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14-18 Boondah Road, Warriewood Valley

March 2010 Prepared for **Meriton Apartments Pty Ltd**

Environmental Assessment
Proposed Concept Plan and Stage 1 Project
Application No. MP_09_0162

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Cover image: 3D artist's impression of proposed development from Macpherson Street.

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Quality Assurance

Reviewed by

.....
Stewart Verity
Director
Urban Design and Planning
Architectus Sydney Pty Ltd

.....
Date
This document is for discussion purposes only unless signed.

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Statement of Veracity

Submission of Environmental Assessment

Prepared under Part 3A of the *Environmental Planning and Assessment Act, 1979*.

Environmental Assessment prepared by:

Names:

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  - Bachelor of Arts (Human Geography), Macquarie University.
  - Master of Urban and Regional Planning, University of Sydney.

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Sydney NSW 2000

In respect of:

Major Project Application MP 09_0162
Proposed Concept Plan and Stage 1 Project Application for the construction of a residential development

Certification:

I certify that we have prepared the contents of this Project Application Environmental Assessment. To the best of my knowledge, the information contained in this report is neither false nor misleading.

(Signature and date)

Stewart Verity, Director Urban Design and Planning Architectus

Executive Summary

This document is the Environmental Assessment to accompany the proposed Major Project Application MP 09_0162 which seeks approval for a Concept Plan and Stage 1 Project Application for the construction of a residential development at 14-18 Boondah Road, Warriewood. It is submitted by Architectus on behalf of the Proponent, Meriton, under Part 3A of the *Environmental Planning and Assessment Act 1979*.

Major Project Application MP 09_0162 seeks the Minister for Planning's Concept Plan Approval and project approval for Stage 1 as follows:

Concept Approval

- Sixteen residential buildings of 3 and 5 storeys in height providing 600 units;;
- Childcare Centre (370sqm);
- Two retail tenancies (tenancy 1 - 103sqm and tenancy 2 - 89sqm);
- Gymnasium and swimming pool for private use by residents and visitors;
- Concept design for public and private landscaping;
- Concept design for internal road network, comprising public and private roads.

Stage 1 Project Application

- Demolition of the existing dwellings and structures and removal of vegetation on the subject site;
- Construction of earthworks and flood mitigation works;
- Construction of an internal access road and connection with Macpherson Street and Boondah Road and private road network;
- 313 units situated across 7 residential buildings with basement car parking;
- Landscaping embellishment to public and private land;
- Construction of a public pedestrian cycle way through the site.

This report provides an Environmental Assessment of both the Concept plan and Project Application. The development will make a positive contribution to Warriewood Valley and Pittwater Local Government Area (LGA) by providing the following:

- **Greater Housing Choice** (the development provides a mix of studio, one, two and three bedroom units);
- **Greater Housing Affordability in Pittwater LGA** through the provision of studio, 1, 2 and 3 bedroom units;
- **Connection to and extension of the pedestrian cycleway network through Warriewood Valley.**
- **Significant Fern Creek riparian restoration works,** including the provision of a 50 metre buffer from the centre of the creek line, establishment of native riparian flora and fauna.

1 Introduction

1.1 Preliminary

This Environmental Assessment (EA) has been prepared by Architectus on behalf of Meriton Apartments Pty Ltd, the proponent for the Major Project Application MP 09_0162.

This report has been prepared in accordance with the Director General's Requirements (DGRs) issued by the NSW Department of Planning on 23 December 2009.

The Environmental Assessment should be read in conjunction with the plans, drawings and documentation provided at **Appendix A to CC**.

1.2 Structure of this report

This report is comprised of the following nine sections:

Section 1 – Introduction

This section of the Environmental Assessment identifies and outlines the site and its location; provides a brief overview of the proposal and describes key economic, environmental and social benefits of the proposal; the DGRs; the project team; the consultation undertaken; the project capital investment value; the consent authority; legislation, statutory requirements and policies; development consent history; and future applications.

Section 2 – Site and contextual analysis

This section describes the local and regional context; the site; a legal description and identification of easements; land use zoning; traffic and transport; heritage elements; existing vegetation; and site constraints and opportunities.

Section 3 – Strategic justification and consideration of alternatives

Section 3 provides a strategic justification for the project, consideration of alternatives to the project and the project objectives and vision.

Section 4 – The proposal

This section provides a description of the proposed development, including an overview of the project, plans and drawings, a numerical overview of the project as well as the urban design and planning principles; proposed land uses; unit mix; landscaping and public domain works.

Section 5 – Consultation

Section 5 provides a detailed outline of the consultation undertaken in the proposed design and as part of the preparation of this Environmental Assessment. Consultation was undertaken between the Proponent, Pittwater Council and the community.

Section 6 – Regulatory context

Section 6 outlines the applicable planning instruments and policies of relevance to the project, consistency with the relevant instruments and policies and provides justifications for any non-compliances.

Section 7 – Environmental Assessment

This section provides an Environmental Assessment of the proposal against the key issues identified in the Director General's Requirements.

Section 8 – Draft Statement of Commitments

Section 8 outlines the Draft Statement of Commitments which will be adopted by the proponent in the construction and operational stages of the proposal, to mitigate and manage potential impacts.

Section 9 – Conclusion

Section 9 concludes the report with a brief summary of the key findings of the Environmental Assessment.

1.3 Key economic, environmental and social benefits

The proposal will result in the residential flat development within the Warriewood Valley land release area. The proposal will result in significant positive economic, environmental and social benefits to the locality and the region.

The key economic, environmental and social benefits are summarised below:

Economic benefits

- Increase in local population potentially providing an economic benefit to local businesses in the area.
- Developing under-utilised residential land, making efficient use of existing land in an established locality within the Sydney Metropolitan Region.

Environmental benefits

- Increase residential dwelling supply in an established suburb within the Sydney Metropolitan Region, providing an infill development opportunity, to make efficient use of land.
- Development to be designed and managed in accordance with ecologically sustainable development (ESD) principles.
- Encourage the use of walking, cycling and public transport in providing housing within walking distance to local bus routes and enhancing local pedestrian and cycling networks.
- Revegetation and creek restoration works associated with the 'Fern Creek' Riparian Corridor, Wetland buffer zone and associated 'Asset Protection Zones'.

Social benefits

- Provide for mix of residential apartments, including studio, 1, 2 and 3 bedroom units. This will increase the variety of housing choices in the area, which are predominately detached dwellings.
- The development will provide for more affordable housing options within Pittwater LGA.
- The provision of new housing in an accessible area, well serviced by a bus network, education and health infrastructure and a range of other social infrastructure.
- Provide new cycling and pedestrian paths to enhance and provide linkages to existing bicycle and pedestrian infrastructure for the use of the broader community within Warriewood Valley.
- Increasing the use of local amenities and infrastructure, improving their overall viability and local significance.
- Landscape design of parks with passive and active recreational facilities such as barbeque areas, grassed open space, swimming pool and a gymnasium.

1.4 Director General's Requirements

This section of the report lists the key issues in the DGRs and provides references to where in the body of the report and Appendices they have been addressed. This report has been prepared in accordance with the Director Generals Requirements and is structured accordingly. **Table 1** provides a summary with references to where in the Environmental Assessment the DGRs are addressed.

Table 1. Director General's Requirements

Director General's Requirements	Comment
Relevant EPI's policies and Guidelines to be addressed • Planning provisions applying to the site, including permissibility and the provisions of all plans and policies are contained in Appendix A.	**Section 5** of this report addresses compliance with all the relevant State and Local Government applicable planning policy.
Built Form • Address the height, bulk and scale of Stage 1 and future stages of the development within the context of the locality. Detailed envelope/height and contextual studies and visual assessment should be undertaken for Stage 1. The studies should include options for the height, sitting and layout of building envelopes, open space and the road/pedestrian network and demonstrate appropriate separation between individual buildings, setbacks to roads and footpaths and any environmental buffer areas.	Height has been considered in detail in **Section 4.10, 6.3, and 7.1** of this report. A Photomontage has been prepared and submitted as part of this application detailing the proposed development in context to surrounding development. **Section 3** considers the appropriateness of the development in the options analysis.
Open Space • Address the provision and allocation of private and public open space areas (including any required connection to local or regional cycleway/pedestrian paths) for the Concept Plan and Stage 1 Project Application to meet the demand arising from the increased density and demonstrate than an appropriate area of private and public open space will be provided.	Open Space is addressed in **Section 4.8, 6.7, 7.1** of this report.
Land uses and Density • Identify the range of land uses proposed and demonstrate consistency with the objectives of the 2(f) (Urban Purposes –	Land uses and density is addressed in **Section 7.3** of this report.

Director General's Requirements	Comment
Mixed Residential)" zone. In particular, the EA should justify the intensity of non-residential uses proposed in Stage 1 and in the later stages of the Concept Plan. • Provide justification for the proposed dwelling yield and floor space.	
Isolated Sites • The proposal should seek to amalgamate with the adjacent properties known as 5 and 7 Macpherson Street so that there is a more appropriate and reasonable relationship with future developments in the locality. The EA shall include details outlining negotiations with the owners of the affected properties. In the event that amalgamation is not possible, the EA shall address development potential of the isolated sites if they cannot be included within this proposal.	**Section 7.4** details negotiations and concept plan for the site at 5-7 Macpherson Street.
Urban Design/Public Domain • Address the design quality with consideration of the façade, massing, setbacks, building articulation, use of appropriate colours, materials/finishes, landscaping, safety by design, public domain including an assessment against the CPTED Principles. • Demonstrate how the design, layout and public domain areas proposed in the Stage 1 Project Application will integrate with the Concept Plan	**Section 7.5** details urban design and public domain of the proposed development.
Bushfire • Address the requirements of Planning for Bush Fire Protection 2006 and the Rural Fires Act 1997	Flamezone Bushfire Consulting report is provided at **Appendix C** and addressed in S**ection 7.7** of this report.
Environmental and Residential Amenity • Address solar access, acoustic privacy, visual privacy and view loss and demonstrate that the Concept Plan and Stage 1 Project Application achieve a high level of environmental and residential amenity.	Environmental and Residential amenity is discussed in **Section 7.8** of this report.
Car Parking • Demonstrate the provision of sufficient on-site car parking for the proposal, having regard to local planning controls and RTA guidelines.	Car parking is addressed in Transport and traffic planning associates report at **Appendix D** and is discussed in **Section 7.9**.
Transport and Accessibility (Construction and Operational) • Provide a Traffic Management and Accessibility Plan (TMAP) prepared in accordance with the Draft interim TMAP Guidelines. • Provide a Traffic and Accessibility impact Study prepared in accordance with the RTA's Guide to Traffic Generating Developments, considering traffic generation, any required road/intersection upgrades, access, loading dock(s), car parking arrangements, measures to promote public transport usage and pedestrian and bicycle linkages. • Provide an assessment of the implications of the proposed development for non-car travel modes. • Demonstrate how users of the development will be able to make travel choices and provide an assessment of existing STA bus services and capacity and Address the adopted Warriewood Valley Roads Master plan.	A traffic impact assessment and transport management and accessibility plan is provided at **Appendix E** and is discussed at **Section 6.5 and 7.10** of this report.
Ecological Sustainable Development (ESD) • Detail the incorporation of ESD principles in the design, construction and ongoing operation phases of the development, including waste management, and demonstrate that the proposal has been assessed against a suitably accredited rating scheme to meet industry best practice.	An ESD report for the Concept Plan prepared by Cundall is provided at **Appendix F** and BASIX certificates for the Stage 1 Project Application is provided at **Appendix G**

Director General's Requirements	Comment
Flora and Fauna • Address impacts on flora (including trees to be retained) and fauna, including threatened species, populations and endangered ecological communities and their habitats and steps taken to mitigate any identified impacts to protect the environment, both marine and land in accordance with DECCW "*Threatened Species Assessment Guidelines 2007".* • Demonstrate the implementation of measures to protect and rehabilitate the adjoining Fern Creek, the Warriewood Wetland area and riparian corridor in accordance with the "Guidelines for Controlled activities in riparian corridors.	A Flora and Fauna Report has been prepared by Total Earth Care and is provided at **Appendix H** and is discussed in **Section 7.12** of this report.
Contributions • Address the provision of public benefit, services and infrastructure having regard to Council's Section 94 Contributions Plan and provide details of any Planning Agreement or other legally binding instrument proposed to facilitate this development. Address the additional demands arising in respect to the significant increase in density proposed by the Concept Plan. • Address the relevant arrangements with Sydney Water required to contribute to the upgrading of the Sewage Treatment Plant arising from the Concept Plan and Stage 1 Project application. • Address any state infrastructure levy requirements, particularly relating to traffic and transport infrastructure.	**Section 7.13** of this report addresses contributions. Meriton have provided a report at **Appendix I** detailing the proposed contributions.
Flooding, Drainage and Surface Water Management • Address flooding/drainage issues associated with the development/site, including stormwater, drainage infrastructure and incorporation of Water Sensitive Urban Design measures. • Provide an assessment of any flood risk on site in consideration of any relevant provisions of the NSW Floodplain Development Manual (2005) including the potential effects of climate change, sea level rise and an increase in rainfall intensity. • Provide particular consideration to all land located at or below reduced level 4.0 metres (AHD) and address the potential impact from sea-level rise, backwater effects as a consequence of sea-level rise, and State Sea Level Rise Policy benchmarks. • Identify any water management structures proposed to service the Stage 1 Project Application and any subsequent stage of the Concept Plan, including any dams, swales or detention basins. Information regarding the size, location, capacity and purpose of any water management structures.	A Stormwater Concept Plan prepared by Brown Consulting is provided at **Appendix J.** A report has been provided by Brown and is provided at **Appendix J,** which addresses stormwater management, potential effects of climate change and effects on the overall water table. Drainage and flooding is addressed in **Section 7.14** of this report.
Ground Water Management • Identify ground water issues and potential degradation to ground water sources and identify mitigation measures required to remediate, reduce or manage potential impacts to the existing ground water resource and any dependent ground water environment or water users. • Provide details of the presence and distribution of Groundwater Dependent Ecosystems in the vicinity of the site and identify any potential impacts as a result of the proposal.	Ground water management is addressed in **Section 7.14** of this report.
Aboriginal Heritage/Archaeology • Address Aboriginal Heritage in accordance with DECCW "Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation 2005.	Banksia Heritage and Archaeology have provided a report at **Appendix K** and is discussed in **Section 7.15** of this report.

Director General's Requirements	Comment
Utilities • Address the existing capacity and requirements of the development for the provision of utilities including staging of infrastructure works. • Address the capacity of the STP to accommodate the higher densities proposed in the Stage 1 application and the Concept Plan.	Utilities and Infrastructure is discussed in **Section 7.16** of this report, correspondence with the utilities providers is provided at **Appendix L.**
Staging • Include details regarding the staging of the proposed development and identify staging including the provision and timing of all required infrastructure works. Identify the infrastructure work required (including private and public open space provision, works required within Fern Creek, internal road system and associated intersections) to ensure that the Stage 1 Project Application development is fully serviced and that the infrastructure works serving the Stage 1 Project Application will be integrated with those for the Concept Plan area.	A staging plan is provided in the Architectural Drawings at **Appendix A** and is discussed in **Section 7.17** of this report.
Statement of Commitments • Include a draft Statement of Commitments detailing measures for environmental management, mitigation measures and monitoring.	The statement of commitments is provided in **Section 8** of this report.
Consultation • Undertake an appropriate and justified level of consultation in accordance with the Department's *Major Project Community Consultation Guidelines October 2007.*	Consultation has been undertaken in accordance with the Departments Major Project Community Consultation Guidelines and a report of our consultation prepared by Elton is provided at **Appendix M.**
Plans and Documents to accompany the Application **Environmental Assessment (EA):** 1. An executive summary; 2. A thorough site analysis including site plans, aerial photographs and a description of the existing and surrounding environment; 3. A thorough description of the proposed development; 4. An assessment of the key issues specified above and a table outlining how these issues have been addressed; 5. An assessment of the potential impacts of the project and a draft Statement of Commitments, outlining environmental management, mitigation and monitoring measures to be implemented to minimise any potential impacts of the project; 6. Plans and documents (outlined below); 7. A signed statement from the author of the Environmental Assessment certifying that the information contained in the report is neither false nor misleading; 8. A Quantity Surveyor's Certificate of Cost to verify the capital investment value of the project (in accordance with eth definition contained in the Major Projects SEPP); and 9. A conclusion justifying the project, taking into consideration the environmental impacts of the proposal, the suitability of the site and whether or not the project is in the public interest.	This report has been prepared in accordance with the Director Generals Requirements. A QS report confirming the CIV is provided at **Appendix N.**
Plans and Documents The following plans, architectural drawings, diagrams and relevant documentation shall be submitted; • An existing site survey plan; • A site analysis plan; • A locality/context plan; • Architectural drawings; • Stormwater concept plan;	Plans and documents accompany this report, as provided in the list of Appendices.

Director General's Requirements	Comment
• Environmental Management Plan; • Integrated Water Management Plan; • Vegetation Management Plan; • Flood Management Plan; • Waste Management Plan; • Visual and View Analysis; • Landscape Plan; • Shadow diagrams; • Erosion and Sediment Control Plan; • Geotechnical Report;	

1.5 Consultant Team

This application has been prepared with input from the project team outlined in **Table 2**.

Table 2. Consultant Team

Project Manager	Meriton Apartments Pty Ltd
Statutory Planning	Architectus Group Pty Ltd
Architecture (Stage 1)	Meriton Apartments Pty Ltd
Concept Plan and 3D Images	Stanisic Architects and Meriton Apartments Pty Ltd.
Landscape Architect	Site Image
Consultation Specialist	Elton Consulting
Quantity Surveyor	RPS, Harper Somers, O'Sullivan
Surveyor	JBW Surveyors
BASIX Consultant	Efficient Living Building Sustainability Consultants
Geotechnical Engineer	Jeffery and Katauskas Pty Ltd
Utilities and Services Engineer	Brown Consulting
Civil Engineer	Brown Consulting
Graphic Artist	Troy Bray Design Media
Hydraulic Engineers	Brown Consulting
Bushfire Consultant	Flamezone Pty Ltd
Traffic and Transport Consultant	Halcrow, Transport and Traffic planning Associates
Ecological Consultant	Total Earth Care
Climate Change and Sea level rise	Brown Consulting
Integrated Water Management	Brown Consulting
Erosion and Sediment Control	Brown Consulting
Heritage Consultant	Graham Brooks and Associates
Aboriginal Archaeological and Cultural Heritage Impact Assessment	Banksia Heritage and Archaeology
ESD	Cundall
Geotechnical Engineers	Jeffrey Katauskas Pty Ltd
Aboriculturalist	Tree and Landscape Consultants
Environmental Consultant	Environmental Audits of Australia
Waste Management Consultant	Wastech Engineering

1.6 Consultation Undertaken

This section of the report describes the consultation that has been undertaken by the consultant project team during the preparation of this Environmental Assessment. Consultation has been carried out with government agencies and the community as required by the Director General of the Department of Planning (DGRs).The DGRs issued for the Project Application Environmental Assessment establish the community consultation requirements for the Part 3A project as they require the Proponent to:

> *"Undertake an appropriate and justified level of consultation in accordance with the Departments Major Project Community Consultation Guidelines October 2007".*

Elton Consulting have prepared the Consultation Plan for the project in accordance with the Department of Planning's guidelines for consultation *"Guidelines for Major Project Community Consultation, October 2007".*

The Department's Consultation Guidelines contain provisions relating to the assessment of the proponents consultation to determine whether it has been *"adequate and appropriate"*. The Guidelines contain the following provisions:

- *The nature of the proposal and the extent of its likely environmental, social and economic impacts,*
- *The level of consultation required in the DGRs,*
- *Consultation that occurred prior to making an application to the Minister for approval of a Major Project or Concept Plan.*
- *Whether the nature of the development will require on-going consultation once the project is constructed and has commenced operation. Where consultation is appropriate during the operational stages, the Minister may require long-term community engagement as a condition of approval.*

Furthermore the Consultation Guidelines state that the amount of consultation included in the Environmental Assessment may be considered adequate if it demonstrates that:

1. Those individuals and organisations likely to have an interest in the proposal had enough opportunity to express their views. The community of interest can be broadly categorised into three groups:
   a) *Those directly impacted by the project;*
   b) *Individuals and groups likely to have an interest in the local or regional implications of the project; and*
   c) *Organisations with a State and national interest.*

The Consultation Plan at **Appendix M** outlines the strategy for the community consultation during the Environmental Assessment process to facilitate stakeholder understanding about the proposed development.

The consultation activities which have been undertaken by the Proponent to date with government agencies and the community as well as proposing additional consultation activities that are outlined in the

Consultation Plan, include the following:

- The development of a project website (www.meritonwarriewood.com.au) launched 1 February 2010, containing a proposal information and feedback form;
- An information flyer delivered Wednesday 3 February 2010 to letterboxes in a catchment area adjacent to the site. The flyer was used to promote the community information and feedback session and the project website. Approximately 850 flyers were delivered;
- An advertisement in the Manly Daily (circulation 91,784 readership 139,000) on Thursday 4 February 2010;
- A community information and feedback session on Saturday 13 February 2010.

An analysis of the community feedback from the above consultation methods is provided in Elton Consulting report at **Appendix M.**

Community Consultation was undertaken in accordance with the Department of Planning's *"Major Project Community Consultation Guidelines October 2007".*

In summary specific issues raised are as follows:

- The number of dwellings proposed for the site, and compliance with local planning controls (LEP and DCP)
- Why the DOP Part 3A process will be used to determine the proposal as opposed to Pittwater Council
- The height of the proposed development and its impact on the existing character of the area.
- Potential impacts on local traffic conditions, including access to Mona Vale Road and public transport.
- How the proposed development will impact on local services including Mona Vale Hospital, Warriewood Shopping Centre, public transport and local schools.
- Potential impacts on Warriewood Wetlands and how they will be mitigated.
- How parking on site will be accommodated.
- Compatibility of residential development with the neighbouring Sewage Treatment Plant and
- Questions about the links between the proposed development and benefits for the local economy.
- The issues identified above are not in order of significance and represent a summary of the key issues identified in community consultation conducted to date. Responses to these issues are provided throughout this report with the focus of responses provided in the Environmental Assessment at **Section 6**.
- The consultation undertaken by the Proponent has adequately addressed the Director General's Requirements for Consultation. That said, consultation activities will continue in addition to the statutory exhibition period.

1.7 Concept Plan and Project Application Overview

Major Project Application MP_09_0162 seeks the Minister for Planning's consent for the following:

Concept Plan

- Sixteen residential buildings of 3 and 5 storeys in height providing 600 units;;
- Childcare Centre (370sqm);
- Two retail tenancies (tenancy 1 - 103sqm and tenancy 2 - 89sqm);
- Gymnasium and swimming pool for private use by residents and visitors;
- Concept design for public and private landscaping;
- Concept design for internal road network, comprising public and private roads.

Stage 1 Project Application

- Demolition of the existing dwellings and structures and removal of vegetation on the subject site;
- Construction of earthworks and flood mitigation works;
- Construction of an internal access road and connection with Macpherson Street and Boondah Road and private road network;
- 313 units situated across 7 residential buildings with basement car parking;
- Landscaping embellishment to public and private land;
- Construction of a public pedestrian cycle way through the site.

1.8 Capital Investment Value

The Capital Investment Value for the project, calculated in accordance with the definition under State Environmental Planning Policy (Major Development) 2005 is $276,113,400.00

Refer to Final CIV estimate prepared by Harper Somers O'Sullivan **Appendix N**.

1.9 Consent Authority

The Minister for Planning is the consent authority for the proposal under Part 3A of the *Environmental Planning and Assessment Act 1979*.

A Clause 6 request for Director-General's Requirements was lodged to the NSW Department of Planning and the Minister Declared the project was one to which Part 3A applies. The DGRs were issued on 23 December 2009.

1.10 Development Consent History

Development consent (NO526/08) was granted by Pittwater Council on the 20th July 2009 for the following:

- Demolition of the existing dwellings on the subject site;
- Construction of earth and flood mitigation works, and removal of trees;
- Construction of internal access roads and connection with Macpherson Street and Boondah Street;
- Erection of 135 x 2 storey dwellings with associated car parking (2 spaces per allotment);
- Creation of five (5) allotments for which a future DA will be made by individual property owners;
- Landscaping works;
- Torrens title subdivision to create 140 allotments, dedication of roads and creek line corridor/wetlands buffer strip to Council;
- Creation of a community title allotment that contains the Asset Protection Zone and flood mitigation works (bio-retention basins).

1.11 Future applications

Future planning applications required for Stage 2 area of the development include:

- Community title and Strata Subdivision;
- Use and fitout of the proposed childcare centre;
- Use and fitout of the proposed retail tenancies. Future application for Stage 2 area;
- Project Application for remaining residential buildings and private roads and landscape embellishment;
- Community title and Strata Subdivision.

2 Site and Contextual Analysis

This section of the report provides an analysis of the site, and the local context of the development. An analysis of the site is described in terms of the land use zoning, the existing built form and structures, traffic, access, vegetation, topography and heritage conservation and the immediate surrounds.

2.1 Site Description

Figure 1. Subject Site as viewed from Macpherson Street

The site is legally described as Lot 20 in DP 1080979 and is known as 14-18 Boondah Road, Warriewood Valley (**Figure 2**). A survey of the site is provided at **Appendix CC**. The site is known as Buffer Area 3 in the Warriewood Valley.

The site is irregular in shape and has a total site area of 8.116 ha and slopes gently towards Warriewood Wetlands. The site has been modified over past years and the majority of the original vegetation has been removed or disturbed from agricultural production (market gardens, nurseries), a large poplar plantation, grazing, and assorted outbuildings.

Currently the majority of the land is cleared and used for residential purposes associated with agriculture in a broad acre subdivision pattern. The current uses of the land include nurseries and horse stables as well as residential dwellings. Areas of remnant vegetation are evident along natural watercourses and within and adjacent to the Warriewood wetlands, which is discussed in more detail later in this report.

Figure 2. Site Location Plan
Site is outlined in red

Figure 3. Warriewood Brook Seniors Living Development opposite the site on Macpherson street
(Mix of two storey and three storey residential flat buildings)

Figure 4. Macpherson Street Streetscape
Adjacent to the site - two storey terrace, dual occupancy, villa style development.

Figure 5. Boondah Road Frontage

2.2 Surrounding Area

The site location context map (**Figure 6**) shows the site and immediate surrounding area, which comprise the following land uses:

- The residential development sites of (Sectors 11 and 12) to the west;
- The Warriewood wetlands and (Sector 15) to the south;
- Warriewood Brook, Seniors living Development within Buffer Area 2 to the north and
- The Sydney Water Sewage Treatment Plant, to the east.
- Surrounding areas are being redeveloped for residential housing and seniors housing, predominately two and three storeys in nature in the form of detached dwellings, terraced housing and residential flat buildings.

The site adjoins Warriewood wetlands, which covers approximately 260 Ha and is in close proximity to Warriewood Shopping Centre as well as recreational facilities such as playing fields, Boondah Reserve, Jacksons Reserve, Progress Park, North Narrabeen Reserve, a golf driving range is situated on Pittwater Road, an indoor sports centre at Narrabeen Sports High. Warriewood Beach, Narrabeen Lakes and North Narrabeen Beach are all within close proximity.

A public high school (Narrabeen Sports High) and primary school (North Narrabeen Primary School) are both situated on Namona Street, North Narrabeen, approximately 1.5kms away. Marta Maria Catholic School is also situated within 1.5kms away on Forest Road, Warriewood.

The subject site adjoins the Warriewood Wetlands, a high quality visual and landscape element containing a boardwalk that links the site and surrounding residential development areas within Warriewood Valley with Warriewood Shopping Centre.

Fern Creek runs along the south western boundary of the site and provides a valuable source of public open space.

Two heritage items is situated within the near vicinity of the site, a ‘federation cottage’ at 21 McPherson Street, Warriewood to the west of the site and a ‘memorial bus shelter’, which is situated on McPherson Street, opposite flower power.

Warriewood Valley is ideally situated to utilise and build upon the existing services and facilities within Pittwater. The proposed development provides an opportunity to meet this demand; with 600 dwellings that will help Pittwater LGA meet its dwelling targets as stipulated in the Metropolitan Strategy.

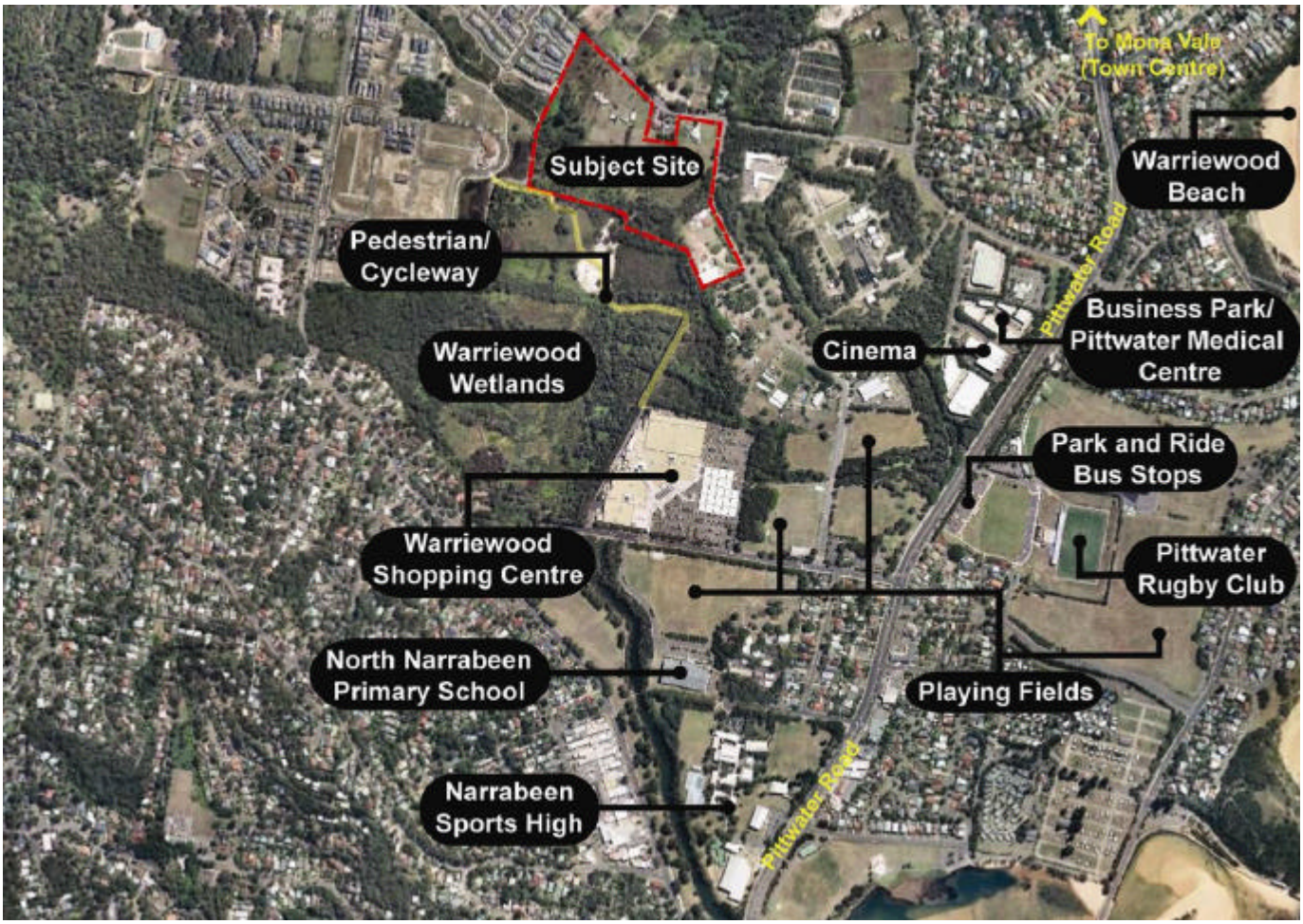

Figure 6. Context Map
Shows the site and surrounding services and facilities in the local area.

2.3 Zoning

The site forms the majority of the Warriewood Valley Release Area (Buffer Area 3) which is zoned Residential 2(f) under the provisions of the Pittwater LEP 1993 (refer to **Figure 7**). The erection of residential dwellings, secondary dwellings and subdivision are permitted in this zone. The pro rata dwelling yield for the site as specified in PLEP is 135 dwellings.

Buffer Area 3 has been planned as a multi-unit housing sector (based on a density of 25 dwellings per hectare, exclusive of the environmental constraint or core creek line corridor.

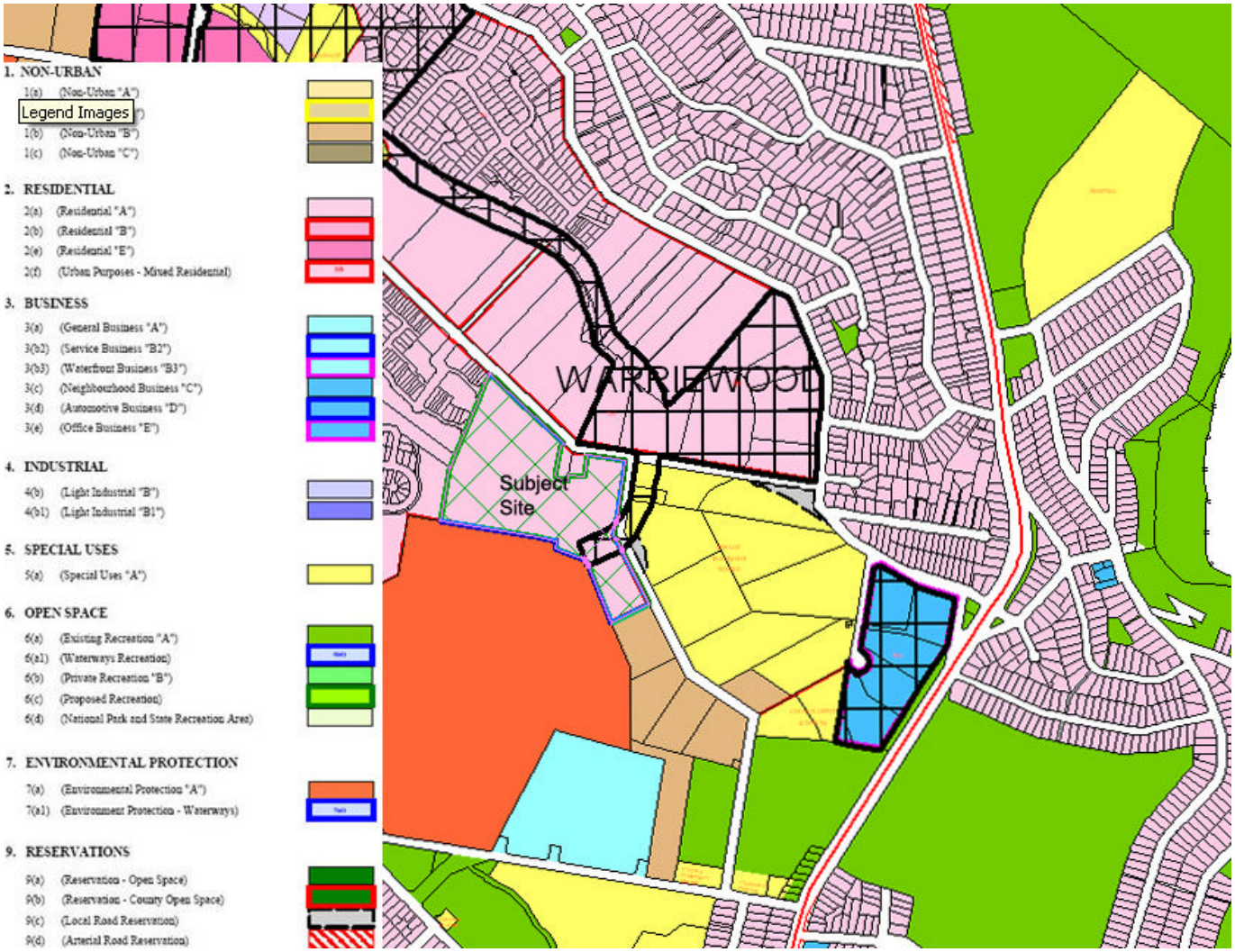

Figure 7. Zoning Map, Pittwater LEP 1993
The site is zoned 2 (f) mixed residential in accordance with the zoning map. The site is also situated within Buffer Area 3 within the Warriewood Valley Urban Land Release Area.

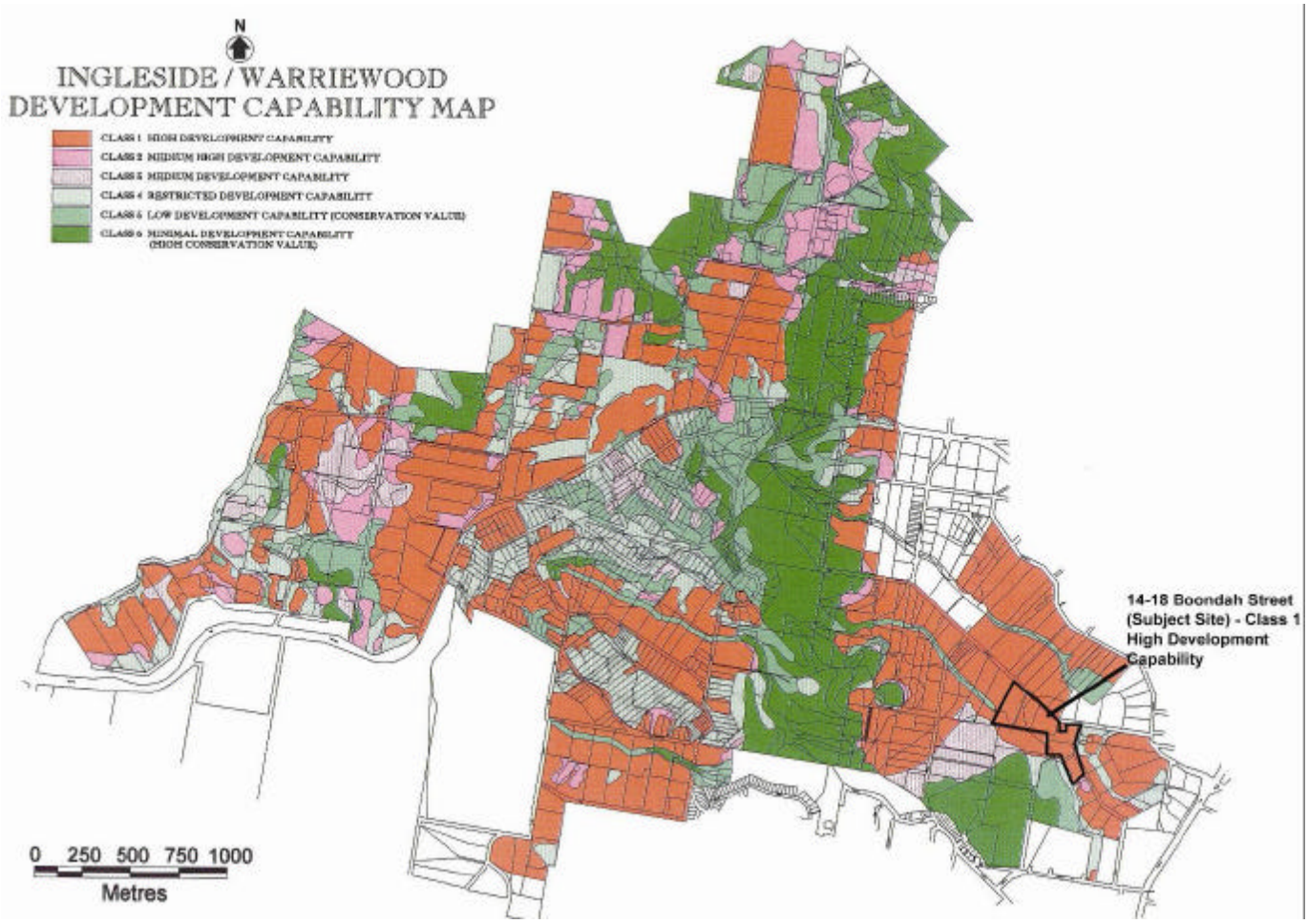

Figure 8. Warriewood Development Capability Map
The site is indicated as having a Class 1 high development capability.
Source: Pittwater Council Draft Planning Strategy: Ingleside Warriewood Urban Land Release

2.4 Topography

The site is located in Warriewood Valley, and on the margins of the Fern Creek floodplain. The site gently slopes, bordered by moderately inclined slopes to the north and the flat low-lying terrain of the Warriewood Wetlands to the south. The site has low relief, with a south westerly aspect.

The water table is located close to the surface across most of the site and some areas, particularly in the south, are subject to water logging and periodic inundation. Surface runoff drains mainly into low lying areas in the southern and western parts of the site, as well into artificial drainage channels constructed in various locations (apparently as irrigation channels for previous agricultural activities). The site drains into Fern Creek, which at this location forms a direct link in the Warriewood Wetlands close to the southern boundary of the site.

2.5 Access, Traffic and Transport

Halcrow Transport and Traffic Consultants have undertaken an assessment of the traffic, transport and parking aspects of the existing and proposed developments. Refer to **Appendix E.**

Transportation

Sydney Buses operates a bus route along Macpherson street (L85, 185), which starts at Mona Vale and goes to Wynyard CBD.

Many frequent bus services operate along Pittwater Road, heading to Manly and Central Station in central Sydney.

Vehicle access

Existing vehicular access is via individual dwelling driveways from Macpherson and Boondah Road.

Pedestrian access and Cycle Network

Warriewood Valley currently has a pedestrian cycle path network, which links the adjacent residential development, the site, through the Warriewood Wetlands and finishes at Warriewood Square Shopping Centre.

2.6 Heritage

The site is not a heritage item or situated within a conservation area.

There are two listed heritage items identified in Schedule 9 of the *Pittwater Local Environmental Plan (LEP) 1993* as items of local heritage significance are follows:

- 'Memorial bus shelter' Macpherson Street, opposite Flower Power nursery
- 'Federation Cottage' 21 Macpherson Street.
- A Heritage Impact Statement prepared by Graham Brooks and Associates is provided at **Appendix O.**

Heritage is discussed further in **Section 7.15** of this report.

2.7 Flora and Fauna

The site contains a mixture of exotic pasture grasses and planted trees, horticultural garden plantings within existing residences and small areas of regrowth native vegetation.

As noted in the Flora and Fauna assessment prepared by Total Earth Care (at **Appendix H)** most of the original vegetation of the site has been removed, and those strands of native bushland still present appear to have regenerated following previous clearing events, based on the young age of the trees. Localised infestations of common herbaceous and woody weeks are present in disturbed parts of the site. Overall, the natural resilience of most of the site would be very low, with the exception of native vegetation along the Fern Creek boundary.

Four plant communities are identified within the Total Earth Care report they are as follows:

- Swamp Sclerophyll Forest;
- Swamp Oak Forest;
- Poplar Forest;
- Cleared and Disturbed.

Portions of the site are mapped as being part of a Wildlife Corridor as per the Pittwater Council mapping (see zoning map at **Figure 7**). The site is adjacent to Warriewood Wetlands which is mapped as a 'major habitat area' and this classification crosses into the adjacent site. This classification extends into the existing Poplar Forest Community area and is not an accurate classification of the wetland area currently present. A Category 2 area has been mapped in the western corner of the subject site, along Fern Creek. Category 2 is defined as 'mostly cleared non-residential areas with good potential for improvement of habitat'. This classification is accurate and is reflected in the management proposed for this area under this proposal. The remainder of the subject site is classified 'developed area' in the habitat corridor mapping, which is correct given the disturbed nature of the site.

The flora and fauna report notes that a total of 22 vertebrate fauna species were recorded during the field survey of March 2008, including 18 bird and four mammals. All species are discussed in the flora and fauna report at **Appendix H.**

2.8 Constraints and Opportunities

This section outlines the key constraints and opportunities of the subject site in relation to the proposed development. The urban design principles plan at also provides an illustrative overview of the opportunities and constraints of the subject site (**Figure 9** below).

Constraints

- A 50 metre Public Riparian Zone is to be provided and implemented as a multi-use open space corridor, with a 25 metre buffer strip to the start of the development. The buffer strip is to be rehabilitated.
- Interface with adjoining residential properties – To minimise impacts on adjoining residences, and to ensure high levels of amenity and urban design to future residents of Warriewood Valley.
- Ensuring minimisation of development impacts on significant vegetation and habitats on the site.
- Flooding and Stormwater – two bioretention ponds will be constructed to filter stormwater runoff through the densely planted surface vegetation.
- Asset Protection Zone – 25 metre wide buffer managed to reduce the bush fire hazard to an acceptable level. The APZ is made up of a 15 metre wide inner protection area and a 10m wide Buffer Zone consisting of carefully selected and located vegetation so as not to create a fire path.

Opportunities

- Provide Pittwater LGA with an affordable, high density, residential development incorporating a mix of studio, 1, 2 and 3 bedroom units.
- Site topography and natural characteristics – The natural characteristics of the site will result in an interesting subdivision layout, incorporating open space, views to the surrounding wetland area.
- Large portion of land – The proposed development area is of an optimum size to ensure that future development is well integrated, and complementary to, the existing established community.
- Creation of pedestrian/bicycle connections to the surrounding area, through the site and beyond.
- Visual connections are available to adjoining open space areas within the retained lands.
- Creation of additional usable open space areas of the site with high amenity.
- Focus of medium density housing adjacent to open space to create area of the site with high amenity.

Figure 9. Site Analysis Plan
Source: Marchase and Partners

3 Strategic Justification and Consideration of Alternatives

3.1 Strategic Justification

This section of the report provides a strategic justification for the proposed development, as requested in the Director General's Environmental Assessment Requirements.

The NSW Government released the Sydney Metropolitan Strategy, known as the City of Cities Strategy in 2006. The City of Cities Strategy, as is title suggests recognises that Sydney comprises not one city but is made up of multiple cities, town centres and villages in a hierarchy and describes the functions that each centre performs.

The Metropolitan Strategy focuses on enhancing the quality of the city's centres by achieving the best mix of jobs, dwellings, recreation, tourism and other complementary services in existing urban centres. The objectives of the centres based policy is intended to increase the use of public transport, maximise the use of existing infrastructure and assist with providing access to jobs.

The primary centre in Sydney's north eastern subregion is Brookvale-Dee Why. Manly and Mona Vale are identified as a town centres with Manly performing a major tourism function. Whilst Avalon, Newport, Narrabeen and Balgowlah being village centres. **Figure 10** provides a map from the North East Sub-regional Strategy showing the centres hierarchy. The hierarchy of centres provides a context and strategic planning framework within which to focus new development.

In addition to focusing development in areas well serviced by existing infrastructure, it is sound urban planning practice to consider large consolidated land holdings with good access for additional population.

The subregional strategy states that the vast majority of existing housing stock in the North East is detached dwellings, up to 62.4% of housing stock in the subregion. Pittwater has the highest amount of detached dwellings with 80.4%, higher than both Manly (37.4%) and Warringah (63.3%). Pittwater has 16.2% of dwellings being villa/dual occupancy/ townhouse and only 5.7% being units/apartments.

The low density housing character and high quality housing stock within many areas of the subregion is highly valued by residents; however there is a need and significant demand for a broader mix of housing types, including medium and high density housing.

A key element of the Metropolitan Strategy is to ensure an adequate mix of housing is available. For the North East Subregion this will entail complementing the existing high level of low-density accommodation with more medium and high density housing. These types of housing will help meet centres and transport objectives. It will also meet demand from an ageing population to 'age in place' and be a more affordable form of entry into the North East housing market.

The proposed residential flat building development, incorporating up to 600 dwellings across the total site (313 dwellings in Stage 1) in the form of studios, 1, 2, and 3 bedroom units will help Pittwater LGA meet the objectives of the Metropolitan Strategy, which encourage a broader mix of housing types, and more medium and high density housing, which Pittwater LGA is currently lacking.

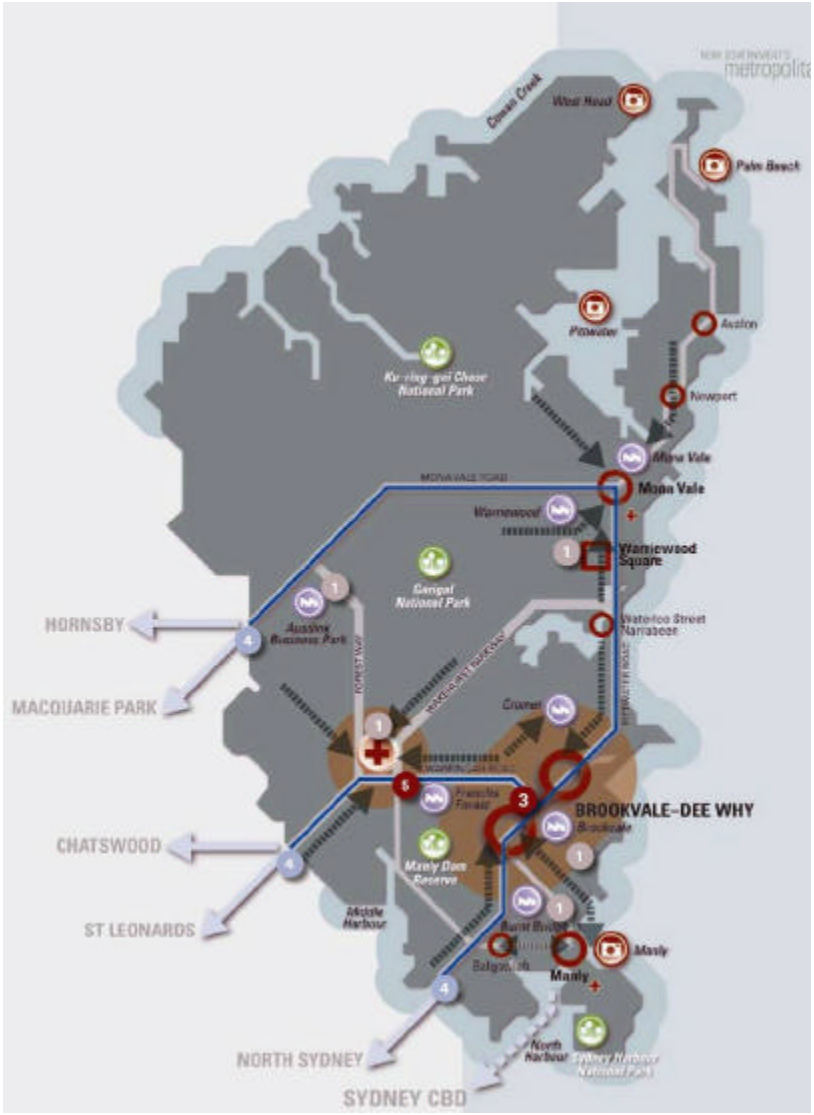

Figure 10. North East regional strategy centres hierarchy
Warriewood is situated within close proximity to Mona Vale, which is identified as a town centre.

3.2 Alternatives to the proposal

The DGRs include the consideration of alternatives to the proposal being presented. The proponent, Meriton, engaged Stanisic Associates Architects, who looked at a number of alternatives in deciding on the current project and concept plan applications. The concept plan alternatives are provided at **Appendix U**. The Concept Plan proposal is provided in the drawings prepared by Architectus at **Appendix B**

The alternatives are described below:

Option A

Total GFA – 53089m²

FSR – 0.65:1

Height 3 and 5 storeys

Option A, proposes 3 storey residential buildings along Macpherson Street and Boondah Road stepping up to 5 storey residential buildings to the middle and rear of the site.

The height and layout of the scheme is considered to be an appropriate response to the site, and the proposed concept plan application has been based around this option A.

Figure 11. Option A – 3 and 5 storey height scheme

Source: Stanisic Associates Architects. This drawing is provided at A3 scale at **Appendix U**.

Option B

- Total GFA – 54392m²
- FSR 0.67:1
- Height – 5 storeys
- Option B (see **Figure 12** below) looked at providing a 5 storey residential flat building development across the entire site, thereby providing for additional open space to the centre of the site and between the unit buildings.

It was considered that this proposal did not respond to the context of nearby development being, two and three storeys in height surrounding the site.

Figure 12. Option B – 5 storey height scheme

Source: Stanisic Associates Architects. This drawing is provided at A3 scale at **Appendix U**.

Option C

- Total GFA – 55,794m²
- FSR 0.69:1
- Heights ranging between 2,3,5 and 8 storeys

Option C (see **figure 11** below) looked at providing a mix of two storey villa/terraced and dual occupancy style dwellings along Macpherson Street and Boondah Road, stepping up to 3, 5 and 8 storey residential unit blocks to the middle and rear of the site.

Figure 13. Option C – 2, 3, 5 and 8 storey scheme

Source: Stanisic Associates Architects. This drawing is provided at A3 scale at **Appendix U**.

It was considered that option C, although responding to the two storey terrace/dual occupancy developments further up Macpherson Street, the increased height to the middle and rear, particularly at eight storeys was too out of context with adjoining development and would pose adverse impacts in terms of overshadowing of the wetland and riparian zone to the rear of the site.

4 The proposal

4.1 Introduction

The proposal seeks consent from the Minister for Planning for Concept Plan and Stage 1 Project Application for a residential development at 14-18 Boondah Road, Warriewood.

This section should be read in conjunction with the plans and documentation provided at **Appendix A** to **CC**.

4.2 Project Overview

Major Project MP 09_0162 seeks consent from the Minister for Planning for Concept Plan and Stage 1 Project Application for the construction of a residential development:

Concept Approval

- Sixteen residential buildings of 3 and 5 storeys in height providing 600 units;;
- Childcare Centre (370sqm);
- Two retail tenancies (tenancy 1 - 103sqm and tenancy 2 - 89sqm);
- Gymnasium and swimming pool for private use by residents and visitors;
- Concept design for public and private landscaping;
- Concept design for internal road network, comprising public and private roads.

Stage 1 Project Application

- Demolition of the existing dwellings and structures and removal of vegetation on the subject site;
- Construction of earthworks and flood mitigation works;
- Construction of an internal access road and connection with Macpherson Street and Boondah Road and private road network;
- 313 units situated across 7 residential buildings with basement car parking;
- Landscaping embellishment to public and private land;
- Construction of a public pedestrian cycle way through the site.

4.3 Plans and drawings

This section provides a schedule of drawings that have been referred to in the preparation of this Environmental Assessment. The schedule is provided in **Table 3**. Reduced copies of these plans are attached as Appendices to this document (as referred to throughout the Environmental Assessment). Full size copies of these plans are provided with the Major Project application under separate cover.

Table 3. Schedule of Drawings – Stage 1 Project Application

Drawing number	Description	Prepared by	Rev	Date
Architectural Drawings				
DA00	Cover Sheet	Meriton Apartments	A	2/19/2010
DA01	Overall Site Staging Plan	Meriton Apartments	A	2/18/2010
DA02	Site Plan	Meriton Apartments	A	2/18/2010
DA03	Car parking Plan	Meriton Apartments	A	1/25/2010
DA04	Podium Plan	Meriton Apartments	A	2/18/2010
DA05	Typical Floor Plan	Meriton Apartments	A	18/2/2010
DA06	Deep Soil Planting	Meriton Apartments	A	2/19/2010
DA10	Street Elevations	Meriton Apartments	A	2/19/2010
DA11	Site Sections	Meriton Apartments	A	2/11/2010
DA20	Building A Plans and Elevations	Meriton Apartments	A	2/26/2010
DA21	Building B Plans and Elevations	Meriton Apartments	A	2/26/2010
DA22	Building C Plans and Elevations	Meriton Apartments	A	2/26/2010
DA23	Building D Plans and Elevations	Meriton Apartments	A	2/19/2010
DA24	Building E Plans and Elevations	Meriton Apartments	A	2/11/2010
DA25	Building F Plans and Elevations	Meriton Apartments	A	2/18/2010
DA26	Building G Plans and Elevations	Meriton Apartments	A	2/19/2010
DA30	Childcare and Pool Plans and Elevations	Meriton Apartments	A	2/19/2010
	Photomontage	Troy Design Media		17-02-2010
Landscape Drawings				
LA000	Title sheet	Site Image	A	07.02.2010
LA101	Landscape Master plan – Landscape Vegetation Plan	Site Image	A	07.02.2010
LA102	Landscape Master plan – Landscape Management Zones	Site Image	A	07.02.2010
LA103	Stage 1 – Detail Plan 01	Site Image	A	07.02.2010
LA104	Stage 1 – Detail Plan 01	Site Image	A	07.02.2010
LA201	Landscape Elevations	Site Image	A	07.02.2010
La301	Landscape Detail 01	Site Image	A	07.02.2010
La302	Landscape Detail 02	Site Image	A	07.02.2010
Survey Plans				
123899	Layout of sheets over Macpherson and Boondah Streets, Warriewood	JBW Surveyors Pty Ltd		20/10/03
123899	Detail levels and contours over Macpherson and Boondah Street, Warriewood	JBW Surveyors Pty Ltd		20/10/03
123899 – SH02	Selected detail levels and contours over Macpherson Street and Boondah Street, Warriewood.	JBW Surveyors Pty Ltd		20/10/03
123899 – SH03	Selected detail levels and contours over Macpherson Street and Boondah Street, Warriewood.	JBW Surveyors Pty Ltd		20/10/03
123899 – SH04	Selected detail levels and contours over Macpherson Street and Boondah Street, Warriewood.	JBW Surveyors Pty Ltd		20/10/03
123899 - SH05	Selected detail levels and contours over Macpherson Street and Boondah Street, Warriewood.	JBW Surveyors Pty Ltd		20/10/03

Drawing number	Description	Prepared by	Rev	Date
123899 - SH06	Selected detail levels and contours over Macpherson Street and Boondah Street, Warriewood.	JBW Surveyors Pty Ltd		20/10/03
123899 - SH07	Selected detail levels and contours over Macpherson Street and Boondah Street, Warriewood.	JBW Surveyors Pty Ltd		20/10/03
123899 - SH08	Selected detail levels and contours over Macpherson Street and Boondah Street, Warriewood.	JBW Surveyors Pty Ltd		20/10/03
123899 - SH09	Selected detail levels and contours over Macpherson Street and Boondah Street, Warriewood.	JBW Surveyors Pty Ltd		20/10/03
123899 - SH10	Selected detail levels and contours over Macpherson Street and Boondah Street, Warriewood.	JBW Surveyors Pty Ltd		20/10/03
123899 - SH11	Selected detail levels and contours over Macpherson Street and Boondah Street, Warriewood.	JBW Surveyors Pty Ltd		20/10/03
123899 - SH12	Selected detail levels and contours over Macpherson Street and Boondah Street, Warriewood.	JBW Surveyors Pty Ltd		20/10/03
123899 - SH13	Selected detail levels and contours over Macpherson Street and Boondah Street, Warriewood.	JBW Surveyors Pty Ltd		20/10/03
123899 - SH14	Selected detail levels and contours over Macpherson Street and Boondah Street, Warriewood.	JBW Surveyors Pty Ltd		20/10/03
123899 - SH15	Selected detail levels and contours over Macpherson Street and Boondah Street, Warriewood.	JBW Surveyors Pty Ltd		20/10/03
123899 - SH16	Selected detail levels and contours over Macpherson Street and Boondah Street, Warriewood.	JBW Surveyors Pty Ltd		20/10/03
123899 - SH17	Selected detail levels and contours over Macpherson Street and Boondah Street, Warriewood.	JBW Surveyors Pty Ltd		20/10/03
Concept Plans				
A000	Open Space and Ecology Diagram	Architectus Pty Ltd	A	March 2010
A001	Vehicle Access and Street Network	Architectus Pty Ltd	A	March 2010
A002	Pedestrian Footpath and Access Cycleway	Architectus Pty Ltd	A	March 2010
A003	Land Use Diagram	Architectus Pty Ltd	A	March 2010
A004	Building Heights Diagram	Architectus Pty Ltd	A	March 2010
A004	Bus Routes	Architectus Pty Ltd	A	March 2010
A006	5-7 Macpherson Street Development Potential	Architectus Pty Ltd	A	March 2010

4.4 Numerical overview

A numerical overview of the proposed development is provided in **Table 4** below.

Table 4. Numerical Overview

Total site area	**81,180.0sqm**
FSR	0.65:1
Gross Floor Area	52,767.0m²
Internal Road Area – Main Road	4038m²
Internal Road Area – Private Roads	1065m²
Open space Area	20,295.0m²
Deep Soil Area	5,073.75m²
Retail (two tenancies)	192m²
Childcare	373m²
Fern Creekline Corridor	1.066ha
Car Parking – Stage 1	362
Studio	13
1 bed	62
2 bed	221
3 bed	34
Visitor Spaces (Stage 1)	32
Bicycle (Stage 1)	32
Unit Mix (Stage 1)	313
Studio	13
One Bed	62
Two bed (medium)	61
Two bed (large)	160
3 bed	17

4.5 Environmental Sustainable Development (ESD)

This section of the report provides an overview of the development in regards to the five accepted ESD principles used by the NSW Department of Planning in the assessment of projects.

The Integration Principle

The proposal integrates social, environmental and economic factors. These factors have informed the design and development of the proposal and are discussed in detail throughout this report. This has been achieved through State and local government and community consultation, mitigation against the impacts of the proposed works and the assessment of key issues identified by the Director-General's Requirements in **Section 7** of this report.

Precautionary Principle

No part of this proposal will cause any serious or irreversible damage to the biophysical environment. The likely environmental impacts of the proposed works have been assessed throughout this report and in the attached documentation.

Inter-generational Principle

As stated under **Section 2** of this report, the proposal will have positive economic, environmental and social impacts, resulting in a well maintained and improved site condition for the benefit of future generations. Such benefits include:

- Access to new areas of open space;
- Increase in residential housing choice in the locality; and
- More efficient use of residential land.

Biodiversity Principle

The conservation of the biological diversity and ecological integrity of the site is a key component of this application. The proposal is assessed under the relevant ecological and biodiversity protection legislation and appropriate management plans including the Vegetation Management Plan (**Appendix H**), seek to minimise impacts on biodiversity and the ecological environment.

Valuation Principle

The costs and mechanisms of safeguarding, maintaining and revegetating environmental attributes of the site are provided in the Vegetation Management Plan (**Appendix H**).

Building Sustainability

Energy efficiency is achieved through the orientation and layout of lots and the requirement for all future dwellings to meet BASIX targets.

Sustainable Transport

The site is in close proximity to public transport. Increasing population densities can facilitate additional demand for services that can be catered for by increasing bus services frequency, a principle that is supported by the NSW transport and Infrastructure.

Enhanced pedestrian and cycling facilities are proposed through the site, connecting the site to local cycling networks. Such measures encourage non-vehicular transport methods and reduced resource consumption.

4.6 Urban design and planning principles

This section of the report outlines the key urban design and planning principles that form the basis of this Concept Plan and Stage 1 Project Application. The urban design and planning principles include:

- Integrate the site with the surrounding established community and environment.
- Create the opportunity for views to parks, vegetation, wetlands from the public domain.
- Remodel the land to accommodate urban development.
- Create a high quality public domain consistent with Councils standards.
- Manage flooding and stormwater impacts on the development and mitigate impacts on adjacent and downstream environments.
- Provide residential units with high quality amenity consistent with State Planning Instruments.

These principles are described in detail below.

Integrate the site with the surrounding established community and environment.

Public road access, public open space, pedestrian footpaths all form part of the interface between the subject site and the surrounding area. These uses will allow for public accessibility to the proposed development and link the proposed development to adjacent developments and the surrounding locality.

Create the opportunity for views to parks, vegetation and wetlands elements from the public domain.

To create a level of visual interest and variation between the natural and built environment, the road network and building layout, road network and building layout has been designed to optimise views through the site and beyond to the wetland area. The location of the residential buildings also results in casual surveillance to these areas, creating a safe and visually interesting environment.

Remodel the land to accommodate urban development.

The subject site will be remodelled to provide a more appropriate topography for urban development. This will be achieved through grading of the site topography to ensure geotechnical stability of the site given the current topographical flooding constraints of the site. Remodelling of the site will ensure stable, orderly and efficient use of land available for residential and public domain development, compatible with the surrounding urban context.

Create a high quality public domain

The proposal seeks to create a high quality public domain of well landscaped streetscapes and open space. Public open space adjacent to the wetland area will accommodate a range of passive and active recreational opportunities.

4.7 Land uses

The proposal includes the following land uses:

- Multi unit residential;
- Retail and childcare centre;
- Communal open space and public open space.

Multi Unit Residential

The residential uses on the site will comprise a mix of multi unit dwellings in the form of sixteen buildings comprising 3 and 5 storeys.

- The Concept Plan proposes 600 residential dwellings across the site. The Stage 1 Project Application proposes 313 residential dwellings, across 6 residential buildings. The unit mix for the stage 1 development is detailed in **Table 4** above.

Retail and Childcare Centre

Two retail tenancies are proposed fronting McPherson Street in the north western corner of the site. These retail tenancies are envisaged to provide for local services for future occupants of the development and surrounding developments, such as a convenience store or café/restaurant. However the proposed retail uses are subject to future applications.

The retail units are integrated with the proposed childcare centre. It is envisaged that the childcare centre will hold approximately 70 children and service the residents of the development and residents within the Warriewood Valley community.

Communal Open Space/Public Open Space

The proposed central park will be the main meeting place for residents of the development, providing for a range of both active and passive uses. The park will contain a generous picnic shelter containing BBQ's seating and tables as well as a large grassed viewing mound suitable for passive uses and relaxation.

A total of 20,295m^2 of community open space is proposed. This open space provision equates to 25% of the site, which is consistent with the NSW Residential Flat Design Code 2002 guidelines for the provision of communal open space.

Bioretention basins

Two Bioretention basins are proposed on the site, with an area of 600m² and 260m². Figure _ below shows the location of the proposed bioretention basins, fern creek rehabilitation and buffer zones.

Riparian Zone and Asset Protection Zone

It is proposed that the revegetation and creek restoration works associated with the 'Fern Creek Riparian corridor', Wetland buffer zone and associated 'Asset Protection Zones' are in accordance with the approved plans and condition 1 of Development Application (0526/08).

Internal roads

An internal road network is proposed for the subject site. The proposed local street will be constructed and dedicated to Council.

A detailed description of the road types is provided under **Section 7.17** of this report. Road details and sections are provided as part of the Concept Plans at **Appendix B**.

4.8 Buffer Zones and Landscaping

The Public Riparian Zone

The Public Riparian Zone is 50 metres and consists of two inner 25 metre-wide "multi function corridor" located on either side of Fern Creek. This buffer is required under the P21 DCP Section C6.7 and will be protected and managed in accordance with the specification of the DCP 21.This 50 metre wide multi function corridor is to be dedicated to public ownership under Council control. Rehabilitation works within this area will be carried out by Council and will involve substantial reconstruction of the creek profile, the construction of new creek banks and possibly re-alignment of the creek. Weed infestations and exotic trees will be removed and erosion controls installed. The retention of native trees within this Zone (Swamp Oak) and proposed indigenous plant stock along the riparian creek.

Private Buffer Strip

The 25 metre wide Private Buffer Strip will directly adjoin the Public Riparian Zone and it will remain in private ownership. This buffer strip will rehabilitated and will contain open space areas, landscaped gardens and a shared pedestrian bicycle path.

Core Riparian Zone (CRZ)

The CRZ comprises a 20 metre wide vegetated buffer along the southern boundary of the site, as requested by Pittwater Council in the previous DA. Rehabilitation in this zone will largely comprise removal of environmental and noxious weeks currently occurring in high densities in places. The removal of weeds will allow for the regeneration of native species.

10m buffer zone

The 10 metre wide buffer zone will be established along the southern boundary of the site, to directly adjoin the CRZ to the north. This buffer is to protect the boundary of the Warriewood Wetland and is referred to under the DCP 21 Section B4.14. This buffer was negotiated between Council and DECCW in 2003 and is to be maintained in the current proposal. The 10 metre wide buffer zone is also contained within the larger Asset Protection Zone.

Asset Protection Zone

The APZ will be established along the southern boundary of the site which will comprise the 10 metre buffer zone and an additional 15 metre inner protection zone. This is a requirement of the Rural Fire Service as the site has been identified as bush fire prone land. Vegetation will mainly consist of managed grasses with tree capacity of no greater than 15% cover.

4.9 Density

The Concept Plan seek consent for approximately 600 dwellings across the entire site. A total of 52,767m^2 of GFA is proposed. The site area is 81,180m^2 (8.118 Ha). This equates to an FSR is 0.65:1 is proposed. This overall density for the site is considered appropriate for the site having regard to the following considerations:

- The proposal will result in a residential development, providing a mix of Studio, 1, 2 and 3 bedroom units, which will contribute to housing affordability and choice within Pittwater LGA. The proposal will increase the population numbers within Warriewood Valley, thereby increasing participation in local cultural and recreational activities, which support the targets of the NSW State Plan, The Sydney Metropolitan Strategy: City of Cities and the North East Subregional Strategy;
- The majority of the existing housing stock in the North East is detached dwellings, making up 62.4 % of housing stock in the subregion, semi-detached houses, terraces and townhouses make up 16.2 %, and units and apartments make up 21.4 %;
- In Pittwater, the North East Subregional Strategy indicates that 80.4% of housing stock is in the form of detached dwellings, 13.9% is medium density housing and 5.7% is apartments;
- It is noted in the subregional strategy that the low density character and high quality housing stock within many areas of the subregion is highly valued by residents; however, there is significant demand for a broader mix of housing types, including medium and high density housing.
- A key element of the Metropolitan Strategy is to ensure an adequate mix of housing is available. For the North East Subregion this will entail complementing the high proportion of low-density accommodation with more medium and high density housing. These types of housing will help meet centres and transport objectives. It will also meet demand from an ageing population to 'age in place' and be more affordable form of entry into the North East housing market.
- The NSW State Plan and North East Subregional Strategy share the aims of increasing the use of walking, cycling and public transport; appropriately co-locating new urban development with existing and improved transport services; and improving the efficiency of the road network.
- The North East Subregional Strategy sets a target of 17,300 new dwellings including a small amount of greenfields development and 16,000 new jobs in the subregion (which includes Pittwater, Warringah and Manly LGAs) by 2031. The Strategy aims to increase capacity and use of public transport, noting that 72 percent of all trips by residents of the subregion are made by car (as driver or passenger), and 9.5 percent of trips are made by public transport. It has one of the highest proportion of car use of any subregion in Sydney.
- Almost 80 per cent of jobs in the North East Subregion are taken by residents of the subregion, and half of all workers in the North East Subregion live and work within the subregion.
- The proposal will support the increased frequency of bus services to the locality to cater for the additional demand. Already there are three (3) bus services to the Warriewood Valley operated by Sydney Buses

and numerous buses services operate through Mona Vale along Pittwater Road and Barrenjoey Road. Sydney Buses has indicated that service levels can be reviewed once the subject development has been completed, noting that the development offers the opportunity to provide a higher level of service in Warriewood.

- The North East Subregion Strategy seeks to strengthen the role of buses, encouraging use of public transport, accommodating growth and relieving road congestion. Integrated land use and transport planning are proposed to ensure that new and improved infrastructure and services lead to an increased share of peak hour journeys by public transport, which is a key State Plan Priority (S6). The Strategy identifies a number of measures to increase the capacity of the bus network in the North East, including improved physical and electronic bus priority measures, operational strategies such as increased use of articulated buses, increased frequency and off-board ticket sales.
- The proposed development is thus expected to generate around 327 vehicle trips per hour during the weekday morning peak hour and 323 vehicle trips per hour during the evening weekday peak hour. The proposal will not significantly increase traffic on roads within Warriewood Valley. • With the already planned infrastructure upgrades in Warriewood Valley, the key intersections are expected to operate at satisfactory levels of service with the additional traffic generated by the proposed development.
- The proposal responds to the density and character of surrounding development by maintaining a height limit of 3 storeys to each of the external street frontages in response to the 3 storey aged housing development to the north. Five (5) storey buildings are located to the middle and rear of the site adjacent the open space corridor. An appropriate transition in scale is provided to the two storey development to the west by the proposed single storey childcare and retail building, open space corridor along the western boundary and width of the internal road reserve.
- The proposed density expressed as a floor space ratio of 0.65:1 is comparable with other medium density areas in Sydney, which are similarly located with bus transport access. For instance medium density areas in Sutherland LGA allow floor space ratios of up to 0.7:1.
- Pittwater Council's imminent Draft Warriewood Valley Planning Framework 2010 recommends a potential increase in density requirements on the subject site to 186 dwellings, based on a maximum dwelling density of 25 dwellings per hectare.
- The Draft Warriewood Valley Planning Framework 2010 report states that the form and scale of development that is to occur within the release area will depend on the capability of the land to support development, the ability to provide infrastructure and the characteristics of the particular land use types that might occur.
- A total of 46,486m^2 of deep soil landscaping is proposed across the site. This equates to 57% of the site. The proposal complies with Council's maximum site coverage controls.
- A total of 20,295m^2 of community open space is proposed. This open space provision equates to 25% of the site, which is consistent with the NSW Residential Flat Design Code 2002 guidelines for the provision of communal open space.

- This report demonstrates that the site is capable of holding a higher development density than that identified by Pittwater Council. The development provides an environmentally sustainable residential development having regard to site constraints and which will provides a high level of residential amenity to future occupants of the development having regard to design quality principles and guidelines of SEPP 65 and the NSW Residential Flat Design Code 2002 for residential flat development.

For the reasons outlined above the proposed density is considered appropriate, having regard to strategic and site-specific considerations.

4.10 Building Height

The Concept Plan and Stage 1 development varies in height from 3 storeys to 5 storeys. The maximum height proposed for the stage 1 development is 16.7 metres (RL 21.7), measured to the top of the roof.

Pittwater Councils DCP 21 stipulates a maximum height limit of 8.5 metres above existing ground level, which the proposed development exceeds.

It is worth noting also that a minimum floor level of RL 4.5m AHD are recommended by Brown Consulting due to the 1 in 100 year flood event.

An analysis of the height, bulk and scale of the proposed development is provided at **Section 6.3** and **7.1.**

4.11 Setbacks

The development proposes a 6.5 metre setback to Macpherson Street and Boondah Road, which complies with Councils setback controls as stipulated in the DCP 21.

Both Macpherson Street and Boondah Road frontage is proposed to be landscaped with Indigenous tree species. This will help to created filtered views both into and out of the site between the residential buildings and soften and break up the scale of the development.

4.12 Building materials and finishes

The proposed materials and finishes for the Stage 1 Project Application are illustrated on the elevation drawings included at **Appendix A** and the accompanying materials and finishes sample boards. A simple and refined palette of materials and colours is proposed that will provide visual interest and façade articulation to effectively articulate each of the building facades.

The selection of materials and finishes is generally consistent with the range of contemporary materials being used in other recent developments in Pittwater.

4.13 Vehicular access, traffic and transport

Halcow's report at **Appendix E** discusses the proposed access, traffic and transport arrangements to and from the site.

Vehicular access for the development is proposed to be via both Boondah Road and Macpherson Street. Internally the main access connection between Macpherson Street with Boondah Road is proposed via a future public local road with all other internal access ways under private ownership.

Collectively, these access routes would provide for direct access to car parking areas, internal circulation, emergency vehicle access, access for service vehicles (garbage and remobilizes) and on-street parking.

The proposed Concept Plan development is expected to generate around 327 vehicle trips per hour during the weekday morning peak hour and 323 vehicle trips per hour during the evening peak hour.

The Stage 1 development (residential only) is expected to generate 152.9 vehicle trips per hour.

Planned infrastructure upgrades in Warriewood Valley include bus bays and pedestrian refuges in the vicinity of the subject site, as well as providing cycle lanes on the sub arterial streets and shared pathways as per the cycle plan. These measures are expected to result in good linkages within Warriewood Valley for pedestrians and cyclists and good access to the bus services. Sydney Buses proposes to review bus service levels as a result of the proposed development and increased residential density and population which may result in increased frequency of service.

An assessment of vehicular access, traffic and transport is provided in **Section 7.10** of this report.

4.14 Car Parking

A report on the provision of car parking and car parking access arrangements for the Stage 1 development has been undertaken by Transport and Traffic Planning Associates and is provided at **Appendix D**.

The Stage 1 development area comprises basement car parking for the residential units for 320 cars, over two basement levels.

The proposed car parking provision for the Stage 1 residential apartment are as follows:

- Studio and 1 bedroom unit = 1 space
- Two bedroom unit = 1 space
- Three bedroom unit = 2 spaces
- Visitors = 1 space per 10 apartments
- The proposed car parking provision is not compliant with Pittwater Council DCP parking requirements for residential developments, which requires 2 spaces for a two bedroom unit; however the proposed rates comply with the RTA Development Guidelines for parking provision.

A detailed discussion on residential parking provision is discussed in detail in **Section 7.10** of this report.

4.15 Stormwater Management

Stormwater drainage concept plans and a report have been prepared by Brown Consulting. Refer to **Appendix J**.

Table 5 provides a list of proposed Stormwater Concept Plans by Brown Consulting for the proposal. A summary report has been prepared by Brown Consulting addressing the relevant Director General's Environmental Assessment Requirements (DGRs). The specific DGRs in relation to stormwater management are addressed in **Section 7.14** of this report.

Table 5. Stormwater Concept Plan Drawings

Drawing Number	Description
002 issue 01	Notes and legend
100 issue 01	Soil and Water Management Plan

A stormwater concept plan diagram provided by Brown in their report is provided in **Figure 14** below. This shows the proposed stormwater management arrangements for the site.

Stormwater management is discussed in detail in **Section 7.14** of this report.

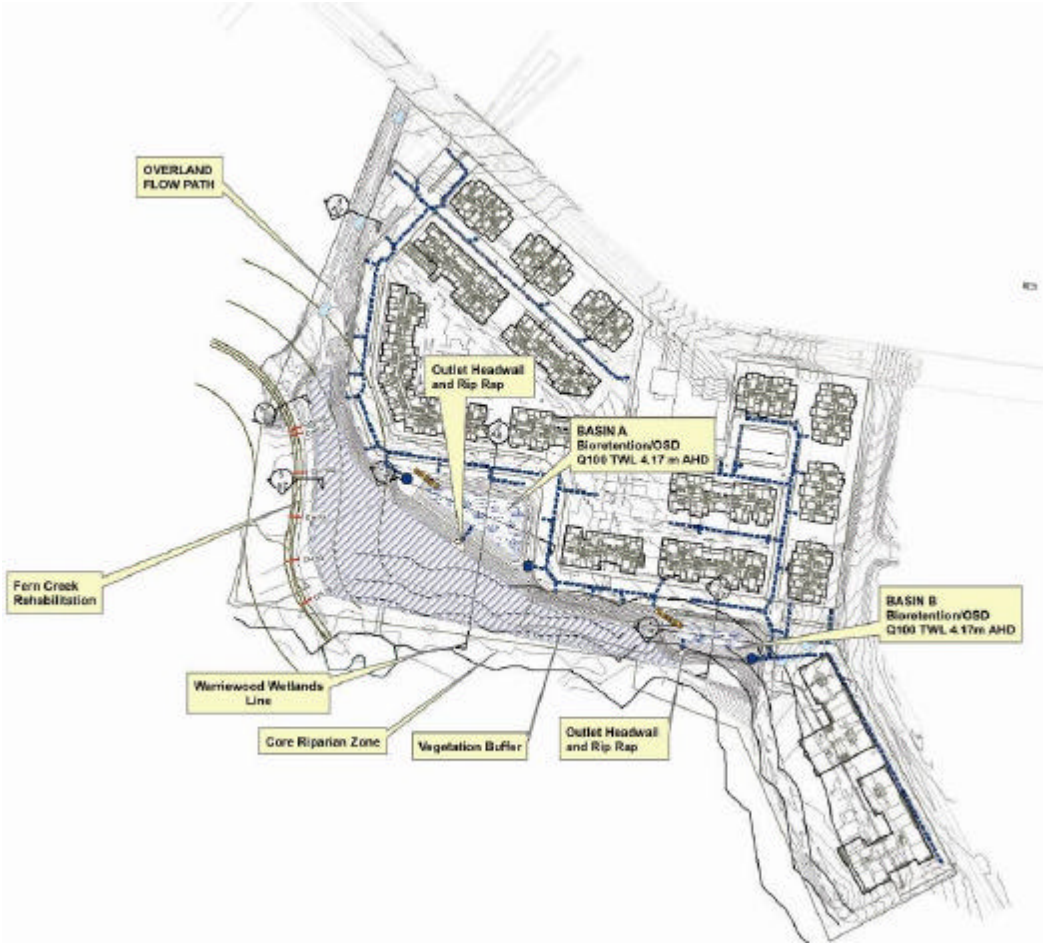

Figure 14. Stormwater Management Plan
Source: Brown Consulting. Refer to Appendix J for scaled version.

4.16 Pedestrian Access

Pedestrian, pathway and cycle network is proposed in the Concept Plan and Stage 1 development works (refer to landscape plans and report at **Appendix P**). The path proposes to link with similar paths on adjoining land as per the Warriewood DCP 21 and Warriewood Valley landscape design guidelines 2004. Elevated timber boardwalks are to provide access over sensitive Riparian planting and flood storage areas.

4.17 Waste Management

An operational waste management has been prepared for the proposed development. Refer to **Appendix Q**. The report, prepared by Wastech engineering Pty Ltd explains how waste will be managed for the Stage 1 residential development.

Space has been allocated for refuse storage and collection areas, for the Stage 1 proposed development at basement level. These areas are located within Basement level 2, either adjacent to the lifts or opposite the lifts.

In summary, residents will be responsible for disposing of garbage into the garbage chutes provided on each level of the residential blocks and discharge into bins located at car park level 2. The building manage shall replace full bins under each chute with clean empty ones as required.

Recyclable waste shall be collected by the building managers from each level and transfer recyclables into the 660 litre collection bins located in the car park level 2 refuse rooms.

The collection of waste and recycling bins is to be performed by a private contractor to be confirmed by Meriton, from the designated collection point at ground level of building F which has entry off Johnson Street. All collections shall be performed between the hours of 7am and 4pm Monday to Friday.

All waste facilities and equipment are to be designed and constructed in compliance with Pittwater Council Codes, BCA, Australian Standards and Statutory Requirements.

A detailed waste management plan for the demolition and construction phases of the development is to be lodged to the consent authority prior to the commencement of any works on site.

4.18 Bushfire Management

Flamezone bushfire consultants have provided a Bushfire Risk Assessment report, at **Appendix C** and bushfire impact is discussed in detail in **Section 7.7** of this report. The report outlines Bushfire Protection Measures to the dwellings, which are positioned away from the wetlands and interface vegetation/buffer zones. The road system provides safe access and egress for Fire Services and residents.

5 Regulatory Context

5.1 State Legislation and Policies

There are several Acts of NSW state legislation as well as State Environmental Planning Policies that apply to the proposal; these include:

- NSW State Plan;
- State Environmental Planning Policy (Major Projects)
- Draft North East Sub-regional Strategy;
- NSW Ground Water Policy Framework;
- NSW Groundwater Quality Management and Protection Policy;
- NSW State Rivers and Estuaries Policy;
- NSW Wetlands Management Policy;
- NSW State Sea Level Rise Policy;
- State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004;
- State Environmental Planning Policy 55 – Remediation of Land;
- State Environmental Planning Policy (Infrastructure) 2007;
- State Environmental Planning Policy 65 – Design Quality of Residential Flat Development and the Residential Flat Design Code (RFDC).
- It should be noted that all of the above pieces of legislation were examined in detail within the assessment undertaken by each relevant consultant and are given in full within the attached appendices.
- State Environmental Planning Policies (SEPPs) address matters of state significance in relation to new development. They can be applied to an entire site or to particular geographical areas, or to particular development and relevant comment concerning their application are outlined below.

5.2 NSW State Plan

The NSW State Plan 2006 sets out goals, targets and priorities over a variety of different sectors, for the NSW Government to achieve over the next ten years.

The Urban Environment Targets are provided in Chapter 6 of the NSW State Plan and are summarised as follows:

- Target E5 – Increase the number of jobs closer to home

  "Increase the percentage of the population living within 30 minutes by public transport of a city or major centre in Greater Metropolitan Sydney."

- Target E6 – Housing Affordability

  "640,000 new dwellings over the next 25 years to 2031 – of which 445,000 will be in existing urban areas and the remainder (195,000) in Greenfield locations"

  "Achieve 55,000 zoned and serviced lots ready for development by 2009"

  In regional areas:

  "At least 300,000 new dwellings over the next 25 years, with an increased rate of infill development."

- Target E7 – Improve the efficiency of the road network

  "Improve the efficiency of the road network during peak times as measured by travel speeds and volumes on Sydney's major road corridors."

- Target E8 – Increase participation in recreation, sporting, artistic and cultural activity

  "Increase the number of visits to State Government parks and reserves by 20 per cent by 2016"

  "Increase the number of people participating in sporting activities and physical exercise by 10 per cent by 2016".

  "Increase the visitation and participation in the arts and cultural activity by 10 per cent by 2016"

The proposal will result in a residential development, providing a mix of Studio, 1, 2 and 3 bedroom units, which will help housing affordability and choice within Pittwater LGA. The proposal will increase the population numbers within Warriewood Valley, thereby increasing participation in local cultural and recreational activities.

5.3 State Environmental Planning Policy (Major Development 2005)

State Environmental Planning Policy (SEPP): Major Development provides the criteria that identifies the types of projects that are to be determined under Part 3A of the Environmental Planning and Assessment Act 1979.

Clause 6(1)(a) of the SEPP states that:

"Development that, in the opinion of the Minister, is development of a kind:

(a) This is described in Schedule 1 or 2…"

Schedule 1, Group 5, Clause 13 *Residential, commercial or retail projects* states:

"(1) Development for the purpose of residential, commercial or retail projects with a capital investment value of more than $100 million."

The proposal has a Capital Investment Value of $276,113,000.00 (refer to QS report at **Appendix N)**.

5.4 Draft North East Subregional Strategy

Across the Greater Metropolitan Area a target of 60-70% of new housing will be accommodated in existing urban areas, focused around centres. This will take advantage of existing services such as shops and public transport and reduce development pressure in other parts of Sydney. The Metropolitan Strategy housing target for the North East Subregion is 17,300 new dwellings, increasing from just over 90,000 in 2004 to 107,300 by 2031. The Subregional strategy states that Pittwater Local Government area has a dwelling target of an additional 4,600 dwellings by 2031.

The vast majority of the existing housing stock in the North East is detached dwellings, making up 62.4 per cent of housing stock in the subregion (Sydney Water 2001) semi-detached houses, terraces and townhouses make up 16.2 per cent, and units and apartments 21.4 per cent.

In Pittwater, the subregional strategy indicates that 80.4% of housing stock is in the form of detached dwellings, 13.9% is medium density housing and 5.7% is high density housing.

It is noted in the subregional strategy that the low density character and high quality housing stock within many areas of the subregion is highly valued by residents; however, there is significant demand for a broader mix of housing types, including medium and high density housing.

Furthermore, a key element of the Metropolitan Strategy is to ensure an adequate mix of housing is available. For the North East Subregion this will entail complementing the existing high level of low-density accommodation with more medium and high density housing. These types of housing will help meet centres and transport objectives. It will also meet demand from an ageing population to 'age in place' and be more affordable form of entry into the North East housing market.

The proposal will contribute to providing a mix of housing types in Pittwater, by providing studio, 1, 2 and 3 bedroom units in a residential flat building style development. The proposal respects the low density character of surrounding development by maintaining a height limit of 3 storeys to each of the street frontages, with taller 5 storey elements to the

middle and rear of the site.

The Metropolitan Strategy aims to focus residential development within centres and corridors with access to public transport and local services. The site is situated within walking distance to Warriewood Square which is identified as a stand alone shopping centre and within close proximity to the site.

The Subregional Strategy states that:

> "Over the next 25 years, it is expected that there will be an increase in the mix of housing types, especially in centre with good accessibility. These housing types can support higher density forms of residential development and great provision of villa's and town houses to suit the changing demographics of the subregion."

Source: Draft North East Subregional Strategy page 57

The role of the Major Centre for the North East is currently split between Dee Why and Brookvale centres. Dee Why contains the majority of civic, cultural and social amenities, whilst Brookvale contains the major regional shopping mall, some medical and community services as well as the regional TAFE.

5.5 NSW State Groundwater Policy Framework Document and NSW Groundwater Quality Management and Protection Policy

The NSW State Groundwater Policy sets out Government direction on the ecologically sustainable management of the State's groundwater resources for the people of NSW. It is the policy of the NSW State Government to encourage the ecologically sustainable management of the State's groundwater resources so as to:

- Slow and hault, or reverse any degradation in groundwater resources;
- Ensure long term sustainability of the systems biophysical characteristics;
- Maintain the full range of beneficial uses of these resources and
- Maximise economic benefit to the Region, State and Nation.

The document sets out the following policy principles for the groundwater management:

- An ethos for the suitable management of groundwater resources should be encouraged in all agencies, communities and individuals, who own, manage or use these resources, and its practical application facilitated.
- Non-sustainable resource uses should be phased out.
- Significant environmental and/or social values dependent on groundwater should be accorded special protection.
- Environmentally degrading processes and practices should be replaced with more efficient and ecologically sustainable alternatives.
- Where possible, environmentally degraded areas should be

rehabilitated and their ecosystem support functions restored.

- Where appropriate, the management of surface and groundwater resources should be integrated.
- Groundwater management should be adaptive to account for both increasing understanding of resource dynamics and changing community attitudes and needs.
- Groundwater management should be integrated with the wider environmental and resource management framework and also with other policies dealing with human activities and land use, such as urban development, agriculture, industry, mining, energy, transport and tourism.

Comment

- Brown Consulting Engineers have undertaken a detailed Stormwater and Environmental Management Study at **Appendix J**.
- A minor overland flow path is proposed to pass along the western boundary to convey flows from Macpherson Street to Fern Creek during the PMF.
- The water quality treatment includes the following:
- Stormwater re-use of dwelling roof runoff by utilising rainwater tanks,
- Primary pollutant traps capable of removing gross pollutants, sediment and oils to pre-treat road and lot drainage and
- bio-retention basins which will receive flows from the pollutant traps.

5.6 NSW State Rivers and Estuaries Policy

The Policy objectives relate to managing the rivers and estuaries of NSW in ways which:

- Slow, halt or reverse the overall rate of degradation in the systems;
- Ensure the long-term sustainability of their essential biophysical functions; and
- Maintain the beneficial use of these resources.

The policy outlines the following principles:

- Those users of rivers and estuaries which are non degrading should be encouraged.
- Non-sustainable resource uses which are not essential should be progressively phased out.
- Environmentally degraded processes and practices should be replaced with more efficient and less degrading alternatives.
- Remnant areas of significant environmental values should be accorded special protection.

- An ethos for the sustainable management of river and estuarine resources should be encouraged in all agencies and individuals who own, manage or use these resources.

Comment

- The development exists upstream from the Warriewood Wetlands. As part of the proposal the 25m Core Riparian Zone (CRZ) and the 25m Asset Protection Zone including the 10 vegetation buffer for the wetlands have been identified.
- The development will provide on-site detention to maintain existing flow regimes and to provide additional flood storage to ensure no loss in floodplain volume to Fern Creek.
- The development has been designed to ensure and maintain the protection of the Warriewood Wetlands, through the provision of buffer zones and riparian zones. Significant rehabilitation works including weed eradication are proposed.

5.7 NSW Wetlands Management Policy

The NSW Wetlands Management Policy objectives are related to the conservation, sustainable management and wise use of NSW wetlands by all stakeholders for the benefit of present and future generations.
The Policy principles are as follows:

- Wetlands are valued as significant parts of the NSW landscapes, their conservation and management are most appropriately considered at the catchment scale.
- Appropriate water regimes and water quality needed to maintain or restore the ecological sustainability of wetlands will be provided through the implementation of water management plans.
- Wetlands of international, national, state and regional significance will be identified and conserved.
- Land use and management practices will maintain or rehabilitate wetland habitats, processes and cultural values.
- Degraded wetlands and their habitats will be rehabilitated and their ecological processes restored as far as is practicable.
- The potential impacts of climate change will be considered in long term strategies for water resources and land use.
- Continued research into wetlands ecology will be encouraged to better support water and land use planning and management.
- Natural wetlands should not be destroyed or degraded. When social or economic imperatives in the public interest result in a wetland being degraded or destroyed, the rehabilitation or construction of a compensatory wetland that supports similar biodiversity and ecological functions will be required.
- Purpose built wetlands will not be constructed on the site of viable

natural wetlands.

- Cooperation and incentives among land managers, government authorities, catchment management authorities, non government organisations and the general community is essential for effective wetland management and will be encouraged.

Comment:

- The site is situated adjacent to the Warriewood Wetland area. A 50 metre public riparian zone is proposed, which ensures the restoration of the creek banks, water quality, water flow and ecology.
- Total Earth care has undertaken an extensive flora and fauna assessment and vegetation management plan (VMP), which is provided at **Appendix H.**

5.8 NSW State Sea Level Rise Policy

The Draft NSW Coastal Planning Guideline: Adapting to Sea Level Rise was on Public Exhibition until 11 December 2009.

The draft guideline is based around the implementation of six coastal planning principles guiding sustainable development with consideration for sea level rise, and these include:

- Assess and evaluate coastal risks taking into account the NSW sea level rise planning benchmarks;
- Advise the public of coastal risks and to ensure that informed land use planning and development decision-making can occur;
- Avoid intensifying land use in coastal risk areas through appropriate strategic and land use planning;
- Consider options to reduce land use intensity in coastal risk areas where feasible;
- Minimise the exposure to costal risks from proposed development in coastal areas; and
- Implement appropriate management responses and adaptation strategies, with consideration for the environmental, social and economic impacts of each option.

The development is situated within a coastal area, therefore is subject to the following planning criteria:

- Development avoids or minimises exposure to immediate coastal risks (seaward of the immediate hazard line)
- Development provides for the safety of residents, workers or other occupants on-site from risks associated with coastal processes
- Development does not adversely affect the safety of the public off-site from a change in coastal risks as a result of the development
- Development does not increase coastal risks to properties adjoining or within the locality of the site
- Infrastructure, services and utilities on-site maintain their function and achieve their intended design performance

- Development accommodates natural coastal processes
- Coastal ecosystems are protected from development impacts
- Existing public beach, foreshore or waterfront access and amenity is maintained

Comment

The development has been designed in accordance with the provisions of the NSW State Sea Level Rise Policy and does not pose any risk to the immediate coastal area, Narrabeen Lagoon Catchment Area.

The proposed development does not pose any risk to public safety, properties adjoining the site or natural ecosystems.

5.9 SEPP (Building Sustainability Index: BASIX) 2004

This SEPP operates in conjunction with the Environmental Planning and Assessment Amendment (Building Sustainability Index: BASIX) Regulation 2004 to ensure that BASIX is effectively enacted in NSW. The SEPP ensures consistency in the implementation of BASIX throughout the State by overriding competing provisions in other environmental planning instruments in relation to ay development standard arising under BASIX.

Comment

There has been a commitment to use the requirements of BASIX as a minimum requirement. The development will be also in accordance with the building requirements contained in the Pittwater DCP 21 and the BCA. Efficient Living consultants report (at **Appendix G**) assesses the proposal in accordance with the requirements of BASIX.

The resulting BASIX scores for the Stage 1 building is:

- Energy 35
- Water 41
- Thermal Comfort – Pass

The full set of minimum compliance requirements are provided in the BASIX certificates in the appendices of Efficient Living Building Sustainability report at **Appendix G.** The associated drawings, assessor's certificates and thermal specification are also provided as an appendix to the report.

5.10 SEPP 55 Remediation of Land

This policy adopts a state wide approach for the remediation of contaminated land. It requires the consent authority to consider whether the land is contaminated and if so it must be satisfied that the land is suitable, or will be suitable after remediation for the proposed use. The policy makes remediation permissible across NSW, defines when consent is required, requires all remediation to comply with standards and requires that Council's be notified of all remediation proposals. Clause 7 of the SEPP requires the consent authority to consider whether land is contaminated, prior to the consent for the carrying out of any development on that land.

Comment

An Environmental Site Assessment (provided at **Appendix R**) focusing on site contamination has been undertaken by Environmental Audits of Australia. The potential for contamination of the site has been assessed by a program of soil sampling and analysis. The results of the soil sampling and analysis have been assessed to determine the contamination status of the site. Results indicate no acid sulfate soil or environmental contamination is present at the levels of the nominated guidelines.

Environmental Audits of Australia concludes in its report that the site has been found to be suitable for the proposed residential development.

5.11 SEPP (Infrastructure) 2007

The SEPP aims to provide for consultation with relevant public authorities about certain development during the assessment process or prior to development commencing.

The SEPP applies to new development that generates large amounts of traffic in a local area and outlines consultation requirements. It establishes that the NSW Roads and Traffic Authority (RTA) as the sole traffic management authority are to be consulted and ensures that it is given the opportunity to make a representation on a project application prior to its determination.

Comment

The Halcrow transport study (**Appendix E**) addresses the RTA's Guide for Traffic Generating Development, 2002 and the RTA input into the DGR's. The Halcrow report concludes that the proposed residential development would not significantly increase the traffic volumes or delays on the road system of Warriewood Valley above those previously expected and planned for as part of the Roads Master Plan. The proposed access arrangements are considered satisfactory, and are consistent with the approved development for the site.

5.12 SEPP 65 – Design Quality of Residential Flat Development

This policy applies to the proposed development as it is defined under the SEPP as a 'residential flat building', in that it meets the criteria of being *'three or more storeys and consisting of four or more self contained dwellings'.* The table provided below gives a summary of the proposal's consistency with the design quality principles of SEPP 65.
Reference should also be made to the SEPP 65 deign certification report included at **Appendix S** which provides an assurance from Peter Spira of Meriton that the subject proposal has been prepared in accordance with the design principles outlined in **Appendix S**.

NSW Residential Flat Design Code 2002

The NSW Residential Flat Design Code 2002 (RFDC) published by the Department of Planning NSW is part of the package of measures under SEPP 65 which the State Government is using to improve the design quality of residential flat development in NSW.

It is noted that the RFDC provides design principles and 'rules of thumb' standards; other standards may achieve the design principles. Consequently, a degree of judgment is needed to interpret the RFDC rules of thumb which apply to a wide range of multi-unit development throughout NSW regardless of local area character. **Table 6** provides a summary of consistent of the proposal with the NSW RFDC 2002.

Table 6. Residential Flat Design Code 2002 compliance table

Residential Flat Design Code 2002	Compliance	Comments
Site analysis		
Development proposals need to illustrate design decisions, which are based on careful analysis of the site conditions and their relationship to the surrounding context. By describing the physical elements of the locality and the conditions impacting on the site, opportunities and constraints for future residential flat development can be understood and addressed in the design. A written statement explaining how the design of the proposed development has responded to the site analysis must accompany the development application.	Yes	The proposed development has been designed in order to respond to the surrounding existing and future character and conditions of the area and the sites capability. A site analysis drawing is provided at **Figure 9.** Detailed design options analysis has been undertaken by Stanisic Associates, exploring a range of opportunities for development across the entire site (refer to **Appendix U**). The Environmental Assessment provides further details of the site analysis and the design of the buildings.
Site Configuration		
Deep soil zones Optimise the provision of consolidated deep soil zones within a site. Optimise the extent of deep soil zones beyond the site boundaries by locating them contiguous with the deep soil zones of adjacent properties. Promote landscape health by supporting for a rich variety of vegetation type and size. Increase the permeability of paved areas by limiting the area of paving and/or using pervious paving materials. A minimum of 25% of the open space area of a site should be a deep soil zone; more is desirable. Exceptions 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.	Yes	Site Image have provided detailed landscaping drawings and a report at **Appendix P**. Plant species have been selected from Pittwater Councils DCP 21 Appendix 3. The external streetscape (Boondah Road and McPherson Street) are to be embellished with a combination of Eucalyptus robust (Swamp Mahongany) and Angophora costata (Smooth barked Apple) as per Pittwater Council's DCP 21. A double row of Ficus Rubiginose (Port Jackson Fig) are to be located in the deep soil zone in the central spine of the park providing deep canopy and shade to users of the park as well as a location for seating nodes. The total amount of deep soil planting within Stage 1 is 5,037.75m² (25% of the common open space area).

Residential Flat Design Code 2002	Compliance	Comments
Fences and walls Respond to the identified architectural character for the street and/or the area. Clearly delineate the private and public domain without compromising safety and security. Contribute to the amenity, beauty and useability of private and communal open spaces. Retain and enhance the amenity of the public domain. Select durable materials, which are easily cleaned and graffiti resistant.	Yes	The development proposes to contribute to public amenity by providing a pedestrian cycle path through the site, linking Macpherson Street and Boondah Road with Warriewood Wetlands and Warriewood Shopping Centre and neighbouring sites. The creation of through site linkages will enhance the permeability and functioning of the site to the public, essentially inviting the public to walk through the site. Stage 1 proposes a stone wall and signage to both Boondah street and Macpherson Street traffic entrances to the site. Materials for walls are durable and can be easily cleaned and maintained.
Landscape design Improve the amenity of open space with landscape design which provides appropriate shade from trees or structures, accessible routes through the space, screening, allows for locating artworks. Contribute to streetscape character and the amenity of the public domain. Improve the energy efficiency and solar efficiency of dwellings and the microclimate of private open spaces. Design landscape that contributes to the site's particular and positive characteristics. Contribute to water and stormwater efficiency by integrating landscape design with water and stormwater management. Provide sufficient depth of soil above paving slabs to enable growth of mature trees. Minimise maintenance by using robust landscape elements.	Yes	A detailed landscape plan and report by Site Image is provided at **Appendix P**. The Stage 1 proposal will result in a central landscaped open space, courtyards, and landscaped boundary treatments including deep soil planting. Significant riparian and Fern Creek restoration works associated with the wetland buffer zone and associated 'Asset Protection Zones' in accordance with the approved plans and Condition 1 of Development Application (0526/08). Landscape works between the residential buildings and along the streetscapes, will assist to break down the scale and soften the built form when viewed from the street, without creating an impervious wall. It is appropriate that the buildings remain visible from in order to assist with the provision of passive surveillance. The proposed landscaping will greatly improve public amenity and contribute to the character of the area.
Open space Provide communal open space that is appropriate and relevant to the context and the building's setting. Where communal open space is provided, facilitate its use for the desired range of activities. Provide private open space for each apartment capable of enhancing residential amenity. Locate open space to increase the potential for residential amenity. Provide environmental benefits including habitat for native fauna, native vegetation and mature trees, a pleasant microclimate, rainwater percolation and outdoor drying area. The area of communal open space	Yes	The Stage 1 development includes a 'central area' communal open space area comprising 20,295m². The Central Park will be the main meeting place for residents, providing for a range of both active and passive uses. The path system bisects this triangular shaped communal park into four smaller triangular subspaces including two large open grassed areas and a gravel picnic/bbq area. The proposed Port Jackson figs, located in the central spine of the park will provide deep canopy and shade to the users of the park as well as location for seating. Within the framework of the path, timber bench seating is proposed, with generous picnic shelter containing BBQ's seating and tables as well as a large grassed viewing mound suitable for passive uses and relaxation. Each ground floor apartment is provided with a generous private courtyard. The scale of the spaces as well as the materials utilised to provide an appropriate response to the apartment layout and size, with shrub planting provided both on the slab and in deep soil as available. Small deciduous trees are to be planted outside and adjacent to the

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required should generally be at least between 25 and 30% of the site area. Larger sites and brownfield sites may have potential for more than 30%. 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. 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 carpark, is 25m^2, the minimum preferred dimension in one direction is 4.0m.		private courtyards, using a combination of Crepe Myrtle and Manchurian Pear and Native Frangipani.
Orientation Plan the site to optimise solar access by positioning and orienting buildings to maximise north facing walls, providing adequate building separation within the development and to adjacent buildings. Select building types or layouts which respond to the streetscape while optimising solar access. Optimise solar access to living spaces and associated private open spaces by orienting them to the north. Detail building elements to modify environmental conditions, as required, to maximise sun access in winter and sun shading in summer.	Yes	Glazing is maximised to the northern, eastern and western façades in order to maximise solar access and natural light, external shading structures are provided predominately to the eastern and western facades. This provides a high level of amenity to building occupants. Balconies are oriented to maximise solar access as far as possible to enhance amenity and solar access to private open space areas.
Planting on structures Design for optimum conditions for plant growth by providing soil depth, soil volume and soil area appropriate to the size of the plants to be established etc. Design planters to support the appropriate soil depth and plant selection. Increase minimum soil depths in accordance with the mix of plants in a planter. In terms of soil provision there is no minimum standard that can be applied to all situations as the requirements vary with the size of plants and trees at maturity. The recommended minimum soil depth standards range from 100-300mm for turf to 1.3 metre large trees.	Yes	Soft landscaping proposed on podiums will be a combination of shallow rooting shrubs, grasses and groundcovers, as well as larger shrubs and small trees in raised planter boxes where taller vegetation is provided. Species for podium planting will have compact rootball and shallow root system and be suitable for a free draining and relatively shallow soil profile, including small deciduous trees, palms, ferns and shrubs.
Stormwater management Reduce the volume impact of stormwater on infrastructure by retaining it on site.	Yes	A Stormwater Management Plan is submitted with the application, the details of which indicate that the site will adequately drain; refer to **Appendix J.** An overland flow path is located along the western boundary of the site which will be heavily planted with a variety of tree species.

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Optimise deep soil zones. All development must address the potential for deep soil zones. On dense urban sites where there is no potential for deep soil zones to contribute to stormwater management, seek alternative solutions. Protect stormwater quality by providing for sediment filters and traps etc. Reduce the need for expensive sediment trapping techniques by controlling erosion. Consider using grey water for site irrigation.		
Site amenity		
Safety Reinforce the development boundary to strengthen the distinction between public and private space. This can be actual or symbolic. Optimise the visibility, functionality and safety of building entrances. Improve the opportunities for casual surveillance by orienting living areas with views over public or communal open spaces, where possible. Minimise opportunities for concealment. Control access to the development.	Yes	The design of the proposed buildings and street network provides a clear distinction between public (pedestrian cycleway) and private residential areas. Balconies and private open space provide the opportunity for passive surveillance of the street, public domain and internal landscaped areas and open space, reducing the potential risk of crime or unsafe activity. Principal living rooms are also placed adjacent to balconies to increase casual surveillance. There is minimal opportunity for concealment within the proposed development. The building design avoids inactive or unusable corridors and provides a number of openings to lobbies and circulation areas within each building. Access to the residential component will be appropriately controlled to ensure that only residents, visitors of residents and authorised service personnel have access to these areas.
Visual privacy Locate and orient new development to maximise visual privacy between buildings on site and adjacent buildings. Design building layouts to minimise direct overlooking of rooms and private open spaces adjacent to apartments. Use detailed site and building design elements to increase privacy without compromising access to light and air.	No (see comment)	Minimum separation is provided to most units. Screening is provided on balconies and through landscaping where necessary; windows and balconies are sufficiently offset and separated to avoid any visual intrusion. There will be no direct outlook into internal areas of other dwellings. The Stage 1 development proposes the following separation distances between residential buildings: • The separation between the three storey buildings fronting McPherson Street is 12 metres between the balconies, which is compliant. • The separation between the three storey buildings and the five storey buildings is 15 metres, which is complaint. • The separation distance between the five storey buildings varies greatly. The minimum separation distance being 10.5 metres (at one point) to 12 metres between buildings, which is less than the required 18 metres, however screening is incorporated to bedroom windows to minimise direct overlooking to opposite living rooms and balconies, which are orientated to the north and east/west to avoid direct overlooking. • The majority of the apartments within the five storey buildings comply with the required separation distance.

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Site access		
Building entry Improve the presentation of the development to the street (i.e. designing the entry as a clearly identifiable element of the building in the street, ground floor apartment entries-where it is desirable to activate the street edge or reinforce a rhythm of entries along a street). Provide as direct a physical and visual connection as possible between the street and the entry. Achieve clear lines of transition between the public street, the shared private, circulation spaces and the apartment unit. Ensure equal access for all. Provide safe and secure access. Generally provide separate entries from the street for pedestrians and cars and different uses. Design entries and associated circulation space of an adequate size to allow movement of furniture between public and private spaces. Provide and design mailboxes to be convenient for residents and not to clutter the appearance of the development from the street.	Yes	Separate entrances are provided for each of the residential buildings, and are separated from the vehicular entry points. Disabled access has been provided. Vehicular entries to the site is via either Boondah Road or Macpherson Street. The residential entry points provide direct physical and visual entry surrounding the central park space. Landscaping and barriers ensure that there is a clear line of transition between the public domain, publicly accessible areas (cycleway/pathway) and the residential units. Equal access is provided to all parts of the building through the provision of ramps and lifts that service each level of the building.
Parking Determine the appropriate car parking space requirements in relation to proximity to public transport, shopping and recreational facilities, density etc. Limit the number of visitor parking spaces, particularly in small developments. Give preference to underground parking, whenever possible. Where above ground enclosed parking cannot be avoided, ensure the design of the development mitigates any negative impact on streetscape and amenity. Provide bicycle parking, which is easily accessible from ground level and from apartments.	Yes	All car parking within Stage 1 is contained within the proposed basement car park, with vehicular access available via two separate vehicle entry points, down to two basement levels. It is noted that the site is within walking distance of a bus stop on McPherson Street and more frequent bus services on Pittwater Road. Sufficient bicycle storage areas are designated in the basement car park, with bicycle parking provided for 1 per 10 units, totalling 31 spaces. See **Section 7.9** for a detailed assessment of parking.
Pedestrian access Utilise the site and its planning to optimise accessibility to the development. Promote equity by ensuring the main building entrance is accessible for all from the street and from car parking areas.	Yes	All units have accessible paths of travel from the basement car park levels and the adjacent street footpath has been designed for adaptation in accordance with AS 4299 '*Adaptable housing*'. All entrances and access ways comply with the BCA and Australian Standards. There is two vehicular access points to the stage 1 development basement, which does not conflict with pedestrian access points to the site. Movement through the site is clear, with access for disabled persons made available via lift access points.

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Design ground floor apartments to be accessible from the street, where applicable, and to their associated private open space. Maximise the number of accessible, visitable and adaptable apartments in a building. Australian Standards are only a minimum. Separate and clearly distinguish between pedestrian access ways and vehicle access ways. 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% dwellings in the development.		The lifts within each building have access to all floors including the basement levels. All corridors and circulation spaces comply with the Australian Standards and the Disability Discrimination Act, allowing a wheelchair to pass or turn.
Vehicle access Ensure that pedestrian safety is maintained by minimising potential pedestrian/vehicle conflicts. Ensure adequate separation distances between vehicular entries and street intersections. Generally limit the width of driveways to a maximum of 6m. Locate vehicle entries away from main pedestrian entries and on secondary frontages.	Yes	Vehicular entrances will not interfere with any street intersections and is clearly distinguishable. The vehicle entry points to the basement has a width of 6 metres, with a 3.2 metres head clearance to the car park.
Building configuration		
Apartment layout Determine appropriate apartment sizes in relation to geographic location and market demands, the spatial configuration of an apartment, not just its plan, and its affordability. Ensure apartment layouts are resilient over time. Design apartment layouts, which respond to the natural and built environments and optimise site opportunities by providing private open space, orienting main living spaces toward the primary outlook, etc. Avoid locating the kitchen as part of the main circulation space of an apartment, such as a hallway or entry space. Ensure apartment layouts and dimensions facilitate furniture removal and placement. Comparative unit sizes: internal area (external area): • Studio 38.5m^2 (6m²) • 1br cross-through 50m² (8m²) • 1br loft 62m² (9.4m²) • 1br single-aspect 63.4m² (10m²)	Yes	Minimum areas for the studios, 1 and 2 bedroom units being generally met, with the three bedroom units, being slightly under the required area. All units are afforded with quite generous sized courtyards and balconies, meeting the minimum requirements. Living rooms/main habitable spaces are located towards the balconies. Kitchens are generally not located in circulation spaces. Apartment layouts are logical and practical, allowing for useability and minimising noise intrusion, for example locating kitchens and bathrooms adjacent other kitchens and bathrooms. The back of all kitchens is within 8.0m of a window. The design provides the following average unit sizes: • Studio Average 43m². • 1-bedroom units (61m²-62m²) • 2-bedroom units (75m²-90m²) • 3-bedroom units (95m² - 109m²) The internal areas of each unit are given on the architectural plans at **Appendix A**.

Residential Flat Design Code 2002	Compliance	Comments
• 2b corner 80m² (11m²) • 2br cross-through 89m2 (2m²) • 2br cross-over 90m² (16m²) • 2br corner with study 121m² (33m²) • 3br 124m² (24m²) The back of a kitchen should be no more than 8.0m from a window. 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.		
Apartment mix Provide a variety of apartment types. Refine the appropriate apartment mix for a location by: • Considering population trends. • Noting the apartment's location in relation to public transport, public facilities, etc. • Locate a mix of apartments on the ground level. • Optimise the number of accessible and adaptable apartments. Investigate the possibility of flexible apartment configurations.	Yes	A mix of one, two and three bedroom units is provided. The mix is as follows: • 13 x Studios (4.2%) • 62 x 1 bedroom units (19.8%) • 61 x 2 bedroom units (medium) (19.5%) • 160 x 2 bedroom units (large) (51.1%) • 17 x 3 bedroom units (5.4%) All the studio units are capable of being made accessible/adaptable units in accordance with Australian Standard4299.
Balconies Provide at least 1 primary balcony. Primary balconies should be located adjacent to the main living areas, sufficiently large and well proportioned to be functional and promote indoor/outdoor living. Design and detail balconies in response to the local climate and context. Design balustrades to allow views and casual surveillance of the street while providing for safety and visual privacy. Coordinate and integrate building services, such as drainage pipes, with overall facade and balcony design. Consider supplying a tap and gas point on primary balconies. Provide primary balconies for all apartments with a min. depth of 2.0m.	Yes	All units have appropriately positioned and generous sized private courtyard or balcony. All primary balconies have a minimum depth of 2 metres. All balconies are located adjacent to main living room areas.
Ceiling Heights Design better quality spaces in apartments by using ceilings to define a spatial hierarchy between areas of an apartment using double height spaces, raked ceilings, changes in ceiling heights and/or the location of bulkheads, maximise heights in habitable rooms by stacking wet areas from floor to floor, promote the use of ceiling fans.	Yes	Minimum floor to ceiling heights are met and generally exceeded. The wet areas are stacked from floor to floor.

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Facilitate better access to natural light by using ceiling heights which promote the use of taller windows, highlight windows and fan lights and light shelves. Recommended minimum floor to ceiling heights: – 2.7m for all habitable rooms on all floors; and – 2.4m is the preferred minimum for all non-habitable rooms; – However, 2.25m is permitted.		
Flexibility Provide apartment layouts, which accommodate the changing use of rooms. Utilise structural systems, which support a degree of future change in building use or configuration. Promote accessibility and adaptability by ensuring the number of accessible and visitable apartments is optimised and adequate pedestrian mobility and access is provided.	Yes	Compliance with the Australian Standards is stated and shall be conditioned. Unit layout could accommodate office uses if required, or varied dwelling layouts. There is a high degree of accessibility throughout the development, with some adaptable units being provided.
Internal Circulation Increase amenity and safety in circulation spaces by providing generous corridor widths and ceiling heights, appropriate levels of lighting, including the use of natural daylight, minimising corridor lengths, providing adequate ventilation. Support better apartment building layouts by designing buildings with multiple cores which increase the number of entries along a street and the number of vertical circulation points, give more articulation to the facade, limiting the number of units off a circulation core on a single level. Articulate longer corridors. Minimise maintenance and maintain durability by using robust materials in common circulation areas. 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 8. Exceptions may be allowed.	Yes	The three storey residential buildings provide seven units per floor, with the lift and lobby area offset from the corridor. The corridor is 12 metres in length and 1.6 metres in width and is accessed by seven units per floor. The five storey block of units situated directly behind the three storeys residential blocks of units are accessed by five and six units respectively, situated off a 10 metre x 2 metre corridor and 16 x 1.5 metre corridor, with the lift and lift lobby situated in the middle of each corridor. The five storey L-shaped block of units to the middle of the site are access by four separate lifts to each of the five floors. The corridors are broken up into sections by the 2 bedroom crossover units and a set of double doors. A maximum of 6 units, with the longest corridor being 24 metres, however broken up by the orientation of the units, varying corridor widths and entry doors being offset. The development minimises the number of units off a double loaded corridor and is compliant with the required maximum 8 per corridor. An internal stairwell services each of the residential buildings and is located adjacent to the lift cores. There are a number of separate entrances to each residential building, with the ground floor units each having a private second entrance via the courtyards. Level access is provided from the street. There are several flow through units, which provide for greater air flow and ventilation. Cross ventilation plans are provided within the architectural drawings at **Appendix A**.
Mixed use Choose a mix that complements and reinforces the character, economics and function of the local area.	Yes	The development is predominantly residential, with a single storey childcare centre and retail uses proposed in a separate building to the north western corner of the site fronting Macpherson Street. The childcare centre and retail uses are separated to the residential development by the internal entrance road and is kept as a

Residential Flat Design Code 2002	Compliance	Comments
Chose a compatible mix of uses, for example, food retail, small-scale commercial and residential is a better mix than car repair and residential. Consider building depth and form a relation to each use's requirements for servicing and amenity. The compatibility of various uses can be addressed by utilising flexible building layouts, which promotes variable tenancies or uses, optimal floor to ceiling heights, optimal building depths, extra care where larger footprint commercial spaces (cinemas, supermarkets, department stores) are integrated with residential uses. Design legible circulation, which ensure the safety of users by isolating commercial service requirements such as loading docks, from residential servicing areas and primary outlook, locating clearly demarcated commercial and residential vertical access points, providing security entries to all private areas including carparks and internal courtyards and providing safe pedestrian routes through the site where required. Ensure the building positively contributes to the public domain and streetscape by fronting onto major streets with active uses and avoiding the use of blank walls at ground level. Address acoustic requirements for each use by separating residential uses from ground floor leisure or retail use by utilising an intermediate quiet-use barrier, such as offices and design for acoustic privacy from the beginning of the project to ensure that future services do not cause acoustic problems later. Recognising the ownership/lease patterns and separating requirements for BCA considerations.		separate entity to the residential buildings which encompass the majority of the site. This separation will help to provide an acoustic barrier to the residential development.
Storage Locate storage conveniently for apartments. Options include providing at least 50% of the required storage within each apartment, dedicated storage rooms on each floor, providing dedicated and/or leasable secure storage in internal or basement carparks. Where basement storage is provided ensure that it does not compromise natural ventilation in car parks or create potential conflicts with fire regulations, exclude it from FSR calculations.	Yes	Storage is supplied within each unit and further storage is provided within the basement level to provide for storage of larger items. Bicycle Storage and residential unit storage areas are also provided within the basement levels. Storage is supplied within all units, and all residents will have access to a minimum of the required storage volume. An indication of the storage space allocation is provided on the typical unit plans contained in the architectural drawings at **Appendix A**. Storage Areas are provided in: • Media rooms; • Laundry rooms; • Study nooks; • Linen closets.

Residential Flat Design Code 2002	Compliance	Comments
Provide accessible storage facilities at the following rates: • Studio apartments 6m³ • 1 bedroom apartments 6m³ • 2 bedroom apartments 8m³ • 3 plus bedroom apartments 10m³.		
Building amenity		
Acoustic privacy Utilise the site and building layout to maximise the potential for acoustic privacy by providing adequate building separation within the development and from neighbouring buildings. Arrange apartments within a development to minimise noise transition between flats. Design the internal apartment layout to separate noisier spaces from quieter. Resolve conflicts between noise, outlook and views by using double glazing, operable screened balconies, and continuous walls to ground level courtyards where they do not conflict with streetscape. Reduce noise transmission from common corridors or outside the building by providing seals at entry doors.	Yes	The units have been designed to reduce acoustic impact between apartments, such as bedroom to bedroom and bathroom to bathroom.
Daylight access Plan the site so that new residential flat development is oriented to optimise northern aspect. Ensure direct daylight access to communal open space between March and September and provide appropriate shading in summer. Optimise the number of apartments receiving daylight access to habitable rooms and principal windows. Design for shading and glare control, particularly in summer using shading devices, colonnades, balconies, pergolas, external louvres and planting, optimising the number of north-facing living spaces, providing external horizontal shading to north-facing windows, providing vertical shading to east or west windows, using high performance glass but minimising external glare, use a glass reflectance below 20%. Prohibit the use of lightwells as the primary source of daylight in habitable rooms.	Yes	The development has been designed and orientated to the north to optimise the natural solar access to all residential apartments. The development complies with the applicable standards regarding solar access. At least 70% of apartments will receive at 3 hours of direct sunlight between 9am and 3pm mid winter. A total of 20 out of 313 apartments are single aspect -south facing which is less than the maximum 10% RFDC rule of thumb.

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Living rooms and private open spaces for at least 70% of apartments in a development should receive a minimum of 3 hours direct sunlight between 9.00am and 3.00pm in mid winter. In dense urban areas a minimum of 2 hours may be acceptable. Limit the number of single-aspect apartments with a southerly aspect (SW-SE) to a maximum of 10% of the total units proposed. 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.		
Natural ventilation Plan the site to promote and guide natural breezes. Utilise the building layout and section to increase the potential for natural ventilation. Design solutions include facilitating cross ventilation etc. Design the internal apartment layout to promote natural ventilation. Select doors and operable windows to maximise natural ventilation opportunities established by the apartment layout. Coordinate design for natural ventilation with passive solar design techniques. Explore innovative technologies to naturally ventilate internal building areas or rooms - such as bathrooms, laundries and underground car parks. Building depths, which support natural ventilation typically range from 10 to 18m. 60% of residential units should be naturally cross ventilated. 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.	Yes	The majority of units (189) are flow-through (60.4%), allowing for cross ventilation. As given by the applicant, the proposal complies with the policies of natural ventilation, and mechanical ventilation is provided for use only when required. The hallways and lobbies will be partially naturally ventilated. All kitchens are located within 8.0m of a window opening. Cross Ventilation plans are provided in the architectural drawings at **Appendix A**.
Building form		
Awnings and signage Awnings: Encourage pedestrian activity on streets by providing awnings to retail strips, where appropriate, which give continuous cover in areas which have a desired pattern of continuous awnings,		Awnings: All units have some external covering from the balconies above. The entrances to all buildings are covered by the podium level above; this fits the modern design of the development. Entrances and common areas are to be appropriately lit. Signage: There is no signage proposed as part of this development. Further

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complement the height, depth and form of the desired character or existing patterns of awnings and providing all weather protection. Awnings should contribute to the legibility of the residential flat development and the amenity of the public domain by being located over building entries. Enhance the safety for pedestrians by providing under awning lighting. Signage: Signage should be integrated with the design of the development by responding to scale, proportions and architectural detailing. Signage should provide clear and legible way-finding for residents and visitors.		development consent will be sought from Council regarding any future signage. Informational/directional signage is to be conditioned as appropriate.
Facades Consider the relationship between the whole building form and the facade and/or building elements. The number and distribution of elements across a facade determine simplicity or complexity. Columns, beams, floor slabs, balconies, window openings and fenestrations, doors, balustrades, roof forms and parapets are elements, which can be revealed or concealed and organised into simple or complex patterns. Compose facades with an appropriate scale, rhythm and proportion, which respond to the building's use and the desired contextual character. Design facades to reflect the orientation of the site using elements such as sun shading, light shelves and bay windows as environmental controls, depending on the facade orientation. Express important corners by giving visual prominence to parts of the facade, for example, a change in building articulation, material or colour, roof expression or increased height. Coordinate and integrate building services, such as drainage pipes, with overall facade and balcony design. Coordinate security grills/screens, ventilation louvres and car park entry doors with the overall facade design.	Yes	The development presents an active retail and residential frontage to McPherson Street. In Stage 1, the residential building facades have been designed to consider the opportunities and constraints of the site, the buildings generally orientate towards Macpherson Street and the internal new street, and increase in height towards the middle and rear of the site to the south and west, this is in order to situate the height away from the external street frontages and to respond to the three storey height of the neighbouring developments. The orientation of the residential unit blocks, take advantage of the views towards the wetlands and natural sunlight. The design of the development has used various materials, scales and elements to articulate the appearance of the façade and to evoke visual interest. All building services such as drainage pipes, will be concealed and integrated. A schedule of materials is provided with the elevations in the set of architectural drawings at **Appendix A**.
Roof design Relate roof design to the desired built form. Some design solutions include: Articulating the roof, using a similar roof pitch or material to adjacent buildings,	Yes	The roof design is flat, with the plant and service room being located in the middle of the roof of each of the residential blocks. The plant room and lift over-run above the roof level of the building will be appropriately screened.

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using special roof features, which relate to the desired character of an area, to express important corners etc. Design the roof to relate to the size and scale of the building, the building elevations and three-dimensional building form. Design roofs to respond to the orientation of the site, for example, by using eaves and skillion roofs to respond to sun access. Minimise the visual intrusiveness of service elements by integrating them into the design of the roof. Support the use of roofs for quality open space in denser urban areas.		
Building performance		
Energy efficiency Incorporate passive solar design techniques to optimise heat storage in winter and heat transfer in summer. Improve the control of mechanical space heating and cooling. Provide or plan for future installation of photovoltaic panels. Improve the efficiency of hot water systems. Reduce reliance on artificial lighting. Maximise the efficiency of household appliances.	Yes	The ESD strategies proposed in the development include: • Carefully considered building form and fabric to balance solar heat gains, daylight, glare and views to outside. • Passive design strategies including external shading, insulation for walls and ceilings. Energy efficiency in building systems and services including: • A highly efficient lighting design and control strategy to reduce artificial lighting energy consumption and allow maximum advantage to be taken out of daylight incorporating natural daylight sensing, zoned switching and motion sensors. • Fluorescent light fittings; • Gas Cook tops and electric ovens • Hallways and lobbies to be partially naturally ventilated. • Car park ventilation to be fitted with CO monitoring and VSD control • Investigation of heat Pumps/Solar Panels on site to supply domestic hot water demands. • Investigate renewable energy generation such as incorporating photovoltaic's on site. Water efficiency in building systems and services include: • Water efficient fittings targeting 3 star WELS rating showers and 4 star WELS rating taps • Native/drought – resistant landscape to reduce potable water demands • Rainwater harvesting for use in landscape irrigation and car washing • Water efficient washing machines and dryers targeting 2 star dryers and 3 star dishwashers • Apply Water Sensitive Urban Deign principles to assist in stormwater management • Select materials to maximise recycled content, minimise indoor pollutant emissions and avoid ecologically sensitive products. • Waste Management Plan to minimise waste during the operation and construction of development. For further detail refer to the attached BASIX Certificates at **Appendix G** and ESD report included at **Appendix F**.
Maintenance Design windows to enable cleaning	Yes	Appropriately durable materials will be used for the construction – see the schedule of external finishes provided on the architectural plans (see **Appendix A**; also see the sample provided with the

Residential Flat Design Code 2002	Compliance	Comments
from inside the building, where possible. Select manually operated systems, such as blinds, sunshades, pergolas and curtains in preference to mechanical systems. Incorporate and integrate building maintenance systems into the design of the building form, roof and facade. Select durable materials, which are easily cleaned and are graffiti resistant. Select appropriate landscape elements and vegetation and provide appropriate irrigation systems. For developments with communal open space, provide a garden maintenance and storage area, which is efficient and convenient to use and is connected to water and drainage.		documents submitted with the application), appropriate methods of construction are to be followed. The landscaped spaces have also been designed to minimise maintenance, for example, by watering during early morning and late evening, and use of an on-site rainwater harvesting– see landscaping report and plans attached at **Appendix P**.
Waste management Incorporate existing built elements into new work and recycle and reuse demolished materials, where possible. Specify building materials that can be reused and recycled at the end of their life. Integrate waste management processes into all stages, of the project, including the design stage. Support waste management during the design stage. Prepare a waste management plan. Locate storage areas for rubbish bins away from the front of the development where they have a significant negative impact on the streetscape, on the visual presentation of the building entry and on the amenity of residents, building users and pedestrians. Provide every dwelling with a waste cupboard or temporary storage area of sufficient size to hold a single day's waste and to enable source separation. Incorporate on-site composting, where possible, in self contained composting units on balconies or as part of the shared site facilities.	Yes	The development will accord with the recommendations of the submitted Waste Management Plan. Refer to **Appendix Q**. Appropriate space has been provided for storage and rubbish bins, as can be seen on the architectural plans.
Water conservation Use AAA rated appliances to minimise water use. Collect, store and use rainwater on site. Incorporate local indigenous native vegetation in landscape design. Consider grey water recycling.	Yes – to be conditioned.	Recycled water is to be used within the development; as given in the stormwater management plan prepared by Brown (refer to **Appendix J**). Appropriate water efficient appliances will be installed as required. The development is to be constructed and operated in accordance with the principles of Ecologically Sustainable Development, through the requirement to comply with the NatHERS rating as submitted, and the BASIX Certificate (given in **Appendix G**).

5.13 Local Environmental Planning Instruments

Pittwater Local Environmental Plan 1993 (including provision of Amendment No 71)

Zoning and Objectives

Pittwater Local Environmental Plan 1993 (PLEP) applies to the subject site. Gazettal of amendment No. 71 to PLEP 1993 occurred on 21 July 2006, which re-zoned the subject site to *Residential 2(f)* and introduced additional relevant provisions to Division 7A of the LEP.
Permitted uses within the Residential 2(f) Zone are *residential buildings, associated community and urban infrastructure.* These land uses are not defined in the Pittwater LEP 1993 or the Model Provisions.

The subject site is located in the Warriewood Valley Urban Release area that is covered by Division 7A of the PLEP 1993. Clause 30A contains the objectives of the division which are as follows:

a) *Permit development for urban purposes on land within the Warriewood Valley Urban Release in accordance with a planning strategy for the release area and;*

b) *Permit staged development for urban purposes in various sectors of the Warriewood Valley Urban Land Release that has regard to a development control plan applying to the release area and*

c) *Permit greater housing diversity and wider housing choice in areas provided with adequate physical and social infrastructure in accordance with a planning strategy for the release area.*

The proposal is considered to meet the objectives of the division, which provides for a staged residential flat building development. The proposal also meets clause c) above by providing a residential flat building development comprising a mix of 1, 2 and 3 bedroom units, thereby providing greater housing diversity and wider housing choice in Warriewood Valley.

Development of UDP land in Warriewood Valley

Clause 30B of the PLEP 1993 contains provisions that relate to development of land in Warriewood Valley. Clause 30B(2) states:

The Council may grant consent for development of and which subclause (1) applies that is within Zone No 2 (f) only after it has considered the objectives of the zone as specified in Part 2 of Schedule 11.

The subject site is identified in subclause 1 and, therefore is subject to consideration under the objectives of the zone. The objectives are as follows:

a) *To identify land within the Warriewood Valley Urban Land Release which is suitable for residential development and which will be provided with adequate physical and social infrastructure in accordance with a planning strategy for the area, and*

b) *To provide opportunities for more varied forms of housing and wider housing choice, and*

c) *to provide opportunities for a mixture of residential buildings which can be in the form of detached dwellings, integrated development, cluster housing, group buildings and the like.*

The proposal complies with the objectives of the zone under Clause 30B, by providing a residential flat building development with internal road network and within close proximity to a local bus stop and shopping centre. The development provides a wide variety of housing choice in the form of 1,2 and 3 bedroom units.

Clause 30B(3) of the PLEP 1993 contains certain relevant matters for consideration for development within Warriewood Valley, as detailed in **Table 7**.

Table 7. Pittwater LEP compliance table

PLEP 1993 Clause 30B(3)	Compliance	Comments
a) Identification and management of any limitations to urban development and associated works created by slope, soil structure, geotechnical instability, flooding or the like.	Yes	The site is situated adjacent to Fern Creek to the western boundary and is within a flood prone area and within the wider Warriewood wetlands area. The site is also within a bushfire hazard area. A Stormwater and Environmental Management report has been produced by Brown Consulting and is provided at **Appendix J**. In summary, given the estimated increase in flood levels, it is expected that flood levels within the site would increase to 3.56-3.85 AHD as a result of climate change scenario (worse case) for the 100 year ARI storm event. The proposed minimum floor levels have been set at 4.5m AHD, well above the expected 100 year ARI flood level which is increased as a result of climate change. A bushfire assessment report has been prepared by Flame Zone bushfire consulting and is provided at **Appendix C** The development has been designed with due consideration to the limitations placed on the site by flooding, bushfire hazard, flora and fauna habitats, aspect, slope of the land, geotechnical conditions and access. Reports accompany this statement that have been prepared by independent professional consultants conclude the proposed development will have no manageable or adverse impacts upon the locality.
b) Conservation and protection of any significant vegetation and associated plant communities.	Yes	A flora and fauna assessment has been prepared by Total Earth Care and is provided at **Appendix H**. The site contains a mixture of pasture grasses and planted trees, horticultural garden plantings within existing residences and small areas of regrowth native vegetation. An Assessment of Significance is provided at **Appendix H** of the Flora and Fauna assessment and addresses the Swamp Oak Floodplain Forest and Swamp Sclerophyll Forest on Coast Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions; The report concludes that the proposed development is not likely to impose a significant effect on ecological

PLEP 1993 Clause 30B(3)	Compliance	Comments
		communities. This is discussed further in **Section 7.12** of the report.
c) Conservation and protection of any significant fauna populations and their habitat.	Yes	A flora and fauna assessment has been prepared by Total Earth Care and is provided at **Appendix H**. A 'Statement of Significance' in the Flora and Fauna report addresses the following habitat communities: • Powerful Owl; • Barking Owl; • Swift Parrot; • Grey headed flying fox; • Regent Honeyeater; • Black Bittern; • Lesser Sand Plover; A Powerful Own was discovered on the site within the Swamp Oak Forest. The report concludes that the proposed development is not likely to impose a significant effect on the vulnerable species of the powerful owl. This is discussed further in **Section 7.12** of this report.
d) Identification and remediation of any contaminated lands.	Yes	An Environmental Site Assessment, prepared by Environmental Audits of Australia is provided at **Appendix R** which concludes that the subject site is suitable for the proposed development.
e) Enhancement and protection of any significant visual elements within the landscape and its setting.	Yes	The proposed landscape plans are provided at **Appendix P**. The development proposes the protection with a 25m wide 'buffer strip' and enhancement of the pedestrian cycle path connections through to the Warriewood Wetlands. This will greatly improve the visual and landscape qualities of the Warriewood Wetlands. This is discussed further in Section **6.7** below.
f) Identification and protection of any significant Aboriginal heritage items or sites.	Yes	An Aboriginal Archaeological and Cultural Heritage Impact Assessment is provided at **Appendix K.** This report concludes that the proposed development will not impact upon any documented Aboriginal archaeological sites, that the potential for evidence of past Aboriginal use of the site to be low and that there are no related constraints to development of the site. This is discussed further in **Section 7.15** below.
g) Identification and protection of any significant European heritage items or sites.	Yes	A Heritage Impact Assessment is provided at **Appendix O** prepared by Graham Brooks and Associates. The report concludes that the proposed development will not have any adverse impact on the heritage significance of the certain identified buildings in the area.
h) Management of urban stormwater form a total catchment management viewpoint.	Yes	A Stormwater Management Plan prepared by Brown Consulting is provided at **Appendix J.** The report is completed in accordance with eth Warriewood Valley Water Management Specifications and concludes that the proposed development will

PLEP 1993 Clause 30B(3)	Compliance	Comments
		produce no net increase in the level of flood activity experienced by adjoining properties or Warriewood Wetlands. Bio-retention basins are included on the site that will filer all stormwater collected by the roads before entering into the Warriewood Wetland. Stormwater management is discussed in detail in **Section 7.14 below.**
i) Management and provision of traffic networks and facilities.	Yes	A road network plan has been established as part of the proposal, which is in accordance with the Warriewood Valley Roads Master plan. A Traffic Impact Assessment is provided at **Appendix E** prepared by Halcrow MWT which concludes that the proposed development will result in good functionality at intersections and an acceptable traffic impact overall. The pedestrian path/ cycle way that is anticipated by the Landscape Master plan for Warriewood Valley is provided along the southern and western boundaries of the site. Refer to the Landscape Master plan provided at **Appendix P** for further details.
j) Identification and protection of any development from bushfire hazard.	Yes	A Bushfire Report prepared by Flamezone Bushfire Consultants is provided at **Appendix C**. The report concludes that the proposed development can be contained on the site given vegetation management and Asset Protection Zones.

Dwelling Yield (Clause 30C)

Clause 30C of the PLEP specifies a dwelling yield for Buffer Area 3 of between 135 and 142 dwellings for the subject site. A review of the dwelling yield for Buffer Area 3 has recently been undertaken for the forthcoming Draft Warriewood Valley Planning Framework 2010 and has identified an increased dwelling yield of 186 for Buffer Area 3.

A proposed dwelling yield of 600 dwellings is proposed and as outlined in this report, it is considered that the site can accommodate this dwelling yield sustainably.

Odour Mitigation from the Warriewood Sewage Treatment Plant (Clause 30D)

Clause 30D of the PLEP states:

> *2) "the council is not to consent to development for the purpose of residential buildings on land to which this clause applies unless the Director-General has certified in writing to the council that satisfactory arrangements have been made to ensure that the impact of odours from the Warriewood Sewage Treatment Plant on the users or occupiers of the buildings is mitigated."*

Meriton and Sydney Water have entered into a deed that at the completion of the State A Works (odour mitigation) at Warriewood

Sewage Treatment Plant, a contribution of $3,000,000 is due on the Development Consent day. A copy of the letter between Sydney Water and Meriton is provided at **Appendix V**.

Public Infrastructure in urban release areas (Clause 30E)

The aims of Clause 30E are:

(a) to allow for future urban development and the conservation of ecological and riparian corridors and areas of visual significance on land in urban release areas, and

(b) to require satisfactory arrangements to be made for the provision of designated State public infrastructure before the subdivision of such land to satisfy needs that arise from development on the land, but only if the land is developed intensively for urban purposes, and

(c) to ensure that development on such land occurs in a logical and cost-effective manner in accordance with a staging plan.

Development consent can not be granted for the subdivision of land in Warriewood Valley Urban Release Area unless the Director General has certified to the consent authority that satisfactory arrangements have been made to contribute the provision of designated State public infrastructure and public utility infrastructure.

State public infrastructure means: *"designated State public infrastructure means public facilities or services that are provided or financed by the State (or if provided or financed by the private sector, to the extent of any financial or in-kind contribution by the State) of the following kinds:*

(a) State and regional roads,

(b) bus interchanges and bus lanes,

(c) rail infrastructure and land,

(d) land required for regional open space,

(e) land required for social infrastructure and facilities (such as land for schools, hospitals, emergency services and justice purposes)".

Public utility infrastructure means: *"infrastructure for any of the following purposes:*

(a) the supply of water,

(b) the supply of electricity,

(c) the disposal and management of sewage".

Pittwater Council has completed a significant number of public infrastructure projects in the Warriewood Valley since the commencement of the Warriewood Valley Section 94 Plan – July 2000. Property developers are required to contribute towards the provision of public facilities, infrastructure and services under Section 94 of the Environmental Planning and Assessment Act.

Developers in Warriewood Valley contribute towards traffic and transport, creek line corridors, open space, pedestrian cycleways, community facilities, library services and bushfire trails.

Public utility infrastructure will be augmented to support the proposed development. Correspondence from utility providers is included in this Environmental Assessment to demonstrate the water, electricity and the disposal and management of sewerage have been adequately considered.

Development in the vicinity of heritage items, heritage conservation areas, archaeological sites or potential archaeological sites (Clause 32)

A Heritage Impact Assessment and Aboriginal Archaeology and Cultural Impact Assessment has been undertaken and these reports are provided at **Appendix O** and **Appendix K**.

Both reports conclude that the proposed development will not impact on the significance of the heritage items within the locality.

5.14 Development Control Plans

Pittwater 21 Development Control Plan

Pittwater 21 DCP provides a framework to guide development within the Pittwater LGA, including the release Sectors of Warriewood Valley.

The DCP contains provisions for the planning and development of the Sectors and Buffer Areas in the Valley, which are generally applied and considered at the master planning or DA stage of development.

The DCP also contains provisions for built form, which would generally be relevant to any proposal to erect a building on the site and provisions relevant in the assessment of the proposed master plan such as building footprints and setbacks of proposed future development.

A full assessment of the proposed development against the DCP 21 provisions are provided at **Appendix T.**

Draft Warriewood Valley Planning Framework 1997 and STP Buffer Sector Draft Planning Framework

The draft Warriewood Valley Planning Framework 1997 and the STP Buffer Sector Planning Framework form the principle background strategic documents for the Warriewood Valley Land release area.

Principally these documents form the basis on which the rezoning and development of the valley has occurred, through relevant provisions under the Pittwater LEP and 21 DCP.

The objectives of both policies are addressed in **Tables 8 and 9** below.

Table 8. Draft Warriewood Planning Framework 1997

PLANNING FRAMEWORK OBJECTIVES		
Principle Objectives	**Compliance**	**Response**
• To provide for development of Warriewood Valley as a whole which is environmentally and economically sustainable in the short, medium and long term, with minimal financial impact on council. • To ensure that future residents and occupiers of the valley are provided with an appropriate level of community facilities and services and an amenable and safe neighbourhood. • To ensure that development in the valley is compatible with and does not detract from the amenity of surrounding land uses particularly residential properties.	Yes	The development is considered to be compatible with the objectives of the Warriewood Valley Planning Framework, providing an environmentally, economically sustainable residential development. The development provides a childcare centre, which is envisaged to serve the residents of the development. The development does not detract from the amenity of surrounding residents.
Environmental Objectives	**Compliance**	**Response**
• To ensure that significant vegetation within and adjoining the release area is conserved and protected during the development process and in the long term.	Yes	Significant vegetation such as the Swamp Oak Forest, is proposed to be protected and retained. This is discussed in detail in total earth care, Flora and Fauna report at **Appendix H.**
• To ensure the maintenance and protection of known or expected native fauna populations within or adjoining the release area in the development phase and in the long term and to provide protection and enhancement of fauna corridor links between habitat parks including protection of habitat adjacent to drainage lines and retention of areas of particular habitat.	Yes	Flora and Fauna is discussed in Total Earth Care, Flora and Fauna report at **Appendix H.**
• To ensure urban development and associated works are sensitive to the limitations and capabilities of the site in terms of slope, soil, structure, geotechnical stability and flooding and that a stable land surface is maintained within the release area and adjoining areas during the development stage and into the future.	Yes	Brown Consulting Engineers have provided a Stormwater and Environmental Management Plan (At **Appendix J**) which addresses stormwater management, earthworks and flooding across the site. Jeffery Katauskas Pty Ltd report addresses the geotechnical elements of the site **(Appendix W)**.
• To ensure that water management procedures are utilised during the development process and into the future so as not to increase and where possible reduce the impact of the development on the surrounding community and the natural and urban environment.	Yes	Brown Consulting have prepared a stormwater and environmental management plan for the site, incorporating bio retention basins and flood water management measures to limit the impact on the Creek system. (see **Appendix J).**
• To provide for the protection and enhancement of visual elements within the landscape that characterise the nature of the area and contribute to the visual amenity of the immediate vicinity of the local area and region as a whole.	Yes	Landscape plans have been prepared by Site Image and are provided at **Appendix P**. They have been prepared in accordance with the Pittwater Council Warriewood Valley Landscape Guidelines.
• To ensure that following development the risks to individuals or the general public as a result of previous land uses which might have caused contamination by agriculture and industrial chemicals or other toxic waste	Yes	Site Audits of Australia have prepared an Environmental Site Assessment of the site. The report concludes that the site is suitable for residential development. (See **Appendix R**).

PLANNING FRAMEWORK OBJECTIVES		
products is minimised.		
• To ensure that development is as safe as possible from bushfire hazard and flood hazard.	Yes	Brown Consulting have prepared a flood management plan and associated earthworks to deal with flooding issues. See **Appendix J.**
• To ensure the development is environmentally sustainable.	Yes	The development is considered to be environmentally sustainable. An ESD report is provided at **Appendix F** and BASIX Certificates are provided at **Appendix G**.
Community Facilities & Infrastructure Objectives	**Compliance**	**Response**
• To ensure that the existing community and the community to be accommodated within the release is provided with suitable transport and traffic facilities, retail and service facilities, community facilities and recreation and open space facilities.	Yes	The site will provide at least 1ha of public open space on the site, within the public riparian zone. A public pedestrian cycleway is also proposed through the site. (See landscape plans at **Appendix P**).
Heritage Objectives	**Compliance**	**Response**
• To ensure that the environmental and built heritage of the area is identified and protected during the development process and into the future.	Yes	The development will not adversely impact upon nearby heritage items. Graham Brooks and Associates have undertaken a heritage impact assessment of the proposed development and it is provided at **Appendix O.**
• To ensure that any items of aboriginal heritage are identified within the planning and investigation processes leading to development and where identified are protected as warranted.	Yes	An Aboriginal Archaeological and cultural Heritage Impact Assessment has been prepared by Banksia Heritage and Archaeology and is provided at **Appendix K.**
Urban Design Objectives	**Compliance**	**Response**
• To ensure that future development achieves an overall standard of urban design and amenity which is commensurate with surrounding development and provides a vibrant, pleasant and attractive neighbourhood.	Yes	The proposed building design, materials and finishes provide an interesting and well articulated built form. This provides visual interest and reduces the overall perceived bulk and scale of the development, with the levels being designed to appear as separate and distinct features of the one overall development, which is necessary on a site of this size.
• To provide a sense of community and identity to the future population of the development.	Yes	The development, through its design and layout has provided for communal open areas, such as bbq and seating areas, swimming pool and gymnasium building which will help to provide a sense of community within the development.
Financial Objectives	**Compliance**	**Response**
• To ensure that in the interests of stakeholders, including Pittwater council and relevant government agencies, the project is economically as well as environmentally sustainable.	Yes	The development proposes an economically as well as environmentally sustainable development within Pittwater LGA.

STP Buffer Sector Planning Framework (September 2001)

Table 9. STP Buffer Sector Planning Framework Compliance Table

Objective	Compliance	Response
• To provide for development of Warriewood Valley as a whole which is environmentally, economically and sociably sustainable in the short, medium and long term and in particular has a minimal financial impact on Council.	Yes	The development is considered to be environmentally, economically and socially sustainable by providing an affordable residential flat building development to Pittwater LGA, which the area generally lacks. The development is considered to be appropriate and socially sustainable by providing a mix of studio, 1, 2 and 3 bedroom units.
• To ensure that future residents and occupiers of Warriewood Valley together with surrounding communities are provided with an appropriate level of community facilities and services and amendable and safe neighbourhood.	Yes	The proposal includes the provision of a childcare centre, which will service the needs of residents of the development and the local community. The development will provide S94 contributions to Pittwater Council which will go towards the upgrade and provision of local recreational and community facilities.
• To ensure that development of the Valley is compatible with and does not detract from the amenity of surrounding areas particularly residential properties.	Yes	The proposal responds in context to surrounding residential development, with the height limit being kept to 3 storeys to the street frontages, stepping up to 5 storeys in the middle and rear of the site. The proposed materials and finishes are compatible with surrounding development.

6 Environmental Assessment – Concept Plan

This section of the report provides an Environmental Assessment of the relevant key issues for the Concept Plan. **Section 7** analyses the Environmental Assessment of the Project Application.

Key issues for the Concept Plan are:

- Subdivisions
- Urban Design
- Built form
- Landscaping

An examination of the relevant environmental planning instruments is also given in **Section 6** of this report.

6.1 Subdivision

The road roads, creek line corridor/wetlands buffer strip and cycle way/pedestrian path will be dedicated to Council. The development will create a community title allotment that contains the Asset Protection Zone and floor mitigation works (bio-retention basins), for which residential will be made responsible by covenant for maintenance and management.

Community title and strata subdivision will be applied for in a separate application, once the Concept Plan and Stage 1 project application is finalised.

6.2 Urban Design and Built Form

The Concept Plan has been designed so that the proposed development is located in the most suitable part of the site in regards to functionality and environmental impact, including visual amenity, ecological impact, bushfire and flooding. The layout responds positively to the site and proposed residential development giving consideration to solar access, orientation, drainage, access, views, utility provision, public access, the Warriewood wetlands and bushfire management.

Pittwater DCP 21, SEPP 65 and the Residential Flat Design Code have been used as a guide the design of the Concept Plan. It is noted that the site adjoins Fern Creek Riparian Corridor and Warriewood Wetland. As such proposed revegetation and creek restoration works associated with the 'Fern Creek' Riparian Corridor, Wetland buffer zone and associated 'Asset Protection Zone' area have been designed in accordance with the previous concept plan approval DA 0526/08.

The concept plan proposes the construction of 600 dwellings across the site in the form three (3) and five (5) storey residential flat buildings. The three storey buildings are focused around the perimeter of the site, fronting Boondah and McPherson Street, with the taller five storey elements focused in the centre to the rear of the site. Refer to Figures 15 and 16 below, which show 3D model imaging of the concept plan area.

A network of streets and laneways has been proposed for the subject site in accordance with the Warriewood Valley Roads Master plan. Access has been deigned from two points, one entry located at Macpherson Street and the other at Boondah Road.

The concept plan includes construction of a footpath on one side of each road to facilitate pedestrian movement around the Sector. A cycle path connects the sites open space network. The path will meander along the western and southern boundaries of the site and will be located along the 10metre buffer zone adjacent to the wetlands edge. The path is to be constructed in accordance with Council requirements.

The 3D Perspectives below illustrate the massing of building, heights and setbacks and are not representative of architectural expression, which is subject to this Stage 1 Project Application.

Figure 15. 3D Perspectives of the concept plan

Figure 16. 3D Perspectives of the concept plan

6.3 Height

The proposed development height ranges from three (3) storeys to five (5) storeys, with the height along the main street frontages (Boondah Road and Macpherson Street) being maintained at 3 storeys, stepping up to 5 five storeys to the middle and rear of the site. The childcare centre to the north western corner of the site is one storey with the swimming pool/gymnasium building being one storey. (Refer to **Figure 17**)

The proposed three storey height of buildings along Macpherson Street effectively responds to the Seniors Living development situated opposite the site to the north, which ranges in height between two and three storeys.

Figure 17. Concept Plan height map

This drawing is provided at A4 scale at **Appendix U**.

6.4 Land Use and communal facilities

The proposed land uses comprise:

- Approximately 600 residential units;
- Childcare centre (subject to separate Development Application);
- Retail (subject to a separate Development Application);
- Swimming pool and gymnasium building.

The proposed land uses are compliant with the stipulated in the Pittwater 21 DCP.

Refer to the land use plan at **Figure 18** below.

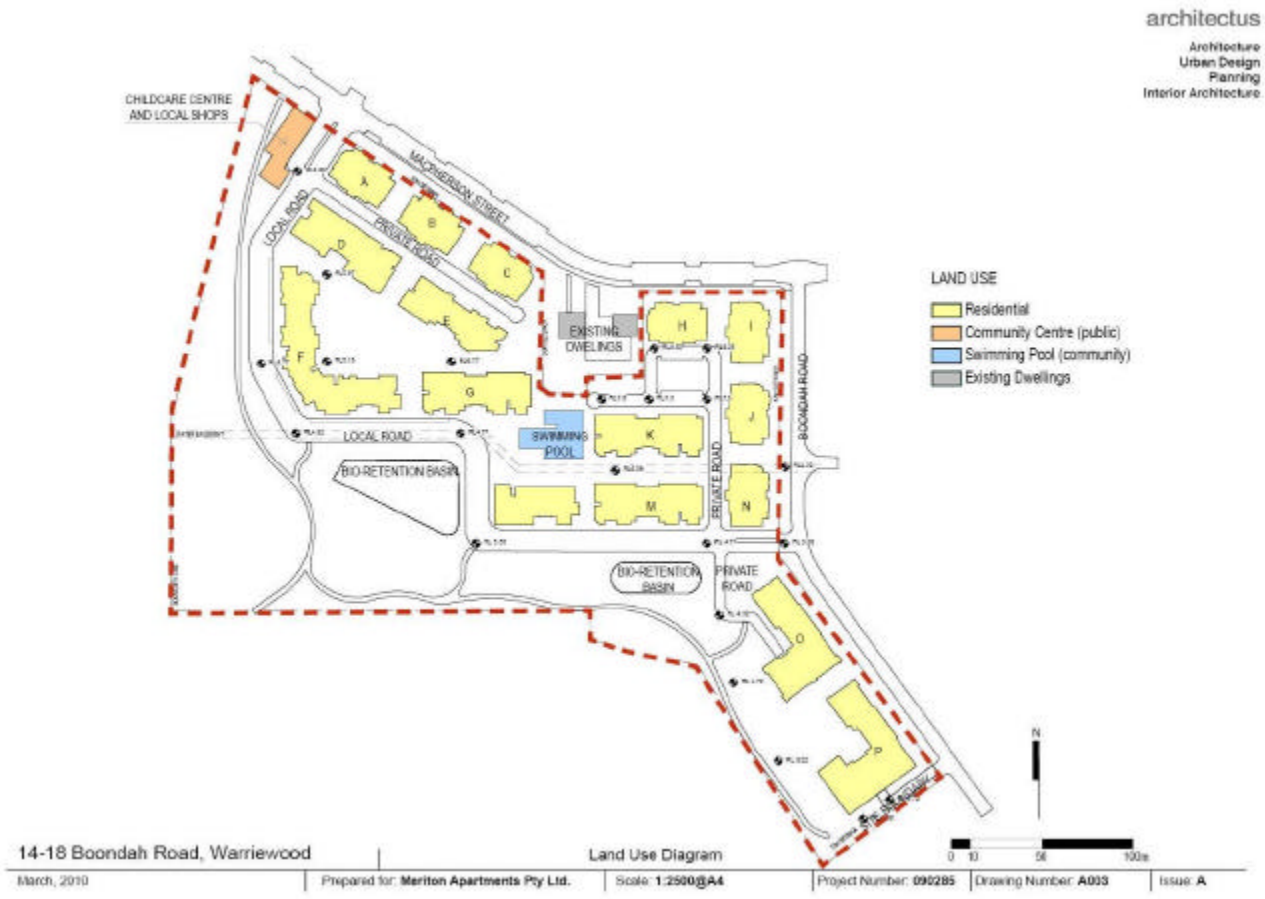

Figure 18. Concept plan land uses

This drawing is provided at A4 scale at **Appendix U**.

6.5 Traffic and Street Network

A network of streets and laneways are proposed for the subject site in accordance with the Warriewood Valley Roads Master plan. (See **Figure 19** below)

The access has been designed from two points, with one entry located at Macpherson Street and the other at Boondah Road. This internal street network surrounds the residential buildings in order to condense them as much as possible away from the Warriewood Wetlands and in order to address the buildings to the street.

For the Stage 1 development, the single level basement car park will have 320 spaces; whiles there will be 31 on-street spaces for visitors. Vehicular access to the car park is proposed to be available via both Macpherson Street and Boondah Road. These two accesses would be linked internally, so drivers would be able to choose whichever access was most convenient.

The internal road system will be designed to not only accommodate service vehicles such as garbage collection trucks and removalist vans, but also facilitate low vehicle speeds through a combination of constrained carriageway widths informal on-street parking, intersection controls as well as variation to the texture and colour of the road pavement at sensitise locations.

The accompanying Traffic Impact Assessment and Transport Management and Accessibility Plan prepared by Halcrow discuss the potential traffic implications of the proposed residential development.

In terms of traffic generation across the total site, the Halcrow report concludes that the proposed development is expected to generate 327 vehicle trips per hour during the weekday morning peak hour and 323 vehicle trips per hour during the evening weekend peak hour, based on a 600 dwelling density across the entire site and a childcare centre holding 70 children, (with approximately 40% of children living in the proposed development) and two retail shops.

Halcrow's report concludes that the proposed residential development at 14-18 Boondah Road, Warriewood would not significantly increase traffic volumes or delays on the road system of Warriewood Valley above those previously expected and planned for as part of the Roads Master Plan. The proposed access arrangements are considered satisfactory and are consistent with the previous approved development for the site.

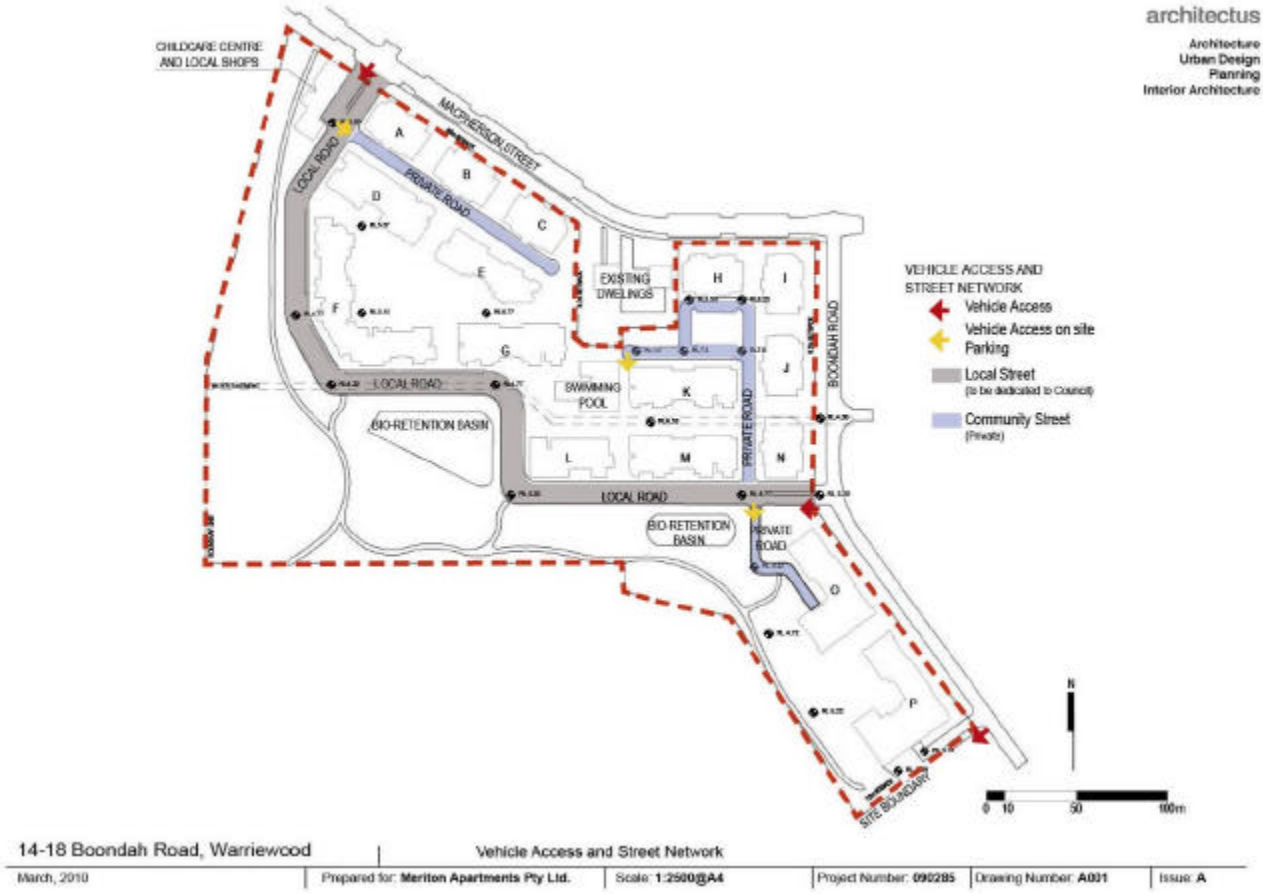

Figure 19. Concept Plan Vehicle Access and Street Network
This drawing is provided at A4 scale at **Appendix U**.

6.6 Pedestrian Footpath and Access Cycleway

In accordance with the Warriewood Valley Urban Release Area Master Plan, the concept plan includes a connection of pedestrian/cycle paths, which links Macpherson Street, the proposed development and the adjoining development pedestrian/cycle path, which connects all the way through to Warriewood Shopping Centre and Jackson Road. The shared pedestrian/cycle path, has been located to form the primary buffer between the Asset Protection Zone (APZ) and the core riparian zone. The path is to link with similar paths on adjoining land. The proposal allows for 3 (three) lookouts to be located at suitable points for viewing into the wetlands. Elevated timber boardwalks are to provide access over sensitive riparian planting and flood storage area. Seating, signage, solar lights and litter bins will be provided, however this level of detail will be subject to further discussion with Pittwater Council. (Refer to **Figure 20**).

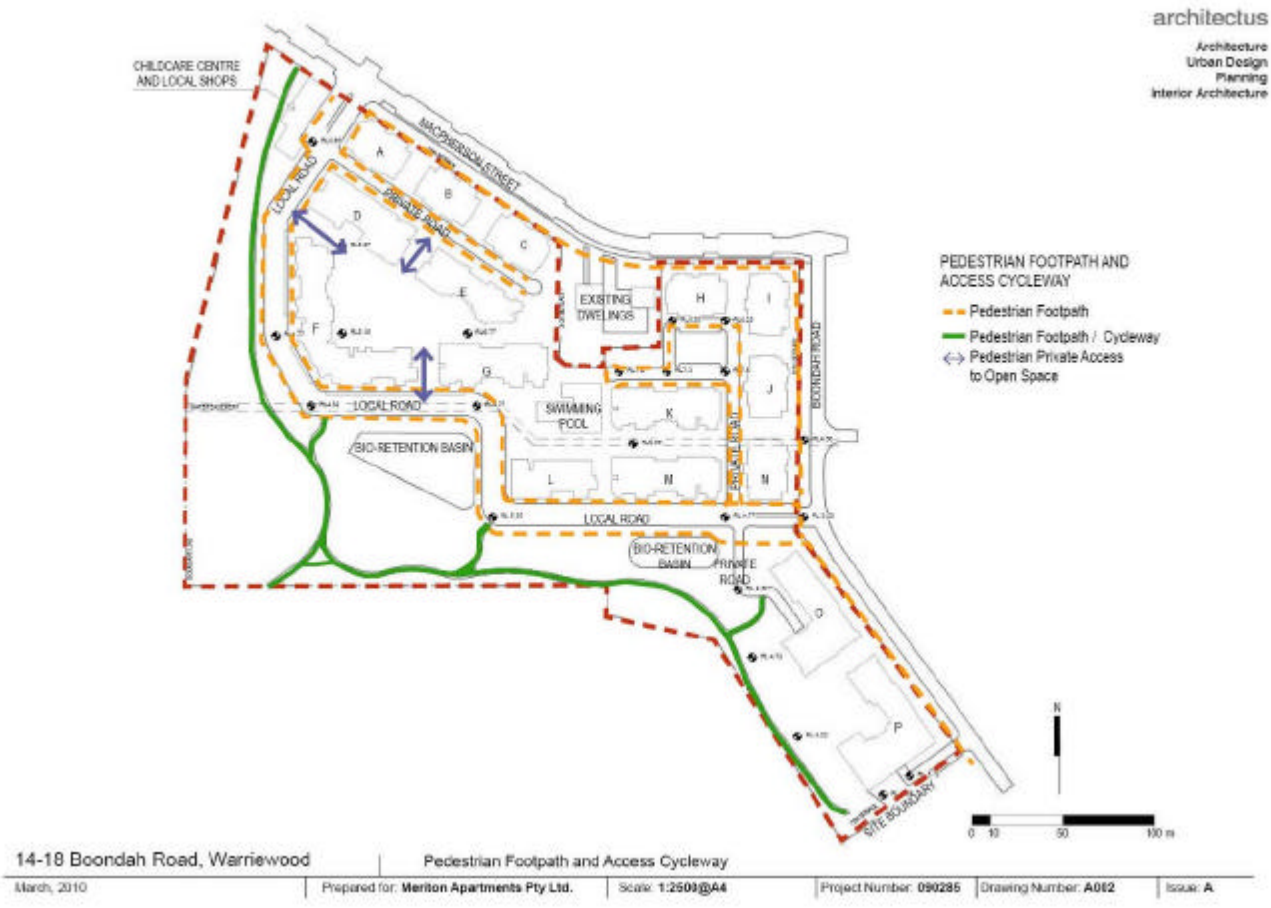

Figure 20. Pedestrian Access and Cycleway Concept Plan
This drawing is provided at A4 scale at **Appendix U**.

6.7 Landscape/open space/riparian corridor

The proposed Concept Plan was prepared by Site Image Landscape Architects and plans and landscape statement at **Appendix P**. The landscape proposal has been designed to be generally in accordance with Pittwater Councils Warriewood Valley Landscape Design Guidelines 2004 and Pittwater DCP 21.

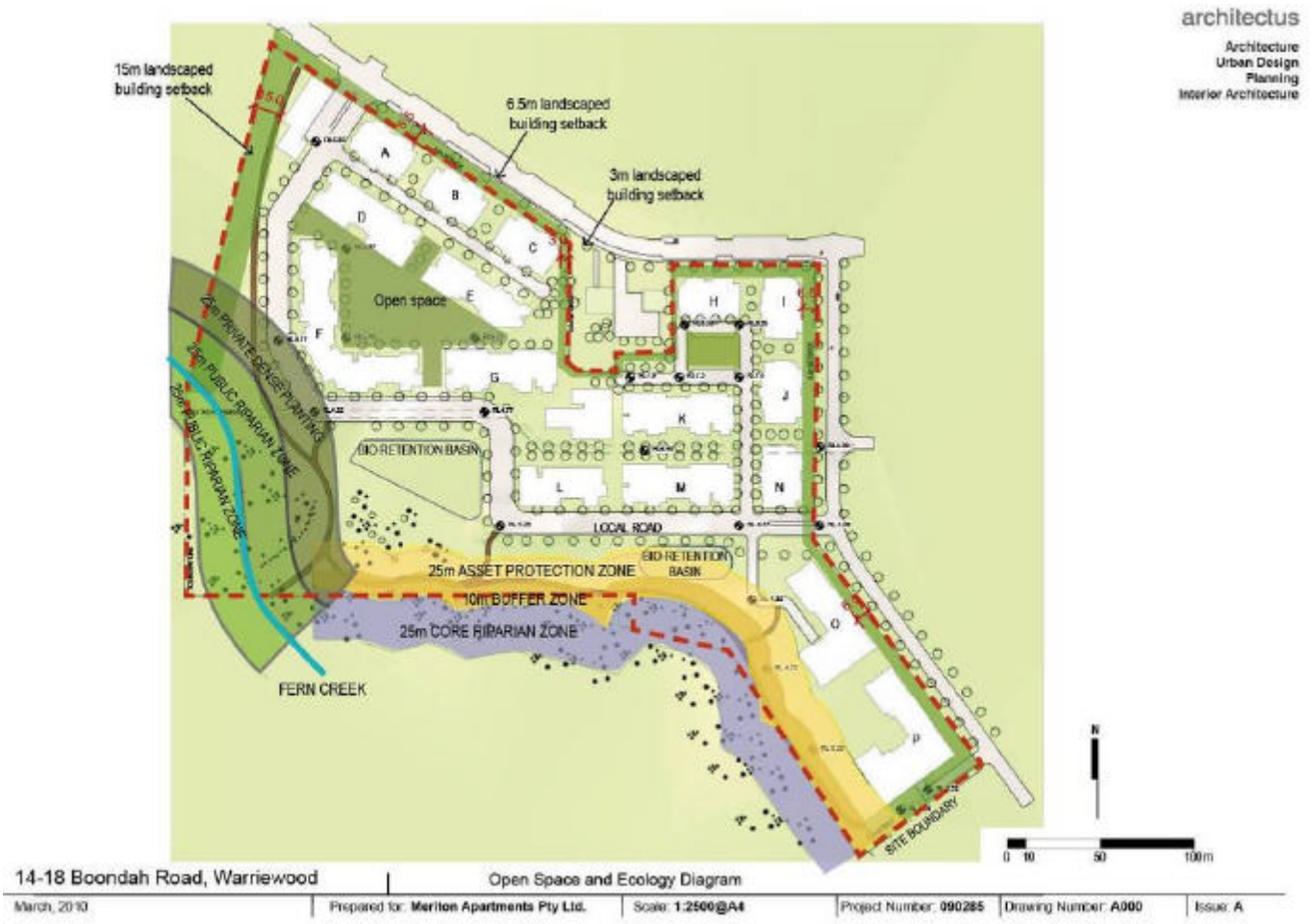

Figure 21. Concept Plan landscape/ open space/riparian corridor principles
This drawing is provided at A4 scale at **Appendix U**.

Figure 22. Landscape Master Plan Vegetation Plan
Source: Site Image
This drawing is provided at A3 scale at **Appendix P**.

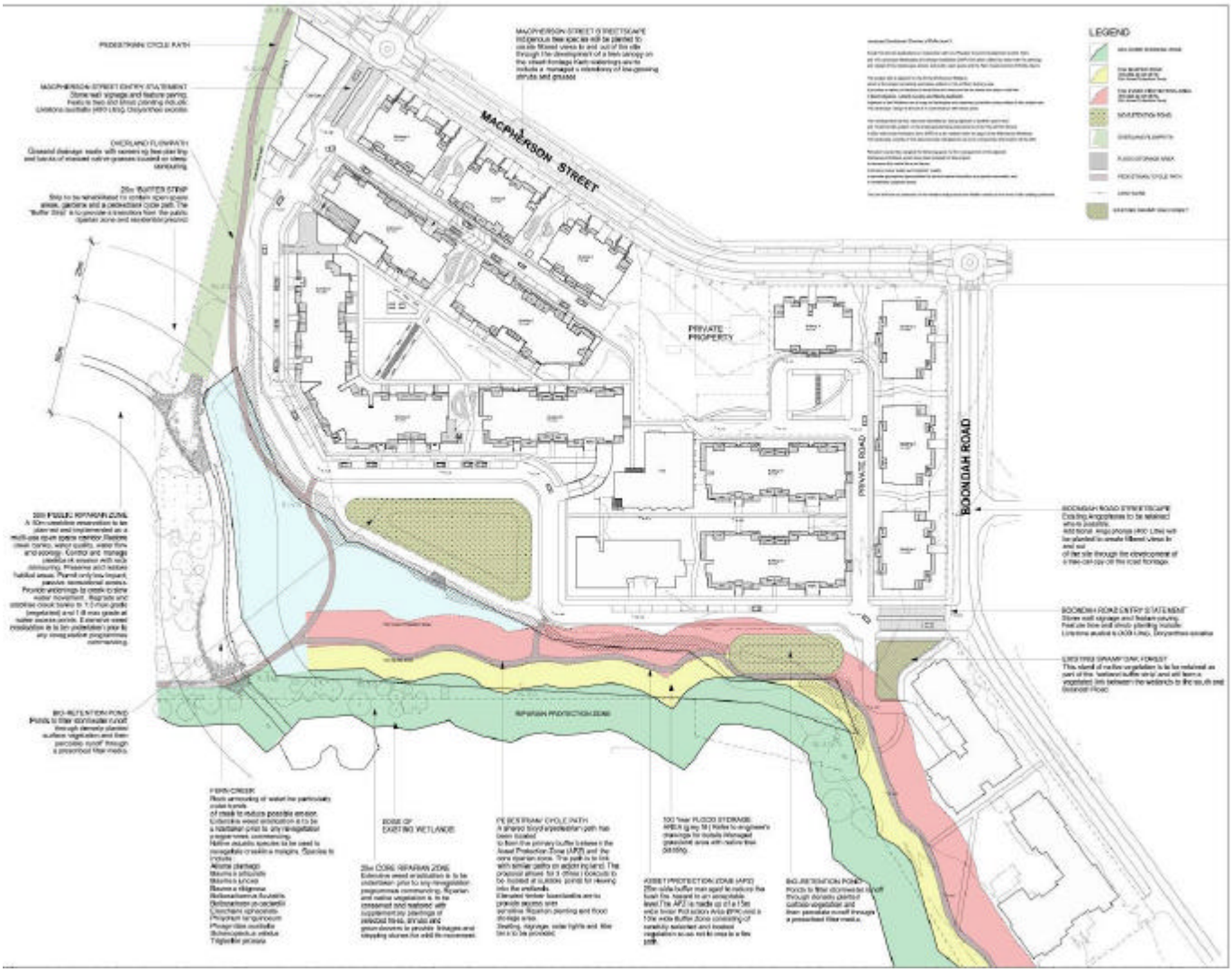

Figure 23. Landscape Master Plan, Landscape Management Zone
Source: Site Image. This drawing is provided at A3 scale at **Appendix P**.

6.8 Solar Access

The proposed concept plan development has been designed to take advantage of the northern solar access, wherever possible, and building orientation to minimise overshadowing to adjacent buildings. Concept Plan shadow diagrams for March, June, September and December, for the hours of 9am, 12 noon and 3pm are provided at **Appendix C** and June 21 (mid winter) shadow diagrams are provided in **Figure 24**, **Figure 25** and **Figure 26**.

The majority of the residential units enjoy a northerly, north easterly aspect with a few unit blocks orientated to the east and south to address the internal street network.

The open space areas will also receive access to natural sunlight during the winter moths as indicated on the shadow diagrams.

As demonstrated in the shadow diagrams below, the majority of the shadow will fall on the internal road network, limiting the impact of the shadow on the buffer zones and riparian corridor.

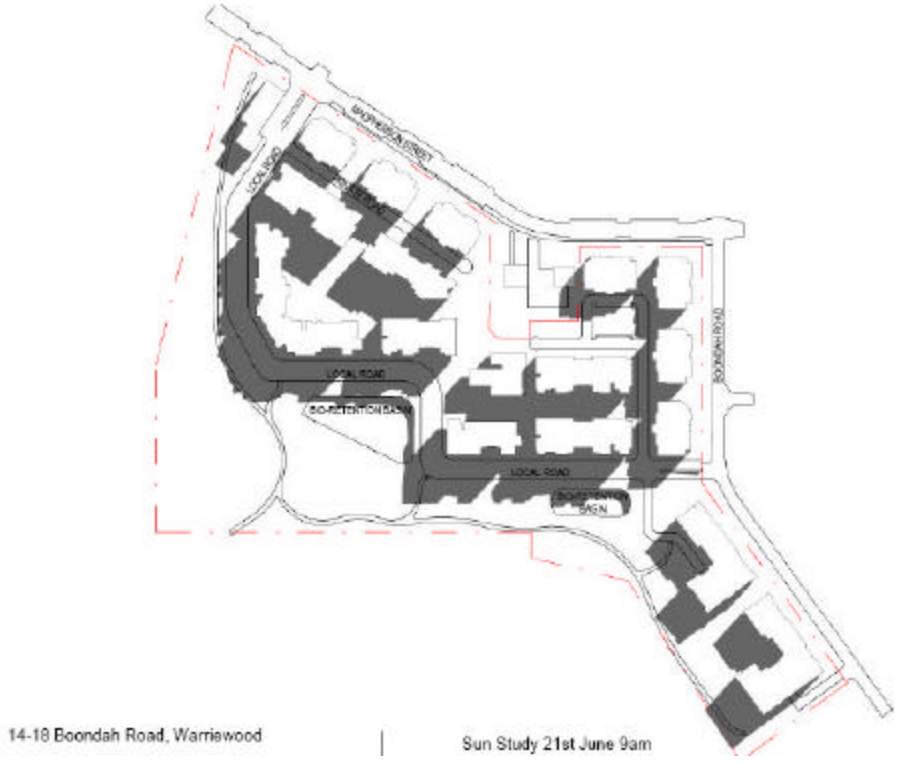

Figure 24. Concept Plan Shadow diagram June 21 (mid winter) 9am
This drawing is provided at A4 scale at **Appendix U**.

Figure 25. Concept Plan Shadow diagram June 21 (mid winter) 12pm
This drawing is provided at A4 scale at **Appendix U**.

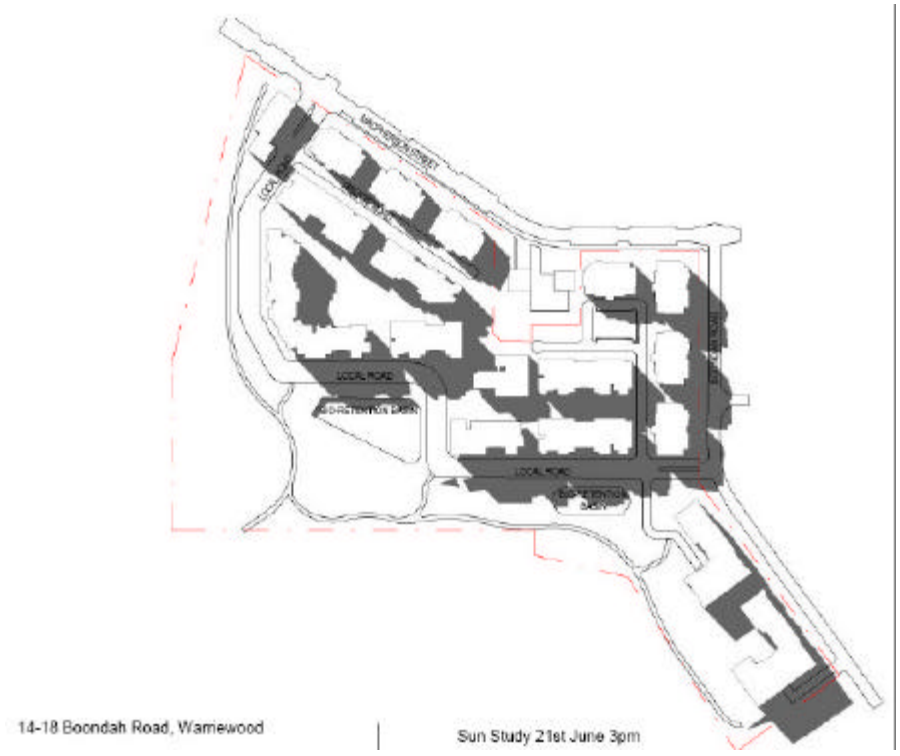

Figure 26. Concept Plan Shadow diagram June 21 (mid winter 3pm
This drawing is provided at A4 scale at **Appendix U**.

7 Environmental Assessment – Stage 1 Project Application

This section of the report provides an Environmental Assessment of the Stage 1 Project Application proposal against the key issues identified in the Director Generals requirements. A copy of the Director Generals Requirements is provided at **Appendix X**. The relevant Environmental Planning Instruments (EPIs), policies and guidelines are addressed in **Section 5** under the regulatory context. The following key issues are addressed:

- Built form
- Open Space
- Land Uses and Density
- Isolated Sites
- Urban Design/Public Domain;
- Bushfire;
- Environmental and Residential Amenity
- Car Parking
- Transport and Accessibility
- Ecologically Sustainable Development (ESD)
- Flora and Fauna
- Contributions
- Flooding, Drainage and Surface Water Management.

7.1 Built Form

Height, Bulk and Scale

The Director Generals requirements state that:

> *"Address the height, bulk and scale of Stage 1 and future stages of the development within the context of the locality. Detailed envelope/height and contextual studies and visual assessment should be undertaken for Stage 1. The studies should include options for the height, siting and layout of building envelopes, open space and the road/pedestrian network and demonstrate appropriate separation between individual buildings, setbacks to roads and footpaths and any environmental buffer zones".*

Section 6 of this report discusses the Concept Plan application, including detailed envelope/height 3D images, open space and the road pedestrian network, separation between buildings and setbacks.

The Stage 1 development proposal varies in height from 3 to 5 storeys. **Figure 27** provides a section through the site looking north/south across the site from Building C (3 storeys) to Building E (5 storeys) to Building G (5 storeys).

The Pittwater DCP 21 specifies a maximum height limit of 8.5 metres. The Stage 1 development propose a maximum height limit of 15.7 metres (RL 21.7), measured to the roof.

The building heights of the seven residential blocks are detailed as follows:

- Building A – 3 storeys, 8.5 metres (RL 15.5)
- Building B – 3 storeys, 9.5 metres (RL 16.5)
- Building C – 3 storeys, 9.5 metres (RL 16.5)
- Building D – 5 storeys, 15.7 metres (RL 21.7)
- Building E – 5 storeys, 15.7 metres (RL 22.7)
- Building F – 5 storeys, 15.7 metres (RL 21.2)
- Building G – 5 storeys, 15.5 metres (RL 20.5)

As described previously in **Section 3** of this report, a number of redevelopment design options have been explored.

The outcomes for height as outlined in Pittwater DCP 21 are as follows:

- *To achieve the desired future character of the locality.*
- *Buildings should reinforce the bushland landform character of Pittwater and be designed to preserve and strengthen the bushland character;*
- *To ensure sites are designed in scale with Pittwater bushland setting and encourage visual integration and connectivity to the natural environment;*
- *Building design, location and landscaping is to encourage view sharing between properties;*
- *Buildings and structures below the tree canopy level;*
- *Equitable preservation of views and vistas to and/or from public/private places;*
- *The built form does not dominate the natural setting;*
- *To encourage buildings that are designed to respond sensitively to natural topography.*

The proposed development is considered to accord with the above height outcomes, as demonstrated through overall design concept which concentrates the height of the development towards the middle and rear of the site, whilst responding to the three storey nature of the development opposite the site at 'Warriewood Brook' to the north on Macpherson Street.

Positive urban design, built form and economic benefits including increased connectivity, aesthetic appearance and economic revitalisation are expected to result from the proposal.

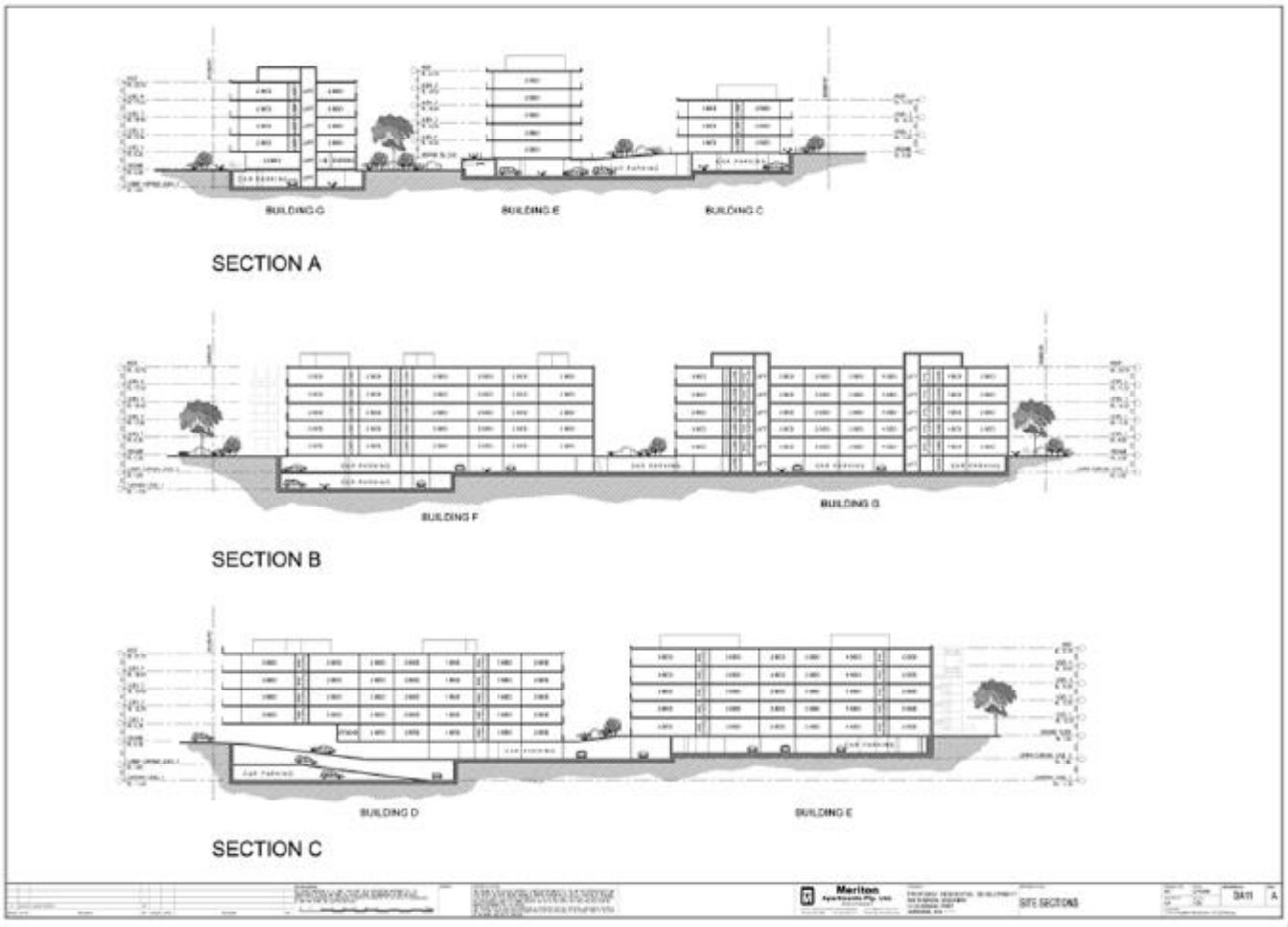

Figure 27. Site Sections

This drawing is provided at A3 scale at **Appendix A** and A2 scale submitted under separate cover..

Figure 28. Warriewood Brook Seniors Living Development on Macpherson Street

Figure 29. Adjacent two storey development on Macpherson Street

Visual/Contextual Analysis

A photomontage of the Stage 1 development has been prepared by Troy Design Media and is provided at **Appendix A** and in **Figure 30** below.

The three (3) storey buildings fronting Macpherson street, respond accordingly with the Warriewood Brook Seniors Living development (**Figure 28**).

The single storey childcare and retail building situated on Macpherson Street provides a good height transition to the adjacent two storey residential development.

The built form is contemporary in its design and is representative of other developments within the urban land release area. The design provides building articulation and interest to the streetscape, by using a variety of materials and feature design elements to highlight different elements of the building.

Figure 30. Photomontage view looking south from Macpherson Street
Source: Troy Design Media

7.2 Open Space

Landscape Plans and a Landscape Design report have been prepared by Site Image Landscape Architects. The proposed landscape design will complement the Warriewood locality in terms of orientation of communal residential open space, enhancement of the public pedestrian experience through the integration of a pedestrian/cycleway network through the site, plant species and the design of the riparian buffer strip. The landscape design complements the architectural design of the building and the function of the publicly accessible, common and private spaces within the site contributing to the aesthetic approach and quality of the external areas within the site.

A total of 20,295m^2 of community open space is proposed. This open space provision equates to 25% of the site, which is consistent with the NSW Residential Flat Design Code 2002 guidelines for the provision of communal open space. Private ground floor courtyards and above ground private open space is designed to accord with the guidelines contained within the NSW Residential Flat Design Code 2002.

The landscape proposal has been designed in accordance with Pittwater Council's Warriewood Valley Development Control Plan (DCP 21) as well as the Warriewood Valley Landscape Design Guidelines (2004). (refer to figures 29 and 30 below)

The open space provision on the site is divided into the following elements:

Riparian and Fern Creek Restoration Works

A 50 metre public riparian zone is to be planned and implemented as a multi-use open space corridor. Restoration works include restoring the creek banks, water quality, water flow and ecology.

It is proposed that the revegetation and creek restoration works, including rock armouring of waterline particularly to the outer bends of the creek to reduce erosion. Extensive weed eradication is also proposed in this area. Native aquatic species will be used to revegetate the creekline margins.

Wetland Buffer

The 25 metre wetland 'buffer strip' was required by Pittwater Council as per the previous development application consent. The buffer strip is to provide a transition from the public riparian zone and the residential precinct. The buffer strip is to be rehabilitated to contain open space areas, gardens and a pedestrian cycle path.

Asset Protection Zone

A 25 metre wide buffer 'asset protection zone' (APZ) is made up of a 15 metre wide inner protection area (IPA) and a 10 metre wide Buffer Zone consisting of carefully selected and located vegetation so as not to create a fire path. The APZ will reduce the bush fire hazard to an acceptable level.

Streetscape

The external streetscape of Boondah Road and Macpherson Street, are to be embellished with a combination of Eucalyptus and Swamp Mahogany and Angophora as per Pittwater Council's DCP 21.

A vegetated landscape buffer is proposed between the private courtyards

and the streetscape of Boondah Road and Macpherson Street. The buffers will consist of subtle low mounding and planting to 1-2 metres height with scattered taller tree planting to 10 metres.

The proposed street trees will assist to break down the scale and soften the built form when viewed from the street, whilst retaining passive surveillance from the residential buildings.

Central Park

The proposed central park will be the main meeting place for residents, providing for a range of both active and passive uses. The path system divides the park into four smaller triangular sub spaces including two large open grassed areas and a gravel picnic area. The open areas serve as a useable space, while the gravel area picnic and BBQ area are for passive use.

A double row of Port Jackson Fig are to be located in the deep soil zone in the central spine of the park, providing shade to users of the park as well as a location for seating nodes.

The park will also contain a generous picnic shelter containing BBQ, seating and tables as well as a large grassed viewing mound suitable for passive uses and relaxation.

Private Courtyards

Private courtyards are provided to the ground floor units within each of the buildings proposed. Small deciduous trees are to be planted outside and adjacent to the private courtyards.

7.3 Land Uses and Density

The DGRs state in relation to the land use and density:

"Identify the range of land uses proposed and demonstrate consistency with the objectives of the "2(f) (Urban Purposes – Mixed Residential)" Zone. In particular, the EA should justify the intensity of the non residential uses proposed in Stage 1 and the later stages of the Concept Plan."

"Provide justification for the proposed dwelling yield and floor space."

Section 6.3 identifies the range of land uses proposed across the concept plan development.

The objectives of the 2(f) residential zone have been addressed in Section 6 above.

The Stage 1 development proposes two non residential uses, including a childcare centre and two retail tenancies fronting Macpherson Street. As outlined in the PLEP 1993, permitted uses within the zone are *residential buildings, associated community and urban infrastructure*; however these uses are not defined in the PLEP or the model provisions.

The proposed Standard LEP Instrument defines residential zones into five categories, R1 General Residential, R2 Low Density Residential, R3 Medium Density Residential, R4 High Density Residential and R5 Large Lot Residential.

The objectives of the R3 Medium Density residential zone are:

- *To provide for the housing needs of the community within a medium density residential environment.*
- *To provide for a variety of housing types within a medium density*

residential environment;

- *To enable other land uses that provides facilities or services to meet the day to day needs of residents.*

The uses that are permitted with consent are:

> *"Attached dwellings, boarding houses, **child care centres,** community facilities, group homes, multi dwelling housing, **neighbourhood shops,** places of worship, Seniors housing."*

The proposed Stage 1 development will provide a residential flat building development that provides a different housing type (being a residential flat building) and mix of unit sizes within Warriewood Valley.

The proposed childcare centre and retail tenancies, which are envisaged, will be of a convenience store nature, café or small boutique shop, are complementary to the residential use of the site and Medium Density scale of development this mix of uses is envisaged in the standard Instrument LEP. .

The site is considered to be capable of accommodating a higher density. Whilst Clause 30C of the Pittwater LEP specifies a dwelling yield of between 135 and 142 dwellings. It demonstrated in this report that the site is capable of holding a greater development density (600 dwellings), with regard to traffic and transport infrastructure, environmental, urban amenity, flora and fauna and open space.

7.4 Isolated Sites

Meriton have contacted the owners of 5 and 7 Macpherson Street to ask if they wish to be involved in this process. Responses were received by number 7 and 5 Macpherson Street. A copy of the correspondence is provided at **Appendix Z**.

The DGRs request that the EA address the development potential of the site. A concept plan diagram (**Figure 31**) addresses the development potential of the site in accordance with the proposed concept plan.

It is considered that a 3 storey residential flat building could be incorporated on this site, in context with the proposed 3 storey buildings adjacent. An extension to the private road access could also be incorporated which would provide vehicle access to the development.

A communal open space area could also be incorporated to the rear of the site, which would also act as a buffer between the proposed pool and gymnasium and five storey residential building to the rear.

Figure 31. 5-7 Macpherson Street development potential
This drawing is provided at A4 scale at **Appendix U**.

7.5 Urban Design/Public Domain

The proposed development will be of a high quality architectural design incorporating quality materials and finishes.

The retail elements on Macpherson Street create an inviting address public to the site.

Overall, the proposed building design, materials and finishes provide an interesting and well articulated built form. This provides visual interest and reduces the overall perceived bulk and scale of the development, with the levels being designed to appear as separate and distinct features of the one overall development, which is necessary on a site of this size.

Significant positive urban design, built form and economic benefits including increased connectivity, aesthetic appearance and economic revitalisation are expected to result from the proposal.

CPTED Principles

The proposed development has been designed having regard to the principles of crime prevention through environmental design (CPTED) and is designed in accordance with the principles laid down in *Crime Prevention and the Assessment of Development Applications (2001)* published by DUAP (now Department of Planning).

The guidelines provide assessment criteria for new development that encourages good design to help avoid creating environments that are conducive to crime or criminal activities.

The four CPTED principles used in the assessment of the development application to minimise the opportunity for crime are:

- Surveillance
- Access control
- Territorial reinforcement
- Space management

An assessment of the proposed development against the CPTED principles is provided below:

Surveillance

Good surveillance will often deter people from taking part in criminal or unsafe activity due to the fact that they can be seen. It also minimises crime perception and makes people feel safe and secure.

Surveillance can be achieved as part of the design of the building by the provision of:

- Clear sightlines between public and private spaces.
- Effective lighting of the public domain.
- Landscaping that makes the place attractive, but does not allow offenders with a place to hide or entrap victims.

The proposed development includes integrated public connections through the site, increasing surveillance to different parts of the site.

Residential apartments are oriented to the street frontages both internally and externally and surround the central park open space. The lower level apartments on the northern side of the site have been designed to maintain privacy given the proximity to adjoining properties but are also designed with screening devices to optimise privacy but also allow for some surveillance of Macpherson Street which provide good surveillance of adjoining streets and building entries. The Central Park space will be surveyed by residents and their visitors, throughout the day, in the evening and at night.

All building entries are clearly defined and there are clear sightlines to the entries so the entries are not concealed as entrapment spaces for Potential crime. Residential lobbies at ground floor level are clearly visible from the central park and private streets. This allows for constant surveillance and vibrancy both in and out of the building that will only deter and prevent crime on the subject site, but also the surrounding public domain.

There are some concealed spaces within the basement levels. This is inevitable in basement levels of this scale. The bicycle parking spaces within the basement parking levels are sited to be visible. Moreover, plant and service rooms are to be key lockable access only and secure so that only authorised personnel may go into these areas.

Access control

Areas that may not be under natural or technical (CCTV) surveillance, or other areas that should not have unauthorised public access have controlled access. Effective access control can be achieved by:

- Landscapes and physical locations that channel and group pedestrians into target areas;
- Public spaces which attract, rather than discourage people to gather.
- Restricted access to internal areas or high-risk areas (like car parks or other rarely visited areas). This is often achieved through the use of physical barriers.

Residential lobbies have secure access from the public domain. The proposal achieves a good degree of access control with a pedestrian movement system that encourages people to move through and around the site. Clear sightlines are provided throughout the development, particularly through the positioning of the residential buildings.

Territorial reinforcement

It is important that open space areas that are accessible to the public are well designed and located in order to provoke the feeling of shared ownership of these areas. As stated in the CPTED guidelines, territorial reinforcement can be achieved through:

- Design that encourages people to gather in public spaces and to feel some responsibility for its use and conditions;
- Design with clear transitions and boundaries between public and private space.
- Clear design cues on who is to use space and what the spaces are to be used for. Care is needed to ensure that territorial reinforcement is not achieved by making public spaces private spaces, through gates and enclosures.

The central plaza will encourage occupants and visitors to gather given them a feeling of ownership of the sites. High quality landscaping and high quality materials and finishes in the central plaza including lighting, furniture and plantings as well as its regular maintenance will promote a sense of ownership of the spaces.

There is a clear transition between public and private areas on the site.

Space management

Space management strategies include activity coordination, site cleanliness, rapid repair of vandalism and graffiti, the replacement of pedestrian and car park lighting and the removal and refurbishment of decayed or damaged physical elements.

It is anticipated that the buildings will be well maintained by the building's strata management, and be kept in an inviting and clean manner in order to minimise the potential for crime and to maintain safety and security.

Conclusion

The proposal has been designed to achieve a high level of safety and security and is consistent with the CPTED principles outlined above.

7.6 Materials and Finishes

The proposed materials and finishes are illustrates on the coloured elevation drawings included at **Appendix A** and the accompanying materials and finishes sample boards. Also refer to **Figure 32**. A simple and refined palette of materials and colours is proposed that will provide visual interest and fine quality detailing to effectively articulate each of the building facades.

The selection of materials and finishes is generally consistent with the range of contemporary materials being used in other recent developments at Warriewood Valley.

The external materials selected includes:

- Powder coated aluminium vertical louvers, window frames and sliding doors/handrails.
- Painted concrete pre cast panels,
- Rendered and coated masonry courtyard fences,
- Colour panel as detailed on the materials and finishes board.

A materials and finishes sample board is submitted under a separate cover.

Figure 32. Building Material and Finishes
Source: Meriton

7.7 Bushfire

Flamezone bushfire consultants have reviewed the proposal, (report is provided at **Appendix C**) and provide recommendations which have been incorporated into the statement of commitments in Section 8.

Flamezone makes the following comments in regards to the proposal in their report:

- *That the bulk of the dwellings are positioned away from the wetlands and interface hazard vegetation.*
- *The road system provides a safe access and egress for Fire Services and residents.*
- *The provision of riparian areas and buffer zones maintain a level of hazard vegetation in some cases and this interface vegetation should be maintained in the first instance as Inner Protection Areas whilst not diminishing the planned environmental and bio-diversity outcome.*
- *The availability of these Asset Protection Zones allows the entire site to be built to level AS 3969-1999.*

The recommendations have been incorporated into the statement of commitments.

7.8 Environmental and Residential Amenity

Solar access and visual privacy, are required to be examined and are addressed as follows:

Solar Access and overshadowing

The development has been designed to achieve maximum solar access to each of the residential units, thereby orientating the bulk of the development to the southern eastern and south western portions of the site (Stage 1 development area).

The majority of the residential units enjoy a northerly or north easterly north westerly aspect with a few units oriented, thereby optimising maximum natural sunlight access to the majority of unit's living room areas. The majority of units will enjoy a minimum of 3 hours natural sunlight during the winter months in accordance with SEPP 65.

The central park will receive access to natural sunlight during the winter months as indicated on the shadow diagrams.

Shadow diagrams are contained in the Architectural Plans provided at **Appendix A**. The shadow diagrams indicate that as a result of this proposal a portion of the riparian wetland zone will experience some additional overshadowing, particularly during the winter months.

Visual Privacy

Screening, such as planting and the proposed aluminium sliding sunshades the external façade of the buildings are incorporated into the

design to create visual privacy for residents and neighbouring residents.

The buildings have been orientated away from the two private properties situated at 5-7 Macpherson Street to avoid direct overlooking. densely foliating trees as indicated on the landscape drawings are proposed around the boundary of this property.

Acoustic Privacy

The units have been designed with basic urban design principles in mind to reduce acoustic impact, such as configuring bedrooms to bedrooms and bathrooms to bathrooms.

Views

Views between the residential buildings, through to the wetland area to the rear of the site have been maximised through the orientation and location of the residential buildings.

There will be no loss of views from neighbouring properties to the development as a result of this proposal.

The proposal is considered to comply with SEPP 65 principles for residential amenity.

7.9 Car Parking

An assessment of traffic and access implications is provided at **Appendix E** and has been prepared by Transport and Traffic Planning Associates Pty Ltd.

The Stage 1 development parking will be provided over two basement levels and comprises 320 parking spaces. With the provision as follows:

- Studio = 13 spaces
- One bed unit = 67 spaces
- Two bed unit = 216 spaces
- Three bed unit = 34 spaces
- Visitor = 32 spaces
- Total 352 spaces.

Pittwater DCP 21 on-site parking requirement for multi unit housing (3 or more dwellings) and residential component shop top housing:

- Studio and 1 bedroom unit = 1 space per unit
- Two bed unit = 2 spaces
- Three bed unit + = 2 spaces
- Visitor = 1 per 3 dwellings

The parking provision for Stage 1 development is based on the following rate:

- Studio, 1 and 2 bedroom units = 1 space per unit
- Three bedroom unit = 2 spaces
- Visitor = 1 space per 10 units

The RTA Guidelines for Traffic Generating Development 2002 specify a parking provision for high density residential apartments (sub-regional) as follows:

- One bed unit = 0.6 spaces
- Two bed unit = 0.9 spaces
- Three bed unit = 1.4 spaces
- Visitors = 1 space per 5 to 7 apartments

It is noted that the DGRs seek to contain the traffic generation while promoting the use of public transport, walking and cycling and a constraint on parking is a typical means to achieve this outcome.

Transport and Traffic Planning Associates report notes that detailed studies have been undertaken cross matching Census data for 'type of dwelling' and 'number of bedrooms' and 'cars parked' for the Warringah LGA (Pittwater LGA does not have any high density residential developments to obtain data from). The established rate of car ownership was:

- One bedroom unit = 0.63
- Two bedroom unit = 1.0
- Three bedroom unit = 1.31

Based on the RTA guidelines and data obtained from Warringah LGA high density residential developments, it is apparent that the proposed car parking provision within the Stage 1 development is quite suitable and appropriate, particularly given that there is a neighbourhood shopping centre (containing two supermarkets) within walking distance and also a frequent bus service, with a bus stop located on Macpherson Street outside the site.

7.10 Transport and Accessibility

A traffic impact assessment and transport management and accessibility plan is provided at **Appendix E** and has been prepared by Halcrow.

Warriewood Valley is serviced by Sydney Buses, which operate three routes within the Warriewood Valley.

- **Route 185** which operates along Pittwater Road, Jacksons Road, Garden Street, Macpherson Street (east), Warriewood Road, Foley Street, Mona Vale Road, Samuel Street, Parkland Road and Waratah Street to Mona Vale, and on weekdays provides only morning and even services with no services operating during the middle of the day.
- **Route L85** operates along Pittwater Road, Jacksons Road, Garden Street, Macpherson Street (east), Warriewood Road, Foley Street, Mona Vale Road, Samuel Street, Parkland Road and Waratah Street to Mona Vale. This operates with limited stops between Wynyard (CBD) and Mona Vale. On weekdays this service operates throughout the day, with a bus every half hour in each direction, and more frequently during peaks.
- **Route 182** which operates along Pittwater Road, Jacksons Road, Garden Street, Macpherson Street (west), Mona Vale Road, Park Street to Mona Vale via Elanora Heights and Narrabeen. The route operates with an hourly service in each direction throughout weekdays.

In addition, numerous Sydney Bus routes operate through Mona Vale along Pittwater Road and Barrenjoey Road, as shown in **Figure 33** including:

- Route 187/L87/E87 – Sydney CBD –Newport
- 188/L88/E89 – Sydney CBD – Avalon
- E88 Sydney CBD – Careel Head Road
- Route 190/L90 Sydney CBD – Palm Beach
- Route L60 Dee Why – Mona Vale
- Route 155 and 156 and E86 Manly – McCarrs Creek
- Route 184/L84/E84 Sydney CBD – Mona Vale

The bus frequency tables in Halcrow's report at **Appendix E** indicate that on weekdays there is typically three buses each way per hour except during the early morning and late evening. On weekends, frequencies reduce to one or two buses each way each hour.

Sydney Buses has indicated that service levels can be reviewed once the subject development is completed, noting that the development offers the opportunity to provide a higher level of service in Warriewood.

Halcrow's report addresses the potential traffic conditions arising from the proposed development and approved development within Warriewood Valley. The results indicate that the greatest traffic increases would be expected to occur during the evening peak hour in the immediate vicinity of the proposed neighbourhood shopping centre on Garden Street at Macpherson Street.

Access to the development will have proposed 'local street' status in the Warriewood Valley Roads Master plan, which specifies a road width of 7.5 metres for 'traffic, parking and cyclists'. The proposal is compliant with this design standard and the geometry is suitable to the design speed objective of 40 kmph.

The basement car parking areas will be integrated with 2 access ramp connections to the access road system. The car park arrangements comply with the design criteria of AS 2890.1 including the bay, aisle, ramp provisions. The access ramps for the car park will be located where there is excellent visibility and the design of accesses will comply with AS 2890.1 Criteria.

A loading bay are is proposed adjacent to the garbage storage room at the eastern end of Building F. This area will suitably provide for refuse removal vehicles, small furniture and delivery vehicles. Details of the turning path assessment for vehicles accessing this area are provided at Appendix A of Transport and Traffic Planning Associates report.

Small service vehicles as well as occasional large service vehicle (i.e. delivery vans) will be accommodated in the on-street visitor parking bays.

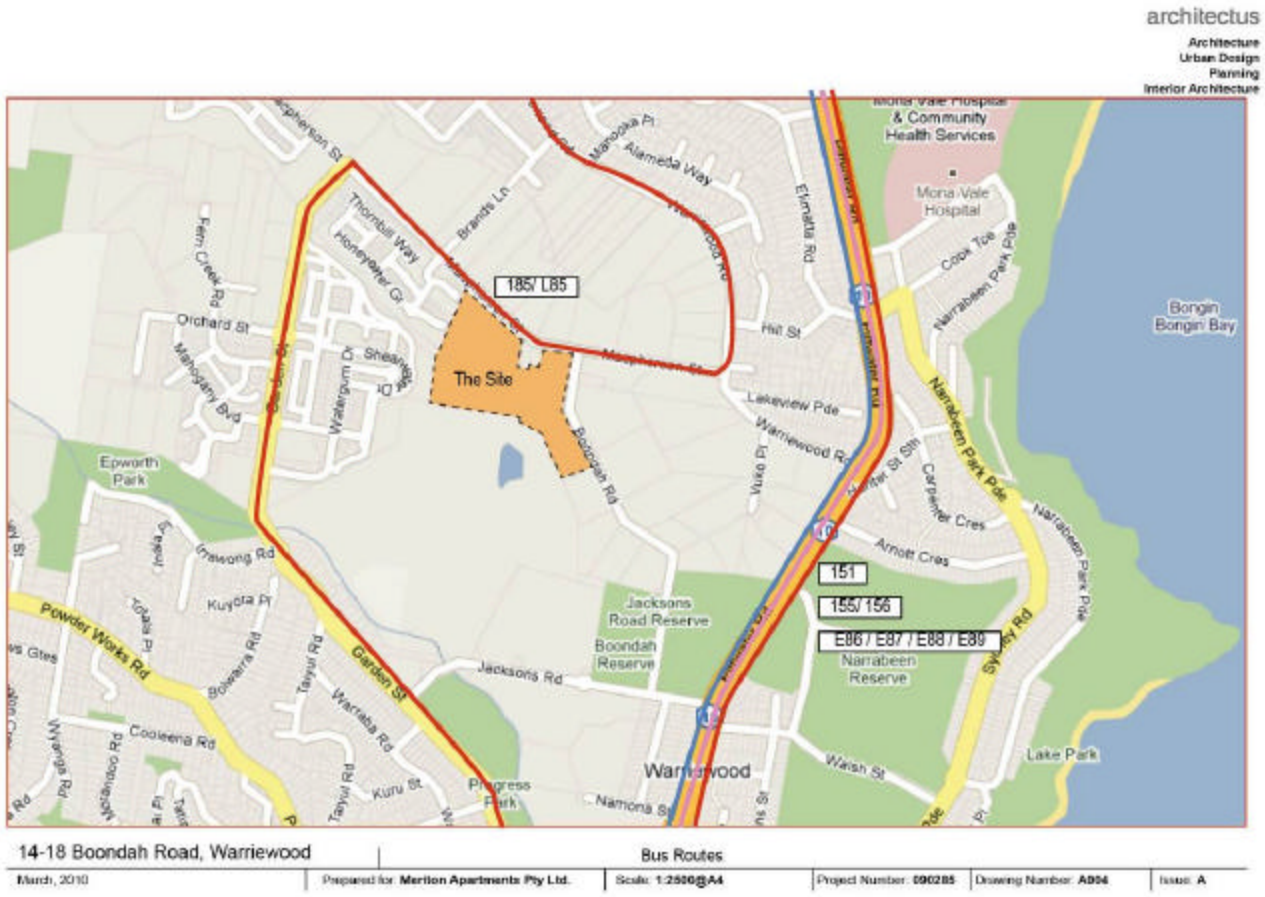

Figure 33. Bus Routes Map

7.11 Ecologically Sustainable Development (ESD)

The proposal is required to be designed to incorporate ESD principles in the design, construction and on-going operation phases.

A detailed BASIX assessment and Certificates for the proposed development have been prepared by Efficient Living Building and Sustainability consultants (provided at **Appendix G**).

Cundalls report specifically addresses:

- ESD opportunities considered for the proposed development;
- Initiatives which demonstrate compliance with NatHERS and BASIC requirements for the residential component (BCA class 2).
- The A holistic design approach is aimed at providing best practice level of sustainability. The legislative compliance requirements are as follows:
- Class 2 (residential)
  - NatHERs Thermal Comfort Analysis
  - BASIX Energy, Water and Thermal Comfort Assessment
- The key energy and water efficiency initiatives currently included in

the development are:

- Water efficient fittings and appliances
  - Rainwater collection for re-use
  - 2 star WELS clothes dryers
  - 2.5 star WELS clothes washers
  - 3 star WELS showers and dishwashers
  - 4 star WELS toilets, taps
- Energy efficient appliances
  - Efficient lighting and good natural lighting
  - Gas cook tops

The resulting BASIX scores are:

- Energy 35
- Water 41
- Thermal Comfort – Pass (no targets)

A range of ESD solutions have been included in the design such as:

All the spaces are intended to be mixed mode, which will reduce energy consumption for air-conditioning.

External shading shall be incorporated to optimise daylight availability and reduce lighting energy consumption during the day.

Rainwater harvesting, each building to have a 70,000 L rain water tank capacity.

Photovoltaic panels to generate energy on the complex.

Indoor/sheltered clothes lines to be provided to all units.

All car parking areas to have zoned switching and motion sensors.

All hallways to have zoned switching, lighting to all other areas to have manual on/off switches.

7.12 Flora and Fauna

A detailed Flora and Fauna report has been prepared by total earth care and is provided at **Appendix H**. A detailed arborist report has also been prepared by Tree and Landscape Consultants and is provided at **Appendix Y.**

Total Earth Care report details the following:

- The presence or likely occurrence of threatened species, populations and ecological communities (or their habitats) as listed under the Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act 1999 and NSW Threatened Species Conservation (TSC) Act 1995;
- Potential impacts on flora and fauna including threatened species, populations or endangered ecological communities and their habitats including Warriewood Wetlands;
- Recommendations regarding the mitigation of any identified impacts on significant vegetation, associated plant communities, any

significant fauna populations and their habitats and
- Demonstrate the implementation of measures to protect and rehabilitate the adjoining Fern Creek and the Warriewood Wetland area and riparian corridor.

A number of past reports (2003, 2004, 2006, 2008) have assessed the biodiversity significance of the site.

Total Earth Care report identifies one endangered ecological community that being the 'Swamp Oak Forest'. The SOF was assessed for the level of impact from the proposed actions under the TSC S5A Assessment (Seven part test). Measures have been included for the protection and extension of this area as proposed in the buffer area zones.

According to the latest Department of Environment and Climate Change and Water *Recommended Environmental Assessment* requirements the following threatened or endangered species have been recently recorded within 500m of the subject site, and have therefore been assessed as part of the S5A Assessment (7 part test) – refer to Appendix C of the Total Earth Care report. The species are:

- Barking Owl
- Powerful Owl
- Swift Parrot
- Grey headed flying fox
- Regent Honeyeater
- Black bittern
- Lesser Sand Plover

The S5A assessment in total earth cares report concludes that the current proposal is unlikely to result in a significant effect on the threatened biodiversity recorded on the site. The subject site is a highly modified semi-rural landscape with very limited natural resources; no critical habitat was assessed on the site.

Total Earth Clare reports concludes that the proposed actions to supplement the removal of the exotic Poplar trees with potential feed trees, the removal of exotic weeds and the rehabilitation of Fern Creek and the wetland buffer area significant ecological improvements on the current biodiversity within the subject site. The proposed improvements provide food and foraging substrata for local and migrating threatened species.

The impacts of the proposed development on the site are not likely to be significant at a local, regional or national level given the biodiversity significance of the site as assessed previously in 2003/2004, 2006, 2008, September 2008 and currently in January 2010.

As stated in the Arboricultural Assessment at **Appendix Y**, of the 749 trees assessed on the site, the most impacted were the Poplar Plantation on the disturbed areas of the site. The majority of the trees on the site were diseased or declining. The tree are assessed in detail in Section 3 table 2 of the Arboricultural Assessment, setbacks for the establishment of tree protection zones for trees to be retained are also recommended in the report and are provided for in the Statement of Commitments in **Section 8** of this report.

7.13 Contributions

Meriton have prepared a report on the proposed Section 94 contributions. The report is provided at **Appendix I**.

Pittwater Councils current S.94 plan for Warriewood Valley does not make provision for apartment development. The current 'per dwelling' rate as stipulated in the policy is $67,334.29.

If the current 'dwelling rate' was applied to the current Concept Plan for 600 dwellings, it would yield a total Section 94 charge of approximately $40.4 million, after which subtracting the $3.6 million in fixed costs would yield $36.76 million in variable costs or $27, 845 per head ($36.76 million/1320 people).

Merriton's report states that:

"This rate is 4 times greater than the variable amount set under current development consent for the site and is wildly out of kilter with the developer contributions in other Sydney LGA's i.e. (City of Sydney, Ku-ring-gai) and even other parts of Pittwater LGA. The S94 is clearly unworkable and stifling development in the Warriewood Valley."

Pittwater Council through its S94 Contribution Plan is seeking to achieve public recreation open space at the rate of 2.8 hectares per 1000 head of population in the Warriewood Valley and wider Pittwater LGA. It is because of this desire, that one third of the total S94 Contributions charged by Pittwater Council is being directed towards the acquisition and embellishment of new public open space.

Therefore the new population (in developments in Warriewood Valley) are being directly accountable for funding the provision of new open space despite the wider Pittwater region benefitting from the new open space.

On the 20 July 2009, Pittwater Council granted Meriton a deferred commencement development consent on the subject site for 140 dwellings (DA0658/06). Condition 13 of that consent requires S94 contributions totaling $7,882,962.

At present, based on the average number of persons per bedroom occupancy rates (2006 census data for Warriewood), Meriton's deferred commencement consent for 140 dwellings will house approximately 616 people. So the variable cost per person is $6,884 (being $4,240,320.40 divided by 616 people).

Applying the same variable cost per person as the current consent (of $6,884) gives a total variable cost of about $9,086,880 (being $6,884 x 1320 people)

When the above stated variable costs is added to the fixed cost of $3,644 million the total S.94 payment for the current proposal for 600 apartments is in the order of **$12,730,880**. This equates to a S.94 contribution per dwelling of $21,218.

Justifications

Meriton have provided the following justifications for the proposed contribution of $12,730,880.

- The Concept Plan provides Public benefits above and beyond those that are anticipated in the Warriewood Valley S.94 plan, including a childcare centre and convenience shops.

- The proposal is not as heavily reliant on local recreation because of the inclusion within the development of vast landscaped grounds, private pool and gym.
- Meriton has entered into a deed with Sydney Water to pay $3 towards the capping of the Sewage Treatment Plant.
- It is appropriate to treat apartment development differently in Warriewood Valley because there are so few apartments (2006 census data for Warriewood Valley reveals that 7.2% of the residential accommodation is provided in the form of apartments) and
  - They should be encouraged to provide an alternative, affordable and key worker accommodation; and
  - There is no danger of precedent being set as only a very small fraction of housing stock in Pittwater will ever be apartments as a result of high land prices.

- Development of the site for approximately 600 apartments will help kick start the development in Warriewood Valley, which has come to a halt in recent times.
- Furthermore, as discussed in Meriton's report, Meriton will seek S.94 Credit for undertaking works that do not directly relate to the development for the site. Meriton's proposed works include:
- New (half) road surface (with the exception of raising Boondah Road, which may be required to control local flood waters.

- Kerb and guttering
- New footpaths
- Parking bays and
- Landscaping

Meriton will seek S.94 Credit for:

- *The placement of new street lighting directly adjoining the site;*
- *Undergrounding of existing overhead wires directly adjoining the site;*
- *Construction of a roundabout at the intersection of Boondah Road and Macpherson street;*
- *Any required road drainage works directly adjoining the subject site;*
- *Construction of bus bays directly adjoining the site and*
- *All relevant consultant fees for the design of the desired civil works.*

The above listed works benefit the wider community and they are not directly brought about as a result of the proposed development.

The proposed market conditions are such that there is no new construction activity in Warriewood Valley, partially due to the fact that the S94 contributions are too high and new development is rendered unviable.

If the S94 contributions are proposed to total $12.73 million.

7.14 Flooding, Drainage and Surface Water Management/Ground water management

The Environmental Assessment is required to address flooding and drainage issues associated with the development site, including:

- Stormwater,
- Flooding, the potential effects of climate change, sea level rise and an increase in rainfall intensity,
- Drainage infrastructure; and
- Water Sensitive Urban Design measures.

A Stormwater Concept Plan and Stormwater and Environmental Management report has been prepared by Brown and is provided at **Appendix J**.

The overland flow path to the western boundary to convey flows from Macpherson Street to Fern Creek during the Probable Maximum Flood (PMF) is indicated on the drawings provided by Brown Consulting at **Appendix J**.

The Stormwater Management plan for the site has been prepared in accordance with Pittwater Councils Water Management Specification. The Stormwater Components used in the development will meet the principle objectives.

The existing flood levels for the 100 year ARI 2 hour duration storm event are presented in Browns Report. The flood levels within the site vary from 3.40 AHD within Fern Creek at the western site boundary to 3.11 AHD within Warriewood Wetlands.

For both the high and low tide scenarios the flood levels are generated by the ponding levels within the Warriewood Wetlands/Narrabeen lagoon. During the 100 year ARI even the flood levels within the wetlands drown out the majority of Fern Creek, with only the upper reaches (at the western site boundary) providing flow conveyance.

The filling strategy adopted as part of this application was to fill the land within the floodplain to a minimum level of 4.32 metres. To ensure no net loss of floodplain storage below the 100 year flood level, it is proposed to excavate non-filled areas within the floodplain to compensate for filled areas to provide the balance of floodplain storage (see figure 34 below)

The positive effect of this strategy is that the flood storage is moved from higher areas in the floodplain to a lower level in the floodplain. This provides greater flood storage for more frequent floods (10 year ARI) that currently exists, and potentially reduce flood levels for those flood events.

The flood planning level for the proposed development is 0.5m above the 100 year ARI flood level within Fern Creek. The flood planning level for the proposed development varies from 3.61m to 3.90m AHD. However the proposed minimum flood level has been set at 4.5 metres AHD, well above the flood planning level.

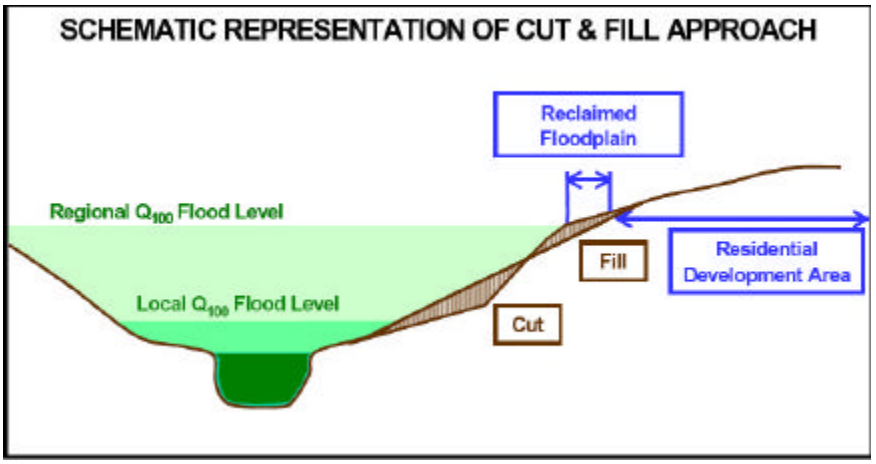

Figure 34. Schematic Representation of Cut and Fill Strategy
Source: Brown Stormwater and Environmental Management report (Figure 1).

Given the estimated increases in flood levels, it is expected that flood levels within the site would increase to 3.56m-3.85 AHD as a result of the high climate scenario (worse case) for the 100 year ARI storm event. The proposed minimum flood levels have been set at 4.5 metres AHD, well above the expected 100 year ARI flood level which is increased as a result of climate change.

Proposed stormwater treatment strategy

The proposed stormwater treatment strategy consists of:

- Stormwater re-use of dwelling roof runoff by utilising rainwater tanks;
- Primary pollutant traps capable of removing gross pollutants, sediment and oils to pre-treat road and lot drainage and
- 2 x bio retention basins (OSD) which will receive flows from the pollutant traps.

The pollutant traps shall be inspected every three months to establish the frequency of cleaning required. At minimum the traps will require cleaning every 6 months.

The bio retention basins will be self cleaning when planted appropriately and fitted with black flush system (pipe riser). Maintenance will be limited to landscaping and weed control.

The proposed on-site detention system for Stage 1 development will utilise 2240m³ of storage located within a bio filtration basin. The system has been designed to ensure the storage is above the 100 year ARI flood regional levels within the Fern Creek floodplain.

Extensive landscaping to the proposed drainage lines and public domain will complement the stormwater drainage design.

7.15 Aboriginal Heritage/Archaeology

An Aboriginal Archaeological and Cultural Heritage Impact Assessment has been prepared by Banksia Heritage and Archaeology and is provided at **Appendix K.**

The report presents the results of an updated Aboriginal Archaeological and Cultural Heritage Impact Assessment that has been completed in partnership with the Metropolitan Land Aboriginal Council for the site.

The report notes that none of the investigations have resulted in the identification of any Aboriginal Archaeological objects or sites. It was concluded in 2004, *Aboriginal Archaeological and Cultural Heritage Impact Assessment* prepared for the site, that previous investigations undertaken within close proximity to the study area were likely to retain limited archaeological potential. A number of reasons for this are provided in Banksia Heritage and Archaeology report.

In the Heritage Impact Assessment provided in Banksia Heritage and Archaeology report, it was concluded that there are no 'clear or obvious' Aboriginal heritage constraints for the current development proposal of the site proceeding as planned, subject to the management recommendations that are provided in the report.

The recommendations made in the report, will be adopted in the Statement of Commitments in Section 8 below.

7.16 Utilities

Consultation has been undertaken with Energy Australia, Sydney Water, Natural Gas, the correspondence is provided at **Appendix L**.

Energy Australia confirms that they have the infrastructure to provide supply to the proposed development.

Natural Gas is available adjacent to the above subdivision and could be extended to supply any proposed development at this site.

A Section 73 Notice of Requirements will set out Sydney Water requirements regarding authority connection requirements once approval has been submitted.

Sydney Water confirms that the Stage A odour control works from the Warriewood Sewage Treatment Plant has been undertaken following the commissioning and operation of the Stage A odour control works using the AUSPLUME atmospheric dispersion model. The results indicate that the required odour reductions have been achieved.

Meriton is required to engage the services of an appropriate consultant to carry out the CALPUFF modeling of the Warriewood Sewage Treatment Plant for a level 3 odour impact assessment.

7.17 Staging and Infrastructure Provision

A staging plan is provided in the architectural plans at **Appendix A**

Stage 1 includes the following infrastructure works:

- Construction of seven residential buildings;
- Bulk earthworks and Riparian corridor landscaping and landscaping embellishment;
- Construction of local street and internal private roads;
- Creation of communal residential open space.

Stage 2 includes the following works:

- Construction of nine residential buildings;
- Construction of private roads;
- Landscape embellishment;
- Pocket parks.

8 Draft Statement of Commitments

Implementation of the following development commitments are recommended as part of this application.

8.1 Future applications

Meriton commit to preparing a separate project application for the Stage 2 area as detailed in the Concept Plan.

Strata and stratum subdivision including all necessary easements to facilitate public access arrangements and dedication of the proposed local streets and land to Pittwater Council that have been agreed to by the consent authority in the determination of this Major Project Application MP 09_0162.

The final subdivision plans are to be registered with the Lands Titles Office prior to the occupation of the site.

Separate applications for the retail and childcare use and fit outs will be made.

8.2 Construction

A detailed Demolition and Construction Management Plan, will be prepared by Meriton for approval prior to the commencement of any demolition or construction works on site.

8.3 Construction Vehicle Management Plan

A detailed construction traffic management plan will be prepared prior to the commencement of construction on the site. This will allow the construction management plan to reflect the actual construction methodologies and volumes of materials and equipment to be used.

The management plan will be submitted to the Pittwater Local Traffic Committee for their agreement before the commencement of construction.

8.4 Ecological Sustainable Development

The development commits to the sustainability measures as detailed in the schedule contained in the BASIX certificate as provided at **Appendix G.**

8.5 Waste Management

The recommendations as detailed in the Waste Management Plan, prepared by Wastech engineering provided at **Appendix Q** will be incorporated into the proposed residential development.

A detailed waste management plan for both the demolition, construction and operational phases are to be provided prior to the issue of a construction certificate.

8.6 Flora and Fauna

The development adopts the recommendations of the flora and fauna report prepared by Total Earth Care provided at **Appendix H.**

8.7 Arboricultural Assessment/Vegetation Management Report

The recommendations made in relation to tree removal and tree protection zones will be adopted by the proposed development in accordance with the Tree and Landscape Consultants report provided at **Appendix Y.**

8.8 Aboriginal Archaeological and Cultural Heritage

The management recommendations made in the Aboriginal Archaeological and Cultural Heritage Report prepared by Banksia Heritage and Archaeology at **Appendix K.**

8.9 Geotechnical

The recommendations of the Geotechnical Assessment prepared by Jeffery Katauskas Pty Ltd provided at **Appendix W** will be incorporated into the proposed development.

8.10 Infrastructure Provision

The development commits to the provision of all site infrastructure works as detailed in this report.

8.11 Bushfire Protection Measures

The bushfire protection measures as detailed in Flamezone report at **Appendix C** will be adopted in the proposed development.

8.12 Ecological restoration works

The proponent commits to undertaking the ecological restoration works as detailed in the Staging plan contained in **Appendix A**.

9 Conclusion

The proposed development at 14-18 Boondah Street, Warriewood offers Ptitwater LGA a high quality affordable residential development, providing a mix of units, with high quality landscaped areas, through site connections and accessibility.

The proposal includes the following:

Concept Approval

- Sixteen residential buildings of 3 and 5 storeys in height providing 600 units;;
- Childcare Centre (370sqm);
- Two retail tenancies (tenancy 1 - 103sqm and tenancy 2 - 89sqm);
- Gymnasium and swimming pool for private use by residents and visitors;
- Concept design for public and private landscaping;
- Concept design for internal road network, comprising public and private roads.

Stage 1 Project Application

- Demolition of the existing dwellings and structures and removal of vegetation on the subject site;
- Construction of earthworks and flood mitigation works;
- Construction of an internal access road and connection with Macpherson Street and Boondah Road and private road network;
- 313 units situated across 7 residential buildings with basement car parking;
- Landscaping embellishment to public and private land;
- Construction of a public pedestrian cycle way through the site.

The development will make a positive contribution to Warriewood Valley and Pittwater Local Government Area (LGA) by providing the following:

- **Greater Housing Choice** (the development provides a mix of studio, one, two and three bedroom units);
- **Greater Housing Affordability in Pittwater LGA** through the provision of studio, 1, 2 and 3 bedroom units;
- **Connection to and extension of the pedestrian cycleway network through Warriewood Valley.**
- **Significant Fern Creek riparian restoration works,** including the provision of a 50 metre buffer from the centre of the creek line, establishment of native riparian flora and fauna.

We consider that the redevelopment of the site will deliver sustainable forms of housing for Warriewood Valley which are much needed in Pittwater LGA.

The Project Application is consistent with Part 3A of the *Environmental Planning and Assessment Act 1979*, the Director-Generals Requirements and other relevant provisions and guidelines. Accordingly, it is recommended that the Minister for Planning approve the subject Project Application.