowing for mixed use development up to five (5) storeys (18.5 metres), was introduced into the Development Plan on the 31 October 2013 via the Corridors Development Plan Amendment.

Concurrently, the Minister for Planning amended Schedule 10 of the Development Regulations to make the State Commission Assessment Panel (SCAP) the relevant authority for development of five (5) storeys or more in the Urban Corridor Zone.

No formal referral of such development applications to Council is provided for. A Memorandum of Agreement (MoA) with the Department of Planning Transport and Infrastructure (DPTI) provides for informal referral to Council seeking comments on limited specific matters. Additional local key planning issues can be raised for attention of SCAP.

Through the informal MoA arrangements, Council officers can have a limited opportunity to provide input via the DPTI confidential Pre-Lodgement Panel deliberations. This is a voluntary process, and it is noted on this occasion the applicant has declined to participate. Similarly there has not been any involvement in a voluntary Design Review process facilitated by the Government Architect.

Discussion

The full assessment of the development is the role of the Department of Planning Transport and Infrastructure (DPTI) officers and the ultimate planning approval judgement the role of the State Commission Assessment Panel (SCAP). It is appreciated Council's role is limited to comments on matters within its direct control and observations in relation to planning assessment matters from a local

perspective to highlight key issues that may require further analysis / assessment by DPTI officers and SCAP.

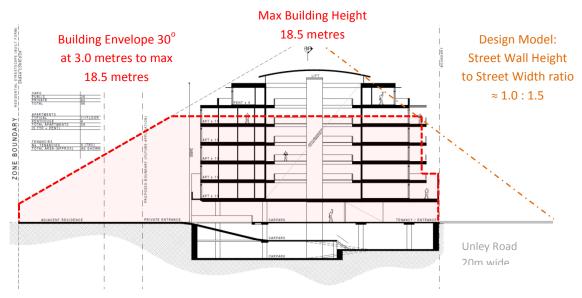
Proposed Development

In brief, the proposed development encompasses the following key features and concerns:

 Site comprising part of overall land holdings with frontage to 244-246 Unley Road of 42.0 metres and partial depth of 51.0 metres (of overall site of 74.1 metres) including part of 1 Hart Avenue;



- The development site does not include 3 Hart Avenue, and with the remaining portion of 1 Hart Avenue this area will be subject of a future application;
- The proposal on this portion of the site emulates the previous approved development, but does afford less mass with a smaller corner tower and a design that does not intrude into the rear zone interface building envelope;
- Ground floor to comprise 4 tenancies (café / shop / commercial) of 580²;
- Six levels above to comprise 59 apartments (10 x 1 bedroom, 10 x 2 bedrooms small unit of 73m², 35 x 2 bedrooms units 80-100m² and 4 x 3 bedrooms 155m²);
- Height to seven (7) storeys (24.5 metres to main roof edge and 26.0 metres to top of central courtyard cover) versus policy of five (5) storeys (18.5 metres). Represents a notable variation over desired height of 32% to 40%. Should remove at least one of lower levels whereby proposed recessed form at 6 storey may be more compatible and warranted;
- The extra height is contained within the zone boundary interface building envelope and recessed above Unley Road street wall to mitigate visible scale but the additional height will still be apparent and dominate adjacent outlooks;
- Above the 1 to 2 storey street wall façade, to Unley Road and Hart Avenue and adjacent site, there are setbacks reflecting the required 3 metres, with only intrusion by balconies and canopies;



The Street Wall height to Unley Road and Hart Avenue (desired 18.5 metres) is limited to around 20.0 metres with the top 7th storey further recessed from the edge to reduce dominance in perspective, albeit will still be apparent and dominate from adjacent outlooks and well beyond desired scale and bulk;



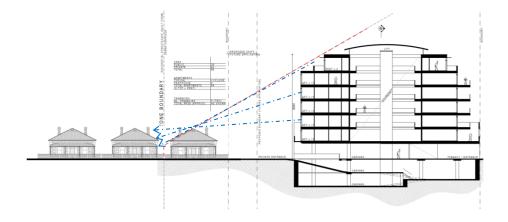
- The building emphasises a base podium façade, shop fronts and canopies to street frontages with recessed upper residential levels and open balcony and canopy features to articulate its mass. It is appreciated the treatment is contemporary and simple but more articulation and detailing could be provided to the parapet facades, pediments, individual shop fronts and particularly the canopies enlarged (longer and deeper with coordination with small building setbacks to create positive public spaces) to complement the desired and existing streetscape pattern;
- External materials consist of a mixture of stone, stained grey precast concrete, dark metal cladding / screening, exposed steel beams, tinted and clear glass;
- External landscaping is minimal with trailing vines off balconies but with no details or evidence of how this is supported or to be sustained – and planter boxes and vines;

- The apartments enjoy an internal courtyard with planter boxes and trailing vines;
- There are none of the required deep-soil landscape areas and trees. New 3 storey and greater design policy suggests 7% of site area (≈150m²) for medium to large trees (6-12m tall by 4-8m wide) be included per 30 to 60m² of deep soil zones = 3 large to 5 medium trees;
- An outdoor dining area in Hart Avenue adjacent to Unley Road is proposed.
 The building plans do not correlate with landscape plans regarding large northern shopfront openings and the road space is insufficient for the proposed facility;
- The proposed western accessway leads to the removal of one of the larger onsite existing trees;
- There are only three small street trees on the southern side of Hart Avenue, and indication of one supplementary opportunity with reconfiguration of street;
- With varied building setbacks and judicious placement of street trees supplementary green and tree canopy could be incorporated on the Unley Road frontage and western end of Hart Avenue (particularly with 2m required setback provided);
- Unreasonable open overlooking of adjacent residential private areas, particularly directly to the west and also obliquely to northwest and southwest, from rear and sides needs to be better addressed, ie by alternative orientation of outlooks, focus on long views, recessed viewing points, avoid reliance on variable effect vines, higher / wider / angled screening (eg obscure glass) to balconies and windows;

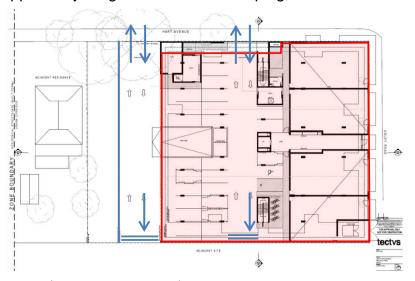


Hart Avenue (north) elevation

Rear (west) elevation



- The existing dwelling at 3 Hart Avenue, or alternative future development along the rear of the site, offers limited screening of downward views from higher levels into adjacent private residential areas;
- At the ground level 0.0 metre road and side boundary setbacks are acceptable, although up to 3.0 metre setbacks can be provided for outdoor dining. There should be a 2.0 metre setback provided from Hart Avenue west of 20.0 metres from Unley Road. This would provide relief to the narrow Hart Avenue and provide an opportunity for ground level landscaping;



- Two accessways (public and private) are provided to Hart Avenue. Preference would be for one shared accessway and convenient consolidated internal parking circulation avoiding dead-end isles. The remaining development site should also utilise the one consolidated accessway to avoid compounding onstreet conflicts and issues;
- Internal carparking provided at ground level (25 spaces) and two lower internal levels (60 spaces some double stacked), including disabled spaces, generally accords with required provisions although design and dimensions need review. However, small segregated public caparking areas compromise convenience and efficiency, and appropriate allocation for tenants, residents and visitors is required to facilitate proper and effective use;
- Required configuration for Hart Avenue and appropriate traffic flow leads to loss of current on-street parking adjacent to site that makes on-site parking more critical;
- Bicycle parking is provided for 8 public visitors in undercroft carpark, 28 racks for employees / occupants in basement carpark plus room in each apartment's storage area to exceed policy requirements;
- Waste vehicle servicing is to occur from Hart Avenue, and involves vehicle stopping in street and reversing into western accessway to service on-site bin storage in undercroft carpark. This is not ideal, but operational management to limit service times should help reduce potential conflict;
- On-site stormwater detention (14,000L) and retention (10,000L) is provided for addressing required peak stormwater outflows and limited on-site reuse;

 Energy efficiency includes passive design, natural light, cross-ventilation, courtyard planting, trailing vines, double glazing and solar collection panels.
 Landscaping, trees and greening of walls and roof-top gardens is lacking.

Overall, the proposal has a number of variations from fundamental policy parameters. Some are limited variations, individually of moderate significance, but together and the key elements are considerable variations. The proposal is a new application to be determined on its own merit, not on any previous precedence, and the integrity of the policy, resolved after comprehensive community debate, should be better observed.

Council Issues

Council is able to provide specific comment in relation to matters where there are direct implications upon local public infrastructure as follows:

- Encroachments outdoor dining and footpath canopies
- Public realm and street trees
- Vehicle traffic, access, parking and waste servicing
- Stormwater management

Encroachments

Hart Avenue Outdoor Dining Area

The Landscape Concept Plans show a proposed outdoor dining area and reconfiguration of Hart Avenue with large folding door opening to north façade of building. The building plans do not correlate and show these details.



A well designed and landscaped outdoor dining area forms a positive relationship and activation with the public realm. The outdoor area design and dimensions in-it-self meet Council's policy and requirements, although crash barriers need review.

However, the narrowing (to 5.8 metres) of the already narrow (7.4 metres) Hart Avenue roadway and junction with Unley Road is not feasible. The movement and pathways for junction and vehicle traffic, including necessary waste and service vehicles (up to 8.8 metres long), dictates that the current road way width (with current on-street parking removed) is required for adequate and safe performance.

At best, with a proper survey and further analysis, a minor narrowing and reconfiguration may, or may not, be possible. If possible, this could afford an opportunity to move the footpath (minimum 1.5 metres) out to a kerb re-alignment and provide a narrow space along the building frontage in combination with openings in the building wall for outdoor dining opportunities.

To this end it would be beneficial for the design to re-consider including a small building setback (as should be provided in any event for that part 20 metres west of Unley Road) to accommodate a suitable outdoor dining area predominately on the site.

Footpath Canopies and Outdoor Dining Overhead Portal Structure (Pergola)

Narrow 1.5 metre wide cantilever canopies over shop front openings along Unley Road and Hart Avenue are proposed.

The canopies are relatively shallow and should desirably be deepened to at least 1.8 metres (within 0.6 metres of existing kerb), in coordination with small building setbacks to create positive public spaces, and extended beyond just the extent of shopfront windows to afford appropriate pedestrian protection on the footpaths.

The outdoor dining portal structure adds the benefit of northern and overhead posts and beams for growing of beautifying and protective vines to the area and over the footpath.

The encroachments over the public realm are lightweight and non-integral to the main building which enables them to be addressed by Council's standard policy licensing requirements.

Public Realm / Street Trees

There is no indication of impacts upon existing street trees in Hart Avenue, other than pruning for building zero 0.0 metres setback and encroachments. Potentially 1 additional street tree is suggested to the west of the new proposed kerb protuberance.

One larger on-site tree at 1 Hart Avenue is proposed to be removed to make way for the new western accessway. It is unfortunate to loose a mature tree, particularly with minimal replacement on-site landscaping proposed, but it is not regulated (less than 1.5 metre circumference).

At this stage no discussion has occurred on Council requirements and additional opportunities to collaborate and mutually contribute to a public realm upgrade.

Construction will impact upon the area and footpaths surrounding the site. Alternative arrangements will need to be made during construction.

Any damage, additional planting and reinstatement of footpaths etc will be managed and costs recovered via normal Council procedures from the owner/developer.

A Survey Plan is required to confirm the accurate dimensions of the site, buildings, Unley Road and Hart Avenue carriageways, footpaths, street trees etc

Vehicle traffic, access and parking

Traffic

All vehicle access/egress into the site is, and will be, from the side street, Hart Avenue. Independent and council traffic assessment and modelling has been undertaken to assess the implications of the proposed development.

Hart Avenue is currently a narrow street and the safe vehicle movement pathways, including for larger waste and service vehicles (max 8.8 metres long) based on more favourable right turn in from Unley Road rather than tighter left turns, indicates there is little opportunity for further narrowing. Right turns may be complicated by future tram arrangements which may further compound design tolerances in Hart Avenue. In fact on-street parking on both sides up to around the western accessway will require banning to facilitate safe movements. However, on this basis the traffic capacity and arrangements for Hart Avenue should be feasible.

There is currently significant on-street parking in this location, likely mainly adjacent business premises staff, and the banning will lead to their relocation. A subsequent comprehensive traffic and parking study will be required to address the appropriate configuration and management within Hart Avenue.

Traffic generation modelling for peak periods indicates the proposed commercial and mainly residential combination will increase daily traffic along Hart Avenue and the surrounding local road network. However, it will be to a limited degree relative to current extensive largely commercial development (41 trips per peak hour versus 44) and primarily focussed towards Unley Road. The traffic at Hart Avenue/Unley Road intersection should perform satisfactorily. Overall a traffic increase will be noticeable but it is envisaged to have a minor impact on traffic performance and efficiency.

The construction of such a large development will be long and complex requiring careful consideration of staging and management of external impacts, notably traffic, parking, pedestrians and environmental emissions. A Construction Management Plan, to the reasonable satisfaction of Council, should be required as part of the approval and before proceeding with the development.

Access

Two accessways (public and private) are provided to Hart Avenue. It would be preferable for one consolidated vehicle accessway, reducing movement points in

street, potential on-street parking loss, reinforcing entry to parking area to public view and the efficiency and convenience of use with proper internal circulation. Further, the remaining western development site should also utilise this accessway and avoid further compounding these issues

The loss of existing additional on-street parking compounds the importance of conveniently available on-site carparking, which is to minimum standards that usually rely on such complementary on-street parking.

The nominated 'private' accessway should not have any entry control or gates, to ensure not only is all queing contained within the site and movement along the footpath or street not impeded, but that the required 19 spaces are available without restrictions to commercial and residential visitors.

A subsequent comprehensive traffic and parking study will be required to address the appropriate configuration and management within Hart Avenue.

<u>Parking</u>

Based on provisions for higher density and mixed use development in the Urban Corridor Zone in Unley (City) Development Plan Table Un/5 and Un/5A the required parking is as follows:

Land Use	Scale	Rate	Required	Provided
Shop	580m ²	Min 3 / 100m ² gla	17.4	
Outdoor Dine	15m ²	Min 3 / 100m ² gla	0.45	
Storage Room	30m ²	Min 3 / 100m ² gla	0.9	
Commercial Total			19*	16*
Residential				
1 bed	10	0.75	15	
or < 75m ²	10			
2 bed or > 75m ²	35	1.25	43.4	
3 bed or > 150m ²	4	1.75	7	
Total	59		65	60
Visitor	59	0.25	15*	9*
Total			84*	85*

^{*} Resident visitor and commercial public parking may be shared given complementary peaks gla "*gross leasable area* means *total floor area* of a building excluding public or common tenancy areas such as malls, verandahs or public toilets"

The required rates in the Development Plan are already substantially discounted in recognition of the urban corridor context, public transport accessibility, nature of apartments, complementary mixed uses and on-street parking. Expectations for additional discounting based on the reasons already accounted for are unwarranted. Further, the Adelaide situation is not comparable to the promoted lower demand Sydney suburban situation.

[&]quot;total floor area with respect to a building or other roofed area means the sum of the superficies of horizontal sections thereof made at the level of each floor, inclusive of all roofed areas and of the external walls and of such portions of any party walls as belong to the building"

It has been nominated internal carparking is provided at the ground level in two segregated areas of 16 spaces off a 'public' accessway, with necessary use of a space at the southern end as a turn-around for the dead-end isle, and 9 spaces off second 'private' accessway, comprising a potential total of 25 spaces. These ground level areas pursuant to parking policy may reasonably be shared given the respective complementary peak demands of commercial, retail, café and residential visitors. There are two lower levels for 60 spaces (including 4 double stacked).

The total provision of 85 appears adequate in total compared to required total of 84 spaces. However, respective location, distribution and allocation is critical for effective and convenient use.

A minimum of 19 spaces at the ground level should be maintained for commercial users (including all gross leasable areas including storage) and for sharing by resident visitors. The 'public' eastern accessway provides 16 spaces. The 'private' western accessway serves 9 spaces at the ground level.

The 'public' area is 3 short plus the demand is compounded with the significant loss of on-street parking (8 or more spaces) through traffic movement consequences in Hart Avenue. Most or all of the 9 western spaces should be allocated to address the overall public commercial / visitor requirements and compensate for the significant loss of on-street parking along the sites frontage.

The remaining 60 or so spaces in the lower levels should be allocated to serve the 59 apartment residents needs. The double stacked spaces should only be allocated to the same dwelling.

One disable space is provided at ground level but based on 1 space per 25 spaces there should be a total of 3, ie a further 2 within residents area.

The design dimensions of the internal parking isles, space width, clearances to walls and dead-ends and pedestrian movements to stairs, lifts, walkways and lobby are insufficient to function effectively. Consequently the number of spaces is likely effectively less than nominated. Dimensions and clearances, particularly for ground level visitor higher turn-over areas, should be closely reviewed and reconfigured.

Bicycle parking is provided for 8 public visitors in ground level carpark, 28 racks for employees / occupants in basement carpark plus room in each apartment's storage area. This exceeds policy requirements.

Waste Servicing

The Waste Management Plan proposes adequate capacity but only a minimalist approach to waste management. A range of changes and improvements to the current proposed development design are suggested to meet the identified reference document SA Better Practice Guide for Waste Management for Residential and Mixed use Developments (Zero Waste). A much better outcome in relation to waste management could be achieved and ultimately reduce the amount of material going to land fill and reduce the waste collection traffic movements associated with the development.

This would include such common practices as:

- Allocate 15m² for hard storage area to address this neglected waste stream;
- Upgrade single chute with diverter to a minimum of two separate chutes to ensure the proper separation of general and recyclable waste streams;
- Incorporate a separate kitchen caddy system for each resident to capture food and organic matter which could then be presented at the central collection point;
- The waste storage and collection room having the ability to compact material within collection bins to maximise capacity and reduce collection frequency;
- Use of larger 1100L bins wherever possible to reduce number of required bin collections from potential 13 to 9 (or less if undertake above);
- Waste collection, storage and chute rooms being consolidated and conveniently located to avoid current separate locations that create conflict with moving bins across the carpark area and accessways.

Waste vehicle servicing is to occur from Hart Avenue, and involves the vehicle stopping in the street and reversing into western accessway to service on-site bin storage in the ground level carpark. This is not ideal, but tolerable with operational management to limit service times, eg limit service times to 7.00am to 7.00pm Monday to Saturday but excluding peak traffic times of 7.00-9.00am and 3.00-6.00pm Monday to Friday. Further, bin capacity should be maximised to reduce the number of required collections.

While not guaranteed, if there is cooperation with future development to the south the accessway may be able to extend to Opey Avenue, which may provide drivethrough circulation and avoid the need for reversing in the street.

Stormwater Management

The existing development has 97% impervious (3% pervious) whilst the proposed development is 99% impervious (1% pervious) site coverage.

A marginal difference but council requirements have been noted to re-use stormwater run-off on-site via provision of a retention tank (10,000L) to service landscape irrigation – the reuse of retained water could be increased by additional landscaping and use in toilets and hot water etc.

The desired maximum runoff flow rate for commercial development is the equivalent of 80% impervious (20% pervious). A detention tank (14,000L) is proposed with throttled discharge to appropriately reduce the peak storm flow to the required rate.

The outflow is proposed through 5 outlets of 8 litres per second to Unley Road and Hart Avenue to address 1:10 year ARI events. Outflow outlets should desirably be kept below 4 to 5 l/s which means 8 outlets is required. These should be distributed equi-distant and as generously separated as possible along both the Unley Road

and Hart Avenue street frontages. The closest stormwater main is across Unley Road making a direct connection impractical.

Water quality issues are limited. Stormwater is mostly roof run-off, with gross pollutants able to be settled out through the tanks. The driveway and paved surfaces could lead to more pollutants but these are to be treated via grated sump traps.

Planning Consent Conditions

In the event approval is contemplated there are various issues that have been identified where planning conditions are warranted, as follows:

- Caparking design and dimensions be reviewed to improve convenient and efficient on-site circulation, space useability and conformity with AS2890;
- Car parking on-site be allocated to ensure a minimum of 19 spaces at ground level are available without any gates or other restrictions for commercial and residential visitors and 65 spaces are available for residents, with any double stacked spaces allocated to the same dwelling;
- Overlooking of adjacent and more remote private habitable areas, provided by the range of lower to higher building levels, towards the south west through to the north west be minimised by further design and mitigation techniques to external window and balcony placement, orientation, vertical and horizontal screening;
- Waste and servicing vehicles be a maximum length of 8.8 metres and enter from, and exit to, Unley Road and via a right turn in to Hart Avenue to ensure the most effective turn path geometry and least impacts;
- Waste and service vehicles only visit the site between 7:00am to 7:00pm Monday to Saturday, excluding public holidays and peak traffic periods between 7:00 to 9:00am and 4:00 to 6:00pm Monday to Friday;
- The Waste Management Plan recommended changes and improvements to the current proposed development design in accord with the SA Better Practice Guide for Waste Management for Residential and Mixed use Developments (Zero Waste) be incorporated; waste storage and collection rooms being consolidated; compactor included to maximise storage and use of larger 1100L bins wherever possible to reduce the number of required collections per week to 9 or less;
- Public realm configuration, alterations and damage in relation to footpaths, verges, encroachments, outdoor dining, crash protection, street trees etc are to be resolved with, and approved by, the Council at the expense of the owner/applicant;
- Stormwater management on-site be in accord with the submitted details otherthan the outlets to the street being limited to 4 to 5 litres per second each and a maximum of 8 outlets that should be distributed equi-distant and as generously separated as possible along both the Unley Road and Hart Avenue street frontages to the satisfaction of council;

- A Construction Management Plan be resolved with Council to guide the requirements and operations during construction to avoid traffic, parking, pedestrian and amenity issues.
- It is requested a Note be added indicating pursuant to the policy of the City of Unley On-street Parking Exemption permits are not issued for occupants of new development (post 2013).

Public Consultation

Development located on 'adjacent land' (adjoining or within 60 metres directly across a street) to a residential zone and three (3) or more storeys in height is subject to Category 2 public notification.

DPTI have initially determined the Public Notification status as Category 1 (no notice). This is because the subject development site is not considered to directly affect 'adjacent land' within the residential zone, ie adjoins 3 Hart Avenue and directly faces 2 Hart Avenue which are within the Urban Corridor Zone.

This has been challenged as the interpretation and typical practice adopted by Council's Development Management suggests it is Category 2 (direct advice but no appeal rights). This is because there are dwellings on 'adjacent land' within the Residential Zone when the radius of 60 metres is applied to the west across Hart Avenue, ie Numbers 6, 8 and 10 Hart Avenue.

Category 2 notice involves advice and the opportunity to make representations within 10 business days to owners of directly adjacent land (adjoining properties or across a road within 60 metres). No advice or obligation to hear other representors is afforded. No third party appeal rights exist.

The public notification categorisation is being reconsidered by DPTI and advice is being awaited on a final determination.

If the application becomes Category 2 the requisite public notification process will be a separate matter. It will allow neighbours to make their own comments.

Because of Council's inability to materially influence the outcome of this application, it is not the relevant planning authority and without control of the application, it is not appropriate for Council to conduct engagement or publically release any information. Any questions or information sought by residents needs to be referred to DPTI, CBD & Inner Metro Team, Strategic Development Assessment.

Conclusion

The development proposal is of great interest to Unley residents, particularly those in close proximity to the site.

The Council is not the assessing authority, and only an informal referral agency able to make comments. It is therefore appropriate that Council concentrate on the

specific areas of direct control while raising its concerns regarding the most significant divergences from the planning policy parameters.

The nature of the large scale mixed use development accords with the Urban Corridor Zone policy. However the highlighted areas of concern with planning design and council infrastructure matters should be addressed as part of the expected comprehensive assessment by SCAP.

Enquiries

If there are any queries or need for further explanation or information please contact David Brown, Principal Policy Planner, dbrown@unley.sa.gov.au or 8372 5185.

Yours sincerely

Peter Tsokas

CHIEF EXECUTIVE OFFICER

State Commission Assessment Panel G.P.O. Box 1815, ADELAIDE SA 5001

Dear Sir,

I advise that this Agency has the attached/ne report to make on the proposed development described below.

Reporting Officer - David Brown - PRINCIPAL POUCY PLANNER

9/10/2617

Date
(Received 28/8/2017)

Type

Hundred

CITY OF UNLEY Council

090/M008/17 (APPIAN ID 2397) Application Number

MERIT

CATCORP PTY LTD Applicant

244-246 UNLEY ROAD, UNLEY Locality

ADELAIDE

KARL WOEHLE Planner



GPO Box 1815, Adelaide SA 5001 Ph: 7109 7060

Reference Contact Officer Telephone 11833486 Karl Woehle 71097169

23 August 2017

Dear Sir/Madam

INFORMAL REFERRAL

The Development Assessment Commission has received the development application described below (all relevant documentation is attached). The Commission is seeking comment from your Council to assist it in reaching a decision and would appreciate a response within 6 weeks of receipt of this correspondence. Should no report be received by the Commission within that period the Commission will deem that you have no comments to make on the proposal.

Council's comments will not include a full planning assessment of the application, but may include comments on any local strategic issue, policies or plans. This may include comments on proposed policy amendments, planned public realm improvements, traffic management, waste services, encroachments, local heritage issues or the like for consideration by DAC. Council may also make brief observations in relation to planning assessment matters from a local perspective to highlight key issues that may require further analysis / assessment by DAC assessing officers.

Your co-operation in using the attached form when replying would be appreciated.

Yours faithfully,

For DEVELOPMENT ASSESSMENT COMMISSION

Council

CITY OF UNLEY

Application Number

090/M008/17 (APPIAN ID 2397)

Type

MERIT

Applicant

CATCORP PTY LTD

Locality

244-246 UNLEY ROAD, UNLEY

Hundred

ADELAIDE

Planner

KARL WOEHLE

Unley !

12 January 2018

The Secretary
State Commission Assessment Panel
GPO Box 1815
ADELAIDE SA 5001

Attention: Karl Woehle

Planning Officer

CBD & Inner Metro Team

Strategic Development Assessment

Planning and Development

Department of Planning, Transport and Infrastructure

Dear Sir/Madam

INFORMAL REFERRAL - FURTHER COMMENTS ON AMENDMENTS DA 090/M008/17 (APPIAN ID 2397) - 244-246 UNLEY ROAD UNLEY

Thank you for the opportunity to further review the applicants response to the public consultation, agency advice and informal council referral comments (9 October 2017) on the above-mentioned application to assist the assessment process.

The information forwarded on the 18 December 2017 to the contact officer was not able to be reviewed until after the 8 January 2018 upon their return from leave leading to the delay in this response.

Council wishes to provide further comment on key matters not addressed as part of the applicant's response and re-design that require greater consideration and assessment.

Concerns remain with the degree of variation from key planning policy parameters and impacts upon local road public realm and infrastructure of the proposed development at 244-246 Unley Road, Unley, that require further consideration as part of the assessment process, including:

Building height to 7 storeys (24.5 metres) versus policy of 5 storeys (18.5 metres) represents a substantial variation (more than 30%) over derived policy height, desired corridor urban design and scale, expectations resolved with community through policy amendment process and visual dominance from adjacent outlooks;

- Unley Road context framed on maximum of 5 storeys with intended intensification and rise in scale within District Centre to 5 to 7 storey in dominant southern half (7 to 9 storey only in portion north of Arthur Street);
- Building setback at ground level of 2 metres from Hart Avenue (from 20 metres from Unley Road alignment) is not provided whereby there could be relief and articulation to building mass in streetscape and further site landscaping opportunities;
- Public Realm disruption by virtue of building intensity, lack of relief and servicing needs (waste trucks) leading to a major loss of on-street parking potential, compounded by current high demand and inadequate proposed on-site parking, and impact and potential for street trees. A comprehensive traffic and parking study will be required to address the appropriate configuration and management within Hart Avenue;
- Outdoor dining only indicated as notional vision (but overhead portal encroachment in Hart Avenue still included on elevations – any encroachment needs to be excluded from planning approval) but as previously outlined there will be severe limitations to ability for encroachment given narrow road width, vehicle movement requirements and essential design parameters for road reserve;
- Overlooking, within development but particularly to adjoining low density high amenity residential areas, requires minimisation by effective design, interruption and screening, not only just distance (30 metres) which is effective in 2 storey scenarios but not from higher viewing aspects, ie 3 to 5 or 7 storeys;
- On-site parking provision, allocation, design and dimensions not fully addressed. The intensity of development is excessive and has been increased by 80m² of additional shop floor space (610 to 690m² albeit from scaling plans appears applicable 'gross leasable' or 'total floor area' may be more like 710m²) while the available ground level visitor parking has been reduced (25 to 18 spaces assume claimed 19th space is in south east corner but this is required as turn-around space for dead-end isle) to create a shortfall of 3 visitor spaces per already favourable discounted mixed use standards (further discounting is unwarranted).

The provision will not take account of extra demand from a potential outdoor dining area.

While in accord with standards, it is noted 3 dwellings will have no on-site parking (52 individual spaces and 4 double stacked spaces provides access for 56 dwellings out of the 59 proposed).

Any on-site shortfall is significant and compounds the problems with inadequate and major loss of potential on-street parking. Development intensity (shop floor area and building scale) should be reduced accordingly;

 Site landscaping and environmental sustainability is lacking, with required 7% for deep soil zone and medium to large trees not addressed within design, creating a harsh and hot local amenity.

Council has delegated to the Chief Executive Officer or his nominee(s) the authority to negotiate appropriate outcomes in regard to street trees, future public realm upgrades, canopy encroachments and outdoor dining arrangements should the application be approved and these matters pursued.

Any approval should include a range of reinforcing conditions, including:

- Caparking design and dimensions be reviewed to improve convenient and efficient on-site circulation, space useability and conformity with AS2890;
- Ground level on-site car parking not be allocated in any way, be well signed and remain freely available for visitors at all times;
- Overlooking minimisation to adjacent low-density residential properties be improved by a range of mitigation techniques;
- Waste and service vehicles (maximum 8.8 metres length) only visit the site between 7:00am to 7:00pm Monday to Saturday, excluding public holidays and peak traffic periods of 7:00 to 9:00am and 4:00 to 6:00pm Monday to Friday;
- Waste Management to accord with the SA Better Practice Guide for Waste Management for Residential and Mixed use Developments (Zero Waste) and larger 1100 litre bins be used to reduce the number of required collections;
- Public realm re-configuration and damage be resolved with, and approved by, the Council at the expense of the owner/applicant;
- Stormwater management on-site accord with submitted details with a maximum of 8 outlets distributed equi-distant along Unley Road and Hart Avenue frontages;
- A Construction Management Plan be resolved to guide the requirements and operations during construction to address traffic, parking, pedestrian and amenity issues.

In addition it should be added as a note that pursuant to Council's policy it will not grant 'On-street Parking Exemptions' from parking time limits to any new residential premises.

The nature of the large scale mixed use development generally accords with the Urban Corridor Zone intent. However, the highlighted areas of concern with planning design and council infrastructure matters should be addressed as part of the expected comprehensive assessment by State Commission Assessment Panel.

If there are any queries or need for further explanation or information please contact David Brown, Principal Policy Planner, dbrown@unley.sa.gov.au or 8372 5185.

Yours sincerely

Peter Tsokas

CHIEF EXECUTIVE OFFICER



20 October 2017

4 Hart Avenue Pty Ltd - C/ JSA Management Pty Ltd Level 1 86 Pirie Street ADELAIDE SA 5000 State Commission Assessment Panel

Level 5 50 Flinders Street Adelaide SA 5000

GPO Box 1815 Adelaide SA 5001

087109 7061

Dear Sir/ Madam

Application Number:

Applicant:

Proposed Development:

090/M008/17

Catcorp Pty Ltd C/- FutureUrban Group

Mixed use building comprising of

commercial/retail tena ncy, residential apartments, carparking, landscaping and

associated site works

Subject Land:

244 - 246 Unley Road, Unley

As an adjoining owner/person potentially affected by the ab ovedevelopment application, you are invited to view details of the application and make comment.

The application may be examined between 26 October 2017 and 8 November 2017 during normal business hours at the office of the State Commission Assessment Panel (SCAP), Level 5, 50 Flinders Street, Adelaide and at the office of the City of Unley.

The application documentation will also be available on the (http://www.saplanningcommission.sa.gov.au/scap/public Inotices during the notification period.

If you wish to comment on the application please complete the attached form. This must reach the Secretary, State Commission Assessment Panel, GPO BOX 1815, Adelaide SA 5001 by no later than Close of Business 8 November 2017.

You may be given an opportunity to appear before the SCAP to further explain your views. You will be contacted should a hearing be arranged.

If you have any questions relating to this matter I can be contacted by telephone on **71**09 7169 or via email karl.woehle@sa.gov.au

Yours sincerely

Karl Woehle Planning Officer

On behalf of

STATE COMMISSION ASSESSMENT PANEL

SOUTH AUSTRALIAN DEVELOPMENT ACT, 1993 REPRESENTATION ON APPLICATION – CATEGORY 2

Applicant:	Categra Bty Ltd C/- Eutura Urban Group			
Development Number:	Catcorp Pty Ltd C/- Future Urban Group 090/M008/17			
Nature of Development:	Mixed use building comprising of commercial/retail tenancy, residential			
Mature of Development.	apartments, carparking, landscaping and associated site works			
Type of development:	Merit			
	High Street Policy Area 20 in the Urban Corridor Zone			
Zone / Policy Area:	244 – 246 Unley Road, Unley			
Subject Land:	Karl Woehle			
Contact Officer:	······································			
Phone Number:	7109 7169			
Close Date:	8 November 2017			
My name: Jimsan Tan				
My phone number:	45 886			
PRIMARY METHOD(s) OF CONTACT	: Email address: jonsen.mven@gmail.com			
	Postal address:			
	Postcode			
	Postcode			
occup	r of local property oler of local property resentative of a company/other organisation affected by the proposal ate citizen			
Please see attac	h letter.			
Should the State Commission Asses	sment Panel conduct a public hearing for this Development Application:			
🔀 do no	to be heard in support of my submission ot wish to be heard in support of my submission se tick one)			
belng	aring personally grepresented by the following person: se tick one)			
Date 7/11/17	Signature			
Return Address: The Secreta scapadmin@sa.gov.au.	ry, State Commission Assessment Panel, GPO Box 1815, Adelaide SA 5001 or			

Attn: Karl Woehle Via The Secretary State Commission Assessment Panel GPO BOX 1815 Adelaide SA 5001

To Karl,

RE. CATEGORY 2 REPRESENTATION FOR DEVELOPMENT APPLICATION 090/M008/17 AT 244-246 UNLEY ROAD, UNLEY.

As owner of the land at 4 Hart Avenue, we write to the State Commission Assessment Panel to express our full support for the proposed development at 244-246 Unley Road, Unley (Development Application 090/M008/17).

As the development site is within close proximity to public transport, local services and areas of public open space, we believe it is deserving of the height and scale proposed. We support the external design of the building as it respects the existing scale of Unley Road and does not unreasonably impact adjacent properties, whilst also seeking to achieve the greater housing mix and densities envisaged for the location. In addition, we believe and hope the development will inspire further revitalisation and investment along Unley Road to assist in activating the roadway.

The extensive hanging landscaping in the atrium area will be a point of difference for this building. We believe future residents will find this exclusive feature very appealing and they will be proud to be associated with this unique feature.

In addition to the above, we also support the following aspects of the proposal:

- The continued use of commercial tenancies fronting Unley Road.
- The quality apartment offerings, allowing flexible floor plans with additional rooms for uses other than bedrooms.
- The provision of more than adequate storage, private open space, natural ventilation, natural sunlight and energy efficient initiatives (achieving a 7 Star average NatHER rating).
- Provision of at least one car parking space to each dwelling.
- Provision of shared visitor and commercial car parking.
- Provision of ample bicycle parking.

We urge the SCAP to approve the proposed development as we believe that the benefits the building will bring to the Unley community clearly outweigh any short term inconveniences.

Sincerely.

Jonsen Tan

Philip Goodyer

2 Hart Ave Unley SA 5061

8th November 2017

The Secretary
State Commission Assessment Panel
GPO Box 1815
ADELAIDE SA 5001

Email Address: scapadmin@sa.gov.au

Development Number 090/M008/17, 244 – 246 Unley Road, Unley

For the Attention of Karl Woehle

Dear Sir,

My name is Philip Goodyer of 2 Hart Ave Unley, phone 0417 823 297. I do not wish to be heard in support of this submission.

I am a local property owner and resident. The address of the property affected is 2 Hart Ave Unley.

I write in support of the application, with **one very negative observation** regarding the design quality of proposal at ground floor level, the streetscape impact to Hart Ave and the lack of landscaping.

Qualifications

I am a registered Architect in South Australia and, although resident in Unley for over 35 years, I am the Design Director for Manhattan Loft Corporation, a major residential and mixed use developed in London, UK.



Further details may be found at the company website: manhattanloftcorporation.co.uk

I currently work 3 weeks in Adelaide - 3 weeks in London on an alternating basis.

For the last 5 years I have been responsible for the design of Manhattan Loft Gardens, a 42 storey development incorporating 248 apartments and a 7 storey hotel.



Further details may be found on the project website <u>manhattanloftgardens.co.uk.</u>

Submission

I support the 246 Unley Road Development Application overall, including the scale of the development and the design quality above street level. However the design at street level is **poor** and **not in accordance** with the Development Plan, particularly the Development Plan Amendment "Inner and Middle Metropolitan Corridor (Design) Development Plan Amendment" with Date of Operation of 30th May 2017.

Analysis

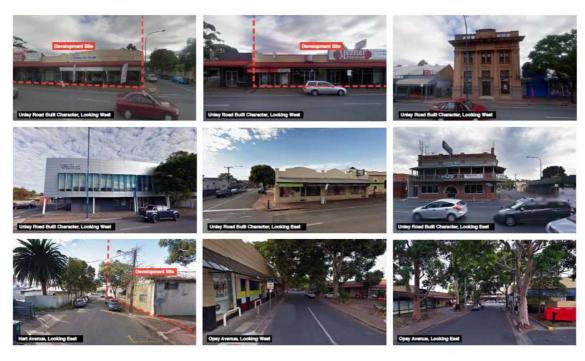
It is disappointing, and surprising, that the Urban Context analysis included in the Application makes no reference to 2 Hart Ave, the only private residential property directly adjacent to the proposed development.

Urban Context

Site Conditions

Unley Road

The site proposal fronts two key attracts of variable built and urban character. Unlay Board on the Eastern side and Ocean Street on its Monthern



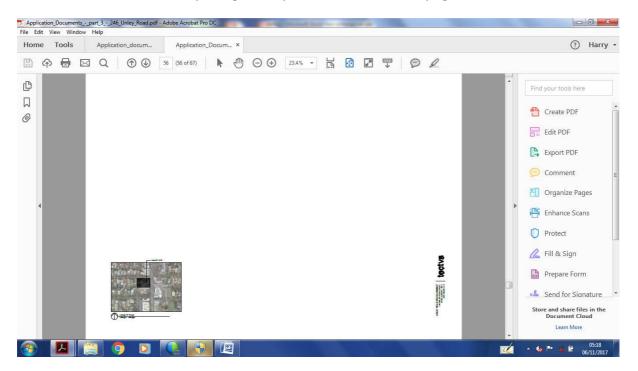
2 Hart Ave, shown below, is directly adjacent the proposed development and is not considered in the Urban Context analysis.



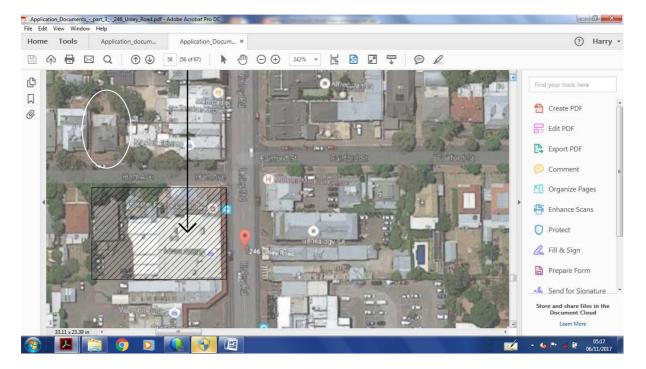
In fact, the analysis incorrectly refers to "Opey Street" to the north.

246 Unley Road

The only drawing indicating the relationship of the proposed development to the adjacent residence at 2 Hart Ave is a postage stamp sized aerial view on page 56 of Part 3:



I have blown this up below with 2 Hart Ave circled.



and a google earth image on page 17 of the introduction.

It should be noted that the properties to the north of Hart Ave within the Urban Corridor Zone are in approximately 13 ownerships and as such the existing urban scale and uses are likely to remain for a considerable time.

Unfortunately, I believe this paucity of analysis contributes to the poor quality of the street level design of the proposal.

The proposed street level design on Hart Ave

The ground floor of the Development Application proposal facing the residential area of Hart Ave consists of:

- a 2-way cross vehicle cross over
- a further 2-way vehicle cross over
- a bin store and bin wash area
- "services" zones
- the blank rear elevation of a "store"
- views to carparking

and

vacant land to the west with no identified use.

The more western of the cross-overs is noted as the "open air bin removal area" (and hence open air rubbish truck area) and appears to be the only location provided for retail loading and unloading.

The vacant land appears to be arranged for casual carparking. It cannot be acceptable that no use is proposed for this part of the Application site.

Further east on Hart Ave there is the side of one retail unit and an "outdoor seating area".

The outdoor seating area shown on the plans (apart from being on public land and only achievable with the loss of significant parking and loading areas on both sides of Hart Ave) appears to not be a commitment by the developer and in fact "subject to further consultations with the City of Unley Council for their ultimate approval as these changes affect the public realm." I believe it is highly unlikely this seating area will be approved by Unley Council and its contribution to the Application should therefore be ignored.

No landscaping is proposed in the Application on Hart Ave at street level.

Requirements of Development Plan Amendment "Inner and Middle Metropolitan Corridor (Design) Development Plan Amendment" with Date of Operation of 30th May 2017.

The recent Development Plan Amendment places greater emphasis on urban context (existing) and high quality landscape:

ATTACHMENT C

Medium and High Rise Development (3 or More Storeys)

OBJECTIVES

- # Medium and high rise development that provides housing choice and employment opportunities.
- # Residential development that provides a high standard of amenity and adaptability for a variety of accommodation and living needs.
- # Development that is contextual and responds to its surroundings, having regard to adjacent built form and character of the locality and the Desired Character for the Zone and Policy Area.
- # Development that integrates built form within (high quality landscapes) to optimize amenity, security and personal safety for occupants and visitors.

Design and Appearance

Buildings should be designed to respond to key features of the prevailing local context within the same zone as the development. This may be achieved through design features such as vertical rhythm, proportions, composition, material use, parapet or balcony height, and use of solid and glass.

together with greater emphasis on street level interest and activity:

- # Development that enhances the public environment, provides activity and interest at street level and a high quality experience for residents, workers and visitors by:
 - (a) enlivening building edges
 - (b) creating attractive, welcoming, safe and vibrant spaces
 - (c) improving public safety through passive surveillance
 - (d) creating interesting and lively pedestrian environments
 - (e) integrating public art into the development where it fronts the street and public spaces
 - (f) incorporating generous areas of high quality fit for purpose landscaping.

I have highlighted above the elements of this clause which the Application fails to provide.

This is a **significant departure** from the requirements of the Development Plan.

The Amendment continues with greater detail on the requirements for Street Interface, and again the proposal fails to meet these requirements (as highlighted) on Hart Avenue:

Street Interface

- # Development facing the street should be designed to provide attractive, high quality and (pedestrian friendly street frontage(s) by:)
 - (a) incorporating active uses such as shops or offices, prominent entry areas for multi-storey buildings (where it is a common entry), habitable rooms of dwellings, and areas of communal public realm with public art or the like where consistent with the Zone and / or Policy Area provisions
 - (b) providing a well landscaped area that contains a deep soil zone space for a medium to large tree in front of the building (except in a High Street Policy Area or other similar location where a continuous ground floor façade aligned with the front property boundary is desired). One way of achieving this is to provide a 4 metre x 4 metre deep soil zone area in front of the building
 - (c) designing building façades that are well articulated by creating contrasts between solid elements (such as walls) and voids (for example windows, doors and balcony openings)
 - (d) positioning services, plant and mechanical equipment (such as substations, transformers, pumprooms and hydrant boosters, car park ventilation) in discreet locations, screened or integrated with the façade
 - (e) ensuring ground, semi-basement and above ground parking does not detract from the streetscape
 - (f) minimising the number and width of driveways and entrances to car parking areas to reduce the visual dominance of vehicle access points and impacts on pedestrian areas.

There are many other aspects of the street level design which are poor, for example

- A complete lack of landscaping at ground floor level on Unley Road.
- No boulevard planting on Unley Road.
- Limited verandahs on Unley Road.
- Limited shelter for bus stop

Ironically the precedents for "Massing Opportunities" provided in the Design Response section in the Application document are not carried through to the design:









other than the bottom left image, which provides a particularly poor street level environment and interface with the adjacent zone:



I can only think the above may have been included as an example of designs to be avoided!

Alternative Proposal

An acceptable proposal would:

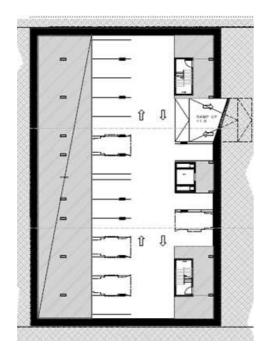
- animate the street frontage to Hart Ave
- provide landscaping
- provide outdoor seating (if this is desired) within the application boundary
- minimise crossovers
- conceal or screen ground level parking
- move rubbish removal further into the site
- provided dedicated delivery parking

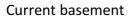
Purely to illustrate these proposal one way in which this could be achieved with no loss of carparking is shown below.

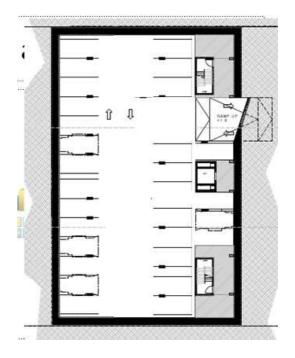


Of course there are many ways in this the requirements of the Development Plan at street level could be achieved and this is only one example.

If an alternative use for the land on the west side of the Application is envisaged additional parking could be provided at basement level with no change to the retaining wall locations shown on the plans:







Alternative layout with additional parking

Conclusion

The Development Application fails to meet the requirements of the Development Plan in respect of public environment, street interface and landscaping.

Yours Sincerely,

PR Goodye

Philip Goodyer

Attn: Karl Woehle Via The Secretary State Commission Assessment Panel GPO BOX 1815 Adelaide SA 5001

Dear Karl,

CATEGORY 2 REPRESENTATION FOR DEVELOPMENT APPLICATION 090/M008/17 AT 244-246 UNLEY ROAD, UNLEY.

I write as the owner of the Cremorne Hotel at 207 Unley Road, Unley which is located opposite the development proposed at 244-246 Unley Road, Unley (Development Application 090/M008/17).

The purpose of this representation is to convey my full support to the State Commission Assessment Panel. I am encouraged by the significant investment made which will support Unley Road businesses.

Whilst the proposed height exceeds 5 storeys, it is a significant improvement on the previously approved design. The design represents design excellence and will not present any negative impacts upon the character or amenity of the locality.

As the development site is located within close proximity to public transport, local services and areas of public open space I believe the overall height and scale is warranted. The height will sit comfortably in the street while the base of the building will respect the existing lower scale.

The housing mix, additional population and business the development will bring to Unley is supported and will only inspire other property owners, including myself, to positively contribute to further investment along Unley Road.

The overall design of the building, including the interesting internal landscaped space and the sensitive approach to Hart Avenue is commended. Currently redeveloping the Bath Hotel, I appreciate the need to create a point of difference and I believe future residents will find this exclusive feature very appealing.

In addition to the above, I also support:

- The active Unley Road frontage;
- The flexibility offered in apartment floor plans particularly the provision of the additional room that could be used for a range of uses that will appeal to purchasers;
- The storage and private open space allocation:
- The achievement of 7 Star average NatHER rating;
- Provision of car parking that exceeds the Development Plan requirements including shared visitor and commercial car parking and adequate bicycle parking.

Overall, I am very excited by this development. As key land owner and business along Unley Road, the development will only bring positive benefits to the community, businesses and other property owners that are contemplating development in the future.

The SCAP needs to support this type of development to rejuvenate Unley Road, encourage further investment and vitality to the area for the betterment of the community.
Yours sincerely,
Tony Franzon



20 October 2017

State Commission Assessment Panel

8687 Cremorne Pty Ltd and 85 Cremorne Pty Ltd
- C/ JSA Management Pty Ltd
Level 1 86 Pirie Street
ADELAIDE SA 5000

Level 5 50 Flinders Street Adelaide SA 5000

GPO Box 1815 Adelaide SA 5001

08 7109 7061

Dear Sir/ Madam

Application Number:

Applicant:

Proposed Development:

090/M008/17

Catcorp Pty Ltd C/- Future Urban Group

Mixed use building comprising of

commercial/retail tenancy, residential apartments, carparking, landscaping and

associated site works

Subject Land:

244 - 246 Unley Road, Unley

As an adjoining owner/person potentially affected by the above development application, you are invited to view details of the application and make comment.

The application may be examined between 26 October 2017 and 8 November 2017 during normal business hours at the office of the State Commission Assessment Panel (SCAP), Level 5, 50 Flinders Street, Adelaide and at the office of the City of Unley.

The application documentation will also be available on the SCAP website (http://www.saplanningcommission.sa.gov.au/scap/public_notices) during the notification period.

If you wish to comment on the application please complete the attached form. This must reach the Secretary, State Commission Assessment Panel, GPO BOX 1815, Adelaide SA 5001 by no later than **Close of Business 8 November 2017.**

You may be given an opportunity to appear before the SCAP to further explain your views. You will be contacted should a hearing be arranged.

If you have any questions relating to this matter I can be contacted by telephone on 7109 7169 or via email karl.woehle@sa.gov.au

Yours sincerely

Karl Woehle Planning Officer On behalf of

STATE COMMISSION ASSESSMENT PANEL

SOUTH AUSTRALIAN DEVELOPMENT ACT, 1993 REPRESENTATION ON APPLICATION – CATEGORY 2

· .

Applicant:	Catcorp Pty Ltd C/- Future Urban Group			
Development Number:	090/M008/17			
Nature of Development:	Mixed use building comprising of commercial/retail tenancy, residential			
	apartments, carparking, landscaping and associated site works			
Type of development:	Merit			
Zone / Policy Area:	High Street Policy Area 20 in the Urban Corridor Zone			
Subject Land:	244 – 246 Unley Road, Unley			
Contact Officer:	Karl Woehle			
Phone Number:	7109 7169			
Close Date:	8 November 2017			
My name: jan Ma				
My phone number:				
PRIMARY METHOD(s) OF CONTACT:	Postal address: <u>Jikowa 03(0) Gwoal</u> (014) Postal address: Jaw Park			
	Postcode			
occupie a repres a privat The address of the property affected The specific aspects of the application	of local property ser of local property sentative of a company/other organisation affected by the proposal se citizen is			
	ment Panel conduct a public hearing for this Development Application:			
X do not	o be heard in support of my submission wish to be heard in support of my submission a tick one)			
being r	ring personally represented by the following person: etick one)			

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide SA 5001 or scapadmin@sa.gov.au.

Attn: Karl Woehle Via The Secretary State Commission Assessment Panel GPO BOX 1815 Adelaide SA 5001

To Karl,

RE. CATEGORY 2 REPRESENTATION FOR DEVELOPMENT APPLICATION 090/M008/17 AT 244-246 UNLEY ROAD, UNLEY.

As owner of 248 Unley Road, Unley, I write in support of the proposed development at 244-246 Unley Road, Unley (Development Application 090/M008/17).

I am supportive of the proposed development for the following reasons:

- 1. The height of the proposed development will not result in any unacceptable impacts on residential amenity by way of overshadowing, overlooking or visual impacts.
- 2. The presentation of the building to Hart Avenue is considered to be a substantial improvement.
- 3. The proposed height supports the development which achieves a greater variety of apartment sizes.
- 4. Increased densities are appropriate on this site in respect of its proximity to public transport, local services and areas of public amenity.
- 5. The ground level commercial tenancies will refresh the existing streetscape presentation, and support much needed activation along Unley Road.
- The design and appearance of the building acknowledges the existing scale and character along Unley Road, whilst also supporting increased building heights and contemporary design.
- 7. The internal amenity provided via the landscaped atrium is anticipated to contribute significant amenity for the future occupants of the dwelling to enjoy.
- 8. The mix of apartments is appropriate, and the apartments themselves are appropriately designed with adequate floor areas, private open space, internal storage, natural light and ventilation, and noise controls.
- 9. The building is highly energy efficient, aiming to achieve a 7 Star average NatHER rating in addition to other ratings.
- 10. Sufficient car and bicycle parking has been provided to the development to accommodate the Development Plan rates and existing market demands, whilst also encouraging alternative forms of transport such as bicycles.

Overall, the development will act as a catalyst to commence a much needed revitalisation process along Unley Road and encourage other property owners and investors to deliver high quality development outcomes.

I do not wish to be heard in support of my representation.

Sincerely,

19 December 2017

Mr Karl Woehle Planning Officer - CBD & Inner Metro Team Department of Planning, Transport and Infrastructure Level 5, 50 Flinders Street Adelaide SA 5000



Level 1, 89 King William Street GPO Box 2403 Adelaide SA 5001 PH: 08 8221 5511 E: info@futureurbangroup.com W: www.futureurbangroup.com ABN: 34 452 110 398

Dear Karl,

246 UNLEY ROAD, UNLEY

We write in response to representations received during category 2 public notification and comments received from the City of Unley ("Council"), Office of Design and Architecture (SA) ("ODASA") and the Department of Planning, Transport and Infrastructure ("DPTI").

We have been provided with a total of nine (9) representations of which four (4) are valid. Of the valid representations, only the representation prepared by Mr Philip Goodyear opposes a component of the development. The remaining three (3) representations are in support of the proposal.

First, we will respond to Mr Goodyear's representation followed by the Council and agency comments.

Response to Mr Philip Goodyear

Mr Goodyear supports the application with one negative observation which relates to the design quality of the ground level, the streetscape impact to Hart Avenue and the lack of landscaping proposed.

In response to Mr Goodyear's concerns, the proposal has been amended as follows:

- removal of one two-way crossover;
- introduction of an active retail shop along Hart Avenue;
- provision of landscaping (albeit temporary) adjacent to the future development site and along Hart Avenue to minimise views into the car park area; and
- Width of canopies increased to 1.8m with the exception of the 1.4m wide canopy which will be maintained at the Unley Road/Hart Avenue corner to maintain compliant offsets to the road boundaries.

In addition, as a result of further investigation the transformer has been relocated to Hart Avenue to improve the Unley Road frontage.

In relation to other comments raised by Mr Goodyear, we respond as follows:

- whilst there is no on-site loading zone for the waste truck, waste will still be collected on-site in the access way and not within Hart Avenue;
- the bin store and wash area located adjacent to Hart Avenue is screened from public view;





- there is potential for public realm work to be undertaken along Hart Avenue particularly towards
 Unley Road to accommodate additional landscaping and/or outdoor dining (if the corner tenancy
 will be a restaurant, café or the like). The indicative works shown simply depict a vision. The
 proponent is committed to working with Council to explore this vision for the betterment of the
 public realm once SCAP makes a determination;
- canopies are provided along Unley Road and have been deliberately separated at points to
 reinforce the context of lower scale built form to the north. The extent and increased width of the
 canopies is sufficient to protect pedestrians when walking along Unley Road or when utilising as a
 refuge when waiting for a bus.

Overall, we are of the opinion that the proposed amendments and resultant ground level design is acceptable and the proponent should be commended and encouraged to continue working with Council to improve the public realm.

Response to Council Comments

The Council has made a number of comments which relate to both technical and planning matters. Our response will focus on the technical matters of significance as the planning and design issues will be dealt with by DPTI and ODASA, respectively. However, we do note that ODASA raises similar issues which we will respond to later.

The technical matters relate to encroachments; public realm and street trees; traffic and access; waste servicing; and, stormwater management.

Encroachments

The Council acknowledges that there are elements of the potential public realm works which comply and are inconsistent with its Policy. As previously mentioned, the proponent has simply depicted a vision as a basis to continue formal negotiations once SCAP determines the application.

Footpath Canopies and Outdoor Dining Overhead Portal Structure (Pergola)

The width of the footpath canopies has increased to 1.8m consistent with Council's recommendation. The final detail and design of the pergola structure will be resolved through a separate Council process and should not be intertwined with the planning merits of the proposal.

Public Realm/Street Trees

Upon our inspection of the Queensland Box street tree (Hart Avenue) adjacent to the subject site we note that one branch extending to the south will need to be pruned. The pruning will not adversely affect the health or structural integrity of the tree.

With respect to construction impacts, the proponent will prepare a Construction Management Plan ("CMP") which can be formalised as a condition of Development Plan Consent.

Traffic

Council has undertaken independent modelling and has confirmed that the proposal will only result in a minor impact on traffic in Hart Avenue.

The CMP will deal with traffic during the construction process.





Access

The amended plan addresses Council's concern with respect to the number of access ways along Hart Avenue.

The ground level car park will be open and available for visitors to the development. The basement car park will be provided with a security roller door as the car spaces are dedicated to the residential component of the development.

Car Parking

The Council's primary concerns in relation to the provision of car parking relates to distribution and allocation.

Table Un/5A suggests that non-residential development in the Urban Corridor Zone should be provided with a minimum of 3 vehicle parking spaces per 100 square metres of gross leasable floor area. The amended proposal provides a total of 690 square metres of commercial/retail floor area which generates a demand for 21 car spaces. These can be accommodated within the ground level car parking area plus two on-street car spaces in Hart Avenue. The ground level car park includes one conveniently located car parking space for use by disabled persons (Transportation PDC 24 and PDC 25).

The residential component of the proposed development generates the following car parking demands:

- 20 apartments under 75 square metres in floor area = 15 car parking spaces (0.75 x 20);
- 35 apartments over 75 square metres, but under 150 square metres in floor area = 43.75 car parking spaces (1.25 x 35);
- 4 apartments over 150 square metres in floor area = 7 car parking spaces (1.75 x 4); and
- 14.75 visitor car parking spaces in total (0.25 x 59).

The apartments generate a demand for 66 car parking spaces plus 15 car parking spaces for residential visitors.

60 car spaces are proposed to be accommodated in the basement levels. These 60 car spaces will be allocated to the residential apartments. Specifically, the 4 pairs of stacked car parking spaces located in the basement level will be allocated to apartments which are sold with two car parking spaces. While there is a shortfall of 6 resident car spaces it is important to note the following:

- the location of the subject site in an Urban Corridor Zone;
- accessibility to bus services and a potential future tram service;
- the provision of adequate on-site bicycle parking;
- opportunities for motor cycle or scooter parking within unused spaces in the basement levels.

The 19 ground level spaces will be shared between the non-residential component of the development and residential visitors due to the complementary peak periods associated with these land uses as envisaged by Transportation PDC 29.

Having regard to the above, we are of the opinion that the parking provision, distribution and allocation for the development, is acceptable.



Waste Servicing

The Council has recommended a number of improvements to the waste system and overall servicing arrangement. In response to these recommendations we respond as follows:

- there is no need to provide a dedicated E-Waste storage area as residents will arrange collection on the day and direct with the commercial contractor;
- a single chute with diverter is an acceptable waste system and is common throughout many recently constructed apartment developments;
- residents will be responsible for disposing food organics waste from the apartment to the bin store;
- 1100L bins have been used wherever possible to reduce the frequency of collection which based
 on the Rawtec report is estimated between 9 to 13 waste collection vehicle movements per week
 (subject to whether paper and cardboard is placed in the co-mingled recycling bins, instead of
 having separate collections for these streams);
- waste will be stored in two separate rooms both located on ground level. The eastern waste room contains the waste chute system which is connected to the residential levels above, whilst the other room is used for storage of waste prior to collection and the bin wash down area;
- the applicant will investigate the opportunity with the adjoining owner to the south to extend the
 accessway to Opey Avenue to provide drive-through circulation and avoid the need for reversing
 trucks. This opportunity will be contingent upon the willingness of the adjacent owner and their
 proposal.

Stormwater Management

The applicant is amenable to the SCAP including Council's recommended stormwater management condition

With respect to the balance of conditions recommended by Council we only accept Condition 1, 4, 5, 8 (stormwater as mentioned above) and 9. SCAP is better placed to deal with the content, wording and legitimacy of the other recommended conditions noting that some of them are not enforceable or are only able to be included as notes if the application is granted Development Plan Consent.

Response to ODASA Comments

After reviewing the ODASA comments, we, together with the applicant and Tectvs, held a meeting with DPTI and the Associate Government Architect on 8 November 2017 to discuss the issues raised. We then prepared amended plans and collated additional information to present back to DPTI and the Associate Government Architect's representative on 5 December 2017.

We respond to the key issues raised by ODASA following.

Building Height

The Associate Government Architect has recommended a review of the building height. The proposed development is seven storeys (24.5 metres) exceeding the maximum five storey limit (18.5 metres) prescribed by PDC 12.





Notwithstanding the fact that the Government Architect and Development Assessment Commission previously supported a seven storey building of much larger scale, bulk and mass than that proposed, we are of the opinion that the height of this particular development is acceptable in its existing and future context for the following reasons:

- the substantive component of the proposed building will be 18.5 metres in height (measured from Unley Road ground level to the top of balustrade at Level 5) which is the maximum building height envisaged by Urban Corridor Zone PDC 12;
- the height of the building is moderated through the strong podium element which is sited on the street boundary; the 5.3 metre building setback and 2.3 metre balcony setback above podium level to Level 5; and, the 7.8 metre building setback and 5.3 metre balcony setback of the upper level;
- while the subject site does not adjoin the Residential Streetscape (Built Form) Zone, the overall
 form of the building sits comfortably within the 30 degree building envelope plane anticipated by
 Urban Corridor Zone PDC 13;
- the proposed development is separated from the Residential Streetscape (Built Form) Zone between 32.16 metres (podium) and 37.66 metres (upper levels) which is a considerable distance to mitigate any potential overlooking, overshadowing or visual impacts that may occur as a result of the additional height;
- the subject site is located less than 100 metres south of the newly created Unley Central Precinct which will contemplate buildings of a higher scale than that proposed;
- the proposed development respects the existing low scale context through the strong and prominent podium form and will sit comfortably in the future context which will progressively overtime give rise to a new urban form in accord with the High Street Policy Area;
- there is potential for buildings within the zone to penetrate the Adelaide International Airport Obstacle Limitation Surface as stated in the desired character statement of the Urban Corridor Zone. This height is substantially higher than the proposed building height;
- the 18.5 metre height of the building to Unley Road (measured from Unley Road ground level to
 the top of balustrade at Level 5) relates to the width of the Unley Road carriageway to ensure a
 comfortable human scale is achieved and no overbearing bulk or mass overwhelms the public
 realm;
- the proposed development represents a density of 236 dwellings per hectare which is consistent with Urban Corridor Zone PDC 5; and
- the development will provide housing choice and employment opportunities satisfying Medium and High Rise Development Objective 1.

In addition to the above, there are a number of design features that should be recognised in the context of height, including:

- an accessible, safe and secure linkage is provided off Hart Avenue which has the potential to be integrated with a development on the adjacent southern site;
- all car parking is provided underground or to the rear and screened from the public realm;
- a range of adaptable dwelling types is provided;





- a high quality internal green atrium supported by services that ensure ongoing maintenance is provided which also assists in bringing in natural light and ventilation into the core of the building;
- innovative external shading in the form of green filigree provided to vertical screens has been
 provided along the western side of the building, along with balconies and windows which are
 recessed under the upper level slab;
- a higher level of apartment amenity is provided through the provision of private open space mostly in excess of minimum requirements;
- all habitable rooms and common circulation areas have access to natural light and ventilation.

In consideration of all the above, we have formed the opinion that the height of the proposed building is acceptable from an urban form perspective and warranted through the incorporation of high quality design features.

Hart Avenue Built Form Composition, Activation and Crossover Consolidation

The built form composition along the Hart Avenue frontage has been reviewed and amended as follows:

- removal of one two-way crossover;
- introduction of an active retail shop along Hart Avenue; and
- provision of landscaping and fencing (albeit temporary) adjacent to the future development site and along Hart Avenue to minimise views into the car park area.

As a result of further investigations, the transformer has been relocated to Hart Avenue to improve the Unley Road frontage.

In our opinion, the Hart Avenue frontage has been improved and responds positively to the comment raised by the Associate Government Architect.

Site Context – Existing and Future and Three Dimensional Strategy above Podium Level

Additional information has been provided to demonstrate how the proposed development will sit in its existing and future context. It is important to note in the Tectvs document (enclosed) how the podium relates to existing built form which we consider to contribute positively to the streetscape. The High Street Policy Area requires development to respect the predominant, traditional rhythm of narrow—fronted shop tenancies and the siting, height and street format. The proposal achieves this by:

- incorporating a dominant street level podium building form along Unley Road reflecting a two storey form with the upper levels offset and setback behind to reinforce a comfortable human scale;
- using modern materials and finishes within the podium to complement the key traditional building and shop-front elements including verandahs, parapet facades and clear-glazed narrow shop front displays;
- creating a largely continuous built edge to Unley Road whilst reflecting the traditional narrowfronted tenancies within the podium form reflecting a fine-grain character and detailing; and
- reinforcing the nil street boundary setback to frame the Unley Road corridor.





With respect to the future context, the building form above the podium introduces a three dimensional strategy that is conscious of the traditional rhythm of narrow fronted shop tenancies albeit in a playful and contemporary manner that creates light and shade. The upper level of the building would read as discreet element by being set back. The desired character envisaged for the Urban Corridor Zone supports mixed use development along Unley Road to create a linear corridor that frames Unley Road and which creates an active street frontage. As depicted in the Tectvs document, the proposal achieves the desired character.

It is also important to note that development is expected to be designed within defined building envelopes where buildings at the periphery of the zone are to provide an appropriate height and scale transition to development in adjacent zones of a lower scale and intensity. The overall form of the development satisfies the defined building envelope set out under Urban Corridor Zone PDC 13.

Overlooking

New development within the Urban Corridor Zone is encouraged to mitigate overlooking through the use of building layout, location and design of windows and balconies, screening devices, landscaping and adequate separation between developments (Residential Development PDC 38).

The proposed development has been designed to be separated from the existing dwelling at 3 Hart Avenue, in order to prevent overlooking to a significant degree. At the upper levels, the building has been further setback to increase this separation as the height of the proposed building increases. The building itself is separated from the neighbouring Residential Streetscape (Built Form) Zone between 32.16 metres (podium) and 37.66 metres (upper levels). This considerable distance is anticipated to alleviate any potential issues relating to overlooking and indeed is greater than the minimum separation distance prescribed by Council Wide PDC 39.

In addition, the existing landscaping in the locality (and specifically that surrounding the private open space at 3 Hart Avenue) will also mitigate overlooking.

Respecting the above, we do not consider the potential for overlooking from the proposed development unacceptable, or detrimental to the amenity of residential properties contained within the Residential Streetscape (Built Form) Zone.

Apartment Entry Sequence

The residential lobby design has been amended to provide two secure entry doors from the ground level car park. The doors will be glazed to provide clear lines of sight. The Unley Road entry door will also be secure and glazed.

Podium Expression at NE and SE Corners

The relocation of the transformer to Hart Avenue has enabled a solid edge treatment to the southeast corner whilst opening up the frontage of the tenancy. A solid treatment to the northeast corner has been avoided as this tenancy will require maximum exposure to a potential outdoor dining area.

Overall the expression of the podium element reflects the finer grain character and scale of groupings of shops along Unley Road.

Central Courtyard/Atrium Landscaping

The central courtyard is an open air volume with a light transmitting roof structure above.





Courtyard planters, balcony edge planters and climbing species will be selected to suit not only the microclimate of the courtyard space, but also their relative proximity to the light transmitting roof structure and final growing media depth and materiality.

The central courtyard plants will be selected to suit low light and full to partial shade growing conditions, and will be finalised once the roof material selection and analysis of the light transmission levels can be made. The plant species proposed in the report provides a representation of the look and feel of the plant palette, with the majority of these species anticipated to be utilised in a finalised plant list.

Courtyard planters will vary in heights, ranging from 300mm, 450mm and 900mm, providing a dynamic and changing ground level experience, creating a variety of semi-private and communal spaces within the courtyard space. Raised planters will feature full depth soil profiles, with gravel mulch and irrigation, and will be drained at the base into the buildings hydraulic drainage network. Maintenance to the ground level courtyard planters will include general tidy up of mulch, weeding, periodic inspection of irrigation system, pruning and plant replacement and can be undertaken from within the courtyard space by the community body and formalised through by-laws under the community scheme.

The balcony edge planters will be approximately 300mm depth and will feature lightweight soil, with improved water holding capacity. Planters will feature decorative gravel mulch and irrigation, with an incorporated fertigation system, to minimise maintenance requirements. Balcony planters will utilise a light weight tub system, sitting within a waterproofed tray, which would enable the tub to be removed for replanting and or replacement, which can be undertaken from the public side of the balustrade or in an offsite location.

Climbing plants will be grown from planters up the climbing frames. Access to the planting location can be from courtyard level and in the highly infrequent scenario that access is required at height, for pruning and or re-training of tendrils, this can be achieved via scissor lift and or small spider crane. Final climber species selection may result in an intermediate launching position within the courtyard volume, from levels 2 & 4 or level 3, depending on the growth and vigour of the selected climber species, which will be based on light transmission. Climbing species will be selected on their low maintenance requirements and suitability to the light transmission and climbing support requirements.

Inboard Bedrooms

Residential apartments should be designed and sited to provide a high level of amenity for occupants through the inclusion of adequate private open space, storage and flexibility in the internal floor areas. The proposed development includes a range of 1, 2 and 3 bedroom apartments, with some also including a multi-purpose room which could be used for a variety of functions. The sliding doors featured to these rooms further enhance the adaptability of these spaces. It should also be considered that all apartments have the potential to be amalgamated to form larger apartments if required. Reluctantly, the apartments which contained these space have been amended so that this space is now located to the rear adjacent to the atrium. A high level window to these rooms is provided to allow natural light and ventilation whilst offering privacy for the occupant.

Private Open Space

All apartments are provided with balcony areas that exceed the minimum private open space areas.



Air-Conditioners

Additional detail has been provided in the Tectvs document that relates to the extent and design of screening elements. Vertical non-climbable screens that will encourage landscaping to grow vertically will obscure the air-conditioning units from view. A solid pre-cast external wall to the apartment will also protect the amenity of the occupant with respect to noise intrusion.

Environmental Performance of Atrium/Circulation Space

The atrium space has been designed to provide the occupants accessibility to a common space that has the characteristics of an external area within the built form.

This area has been designed as an external environment. The construction of the internal walls within this space are to be designed and constructed as external walls with the required fire rating and weather proofing as required for a building of Type A construction. Similarly, the balconies/walkways and all internal structure within this space are also to be built of Type A construction. The stair cases have been designed as external stairs in lieu of a fire isolated stair as defined under the BCA – in accordance with CL D1.8 NCC BCA Vol1. 2016. The MFS has reviewed the design and to date an in principle agreement has been reached (subject to detailed design to obtain Building Rules Consent).

The floating roof combined with the open stairs provides a level of 'free ventilation' and has been designed on the premise and requirements of BCA Part F4 – "Natural ventilation requirements' – this area complies with these provisions.

Habitable rooms with high level windows face the atrium. The design of the translucent roof sheeting aims to provide equivalented natural daylight to that of an externally covered balcony area. The clear roof material comprises of Makrolon solid polycarbonate. This is the only clear sheeting that provides the required light transmission coefficient for internal spaces using the Greenstar calculator. Although this is not a green-star building, we have adopted this design tool and applied it to this building. The Makrolon specification allows the transmittance of up to 90 percent of solar energy and 88 percent of visible light.

In summary the open area within the area is to be designed as an extrenal space both in its built form and specification. The glazed roof has been designed based on Greenstar performance criteria. The space complies and exceeds the BCA requirement for natural ventilation, and the open vertical stairs and life safety is supported by the SAMFS.

Materials

A materials sample board has been prepared and provided confirming the use of robust materials and no applied finishes.

Response to DPTI Comments

We note that DPTI is generously supportive of the proposal however it has requested a corner cut-off at the Unley Road/Hart Avenue intersection, a consolidated Hart Avenue access, and the provision of a vehicular link between Opey Avenue and Hart Avenue.

We respond to DPTI's comments as follows:

- the transparent nature of the north-east edge of the built form will allow clear sightlines avoiding the need for a corner cut-off;
- access has now been consolidated to the western end of the site; and





• a vehicular link has been provided from Hart Avenue to the southern boundary of the site providing the opportunity for the adjacent owner to integrate access to establish the link through to Opey Avenue.

In our opinion, the comments raised by DPTI have been addressed.

We trust the above and enclosed amended plans satisfactorily respond to the representations, Council and agency comments. Should you need to discuss any of the matters raised or require any further information please do not hesitate to contact our office.

We hereby can confirm our attendance at the 18 January 2018 SCAP Hearing to respond to any submissions that may be heard.

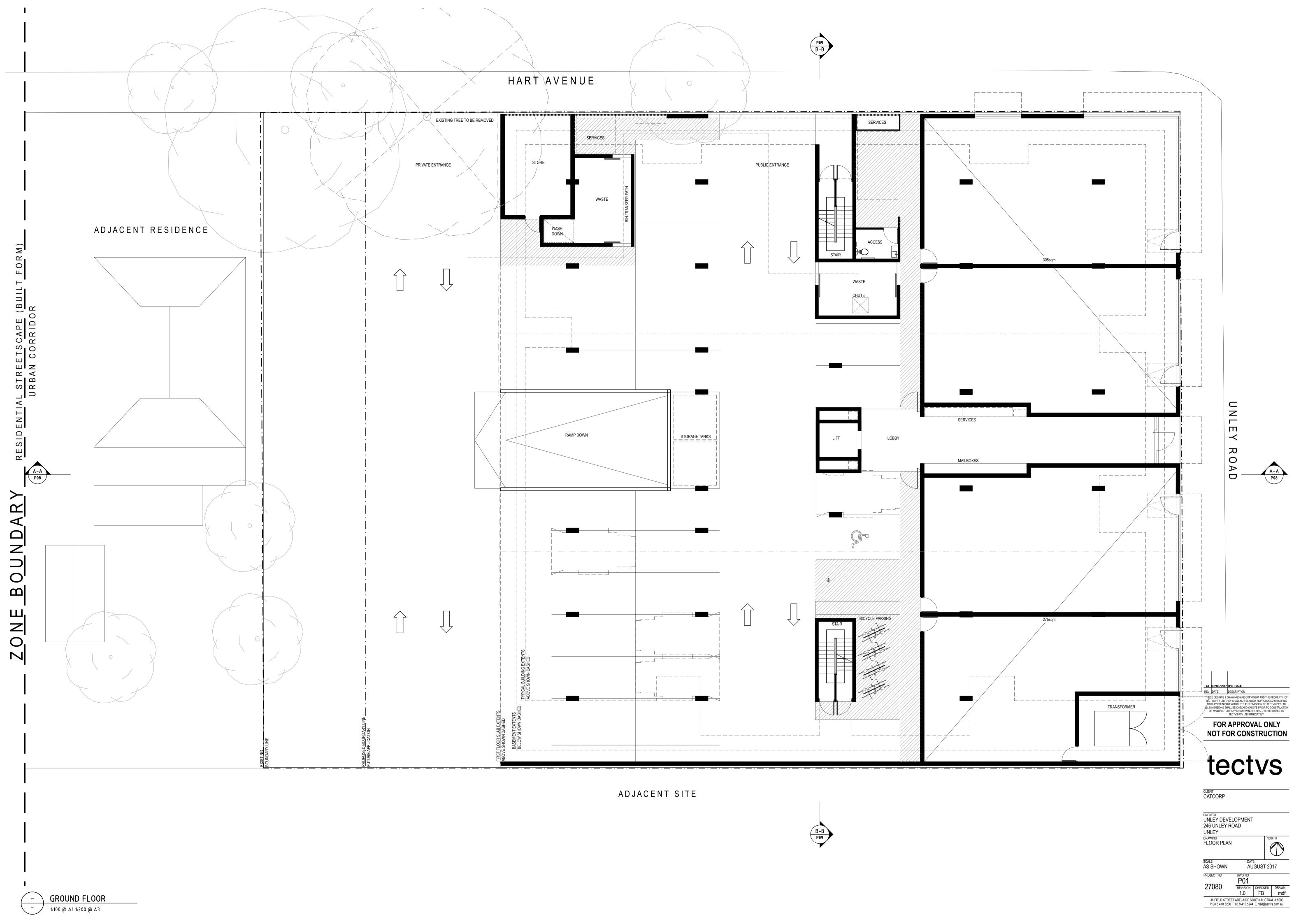
Yours sincerely

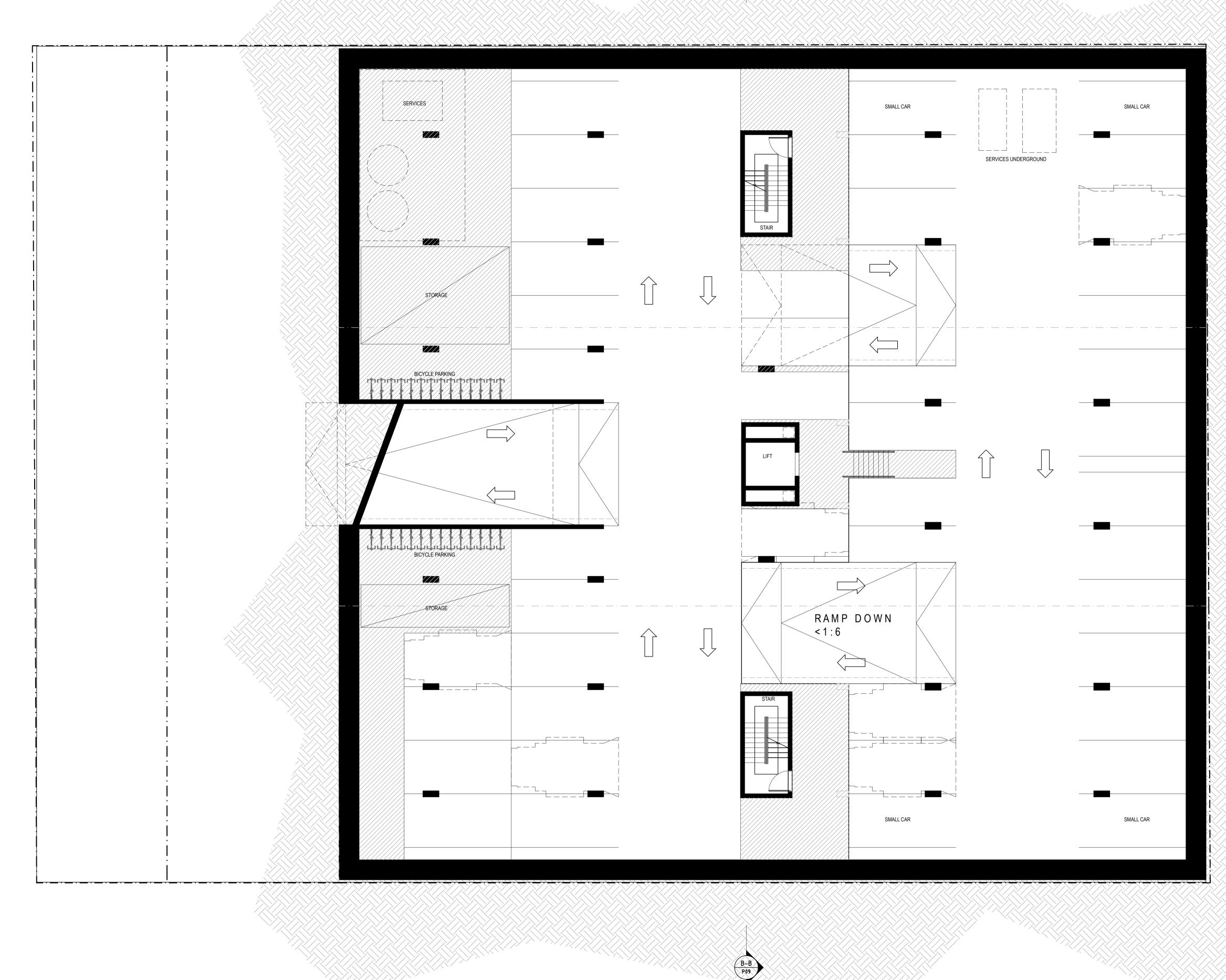
Chris Vounasis

Director

Encl. Amended plans











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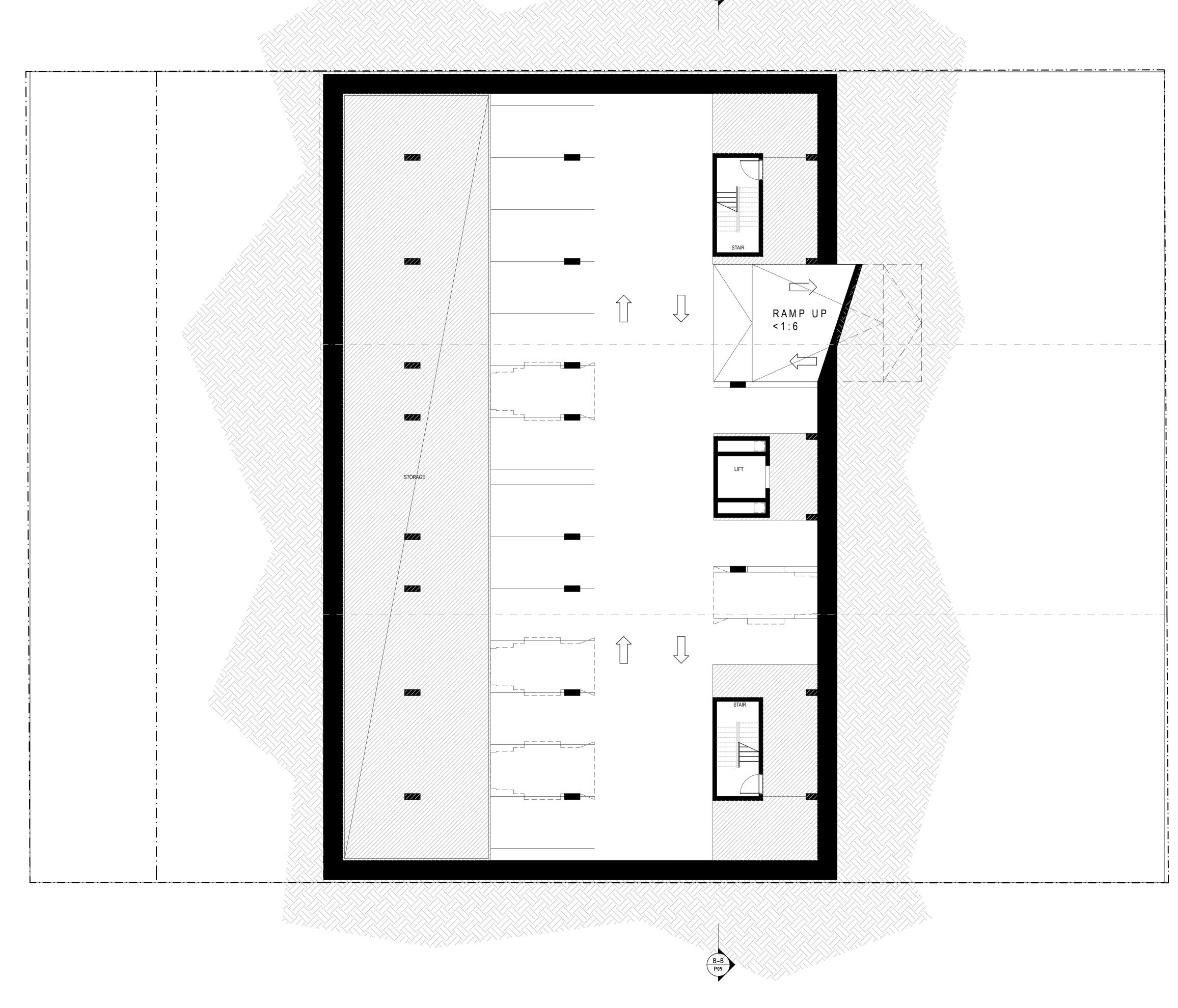
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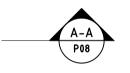
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246 UNLEY ROAD
UNLEY

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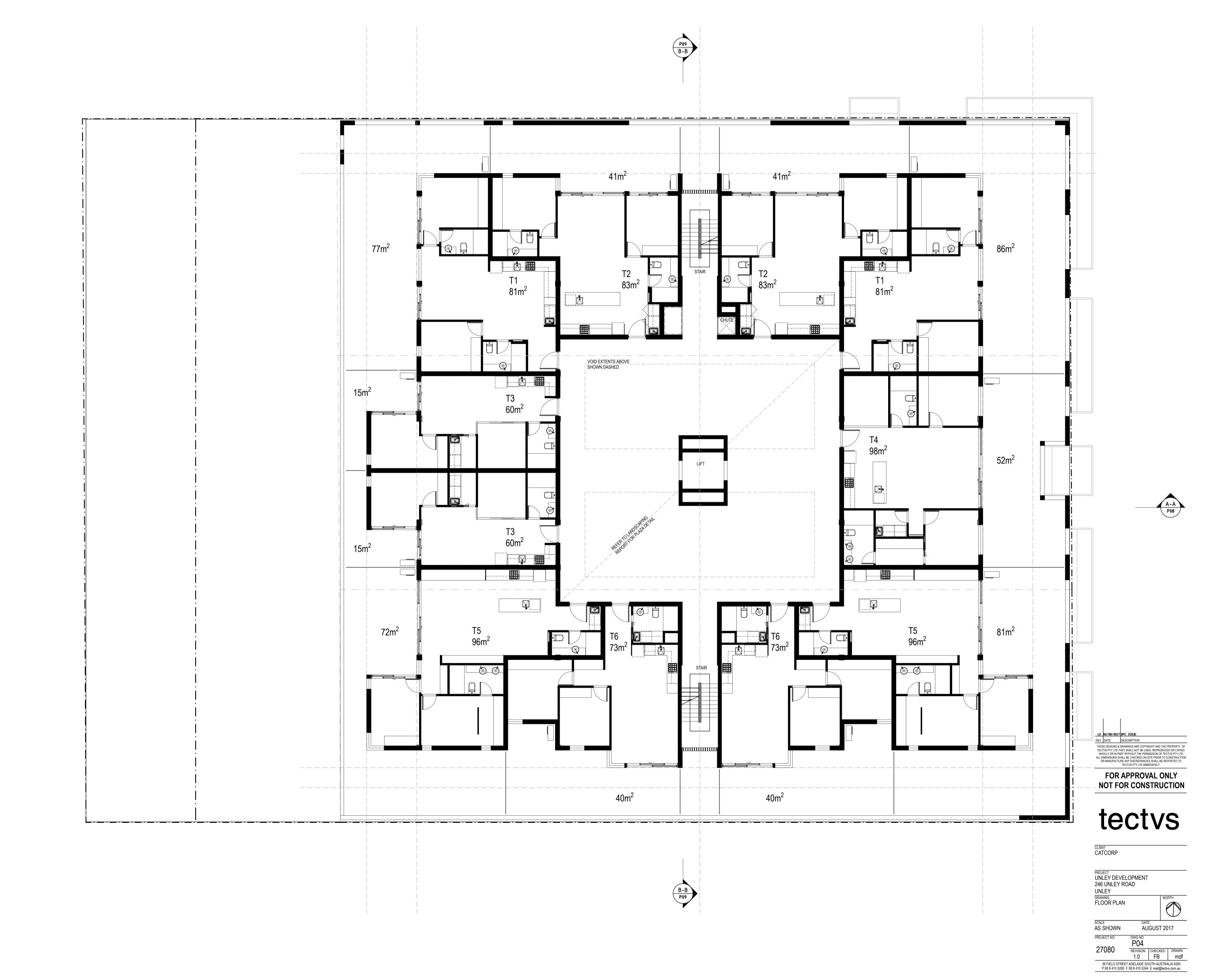
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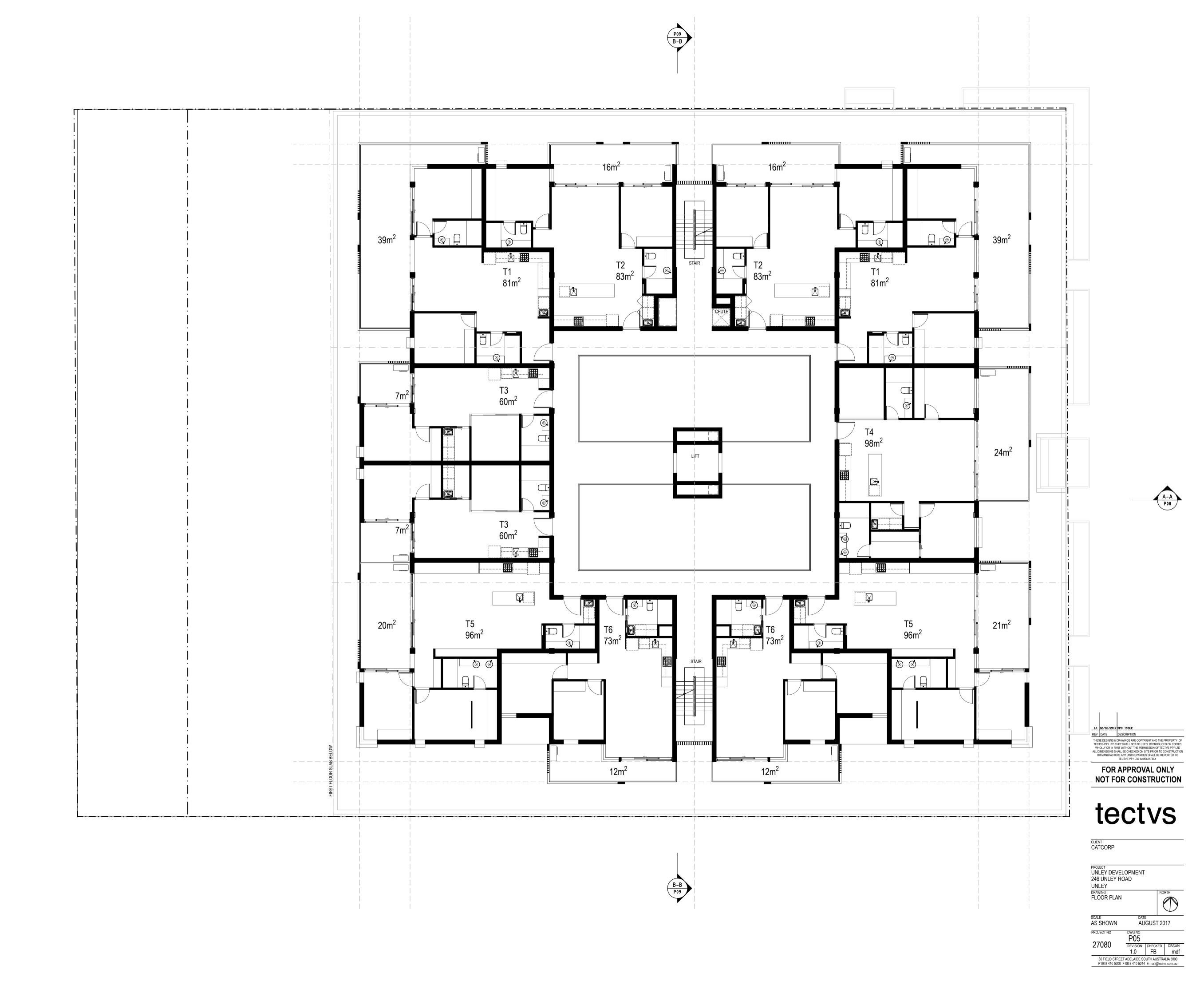
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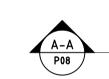
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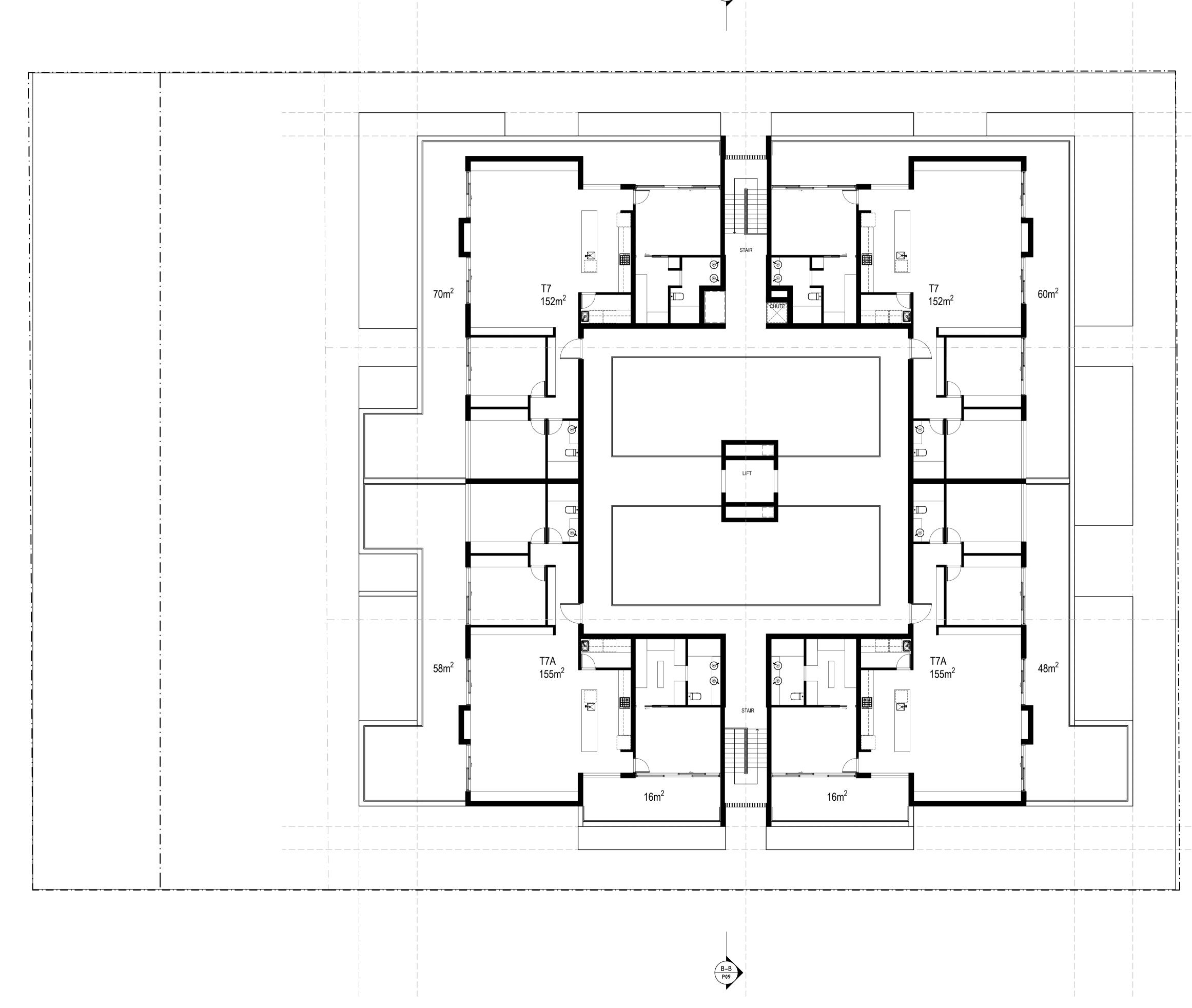




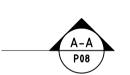




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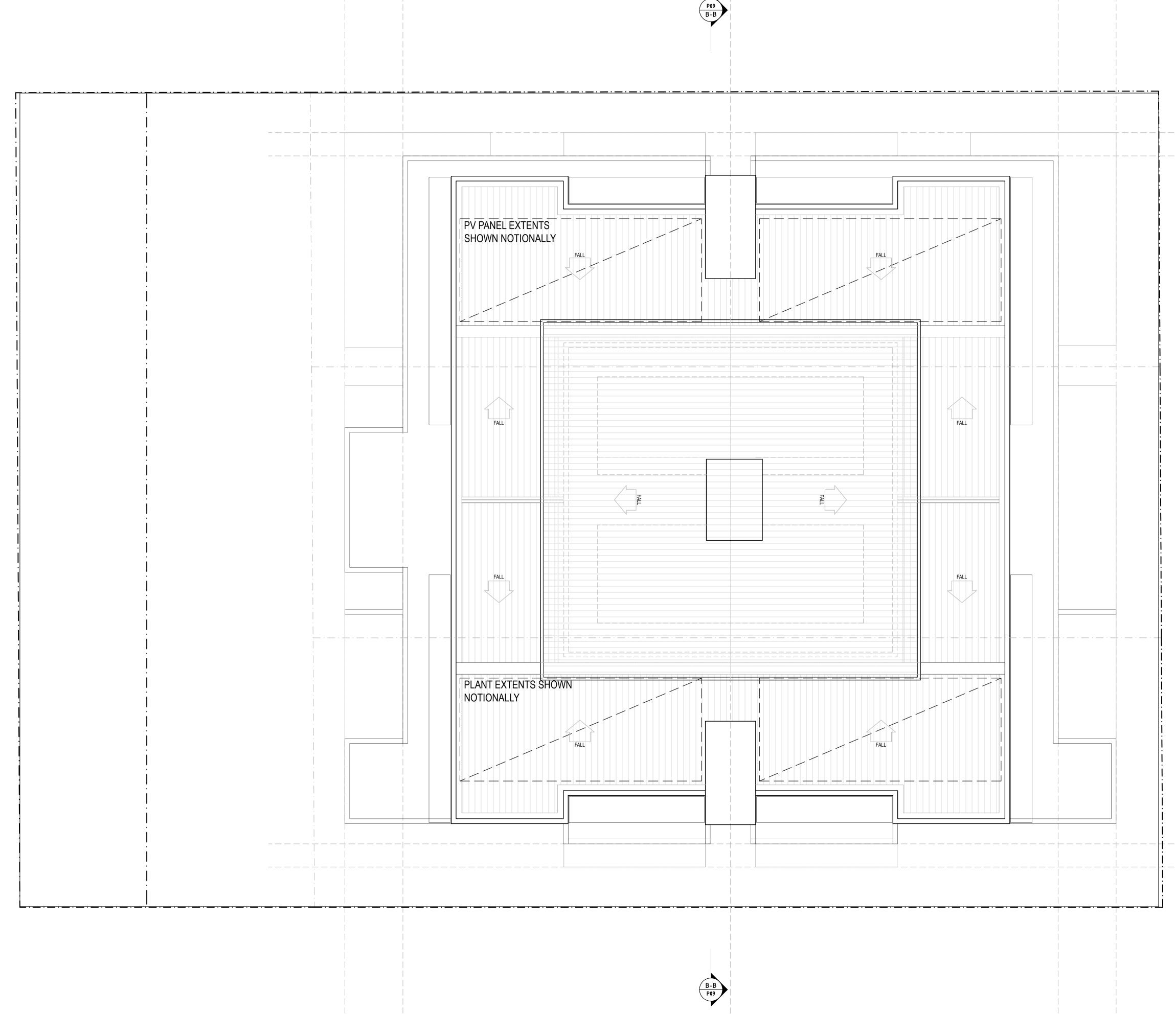
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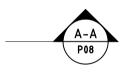
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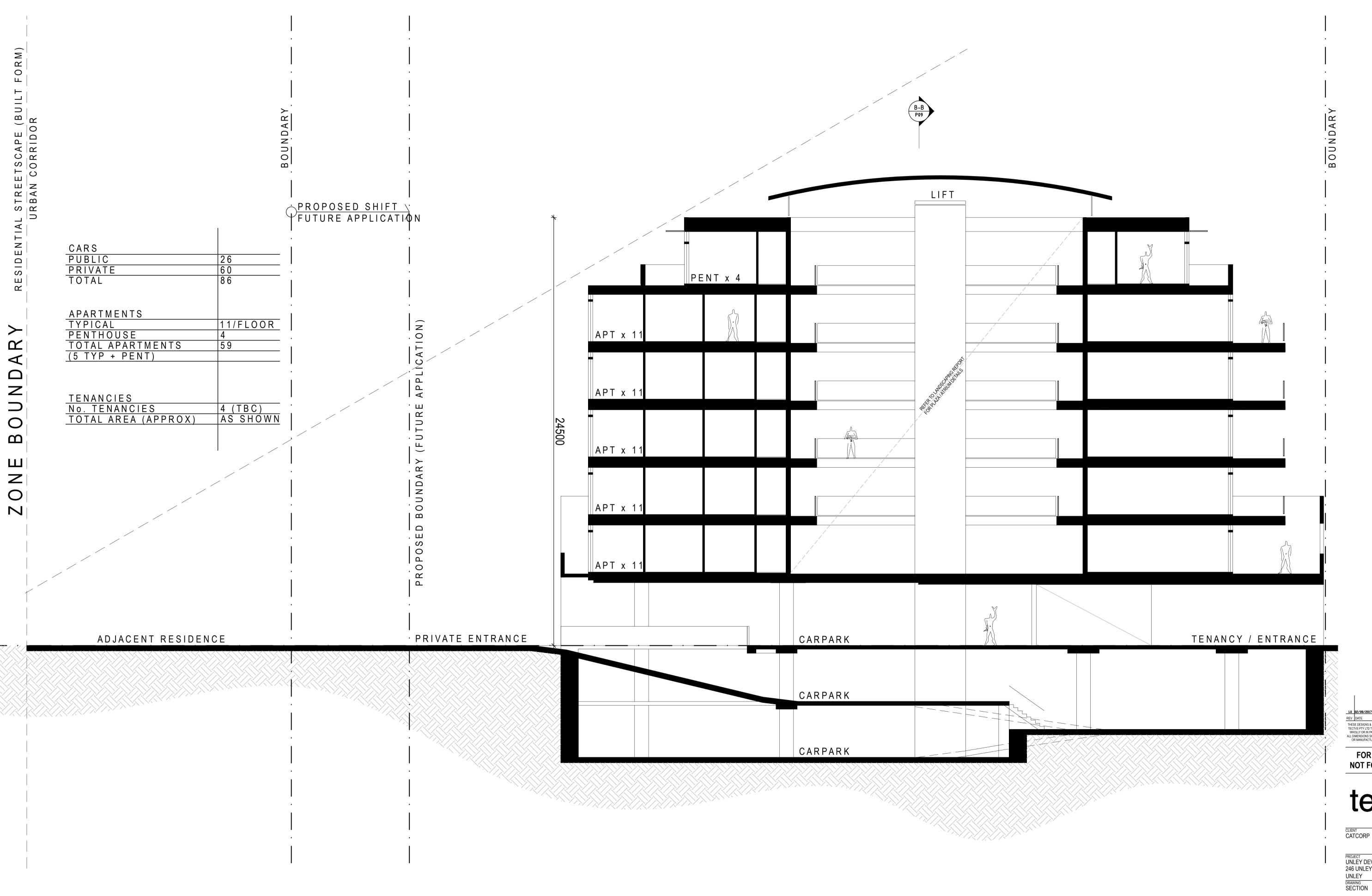
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PROJECT UNLEY DEVELOPMENT 246 UNLEY ROAD UNLEY

SCALE AS SHOWN AUGUST 2017



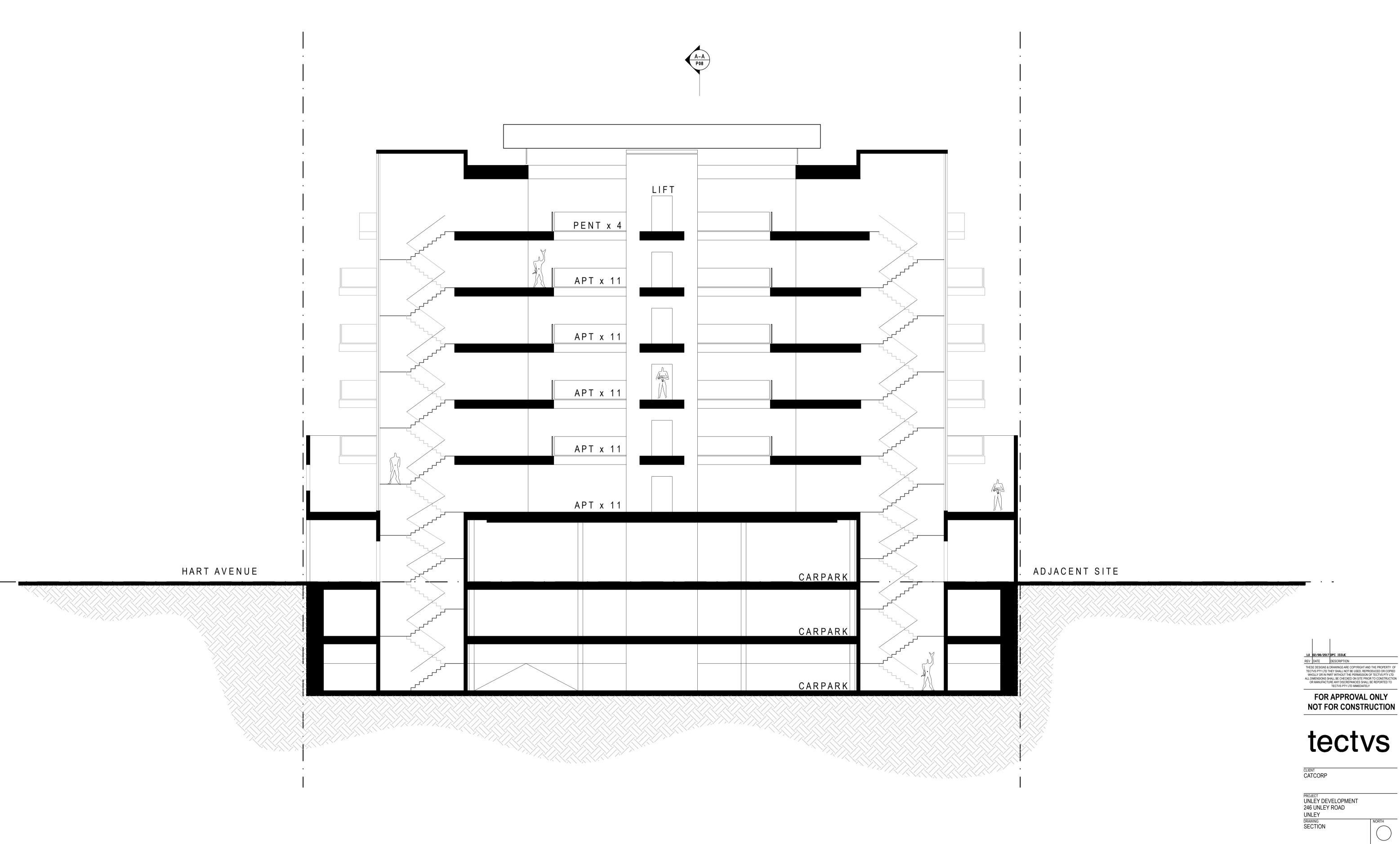
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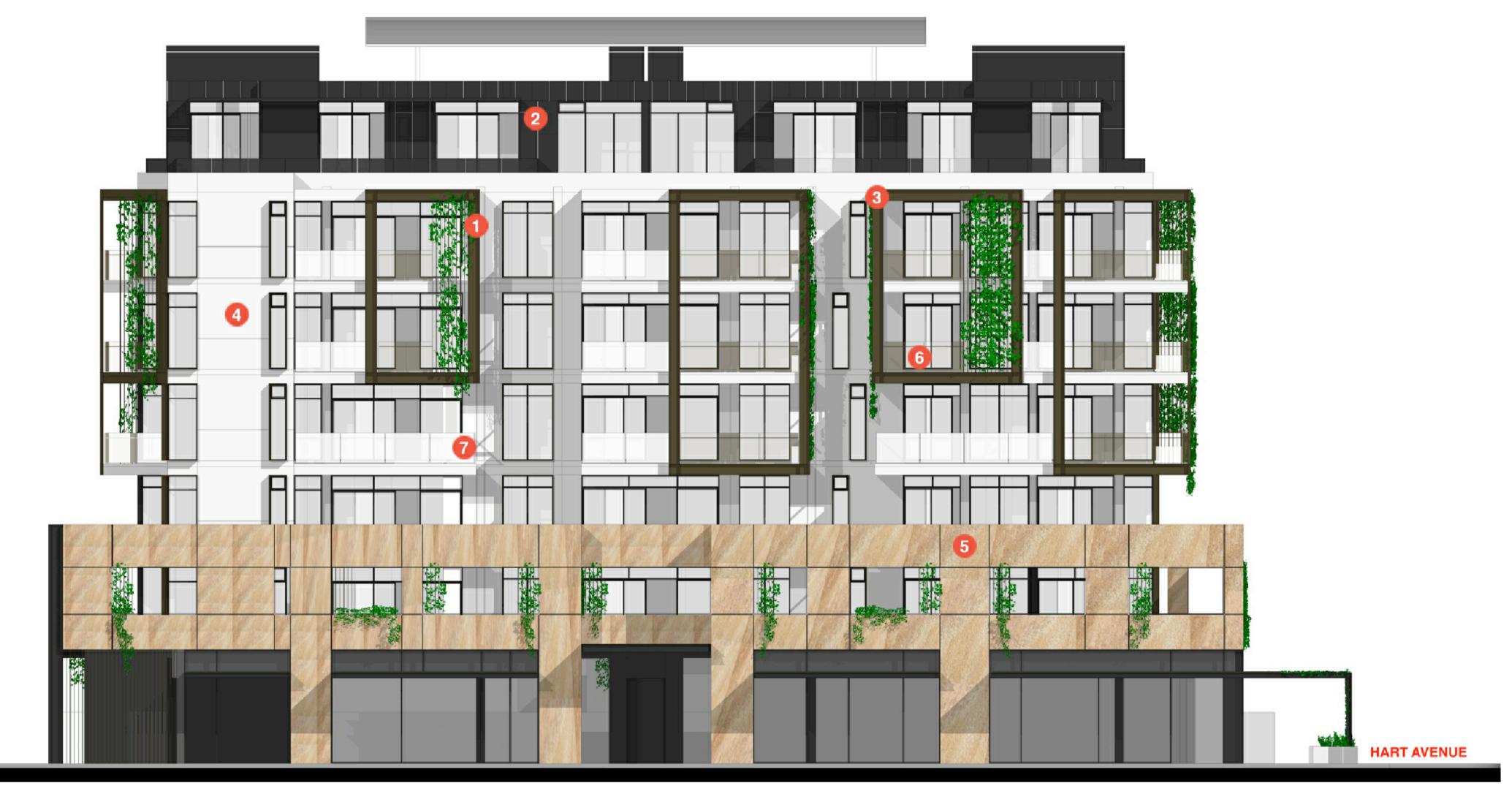
PROJECT
UNLEY DEVELOPMENT
246 UNLEY ROAD

AS SHOWN AUGUST 2017 PROJECT NO

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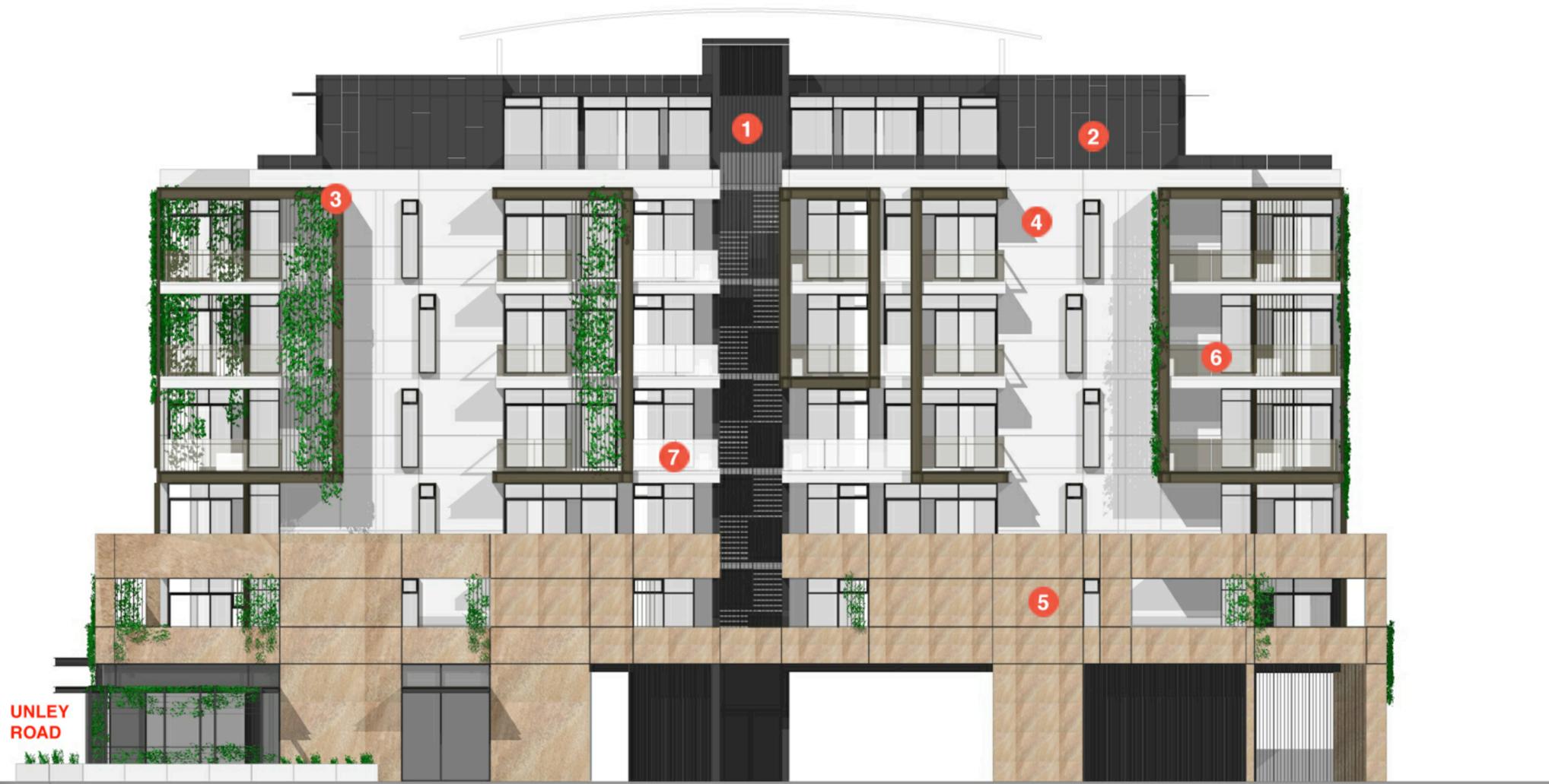


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- 1:100 @ A1 1:200 @ A3



ELEVATION EAST 1:100 @ A1 1:200 @ A3

ADJACENT SITE



MATERIALITY LEGEND

- 1 METAL SCREENING
- 2 METAL CLADDING
- 3 STEEL 4 STAINED PRECAST
- 5 STONEWORK
- 6 TINTED GLASS
- 7 CLEAR GLASS
- NOTES:
 GREENWALLS / PLANTING AND
 LANDSCAPING SHOWN
 CONCEPTUALLY
 SUBJECT TO DEVELOPMENT REFER TO LANDSCAPE REPORT
 FOR DETAIL

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UNLEY DEVELOPMENT 246 UNLEY ROAD

UNLEY ELEVATIONS

AS SHOWN AUGUST 2017

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PROJECT NO P10 27080 REVISION CHECKED DRAWN 1.0 FB mdf

ELEVATION NORTH 1:100 @ A1 1:200 @ A3



ELEVATION WEST 1:100 @ A1 1:200 @ A3 UNLEY ROAD

MATERIALITY LEGEND

- 1 METAL SCREENING
- 2 METAL CLADDING
- 3 STEEL
- 4 STAINED PRECAST 5 STONEWORK
- 6 TINTED GLASS
- 7 CLEAR GLASS

- NOTES:
 GREENWALLS / PLANTING AND
 LANDSCAPING SHOWN
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UNLEY ELEVATIONS

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URBAN CORRIDOR ZONE

Refer to Maps Un/3, 4, 5 and 9 that relate to this zone.

OBJECTIVES

Objective 1: A mixed use zone accommodating a range of compatible non-residential and medium and high density residential land uses orientated towards a high frequency public transport corridor.

Objective 2: Integrated, mixed use, medium and high rise buildings with ground floor uses that create active and vibrant streets with residential development above.

Objective 3: A mix of land uses that enable people to work, shop and access a range of services close to home.

Objective 4: Adaptable and flexible building designs that can accommodate changes in land use and respond to changing economic and social conditions.

Objective 5: A built form that provides a transition down in scale and intensity at the zone boundary to maintain the amenity of residential properties located within adjoining zones.

Objective 6: A safe, comfortable and appealing street environment for pedestrians that is sheltered from weather extremes, is of a pedestrian scale and optimises views or any outlook onto spaces of interest.

Objective 7: Noise and air quality impacts mitigated through appropriate building design and orientation.

Objective 8: Development that contributes to the desired character of the zone.

DESIRED CHARACTER

This zone supports mixed use development on major road corridors and comprises non-residential development in association with medium to high density residential living, including more than 15 percent of dwellings as affordable housing. Development will create a linear corridor that will focus and frame the main road and create active street frontages. Buildings of 3 or more storeys will be the predominant built form, with key strategic sites developed with landmark buildings that will feature prominent, attractive and activating road facades.

The siting and design of buildings will achieve high quality urban design outcomes. Development will be undertaken within defined building envelopes. Buildings at the periphery of the zone will have an appropriate transition that relates to development in adjacent zones of a lower scale and intensity. Contextual qualities, including the setting and juxtaposition of heritage places/character items with new or refurbished development, will be respected.

The urban corridor roads function as major metropolitan transport movement systems as well as for local movement, access and parking. Restricted and consolidated vehicle access points will be available and access will be mainly from secondary road frontages, limited rear access lanes and through-site integrated and shared rights-of-way. Controlled pedestrian and cycle crossing points will be focused and consolidated at key locations. Development design and function will be people orientated with safe and convenient accessibility to and through buildings from roads and parking.

Parking areas will be consolidated and shared and screened from public view. Access and parking are to be sited and designed to minimise negative impacts on adjoining residential areas, including appropriate separation and screen and buffer landscaping. Road treatments are to be provided at the interface of the zone that correspond with the likely associated uses and discourage non-related traffic in residential streets.

A high amenity pedestrian environment will be established that provides integrated linkages to adjacent centres, public transport stops and public spaces. Access for people with disabilities, signage, seating and street lighting will be provided along key walking routes between public transport stops and major activity nodes. Cycle routes will be visible, safe, accessible, well signed and connected with key local destinations and the Parkland fringe.

Overlooking, overshadowing and emission impacts will be moderated through good design and mitigation techniques, however, it is noted noise and air amenity cannot be expected to be equivalent to a purely residential area. Impacts on adjoining zones will be minimised through appropriate land uses, building envelopes, transition of building heights, design and location of on-site activities/windows/balconies, and use of landscaping.

Well-designed landscaping will assist to visually soften large building façades, screen and buffer parking/service areas/zone interface areas, and provide amenity, biodiversity and micro-climate benefits.

Water sensitive urban design (WSUD) for the harvest, treatment, storage and reuse of stormwater, and environmentally sustainable design (ESD) for reduction in energy consumption through passive design, construction and operation is envisaged with development. Green (vegetated) places will assist urban heat island effects and roof top gardens will provide opportunities for private and communal open space.

Given the distinctly different land use mix and urban design features and street character intended for Greenhill Road and Unley Road, the zone is divided into two policy areas:

- (a) Boulevard Policy Area where taller, mixed use buildings of predominantly office uses at ground and low building levels and residential apartments above are intended along the Greenhill Road frontage with its premium Park Land interface where grand buildings and strong landscape settings are appropriate;
- (b) High Street Policy Area where more moderate scaled buildings of mixed use are intended along Unley Road with predominantly small scale shops, mixed business services and hospitality uses at ground and low building levels and upper level comprising residential apartments.

Detailed concept plans are prepared for distinct sections of the roads, detailing matters including desired accessways/road links, excluded property frontage access, variations to prescribed building heights, consolidated sites, heritage sites and any particular intended urban design element or feature.

The potential for buildings within the zone to penetrate the Adelaide International Airport Obstacle Surface Limitation exists. It is essential that development within the zone not impede the long-term operational, safety and commercial aviation requirements of the Adelaide International Airport.

PRINCIPLES OF DEVELOPMENT CONTROL

Land Use

- 1 The following types of development, or combination thereof, are envisaged in the zone:
 - affordable housing
 - aged persons accommodation
 - community centre
 - consulting room
 - dwelling
 - educational establishment
 - entertainment venue
 - licensed premises
 - office
 - pre-school
 - residential flat building

- retirement village
- shop or group of shops
- supported accommodation
- tourist accommodation.
- 2 Development listed as non-complying is generally inappropriate.

Form and Character

- 3 Development should be consistent with the desired character for the zone.
- 4 Development should be in accordance with Concept Plan Maps Un/1 to 7.
- 5 Residential development should achieve a minimum net residential site density in accordance with the following:

Policy Area	Minimum net residential site density
Boulevard (Greenhill Road) Policy Area 19	75 dwellings per hectare net (except within the southern half of the Annesley Campus Area fronting Rose Terrace 35 dwellings per hectare net)
High Street (Unley Road) Policy Area 20	60 dwellings per hectare net

Wehicle parking should be located to the rear of development or not be visible from public land along the primary road frontage.

Design and Appearance

- **7** Buildings on sites with a frontage greater than 10 metres should be well articulated through variations in forms, materials, openings and colours.
- 8 Buildings should be designed and sited to address the primary public road and to face other public thoroughfares (other than rear laneways) and open spaces and to enable suitable sunlight access to public and common private open space as well as good daylighting of habitable room windows of dwellings.
- **9** To maintain sight lines between buildings and the street, and to improve safety through passive surveillance, solid fencing should not be constructed between the front building line and the primary or secondary street.
- **10** Development should minimise the number of access points onto an arterial road, and where possible access points should be:
 - (a) from local streets (including rear lane access) as identified on Concept Plan Maps Un/1 to 7;
 - (b) shared between developments.
- 11 Vehicle access points on side streets and rear access ways should be located and designed to:
 - (a) minimise the impacts of headlight glare and noise on nearby residents;
 - (b) avoid excessive traffic flows into residential streets.

Building Envelope

Building Height

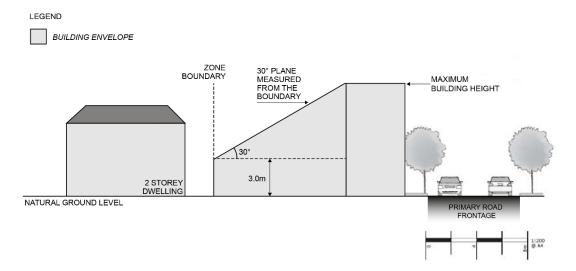
12 Except where airport building height restrictions prevail, the interface height provisions require a lesser height, or an alternative maximum building height is shown on Concept Plan Maps Un/1 to 7, building heights (excluding any rooftop mechanical plant or equipment) should be consistent with the following parameters:

Policy area	Minimum building height	Maximum building height
Boulevard (Greenhill Road) Policy Area 19	3 storeys (11.5 metres), or 4 storeys (15 metres) for land that is directly adjacent to or facing the Adelaide Park Lands.	7 storeys and up to 25.5 metres
High Street (Unley Road) Policy Area 20	3 storeys (11.5 metres)	5 storeys and up to 18.5 metres

Interface Height Provisions

To minimise building massing at the interface with development outside of the zone, buildings should be constructed within a building envelope provided by a 30 degree plane, measured from a height of 3 metres above natural ground level at the zone boundary (except where this boundary is a primary road frontage, as illustrated in Figure 1).

Figure 1



Setbacks from Road Frontages

14 Buildings (excluding verandahs, porticos and the like) should be set back from the primary road frontage (exclusive of any land required under the Metropolitan Road Widening Act) in accordance with the following parameters

Policy area	Minimum setback from the primary road frontage	
Boulevard Policy Area	6 metres	
High Street Policy Area	No minimum (3 metre maximum setback where extended outdoor dining/licensed area only is proposed forward of the building)	

15 Buildings (excluding verandahs, porticos and the like) should be set back from the secondary road frontage or a vehicle access way in accordance with the following parameters:

Designated area	Minimum setback from secondary road	Minimum setback from a rear access way
Boulevard Policy Area	3 metres	No minimum where the access way is 6.5 metres or more
		OR
		Where the access way is less than 6.5 metres in width, the distance equal to the additional width required to make the access way 6.5 metres or more, to provide adequate manoeuvrability for vehicles
High Street Policy Area	0 metres for a distance of 20 metres from the primary road junction and 2 metres thereafter	As above

Other Setbacks

16 Buildings (excluding verandahs, porticos and the like) should be set back in accordance with the following parameters:

Designated area	Minimum setback from rear allotment boundary	Minimum setback from side boundaries (where not on a road boundary)
Boulevard Policy Area	5 metres where the subject land directly abuts an allotment of a different zone 3 metres in all other cases, except where the development abuts the wall of an existing or simultaneously constructed building on the adjoining land.	For allotments with a frontage width of: (a) 20 metres or less: no minimum to one boundary but at least 3 metres to the other side boundary, with respective setbacks to create an orderly pattern of built form in accord with the Desired Character and desired consolidated sites in Concept Plan Maps Un/1 to 7 (b) more than 20 metres: 3 metres
High Street Policy Area	As above	0 metres

Car Parking Efficiency

- 17 A lesser on-site car parking rate that still affords adequate provision may be applied to applicable elements of a development where justified based on local circumstances in relation to a reduced overall demand, efficiency of use of the parking provided or practical constraints, where:
 - (a) amalgamation of allotments occurs, or an agreement is formed to integrate and share adjoining parking areas, to create larger more functional and efficient parking areas incorporating a number of features, as follows:
 - (i) sites of greater than 2000 square metres and providing greater than 60 parking spaces;

- (ii) side road frontage with two-way vehicle access provided;
- (iii) convenient flow through two-way vehicle accessibility created between side roads;
- (iv) rationalised, minimised or coordinated vehicle crossovers to roads and optimisation of on-street parking;
- (b) development includes affordable housing or student accommodation;
- (c) sites are located within 200 metres walking distance of a convenient and frequent service fixed public transport stop;
- (d) mixed use development including residential and a variety of non-residential development has respective peak demands for parking occurring at different times;
- the proposed development is on or adjacent to the site of a heritage place, or includes retention of a desired traditional building and its features, which hinders the provision of on-site parking or the most effective use of the spaces within the building;
- (f) the parking shortfall is met by contribution to the Car Parking Contributions Fund, or other arrangements, to provide improved or increased on-site parking elsewhere in convenient proximity;
- (g) generous on-street parking and/or public parking areas are available and in convenient proximity, other than where such parking may become limited or removed by the probable future priority for traffic flow, parking restrictions, road modifications or widening (eg Strategic Transport Routes Map Un/1 (Overlay 4)).

Land Division

- 18 Land division in the zone is appropriate provided new allotments are of a size and configuration to ensure the objectives of the zone can be achieved.
- 19 Streets that provide rear access for vehicles should be created in accordance with Concept Plan Maps Un/1 to 7.

Vehicle Parking

Vehicle parking should be provided in accordance with the rates set out in <u>Table Un/5</u> - Off Street Vehicle Parking Requirements or <u>Table Un/5A</u> - Off Street Vehicle Parking Requirements for Designated Areas (whichever applies)

PROCEDURAL MATTERS

Complying Development

21 Complying developments are prescribed in schedule 4 of the Development Regulations 2008.

In addition, the following forms of development (except where the development is non-complying) are complying:

Advertisement subject to the conditions contained in <u>Table Un/1</u> - Conditions for Complying Development and other than in respect to a Heritage Place identified in <u>Table Un/3</u> and <u>Table Un/4</u>.

A change of use to a shop, office, consulting room or any combination of these uses where all of the following are achieved:

 (a) the area to be occupied by the proposed development is located in an existing building and is currently used as a shop, office, consulting room or any combination of these uses;

- (b) the development is located inside any of the following area(s):
 - High Street (Unley Road) Policy Area
- (c) the building is not a State heritage place;
- (d) it will not involve any alterations or additions to the external appearance of a local heritage place as viewed from a public road or public space;
- (e) if the proposed change of use is for a shop that primarily involves the handling and sale of foodstuffs, it achieves either (i) or (ii):
 - (i) all of the following:
 - (A) areas used for the storage and collection of refuse are sited at least 10 metres from any Residential Zone boundary or a dwelling (other than a dwelling directly associated with the proposed shop);
 - (B) if the shop involves the heating and cooking of foodstuffs in a commercial kitchen and is within 30 metres of any Residential Zone boundary or a dwelling (other than a dwelling directly associated with the proposed shop), an exhaust duct and stack (chimney) exists or is capable of being installed for discharging exhaust emissions;
 - (ii) the development is the same or substantially the same as a development, which has previously been granted development approval under the *Development Act* 1993 or any subsequent Act and Regulations, and the development is to be undertaken and operated in accordance with the conditions attached to the previously approved development;
- (f) if the change in use is for a shop with a gross leasable floor area greater than 250 square metres and has direct frontage to an arterial road, it achieves either (i) or (ii):
 - the primary vehicle access (being the access where the majority of vehicles access/egress the site of the proposed development) is from a road that is not an arterial road:
 - (ii) the development is located on a site that operates as an integrated complex containing two or more tenancies (and which may comprise more than one building) where facilities for off-street vehicle parking, vehicle loading and unloading, and the storage and collection of refuse are shared;
- (g) off-street vehicular parking is provided in accordance with the rate(s) specified in <u>Table Un/5</u> - Off Street Vehicle Parking Requirements or the desired minimum in rate in <u>Table Un/5A</u> - Off Street Vehicle Parking Requirements for Designated Areas (whichever table applies) to the nearest whole number, except in and one or more of the following circumstances:
 - (i) the building is a local heritage place;
 - (ii) the development is the same or substantially the same as a development, which has previously been granted development approval under the *Development Act* 1993 or any subsequent Act and Regulations, and the number and location of parking spaces is the same or substantially the same as that which was previously approved;
 - (iii) the development is located on a site that operates as an integrated complex containing two or more tenancies (and which may comprise more than one building) where facilities for off-street vehicle parking, vehicle loading and unloading, and the storage and collection of refuse are shared.

Non-complying Development

22 Development (including building work, a change in the use of land or division of an allotment) involving any of the following is **non-complying**:

Industry

Fuel depot Petrol filling station

Major public service depot

Road transport terminal

Store

Transport depot

Warehouse

Waste reception storage treatment and disposal

Public Notification

23 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 classified as non-complying), are designated:

Category 1

Advertisement

Aged persons accommodation

All forms of development that are ancillary and in association with residential development

Consulting room

Dwelling

Educational establishment

Office

Pre-school

Residential flat building

Retirement village

Supported accommodation

Shop or group of shops:

- (a) located within the High Street (Unley Road) Policy Area 17;
- (b) located within the Boulevard (Greenhill Road) Policy Area 19 with a gross leasable area of 450 square metres or less

Tourist accommodation

Category 2

All forms of development not listed as Category 1

Any development listed as Category 1 and located on adjacent land to a residential zone that:

- (a) is 3 or more storeys, or 11.5 metres or more, in height above natural ground level;
- (b) exceeds the maximum building height in the Building Envelope Building Height or Concept Plan Maps Un/1 to 7;
- (c) exceeds the Building Envelope Interface Height Provisions.

High Street (Unley Road) Policy Area 20

Refer to Maps Un/14 and 18 that relate to this policy area.

OBJECTIVES

Objective 1: A mix of land uses including retail, office, commercial, community, civic and medium and high density residential development that support the economic vitality of the area.

Objective 2: Buildings sited to provide a continuous and consistent built edge with verandahs / awnings over the public footpath and an intimate built scale, with fine-grained detailing of buildings in the public realm.

Objective 3: An interesting and varied skyline as viewed from the street and afar, provided by modulation in roof forms and the use of parapets.

Objective 4: An intimate public realm with active streets created by buildings designed with frequently repeated frontage form and narrow tenancy footprints.

Objective 5: A high degree of pedestrian activity and a vibrant street-life with well lit and engaging shop fronts and business displays including alfresco seating and dining facilities and licensed areas.

Objective 6: Development that contributes to the desired character of the policy area.

DESIRED CHARACTER

This policy area includes two sections of the Unley Road corridor either side of the Unley District Centre and extending the full length of the road as far south as Northgate Street from Greenhill Road.

The maintenance of a safe and efficient movement system (for significant private vehicle numbers as well as critical public transport links) needs to be balanced with the desire to transform these strips into vibrant, intimate and appealing mixed use pedestrian friendly corridors of small scale retail, mixed business and entertainment facilities at ground and lower levels with medium to high density living at upper levels of multi-storey buildings.

Some incompatible land uses such as service trade premises, bulky goods outlets, warehousing and workshops need to be progressively replaced or redeveloped such that they are reduced to a minor floor area and/or without public road frontage.

High quality buildings and associated site works are sought which:

- (a) improve the comfort, safety, convenience and appeal of the public realm and the pedestrian environment for visitors and residents by creating:
 - (i) visually interesting, highly transparent and varied shop fronts and building entries;
 - (ii) continuity of verandahs, awnings or canopies to provide shelter and shade;
 - (iii) appealing through links to shops and businesses set behind the street frontage and also to ground level and multi-level car parking areas at the rear or underneath buildings;
 - (iv) occasional outdoor dining areas extending in part over the public footway and linked to recessed buildings comprising restaurants and licensed premises;
 - (v) paving, lighting, tree planting, furniture and amenities in areas to the rear of street fronting buildings and linked to key local movement networks, public reserves and common private spaces;

- (vi) parking areas under, behind or within buildings, to ensure ground floor levels match public footpath levels along road frontages and provide for level access and direct interaction to the public realm.
- (b) respect the predominant, traditional rhythm of narrow–fronted shop tenancies and the siting, height and street format by:
 - (i) retaining, adapting and redeveloping existing historic or appealing traditional buildings and developing 'behind' the converted street fronting shop or business facades;
 - (ii) developing or maintaining a dominant street level podium building form along the main road reflecting the one to two storey shop or commercial parapet façades traditionally associated with this strip and developing the core building element (and any building above 8.5 metres in total building height) offset and setback behind the ground level facade;
 - (iii) complementing in an innovative and contemporary manner, using modern materials and finishes, the key traditional building and shop-front elements including verandahs, parapet facades, detailed pediments, and clear-glazed narrow shop front displays above raised display levels (base stall boards) and recessed entries;
 - (iv) developing narrow buildings built side by side so as to create a largely continuous built edge to the street and reflecting the traditional narrow-fronted tenancies by creating varied and distinctive building facades through careful and fine-grained attention to building detailing;
 - (v) supporting the predominant street boundary setback, and no more than 3 metres (to allow for a wider pedestrian footway and outdoor dining area forward of the building) setback from the main road;
- (c) create high quality living environments by:
 - (a) applying sustainable design solutions to optimise natural ventilation and capture of sun or natural daylight;
 - (b) optimising resident and visitor safety, convenience and amenity by providing reserved and secure car parks, lighting and surveillance of public and common spaces;
 - (c) locating and screening goods storage, refuse collection areas in a sensitive manner;
 - (d) locating and designing sensitive habitable rooms and balconies to optimise the utility of those spaces and minimise noise intrusion.

In order to achieve the desired building design outcome and car parking and access links, it will be necessary for existing small and narrow sites to be amalgamated and their redevelopment coordinated.

PRINCIPLES OF DEVELOPMENT CONTROL

Land Use

- 1 Development should provide continuity of predominately narrow small ground floor shops, and limited offices and other non-residential land uses along the road corridor at ground level or first floor level, and residential development above.
- 2 Existing service industries, workshops and storage activities should be removed or redeveloped to reduce these land uses to a minor floor area and not having a public street frontage.
- 3 Shops or group of shops contained in a single building should have a maximum gross leasable area in the order of 450 square metres (per tenancy).

Form and Character

- 4 Development should be consistent with the desired character for the policy area.
- 5 The finished ground floor level should be at grade and level with the footpath.
- 6 The ground floor of buildings should be built to dimensions including a minimum floor to ceiling height of 3.5 metres to allow for adaptation to a range of land uses including retail, office and residential without the need for significant change to the building.
- 7 A minimum of 50 per cent of the ground floor primary frontage of buildings should be visually permeable, transparent or clear glazed to promote active street frontages and maximise passive surveillance.
- 8 Buildings should maintain a pedestrian scale at street level, and on land identified on Concept Plan Maps Un/1, 2A and 2B, should:
 - include a clearly defined podium or street wall fronting the High Street (Unley Road)
 Policy Area 20 main road and side streets where appropriate, of a height consistent
 with traditional one and two storey facades and no greater than two storeys or 8.5
 metres in height;
 - (b) have levels above the defined podium or street wall setback a minimum of 3 metres from that wall.
- 10 The integrity and spatial setting of a heritage place, and positive character facades, be respected by adjacent development providing appropriate setbacks, wall heights, format and features, and new and taller building elements being distinctly further setback and of lightweight subservient appearance.
- 11 Development should be in accordance with Concept Plan Maps Un/1, 2A and 2B.

COUNCIL WIDE

Introduction

The following policies apply across the area within the boundary of the Unley (City) Development Plan, as shown on Map Un/1. This Development Plan has the City-wide Objectives and Principles of Development Control first, and grouped under various headings. These are followed by the individual zones which also have their Objectives and Principles of Development Control. After this are Tables which apply to all zones, and finally the maps, including zone maps.

Reference should be made to all parts of this Development Plan when ascertaining the relevant policies applying to any site.

Crime Prevention OBJECTIVES

Objective 1: A safe, secure, crime resistant environment where land uses are integrated and designed to facilitate community surveillance.

PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should promote the personal safety of people by:
 - (a) enabling them to be seen, to see and to interpret their surrounds, through:
 - (i) adequate lighting;
 - (ii) clear sightlines;
 - (iii) the elimination of entrapment spots;
 - (iv) the design of buildings to overlook public space;
 - (v) the mixing of activities which facilitate more constant public use;
 - (vi) appropriate use and design of landscaping and fencing;
 - (b) enabling them to leave an area or seek assistance when in danger, through legible design and comprehensive signage.
- **2** Development should promote the security of property by:
 - (a) clearly defining ownership and legitimate use of private, public and community space
 - (b) minimising access between roofs, balconies and windows of adjacent buildings;
 - (c) avoiding the use of materials which are likely to be susceptible to damage and vandalism:
 - (d) avoiding landscaping and fencing which may present a security risk by providing concealment opportunities;
 - (e) screen planting and use of prickly plant species in areas susceptible to vandalism.

Design and Appearance OBJECTIVES

- **Objective 1:** Development of a high design standard and appearance that responds to and reinforces positive aspects of the local environment and built form.
- **Objective 2:** Roads, open spaces, paths, buildings and land uses laid out and linked so that they are easy to understand and navigate.

PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Buildings should reflect the desired character of the locality while incorporating contemporary designs that have regard to the following:
 - (a) building height, mass, proportion and siting;
 - (b) external materials, patterns, colours and decorative elements;
 - (c) roof form and pitch;
 - (d) façade articulation and detailing;
 - (e) verandahs, eaves, parapets and window screens.
- Where a building is sited on or close to a side or rear boundary, the boundary wall should minimise:
 - (a) the visual impact of the building as viewed from adjoining properties;
 - (b) overshadowing of adjoining properties and allow adequate sunlight access to neighbouring buildings.
- 3 The external walls and roofs of buildings should not incorporate highly reflective materials which will result in glare to neighbouring properties, drivers or cyclists.
- 4 Structures located on the roofs of buildings to house plant and equipment should be screened from view to the street and adjacent building viewing points (existing or envisaged) and should form an integral part of the building and roof top design in relation to creating an attractive appearance, external finishes and colours.
- 5 Balconies should:
 - (a) be integrated with the overall form and detail of the building;
 - (b) include balustrade detailing that enables line of sight to the street;
 - (c) be recessed where wind would otherwise make the space unusable;
 - (d) be self-draining and plumbed to minimise runoff.

Overshadowing

- 9 The design and location of buildings should enable direct winter sunlight into adjacent dwellings and private open space and minimise the overshadowing of:
 - (a) windows of habitable rooms;
 - (b) upper-level private balconies that provide the primary open space area for a dwelling;
 - (c) solar collectors (such as solar hot water systems and photovoltaic cells).

Visual Privacy

- 10 Development should minimise direct overlooking of the habitable rooms and private open spaces of dwellings through measures such as:
 - (a) appropriate site layout and building orientation;
 - (b) off-setting the location of balconies and windows of habitable rooms with those of other buildings so that views are oblique rather than direct to avoid direct line of sight;
 - (c) building setbacks from boundaries (including building boundary to boundary where appropriate) that interrupt views or that provide a spatial separation between balconies or windows of habitable rooms;
 - (d) screening devices (including fencing, obscure glazing, screens, external ventilation blinds, window hoods and shutters) that are integrated into the building design and have minimal negative effect on residents' or neighbours' amenity.
- Permanently fixed external screening devices should be designed and coloured to complement the associated building's external materials and finishes.

Relationship to the Street and Public Realm

- **13** Buildings, landscaping, paving and signage should have a coordinated appearance that maintains and enhances the visual attractiveness of the locality.
- **14** Buildings should be designed and sited to avoid extensive areas of uninterrupted walling facing areas exposed to public view.
- **15** Building design should emphasise pedestrian entry points to provide perceptible and direct access from public street frontages and vehicle parking areas.
- 16 In mixed use and medium and high density residential areas, development facing the street should be designed to provide interesting and pedestrian friendly street frontages by:
 - (a) including features such as frequent doors and display windows, retail shopfronts and/or outdoor eating or dining areas;
 - (b) minimising the frontage for fire escapes, service doors, plant and equipment hatches;
 - (c) avoiding undercroft, semi-basement or ground floor vehicle parking that is visible from the primary street frontage;
 - (d) using colour, vertical and horizontal elements, roof overhangs and other design techniques to provide visual interest and reduce massing.
- 17 Where zero or minor setbacks are desirable, development should incorporate shelter over footpaths to enhance the quality of the pedestrian environment.

Outdoor Storage and Service Areas

- **18** Outdoor storage, loading and service areas should be:
 - (a) screened from public view by a combination of built form, solid fencing and/or landscaping;
 - (b) conveniently located and designed to enable the manoeuvring of service and delivery vehicles;
 - (c) sited away from sensitive land uses.

Building Setbacks from Road Boundaries

- 19 Except in areas where a new character is desired, the setback of buildings from public roads should:
 - (a) be similar to, or compatible with, setbacks of buildings on adjoining land and other buildings in the locality;
 - (b) contribute positively to the function, appearance and/or desired character of the locality.
- 22 Except in areas where a new character is desired or where specified in a zone, policy area or precinct, the setback of development from a secondary street frontage should reflect the setbacks of the adjoining buildings and other buildings in the locality.
- 23 All setbacks from the road frontage should be additional to the road widening setback established under the *Metropolitan Adelaide Road Widening Plan Act 1972*.

Energy Efficiency OBJECTIVES

- **Objective 1:** Development designed and sited to conserve energy.
- **Objective 2:** Development that provides for on-site power generation including photovoltaic cells and wind power.

PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should provide for efficient solar access to buildings and open space all year around.
- 2 Buildings should be sited and designed:
 - (a) to ensure adequate natural light and winter sunlight is available to the main activity areas of adjacent buildings;
 - (b) so that open spaces associated with the main activity areas face north for exposure to winter sun:
 - (c) to allow for cross ventilation and natural cooling of buildings and zoning of building layouts to enable main living room areas to be separately heated and cooled;
 - (d) to incorporate roof top gardens and green 'living' walls, particularly for multi-storey and large developments, to reduce the 'urban heat island effect';
 - (e) to use energy efficient building materials or the re-use of existing materials (embodied energy).

On-site Energy Generation

- 3 Development should facilitate the efficient use of photovoltaic cells and solar hot water systems by:
 - (a) taking into account overshadowing from neighbouring buildings;
 - (b) designing roof orientation and pitches to maximise exposure to direct sunlight.
- 4 Public infrastructure and lighting, should be designed to generate and use renewable energy.

Form of Development **OBJECTIVES**

Objective 1: Orderly and economic development.

Objective 2: The development of Adelaide as an international and national centre for

cooperative research and innovation in science, technology, environmental

management, education and the arts.

Objective 3: The establishment of urban development which provides models in the

conservation and management of resources and the natural environment and the enhancement of natural site features, in urban planning and the provision of

physical and social infrastructure.

A concept that encapsulates the vision of Adelaide as an international city where a wide variety of social and economic activities can occur and which provides models, through research, innovation and the application of technology, in the conservation and management of resources, the natural environment, urban planning community development and the provision of physical and social infrastructure.

The Adelaide economy built on research, education and advanced industries, serviced by advanced infrastructure and be export oriented. The principal industries identified for Adelaide are education, information technology and environmental management. Other important industries are media, leisure, tourism and health.

Objective 4: A proper distribution and segregation of living, working and recreational activities by the allocation of suitable areas of land for those purposes.

In the 21st Century Adelaide's growth will be accommodated through higher densities within the present urban area and development within the Willunga Basin and northern Adelaide Plains. The future form and nature of the existing metropolitan area will be influenced by meeting housing choice in the metropolitan area. Current and anticipated demographic trends in the metropolitan area indicate population growth but a changing population structure, with falling dwelling occupancy rates and declining population in many areas, particularly in the inner and middle suburbs, will necessitate increasing dwelling density to maintain population levels.

While taking these trends into account, there are social, environmental and economic benefits to be gained from higher residential densities within the metropolitan area and in turn this Plan promotes and seeks to implement a policy of housing choice.

It is an essential element in the future development of Adelaide, to address concerns about increased housing demand, efficient use of urban infrastructure and population change. This can be achieved by increasing the number of dwellings that can be accommodated within the existing boundary of the metropolitan area, and arresting and perhaps reversing the decline in population which has been evident in many parts of the metropolitan area.

While these aims are applicable across the metropolitan area, implementation must recognise the particular requirements of residential character and amenity, environmentally sensitive areas, water catchment areas, and other land which is subject to specific hazard or constraint.

Objective 5: Maintenance of the long-term operational, safety and commercial aviation requirements of the Adelaide International Airport and Parafield Airport.

Objective 6: Adequate public parks and recreation areas conveniently located.

Open spaces are needed in a city for outdoor recreation, and all age groups must be catered for. The size of the open spaces must be adequate, and they must be located conveniently for the people who use them.

Objective 7: The City of Unley will be a City that offers its citizens the best of living and working environments.

In the next decade, the City of Unley will be recognised for community spirit, desirable character, and business success in a sustainable and safe environment.

New people and investment growth will bring vibrancy to the City's tapestry of local communities supporting their environment and each other. Unley will be recognised for its social and economic innovations. Citizens will be proud of their environment, their successes and their strength of community well being.

Development will primarily occur on individual sites as compatible, complementary and reinforcing elements within the existing desirable form and character of localities and the City.

PRINCIPLES OF DEVELOPMENT CONTROL

General

- 1 Development should be in accordance with the Unley Plan, Map Un/1 (Overlay 1) primarily by:
 - (a) concentrating comprehensive redevelopment and renewal for more intensive mixed activity and housing development along major transport corridors and within/adjacent to key centres and activity hubs;
 - (b) replacing existing buildings and land uses not contributing to a locality's character within areas of historic and valued streetscape character where revitalisation is warranted;
 - (c) restoring and conserving valued buildings and streetscape character, including the visual rhythms and patterns created by physical elements in a streetscape including the valued buildings, site proportions, building curtilage, fencing, mature trees and private gardens.
- 2 Development should be orderly and economic.
- 3 New housing and other urban development should create a safe, convenient and pleasant environment in which to live.
- 4 No development, other than residential development and advertisements, should be erected, added to or altered on any land so that any portion of it is constructed nearer to the existing boundary of a road, or to the boundary of any land shown as being required for road widening on the plan deposited under the provisions of the *Metropolitan Adelaide Road Widening Plan Act, 1972-1976*, than the distance prescribed for each road or portion thereof in Column 3 of Table Un/2.

Building Heights Adjacent to Airports

- Buildings and structures should not adversely affect by way of their height and location the long term operational, safety and commercial aviation requirements of Adelaide International Airport and Parafield Airport.
- Buildings and structures which exceed the heights shown on Map Un/1 (Overlay 2) 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 and Parafield Airport.

Interface Between Land Uses OBJECTIVES

Objective 1: Development located and designed to minimise adverse impact and conflict

between land uses.

Objective 2: Protect community health and amenity from adverse impacts of development.

Objective 3: Protect desired land uses from the encroachment of incompatible development.

PRINCIPLES OF DEVELOPMENT CONTROL

1 Development should not detrimentally affect the amenity of the locality or cause unreasonable interference through any of the following:

- (a) the emission of effluent, odour, smoke, fumes, dust or other airborne pollutants
- (b) noise
- (c) vibration
- (d) electrical interference
- (e) light spill
- (f) glare
- (g) hours of operation
- (h) traffic impacts.
- 2 Development should be sited and designed to minimise negative impacts on existing and potential future land uses desired in the locality.
- 3 Development adjacent to a **Residential Zone** should be designed to minimise overlooking and overshadowing of adjacent dwellings and private open space.
- 4 Residential development adjacent to non-residential zones and land uses should be located, designed and/or sited to protect residents from potential adverse impacts from non-residential activities.
- 5 Sensitive uses likely to conflict with the continuation of lawfully existing developments and land uses desired for the zone should be designed to minimise negative impacts.
- 6 Non-residential development on land abutting a residential zone should be designed to minimise noise impacts to achieve adequate levels of compatibility between existing and proposed uses.

Noise Generating Activities

- 7 Development that emits noise (other than music noise) should include noise attenuation measures that achieve the relevant *Environment Protection (Noise) Policy* criteria when assessed at the nearest existing noise sensitive premises.
- 8 Development with the potential to emit significant noise (e.g. industry) should incorporate noise attenuation measures that prevent noise from causing unreasonable interference with the amenity of noise sensitive premises.

- 9 Outdoor areas (such as beer gardens or dining areas) associated with licensed premises should be designed or sited to minimise adverse noise impacts on adjacent existing or future noise sensitive development.
- 10 Development proposing music should include noise attenuation measures that achieve the following desired noise levels:

Noise level assessment location	Desired noise level	
Adjacent existing noise sensitive development property boundary	Less than 8 dB above the level of background noise (L _{90,15min}) in any octave band of the sound spectrum and	
	Less than 5 dB(A) above the level of background noise (LA _{90,15min}) for the overall (sum of all octave bands) A-weighted level	
Adjacent land property boundary	Less than 65dB(Lin) at 63Hz and 70dB(Lin) in all other octave bands of the sound spectrum	
	or	
	Less than 8 dB above the level of background noise (L _{90,15min}) in any octave band of the sound spectrum and 5 dB(A) overall (sum of all octave bands) A-weighted level	

Air Quality

- 11 Development with the potential to emit harmful or nuisance-generating air pollution should incorporate air pollution control measures to prevent harm to human health or unreasonable interference with the amenity of sensitive uses within the locality.
- 12 Chimneys or exhaust flues associated with commercial development (including cafes, restaurants and fast food outlets) should be designed to ensure they do not cause a nuisance or health concerns to nearby sensitive receivers by:
 - (a) incorporating appropriate treatment technology before exhaust emissions are released to the atmosphere
 - (b) ensuring that the location and design of chimneys or exhaust flues maximises dispersion and takes into account the location of nearby sensitive uses.

Landscaping

OBJECTIVES

Objective 1: The amenity of land and development enhanced with appropriate planting and other landscaping works, using locally indigenous plant species where possible.

- 1 Landscaping of development should:
 - (a) be provided to soften the appearance of built form;
 - (b) complement the scale of the built form;
 - (c) be consistent with any particular desired character or important contextual features of the landscape setting in the locality;

- (d) define spaces and edges;
- (e) provide microclimate benefits such as shade and shelter;
- (f) retain existing landscaping, where practicable;
- (g) use species and techniques that require low water use and support and enhance local biodiversity;
- (h) enhance the appearance of development, establish visual buffers to adjacent development and screen service, loading, outdoor storage and parking areas.

2 Landscaping should not:

- (a) unreasonably restrict solar access to habitable rooms and solar collection areas in adjoining development;
- (b) be likely to cause structural damage or impact upon adjoining development through root damage and canopy drop;
- (c) remove opportunities for passive surveillance to public areas;
- (d) promote concealment and the potential for criminal activities adjacent to footpaths and public activity areas;
- (e) introduce environmental weeds to sensitive environmental areas.

Medium and High Rise Development (3 or More Storeys) OBJECTIVES

- **Objective 1:** Medium and high rise development that provides housing choice and employment opportunities.
- **Objective 2:** Residential development that provides a high standard of amenity and adaptability for a variety of accommodation and living needs.
- **Objective 3:** Development that is contextual and responds to its surroundings, having regard to adjacent built form and character of the locality and the Desired Character for the Zone and Policy Area.
- **Objective 4:** Development that integrates built form within high quality landscapes to optimize amenity, security and personal safety for occupants and visitors.
- **Objective 5:** Development that enhances the public environment, provides activity and interest at street level and a high quality experience for residents, workers and visitors by:
 - (a) enlivening building edges;
 - (b) creating attractive, welcoming, safe and vibrant spaces;
 - (c) improving public safety through passive surveillance;
 - (d) creating interesting and lively pedestrian environments;
 - (e) integrating public art into the development where it fronts the street and public spaces;
 - (f) incorporating generous areas of high quality fit for purpose landscaping.

Objective 6: Commercial, office and retail development that is designed to create a strong visual connection to the public realm and that contributes to the vitality of the locality.

Objective 7: Buildings designed and sited to be energy and water efficient.

PRINCIPLES OF DEVELOPMENT CONTROL

Note: Some of the following Principles of Development Control (PDC) prescribe a measurable design solution as one way of achieving the intent of the PDC. Where this solution is met, it should be taken as meeting the intent of the principle. Alternative design solutions may also achieve the intent of the PDC and, when proposed should be assessed on their merits.

Design and Appearance

- 1 Buildings should be designed to respond to key features of the prevailing local context within the same zone as the development. This may be achieved through design features such as vertical rhythm, proportions, composition, material use, parapet or balcony height, and use of solid and glass.
- 2 In repetitive building types, such as row housing, the appearance of building facades should provide some variation, but maintain an overall coherent expression such as by using a family of materials, repeated patterns, facade spacings and the like.
- Windows and doors, awnings, eaves, verandas or other similar elements should be used to provide variation of light and shadow and contribute to a sense of depth in the building façade.
- 4 Buildings should:
 - (a) achieve a comfortable human scale at ground level through the use of elements such as variation in materials and form, building projections and elements that provide shelter (for example awnings, verandas, and tree canopies);
 - (b) be designed to reduce visual mass by breaking up the building façade into distinct elements;
 - (c) ensure walls on the boundary that are visible from public land include visually interesting treatments to break up large blank facades.
- **5** Buildings should reinforce corners through changes in setback, materials or colour, roof form or height.
- Materials and finishes should be selected to be durable and age well to minimise ongoing maintenance requirements. 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.
- 7 Balconies should be integrated into the overall architectural form and detail of the development and should:
 - (a) utilise sun screens, pergolas, louvres and openable walls to control sunlight and wind;
 - (b) be designed and positioned to respond to daylight, wind, and acoustic conditions to maximise comfort and provide visual privacy;
 - (c) allow views and casual surveillance of the street while providing for safety and visual privacy of nearby living spaces and private outdoor areas;
 - (d) be of sufficient size, particularly depth, to accommodate outdoor seating.

Street Interface

- 8 Development facing the street should be designed to provide attractive, high quality and pedestrian friendly street frontage(s) by:
 - incorporating active uses such as shops or offices, prominent entry areas for multistorey buildings (where it is a common entry), habitable rooms of dwellings, and areas of communal public realm with public art or the like, where consistent with the zone and/or policy area provisions;
 - (b) providing a well landscaped area that contains a deep soil zone space for a medium to large tree in front of the building (except in a High Street Policy Area or other similar location where a continuous ground floor façade aligned with the front property boundary is desired). One way of achieving this is to provide a 4 metre x 4 metre deep soil zone area in front of the building;
 - designing building façades that are well articulated by creating contrasts between solid elements (such as walls) and voids (for example windows, doors and balcony openings);
 - (d) positioning services, plant and mechanical equipment (such as substations, transformers, pumprooms and hydrant boosters, car park ventilation) in discreet locations, screened or integrated with the façade;
 - (e) ensuring ground, semi-basement and above ground parking does not detract from the streetscape;
 - (f) minimising the number and width of driveways and entrances to car parking areas to reduce the visual dominance of vehicle access points and impacts on pedestrian areas.
- 9 Common areas and entry points of the ground floor level of buildings should be designed to enable surveillance from public land to the inside of the building at night.
- 10 Entrances to multi-storey buildings should:
 - (a) be oriented towards the street;
 - (b) be visible and clearly identifiable from the street, and in instances where there are no active or occupied ground floor uses, be designed as a prominent, accentuated and welcoming feature;
 - (c) provide shelter, a sense of personal address and transitional space around the entry;
 - (d) provide separate access for residential and non-residential land uses;
 - (e) be located as close as practicable to the lift and/or lobby access;
 - (f) avoid the creation of potential areas of entrapment.
- 11 To contribute to direct pedestrian access and street level activation, the finished ground level of buildings should be no more than 1.2 metres above the level of the footpath, except for common entrances to apartment buildings which should be at ground level or universally accessible.
- **12** Dwellings located on the ground floor with street frontage should have individual direct pedestrian street access.
- 13 The visual privacy of ground floor dwellings within multi-storey buildings should be protected through the use of design features such as the elevation of ground floors above street level, setbacks from street and the location of verandas, windows, porticos or the like.

One way of achieving this is for ground floor levels for multi storey residential developments to be raised by up to 1.2 metres (provided access is not compromised where relevant).

Building Separation and Outlook

- 14 Residential buildings (or the residential floors of mixed use buildings) should have habitable rooms, windows and balconies designed and positioned with adequate separation and screening from one another to provide visual and acoustic privacy and allow for natural ventilation and the infiltration of daylight into interior and outdoor spaces.
 - One way of achieving this is to ensure any habitable room windows and/or balconies are separated by at least 6 metres from one another where there is a direct 'line of sight' between them and be at least 3 metres from a side or rear property boundary. Where a lesser separation is proposed, alternative design solutions may be applied (such as changes to orientation, staggering of windows or the provision of screens or blade walls, or locating facing balconies on alternating floors as part of double floor apartments), provided a similar level of occupant visual and acoustic privacy, as well as light access, can be demonstrated.
- 15 Living rooms should have a satisfactory short range visual outlook to public or private open space.

Dwelling Configuration

- **16** Buildings comprising more than 10 dwellings should provide a variety of dwelling sizes and a range in the number of bedrooms per dwelling.
- 17 Dwellings located on the ground floor with street frontage should have habitable rooms with windows overlooking the street or public realm.
- 18 Dwellings with 3 or more bedrooms, should, where possible, have the windows of habitable rooms overlooking internal courtyard space or other public space.

Adaptability

19 Multi-storey buildings should include a variety of internal designs that will facilitate adaptive reuse, including the conversion of ground floor residential to future commercial use (i.e. by including floor to ceiling heights suitable for commercial use).

Environmental

- 20 Multi-storey buildings should:
 - (a) minimise detrimental micro-climatic and solar access impacts on adjacent land or buildings, including effects of patterns of wind, temperature, daylight, sunlight, glare and shadow;
 - (b) incorporate roof designs that enable the provision of photovoltaic cells and other features that enhance sustainability (including landscaping).
- 21 Green roofs (which can be a substitute for private or communal open space provided they can be accessed by occupants of the building) are encouraged for all new residential commercial or mixed use buildings.
- 22 Development of 5 or more storeys, or 21 metres or more in building height (excluding the rooftop location of mechanical plant and equipment), should be designed to minimise the risk of wind tunnelling effects on adjacent streets by adopting one or more of the following:
 - (a) a podium at the base of a tall tower and aligned with the street to deflect wind away from the street;

- (b) substantial verandas around a building to deflect downward travelling wind flows over pedestrian areas;
- (c) the placement of buildings and use of setbacks to deflect the wind at ground level.
- 23 Deep soil zones should be provided to retain existing vegetation or provide areas that can accommodate new deep root vegetation, including tall trees with large canopies.

One way of achieving this is in accordance with the following table:

Site area	Minimum deep soil area	Minimum dimension	Tree/ deep soil zones	
<300m ²	10m ²	1.5 metres	1 small tree / 10m² deep soil	
300-1500m ²	7% site area	3 metres	1 medium tree / 30m² deep soil	
>1500m ²	7% site area	6 metres	1 large or medium tree / 60m² deep soil	
Tree size and site area definitions				
Small tree:	< 6 metres mature height and < less than 4 metres canopy spread			
Medium tree:	6-12 metres mature height and 4-8 metres canopy spread			
Large tree:	12 metres mature height and > 8 metres canopy spread			
Site area:	The total area for development site, not average area per dwelling			

24 Deep soil zones should be provided with access to natural light to assist in maintaining vegetation health.

Site Facilities and Storage

- **25** Dwellings should provide a covered storage area of not less than 8 cubic metres in one or more of the following areas:
 - (a) in the dwelling (but not including a habitable room)
 - (b) in a garage, carport, outbuilding or an on-site communal facility and be conveniently located and screened from view from streets and neighbouring properties.
- Development should provide a dedicated area for the on-site collection and sorting of recyclable materials and refuse, green organic waste and wash-bay facilities for the ongoing maintenance of bins. This area should be screened from view from public areas so as to not to detract from the visual appearance of the ground floor.
- Where the number of bins to be collected kerbside is 10 or more at any one time, provision should be made for on-site commercial collection.
- **28** The size of lifts, lobbies and corridors should be sufficient to accommodate movement of bicycles, strollers, mobility aids and visitor waiting areas.

Zone Interface

29 Unless separated by a public road or reserve, development site(s) adjacent to any zone that has a primary purpose of accommodating low rise (1 to 2 storey) residential activity should incorporate deep soil zones along the common boundary to enable medium to large trees to be retained or established to assist in screening new buildings of 3 or more storeys in height.

One way of achieving this is for development comprising building elements of three or more storeys in height to be setback at least 6 metres from a zone boundary, and incorporate a deep soil zone area capable of accommodating medium to large trees with a canopy spread of not more than 8 metres when fully mature.

Natural Resources

OBJECTIVES

- **Objective 1:** Retention, protection and restoration of the natural resources and environment.
- **Objective 2:** Protection of the quality and quantity of South Australia's surface waters, including inland, and underground waters.
- **Objective 3:** The ecologically sustainable use of natural resources including water resources, ground water, surface water and watercourses.
- **Objective 4:** Natural hydrological systems and environmental flows reinstated, and maintained and enhanced.
- **Objective 5:** Development consistent with the principles of water sensitive design.
- **Objective 6:** Development sited and designed to:
 - (a) protect natural ecological systems;
 - (b) achieve the sustainable use of water;
 - (c) protect water quality, including receiving waters;
 - (d) reduce runoff and peak flows and prevent the risk of downstream flooding;
 - (e) minimise demand on reticulated water supplies;
 - (f) maximise the harvest and use of stormwater;
 - (g) protect stormwater from pollution sources.
- **Objective 7:** Storage and use of stormwater which avoids adverse impact on public health and safety.
- **Objective 8:** Native flora, fauna and ecosystems protected, retained, conserved and restored.
- **Objective 9:** Restoration, expansion and linking of existing native vegetation to facilitate habitacorridors for ease of movement of fauna.
- **Objective 10:** Minimal disturbance and modification of the natural landform.
- **Objective 11:** Protection of the physical, chemical and biological quality of soil resources.
- **Objective 12:** Protection of areas prone to erosion or other land degradation processes from inappropriate development.
- **Objective 13:** Protection of the scenic qualities of natural and rural landscapes.

PRINCIPLES OF DEVELOPMENT CONTROL

1 Development should be undertaken with minimum impact on the natural environment, including air and water quality, land, soil, biodiversity, and scenically attractive areas.

- 2 Development should ensure that South Australia's natural assets, such as biodiversity, water and soil, are protected and enhanced.
- 3 Development should not significantly obstruct or adversely affect sensitive ecological areas such as creeks, wetlands.
- **4** Development should be appropriate to land capability and the protection and conservation of water resources and biodiversity.

Water Sensitive Design

- 5 Development should be designed to maximise conservation, minimise consumption and encourage reuse of water resources.
- 6 Development should not take place if it results in unsustainable use of surface or underground water resources.
- 7 Development should be sited and designed to:
 - (a) capture and re-use stormwater, where practical;
 - (b) minimise surface water runoff;
 - (c) prevent soil erosion and water pollution;
 - (d) protect and enhance natural water flows:
 - (e) protect water quality by providing adequate separation distances from watercourses and other water bodies;
 - (f) not contribute to an increase in salinity levels;
 - (g) avoid the water logging of soil or the release of toxic elements;
 - (h) maintain natural hydrological systems and not adversely affect:
 - (i) the quantity and quality of groundwater;
 - (ii) the depth and directional flow of groundwater;
 - (iii) the quality and function of natural springs.
- **8** Water discharged from a development site should:
 - (a) be of a physical, chemical and biological condition equivalent to or better than its predeveloped state;
 - (b) not exceed the rate of discharge from the site as it existed in pre-development conditions.
- 9 Development should include stormwater management systems to protect it from damage during a minimum of a 1-in-100 year average return interval flood.
- 10 Development should have adequate provision to control any stormwater over-flow runoff from the site and should be sited and designed to improve the quality of stormwater and minimise pollutant transfer to receiving waters.
- 11 Development should include stormwater management systems to mitigate peak flows and manage the rate and duration of stormwater discharges from the site to ensure the carrying capacities of downstream systems are not overloaded.

- 12 Development should include stormwater management systems to minimise the discharge of sediment, suspended solids, organic matter, nutrients, bacteria, litter and other contaminants to the stormwater system.
- 13 Stormwater management systems should preserve natural drainage systems, including the associated environmental flows.
- 14 Stormwater management systems should:
 - (a) maximise the potential for stormwater harvesting and re-use, either on-site or as close as practicable to the source;
 - (b) utilise, but not be limited to, one or more of the following harvesting methods:
 - (i) the collection of roof water in tanks;
 - the discharge to open space, landscaping or garden areas, including strips adjacent to car parks;
 - (iii) the incorporation of detention and retention facilities;
 - (iv) aquifer recharge.
- Where it is not practicable to detain or dispose of stormwater on site, only clean stormwater runoff should enter the public stormwater drainage system.

Renewable Energy OBJECTIVES

- **Objective 1:** The development of renewable energy facilities, such as wind and biomass energy facilities, in appropriate locations.
- **Objective 2:** 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.

- 1 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.
- 2 Renewable energy facilities, including wind farms, and ancillary developments should be located in areas that maximise efficient generation and supply of electricity.
- 3 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 significance;
 - (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.

Residential Development OBJECTIVES

Objective 1: Safe, convenient, sustainable and healthy living environments.

Objective 2: Preservation and enhancement of the existing character within historic conservation and streetscape character zones and policy areas through contextual design and conservation measures that promotes the retention of buildings and the sensitive re-development, alterations, additions and adaptive re-use of buildings.

Objective 3: Higher dwelling densities yielded from sensitive and well designed residential infill and comprehensive residential redevelopment of selected living areas outside those zones or policy areas of identified historic conservation and streetscape character.

Objective 4: A diversity of housing to meet the needs and preferences of the community.

Objective 5: Residential areas free of incompatible uses and activities.

PRINCIPLES OF DEVELOPMENT CONTROL

Design and Appearance

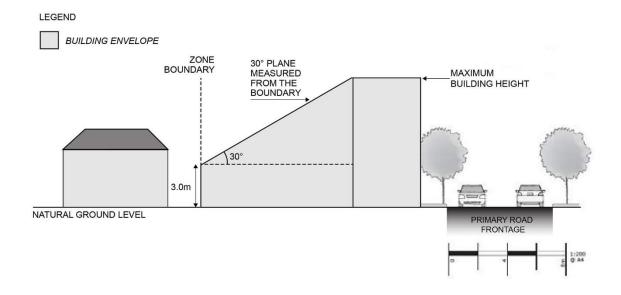
- 1 The design and appearance of buildings and their surrounds should respect the contextual qualities of the locality and be consistent with the desired character for the zone or policy area and therefore should have regard to:
 - (a) site dimensions and configurations;
 - (b) street and boundary setbacks;
 - (c) site coverage;
 - (d) private and communal open space;
 - (e) building form, scale, mass and height;
 - (f) building orientation to public streets;
 - (g) building facades and detailing;
 - (h) roof form and pitch;
 - (i) fences, walls and landscaping;

- (j) overlooking and overshadowing;
- (k) noise;
- (I) access and car parking;
- (m) site facilities and storage.

Building Form, Scale, Mass and Height

General

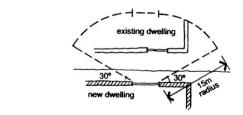
- 23 Building form, scale, mass and height should be compatible with development in the locality and in particular the desired character and built form parameters for the zone or policy area.
- 24 Development should be sited and designed to minimize negative visual impacts on existing and potential future land uses that are considered appropriate in the locality.
- 25 To minimise impacts at the interface with lower scale sensitive development, buildings of 3 storeys or more (or heights greater than 7 metres) should be constructed within a building envelope provided by a 30 degree plane, measured from a height of 3 metres above ground level (of the adjoining affected land) at the zone or Policy Area boundary (except where this boundary is the primary road frontage), as illustrated in **Figure 1**:

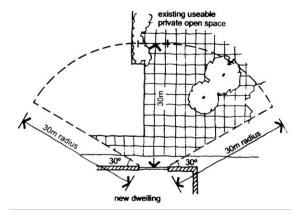


Overlooking

- 38 Direct overlooking from upper level (above ground floor level) habitable room windows and external balconies, roof patios, terraces and decks to habitable room windows and useable private open space of other dwellings should be minimised through adoption of one or more of the following:
 - (a) building layout;
 - (b) location and design of windows, balconies, roof patios and decks;
 - (c) screening devices;
 - (d) adequate separation distances;
 - (e) existing landscaping and supplementary screen tree planting.

- 39 To maintain a reasonable level of visual privacy to adjacent residential properties the following measures are sought:
 - (a) orientate and stagger windows and upper level viewing areas to prevent direct views into adjoining property indoor and outdoor living areas;
 - obscure viewing by raising window sills or incorporating obscure glass windows to a height at least 1.7 metres above floor level;
 - (c) use permanently fixed external screening devices such as screens, fences, wing walls, panels, planter boxes or similar measures adequate to restrict 120 degree views;
 - (d) provide a separation distance of 15 metre radius to windows of habitable rooms in potentially impacted dwellings and 30 metre radius to private open space as described in the Figure below;
 - (e) incorporate plants capable of providing and seasonally sustaining a privacy screen.





Area likely to be primarily affected by overlooking from upper level windows, balconies and decks.

Overshadowing and Natural Light

- 41 Development should allow direct winter sunlight access to adjacent residential properties and minimise the overshadowing of:
 - (a) living room windows, wherever practicable;
 - (b) the majority of private open space areas, communal open space and upper level balconies that provide the primary open space provision;
 - (c) roof areas, preferably north facing and suitable for the siting of at least 4 solar panels on any dwelling;

or where such affected areas are already shaded, the additional impact should not significantly worsen the available sunlight access.

42 To ensure an adequate level of daylight and outlook, light wells and similar devices should not be relied on as the primary source of daylight for habitable rooms.

Transportation (Movement of People and Goods) OBJECTIVES

Objective 1: Control the movement of traffic within the city having regard to a hierarchy of roads in order to ensure compatibility between development adjacent to roads and the position of the road in the hierarchy.

The following arterial roads are of primary importance to metropolitan traffic movement:

Anzac Highway; Cross Road; Glen Osmond Road; Greenhill Road; and South Road.

The following arterial roads supplement the above arterial roads in catering for metropolitan traffic movement, but are of secondary importance to the above roads in this role:

Fullarton Road; Goodwood Road; and Unley Road.

The following major collector roads carry a small component of through traffic particularly during peak periods. Traffic restraint is necessary due to the impacts upon adjacent land use arising from through traffic on the road:

Duthy Street; George Street; East Avenue/Leah Street/Leader Street; and King William Road/Northgate Street/Victoria Avenue.

The following roads have a local crossing/collector function in that:

- (a) they fulfil a need to subdivide a local traffic area because, in one dimension at least, the area is too large to be reasonably circumnavigated by intra-suburban traffic; and/or
- (b) distribute traffic between the arterial roads and the local street system:

Albert Street; Arthur Street (Unley); Ferguson Avenue; Fisher Street; Forest Avenue; Mills Street; Mitchell Street; Park Street; Victoria Street; and Wattle Street.

All other local streets and roads have a main function of providing access to abutting property and are not designed to facilitate through traffic movement.

Objective 2: A network of roads, paths and tracks, to accommodate satisfactorily a variety of vehicular, cycle and pedestrian, traffic.

Objective 3: A safe and efficient vehicular and pedestrian movement system.

- **Objective 4:** Safe and easy movement of pedestrians across arterial roads.
- **Objective 5:** A comprehensive, integrated, and efficient, public and private transport system which will:
 - (a) provide access to adequate transport services for all people, at an acceptable cost;
 - (b) effectively support the economic development of metropolitan Adelaide and the State;
 - (c) ensure a high level of safety; and
 - (d) maintain the options for the introduction of suitable new transport technologies.
- **Objective 6:** A compatible arrangement between land uses and the transport system which will:
 - (a) ensure minimal noise and air pollution;
 - (b) protect amenity of existing and future land uses;
 - (c) provide adequate access; and
 - (d) ensure maximum safety.

Objective 7: A form of development adjoining main roads which will:

- (a) ensure traffic can move efficiently and safely;
- (b) prevent large traffic-generating uses outside designated shopping/centre zones;
- (c) provide for adequate off-street parking; and
- (d) provide limited and safe points of access and egress.
- **Objective 8:** A high degree of visibility at intersections for drivers of motor vehicles entering arterial roads.
- **Objective 9:** The retention of all present road reserve widths in the city, other than in respect of arterial roads.

Due to the magnitude of impacts that road widening has upon properties abutting roads affected by these actions, widening of arterial roads should only take place where detailed investigations of both local and regional needs indicate such widening is desirable.

- **Objective 10:** Non-local traffic utilizing the arterial road system, and not local streets.
- **Objective 11:** Development located and designed to direct traffic away from local crossing/collector roads and local streets, and the improvement of the environment of these classes of streets.
- **Objective 12:** A co-ordinated and integrated bicycle movement system which complements other vehicles movement systems.
- **Objective 13:** Off-street parking areas able to cater for the demands of existing and proposed development in Office, Mixed Use and Centre Zones.

The main elements of the transport system are shown on Map Un/1 (Overlay 1).

PRINCIPLES OF DEVELOPMENT CONTROL

General

- Development adjacent to every road and street should conform with the objectives relating to movement of people and goods and be compatible with the hierarchy of roads shown on Map Un/1 (Overlay 1).
- Where traffic control works, public works or facilities are required as a direct result of a development, the cost of such works or facilities should be borne by the developer.
- 3 Development should:
 - (a) provide safe and convenient access for private cars, cyclists, pedestrians, service vehicles, emergency vehicles and public utility vehicles;
 - (b) include access points located and designed in such a way as to minimise traffic hazards, vehicle queuing on public roads and intrusion of vehicles into adjacent residential areas; and
 - (c) provide off-street loading, service and vehicle manoeuvring areas.
- The number, location and design of access points onto the arterial roads shown on Map Un/1
 Map Un/1
 (Overlay 1) should be such as to minimise traffic hazards, queuing on the roads, right turn movements and interference with the function of intersections, junctions and traffic control devices.

Cycling and Walking

- Development should ensure that a permeable street and path network is established that encourages walking and cycling through the provision of safe, convenient and attractive routes with connections to adjoining streets, paths, open spaces, schools, pedestrian crossing points on arterial roads, public and community transport stops and activity centres.
- 6 Development should provide access, and accommodate multiple route options, for pedestrians and cyclists by enhancing and integrating with:
 - (a) open space networks, recreational trails, parks, reserves, and sport and recreation areas;
 - (b) Adelaide's principal cycling network (Bikedirect), which includes arterial roads, local roads and off-road paths.
- 7 New developments should give priority to and not compromise existing designated bicycle routes.
- Where development coincides with, intersects or divides a proposed bicycle route or corridor, development should incorporate through-access for cyclists.
- **9** Development should encourage and facilitate cycling as a mode of transport by incorporating end-of-journey facilities including:
 - (a) showers, changing facilities and secure lockers
 - (b) signage indicating the location of bicycle facilities
 - (c) bicycle parking facilities provided at the rate set out in <u>Table Un/6</u> Off-street Bicycle Parking requirements for Mixed Use, Corridor and District Centre Zones.
- 10 On-site secure bicycle parking facilities should be:

- (a) located in a prominent place;
- (b) located at ground floor level;
- (c) located undercover;
- (d) located where surveillance is possible;
- (e) well lit and well signed;
- (f) close to well used entrances;
- (g) accessible by cycling along a safe, well lit route.
- 11 Pedestrian and cycling facilities and networks should be designed and provided in accordance with relevant provisions of the *Australian Standards and Austroads Guides*.

Access

- 12 Development should have direct access from an all-weather public road.
- **13** Development should be provided with safe and convenient access which:
 - (a) avoids unreasonable interference with the flow of traffic on adjoining roads
 - (b) provides appropriate separation distances from existing roads or level crossings
 - (c) accommodates the type and volume of traffic likely to be generated by the development or land use and minimises induced traffic through over-provision
 - (d) is sited and designed to minimise any adverse impacts on the occupants of and visitors to neighbouring properties.
- 14 Development should not restrict access to publicly owned land such as recreation areas.
- 15 The number of vehicle access points onto arterial roads shown on Strategic Transport Routes Map Un/1 (Overlay 4) should be minimised and, where possible, access points should be:
 - (a) limited to local roads (including rear lane access)
 - (b) shared between developments.
- Development with access from arterial roads or roads as shown on Strategic Transport Routes Map Un/1 (Overlay 4) should be sited to avoid the need for vehicles to reverse onto or from the road.
- 17 Structures such as canopies and balconies that encroach onto the footpath of an arterial road should not cause visual or physical obstruction to:
 - (a) signalised intersections
 - (b) heavy vehicles
 - (c) street lighting
 - (d) overhead electricity lines
 - (e) street trees
 - (f) bus stops.

- 18 Driveways, access tracks and parking areas should be designed and constructed to:
 - (a) follow the natural contours of the land
 - (b) minimise excavation and/or fill
 - (c) minimise the potential for erosion from surface runoff
 - (d) avoid the removal of existing vegetation
 - (e) be consistent with Australian Standard AS 2890 Parking facilities.

Parking Area - Design, Location and Provision

- **19** Development should provide sufficient off-street parking to accommodate resident, visitor, customer, employee, and service vehicles.
- 20 Off-street vehicle parking should be in accordance with <u>Table Un/5</u> Off Street Vehicle Parking Requirements.
- 21 Car parking areas should:
 - (a) be located and designed in such a way as to ensure safe and convenient pedestrian access from vehicles to facilities; safe and convenient traffic circulation; include adequate provision for manoeuvring into and out of parking bays, and, in the case of centre-type development, result in minimal conflict between customer and service vehicles; and
 - (b) be designed so as to obviate the necessity for vehicles to back onto public roads.
- 22 Individual parking areas should, wherever possible, be so located and designed that:
 - (a) vehicular movement between them does not require the use of public roads; and
 - (b) the number of access points is minimised.
- 23 Development should provide the opportunity for the shared use of car parking and integration of car parking areas with adjacent development so as to reduce the total extent of car parking areas.
- 24 Development providing 25 or more car parking spaces should provide at least one car parking space in every 25 spaces for the use of the disabled, up to a maximum of five spaces. (See Table Un/5).
- 25 Parking for the disabled should be allocated and located within a short distance and convenient to major building entrances, ramps and other pedestrian access facilities useable by disabled people.

Vehicle Parking for Mixed Use, Corridor and District Centre Zones

- 26 Development should provide off-street vehicle parking and specifically marked accessible car parking places to meet anticipated demand.
- 27 Loading areas and designated parking spaces for service vehicles should:
 - (a) be provided within the boundary of the site;
 - (b) not be located in areas where there is parking provided for any other purpose.
- 28 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;
- (c) incorporate facade treatments along major street frontages that are sufficiently enclosed and detailed to complement neighbouring buildings consistent with the desired character of the locality.
- 29 In mixed use buildings, the provision of vehicle parking may be reduced in number and shared where the operating hours of commercial activities complement the residential use of the site.

Undercroft and Below Ground Garaging and Parking of Vehicles

- **30** Undercroft and below ground garaging of vehicles should only occur where envisaged in the relevant zone or policy area or precinct and ensure:
 - (a) the overall height and bulk of the undercroft structure does not adversely impact on streetscape character of the locality or the amenity of adjacent properties;
 - (b) vehicles can safely enter and exit from the site without compromising pedestrian or cyclist safety or causing conflict with other vehicles;
 - (c) driveway gradients provide for safe and functional entry and exit;
 - (d) driveways and adjacent walls, fencing and landscaping are designed to provide adequate sightlines from vehicles to pedestrians using the adjacent footpath;
 - (e) openings to undercroft areas are integrated with the main building so as to minimise visual impact;
 - (f) landscaping, mounding and/or fencing is incorporated to improve its presentation to the street and to adjacent properties;
 - (g) the overall streetscape character of the locality is not adversely impaired (e.g. visual impact, building bulk, front setbacks relative to adjacent development).
- 31 In the case of undercroft and below ground car parks where cars are visible from public areas, adequate screening and landscaping should be provided.

Parking Area - Screening and Landscaping

- 32 Landscaping should be provided and maintained in order to screen, shade and enhance the appearance of car parking areas. To this end, grade level car parking areas should not be located closer than two metres to the street alignment and 1.2 metres to the common boundary of adjoining property located within a residential zone.
- 33 To allow for adequate landscaping and screening, below ground level parking areas should:
 - (a) be set-back from property boundaries a distance which is the lesser of the building set-back or:
 - (i) in the case of the primary road frontage, six metres;
 - (ii) in the case of the secondary road frontage, three metres; and
 - (iii) in the case of other boundaries, two metres;
 - (b) ensure that the finished ground floor level of the building does not exceed a height of 1.3 metres, when measured from the lowest point of existing natural ground level on the site;

- incorporate earth mounding or raised ground levels in the landscaping areas and/or screening structures adjacent to any opening between ground level and the underside of the building; and
- (d) be designed to comply with Australian Standard 2890.1 (Off Street Parking).

Waste OBJECTIVES

- **Objective 1:** Development that, in order of priority, avoids the production of waste, minimises the production of waste, re-uses waste, recycles waste for re-use, treats waste and disposes of waste in an environmentally sound manner.
- **Objective 2:** Development that includes the treatment and management of solid and liquid waste to prevent undesired impacts on the environment including, soil, plant and animal biodiversity, human health and the amenity of the locality.

- 1 Development should be sited and designed to prevent or minimise the generation of waste (including wastewater) by applying the following waste management hierarchy in the order of priority as shown below:
 - (a) avoiding the production of waste;
 - (b) minimising waste production;
 - (c) reusing waste;
 - (d) recycling waste;
 - (e) recovering part of the waste for re-use;
 - (f) treating waste to reduce the potentially degrading impacts;
 - (g) disposing of waste in an environmentally sound manner.
- 2 The storage, treatment and disposal of waste materials from any development should be achieved without risk to health or impairment of the environment.
- 3 Development should avoid as far as practical, the discharge or deposit of waste (including wastewater) onto land or into any waters (including processes such as seepage, infiltration or carriage by wind, rain, sea spray, stormwater or by the rising of the water table).
- 4 Untreated waste should not be discharged to the environment, and in particular to any water body.
- 5 Development should include appropriately sized area to facilitate the storage of receptacles that will enable the efficient recycling of waste.
- 6 Development that involves the production and/or collection of waste and/or recyclable material should include designated collection and storage area(s) that are:
 - (a) screened and separated from adjoining areas;
 - (b) located to avoid impacting on adjoining sensitive environments or land uses:
 - (c) designed to ensure that wastes do not contaminate stormwater or enter the stormwater collection system;

- (d) located on an impervious sealed area graded to a collection point in order to minimise the movement of any solids or contamination of water;
- (e) protected from wind and stormwater and sealed to prevent leakage and minimise the emission of odours;
- (f) stored in such a manner that ensures that all waste is contained within the boundaries of the site until disposed of in an appropriate manner.

OVERLAYS

Overlay - Affordable Housing

Refer to Map Un/1 (Overlay 5) that relates to this overlay. The following policies apply to the 'designated area' marked on the relevant Overlay Map.

INTERPRETATION

Where the Objectives and/or Principles of Development Control that apply in relation to this overlay are in conflict with the relevant General Objectives and/or Principles of Development Control in the Development Plan, the overlay will prevail.

OBJECTIVES

Objective 1: Affordable housing that is integrated into residential and mixed use development.

Objective 2: Development that comprises a range of affordable dwelling types that caters for a variety of household structures.

PRINCIPLES OF DEVELOPMENT CONTROL

1 Development comprising 20 or more dwellings should include a minimum of 15 percent affordable housing (as defined by the *South Australian Housing Trust Regulations 2010* as amended).

Overlay – Strategic Transport Routes

Refer to Map Un/1 (Overlay 4) that relates to this overlay. The following policies apply to the 'designated area' marked on the relevant Overlay Map.

INTERPRETATION

Where the Objectives and/or Principles of Development Control that apply in relation to this overlay are in conflict with the relevant General Objectives and/or Principles of Development Control in the Development Plan, the overlay will prevail.

OBJECTIVES

Objective 1: Development that recognises the importance of strategic transport routes and does not impede traffic flow or create hazardous conditions for pedestrians, cyclists or drivers of vehicles, including emergency services vehicles.

- 1 Development adjacent to a strategic transport route should:
 - (a) avoid the provision of parking on the main carriageway;
 - (b) be accessible via service roads, where possible, that provide:
 - (i) parking off the main carriageway;

- (iii) a buffer from the main carriageway for pedestrian and cycle activity;
- (c) not impede the potential for overhead cabling and associated infrastructure to be established in an existing or proposed tram corridor.
- 2 Vehicular site access should not be provided along the main street frontage where an alternative access is available.
- 3 Development adjacent kerbside bus stops should be set back to provide sufficient space for indented bus bays with associated hard stand area, shelter and a 1.2 metre wide continuous accessible path behind the bus shelter.

Overlay - Noise and Air Emissions

Refer to Maps Un/1 (Overlay 3) and (Overlay 3A) that relate to this overlay. The following policies apply to the 'designated area' marked on the relevant Overlay Map.

INTERPRETATION

Where the Objectives and/or Principles of Development Control that apply in relation to this overlay are in conflict with the relevant General Objectives and/or Principles of Development Control in the Development Plan, the overlay will prevail.

OBJECTIVES

Objective 1: Protect community health and amenity from adverse impacts of noise and air emissions.

- 1 Noise and air quality sensitive development located adjacent to high noise and/or air pollution sources should:
 - (a) shield sensitive uses and areas through one or more of the following measures:
 - placing buildings containing less sensitive uses between the emission source and sensitive land uses and areas;
 - (ii) within individual buildings, place rooms more sensitive to air quality and noise impacts (e.g. bedrooms) further away from the emission source;
 - (iii) erecting noise attenuation barriers provided the requirements for safety, urban design and access can be met:
 - use building design elements such as varying building heights, widths, articulation, setbacks and shapes to increase wind turbulence and the dispersion of air pollutants provided wind impacts on pedestrian amenity are acceptable;
 - (c) locate ground level private open space, communal open space and outdoor play areas within educational establishments (including childcare centres) away from the emission source.