squillace

—

DESIGN VERIFICATION REPORT

CLIENT	Johnson Property Group PTY LTD
DATE	Mar-15
ADDRESS	71 Trinity Point Drive, Morriset
SITE AREA	36,600sqm
COUNCIL	Lake Macquarie City Council

Draft Apartment Design Guide items have been shown in italic in the control check/rule of thumb column
SEPP65 Urban Design Review Panel comments from meeting held on 10.12.14 have been shown in blue.

SUMMARY

The modified concept plan (as presented and justified in SQA Comparison and Design Report and SQA PPR Objectives, Principles and Urban Design Guidelines, February 2015) seeks to establish an overall arrangement of built form and open space on site, developed with regard to the ten (10) SEPP 65 Design Principles and in consultation with the Lake Macquarie SEPP 65 Design Review Panel. The concept plan establishes and provides justification relating to site specific building heights, street and boundary setbacks and FSR and through site vistas and permeability, arising from context and site analysis, which have largely been accepted by the SEPP 65 Panel.

In seeking approval for the concept plan, SQA are satisfied that the concept plan, as it progresses through design development, is capable of compliance with key provisions of the Residential Flat Design Code (RFDC) that apply at broader site planning and building envelope level, inclusive of:

- Building Depth (max 18m)*
- Building Separation (min 12m for up to 4 storeys)*
- Communal Open Space (min 20% of site)
- Deep Soil Planting (min 25% of open space)
- Unit Size (ranges of sizes and widths >4m)*
- Single Aspect (max depth 8m from window)
- Solar Access (70% of living and private open space achieves 3hrs sunlight mid winter)
- Cross Ventilation (60% naturally cross ventilated, with 25% of kitchens access to natural ventilation)
- Floor to Ceiling Heights (min 2.7m habitable, 2.4m non habitable)
- Private Open Space (balconies min 2m width)
- Private Open Space Ground Level (min 25m2, min 4m depth)*
- Core (max 8 units per core)
- Kitchen to Window – max 8m to rear of kitchen
- Vehicle Access

In seeking approval for the concept plan, SQA have identified a number of 'rules of thumb' that would not be fully complied with (as shown with * in list above), but that are capable of being justified and found to be acceptable, being:

TOPIC	CONTROL CHECK / RULE OF THUMB	CONCEPT PLAN & JUSTIFICATION
Building Depth	• In general, an apartment building depth of 10 - 18 metres is appropriate. Developments that propose wider than 18 metres must demonstrate how satisfactory day lighting and natural ventilation are to be achieved.	CONCEPT PLAN The residential building ranges from 14.7m to 18.5m deep. JUSTIFICATION Building depth of the apartments varies and at a small number of locations is 18.5m, 0.5m over the recommended maximum. This is due to generous internal corridor widths (generally 1.8m wide) coupled with dual aspect units. In longer apartments bathrooms, laundries and linen closets have been located at the back of the apartments, ensuring living and bedrooms spaces being closely located to windows with all kitchen benches within 8m of glazing. Additionally 100% of the apartments achieve cross ventilation & 73% achieve the required 3 hours of solar access in midwinter. All of common corridors are provided with natural light opportunities and are naturally ventilated.
Building Separation	Minimum separation distances for buildings within a site and between adjoining sites for buildings are: Up to four storeys (approximately 12m): • 12m between habitable rooms/balconies • 9m between habitable and non-habitable • 6m between non-habitable	CONCEPT PLAN Building separations >12m achieved and exceeded in most locations between all east/west building envelopes. Building separations of 8m and 10m proposed at internal road between buildings F & B, G & C, G & D, H & E and G & H, JUSTIFICATION Minor non-compliance exist at five points along the internal road between buildings F & B, G & C, G & D, H & E and G & H, ranging from 8 -10.2m separation distances however the radial site positioning of the eastern buildings means that this is limited to a small section of the facade and the view experienced from these points to the adjacent building is not orthogonal but at an obtuse angle which in actuality increases the experienced view distance. Elsewhere the proposal generally significantly exceeds this recommendation due to the non-orthogonal site positioning of the buildings which allows for generous distances between buildings which increases as ones moves east across the site (up to 31.8m at some locations).
Apartment Layout	*Bedrooms have a minimum dimension of 3m (excluding wardrobe space)* *All bedrooms allow a minimum length of 1.5m for robes*	CONCEPT PLAN Majority of bedrooms achieve a minimum width of 3m (small percentage are 2.9 wide). JUSTIFICATION Minor non-compliance to the Draft Apartment Design Code (not yet legislated).
Private Open Space	• The minimum recommended area of private open space for each apartment at ground level or similar space on a structure, such as on a podium or car park, is 25m2; the minimum preferred dimension in one direction is 4 metres. (see Balconies for other private open space requirements)	CONCEPT PLAN 86% of ground floor/podium level apartments have private open space of 25sqm or above. The remaining 14% of ground floor apartments achieve a minimum of 22sq.m private open space at ground floor and are limited to apartments which possess a maximum of 2 bedrooms. JUSTIFICATION Minor non-compliance. The reduced extent of private open space at ground level apartments for 15% apartments is compensated by the generous common open space located across the site which is located in close proximity to all ground floor apartments. Additionally LMCCDCP requires 16sq.m of private open space at ground level, a provision of 22sq.m exceeds this requirement. Furthermore the approved concept plan reflects apartments along Trinity Point Drive which provide approximately 10sq.m of private open space at the ground floor, significantly less than the allowance in the proposed scheme.

It is anticipated that the range of more detailed provisions of the RFDC will be developed and responded to as part of DA level documentation and applications (e.g.. planting on structures, accessibility, vehicle access, visual privacy, safety, apartment layout and mix, waste management, water conservation, universal design, acoustic privacy and energy efficiency).
Following is an overall response to the ten (10) SEPP 65 Design Principles and additional capability to comply comments against primarily the RFDC, with limited acknowledgement to the draft Apartment Design Guide which currently has no statutory weight.

Despite SEPP65 and the RDFC relating primarily to residential apartments only, the RFDC control checks and principles have been applied to both the proposed short-stay and permanent residential units.

Draft Apartment Design Guide items have been shown in italic
SEPP65 Urban Design Review Panel comments items have been shown in blue

SEPP 65 DESIGN QUALITY PRINCIPLES

	TOPIC	CONTROL CHECK / RULE OF THUMB	COMMENTS ON COMPLIANCE OF SEPP 65 GUIDELINES
A	Principle 1: Context	Good design responds and contributes to its context. Context can be defined as the key natural and built features of an area. Responding to context involves identifying the desirable elements of a location's current character or, in the case of precincts undergoing a transition, the desired future character as stated in planning and design policies. New buildings will thereby contribute to the quality and identity of the area. *Must comply with Appendix 1 Site Analysis checklist*	The site is located at the eastern end of the Morriset peninsula, an area identified by LMCC as suitable for tourist developments. The intent is to create a tourist destination in which public access is encouraged. Directly to the west of the site is small lot housing with significant residential subdivision behind stretching westward, also developed by Johnson Property Group allowing for control and planning of the overall precinct. There is a natural fall across the land from west to east & also south to north. The proposal incorporates these level changes with building ground floor levels stepping across the site. Siting and orientation of buildings is determined by key view opportunities through site from Trinity Point Drive and Celestial Drive. Buildings are orientated to provide increased solar access and enhanced views to all apartments. The central view corridor from Celestial Drive provides a minimum 15m wide unobstructed view which widens at eastern foreshore. This view corridor physically manifests as a public paved pathway with vertical street lighting delineating the route to the eastern foreshore and shared pathway encircling the foreshore. Informal public nodes provided along the path invite the public within the site to for recreation and to enjoy closer views of the lake. View corridors are established at multiple points along Trinity Point Drive achieve minimum of 8m wide unobstructed views which widen at eastern foreshore. Hierarchy between public to private is achieved through incremental level changes and landscaping transitioning from the private external spaces associated with the buildings to the surrounding topography and public paths. Visual privacy to buildings is established via an immediate level change of 0.5 - 1.5m from private ground floor gardens to the adjacent landscaped terraces. Terraces act as informal fences to restrict access between private and semi-private spaces. Landscaping softens the edges of the terraces and replaces the need for a visually obtrusive barrier. Public areas are generally level with the shared public walkways encircling the eastern foreshore. Public access is established via a number of public paths circulating through the site to the public foreshore and around all buildings. East-west public pathway to the eastern foreshore and north-south pedestrian path. following the internal road present the primary pedestrian axes through the site. Public access is conveyed via the generous width of paved pathways, visual indicators such as vertical street lighting, public furniture and nodal points for seating and the appreciation of views. Visual connectivity to the foreshore and lake is established via multiple vistas through the site inviting public access. SEPP65 URBAN DESIGN REVIEW PANEL COMMENTS The panel received a package of documentation in support of the application which comprehensively addresses the issues raised at the Panel's November meeting. In response to the detailed analysis undertaken, a number of modifications have been made to the siting of the buildings, the building envelopes and the internal road, which collectively address some of the fundamental concerns previously raised by the panel. The architect also advised that he has been engaged to prepare plans for the Terrace style housing which is proposed to be 3 storeys in height immediately opposite the proposed tourist development on the western side of Trinity Point Drive. In the light of the additional information provided and the changes and refinements proposed to the design, the panel is of the view that the proposal is an improvement over the previously approved design and now represents an appropriate response to its context.
B	Principle 2: Scale	Good design provides an appropriate scale in terms of the bulk and height that suits the scale of the street and the surrounding buildings. Establishing an appropriate scale requires a considered response toe the scale of existing development. In precincts undergoing transition, proposed bulk and height needs to achieve the scale identified for the desired future character of the area.	Thick foreshore canopy within the public foreshore zone is the prevailing visual element of the site when viewed from the lake and remains as such in the proposal. The building scale and positioning is determined to ensure that the tree canopy forms the dominant horizon line. Articulated apartment elevations along Trinity Point Drive help reduce bulk, address the street and respond to the adjacent massing of the small lot terrace housing. Top storey of apartment buildings is recessed to reduce impact of built form and minimise the visual appearance of the building height. Detailed visual impact analysis of the built form impact has been provide by Richard Lamb via a Visual Impact Assessment which indicates that "The proposal would cause a low level of view loss and be significantly better in that regard than the Concept Approval as sought to be modified. View availability from the site would be superior." SEPP65 URBAN DESIGN REVIEW PANEL COMMENTS The additional information provided, including the 3D fly through of the site and the sectional analysis of the site, provided justification for the proposed increases in height above those previously approved. It is noted that a reduction in building footprint over that provided in the previous approval had been achieved, as had an increase in soft landscaping area. Crucially, survey certified photographs modelling the development as viewed from key viewing points confirmed that the development will be viewed largely below the upper section of the tree canopy. The panel is therefore of the view that the proposed scale is acceptable.

Draft Apartment Design Guide items have been shown in italic
SEPP65 Urban Design Review Panel comments items have been shown in blue

C	Principle 3: Density	Good design has a density appropriate for a site and its context, in terms of floor space yields (or number of units or residents). Appropriate densities are sustainable and consistent with the existing density in an area or, in precincts undergoing a transition, are consistent with the stated desired future density. Sustainable densities respond to the regional context, availability of infrastructure, public transport, community facilities and environmental quality.	The proposed density of the development is generally consistent with the desired future character of the site which is zoned SP3 Tourist under the LMCC LEP 2014. With a site area of 36600 sq.m, the development comprises of up to 250 apartments with associated tourist facilities such as a hotel accommodation, marina, function centre, restaurant, cafe and retail spaces. The total gross floor area is 28275 sq.m, which equates to an FSR of 0.8 as per the proposed modifications to the approved concept plan. The proposal exceeds the controls for open space. 100% of apartments are cross ventilated, 77% of apartments receive 2 hours of northern sun and 73% of apartments receive 3 hours of northern sun. Dwellings are congregated into 3-4 storey apartments in lieu of single dwelling subdivision to allow for a significant decrease in footprints from approved concept plan. Apartment building typology provides localised density within each building, opening up greater portions of the site to landscaping opportunities and public access. The concept approval allows for 150 dwellings however when the FSR is applied it results in an average 140sq.m apartments (3-4 bedrooms) The proposed development provides an increased variety of dwelling types from the approved concept plan (in the form of 1, 2 and 3 bedroom apartments along with dual key apartments within the short-stay precinct). Apartment sizes generally vary from approximately 50sq.m to 120sq.m to cater to a wider range of occupant housing needs. Whilst the maximum increase in the current proposal is up to 100 additional apartments plus hotel accommodation this is not representative of the density increase as the GFA only reflects a 19% increase across the site. Additionally more advanced planning on the non- accommodation floor space has been undertaken, providing a more accurate allocation of space than reflected in the approved concept plan. Trinity Point Drive and the small lot terrace housing assist in the transition from the single detached housing to the tourist precinct. Tall vertical tree planting along either side of the road establishes a coherent character either side of the street. Tree planting aids screening and privacy for residential dwellings either side of the road. Apartment setback from the road shoulder of approximately 7-10m allows for greater distance between the small lot terrace housing and tourist zones and allows for a generously proportioned streetscape with a minimum 25m gap between built form. Small lot terrace housing to the west of the apartments acts as buffer zone between the western single lot housing and the apartments/tourist precinct. Top storey of apartment buildings is recessed and composed of a dark colour palette of materials to respond to the lower adjacent 2-3 storey building height to create visual cohesion between the building heights. The mixed use development is in accordance with the desired future character for the locality, providing primarily tourist uses to the site along with hospitality, residential & retail uses to service the hotel and short-stay apartments. An economic report prepared by Pricewaterhouse Coopers accompanying the Mod 5 submission discusses the feasibility of the proposal further. Articulated apartment elevations along Trinity Point Drive help reduce bulk, address the street and respond to the adjacent massing of the small lot terrace housing. The apartments engage directly with Trinity Point Drive via living areas and bedrooms which face and overlook the public street. SEPP65 URBAN DESIGN REVIEW PANEL COMMENTS The panel believes that the density appears appropriate based on the information provided by the applicant (via the schedule on page 14 of the tabled material). However, the panel notes that this information is indicative at this stage and requires further confirmation. Also the appropriate density will need to be confirmed through detailed traffic and parking analysis undertaken for the application.

D	Principle 4: Built Form	Good design achieves an appropriate built form for a site and the building's purpose, in terms of building alignments, proportions, building type and the manipulation of building elements. Appropriate built form defines the public domain, contributes to the character of streetscapes and parks, including their views and vistas, and provides internal amenity and outlook.	The proposed amendment to the Concept plan envisions both a higher density of built forms as well as a different response to the topography and orientation of the site. Apartment buildings are proposed with their long axis running east-west. This allows the majority of dwellings to face north while ensuring that vistas through the site to the lake are maintained. The buildings along Trinity Point Drive are articulated to minimise apparent mass and height in order to soften the transition to the more urban subdivision to the west of the site. The site naturally slopes south to north and west to east towards the north-eastern tip which is addressed via terraced landscaping. Heights of buildings decrease towards the south of the site as the land levels rise towards Bluff Point and the buildings will primarily sit below the canopy of the existing trees. Overall proposed heights are a maximum of 4 storeys, with the upper levels set back from the lower and treated with recessive colours and textures in order to minimise the apparent bulk of these buildings. Buildings in a landscape setting, surrounded by and separated from each other by landscaped gardens, radiating out as they move from north to south. Additional landscaped terraces are provided at the eastern end of apartments to aid in transitioning to the natural ground line and to accommodate basement parking below. Accessible paths are provided through the site between buildings. Basement car parking layouts accommodate the required accessible level connections to the eastern shared pathway and allow for deep soil planting. SEPP65 URBAN DESIGN REVIEW PANEL COMMENTS As indicated above, the panel is generally comfortable with the design development of the amended built form as illustrated in the flythrough. It is noted that the architect indicated that there is to be an increase in the setback between buildings E & H which the panel supports.
E	Principle 5: Sustainability Resource, Energy and Water Efficiency	Good design makes efficient use of natural resources, energy and water throughout its full life cycle, including construction. Sustainability is integral to the design process. Aspects include demolition of existing structures, recycling of materials, selection of appropriate and sustainable materials, adaptability and reuse of buildings, layouts and built form, passive solar design principles, efficient appliances and mechanical services, soil zones for vegetation and reuse of water.	The proposed development meets the targets set out in the Building & Sustainability Index (BASIX) certificate. In addition, the following passive systems of sustainable building design are incorporated: - 100% cross ventilated apartments - Sun screening devices to reduce solar gains and maximise control of internal environments where required. - Collection and re-use of rainwater. - Solar access for 3 hours to 73% of the living areas & outdoor areas of apartments.
F	Principle 6: Landscape	Good design recognises that together the landscape and buildings operate as an integrated and sustainable system, resulting in greater aesthetic quality and amenity for both occupants and the adjoining public domain. Landscape design builds on the existing site's natural and cultural features in responsible and creative ways. It enhances the development's natural environmental performance by co-ordinating water and soil management, solar access, micro-climate, tree canopy and habitat values. It contributes to the positive image and contextual fit of development through respect for streetscape and neighbourhood character, or desired future character. Landscape design should optimise usability, privacy and social opportunity, equitable access and respect for neighbours' amenity, and provide for practical establishment and long term management.	Overall the landscaping seeks to draw together the various existing landscape elements of the site, such as cultural plantings above Bluff Point, existing lake front tree plantings and new proposed plantings around and between the new buildings to create a harmonious landscape responding to the unique site. The waterside reserve around the perimeter of the site is maintained with pedestrian access through the site linking to the reserve at key points. Extensive landscaping between the apartment buildings will create east-west pedestrian links across the site between the accommodation zones and the lake front reserve. Planting sits on a podium, with car parking located underneath, and will be tiered to allow a variety of plantings that will emphasise the concept of the buildings being located within a landscaped garden. The major east-west pedestrian link in this precinct running between the primarily short stay and long stay accommodation will comprise a predominantly deep soil zone. Other landscaped spaces between the accommodation buildings will be partly deep soil and partly planting over the basement car parking below. Additionally, sufficiently deep planters will allow significant tree plantings along the pedestrian link separating the tourist hospitality and accommodation precinct. Planting along Trinity Point Drive and the new internal street of the tourist residential accommodation zone will emphasise the street edge combining formal street planting with planting at the base of the accommodation buildings. SEPP65 URBAN DESIGN REVIEW PANEL COMMENTS The better definition of public and semi-public space and the more appropriate orientation of the buildings is accepted as being a reasonable offset for the protrusion of the eastern end of the blocks into the area designated as setback under the previous approval. However, the panel would not support any further encroachment into this setback. While good progress has been made in the process of delineating between public space and private open space. It was noted that as residential designs are developed it would be necessary to clearly define private open space attached to each dwelling. The panel remains of the view that the landscape scheme should be reflective of local landscape character. In this regard, the use of sub temperate species typical of the locality is considered appropriate. The panel considers that tropical planting is not appropriate for this site. It is suggested that opportunities be explored for set-downs in the slab to accommodate larger trees between the buildings where possible.

G	Principle 7: Amenity	Good design provides an amenity through the physical, spatial and environmental quality of a development. Optimising amenity requires appropriate room dimensions and shapes, access to sunlight, natural ventilation, visual and acoustic privacy, storage, indoor and outdoor space, efficient layouts and service areas, outlook and ease of access for all age groups and degrees of mobility.	The proposal has been designed to maximise amenity to the residential apartments. 77% of apartments receive 2 hours of sunlight between 9am & 3pm to both living areas & private open space. 73% of apartments receive 3 hours of sunlight between 9am & 3pm to both living areas & private open space. 100% of the proposed achieve cross ventilation, with excellent access to day lighting. The single aspect apartments have a maximum depth of 8m from the end of kitchen bench to a window. Public areas are generally naturally lit & ventilated. All apartments have storage provisions in accordance with the SEPP 65 controls and have access to a private open space. Projecting roof overhangs, blade walls, setbacks, operable shading devices, balustrades & balconies will maintain privacy between each apartment. Separation between the buildings generally exceeds the requirements of the RFDC apart from minor non-compliances discussed in item 1C below. SEPP65 URBAN DESIGN REVIEW PANEL COMMENTS The orientation of the residential blocks provides an opportunity for good solar access and pleasant outlook to dwellings. At this stage internal apartment layouts have not been finalized to allow a detailed assessment of residential amenity.
H	Principle 8: Safety & Security	Good design optimises safety and security, both internal to the development and for the public domain. This is achieved by maximising overlooking of public and communal spaces while maintaining internal privacy, avoiding dark and non-visible areas, maximising activity on streets, providing clear, safe access points, providing quality public spaces that cater for desired recreational uses, providing lighting appropriate to the location and desired activities, and clear definition between public and private spaces.	The proposed orientation of building, floor layouts and provision of balconies provide natural passive surveillance of public domain and common open space. Appropriate security arrangements are incorporated at pedestrian entry lobbies. The open circulation areas are designed to be wide, well lit and have clear sight lines. Generous windows and balconies facing Trinity Point Drive and the main internal pedestrian pathways provide passive surveillance of the public domain. Vistas through the site are key in establishing public access through the site. External private spaces are delineated via level changes down to the public paths and associated landscaping. The lack of a physical barrier to the private ground floor gardens allows for unhindered views through the site whilst protecting the private external spaces from visual intrusion via a step down to the secondary semi-private landscaped terraces High visibility of public corridors from surrounding residential buildings ensure 'eyes on the street' and help create safe zones for the public occupants. Street lighting aids night-time visibility through site and Modification 5 included a crime risk report prepared by Harris Crime Prevention which generally endorses the scheme. SEPP65 URBAN DESIGN REVIEW PANEL COMMENTS Good progress has been made towards defining the transition between public open space and private open space and it is anticipated that this will be refined as part of the design development process. The revised layout of vehicular access to the carparks by way of provision of an internal access road now provides a better physical environment for casual surveillance.
J	Principle 9: Social Dimensions	Good design responds to the social context and needs of the local community in terms of lifestyles, affordability, and access to social facilities. New developments should optimise the provision of housing to suit the social mix and needs in the neighbourhood or, in the case of precincts undergoing transition, provide for the desired future community.	The proposed development will compliment and extend the range and diversity of residential accommodation available in the area. Of the 220-250 apartments, 51 are one bedroom units, 116 are 2 bedroom units and 61 are three bed units. Apartments have been designed to comply with accessibility requirements with a provision for accessible units to NCC requirements. The unit mix reflects an appropriate diversity of choice for the area and reflects the recent demand for smaller units at affordable market prices. Access through the site provides a rich and varied experience through the provision of multiple paths, constantly changing vistas and opportunities for localised recreational activities and casual interaction. Hierarchy of paths has been established for clarity of access with central paths generous in width and clearly delineated. Public and residents are provided opportunities to take different routes through the site to benefit from diverse experiences of the site. SEPP65 URBAN DESIGN REVIEW PANEL COMMENTS The needs of permanent residents are different from those of short-term visitors and holiday unit owners in a number of respects and need to be reflected in design of the buildings and landscaping. As part of the design development process, consideration should be given to the design of residential buildings in their landscape context as a means of supporting community building and casual interaction between residents.

K	Principle 10: Aesthetics	Quality aesthetics require the appropriate composition of building elements, textures, materials and colours and reflect the use, internal design and structure of the development. Aesthetics should respond to the environment and context, particularly to desirable elements of the existing streetscape or, in precincts undergoing transition, contribute to the desired future character of the area.	Proposed materials will be a selection of recessive materials and colours including stone, metal, timber, render, and fixed and operable screens that assist in sun shading as well as reducing the buildings into a series of smaller forms. Rather than monolithic blocks, all buildings are proposed as articulated vertically and horizontally, with a base contrasting to the levels above. In most cases a recessive upper most level clad in recessive colours helps to reduce their visual impact when viewed from the lake and from the land. Built form on the western edge of the site along Trinity Point Drive will emphasise the street edge with facades and massing articulated to clearly separate the structures into separate forms. Vistas to the water between the buildings will be maintained. The base of the apartment buildings will link back to the landscaping between each of the buildings to reinforce the idea of buildings in a landscape setting. Each tourist and residential apartment building will differ slightly so as to create a transition from the northern, more active part of the site. SEPP65 URBAN DESIGN REVIEW PANEL COMMENTS Building details are still fairly diagrammatic, but the general direction as illustrated by the flythrough is considered appropriate.

PART 1: LOCAL CONTEXT

	TOPIC	CONTROL CHECK / RULE OF THUMB	COMMENTS ON COMPLIANCE OF SEPP 65 GUIDELINES
1A	Building Height	• Where there is an existing floor space ratio (FSR), test height controls against it to ensure a good fit. *A building envelope should be at least 25-30% greater than the achievable floor area (see section 2D Floor Space Ratio) to allow for building components that do not count as floor space but contribute to building design and articulation, such as lifts, stairs and balconies.* • Test heights against the number of storeys and the minimum ceiling heights required for the desired building use (see Ceiling Heights).	• The FSR at 0.8 increases the approved concept plan ratio which established a FSR of 0.65:1 however the proposal complies to all relevant controls relating to building bulk & scale as argued below & in the relevant sections of this report. • The site is zoned SP3 in LMCC LEP 2014 and maximum building height zones are identified as E, M & O2 as per Height of Buildings Map - Sheet HOB_007A. As per these classifications the maximum height of the proposal is 6 and 12m. The residential buildings are proposed within the south-eastern zone of the site. The approved concept plan establishes residential buildings exceeding those limits, and as such overrides the LEP height numbers. The modified proposal similarly seeks a merit assessment to determine heights via the concept plan process. • The proposal is 3-4 storeys high • The proposed floor to ceiling heights are 2.7m for bedrooms & living areas and 2.4m for wet areas. • Extensive visual impact analysis, context/site analysis as balance between building height, form and space has been undertaken to ensure appropriate building height and form are applied - Refer to the PPR and VIA prepared by Dr. Richard Lamb accompanying the Mod 5 submission.
1B	Building Depth	• Resolve building depth controls in plan, section and elevation. • In general, an apartment building depth of 10 - 18 metres is appropriate. Developments that propose wider than 18 metres must demonstrate how satisfactory day lighting and natural ventilation are to be achieved. *Use maximum apartment building depths of 12-18m when precinct planning and testing development controls to help ensure apartments receive adequate daylight and natural ventilation and optimise natural cross ventilation* *For residential development in general, narrower buildings of 10-14m depth have a greater potential to achieve optimal natural ventilation and daylight access than deeper floor plates of up to 18m.*	The site has 1 main street frontage along Trinity Point Drive, however the proposal includes an internal road running parallel to Trinity Point Drive which provides access to the eastern residential buildings. The residential component includes short-stay apartments and permanent residential is split into 8 separate buildings: 3 situated along Trinity Point Drive, parallel to the street, addressing the Trinity Point Drive and the internal street on their western and eastern sides respectively, and 5 along the eastern section of the site in closer proximity to the eastern foreshore, radially fanning out to maximise views. The 5 eastern residential buildings are aligned on an east-west axis to provide predominately north-facing apartments. The 3 western buildings are aligned to Trinity Point Drive on a north-south axis with over 75% of these apartments enjoying a north-easterly aspect. Each building has been provided with a minimum of two lift cores to maximise the number of north facing apartments as well as opportunities for cross ventilation with dual aspect apartments. The residential building depth ranges from 14.7m to 18.5m deep. 100% of the apartments achieve cross ventilation & 73% achieve the required 3 hours of solar access in midwinter. All of common corridors are provided with natural light opportunities and are naturally ventilated. 100% of the apartments achieve cross ventilation as all apartments will have fire dampers drawing ventilation from the open corridors. Of this 67% are dual aspect and the remaining 33% are ventilated via the open corridors and balconies. Public areas such as corridors are provided with a natural ventilation and daylighting through louvered walls adjacent to the lift cores. Kitchens benches of all apartments, including those with single aspect, are within 8m of a window.
1C	Building Separation	• Design and test building separation controls in plan and section. • Test building separation controls for daylight access to buildings and open spaces. • Building separation controls may be varied in response to site and context constraints. • Developments that propose less than the recommended distances apart must demonstrate that daylight access, urban form and visual and acoustic privacy has been satisfactorily achieved (see Daylight Access, Visual Privacy and Acoustic Privacy). Minimum separation distances for buildings within a site and between adjoining sites for buildings are: Up to four storeys (approximately 12m): • 12m between habitable rooms/balconies • 9m between habitable and non-habitable • 6m between non-habitable *At the boundary between a change in zone from apartment buildings to a lower density zone, increase the building setback from the boundary by 3m*	The locations of the apartment buildings has been governed by a desire to maximise building separation and to achieve vistas through the site, allowing for extensive views to the lakeside as well as into the extensive landscaping of the site itself. The RDSC recommends the following for buildings of four storeys in height such as the current proposal: • 12 metres between habitable rooms/balconies • 9 metres between habitable/balconies and non-habitable rooms • 6 metres between non-habitable rooms The proposal generally significantly exceeds this recommendation due to the non-orthogonal site positioning of the buildings which allows for generous distances between buildings which increases as ones moves east across the site (up to 31.8m at some locations). Minor non-compliance exist at five points along the internal road between buildings F & B, G & C, G & D, H & E and G & H, ranging from 8 -10.2m separation distances however the radial site positioning of the eastern buildings means that this is limited to a small section of the facade and the view experienced from these points to the adjacent building is not orthogonal but at an obtuse angle which in actuality increases the experienced view distance.

Draft Apartment Design Guide items have been shown in italic
SEPP65 Urban Design Review Panel comments items have been shown in blue

	Street Setback	• Identify the desired streetscape character, the common setback of buildings in the street, the accommodation of street tree planting and the height of buildings and daylight access controls. • Relate setbacks to the area's street hierarchy. • Identify the quality, type and use of gardens and landscaped areas facing the street. • Test street setbacks with building envelopes and street sections. • Test controls for their impact on the scale, proportion and shape of building facades.	The setback to the Trinity Point Drive boundary ranges from 4-5.6m for the western apartment buildings allowing for a building articulation zone between the facade and the site boundary and a landscaping buffer. This meets the setbacks as established in the approved concept plan. The top level of each of the apartment buildings has been setback to minimise the appearance of bulk and respond to the adjacent small lot housing on the western side of Trinity Point Drive. The buildings have been positioned so as to maximise views through the site from Trinity Point Drive and Celestial Drive and create deep setbacks at the internal road and pedestrian connection points. Street planting along the eastern side of Trinity Point Drive is to emulate proposed endemic street planting further to the west of the site, with street trees visually linking the site with the adjacent small lot housing on the western side of Trinity Point Drive.
1E	Side & Rear Setback	• Relate side setbacks to existing streetscape patterns. • Test side and rear setback with building separation, open space and deep soil zone requirements (see Building Separation, Open Spaces and Deep Soil Zones). • Test side and rear setbacks for overshadowing of other parts of the development and/or adjoining properties, and of private open space.	Small encroachments into the eastern 20m setback zone and the varying southern setback zone established in the approved concept plan are more than offset via the provision of substantial additional public spaces between the radially orientated apartment buildings, generating open public spaces between the buildings and in turn encouraging access through the site. The apartment buildings are bounded to the north by the site's tourist precinct but achieve a minimum 18.8m setback from the adjacent buildings. Apartment building typology provides localised density within each building, opening up greater portions of the site to landscaping opportunities and public access Dwellings are congregated into 3-4 storey apartments in lieu of single dwelling subdivision to allow for a significant decrease in footprints from approved concept plan. The 10% increase in open space coupled with a basement car park layout that generally follows the apartment buildings above allows for increased open space and deep soil planting opportunities between buildings.
		• Test side and rear setbacks for overshadowing of other parts of the development and/or adjoining properties, and of private open space.	Adjoining properties are not unduly overshadowed by the proposal & any additional overshadowing complies with the relevant LMCC controls. Please refer to the shadow diagrams provided within the Mod 5 submission for detail.
1F	Floor Space Ratio	• Test controls for their impact on the scale, proportion and shape of building facades.	The FSR at 0.8 exceeds the approved concept plan FSR which established a FSR of 0.65:1 however the proposal complies to all relevant controls relating to building bulk, scale, height & setbacks & exceeds the controls for open space as argued below & in the relevant sections of this report.

PART 2: SITE DESIGN

	TOPIC	CONTROL CHECK / RULE OF THUMB	COMMENTS ON COMPLIANCE OF SEPP 65 GUIDELINES
2A	Deep Soil Zones	• A minimum of 25 percent of the open space area of a site should be a deep soil zone; more is desirable. Exceptions to this may be made in urban areas where sites are built out and there is no capacity for water infiltration. In these instances, stormwater treatment measures must be integrated with the design of the residential flat building. (see Stormwater Management) *3E Deep Soil Minimum Size (see table 1) with alternative solutions* *Site area greater than 1,500m2 with significant tree cover requires 20% deep soil area with a minimum width of 6m*	Deep soil across the entire site is 7287 sq.m which equates to 20% of the total site area and 28% of the open space. Deep soil within the apartment precinct is 6842 sq.m residential which equates to 19% of the total site area and 27% of the open space. Refer to the landscape plans prepared by Terras Landscape Architects for deep soil zone details accompanying the Mod 5 submission. The proposal complies with all relevant stormwater measures - refer to the stormwater plans & report prepared by ADW Johnson accompanying the Mod 5 submission.
2B	Open Space	• The area of communal open space required should generally be at least between 35 and 20 percent of the site area. Larger sites and Brownfield sites may have potential for more than 30 percent. • Where developments are unable to achieve the recommended communal open space, such as those in dense urban areas, they must demonstrate that residential amenity is provided in the form of increased private open space and/or in a contribution to public open space. *3D-1 Communal open space has a minimum area equal to 25% of the site.* *Communal open space is co-located with deep soil areas* *Direct, equitable access is provided to communal open space areas from common circulation areas, entries and lobbies* *Alternative solutions: Where developments are unable to achieve the recommended 25% communal open space, such as those on small lots, sites with high site coverage or in a centre, they should:* *• provide communal spaces elsewhere such as a landscaped roof top terrace or a common room* *• provide increased private open space or balconies* *• demonstrate good proximity to public open space and/or provide contributions to public open space*	There is a total of 25609 sq.m of open space across the entire site, which equates to 70% of the site area and an increase of 10% from the approved concept plan. This is all located at ground floor level all around the buildings. There is a total of 15100 sq.m of open space within the apartment precinct, which equates to 41% of the site area and an increase of 21% from the approved concept plan. This is all located at ground floor level all around the buildings.
		3D- 4 Public open space - Solar access is provided year round and space is protected from strong winds • The minimum recommended area of private open space for each apartment at ground level or similar space on a structure, such as on a podium or car park, is 25m2; the minimum preferred dimension in one direction is 4 metres. (see Balconies for other private open space requirements)	The minimum recommended area of private open space for each apartment at ground level or similar space on a structure, such as on a podium or car park, is 25m2; the minimum preferred dimension in one direction is 4 metres. (see Balconies for other private open space requirements) 86% of ground floor/podium level apartments have private open space of 25sqm or above. The remaining 14% of ground floor apartments achieve a minimum of 22sq.m private open space at ground floor and are limited to apartments which possess a maximum of 2 bedrooms. Minor non-compliance. The reduced extent of private open space at ground level apartments for 15% apartments is compensated by the generous common open space located across the site which is located in close proximity to all ground floor apartments. Additionally LMCCDCP requires 16sq.m of private open space at ground level, a provision of 22sq.m exceeds this requirement. Furthermore the approved concept plan reflects apartments along Trinity Point Drive which provide approximately 10sq.m of private open space at the ground floor, significantly less than the allowance in the proposed scheme.

Draft Apartment Design Guide items have been shown in italic
SEPP65 Urban Design Review Panel comments items have been shown in blue

2C	Planting on Structures	• In terms of soil provision there is no minimum standard that can be applied to all situations at the requirements vary with the size of plants and trees at maturity. The following are recommended as minimum standards for a range of plant sizes: • Large trees such as figs (canopy diameter or up to 16 metres at maturity) - minimum soil volume 150 cubic metres - minimum soil depth 1.3 metre - minimum soil area 10 metre x 10 metre area or equivalent • Medium trees (8 metre canopy diameter at maturity) - minimum soil volume 35 cubic metres - minimum soil depth 1 metre - minimum soil area 6 metre x 6 metre area or equivalent • Small trees (4 metre canopy diameter at maturity) - minimum soil volume 9 cubic metres - minimum soil depth 800mm - minimum soil area 3.5 metre x 3.5 metre area or equivalent • Shrubs - minimum soil depths 500 - 600mm • Ground cover - minimum soil depths 300 - 450mm • Turf - minimum soil depths 100 - 300mm - any subsurface drainage requirements are in addition to the minimum solid depths quoted above	Refer to the Landscape plans prepared by Terras Landscape Architects accompanying the Mod 5 submission. Future detail to be provided with DA submission.

		3E-1 Minimum soil volume specified for different tree sized *3E-2 Pedestrian pathways and paving which is specifically designed for tree root growth occupies a maximum of 10% of the deep soil zone.* *Services are limited to a maximum 300mm diameter consolidated services trench* *4E- 1 Tree planting in deep soil zones (see Table 3)* *site area great than 1,500m2 = 1 large tree or 2 medium trees per 80m2 of deep soil area* *4F Minimum soil standards for plant types and sizes (see Table 4)*	
2D	Safety	• Carry out a formal crime risk assessment for all residential developments of more than 20 new dwellings.	Refer to the Crime Risk Assessment report prepared by Harris Crime Prevention accompanying the Mod 5 submission.
2E	Visual Privacy	• Refer to Building Separation minimum standards (see Building Separation). *3C-1* *Front fences and walls along street frontages use visually permeable materials and treatments.* *The height of solid fences or walls is limited to 1m.* *A change in level from the footpath to a ground floor apartment by up to 1.0m enhances privacy while allowing surveillance of the public domain*	Within the site area, visual privacy will be provided by the setbacks between each of the buildings, which generally exceed the recommendations of the RFDC. The large communal open space will be planted with large trees, which will enhance the privacy between apartments. In addition to this, a combination of projecting roof overhangs, blade walls, operable sun-shading elements, balustrades & balconies will maintain privacy between each floor. Trinity Point Drive bounding the western boundary of the site will provide a 25m buffer between the apartment buildings and the neighbouring residential subdivision. Fences are generally not implemented on the site aside from pool safety fencing. Visual privacy to buildings is established via an immediate level change of 0.5 - 1.5m from private ground floor gardens to the adjacent landscaped terraces and paths. Terraces act as informal fences to restrict access between private and semi-private spaces. Landscaping softens the edges of the terraces and replaces the need for a visually obtrusive barrier.
2F	Pedestrian Access	• Identify the access requirements from the street or car parking area to the apartment entrance. • Follow the accessibility standard set out in Australian Standard AS 1428 (parts 1 and 2), as a minimum. • Provide barrier free access to at least 20 percent of dwellings in the development.	Pedestrian access from the street to the front entry of the apartment buildings is via accessible compliant walkways to the two ground floor entrances provided for each building. The basement car parking accesses the apartment buildings via accessible compliant lift cores (two per building) servicing each apartment floor and all units. Accessible compliant car parking has been provided with in the basement car park. All access points to the site, & all access within the site, are fully accessible, with disabled access to all residential levels and to and around the communal open space. All apartments are visitable. City Plan are providing ongoing accessibility advice for the entire site and have been commissioned to provide accessibility reports have been commissioned for Development Applications relating to this site.
2G	Vehicle Access	• Generally limit the width of driveways to a maximum of six metres. • Locate vehicle entries away from main pedestrian entries and on secondary frontages. *3J-1 Number of visitor spaces are limited, particularly in basements, to 1 space per every 10 apartments*	The residential & commercial driveway widths complies with the Australian Standards requirements. One-way vehicular entry access to the site is via the driveway off the roundabout at the north-eastern bend of Trinity Point Drive with 2 two-way entry/exits connecting vehicular traffic back to Trinity Point Drive at the south-western end of the site, connecting to Celestial Drive and the southern arm of Trinity Point Drive.

Draft Apartment Design Guide items have been shown in italic
SEPP65 Urban Design Review Panel comments items have been shown in blue

PART 3: BUILDING DESIGN

	TOPIC	CONTROL CHECK / RULE OF THUMB	COMMENTS ON COMPLIANCE OF SEPP 65 GUIDELINES
3A	Apartment layout	• Single-aspect apartments should be limited in depth to 8 metres from a window. • The back of a kitchen should be no more than 8 metres from a window. *Kitchens are not located as part of the main circulation space in larger apartments (such as hallway or entry space)* • The width of cross-over or cross-through apartments over 15 metres deep should be 4 metres or greater to avoid deep narrow apartment layouts. • Buildings not meeting the minimum standards listed above, must demonstrate how satisfactory daylighting and natural ventilation can be achieved, particularly in relation to habitable rooms (see Daylight Access and Natural Ventilation). • If council chooses to standardise apartment sizes, a range of sizes that do not exclude affordable housing should be used. As a guide, the Affordable Housing Service suggests the following minimum apartment sizes, which can contribute to housing affordability: (apartment size is only one factor influencing affordability) - 1 bedroom apartment 50m2 - 2 bedroom apartment 70m2 - 3 bedroom apartment 95m2 - *Studio 35m2* *Master bedrooms have a minimum area of 10m2 and other bedrooms 9m2 (excluding wardrobe space)* *Bedrooms have a minimum dimension of 3m (excluding wardrobe space)* *All bedrooms allow a minimum length of 1.5m for robes* *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*	The rear wall of all single aspect apartments (excluding non-habitable spaces such as laundries and bathrooms) is 8m from the living room window. All apartments have kitchens benches within 8m from a window. All cross through apartments are a minimum of 4m wide, with a depth ranging 12-16m. All apartments generally achieve the minimum areas or greater listed. Whilst subject to future design, concepts include: One bedroom apartments range between 50-59m2 Two bedroom apartments range between 77-92m2 Three bedroom apartments range between 98-120m2 (some penthouse apartments are slightly larger) Master bedrooms achieve a minimum of 10m2. Majority of bedrooms achieve a minimum width of 3m (small percentage are 2.9m wide). All living rooms of studio/one bedroom units achieve a minimum width of 3.6m. All living rooms of two/three bedroom units achieve a minimum width of 3.8m.
3B	Balconies	• Provide primary balconies for all apartments with a minimum depth of 2 metres. Developments which seek to vary from the minimum standards must demonstrate that negative impacts from the context-noise, wind-can not be satisfactorily mitigated with design solutions. • Require scale plans of balcony with furniture layout to confirm adequate, useable space when an alternate balcony depth is proposed. *Primary private open space at ground level or similar space on a structure has a minimum area of 16m2 and a minimum dimension in one direction of 3m* *Dwelling type / Minimum area / Minimum depth* *1 bedroom apartments 8m2 2m* *2 bedroom apartments 10m2 2m* *3+ bedroom apartments 12m2 2.5m*	All apartments have balconies that are at least 2 metres deep (excluding studios).
3C	Ceiling heights	• The following recommended dimensions are measured from finished floor level (FFL) to finished ceiling level (FCL). These are minimums only and do not preclude higher ceilings, if desired. - in mixed use buildings: 3.3 metre minimum for ground floor retail or commercial and for first floor residential, retail or commercial to promote future flexibility of use - in residential flat buildings in mixed use areas: 3.3 metre minimum for ground floor to promote future flexibility of use - in residential flat buildings or other residential floors in mixed use buildings: - in general, 2.7 metre minimum for all habitable rooms on all floors, 2.4 metres is the preferred minimum for all non-habitable rooms, however 2.25m is permitted - for two storey units, 2.4 metre minimum for second storey if 50 percent or more of the apartment has 2.7 metre minimum ceiling heights - for two storey units with a two storey void space, 2.4 metre minimum ceiling heights - attic spaces, 1.5 metre minimum wall height at edge of room with a 30 degree minimum ceiling slope • Developments which seek to vary the recommended ceiling heights must demonstrate that apartments will receive satisfactory daylight (e.g.. shallow apartments with a large amount of window area). *Ceiling heights of lower level apartments in centres are greater than the minimum required in the*	The proposed floor to ceiling heights are 2.7m for primary living spaces & bedrooms and 2.4m for wet areas.

Draft Apartment Design Guide items have been shown in italic
SEPP65 Urban Design Review Panel comments items have been shown in blue

3D	Ground Floor Apartments	• Optimise the number of ground floor apartments with separate entries and consider requiring an appropriate percentage of accessible units. This relates to the desired streetscape and topography of the site. • Provide ground floor apartments with access to private open space, preferably as a terrace or garden.	Two ground floor entries are provided per building with an allocation units assigned as adaptable. All access points to the site, & all access within the site, are fully accessible, with disabled access to all residential levels and to and around the communal open space. All apartments are visitable. All ground floor units have access to private open space. Hierarchy between public to private is achieved through incremental level changes and landscaping transitioning from the private external spaces associated with the buildings to the surrounding topography and public paths. Visual privacy to buildings is established via an immediate level change of 0.5 - 1.5m from private ground floor gardens to the adjacent landscaped terraces. Terraces act as informal fences to restrict access between private and semi-private spaces. Landscaping softens the edges of the terraces and replaces the need for a visually obtrusive barrier.
3E	Internal Circulation	• In general, where units are arranged off a double-loaded corridor, the number of units accessible from a single core/corridor should be limited to eight. Exceptions may be allowed: - for adaptive reuse buildings - where developments can demonstrate the achievement of the desired streetscape character and entry response - where developments can demonstrate a high level of amenity for common lobbies, corridors and units (cross over, dual aspect apartments). *Daylight and natural ventilation is provided to all common circulation and spaces where possible*	Single core/corridors service 2-5 units, significantly less than the maximum 8. Public areas are generally naturally lit & ventilated.
3F	Storage	• In addition to kitchen cupboards and bedroom wardrobes, provide accessible storage facilities at the following rates: - studio apartments 6 cubic metres - one-bedroom apartments 6 cubic metres - two-bedroom apartments 8 cubic metres - three plus bedroom apartments 10 cubic metres	The proposal complies with the controls allowing for internal storage and caged storage within the basement car park. At least half of the required storage is provided internally within all units, with the remainder of additional storage located in the basement car park in dedicated store areas.
3G	Daylight Access	• Living rooms and private open spaces for at least 70 percent of apartments in a development should receive a minimum of three hours direct sunlight between 9 am and 3 pm in mid winter. In dense urban areas a minimum of two hours may be acceptable. • Limit the number of single-aspect apartments with a southerly aspect (SW-SE) Developments which seek to vary from the minimum standards must demonstrate how site constraints and orientation prohibit the achievement of these standards and how energy efficiency is addressed (see Orientation and Energy Efficiency). • See Apartment Layout for additional rules of thumb. *3B-2 Where an adjoining property does not currently receive 3 hours of solar access, the proposed building ensures solar access to neighbouring properties is not reduced by more than 20%* *Buildings are orientated 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 is retained o solar collectors on neighbouring buildings* *4L The number of single aspect west and south facing apartments is minimised* *A maximum of 15% of apartments in a building have no direct sunlight between 9am and 3pm in mid winter* *Apartments that receive direct sunlight in accordance with the acceptable solution 4L-1.4 need to demonstrate that a person is able to sit in the sun in a habitable room or on a balcony of an apartment in mid winter between 9am and 3pm.* *See Figure 4L.1*	77% of apartments receive 2 hours sunlight between 9am & 3pm to both living areas & private open space. 73% of apartments receive 3 hours sunlight between 9am & 3pm to both living areas & private open space. 10% are south facing single aspect apartments. The north-south orientation of Buildings F, G & H directly addresses Trinity Point Drive and its neighbouring residential subdivision, limiting the potential to maximise north facing apartments to these buildings. Despite this, 73% of apartments receive the required 3 hours of sunlight. All windows will be appropriately glazed as required to achieve energy efficiency, and the location of the apartments within the development will achieve thermal efficiency owing to the thermal mass of the building. *Alternative solutions* *There may be some circumstances or locations where an alternative solution is proposed because 3 hours of direct sunlight in mid winter is not achievable. It needs to be demonstrated that the number of apartments receiving direct sunlight has been maximised. Design drawings need to demonstrate how site constraints and orientation preclude the achievement of acceptable solutions in this section and how the development meets the performance criteria.* *Circumstances where this may apply include:* *• where apartments face greater than 20 degrees east or west of north* *• in major centres or areas characterised by high density development* *• where greater residential amenity can be achieved along a busy road or rail line by orienting living rooms away from the noise source* *• on south facing slopes* *• where significant views are oriented away from the desired aspect for direct sunlight* *In these circumstances the development should receive a minimum of 2 hours of direct sunlight to 70% of living rooms and balconies at mid winter.* *Where buildings face within 20 degrees east or west of south, apartments should maximise dual aspect or have narrow*

3H	Natural Ventilation	• *Overall building depth does not exceed 12-18metres* • Sixty percent (60%) of residential units should be naturally cross ventilated. • Twenty five percent (25%) of kitchens within a development should have access to natural ventilation. • Developments, which seek to vary from the minimum standards, must demonstrate how natural ventilation can be satisfactorily achieved, particularly in relation to habitable rooms. *Unobstructed window openings are equal to at least 5% of the floor area served* *In dual aspect 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). See figure 4Q.5*	Apartment depth ranges between is 14.7-18.5m which generally complies with the control. All apartments are naturally cross ventilated. The majority of apartments have dual frontage. Single aspect apartments are suitably designed to achieve natural ventilation under the residential flat design code by reliable exposure to the prevalent summer cooling breezes in Lake Macquarie. The fundamental attribute for achieving this condition is the degree of 'relief' in the dominant windward façade, by use of protruding elements and recessed balconies. Fire dampers will also be provided above the entry doors to single sided apartments to draw natural ventilation via the open common area corridors. All kitchens have access to natural ventilation from living room windows. 2.4m high glazing running across the full width of each unit is proposed to all apartments to maximise solar access and ventilation and represents more than 5% of the served floor area. Where possible with dual aspect apartments openings are sized to maximise cross ventilation and be comparable in size.
3J	Waste Management	• Supply waste management plans as part of the development application submission as per the NSW Waste Board.	Waste management plans have been submitted with both the Marina and Tourist & Hospitality DAs submitted to LMCC and a waste management plan & report will accompany the Apartment DA submission.
3K	Water Conservation	• Rainwater is not to be collected from roofs coated with lead- or bitumen-based paints, or from asbestos-cement roofs. Normal guttering is sufficient for water collections provided that it is kept clear of leaves and debris.	Rainwater will be collected from Colorbond metal sheet roofs and stored on-site in rainwater tanks. Leaf guards and regular maintenance of gutters will minimise the accrual of debris. 3-4 star fixtures will be used as per BASIX requirements.
	Universal Design	*4G Developments achieve a benchmark of 20% of total apartments incorporating the silver level universal design features in Table 5* *Silver level universal design features include:* *Safe and continuous levelled path to entrances* *Accessible entry door with a minimum 820mm clear opening width and a step-free threshold* *Level landing area of 1200mm x 1200m at the entrance door* *Internal doors with a minimum 820mm clear opening width and a step-free transition between surfaces* *Internal corridors with a minimum of 1000mm clear width* *Step free shower recess* *Bathroom wall is reinforced for grab rails around the toilet, shower and basin* *A toilet is provided on the ground or entry level in multi-level apartments that provides:* *• minimum clear width of 900mm between walls* *• minimum clear circulation space forward of the toilet pan of 200mm (excluding the door swing)* *Other desirable features include:* *Continuous travel paths that connect public and private areas* *Avoiding trip hazards and floor level changes* *Continuous handrails on stairs* *Additional circulation space in kitchens and laundries* *Providing a bathroom, bedroom, kitchen, laundry and living space on the entry level of multi-level apartments* *Light switches, door handles and power points at reachable heights* *Easy to operate tap sets*	Apartments have been designed to comply with accessibility requirements with a provision for accessible units to NCC requirements. Accessibility considerations include the design of walkways, corridors, landings, doors and their associated circulation requirements and the transition between abutting floor surfaces. An accessibility report prepared by City Plan will accompany the Apartment DA submission.
	Awning Design	*Awnings are 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 a new stablished pattern* *Awnings are 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 are integrated and concealed* *Lighting under awnings is provided for pedestrian safety*	Awnings are not proposed due to the complete residential nature of the apartment buildings. High pedestrian traffic retail and hospitality zones are proposed to the north of the site away from the apartment precinct.

Acoustic privacy	*Noise sources such as garage doors, driveways, service areas, plant rooms, building services, mechanical equipment, active communal open spaces and circulation areas are located at least 3m away from bedrooms* *Where physical separation cannot be achieved noise conflicts are resolved using the following design solutions:* *• double or acoustic glazing* *• acoustic seals* *• use of materials with low noise penetration properties* *• continuous walls to ground level courtyards where they do not conflict with streetscape or other amenity requirements*	Plant rooms, building services and service areas are located with the basement car park away from bedrooms. Any mechanical services required to balconies will be suitably acoustically screened as per the advice of the acoustic consultant. Refer to the Acoustic report prepared by The Acoustic Group accompanying the Mod 5 submission.
Energy efficiency	*Adequate natural light is provided to habitable rooms (see 4L Solar and daylight access)* *2Well located, screened outdoor areas are provided for clothes drying* *A number of the following design solutions are used:* *• the use of smart glass or other technologies on north and west elevations* *• thermal mass in floor and walls in the north facing rooms is maximised* *• polished concrete floors, tiles or timber rather than carpet* *• insulated roofs, walls and floors and seals on windows and door openings* *• overhangs and shading devices such as awnings, blinds and screens* *2. Provision of consolidated heating and cooling infrastructure in a centralised location (e.g. the basement)*	Thermal mass will be maximised as the roof and walls between units will be adequately insulated to the minimum level as required by BASIX. Apartment buildings will meet the requirements of section J of the NCA, BASIX, and relevant DCPs and designed with consideration to solar penetration, overshadowing and cross ventilation.