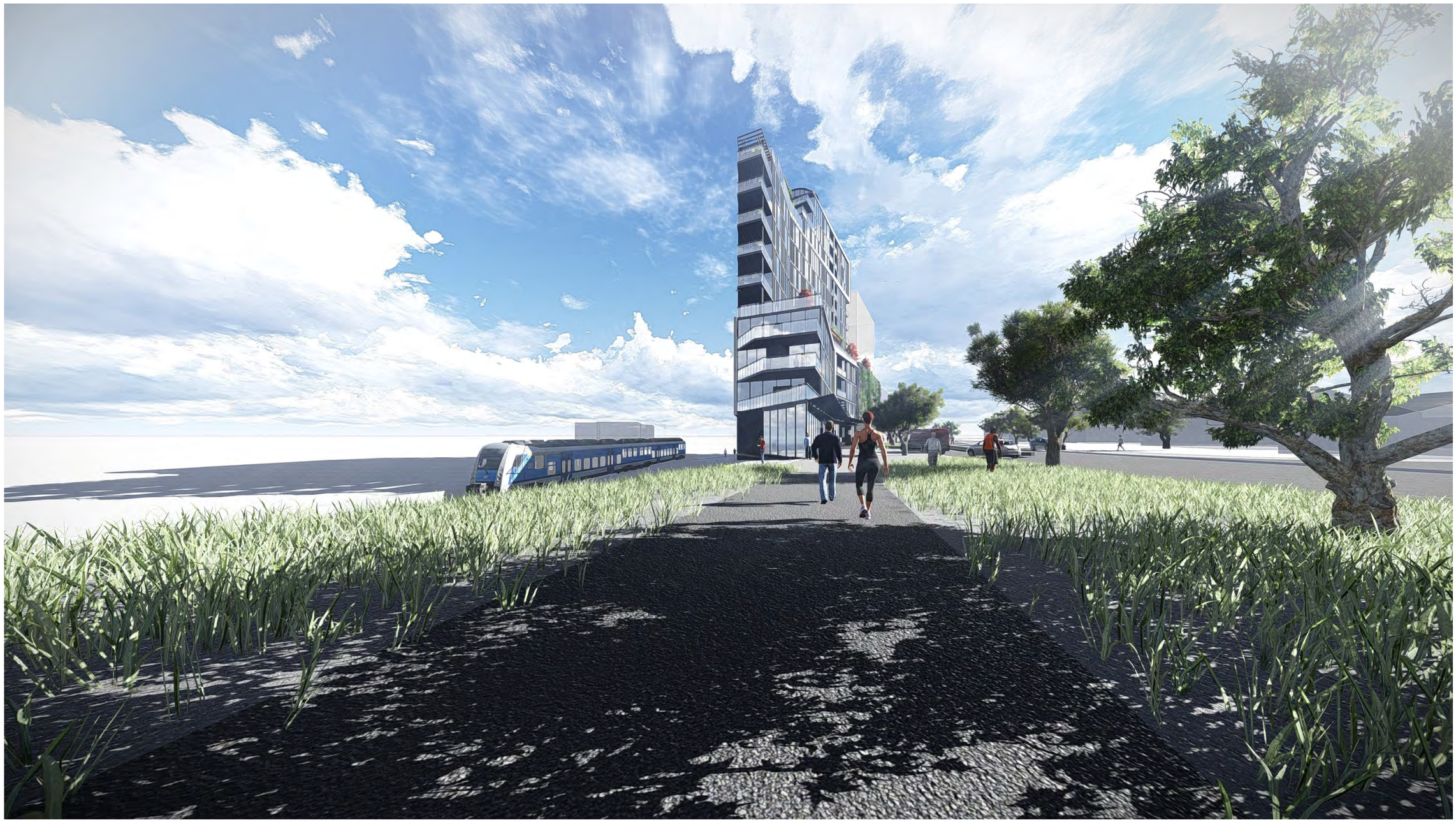


SEPP 65 STATEMENT & APARTMENT DESIGN GUIDE REPORT Rev. DA5

990 HUNTER STREET | NEWCASTLE

Michael Carr Architect

Introduction

This State Environmental Planning Policy (SEPP 65) Statement & Apartment Design Guide Compliance Report has been prepared for Brancourt Nominees Pty. Ltd. in support of a Development Application to the City of Newcastle for:

Development Approval of 990 Hunter Street, Newcastle West for Mixed Use Development comprising of 76 residential units and ground floor commercial space.

The proposed hybrid development will transform the current commercial lot into a much needed urban epicenter, creating a city-like density.

State Environmental Planning Policy No. 65 - Design Quality of Residential Apartment Development (SEPP 65) aims to improve the design quality of residential apartment development in New South Wales.

Adherence to SEPP 65 involves the application of 9 design principles. The first part of this report addresses these 9 design principles in response to schedule 1 of SEPP 65.

The second section of the report addresses the objectives arising from the Apartment Design Guide (ADG), which supercedes the Residential Flat Design Code (RFDC).

Together these design principles and objectives are to guide the design process of developments within NSW. A description of how the residential component of the development has applied the guidelines is outlined in this report.

Design Verification:

As Director of Michael Carr Architect, I hold the following qualifications:

- Bachelor of Architecture (Honours)
- Post Graduate Diploma, Architecture

I also hold the following professional affiliations:

- Registered Architect VIC 8154
- Member, Australian Institute of Architects

I confirm that :

(a) I directed the design, of the 990 Hunter Street, Newcastle as referenced within this report and the development application documentation.

(b) the design quality principles set out in Schedule 1 of the *State Environmental Planning Policy No 65 (SEPP 65) —Design Quality of Residential Apartment Development are achieved for the residential apartment development in the manner noted in this report.*

Michael Carr

Revision	Description	Date
DA1	Screening changes	April 2016
DA2	Landscape Plan update	April 2016
DA3	Revised Floor Plans	May 2017
DA4	Information added	August 2017
DA5	Additional information added	August 2017

Part 1 - Identifying the Context

1A Apartment Building Types Consider the appropriate form and typology of the apartment building to ensure that it is suited to the specific site conditions and adjacencies. Types of apartment include: • Narrow infill apartments • Row apartments • Shop top apartments • Courtyard apartments • Perimeter block apartments • Tower apartments • Hybrid developments	- The site has a prominent presence as a corner wedge site. A number of edge conditions apply to the site which provide benefit to the proposal of a high rise apartment block: - The site edges onto the railway line along it's rear face, ensuring no development within close proximity will rise to obscure close range views. - The Hunter Street 'west end' and 'civic' area have intentions for future renewal and vitalization. It is imagined that 990 Hunter Street is to be the western 'gateway', a catalyst for what is to come in the area and a clear border between the suburbs and civic centre of Newcastle. - The site affords an elongated street frontage where interaction and commercial activity may occur. - The elongated form ensures all apartments are light filled and not overtly deep. - As such, the apartment building has been envisaged as a tower like form, with retail use along it's street frontage and a variety of apartment plans above, care has been taken to tier and cascade balconies, so as to avoid a monolithic appearance and views in many directions are granted.
1B Local Character & Context Undertake a local context analysis. • Views • Streetscape • Scale of developments • Existing Use • Topography • Heritage buildings & significant developments The desired future character plays a part in considering the appropriateness of future development. This occurs through a consultative process with community, industry and other stakeholders.	- SITE: Hunter Street is the main arterial road into Newcastle city centre and includes a diverse range of building design and types. The site has a total area of approximately 1,416 sqm, with main street frontage to Hunter Street in the south and frontage to the Newcastle Railway line to its north. Private land immediately to the east of the site is privately owned and presently supports commercial premises. The Wickham urban village precinct is located north of the subject site. - VIEWS: The elongated form of the tower offers views in all directions with apartments primarily orientated north-east towards Hawkins Oval, Throsby Creek and the harbor and south-west towards National Park and the Pacific Ocean. - STREETSCAPE: The site has a main street frontage being Hunter Street. The existing streetscape to Hunter Street has little visual consistency and is characterised by 1 - 2 storey buildings of commercial and cultural use and residences mostly to the West of the subject site. A variety of façade proportions and materials exist and various building lines and projections are found. The wide footpath to this Western side of Hunter street provides opportunities for increased façade articulation. - SCALE OF DEVELOPMENT: Careful analysis of the Hunter street context was undertaken in the initial stages of the project. The site of the proposed development is within the Newcastle 'west end' precinct and forms a transition between the commercial and residential zonings and is currently an area of unrealized potential. The massing of the development is well within the documented building envelope for the site and therefore minimises overshadowing. - TOPOGRAPHY: The site has a consistent slope running from the north end down towards the south end with a fall of approximately 0.5m across the site. As such the proposal has a number of levels at ground level to accommodate the slope at street level. The slope is consistent along Hunter St. - HERITAGE/FUTURE: The Hunter Street 'west end' and 'civic' area have intentions for future renewal and vitalization. It is imagined that 990 Hunter Street is to be the western 'gateway', a catalyst for what is to come in the area and a clear border between the suburbs and civic centre of Newcastle.
1C Precincts and Individual Sites Preparation and analysis of precinct plans provide opportunities to: • Reconnect parts of the city or town • Improve the public domain network • Incorporate mixed uses to support vibrant renewal • Integrate heritage and views into the site • Provide greater housing diversity • Leverage efficiencies of scale to deliver effective environmental measures for site management in relation to waste, water and power. • Support flexibility in site layout to provide greater amenity to individual apartments.	- The development is considered as part of the Newcastle City Centre West Precinct - The site offers an opportunity to realise future potential and new urban realities for Hunter Street. Namely, the introduction of a residential component to an otherwise commercial site. - The site continues commercial operations at ground level offering streetscape interactions across approximately half the site frontage. - The rail line creates a foreseeable future with regards adjacent development to the easterly boundary. - The sharp point of the site occurs at a point that is perceived as an entry along Hunter St. No development potential exists immediately north of the subject site. Public pathways and grassed areas abut the rail reserve providing a pleasant approach to the site. Vehicular egress has been located to the other end of the site, so as not to encumber this asset.

Part 2 - Developing the Controls

2A Primary Controls A number of primary controls, as described in the following paragraphs, allow for a straight forward way to determine the allowable scale, bulk and rough form a development may take.	- An initial assessment utilizes massing diagrams and setbacks to determine the scale, and form from which the new development may emanate.
2B Building Envelopes Establish the allowable bulk, height and location of a development on a site.	- Hunter Street street front height: 5m minimum, 15m maximum. The development's maximum height, as perceived from the street frontage, is approx. 45m to Hunter Street. - Zero side setbacks for development up to 16 m street wall height - 0.9m horizontal rear setback off title boundary along railway line
2C Building Height The NSW Planning Portal, accessed April 2016, states a maximum building height of 60m for the subject site is permissible.	The maximum building height on hunter st measures at 44.9m, taken at the lowest ground level along the street frontage. The land rises approx. 800mm along the street frontage elevation, towards the retail end of the development from carpark. There is a cross fall on the site from front to rear elevation. The rear of the building on the railway side rises approx. 47.6m above ground level. The proposal allows for a stepping down of height towards the retail end. At this end, the tip of the wedged shaped site is designed to reduce it's presence.
2D Floor Space Ratio Permissible FSR: 6:1	Site Area = 1,416sqm Max GFA = 8,496 sqm. Proposed GFA = 6570 sqm (5399 Residential (+ 35.6 lockers), 389 Commercial, 746 Circulation (excl. core void)) Proposed FSR = 4.64:1 4565 Carpark (not included)
2E Building Depth An apartment building depth of 10-18 metres is appropriate. Developments that propose wider than 18 metres must demonstrate how satisfactory daylighting and natural ventilation are to be achieved.	The site is an unconventional shape, forming a wedge between the Newcastle railway line and Hunter Street in the western end of the Newcastle City Centre area. The site has a total area of approximately 1,416sqm, with main street frontage to Hunter street in the south and frontage to the Newcastle Railway line to its north. The existing building on the site is built to the full extent of the site boundaries, 35m (east). The maximum depth of the building is equal to that of the existing neighbouring building on the East side, however the depth tapers in towards the western boundary. Although the building itself exceeds a depth of 18m, no unit exceeds this depth and the building has been designed to maximise solar access.
2F Building Separation Increase building separation distances as building height increases as follows: <u>Up to four storeys:</u> • 12m between habitable rooms/balconies. • 9m between habitable rooms/balconies and non-habitable rooms. • 6m between non-habitable rooms. <u>Up to five to eight storeys:</u> • 18m between habitable rooms/balconies. • 12m between habitable rooms/balconies and non-habitable rooms. • 9m between non-habitable rooms. <u>Nine storeys and above:</u> • 24m between habitable rooms/balconies. • 18m between habitable rooms/balconies and non-habitable rooms. • 12m between non-habitable rooms.	Windows have been carefully located to avoid overlooking and privacy issues. Where appropriate screening has been added to windows. Adequate building separation has been provided and there is no residential building within proximity of the subject site. Overall amenity between private and communal outdoor spaces is maintained within the apartment development. Where overlooking may occur, screening devices have been used such as: - Pergola with vegetation in communal space - Pergola with vegetation in private balcony space - Planter boxes with vegetation - Two metre high fencing between all private and communal outdoor areas
2G Street Setbacks Street frontage setbacks aim to provide the following: • To establish a desired spatial proportion and to define the street edge • To provide space that can contribute to the landscape character of the street • To create a threshold that clearly delineates between public and private realms • To assist to provide visual privacy to apartments • To create adequate lobby and foyer spaces where apartments share access • To promote passive surveillance and outlook to the street	The proposed development has a zero setback entry, except to the carpark entry, where a recessed garage door provides splayed walls to assist with sight lines when maneuvering into or out of the site. The proposed retail development and the introduction of a mixed-use building allows for a development that continues to offer commercial activity to the community. Elevating apartments above ground level achieves visual privacy to private users of the site along with an overlooking function to aid passive surveillance. Balconies are positioned at regular intervals along the street frontage elevation, and indeed around the whole building. Many opportunities to capture vista views out across the landscape are taken advantage of. Streetscape planting has been designed into the proposal along the footpath. The garden beds aid to group existing trees into bound areas and define areas where a loading bay and drop-off zone, along with pedestrian "spill", may occur.
2H Side and Rear Setbacks Side and rear setbacks can assist the design to utilize light, shade and air circulation. They also may function to provide privacy between neighbouring apartments. This clause also seeks to address transitions between neighbouring buildings that may vary in use, form and scale.	Ground floor footprint utilizes the extent of the site area, except to the south-eastern tip which overlooks carparks and railyard; the north-west tip due to a storm water pipe; and the northern façade to prevent access into railway land during construction. The proposed building design steps in with increased height, in accordance with the building separation distances outlined above. Balconies are carved from the mass to provide amenity to apartment dwellers and visual variation to the passer-by.

Part 3 - Siting the Development

3A Site Analysis *Objective 3A-1* *Site analysis illustrates that design decisions have been based on opportunities and constraints of the site conditions and their relationship to the surrounding context.* • *That a Site Analysis be conducted addressing each element in the Site Analysis Checklist (Appendix 1 of the ADG)*	- Advantageous views at lofty heights, as well as street level, are considered by the design. - The adjacencies that may arise by virtue of future development potential are considered. - Integration into an otherwise low-rise streetscape are grappled with. The design presents varied floorplate footprints up the height of the building giving opportunity for a complex form with balconies further carved from the massing of the building. These techniques assist to break down the solidity of the high-rise giving it a varied form. - Traffic flow and pedestrian networks for movement are considered and approached in a clear, logical manner. - Continuing the passage of trees across the front of the site, where able, links with those already present north of the site. Where vehicular access interrupts this, a greening of the screen wall to the carpark has been introduced.
3B Orientation *Objective 3B-1* *Building types and layouts respond to the streetscape and site while optimizing solar access within the development.* • *Buildings along the street frontage define the street, by facing it and incorporating direct access from the street (see figure 3B.1)* • *Where the street frontage is to the east or west, rear buildings should be orientated to the north* • *Where the street frontage is to the north or south, overshadowing to the south should be minimised and buildings behind the street frontage should be orientated to the east and west (see figure 3B.2)* *Objective 3B-2* *Overshadowing of neighbouring properties is minimized during mid Winter.* • *Living areas, private open space and communal open space should receive solar access in accordance with sections 3D Communal and public open space and 4A Solar and daylight access* • *Solar access to living rooms, balconies and private open spaces of neighbours should be considered* • *Where an adjoining property does not currently receive the required hours of solar access, the proposed building ensures solar access to neighbouring properties is not reduced by more than 20%* • *If the proposal will significantly reduce the solar access of neighbours, building separation should be increased beyond minimums contained in section 3F Visual privacy* • *Overshadowing should be minimised to the south or down hill by increased upper level setbacks* • *It is optimal to orientate buildings at 90 degrees to the boundary with neighbouring properties to minimise overshadowing and privacy impacts, particularly where minimum setbacks are used and where buildings are higher than the adjoining development* • *A minimum of 4 hours of solar access should be retained to solar collectors on neighbouring buildings*	- The building has a strong street presence, the mixed use nature of the building activates the building's relationship within the community. - Apartment balconies benefit from either morning or afternoon sun. Some face due north. A limited number face south only. - A stepped form assist to ensure that shadows reduce their impact on neighbouring property. The road is relatively wide, two lanes each direction, and lies west of the subject site. Morning shadows are predominantly cast across the road. Afternoon sun shadows the southern neighbor. There are no other neighbours effected by this site.
3C Public domain interface *Objective 3C-1* *Transition between private and public domain is achieved without compromising safety and security.* • *Terraces, balconies and courtyard apartments should have direct street entry, where appropriate* • *Changes in level between private terraces, front gardens and dwelling entries above the street level provide surveillance and improve visual privacy for ground level dwellings (see figure 3C.1)* • *Front fences and walls along street frontages should use visually permeable materials and treatments. The height of solid fences or walls should be limited to 1m Upper level balconies and windows should overlook the public domain* • *Length of solid walls should be limited along street frontages*	- Retail uses are accorded discreet access points for entry directly from the footpath. - Carpark facilities are controlled via roller door entry with transitions into the interior through enclosed lobbies. - Bollards are indicated to the front of lifts servicing the carpark. A pedestrian zone is to be made apparent at lift entry points. - Upper level apartments have balconies that address the street front and provide casual surveillance opportunities. - The application of screens, glass and solid walls are further given visual interest by the high level of planting envisaged for the site.
• *Opportunities should be provided for casual interaction between residents and the public domain. Design solutions may include seating at building entries, near letter boxes and in private courtyards adjacent to streets* • *In developments with multiple buildings and/or entries, pedestrian entries and spaces associated with individual buildings/entries should be differentiated to improve legibility for residents, using a number of the following design solutions:* *architectural detailing* *changes in materials* *plant species* *colours* • *Opportunities for people to be concealed should be minimized* *Objective 3C-2* *Amenity of the public domain is retained and enhanced.* • *Planting softens the edges of any raised terraces to the street, for example above sub-basement car parking* • *Mail boxes should be located in lobbies, perpendicular to the street alignment or integrated into front fences where individual street entries are provided* • *The visual prominence of underground car park vents should be minimised and located at a low level where possible* • *Substations, pump rooms, garbage storage areas and other service requirements should be located in basement car parks or out of view* • *Ramping for accessibility should be minimised by building entry location and setting ground floor levels in relation to footpath levels* • *Durable, graffiti resistant and easily cleanable materials should be used* • *Where development adjoins public parks, open space or bushland, the design positively addresses this interface and uses a number of the following design solutions:* • *street access, pedestrian paths and building entries which are clearly defined* • *paths, low fences and planting that clearly delineate between communal/private open space and the adjoining public open space* • *minimal use of blank walls, fences and ground level parking* • *On sloping sites protrusion of car parking above ground level should be minimised by using split levels to step underground car parking*	- An awning running across the front of the retail area provides opportunity for direct down lighting, shelter at doorways and a clear delineation that concurs with use. - Nooks and niches are avoided, with the building's walls for the most part built out to the boundary line. - Planting is introduced along the footpath. New trees and garden beds to group trees and direct pedestrian egress is utilized. - A loading zone is proposed along the street front to cater to small vehicle delivery necessary for the operations of the retail tenancies and for furniture delivery to residents of the apartments. - Mail boxes are located in the main lobby entrance to the apartment tower. Access to this area will be controlled. - The carpark is partially underground with a screen and green wall to cover the three levels that rise above ground level to the south half of the site on the south and north-east facade. - The carpark is split level in an effort to reduce ramp lengths between levels and contain the carpark to a smaller area. - Ramped access has been provided to the outdoor entry area and main lobby to the apartment tower. Retail tenancies have floor levels that rise to meet footpath levels along this elevation. - No fencing at street level is integrated into the proposal. - Low walls occur by virtue of raised window sills to the retail areas where transparency occurs above.
3D Communal and public open space *Objective 3D-1* *An adequate area of communal open space is provided to enhance residential amenity and to provide opportunities for landscaping.* ***Design criteria*** ***1. Communal open space has a minimum area equal to 25% of the site*** ***2. Developments achieve a minimum of 50% direct sunlight to the principal usable part of the communal open space for a minimum of 2 hours between 9 am and 3 pm on 21 June (mid winter)*** • *Communal open space should be consolidated into a well designed, easily identified and usable area* • *Communal open space should have a minimum dimension of 3m, and larger developments should consider greater dimensions* • *Communal open space should be co-located with deep soil areas* • *Direct, equitable access should be provided to communal open space areas from common circulation areas, entries and lobbies* • *Where communal open space cannot be provided at ground level, it should be provided on a podium or roof* • *Where developments are unable to achieve the design criteria, such as on small lots, sites within business zones, or in a dense urban area, they should:* - *provide communal spaces elsewhere such as a landscaped roof top terrace or a common room* - *provide larger balconies or increased private open space for apartments* - *demonstrate good proximity to public open space and facilities and/or provide contributions to public open space*	- Communal open space areas occur as follows: Fourth floor level – 146 sqm Tenth floor level – 146 sqm Eleventh floor level – 36 sqm Twelfth floor level – 30 sqm TOTAL – 358 sqm = 25.23% site area - Fourth level communal space faces west and benefits from afternoon sun. Tenth level communal space faces north, east and west and benefits from solar access most times of the day. - Communal space is located at various levels throughout the tower for the residents. - Communal spaces are given wider dimensions than 3m. - Communal spaces are given ramped access at ground level and are accessed directly from corridors served by elevators at the higher levels. Doors may be automated with delay –action closers, as required. - Unbuilt corners of site, the south-east and north-west corner, provides an opportunity for deep soil planting. Equating to approximately 3% of site area, this area has been designated as such on the Landscape Designer's proposal. - Communal open space is not co-located with deep soil areas; however, it is visible from communal spaces. Additionally, larger communal spaces with planter boxes and landscaped areas are provided. Also, private balconies are maximised where possible.

Objective 3D-2
Communal open space is designed to allow for a range of activities, respond to site conditions and be attractive and inviting.

- *Facilities are provided within communal open spaces and common spaces for a range of age groups (see also 4F Common circulation and spaces), incorporating some of the following elements:*
- *seating for individuals or groups*
- *barbecue areas*
- *play equipment or play areas*
- *swimming pools, gyms, tennis courts or common rooms*
- *The location of facilities responds to microclimate and site conditions with access to sun in winter, shade in summer and shelter from strong winds and down drafts*
- *Visual impacts of services should be minimised, including location of ventilation duct outlets from basement car parks, electrical substations and detention tanks*

- Communal areas on terraces are landscaped with pergola shade structures over. BBQ facilities may be incorporated into the final design.
- Communal areas are planned to include some seating.
- A communal gym has been provided. This area has not been included in the communal open space calculation.
- Micro climate comfort has been considered. Solid handrail infill panels prevent and divert wind gusts from directly sweeping across balcony terraces.
- Services are contained in the Basement and at Ground level of the carpark. Switch room and detention tanks are housed. Ventilation duct outlets may vent into the carpark. The screening around the carpark is open.

Objective 3D-3
Communal open space is designed to maximize safety.

- *Communal open space and the public domain should be readily visible from habitable rooms and private open space areas while maintaining visual privacy. Design solutions may include:*
  - *bay windows*
  - *corner windows*
  - *balconies*
- *Communal open space should be well lit*
- *Where communal open space/facilities are provided for children and young people they are safe and contained*

- Communal open space is visible from the main lift egress points. A point in the building with greatest numbers of people passing by. Casual surveillance is assisted by this.
- Upstands to the communal balconies ensure nothing can slip under the handrail at ground level. A 500mm upstand to align with the tops of garden planter beds is planned for inclusion in architectural detailing of this area.
- These areas are to be made available for use after daylight, and lighting of these spaces is to be included.

Objective 3D-4
Public open space, where provided, is responsive to the existing pattern and uses of the neighbourhood.

- *The public open space should be well connected with public streets along at least one edge*
- *The public open space should be connected with nearby parks and other landscape elements*
- *Public open space should be linked through view lines, pedestrian desire paths, termination points and the wider street grid*
- *Solar access should be provided year round along with protection from strong winds*
- *Opportunities for a range of recreational activities should be provided for people of all ages*
- *A positive address and active frontages should be provided adjacent to public open space*
- *Boundaries should be clearly defined between public open space and private areas*

- An active street frontage with retail facilitation occurs adjacent to this public open space.
- Boundaries between the residential component and the public part of the development are clear and will be controlled via intercom, security pin or scan, and/or keyed access.

3E Deep soil zones

Objective 3E-1
Deep soil zones provide areas on the site that allow for and support healthy plant and tree growth. They improve residential amenity and promote management of water and air quality.

Design criteria

1. Deep soil zones are to meet the following minimum requirements:

Site Area	*Min. Dimensions*	*Deep soil zone % of site*
Less than 650 sqm	*-*	*7*
650-1500sqm	*3m*	
Greater than 1500sqm	*6m*	
Greater than 1500sqm with significant tree cover	*6m*	

Approximately 7% of the site area is unbuilt and nominated as a landscape zones in the Landscape Design. The landscape area at ground level is approximately 100sqm with the deep soil zone making up 40sqm of this area, at approx. 3% of the total site area. These deep soil zones are to the south-eastern and north-western tips of the site. Due to the shape of the site 7% of deep soil planting is unachievable. However, alternative opportunities have been capitalised to promote air quality and water management.

Garden beds with significant trees are located within the footpath between Hunter St and retail spaces at ground level to reduce noise impacts and soften the retail entrances at street level.

The remaining unbuilt 4% of the site is nominated as a landscaped area. This area is the 0.90m setback from the railway side of the site. Due to the proximity to the rail corridor and shallow depth of area, this area is unable to have deep soil planting.

- *On some sites it may be possible to provide larger deep soil zones, depending on the site area and context:*
- *10% of the site as deep soil on sites with an area of 650m2 - 1,500m2*
- *15% of the site as deep soil on sites greater than 1,500m2*
- *Deep soil zones should be located to retain existing significant trees and to allow for the development of healthy root systems, providing anchorage and stability for mature trees. Design solutions may include:*
- *basement and sub basement car park design that is consolidated beneath building footprints*
- *use of increased front and side setbacks*
- *adequate clearance around trees to ensure long term health*
- *co-location with other deep soil areas on adjacent sites to create larger contiguous areas of deep soil*
- *Achieving the design criteria may not be possible on some sites including where:*
  - *the location and building typology have limited or no space for deep soil at ground level (e.g. central business district, constrained sites, high density areas, or in centres)*
  - *there is 100% site coverage or non-residential uses at ground floor level*
  - *Where a proposal does not achieve deep soil requirements, acceptable stormwater management should be achieved and alternative forms of planting provided such as on structure*

However, additional landscaping has been designated to numerous areas around the building above site level to promote air quality and water management. As per the Landscape Design, there is a green wall facing Hunter St above the car park entry, trees and shrubs placed on private balconies and a green roof amounting to 10% of the site area on Level 4.

The landscaped zone between the north-eastern wall and the title boundary can be accessed for maintenance through an access hatch from the basement.

- The site has non-residential uses at ground level.
- The site formation is constrained to an extent that it is undesirable to have deep soil planting save for the 3% designated by landscape proposal
- The development makes use of 93% site coverage.
- Infact, 7% of the site is unbuilt and designated as a landscape area with 3% nominated as deep soil zones.

3F Visual privacy

Objective 3F-1
Adequate building separation distances are shared equitably between neighbouring sites, to achieve reasonable levels of external and internal visual privacy.

Design criteria

1. Separation between windows and balconies is provided to ensure visual privacy is achieved. Minimum required separation distances from buildings to the side and rear boundaries are as follows:

2.

Building Height	*Habitable rooms & balconies*	*Non-habitable rooms*
Up to 12m (4 storeys)	*6m*	*3m*
Up to 25m (5-8 storeys)	*9m*	*4.5m*
Over 25m (9+ storeys)	*12m*	*6m*

Note:
Separation distances between buildings on the same site should combine required building separations depending on the type of room (see figure 3F.2)
Gallery access circulation should be treated as habitable space when measuring privacy separation distances between neighbouring properties

- *Generally one step in the built form as the height increases due to building separations is desirable. Additional steps should be careful not to cause a 'ziggurat' appearance*
- *For residential buildings next to commercial buildings, separation distances should be measured as follows:*
- *for retail, office spaces and commercial balconies use the habitable room distances*
- *for service and plant areas use the non-habitable room distances*
- *New development should be located and oriented to maximise visual privacy between buildings on site and for neighbouring buildings. Design solutions include:*
- *site layout and building orientation to minimise privacy impacts (see also section 3B Orientation)*
- *on sloping sites, apartments on different levels have appropriate visual separation distances (see figure 3F.4)*

- Carpark levels are not accorded a separation from neighbouring building site boundary.
- Residential areas are given a 6m setback along the shared boundary.to wall line. Balconies encroach the setback. Balustrades are envisaged to be light transmitting, ie: glass.
- A single step occurs in the proposed form along the shared boundary.
- North facing residential apartments are setback from the tip to provide an internal room width dimension that is not inconvenient and enables outdoor space to utilize the area within the setback.
- The proposed design is under 25 storeys.
- Where overlooking of a neighbouring apartment could occur, the design has positioned balconies to be internal to that apartment's floor plan.
- Visual privacy has also been considered at the communal level by the introduction of a 2m height screening wall to avoid overlooking between private and communal areas.
- Plant areas are planned for inclusion at basement level or within the carpark.

• *Apartment buildings should have an increased separation distance of 3m (in addition to the requirements set out in design criteria 1) when adjacent to a different zone that permits lower density residential development to provide for a transition in scale and increased landscaping (figure 3F.5)* • *Direct lines of sight should be avoided for windows and balconies across corners* • *No separation is required between blank walls*	- To the other side of the road use patterns are commercial, including an open air carpark, residential properties are set behind (west of these properties).
Objective 3F-2 *Site and building design elements increase privacy without compromising access to light and air and balance outlook and views from habitable rooms and private open space.* *Communal open space, common areas and access paths should be separated from private open space and windows to apartments, particularly habitable room windows. Design solutions may include:* • *setbacks* • *solid or partially solid balustrades to balconies at lower levels* • *fencing and/or trees and vegetation to separate spaces* • *screening devices* • *bay windows or pop out windows to provide privacy in one direction and outlook in another* • *raising apartments/private open space above the public domain or communal open space* • *planter boxes incorporated into walls and balustrades to increase visual separation* • *pergolas or shading devices to limit overlooking of lower apartments or private open space* • *on constrained sites where it can be demonstrated that building layout opportunities are limited, fixed louvres or screen panels to windows and/or balconies* • *Bedrooms, living spaces and other habitable rooms should be separated from gallery access and other open circulation space by the apartment's service areas* • *Balconies and private terraces should be located in front of living rooms to increase internal privacy* • *Windows should be offset from the windows of adjacent buildings* • *Recessed balconies and/or vertical fins should be used between adjacent balconies*	Privacy is increased by the introduction of the following elements: - Dividing walls between adjacent balconies, the angle of the boundary positively assisting to ensure that solar access is not affected detrimentally. - Recessing balconies within their host apartments layout. - Placement of overhead pergola devices to obscure views down into an apartment's private open space. - Most balconies are only overlooked by living spaces within the apartment layouts. Some have the bedroom windows to facilitate amenity. - Most un-inhabitable rooms are placed internal to the apartment layout, open planning enables natural light to access these areas. - Planter boxes have been positioned to allow and encourage plant growth up the columns of pergolas and, with time, to offer overhead screening. - Planter boxes near the edge of balconies can provide screening functions. A 500mm upstand around communal balconies assist to prevent views up from the street below. - Larger sized apartments provide internal privacy by situating bedrooms accessed through study nooks or from passages.

3G Pedestrian access and entries *Objective 3G-1* *Building entries and pedestrian access connects to and addresses the public domain.* • *Multiple entries (including communal building entries and individual ground floor entries) should be provided to activate the street edge* • *Entry locations relate to the street and subdivision pattern and the existing pedestrian network* • *Building entries should be clearly identifiable and communal entries should be clearly distinguishable from private entries* • *Where street frontage is limited and multiple buildings are located on the site, a primary street address should be provided with clear sight lines and pathways to secondary building entries* *Objective 3G-2* *Access, entries and pathways are accessible and easy to identify.* • *Building access areas including lift lobbies, stairwells and hallways should be clearly visible from the public domain and communal spaces* • *The design of ground floors and underground car parks minimise level changes along pathways and entries* • *Steps and ramps should be integrated into the overall building and landscape design* • *For large developments 'way finding' maps should be provided to assist visitors and residents (see figure 4T.3)* • *For large developments electronic access and audio/video intercom should be provided to manage access* *Objective 3G-3* *Large sites can provide pedestrian links for access to streets and connection to destinations.* • *Pedestrian links through sites facilitate direct connections to open space, main streets, centres and public transport* • *Pedestrian links should be direct, have clear sight lines, be overlooked by habitable rooms or private open spaces of dwellings, be well lit and contain active uses, where appropriate*	- *Building entries have been provided for a multiple of use type arrangements. These include: Retail, Public, Residents, Service personnel and escape provisions.* - *Each of these use type entries are directly accessible from the street frontage.* - *Garden beds located to the Hunter St side of the footpath have breaks and recessed to offer users the ability to wait clear of the footpath traffic.* - *Communal and Public entries are controlled in a different manner. This will largely operate at the security level.* - *Retail entries are distinct by the choice of material used in the façade at these frontages, and by the incorporation of an awning structure along their frontage. Retail entries are distributed evenly across the overall retail façade area, and are separated from the private residential lobby to distinguish between entries.* - *The Lobby to the lift well is centrally located along the façade. Planting along the footpath is proposed in a location to accentuate its position. The two garden beds will effectively flank the entry.* - *The residential lifts are visible from the Lobby entry for clear wayfinding for occupants. Residential lobbies and entries are visible from carparking levels P2, P4, P6 and P8. Intermediate carparking levels P3, P5, P7 and P9 can access lobbies and entries through intermediate stairs and identified with signage where necessary.*

3H Vehicle access *Objective 3H-1* *Vehicle access points are designed and located to achieve safety, minimize conflicts between pedestrians and vehicles and create high quality streetscapes.* • *Car park access should be integrated with the building's overall facade. Design solutions may include:* *- the materials and colour palette to minimise visibility from the street* *- security doors or gates at entries that minimise voids in the facade* *- where doors are not provided, the visible interior reflects the facade design and the building services, pipes and ducts are concealed* • *Car park entries should be located behind the building line* • *Vehicle entries should be located at the lowest point of the site minimising ramp lengths, excavation and impacts on the building form and layout* • *Car park entry and access should be located on secondary streets or lanes where available* • *Vehicle standing areas that increase driveway width and encroach into setbacks should be avoided* • *Access point locations should avoid headlight glare to habitable rooms* • *Adequate separation distances should be provided between vehicle entries and street intersections* • *The width and number of vehicle access points should be limited to the minimum* • *Visual impact of long driveways should be minimised through changing alignments and screen planting* • *The need for large vehicles to enter or turn around within the site should be avoided* • *Garbage collection, loading and servicing areas are screened* • *Clear sight lines should be provided at pedestrian and vehicle crossings* • *Traffic calming devices such as changes in paving material or textures should be used where appropriate* • *Pedestrian and vehicle access should be separated and distinguishable. Design solutions may include:* *- changes in surface materials* *- level changes* *- the use of landscaping for separation*	- *The Carpark entry point is discernible as an entity that rises a number of levels that has been treated in a completely different manner to parts of the building that relate to residential or commercial activity. A screen that wraps around the building and rises a number of levels rises above footpath level to permit vehicular access. This screen is to accept plant growth.* - *The carpark entry is accessed behind the building line.* - *The access for vehicles will be controlled by an automated overhead door.* - *The carpark is located at the lower level along the street frontage enabling a reduction in the overall height of the area given over to car parking levels.* - *No apartments or retail areas will be subject to direct glare from headlights due to the carpark placement and vehicular access within.* - *Garbage areas are enclosed within the carpark. Garbage collection is to be coordinated with the contractor.* - *Splayed walls at the carpark entry provide for adequate sightlines between driver and pedestrian.* - *Bollards and line marking are planned for use within the car parking areas to separate vehicular and pedestrian access pathways.*
Bicycle and car parking *Objective 3J-1* *Car parking is provided based on proximity to public transport in metropolitan Sydney and centres in regional areas.* ***Design criteria*** ***For development in the following locations:*** - ***on sites that are within 800 metres of a railway station or light rail stop in the Sydney Metropolitan Area; or*** - ***on land zoned, and sites within 400 metres of land zoned, B3 Commercial Core, B4 Mixed Use or equivalent in a nominated regional centre*** ***the minimum car parking requirement for residents and visitors is set out in the Guide to Traffic Generating Developments, or the car parking requirement prescribed by the relevant council, whichever is less*** ***The car parking needs for a development must be provided off street*** • *Where a car share scheme operates locally, provide car share parking spaces within the development. Car share spaces, when provided, should be on site* • *Where less car parking is provided in a development, council should not provide on street resident parking permits* *Objective 3J-2* *Parking and facilities are provided for other modes of transport.* • *Conveniently located and sufficient numbers of parking spaces should be provided for motorbikes and scooters*	- *Car parking rates have been arrived at in conjunction with the relevant Local Authority. They are as follows:* *Retail – 1 space per 60sqm* = 6.5 spaces *Residential <75sqm – 0.6 spaces per number of apartments* = 26.4 spaces *Residential 75-100sqm – 0.9 spaces per number of apartments* = 20.7 spaces *Residential >100sqm – 1.4 spaces per number of apartments* = 12.6 spaces *Visitor – 1 space for first 3 apartments* = 1 space *Visitor – 1 space for each 5 apartments thereafter* = 14.6 spaces *Disabled parking – to meet BCA requirements and NSW planning regulations* *No requirement for Class 2 multi-residential buildings* *For retail Class 6 buildings:* *Up to 1000 carparking spaces – 1 space for every 50* Universal – 1 space for every universal apartment - 20% of 76 apartments = 16 spaces (incorporated in residential car spaces above) *TOTAL: 82 car spaces required (excluding disabled parking)* *Disabled access parks (x1 for 7 retail car spaces) are located closest to the lift access on levels P2.*

• *Secure undercover bicycle parking should be provided that is easily accessible from both the public domain and common areas* • *Conveniently located charging stations are provided for electric vehicles, where desirable* *Objective 3J-3* *Car park design and access is safe and secure* • *Supporting facilities within car parks, including garbage, plant and switch rooms, storage areas and car wash bays can be accessed without crossing car parking spaces* • *Direct, clearly visible and well lit access should be provided into common circulation areas* • *A clearly defined and visible lobby or waiting area should be provided to lifts and stairs* • *For larger car parks, safe pedestrian access should be clearly defined and circulation areas have good lighting, colour, line marking and/or bollards* *Objective 3J-4* *Visual and environmental impacts of underground car parking are minimized.* • *Excavation should be minimised through efficient car park layouts and ramp design* • *Car parking layout should be well organised, using a logical, efficient structural grid and double loaded aisles* • *Protrusion of car parks should not exceed 1m above ground level. Design solutions may include stepping car park levels or using split levels on sloping sites* • *Natural ventilation should be provided to basement and sub basement car parking areas* • *Ventilation grills or screening devices for car parking openings should be integrated into the facade and landscape design* *Objective 3J-5* *Visual and environmental impacts of on-grade car parking are minimized.* • *On-grade car parking should be avoided* • *Where on-grade car parking is unavoidable, the following design solutions are used:* *- parking is located on the side or rear of the lot away from the primary street frontage* *- cars are screened from view of streets, buildings, communal and private open space areas* *safe and direct access to building entry points is provided* *- parking is incorporated into the landscape design of the site, by extending planting and materials into the car park space* *- stormwater run-off is managed appropriately from car parking surfaces* *- bio-swales, rain gardens or on site detention tanks are provided, where appropriate* *- light coloured paving materials or permeable paving systems are used and shade trees are planted between every 4-5 parking spaces to reduce increased surface temperatures from large areas of paving*	- *Motorcycle parking has been facilitated at the rate of 1 per 20 car space* = 4 spaces required *TOTAL 4 motor cycle parks* *They are located at Basement, Level P3, Level P5, Level P7, Level P9* - *Bicycle parking has been provided at the following rate* *1 space per 200 sqm for the retail component* = 2 spaces *1 space per dwelling* = 76 spaces *1 space per 10 dwellings for Visitors* = 7.6 spaces *TOTAL = 88 bicycle parks* *They are located within secure controlled enclosures situated at Basement and Ground floor levels.* - *Supporting facilities have been placed within the carpark. These include the switch room, garbage collection room, storage room, and cleaners room.* - *The cleaners room is access by partially crossing a car park. However, the orientation of this door is to provide safety for the user accessing the door. The user is avoiding the main exit route for the entire carpark and would only need to consider one car when accessing the cleaner's door.* - *A Traffic Engineer is engaged to provide a traffic management strategy to handle the single passage (two-way) ramp network.* - *The layout provides split levels with stair access between levels. Lift shafts are located on the dividing wall abutting the carpark. A low-rise lifts serves Ground, First, Second & Third levels.* - *Two additional elevators can serve all floors of the building.* - *The entry to the carpark is located at the lowest land level along the street frontage this minimizes the visual impact of the carpark by keeping it's overall height to a minimum.* - *Carpark aisles are double loaded.* - *The perforated screening to the car park entry as well as open screening to all levels, allows for natural ventilation throughout the car park.* - *Open metal screen is planned to the Hunter St side of the carpark, and open timber screening to the railway side to provide cross ventilation to the car park. Timber screening to private balconies contributes to the balanced railway façade.* - *Concrete upstands to the ramp and floorplate perimeter will be constructed for safety. Screening will sit above these upstands to prevent damage from cars.* - *Carparking is to be graded to fall towards drainage pits in the Basement.* - *Falls across upper level carparks will be to the Civil Engineer's direction.* - *All proposed carparking is enclosed within the building.*
Objective 3J-6 *Visual and environmental impacts of above ground enclosed car parking are minimized.* • *Exposed parking should not be located along primary street frontages* • *Screening, landscaping and other design elements including public art should be used to integrate the above ground car parking with the facade. Design solutions may include:* • *car parking that is concealed behind the facade, with windows integrated into the overall facade design (approach should be limited to developments where a larger floor plate podium is suitable at lower levels)* • *car parking that is 'wrapped' with other uses, such as retail, commercial or two storey Small Office/Home Office (SOHO) units along the street frontage (see figure 3J.9)* • *Positive street address and active frontages should be provided at ground level*	- *Parking is located along primary street frontage of Hunter St; however, this is unavoidable due to the site conditions.* - *The carparking along the street frontage has been used as a design opportunity to establish visual interest on Hunter St, with a metal screen and green wall design proposed.* - *The screen is to encourage plant growth via planters located within the carpark. Dado walls are 1200mm high with mesh above for safety. The steel frame that supports the mesh will also provide a frame for the extruded fins. The fins have cut-outs to create a fluid screening element above the car park entry.* - *The carpark does not support other uses.* - *The carpark occupies 38% of the street frontage, approximately a 30m length, with approximately 46m given to an activated street frontage for public interactions.*

Part 4 - Designing the Building

Amenity
4A Solar & Daylight Access

Objective 4A-1
To optimize the number of apartments receiving sunlight to habitable rooms, primary windows and private open space.

Design criteria

1. ***Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter in the Sydney Metropolitan Area and in the Newcastle and Wollongong local government areas***
2. ***In all other areas, living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 3 hours direct sunlight between 9 am and 3 pm at mid winter***
3. ***A maximum of 15% of apartments in a building receive no direct sunlight between 9 am and 3 pm at mid winter***

Objective 4A-2
Daylight access is maximized where sunlight is limited.
Objective 4A-3
Design incorporates shading and glare control, particularly for warmer months.

- *Orient building to optimise northern aspect.*
- *Limit the number of single-aspect apartments with a southerly aspect (SW-SE) to a maximum of 10 percent of the total units proposed.*
- *Ensure daylight access to communal open space March-September and shade in summer.*
- *Optimise apartments receiving daylight access to habitable rooms and principal windows.*
- *Design for shading and glare control.*
- *Living rooms and private open space of at least 70% of apartments should receive 2 hours direct sunlight between 9am and 3pm in mid winter.*
- *Limit single aspect apartments with a southerly aspect to a maximum of 10% of total units.*

The overall orientation and program distribution, with the placement of the carpark to the southern end of the development, allows a larger percentage of apartments to have access to sunlight. All apartments have been maximised to receive natural light into bedrooms and living areas.

The northerly aspect of the site is very limited due to the site creating a triangular point to the north. Therefore, single-aspect apartments have been orientated to the NE, but some are orientated SW which is unavoidable due to site conditions. However, these apartments achieve a minimum of 3 hrs sunlight at the summer solstice.

Northern aspect has been maximised with north-facing balconies to increase solar access and natural light into some apartments with north-oriented living areas for levels 1 to 9. Careful window placement and north-oriented living areas and balconies on Levels 10 to 12, ensure access to light, with the rooftop terrace receiving sunlight all day.

The incorporation of the measures demonstrates the desire to produce a new development of the highest quality. Materials used such as double glazing and concrete are also used to trap the Sun's warmth. Direct solar access has been balanced with desire to acoustically screen the railway side of the subject site.

The tower has been designed in such a way that living rooms and private open spaces of 70% of apartments receive a minimum 2 hrs direct sunlight at the winter solstice. See Appendix – Item 1 and solar calculations for details. The apartments that do not achieve this requirement, receive a minimum of 3hrs of direct sunlight at the summer solstice. Additionally, these apartments have access to communal areas which receive full sun at the winter solstice.

Amenity
4B Natural Ventilation

Objective 4B-1
All habitable rooms are naturally ventilated.
Objective 4B-2
The layout and design of single aspect apartments maximizes natural ventilation.
Objective 4B-3
The number of apartments with natural cross-ventilation is maximized to create a comfortable indoor environment for residents.

Design criteria

1. ***At least 60% of apartments are naturally cross ventilated in the first nine storeys of the building. Apartments at ten storeys or greater are deemed to be cross ventilated only if any enclosure of the balconies at these levels allows adequate natural ventilation and cannot be fully enclosed***
2. ***Overall depth of a cross-over or cross-through apartment does not exceed 18m, measured glass line to glass line***

- *Promote and guide natural breezes.*
- *Utilise building layout and section to increase potential for natural ventilation.*
- *Internal layout to minimise disruptions and group rooms with similar usage together.*
- *Select doors and operable windows to utilise air pressure or windows to funnel breezes.*
- *Coordinate design with passive solar design.*
- *Explore innovative technologies to ventilate rooms.*
- *10-18m building depth recommended for natural ventilation.*
- *60% of units to be naturally cross ventilated.*

The orientation of the building and the provision of the communal and private terraces and openings to the North and South allow ventilation and maximised exposure to the prevailing summer winds into the building. Open plan unit layouts have been designed to maximise natural ventilation.

All habitable rooms are naturally ventilated with the area of unobstructed window openings equal to at least 5% of the floor area. See Appendix – Item 2 for details.

Consideration has been given to the placement of all openings to ensure that the overall depth of a cross-over or cross through does not exceed 18m. Window openings are operable by occupants and where required natural ventilation is further enhanced with acoustic wall vents, providing an effective level of replacement air whilst protecting occupants from the transfer of external noise.

In single aspect apartments, natural ventilation is facilitated by limited apartment depths and access to a courtyard or balcony with a minimum width to depth ration of 2:1. Where building indentations are angled to the open side, the shortest side is considered as the depth ratio. Private balconies between apartments 1.5 and 1.6 cannot achieve the required width to depth ratio as individual balconies without significantly impacting the living areas within the apartments. Therefore, the separating wall between the two apartments is nominated as a timber screen that allows ventilation between the balconies, but still allows privacy to each balcony and apartment. Therefore, the width to depth ratio is calculated by combining both balconies. This design solution has also been incorporated on levels 2 and 3 between apartments 2.5 and 2.6; and apartments 3.5 and 3.6.

4B Natural Ventilation cont.

- *Courtyards or building indentations have a width to depth ratio of 2:1 to ensure effective air circulation and avoid trapped smells.*
- *In cross-through apartments external window and door opening sizes/areas on one side of an apartment (inlet side) are approximately equal to the external window and door opening sizes/areas on the other side of the apartment (outlet side)*
- *Apartments are designed to minimise the number of corners, doors and rooms that might obstruct airflow.*
- *Apartment depths, combined with appropriate ceiling heights, maximise cross ventilation and airflow*

The number of naturally cross ventilated apartments has been maximised with over 60% of the apartments in the building achieving natural ventilation. See Appendix - Item 2 for details. Consideration has been given to the placement of all openings to ensure that the overall depth of a cross-over or cross-through does not exceed 18m. Additionally, their placement draws on significantly different pressure regions to assist in drawing air through the apartment efficiently. Refer to Appendix – Item 2 for single aspect apartments located on the north-east façade that have be considered 'cross ventilated' due to their openings being staggered on the angled façade and the positioning of openings in balconies.

Cross-through apartments have similar opening sizes to door and window openings between inlet and outlets as per Appendix - Item 2.

Additionally, all single aspect apartments have a maximum depth of 8m as per requirements for open plan layouts.

Vegetation has been designed to modify the external wind direction to enhance ventilation and cool incoming air. Ceiling fans will be used to minimise the need for refrigerated air conditioning.

Apartments have open plan living areas to reduce quantity of doors and rooms, and corners have been reduced as much as possible within the complicated site shape. Some corners within apartments are unavoidable due to site conditions.

Amenity
4C Ceiling Heights
Objective 4C-1
Ceiling height achieves sufficient natural ventilation and daylight access.

Design criteria

1. ***Measured from finished floor level to finished ceiling level, minimum ceiling heights are:***

Minimum ceiling height	
Habitable rooms	***2.7m***
Non-habitable	***2.4m***
For 2 storey apartments	***2.7m for main living area*** ***2.4m for second floor, where its area does not exceed 50% of the apartment area***
Attic spaces	***1.8m at edge of room with a 30 degree minimum ceiling slope***
If located in mixed use areas	***3.3m for ground and first floor to promote future flexibility of use***

These minimums do not preclude higher ceilings if desired

Objective 4C-2
Ceiling height increases the sense of space in apartments and provides for well proportioned rooms.
Objective 4C-3
Ceiling heights contribute to the flexibility of building use over the life of the building.

- *Coordinate internal ceiling heights and slab levels with external height requirements.*
- *Minimum floor to ceiling height of 2.7m.*
- *Variations to demonstrate satisfactory daylight.*

Ceiling heights have been maximised where appropriate. Given the compact nature of the apartments, ceilings height of 2.7m and greater, where supported, are proposed.

Ceiling heights to living areas are planned to be greater than other areas within the apartments. This will allow for piping and bulkheads to be placed over bedrooms and kitchen / bathroom spaces.

Common passage ways may be reduced to 2.5m to allow for services. Notionally: 100mm lighting zone, 100mm water supply zone, 200mm wastewater discharge zone, clear under concrete slab beams 200mm depth, floor slab approx. 200mm depth.
Floor to floor heights are 3300mm.

The consistent 3300mm floor to floor heights allows the building to read as balanced. The Retail floor levels at ground level follow the external pavement levels of Hunter St which gradually slope down from Retail 1 towards the carpark entry. This allows the Retail entries to be as flush as possible for ease of access to all users. Retail floor levels will be reviewed in Design Development with the Civil Engineer to ensure this pedestrian friendly approach is applied, and drainage away from entries is maintained.
The awning height is located to create a balanced space at street level, whilst maintaining functional qualities of protecting pedestrians from rain and managing solar heat gain at street level. Additionally, the awning activates the footpath to areas of high pedestrian activity in front of the Retail and Residential entries.

Amenity
4D Apartment Size and Layout

Objective 4D-1
The layout of rooms within an apartment is functional, well organized and provides a high standard of amenity.

Design criteria
1. Apartments are required to have the following minimum internal areas:

Apartment type	Minimum internal area
Studio	35 sqm
1 bedroom	50 sqm
2 bedroom	70 sqm
3+ bedroom	90 sqm

The minimum internal areas include only one bathroom. Additional bathrooms increase the minimum internal area by 5m2 each
A fourth bedroom and further additional bedrooms increase the minimum internal area by 12m2 each

2. Every habitable room must have a window in an external wall with a total minimum glass area of not less than 10% of the floor area of the room. Daylight and air may not be borrowed from other rooms

The proposed development is for 76 units in a mix of studio, 1 bedroom and 2 bedroom plus study, 3 bedroom and 4 bedroom plus study and is well suited to students. single, couples and small and large families.

- The development contains a mix of studio, one bedroom, two bedroom plus study and three bedroom plus study providing an appropriate mix for the local market
- All kitchens are located within 8m to a window and have a good relationship with the dining/living area and balconies.
- Each apartment has full height wardrobe storage generally 2-3m in width. Additional storage is provided in the basement and ground floor storage area when required to meet storage area minimum.
- All apartments have access to bike storage inside of the building
- All 2 and 3-bedroom apartments have study areas that can accommodate additional storage
- Majority of units have a separate cupboard laundry that is located away from the main living areas.
- All units have views to the street and wider context.
- All single aspect units are less than 8m in depth

All habitable rooms achieve 10% of room area in glazing.

Objective 4D-2
Environmental performance of the apartment is maximized.
Design criteria
1. **Habitable room depths are limited to a maximum of 2.5 x the ceiling height**
2. **In open plan layouts (where the living, dining and kitchen are combined) the maximum habitable room depth is 8m from a window**

The wedge shape of the site has contributed to some interesting apartment shapes. Where angled walls occur the design provides for habitable rooms with a dimension that does not diminish below 3m. Setbacks and balconies are used to enable this.

The design offers the recommended 20% of universally designed apartments. See section 4Q for further details.

In open plan layouts, habitable rooms are a maximum depth of 8m from a window. Additionally, all kitchens are within 8m of a window.

Objective 4D-3
Apartment layouts are designed to accommodate a variety of household activities and needs.
Design criteria
1. **Master bedrooms have a minimum area of 10m2 and other bedrooms 9m2 (excluding wardrobe space)**
2. **Bedrooms have a minimum dimension of 3m (excluding wardrobe space)**
3. **Living rooms or combined living/dining rooms have a minimum width of:**
   3.6m for studio and 1 bedroom apartments
   4m for 2 and 3 bedroom apartments
4. **The width of cross-over or cross-through apartments are at least 4m internally to avoid deep narrow apartment layouts**

- Provide variety of apartments in larger buildings.
- Refine appropriate mix by considering population trends and proximity to transport, employment and services.
- Locate mix of 1 and 3 bed units on ground floor to enable access by disabled, elderly and families.
- Optimise accessible and adaptable apartments.
- Determine apartment sizes in relation to location, market, spatial configuration and affordability.
- Ensure apartment layouts are resilient over time.
- Design layouts to respond to natural and built environments and optimise site opportunities.
- Avoid locating kitchen in circulation space.
- Include adequate storage in the apartment.
- Ensure apartments facilitate furniture removal and placement.
- Single aspect apartments to have maximum depth of 8m
- Kitchen to be maximum of 8m from window.
- Cross over or cross through apartments >15m deep to have minimum width of 4m.

All apartments have been allocated adequate storage space, along with joinery items for everyday items.

Study nooks, open plans and multiple bathroom facilitation options aims to provide flexible layouts catering to a variety of household activities.

Primary outlooks from the site are towards the North and East which have been maximised. As this is adjacent to railway, avoiding noise sources cannot be achieved. However, response to Objective 4H & 4J goes into details of design decisions made to reduce this noise impact.

Some apartments do not achieve minimum areas and dimensions, but internal layouts can be re-worked during design development to achieve the following:

- **Apartments 1.3, 2.3 & 3.3:** Master bedrooms can be re-worked to achieve min. 10m2, an average 3m width and a min. 1.5m wide wardrobe. The secondary bedroom can be 9m2, however, due to site conditions only a min. 1m robe can be incorporated and an average 2.1m width.
- **Apartments 4.2 & 5.2:** Master bedrooms and secondary bedrooms can be re-worked to achieve 10m2 and 9m2 respectively, and both can have min. 3m width.
- **Apartments 1.1, 2.1 & 3.1:** Open plan living areas can be re-worked to achieve a width of 3.6m, including kitchen areas. The apartments currently do not show wardrobes, but can be easily incorporated to achieve min. requirements of 1.8m wide x 0.6m deep.
- **Apartments 1.5, 2.5 & 3.5:** Open plan living areas, including kitchen areas, can be re-worked to achieve a width of 3.6m.
- **Apartments 4.1 & 5.1:** Living areas can be re-worked to achieve a width of 4m.
- **Apartment 4.3:** Open plan living area, including kitchen area, can be re-worked to achieve a width of 3.6m.
- **Apartments 4.9 & 5.8:** The living area achieves a width of 3.6m to a portion of the dining area when the separating wall for the bedroom is open.
- **Apartments 11.1 & 12.1:** One bedroom has a robe less than 1.5m, but it can be re-worked to achieve minimum dimension.
- **Apartment 4.7 & 5.6:** The internal layout can be re-worked to achieve a 1m wide wardrobe.
- **Apartment 5.5:** One bedroom has no wardrobe, but it can be re-worked to achieve the min. 1.5m robe.
- **Apartments 10.3, 11.3 & 12.3:** One bedroom has no wardrobe, but it can be re-worked to achieve a min. 1.0m robe.

Amenity
4E Private Open Space & Balconies
Objective 4E-1
Apartments provide appropriately sized private open space and balconies to enhance residential amenity.
Objective 4E-2
Primary private open space and balconies are appropriately located to enhance liveability for residents.
Objective 4E-3
Private open space and balcony design is integrated into and contributes to the overall architectural form and detail of the building.
Objective 4E-4
Private open space and balcony design maximizes safety.

Design criteria
1. All apartments are required to have primary balconies as follows:

Dwelling type	Minimum area	Minimum depth
Studio apartments	4 sqm	-
1 bedroom	8 sqm	2m
2 bedroom	10 sqm	2m
3+ bedrooms	12 sqm	2.4m

The minimum balcony depth to be counted as contributing to the balcony area is 1m
4. For apartments at ground level or on a podium or similar structure, a private open space is provided instead of a balcony. It must have a minimum area of 15m2 and a minimum depth of 3m

- Provide at least one primary balcony.
- Primary balconies to be adjacent to living area.
- Consider secondary balconies in larger apartments, adjacent to bedrooms and for clothes drying.
- Balconies to respond to local climate and context, solar access, wind and privacy.
- Design balustrades to allow views and casual surveillance, while providing safety and privacy.
- Coordinate and integrate building services with façade and balcony design.
- Primary balcony to have minimum depth of 2m.

Each unit has a deep balcony with an average depth of 2m adjacent the primary living area and/or bedroom. Balconies are well-proportioned and have been functionally located to optimise solar access to the adjacent living/bedroom areas whilst ensuring adequate visual and acoustic privacy is maintained.
Balconies have timber screening to facilitate privacy and reduce noise impacts from the railway and road.
All apartments are consistent with the necessary minimum external and internal apartment sizes in the Apartment Design Guide and meet satisfactory daylighting and natural ventilation, this is combined with stacking glazed doors to extend the internal living space and encourage indoor/outdoor living. Northern aspect balconies have been maximized and all apartments have access to communal terraces areas on the fourth and rooftop levels. Some balconies have integrated planter boxes and all communal terraces have layered vegetation in front of the guard rail system, which has the effect of de-materialising the background to provide a sense that the vegetated border is the real guard.

Balconies have been provided to every apartment. They are accessed from living spaces. Balustrades are to be visual permeable, glazed with handrails.

Balconies sizes have been designed to comply with requirements outlined in the table to the left. Where balconies are orthogonal a minimum depth of 2m has been achieved. Where a balcony is angular a minimum average depth of 2m has been achieved.

Where minimum depths have not been achieved for primary balconies, areas have been increased to exceed the minimum area. This solution is incorporated into apartments 10.2, 11.2 and 12.2. The width to depth ratio exceeds 2:1 to promote greater air flow within the apartments. Additionally, communal open spaces are provided on each level where apartments are effected.

Amenity
4F Common Circulation & Spaces

Objective 4F-1
Common circulation spaces achieve good amenity and properly service the number of apartments.
Design criteria
1. **The maximum number of apartments off a circulation core on a single level is eight**

For buildings of 10 storeys and over, the maximum number of apartments sharing a single lift is 40

Objective 4F-2
Common circulation spaces promote safety and provide for social interaction between residents.

- Increase amenity and safety by generous widths, lighting, minimising lengths, avoiding tight corners, legible signage and adequate ventilation.
- Support better apartment layouts by designing buildings with multiple cores.
- Articulate longer corridors by using series of foyer areas and windows along or at end of window.
- Minimise maintenance and maintain durability by using
- robust materials in common circulation areas.

Internal circulation has been minimised in all apartments, whilst providing generous and articulated circulation spaces, with detailed consideration of kitchens, laundry and bathroom layouts to ensure long term livability.

Apartment layouts vary in unit types and commit to the minimum standard as outlined in the Residential Flat Design Code.

Robust materials in circulation areas have also been considered.

All levels have a maximum number of eight apartments off a circulation core, except for Level 4. This level adheres to the design guidance of a maximum of twelve apartments off a circulation core with nine apartments. Additionally, the corridor widths are maximised where possible, and splay corners allow for clearer sight lines. Ceiling heights are to be maximised where possible without impacting on services.

Due to site conditions, circulation spaces cannot be improved to maximise dual aspect apartments. Dual aspect apartments have been maximised where possible.
Some circulation corridors have compromised sight lines and longer corridors than 12m. However, this is to avoid long corridors within apartments and wide areas have been provided at apartments entries. Achieving a corridor that is 12m or less is not obtainable due to the site shape. Long corridors have been limited where possible.

Levels 1-3 common circulation spaces can have access to daylight with a minimal internal amendment. Natural ventilation is not achievable within these levels due to their access from the carpark. However, all other levels can obtain access to natural ventilation.

Amenity
4G Storage
Objective 4G-1
Adequate well designed storage is provided in each apartment.
Design criteria
1. In addition to storage in kitchens, bathrooms and bedrooms, the following storage is provided:

Dwelling type	Storage size volume
Studio apartment	**4 m3**
1 bedroom	**6m3**
2 bedroom	**8m3**
3+ bedroom	**10m3**

Objective 4G-2
Additional storage is conveniently located, accessible and nominated for individual apartments.

- 50% of storage to be within apartment and accessible from hall or living area, and dedicated storage rooms on each floor and car parks.
- Storage to be suitable for local area and able to accommodate larger items (e.g. bicycles).
- Ensure storage is secure for individual use.

Apartment storage has been designed to meet requirements outlined in the design criteria.

Storage areas are provided in apartments, and at the basement level to supplement apartment storage where required.
In addition, bike storage is offered to residents inside the building.

Furthermore, the incorporation of high level storage above wardrobes and study areas in each apartment provide flexible short and long-term storage opportunities for every apartment.

Amenity
4H Acoustic Privacy
Objective 4H-1
Noise transfer is minimized through the siting of buildings and building layout.
Objective 4H-2
Noise impacts are mitigated within apartments through layout and acoustic treatments.

- Maximise acoustic privacy by adequate separation.
- Internal layout to separate noise from quiet areas by grouping bedrooms and service areas.
- Resolve conflicts between noise, outlook and views by design measures, such as double glazing.
- Reduce noise transmission from common corridors
- Provide seals to entry doors.

Window and door openings generally cannot be located away from noise sources due to site conditions. Balcony and window screens have been provided to ensure visual and acoustic privacy is maximised.

For noise and vibration, the proposal will need to be assessed in accordance with the Infrastructure SEPP or the Department of Planning's Development near Rail corridors and Busy Roads. Noise from external sources will be treated to ensure compliance with Council's requirements. An acoustic report has also been prepared to ensure windows and doors meet acoustic privacy within apartments.

The north façade of the development sits approximately 12m from a railway (including 0.9m setback from title boundary). Apartments to the railway side are provided with double width glazing and acoustically treated slatted ceiling system to balconies. Timber slat screening panels are used for visual privacy and acoustic privacy, reducing noise from the railway and road. Additionally, integrated noise barriers, such as Acoustica's QuietWave, are integrated into the building design contributing to apartment privacy.

Living areas have been orientated to maximise solar access from the North. This orientation is also adjacent to a noise source. Consequently, to ensure solar access is maximised, non-habitable rooms cannot be located to buffer noise from external sources.

Amenity
4J Noise Pollution
Objective 4J-1
In noisy or hostile environments the impacts of external noise and pollution are minimized through the careful siting and layout of buildings.
Objective 4J-2
Appropriate noise shielding or attenuation techniques for the building design, construction and choice of materials are used to mitigate noise transmission.
To minimise impacts the following design solutions may be used:

- physical separation between buildings and the noise or pollution source
- residential uses are located perpendicular to the noise source and where possible buffered by other uses
- non-residential buildings are sited to be parallel with the noise source to provide a continuous building that shields residential uses and communal open spaces
- non-residential uses are located at lower levels vertically separating the residential component from the noise or pollution source. Setbacks to the underside of residential floor levels should increase relative to traffic volumes and other noise sources
- buildings should respond to both solar access and noise. Where solar access is away from the noise source, non-habitable rooms can provide a buffer
- where solar access is in the same direction as the noise source, dual aspect apartments with shallow building depths are preferable (see figure 4J.4)
- landscape design reduces the perception of noise and acts as a filter for air pollution generated by traffic and industry

An Acoustic Consultant has been engaged for the project. All glazed elements are to achieve a minimum STC38 rating, as recommended by the Acoustic Consultant. Frames are proposed to utilize SoundOUT TM sliding assemblies, double glazed elements including a laminated pane.
Internal acoustic linings and acoustic barriers are proposed for inclusion. The full extent of application is yet to be determined.
The site's proximity is adjacent to a train line. Hunter Street provides single lane egress each way for cars, and is not deemed the principal source of noise for this site.
Non-residential activity has been located at street level to provide a buffer from noise and pollution to residential areas. Level 4 and above have been set back from Hunter St, which enables the lower levels to act as a noise shield for most apartments. Acoustic lining to all balcony soffits assist in mitigating noise impacts and external screens have also been incorporated into balconies to reduce noise impacts.
Communal balcony areas are located away from adjacent development. They are accessed directly from corridors with no frontage abutting an apartment's wall within the development.
Vegetation to the communal terraces aims to reduce the perception of noise. Landscaping has also been included into the feature wall above the car park entry facing Hunter St to reduce noise impacts.
A 2m height fence is designed to separate the communal terrace from the private open space of the adjacent apartment at level 4. This should assist to deflect noise away from the apartment's balcony.

Part 4 Configuration

Configuration **4K Apartment Mix** Objective 4K-1 *A range of apartment types and sizes is provided to cater for different household types now and into the future.* Objective 4K-2 *The apartment mix is distributed to suitable locations within the building.* • Different apartment types are located to achieve successful facade composition and to optimise solar access • Larger apartment types are located on the ground or roof level where there is potential for more open space and on corners where more building frontage is available	The proposal has catered to an array of apartment types, ranging from Studio types to 4 bedroom apartments. The mix has considered different living arrangements by providing different bathroom numbers, enabling families through to shared living arrangements to co-exist, different socio-economic groups may be facilitated by Studio dwelling to larger single bedroom types for the working professional.
Configuration **4L Ground Floor Apartments** Objective 4L-1 *Street frontage activity is maximized where ground floor apartments are located.* Objective 4L-2 *Design of ground floor apartments delivers amenity and safety for residents.* This provision discusses direct access options to ground floor apartments and advocates the use of Retail or Home Offices at this level within the building. Amenities should be designed into these spaces. Privacy, safety and casual surveillance should be offered by the layout.	The proposal offers Retail opportunities at street level and an open air seating area set behind the boundary line that provides shelter and an opportunity as a waiting area, without entering the building. Casual surveillance is further facilitated by the layout of apartments above.
Configuration **4M Facades** Objective 4M-1 *Building facades provide visual interest along the street while respecting the character of the local area.* Objective 4M-2 Design solutions for front building facades may include: • a composition of varied building elements • a defined base, middle and top of buildings • revealing and concealing certain elements • changes in texture, material, detail and colour to modify the prominence of elements • Building services should be integrated within the overall facade • Building facades should be well resolved with an appropriate scale and proportion to the streetscape and human scale. Design solutions may include: • well composed horizontal and vertical elements • variation in floor heights to enhance the human scale • elements that are proportional and arranged in patterns • public artwork or treatments to exterior blank walls • grouping of floors or elements such as balconies and windows on taller buildings • Building facades relate to key datum lines of adjacent buildings through upper level setbacks, parapets, cornices, awnings or colonnade heights • Shadow is created on the facade throughout the day with building articulation, balconies and deeper window reveals • Building entries should be clearly defined • Important corners are given visual prominence through a change in articulation, materials or colour, roof expression or changes in height • The apartment layout should be expressed externally through facade features such as party walls and floor slabs	The building elements have been designed with regard to the elements, textures, materials and colours of the existing neighbourhood with the desire to transform and rejuvenate the local character according to the urban renewal plans. Thorough context analysis has been undertaken as well as an analysis of the desired future character that intends to rejuvenate the current industrial and suburban context as part of the initiative to transform the local area. This analysis generated the Northern and Southern façades, articulated to read as the 'gateway' to the west end of Newcastle – and entry into the urban epicenter of Newcastle from the more suburban areas. The use of vertical and horizontal elements creates a façade that reads as a whole. Vertical laser-cut metal screening and metal clad extrusions to the Hunter Street façade helps to express the importance of the corner site from the southern viewing aspect, that has visual prominence when looking from the 'civic' end of Newcastle down Hunter Street. The horizontal extruded elements also hide services such as water heaters and downpipes on the façade. The Northern façade has material limitations due to its orientation towards the railway. Despite this, vertical and horizontal coloured concrete has been incorporated to create visual interest from trains. Additionally, aesthetic timber screens have been included to enhance visual and acoustic privacy to apartments contributing to resident's public amenity. Open timber screening has also been integrated to car park levels for ventilation. See Appendix – Item 3 for coloured elevations and perspective views from the street and railway.
Configuration **4N Roof Design** Objective 4N-1 *Roof treatments are integrated into the building design and positively respond to the street.* Objective 4N-2 *Opportunities to use roof space for residential accommodation and open space are maximized.* Objective 4N-3 *Roof design incorporates sustainability features.* • Relate roof design to desired built form. • Relate to size and scale of building, elevations, building form. • Respond to orientation of site. • Minimise visual intrusiveness of service elements. • Facilitate use of roof for sustainable functions. Habitable roof space should be provided with good levels of amenity. Design solutions may include: • penthouse apartments • dormer or clerestory windows • openable skylights Roof design maximises solar access to apartments during winter and provides shade during summer. Design solutions may include: • the roof lifts to the north • eaves and overhangs shade walls and windows from summer sun • Skylights and ventilation systems should be integrated into the roof design	The roof design incorporates a landscaped communal rooftop terrace with a northern aspect. This occurs at the fourth and tenth level, due to the stepping nature of the design. The roof design is appropriate as it relates to the desired built form and responds to orientation of site. The design facilitates the use of a roof for sustainable and social functions and visual impact as part of the desired 'gateway' aesthetic. The services elements have been minimised and integrated into the overall roof and building design by the selection of similar paint finishes. Minimised visual intrusiveness of service elements.
Configuration **4O Landscape Design** Objective 4O-1 *Landscape design is viable and sustainable.* Objective 4O-2 *Landscape design contributes to the streetscape and amenity.* Landscape density in accordance with the prevalence of deep soil zones is recommended at the following rates. • Site area up to 850sq.m. – 1 medium tree per 50sq.m. of deep soil zone • Site area between 850-1000sq.m. – 1 large tree or 2 medium trees per 90sq.m. of deep soil zone • Site areas greater than 1500sq.m. – 1 large tree or 2 medium trees per 80sq.m. of deep soil zone The objective of this clause is to enhance the micro climate by making use of planting for shading, Winter solar penetration by the use of deciduous plantings and the utilization of shade structures. Landscaping is to contribute to the streetscape and amenity of the site by consideration of the following features of the site: • Views • Levels of the site • Retention of the existing significant vegetation • Provision of tree protection zones • Planting to acknowledge the endemic ecology of the local region	Landscape Designs have been prepared for the proposal. Significant inclusions in the layout for planting and landscaping include: • Garden beds at street level. These provide safety features by directing pedestrians away from kerb edge. Discreet openings ensure that where pedestrians attempt to cross the road, they gather in specific locations, by virtue of the breaks between garden beds. • Street trees are proposed to facilitate shelter and shade as well as visual interest. • A shade awning is provided to the façade of the retail areas. • Many planter boxes are planned for inclusion on balconies in both the private and communal areas. Not all those shown in the Landscape Designs are to be built-in. Smaller "pots" are envisaged to be provided by tenants. • Planter boxes make provision for BBQs in specific locations. The full extent and approval has yet to be determined. • Planter boxes are positioned around the columns to some of the pergola structures to facilitate plant growth to cover the structures. In particular at levels 4 and 10. • Smaller trees and shrubs have been considered for the raised planter boxes. A planting schedule has been provided that considers local and indigenous natives. There is a small area designated as a deep soil zones on the Landscape Plan. It equates to approx. 3% of the site area.

Configuration **4P Planting on Structures** Objective 4P-1 *Appropriate soil profiles are provided.* Objective 4P-2 *Plant growth is optimized with appropriate selection and maintenance.* Objective 4P-3 *Planting on structures contributes to the quality and amenity of communal and public open spaces.* The objective of this clause assists to add planting to higher density developments. Planting on walls, roof tops and podiums. Such planting can assist to improve air quality and the micro-climate, it can result in reducing direct energy use and stormwater run-off.	In addition to the raised garden planter boxes outlined above, there is a green wall planned around the carpark on the north-east and south facades. The method deployed is via placement of planter boxes at strategic locations within the carpark across all levels. With the use of an open screen enveloping the carpark on the aforementioned sides, plants will tend to grow towards the natural daylight and take foothold on the screen. Spread of growth is to occur naturally. No drive to create a uniformly covered surface is aimed for. Carpark planter boxes are to be positioned at the corners and to one side of the ramps. The green wall is to be facilitated along the streetscape façade and rear, where passing trains may glimpse the sight.
Configuration **4Q Universal Design** Objective 4Q-1 *Universal design features are included in apartment design to promote flexible housing for all community members.* Objective 4Q-2 *A variety of apartments with adaptable designs are provided.* Objective 4Q-3 *Apartment layouts are flexible and accommodate a range of lifestyle needs.* A benchmark of 20% of the total apartments are to be designed according to the Livable Housing Guidelines silver level universal design features. Some features recommended include: • Dual Master Bedroom apartments with separate bathrooms • Large apartments with various living spaces • Rooms with multiple functions • Open plan 'loft' style apartments with only fixed wet area allocations • Interior design layouts that may be adapted with minimal structural change • High level of solar access • Convenient access to communal and public areas	The design has incorporated the silver level universal design features, as outlined in the Living Housing Guideline's, to the recommended 20% of total apartments. The silver level universal design features include seven core livable housing design elements, as listed below: 1. Dwelling access: Provide a continuous step-free pathway from the street and car park to the entry door of the dwelling. The car park should be a min. 3200x5400mm. 2. Dwelling entrance: Provide a min. 820mm clear opening width to the apartment and a level landing area of 1200x1200 at the entrance door. 3. Internal doors & corridors: Provide a min. 820mm clear opening width to all internal doors and a min. 1m clear width to all internal corridors. 4. Toilet: Provide a min. 900mm clear width to the walls between a toilet and 1200mm clear circulation space in front of the toilet pan, excluding the door swing. The toilet should be located in the corner of the room for future grabrail installation. 5. Shower: Provide a slip resistant, hobless shower recess, and located in the corner of the room for future grabrail installation. 6. Reinforcement of bathroom & toilet walls: Provide reinforcement to the walls around the toilet and shower for future installation of grabrails. 7. Internal stairways: Provide a handrail to one side of the stairway where there is a rise of 1m. The seven elements are incorporated in 16 apartments to comply with 20% of 76 apartments. The 16 universally designed apartments have been distributed over multiple levels and various apartment types, including studio, one bedroom, two bedroom and three bedroom apartments. The following apartments are designed to universal design standards: 1.4, 1.5, 1.6, 2.4, 2.5, 2.6, 3.4, 3.5, 3.6, 4.3, 5.3, 6.3, 7.3, 8.3, 9.3 and 10.3. Additionally, 16 car spaces have been included in the carpark with a continuous pathway to the apartment entrances. The above listed apartments generally have less angles to ensure users can move freely within the apartment. Due to site conditions, these apartments are generally orientated towards Hunter St. The apartments with more angles are oriented towards the rail corridor and would require significant changes to residential amenity to enable universal design standards to be applied. This prevents high level solar access during winter solstice being achieved for all universal apartments. However, for all apartments including universally designed apartments that do not achieve solar access during the winter solstice, receive a minimum of 3hrs of solar access during the summer solstice.

Configuration **4R Adaptive Reuse** Objective 4R-1 *New additions to existing buildings are contemporary and complementary and enhance an area's identity and sense of place.* Objective 4R-2 *Adapted buildings provide residential amenity while not precluding future adaptive reuse.* Adaptive re-use seeks to retain existing buildings to benefit development aesthetically, and aims to value the social and cultural significance imbued in place-making. Re-using existing structures may provide more sustainable solutions than new construction. Design solutions may provide creative ways of seeing an old building in new ways and add significantly to the character of the development.	The existing building on site is a two storey, rendered brick, commercial premise. There is a storage yard. The footprint of the existing building occupies approx. 43% of the site. The proposal has not deemed the existing fabric suitable for the intents of the proposal and does not work to retain or appropriate them. The urban fabric provides wide footpaths to the frontage, made pedestrian paths with grassed areas either side sweeping toward the approach side of the site, street lighting, public transport and good vehicular egress. The proposal has sought rather to utilise and enhance these features.
Configuration **4S Mixed Use** Objective 4S-1 *Mixed use developments are provided in appropriate locations and provide active street frontages that encourage pedestrian movement.* Objective 4S-2 *Residential levels of the building are integrated within the development, and safety and amenity is maximized for residents.* This clause supports developments that contribute positively to the public realm of its siting. It aims to provide developments that address the street and enables an active interaction between the building and the community. Landscaped communal areas are recommended as a way to further permit this sort of interaction to occur.	The proposal offers three (3) retail tenancies at ground level and a sheltered open air space setback from the street boundary. The Foyer to the building houses the letterboxes affording another level of interaction for private residents. Landscaping is proposed at three (3) levels and open to public usage. The landscaped, communal terraces at level 4 & 10 require an escorted presence. Street planting provides an un- controlled opportunity for enjoyment.
Configuration **4T Awnings & Signage** Objective 4T-1 *Awnings are well located and complement and integrate with the building design.* Objective 4T-2 *Signage responds to the context and desired streetscape character.* Awnings should be located along streets with high pedestrian activity and active frontages A number of the following design solutions are used: • Continuous awnings are maintained and provided in areas with an existing pattern • height, depth, material and form complements the existing street character • protection from the sun and rain is provided awnings are wrapped around the secondary frontages of corner sites • awnings are retractable in areas without an established pattern • Awnings should be located over building entries for building address and public domain amenity • Awnings relate to residential windows, balconies, street tree planting, power poles and street infrastructure • Gutters and down pipes should be integrated and concealed • Lighting under awnings should be provided for pedestrian safety • Signage should be integrated into the building design and respond to the scale, proportion and detailing of the development • Legible and discrete way finding should be provided for larger developments • Signage is limited to being on and below awnings and a single facade sign on the primary street frontage	Appropriate awning and lighting is provided to the Hunter Street Frontage and building entry, provides weather protection and encourages activation of the footpath. The awning extent is designed to coincide with the retail frontages giving them distinction and increased amenity. Signage has not formed part of this engagement.

Performance

Performance **4U Energy Efficiency** Objective 4U-1 *Development incorporates passive environmental design.* Objective 4U-2 *Development incorporates passive solar design to optimize heat storage in Winter and reduce heat transfer in Summer.* Objective 4U-3 *Adequate natural ventilation minimizes the need for mechanical ventilation.* • Incorporate passive solar design to optimise heat storage in winter and heat transfer in summer. • Improve control of mechanical heating and cooling. • Plan for photovoltaic panels. • Improve hot water system efficiency. • Reduce reliance on artificial lighting. • Maximise efficiency of household appliances. • Permit outdoor clothes drying that are appropriately screened • Utilise smart glass or other technologies on north and • west elevations • Introduce thermal mass in the floors and walls of north facing rooms • Install polished concrete floors, tiles or timber rather than carpet • Insulated roofs, walls and floors and seals on window and • door openings • Introduce overhangs and shading devices such as awnings, blinds and screens • Rooms with similar usage are grouped together • Natural cross ventilation for apartments is optimised • Natural ventilation is provided to all habitable rooms and as many non-habitable rooms, common areas and circulation spaces as possible	The proposed residential units have been designed for optimal energy efficiency, reducing reliance on artificial lighting and cooling using passive ventilation throughout the building design. The proposal aims to promote a high standard of environmental performance incorporating the use of ecologically sustainable development principles including: • Appropriate housing density to maximise use of public transport infrastructure, cycling and walking due to the sites proximity to Newcastle's railway • Orientation of apartments to maximise access to natural light, natural cross ventilation and aspect • Use of construction materials that contributes to thermal mass such concrete slabs, concrete prefabricated panels and double-glazing. • Native and drought tolerant vegetation will form part of the soft and hard landscaping plan. Landscape spaces are laid out for maximum solar access, natural ventilation, water and planting management. Vegetation will also be designed to modify the external wind direction to enhance ventilation and cool incoming air. • Use of solar screening devices as required to minimise use of high energy consumption cooling systems • Low energy fixtures and fittings will be implemented • A 40Kw PV power generator is designed for inclusion above Level 12 at the Rooftop. • Refer to response in Objection 4B for further details on natural ventilation being maximised where possible.
Performance **4V Water Management and Conservation** Objective 4V-1 *Potable water use is minimized.* Objective 4V-2 *Urban stormwater is treated on site before being discharged to receiving waters.* Objective 4V-3 *Flood management systems are integrated into site design.* • Apartments should be individually metered • Rainwater should be collected, stored and reused on site A number of the following design solutions are used: • runoff is collected from roofs and balconies in water tanks and plumbed into toilets, laundry and irrigation • porous and open paving materials is maximised • on site stormwater and infiltration, including bio-retention systems such as rain gardens or street tree pits • Detention tanks should be located under paved areas, driveways or in basement car parks • On large sites parks or open spaces are designed to provide temporary on site detention basins	The Civil Engineer has designed a detention system to slow the flow of stormwater and lessen it's impact upon existing infrastructure. Floor levels have been raised to sit at the Probable Maximum Flood event level of AHD 5.9. Where the carpark needed to meet the street frontage, the existing street RL was lower than the PMF level. To address this the carpark entry has been ramped up with adjacent wing walls providing an enclosure, before ramping down to meet the desired floor level and accessing the basement. No water retention system or re-cycling of water is provided for. Apartments will be separately metered.
Performance **4W Waste Management** Objective 4W-1 *Waste storage facilities are designed to minimize impacts on the streetscape, building entry and amenity of residents.* Objective 4W-2	A Waste Management Plan will address the demolition, construction and ongoing phases of the development. Bin storage will be provided adjacent to Hunter Street in a suitable location for residents.
Domestic waste is minimized by providing safe and convenient source separation and recycling. • Incorporate existing built elements where possible. • Recycle and reuse demolished materials. • Specify building materials that can be reused or recycled. • Integrate waste management into all stages of project. • Support waste management by specifying project needs and reducing waste by using standard product sizes. • Prepare waste management plan. • Locate storage areas for bins away from street frontage. • Adequately sized storage areas for rubbish bins should be • located discreetly away from the front of the development or • in the basement car park • Waste and recycling storage areas should be well ventilated • Circulation design allows bins to be easily manoeuvred • between storage and collection points • Temporary storage should be provided for large bulk items • such as mattresses • A waste management plan should be prepared • All dwellings should have a waste and recycling cupboard • or temporary storage area of sufficient size to hold two days • worth of waste and recycling • Communal waste and recycling rooms are in convenient • and accessible locations related to each vertical core • For mixed use developments, residential waste and • recycling storage areas and access should be separate and • secure from other uses • Alternative waste disposal methods such as composting • should be provided	Commercial and residential waste is located within a common room for ease of collection. Signage can be implemented to distinguish between commercial and residential waste for employees and residents. Garbage collection is to be coordinated with the contractor during development stage.
Performance **4X Building Maintenance** Objective 4X-1 *Building design detail provides protection from weathering.* Objective 4X-2 *Systems and access enable ease of maintenance.* Objective 4X-3 *Material selection reduces ongoing maintenance costs.* A number of the following design solutions may be used to minimize weathering: • roof overhangs to protect walls • hoods over windows and doors to protect openings • detailing horizontal edges with drip lines to avoid staining of surfaces • methods to eliminate or reduce planter box leaching • appropriate design and material selection for hostile locations Maintenance may be assisted by observing some of the following issues: • Design windows to enable internal cleaning. • Select manually operated systems, such as blinds. • Incorporate and integrate building maintenance systems into the design of the building form, roof and façade • Design solutions that do not require extern scaffolding for maintenance access. • Select durable materials which are easily cleaned. • Select appropriate landscape elements and vegetation and provide appropriate irrigation systems. • Provide garden maintenance and storage area. To reduce on-going maintenance cost a number of the following design solutions may be used: • sensors to control artificial lighting in common circulation • and spaces • natural materials that weather well and improve with time • such as face brickwork • easily cleaned surfaces that are graffiti resistant • robust and durable materials and finishes are used in locations which receive heavy wear and tear, such as • common circulation areas and lift interiors	Maintenance has been addressed as follows: The majority of windows are located adjacent to windows for ease of access. The facade materials are durable and low maintenance. The roof is accessible for maintenance with the provision of internal service ladders (from level 4 & 12) to comply with Australian Standards and OH&S. Landscape elements are appropriate for the site condition, with the selection of, native, low maintenance plantings and hardscape. Window cleaning can be achieved to balcony glazing. However, areas not accessed within the building can be cleaned through suspension from the roof. Cleaning facilities for communal open spaces will be considered during design development. However, there is opportunity for storage within the enclosed communal area on Level 10, and space adjacent to the lift entry on Levels 4-12. Additional storage is located from the foyer on Levels 2 & 3, which can be utilised for maintenance where required.

Appendix

Item 1

Assessment of Direct Sunlight		
Apartment No.	*Min. hours of sunlight received (hrs)*	*Min. 2hrs direct sunlight (Y/N)*
*Levels 1-3 **		
1.1	3	Y
1.2	2	Y
1.3	6	Y
1.4	4	Y
1.5	0	N
1.6	0	N
Level 4		
4.1	2	Y
4.2	6	Y
4.3	0	N
4.4	0	N
4.5	0	N
4.6	2	Y
4.7	2	Y
4.8	3	Y
4.9	3	Y
*Levels 5-9**		
5.1	2	Y
5.2	6	Y
5.3	0	N
5.4	0	N
5.5	2	Y
5.6	2	Y
5.7	3	Y
5.8	3	Y
Levels 10		
10.1	2	Y
10.2	0	N
10.3	2	Y
Levels 11		
11.1	2	Y
11.2	0	N
11.3	2	Y
Levels 12		
12.1	2	Y
12.2	0	N
12.3	2	Y
	Total No. of Apartments	*Total No. of Compliant Apartments*
Levels 1-12	76	54
Percentage of Apartments Achieving Compliance		70%
** Calculations provided for Level 1 also apply to Levels 2- Level 3.*		
***Calculations provided for Level 5 also apply to Levels 6- Level 9.*		

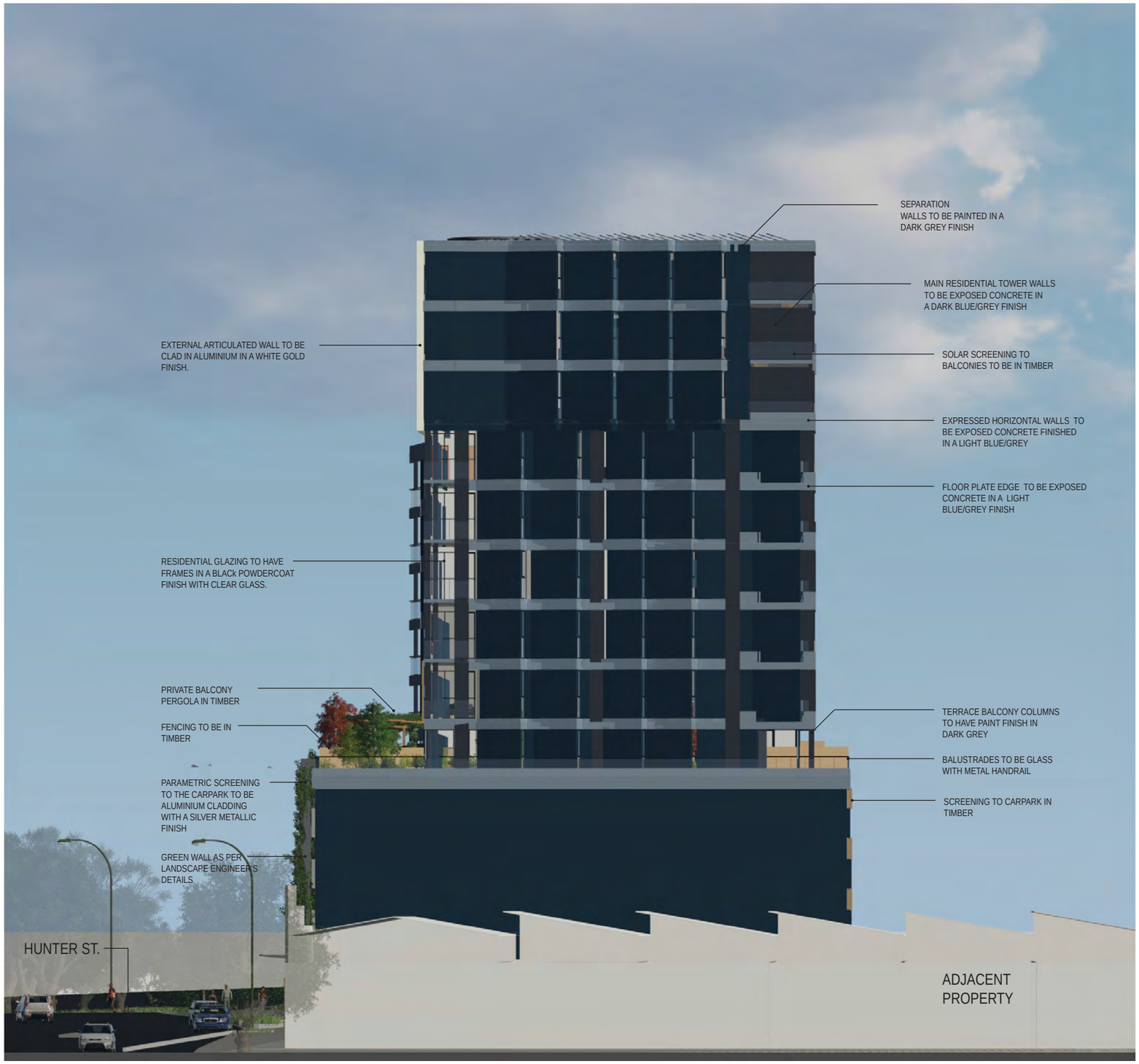
Item 2

Assessment of Ventilation					
Apartment No.	*Total Area (m^2)*	*Min. Area of Ventilation Required (m^2)*	*Area of Ventilation Achieved (m^2)*	*Compliant (Y/N)*	*Cross – Ventilated (Y/N)*
*Levels 1-3 **					
1.1	*35*	*1.75*	*2.60*	*Y*	*N*
1.2	*70*	*3.50*	*6.20*	*Y*	*Y†*
1.3	*74*	*3.70*	*4.90*	*Y*	*Y*
1.4	*82*	*4.10*	*4.35*	*Y*	*Y*
1.5	*51*	*2.55*	*4.50*	*Y*	*Y†*
1.6	*61*	*3.05*	*4.36*	*Y*	*Y†*
Level 4					
4.1	*75*	*3.75*	*5.30*	*Y*	*Y†*
4.2	*98*	*4.90*	*9.35*	*Y*	*Y*
4.3	*35*	*1.75*	*3.60*	*Y*	*N*
4.4	*52*	*2.60*	*4.50*	*Y*	*N*
4.5	*73*	*3.65*	*4.00*	*Y*	*Y*
4.6	*78*	*3.90*	*4.30*	*Y*	*Y*
4.7	*51*	*2.55*	*4.50*	*Y*	*Y†*
4.8	*53*	*2.65*	*4.50*	*Y*	*N*
4.9	*38*	*1.90*	*3.80*	*Y*	*Y†*
*Levels 5-9***					
5.1	*76*	*3.80*	*4.65*	*Y*	*Y†*
5.2	*98*	*4.90*	*5.70*	*Y*	*Y*
5.3	*50*	*2.5*	*4.65*	*Y*	*N*
5.4	*77*	*3.85*	*4.75*	*Y*	*Y*
5.5	*72*	*3.60*	*3.65*	*Y*	*Y*
5.6	*53*	*2.65*	*3.55*	*Y*	*Y†*
5.7	*53*	*2.65*	*5.20*	*Y*	*N*
5.8	*37*	*1.85*	*3.85*	*Y*	*Y†*
Levels 10					
10.1	*129*	*6.45*	*6.75*	*Y*	*Y†*
10.2	*134*	*6.70*	*7.30*	*Y*	*Y*
10.3	*118*	*6.25*	*6.25*	*Y*	*Y*
Levels 11					
11.1	*138*	*6.90*	*7.50*	*Y*	*Y*
11.2	*136*	*6.80*	*7.10*	*Y*	*Y*
11.3	*118*	*5.90*	*6.60*	*Y*	*Y*
Levels 12					
12.1	*139*	*6.95*	*7.90*	*Y*	*Y*
12.2	*135*	*6.75*	*6.75*	*Y*	*Y*
12.3	*119*	*5.95*	*6.50*	*Y*	*Y*
Total Number Apartments Achieving Ventilation					
			Total No. of Apartments	*Total No. of Compliant Apartments*	*Total % Compliant*
Levels 1-12			*76*	*76*	*100%*
Total Number Apartments Achieving Cross Ventilation					
			Total No. of Apartments	*Total No. of Compliant Apartments*	*Total % Compliant*
Levels 1-9			*67*	*51*	*76%*
Levels 10-12			*9*	*9*	*100%*
TOTAL			*76*	*60*	*78%*
** Calculations provided for Level 1 also apply to Levels 2- Level 3.*					
***Calculations provided for Level 5 also apply to Levels 6- Level 9.*					
† Apartment considered cross ventilated as a result of its orientation and the placement of openings in significantly different pressure regions.					

Item 3

SOUTH-WEST (HUNTER ST.) ELEVATION

MICHAEL CARR ARCHITECT



SOUTH-EAST ELEVATION

MICHAEL CARR ARCHITECT

NORTH-WEST ELEVATION

MICHAEL CARR ARCHITECT

NORTH-EAST (RAILWAY) ELEVATION

MICHAEL CARR ARCHITECT

VIEW FROM THE RAILWAY

MICHAEL CARR ARCHITECT

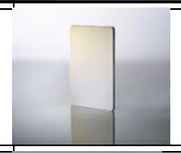
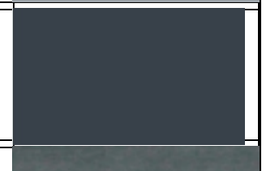
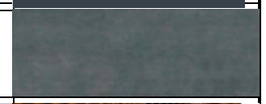
VIEW FROM HUNTER ST.

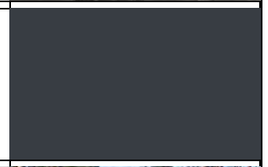
MICHAEL CARR ARCHITECT

MATERIAL & FINISHES SCHEDULE

PROJECT:
MULTI RESIDENTIAL APARTMENT BLOCK
LOCATION:
990 HUNTER STREET, NEWCASTLE
DATE:
26.07.17

Michael Carr Architect Pty. Ltd.
ACN 005 121 219
88 TOPE STREET SOUTH MELBOURNE VIC 3205
P 9645 5635 F 9686 4084 E admin@mcarchitect.com.au

LOCATION	MATERIAL	PRODUCT DESCRIPTION
EXTERNAL WALL - ARTICULATED WALL PROTRUSIONS	ALUMINIUM CLADDING - WHITE GOLD	
PARAMETRIC SCREENING TO CARPARK	ALUMINIUM CLADDING - SILVER METALLIC	
EXTERNAL WALLS - EXPRESSED HORIZONTAL WALLS & FLOOR PLATE EDGE	EXPOSED CONCRETE - LIGHT BLUE GREY	
EXTERNAL WALL - MAIN RESIDENTIAL TOWER WALLS	EXPOSED CONCRETE (WITH & WITHOUT REVEALS) - DARK BLUE GREY	
EXTERNAL WALL - FAÇADE FACING STREET	STONE APPEARANCE SHEETS - GREY	
CAR PARK DOOR	EXPANDED/PERFORATED METAL PANEL GARAGE DOOR	
RESIDENTIAL & RETAIL GLAZING	BLACK POWDERCOAT FRAMES WITH CLEAR GLASS	
BALCONY BALUSTRADES	GLASS WITH METAL HANDRAIL	

SOLAR SCREENING TO BALCONIES & TIMBER FENCES	TIMBER SCREENING	
BALCONY SOFFIT	TIMBER SLAT CEILING TILES	
BALCONY FLOOR FINISH	TILES	
SEPARATION WALLS, TERRACE BALCONY COLUMNS & PLANTER BOXES	PAINT FINISH - DARK GREY	
COMMUNAL BALCONY PERGOLA	TIMBER PERGOLA