

2.1 LOCAL CONTEXT

The site

The site is located in the southern part of the Warriewood Valley Release Area with a total area of approximately 3.56 hectares, which represents more than half of the privately owned land in the Southern Buffer Area. The site is linear in shape. It has the primary street frontage of 161.8m to Boondah Road and a minor street address to Jacksons Road of 55.1m. It is positioned between the existing shopping centre and wetland to the west, public open spaces associated with Narrabeen Creek and community facilities to the immediate east and sewerage plant to the far east, Meriton apartments to the north and low scale residential dwellings and schools to the south. The site currently contains dense vegetation, single dwelling houses and various farm and outbuildings associated with their current uses.

Connectivity

Benefiting from a number of key connections within the area, the site has direct road accesses to Pittwater Road which easily connects it to Mona Vale Town Centre to the north and Dee-Why/Brookvale to the south (see Figure 16).

The site has the primary street address to Boondah Road, which runs parallel to Narrabeen Creek and connects Jacksons Road to the south and Macpherson Street to the north. The existing local network provides the site with good accessibility to the surrounding destinations including Warriewood Centre, Warriewood Commercial Complex, public open spaces, schools and Mona Vale Hospital.

The area is well served by public transport with buses running along Macpherson Street, Pittwater Road and Jacksons Road. The closest bus stop to the site is located on Jacksons Road and Pittwater Road. The existing bus routes provide connections to the City and other centres.

There is an existing pedestrian/cycling link across the Narrabeen Creek corridor and through the southern part of the site, which allows pedestrian connection to Vuko Place which accommodates the commercial precinct and United Cinemas to the north-east and Warriewood Centre to the west. There is an informal network of walks through the Warriewood Wetlands; however, it is disconnected to the area to the east where the site and local centres are located.

The recently expanded Warriewood Centre structure parking with blank walls and driving way along the boundaries creates a real barrier for pedestrian movements within the area and discourages the use of the existing pedestrian link. The centre as a stand-alone shopping centre has resulted in a disparate series of residential or commercial areas that do not have a shared identity.

Land uses

The land uses in the area vary. To the north and west are predominantly residential areas many of which are recently developed as part of the residential strategy for Pittwater Council. The site is located in close proximity to a number of retail/commercial centres which include Warriewood Centre (stand-alone shopping centre), Warriewood Commercial Complex and Mona Vale Major Centre to the far north. The SHOROC Employment Lands Study Addendum indicated that demand for retail floor space and bulky goods retail would increase due to an ageing population within the area. The flexible commercial units and spaces are required to be located within a range of town centres. In addition, it is understood that there is a lack of bulky goods retail within the area to fulfil people's demand. As such, the site's proximity to Warriewood Centre and easy road access gives it an opportunity to accommodate bulky goods retail to complement the desired development within the area.

The site is located on a green corridor running in a west-east direction which includes the Warriewood Escarpment, Warriewood Wetlands, Warriewood Valley Sports Ground, Boondah Reserve and North Narrabeen Reserve. The Warriewood Wetlands is categorised as a bushfire source which means the site adjacent to the east of the wetland has to provide sufficient setbacks to avoid adverse impacts. The inward-oriented Warriewood Centre disconnects the open space network to the north. The



Figure 16. Land use and connectivity (Source: GMU)

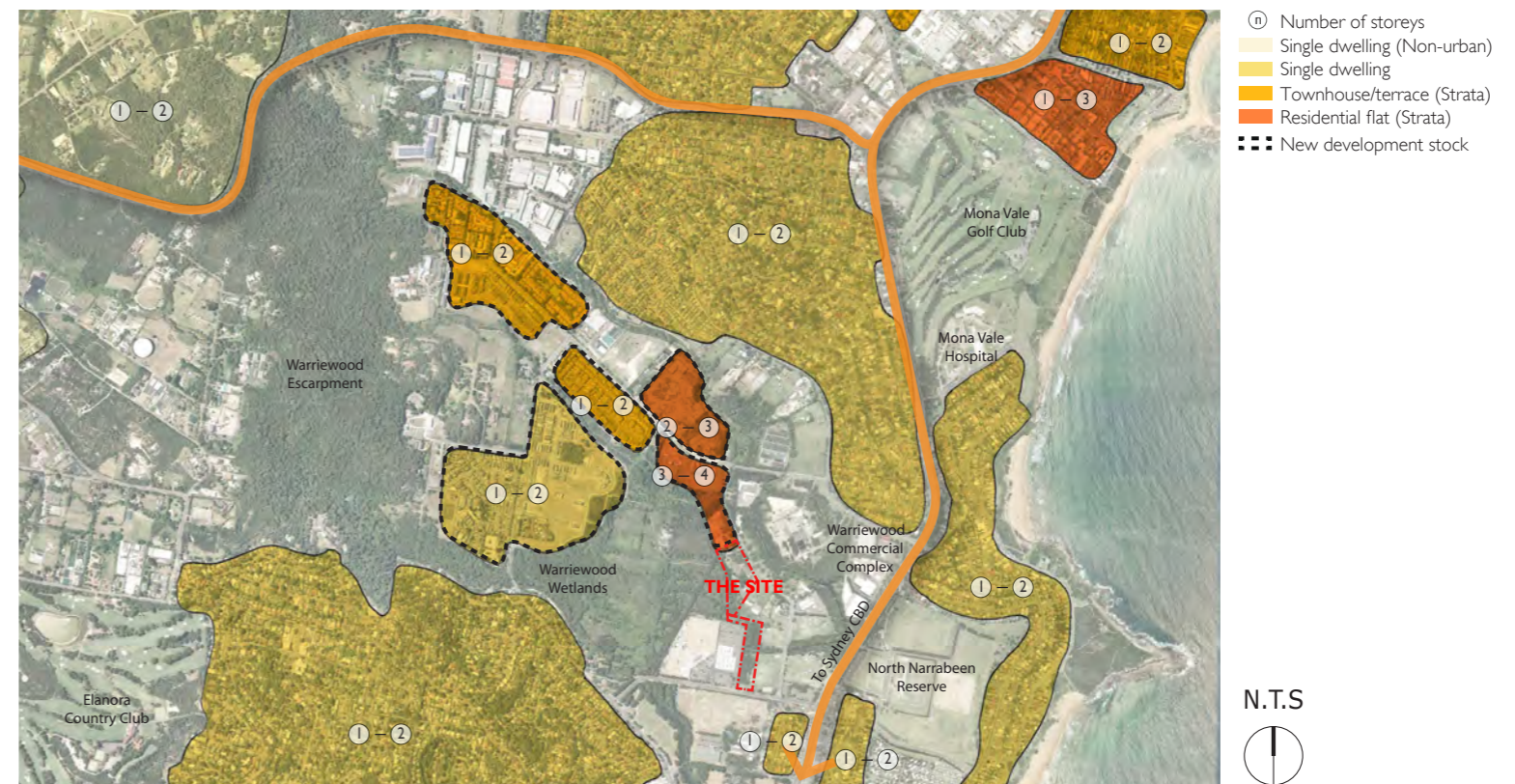


Figure 17. Built form (Source: GMU)

subject site provides an opportunity to create a new pedestrian connection between the different green spaces and close into the wetlands.

There are a number of Golf Clubs in close proximity and public beaches along the coast. There is a list of educational and major service facilities around the site with easy road access, which includes Mona Vale Hospital, Narrabeen North Primary and High Schools, Pittwater Council, etc.

Built form and density

The majority of the commercial and retail development is out-dated with the exception of the recent addition to Warriewood Centro which was completed in 2016. However, most of the development is of low architectural value. Many of these developments are only one to two storeys particularly in the Warriewood Commercial Complex at Vuko Place. The Warriewood Centre (1 storey) with recently expanded new facilities and structure parking defining its northern and eastern boundaries creates an isolated precinct that presents inactive/blank facades visible from the surrounding areas. It also discourages the use of existing pedestrian links within the area.

The traditional residential development within the area is generally 1-2 storey single dwellings with an average density of 5-12 dwellings per hectare. It is noted that the surrounding areas have undergone growth and transformation in recent years in terms of the residential built form. There is an emerging density residential spine along Macpherson Street to the north of the site, closer to the existing two retail/commercial centres. The Meriton development (3-4 storey residential flat buildings) to the north of the site reaches a density of approximately 60 dwellings per hectare, which is more than twice of the proposed density identified in the Warriewood Valley Strategic Review Addendum Report. The residential buildings to the immediate north are 3-4 storeys in height with terraced landscape fronting Boondah Road.

With the increasing residential density, Warriewood Valley will need more supporting services and facilities for the local community. The site's unique location between the centre and surrounding residential areas and proximity to a range of community facilities, highlights an opportunity to create a vibrant mixed-use precinct that can provide a number of land uses in one development, such as bulky goods retail centre, residential development, public open spaces and additional supporting vegetated land to the playing fields.

(Figure 18 shows approximate densities only. It is based on the DCP required densities and the available information of the latest approvals in the area.)

Topography and flooding

The topography of the local context is generally fairly flat with slopes less than 15%. The escarpment rises to the west, but the area around the site is low lands. The lowlands are subject to inundation in a long period and some flooding impacts from Narrabeen Lagoon.

The study identifies the flood affected area into three categories, which are:

- Category 1 - High hazard (any land up to and including FPL and defined as a high hazard as defined by the Floodplain Development Manual (DIPNR, 2005)).
- Category 1 - Low hazard (any land up to and including FPL and defined as a high hazard as defined by the Floodplain Development Manual (DIPNR, 2005)).
- Category 2 - PMF (any land between the FPL and PMF).

Warriewood Shopping Centre, the playing fields and the commercial precinct are all impacted by the potential for sea level rise and flooding by the 1% AEP flood level and the Probable Maximum Flood (PMF) level. The site is located in close proximity to Narrabeen Creek, Fern Creek and Mullet Creek. There is a high hazard of temporary flooding along the low lying areas with a reduced hazard on the higher areas of the site and its surrounding areas. Therefore, any future development within the area will need to deal with the identified flood impacts.

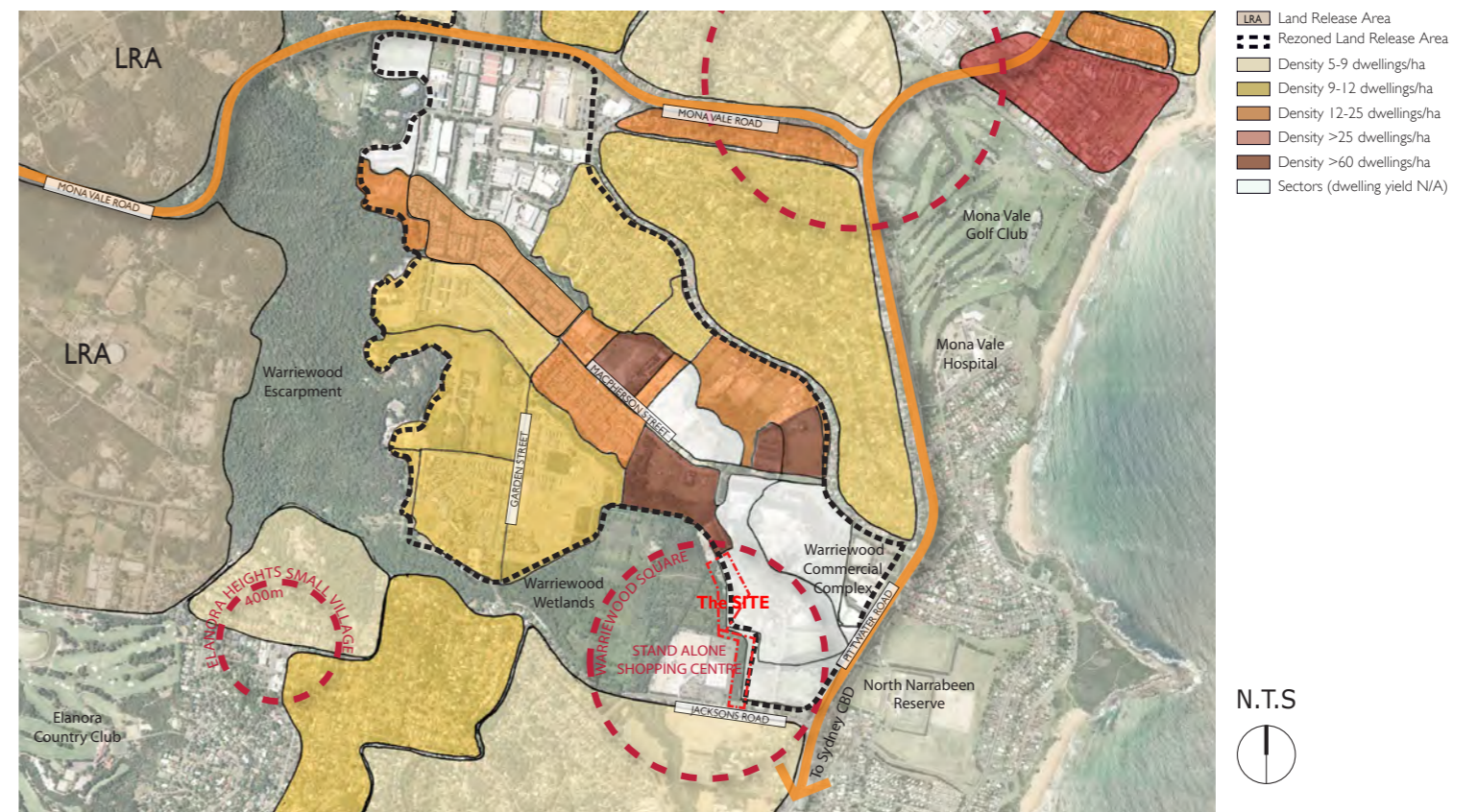


Figure 18. Density (Source: GMU)

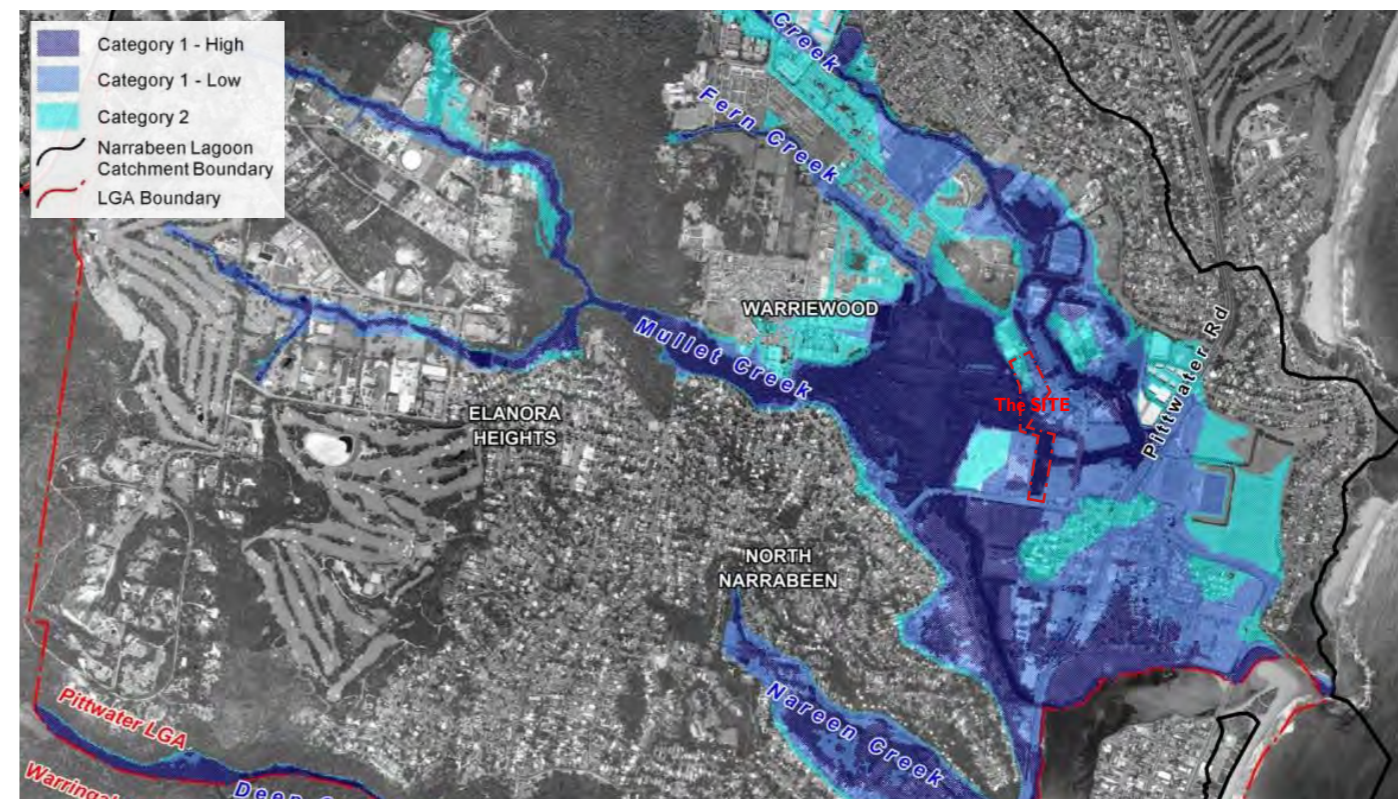


Figure 19. Flood Planning Categories (Source: Narrabeen Lagoon Flood Study)

2.2 RECENT DEVELOPMENT WITHIN THE AREA

GMU has studied the recent development within the area. This is to understand the existing and desired character of the area as well as to form an opinion on the potential bulk and scale for the subject development.

There are two developments found in close proximity to the site, they are:

Warriewood Shopping Centre Expansion

The Warriewood Shopping Centre is also known as Centro Warriewood. It has recently expanded to provide a new department store and speciality shops and a 3 multi-level carpark to complement the existing single storey shopping centre on the western part of the site.

According to the survey conducted by Total Surveying Solutions, the multi-level carpark has a height of up to RL 9.74m (2 storeys) fronting Jacksons Road and RL12.55m at the rear facing the wetlands. It is noted that the new development of the shopping centre cements its position as a stand-alone shopping centre identified in the Draft North East Subregional Strategy which was appealed. However, the Council's report to the JRPP noted that *"the expansion of Warriewood Shopping Centre does not preclude the construction of further retail space within the Southern Buffer at some point in the future, should all of the constraints in that area be resolved."*

Council supported the height exceedance of 8.5m due to the following reasons:

- A stand-alone shopping centre with no other equivalent building around.
- Being surrounded by mainly recreational land.
- The building would not be readily perceivable and apparent due to the density of the bushland.

The existing pedestrian connection from Jacksons Road through the western side of the centre to Angus Gordon Walkway (a shared path within the wetlands) is along the perimeter road fronting the back of house area of the centre with no dedicated footpath. The road is currently used by heavy vehicles to access the rear loading docks. The existing connection presents an undesirable walking and cycling experience for the local community as seen in Image E on this page.

No. 14-18 Boodah Road

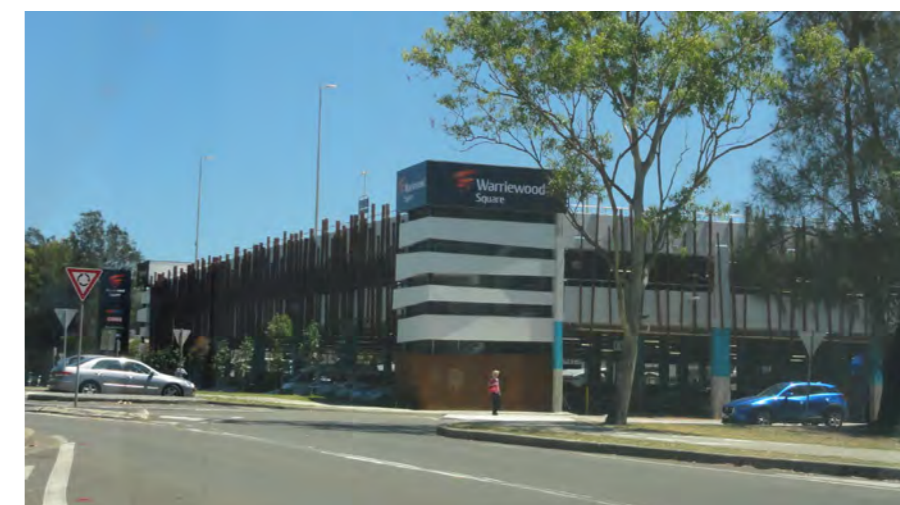
The Meriton's 3-storey residential flat building development at No. 14-18 Boodah Road was approved under Part 3A of the Environment Planning and Assessment Act 1979. The increased density was supported by proximity to local schools, public open spaces, public transport, employment hubs and health facilities.

The development has a maximum height of up to RL14.65. It provides a large setback with a terraced landscape to Boodah Road, mitigating the level change on the site.

The development provides a raised private road running along the southern boundary with a residential vehicle entry raised at RL4.9m to the basement parking.



A. The recently expanded Warriewood Shopping Centre



B. Warriewood Shopping Centre - Multi-level car park



C. The eastern interface with No. 6 Jacksons Road (southern part of the site)



D. The rear inactive interface with the wetlands



E. The existing on-road pedestrian link to Angus Gordon Walkway



F. No.14-18 Boodah Road and its landscaped frontage



G. Spine Bill Drive - a raised internal road along the southern boundary

2.3 THE SITE'S CHARACTERISTICS

GMU in collaboration with the consultant team has undertaken a thorough analysis of the site and its surrounding context to understand the site's characteristics and the specific constraints and opportunities. This analysis in addition to the strategic context analysis has informed the general design principles and built form options discussed in the later section in this report.

The site's characteristics are as follows:

Connectivity

The site is located with its primary frontage to Boondah Road. The site also has a smaller frontage to Jacksons Road adjacent to the Warriewood Centre. The site is well connected to the surrounding suburbs through the local road network and the existing bus services operating along Jacksons Road and Macpherson Street to Pittwater Road and Mona Vale Road. The existing nearby bus stops are within a 5-10min walking catchment of the site. The proposed Bus Rapid Transit along Pittwater Road and the improvements to the major local roads will further enhance the site's connectivity and accessibility to a wider regional area.

There is an existing informal walking path running along Narrabeen Creek, connecting the commercial complex through the site to the Warriewood Shopping Centre. The newly constructed multi-level car park physically terminates the direct connection from the riparian corridor to the main shopping area.

Immediate adjacent uses

The existing land uses immediately adjacent to the site are:

- Meriton Property Management lands (3-4 storey medium density residential apartments) to the north. The maximum height of the 3-storey apartment adjacent to the north of the site is at the RL level of RL 14.65m.
- Warriewood Wetlands and recently expanded Warriewood Centre with additional retail floor spaces and a 3-level car park to the west, with a maximum height of 9.77m (RL 12.55m).
- Sports grounds and playing fields to the south-east.
- Rural landscape land to its east with some development potential.
- Sewage Treatment Plant (Sydney Water Corporation lands) sleeved by landscaping on the north-eastern side of Boondah Road.
- Narrabeen Creek associated with the riparian corridor running through the southern part of the site.

Topography

According to the survey study, the highest point of the site (RL4.5m) is to the north and north-west side. The site has a gentle north-south fall towards Narrabeen Creek by 2.75m. It also has a slight fall (approx. 1m) towards the wetlands along the western side.

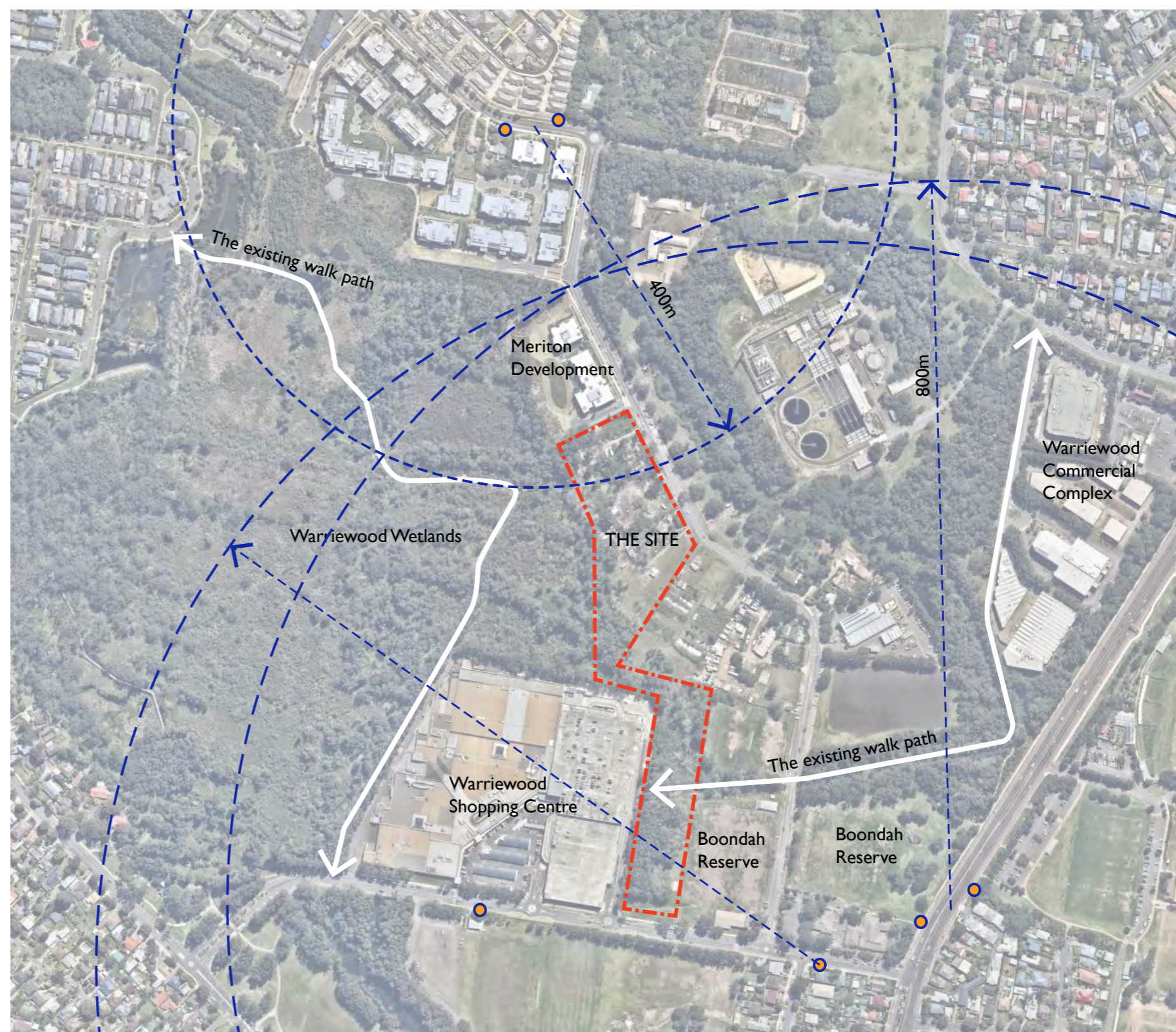


Figure 20. The existing walk path and bus stops around the site

Flooding

The Narrabeen Lagoon Flood Study by BMT WBM identifies that the site is located within a flood prone area. The lower part of the land is affected by 1% AEP flood level at 3.04m AHD. The land at the northern end will be affected by Probable Maximum Flood (PMF) level at 4.9m AHD. The flood planning level (FPL) for the site is at 3.54m AHD (1% AEP flood level plus 0.5m freeboard).

The Narrabeen Lagoon Flood Study identified that the site is dominated by flood fringe and flood storage. The flood behaviour is governed by backwater flooding from Warriewood Wetlands and the Narrabeen Lagoon, which suggests that the management of flooding could be achieved by maintaining the existing flood storage.

The flood and storm water study determines that as a result of the climate change, the 1% AEP flood level could be 3.8m AHD for the year 2050 and 4.3m AHD by 2100.

The project's flood engineer has recommended preliminary mitigation strategies to address flooding whilst enabling reasonable redevelopment of the site through a balanced land cut/fill design. The strategy aims to achieve a greater flood storage area as well as potentially reducing flood levels for those flood events. The engineer also recommends/agrees with the following design solutions to deliver a safe and livable mixed-use precinct on the site and for the Warriewood Valley, which include:

- Raise Boondah Road to above the 100yr ARI to provide flood free access to Macpherson Street.
- Allow permeable undercroft car park at a minimum RL level of RL1.8m to provide additional flood storage area as well as protecting the existing ground water. It will be only used in dry weather conditions.
- Provide residential parking in the basement for the northern part of the site.
- Set the habitable floor levels and basement entrance above the 1% AEP flood level.
- Locate any emergency vehicle routes on the site above the 100yr ARI.

Groundwater

The geotechnical investigations undertaken by Douglas Partners identified that there is a shallow groundwater table at depths of about 1-1.5m (RL 0.7m to RL 1.1m) over most of the site and rising to about RL 1.5m on the northern end of the site. It can fluctuate and may temporarily rise by at least 1m following prolonged rainfall.

The study recommends that temporary dewatering will be required when excavation is conducted close to or below the groundwater table. All below ground structures will need to be tanked and designed for potential elevated groundwater levels. However, this will only be required under a small portion of the site where the residential units are proposed, as the bulky goods section will have an undercroft open arrangement.

The study also acknowledges that the site is suitable for the proposed development if appropriate design and construction is adopted and further investigations may be required during the detailed design stage.

Biodiversity and bushfire

A preliminary study of bushfire and biodiversity constraints for the subject development has been undertaken by Travers Bushfire & Ecology.

The Flora and Fauna Assessment identifies that there is an Ecological Endangered Community (EEC) - Swamp Oak Floodplain Forest found along the western edge of No.10 Boondah Road, southern tip of No. 12 Boondah Road and through 6 Jacksons Road, which requires retention. There are no threatened flora species or endangered population within the nest of the site.

The assessment recommends the following mitigation measures to minimise any adverse ecological impacts:

- Rezone the EEC area to be E3 - Environmental Management.
- Establish Asset Protection Zones (APZ) as buffers.
- Prepare a vegetation management plan.

According to the bushfire assessment, the forested wetland vegetation located within and external to the site's western boundary and southern portion is the main bushfire source within the local area.

The bushfire study recommends that the bushfire risk to the future development on the site can be mitigated through the following measurements:

- Provision of an emergency egress fire trail with a minimum carriageway width of 4m around the perimeter of the site.
- Minimum 10m APZ setback between the commercial development and the hazardous vegetation.
- Minimum 24m APZ setback between the residential development and the hazardous vegetation (see Figure 21).
- Implement a Type A construction work for any commercial development within the 10-24m APZ zone.

A photographic documentation of the site character is provided on the following page.

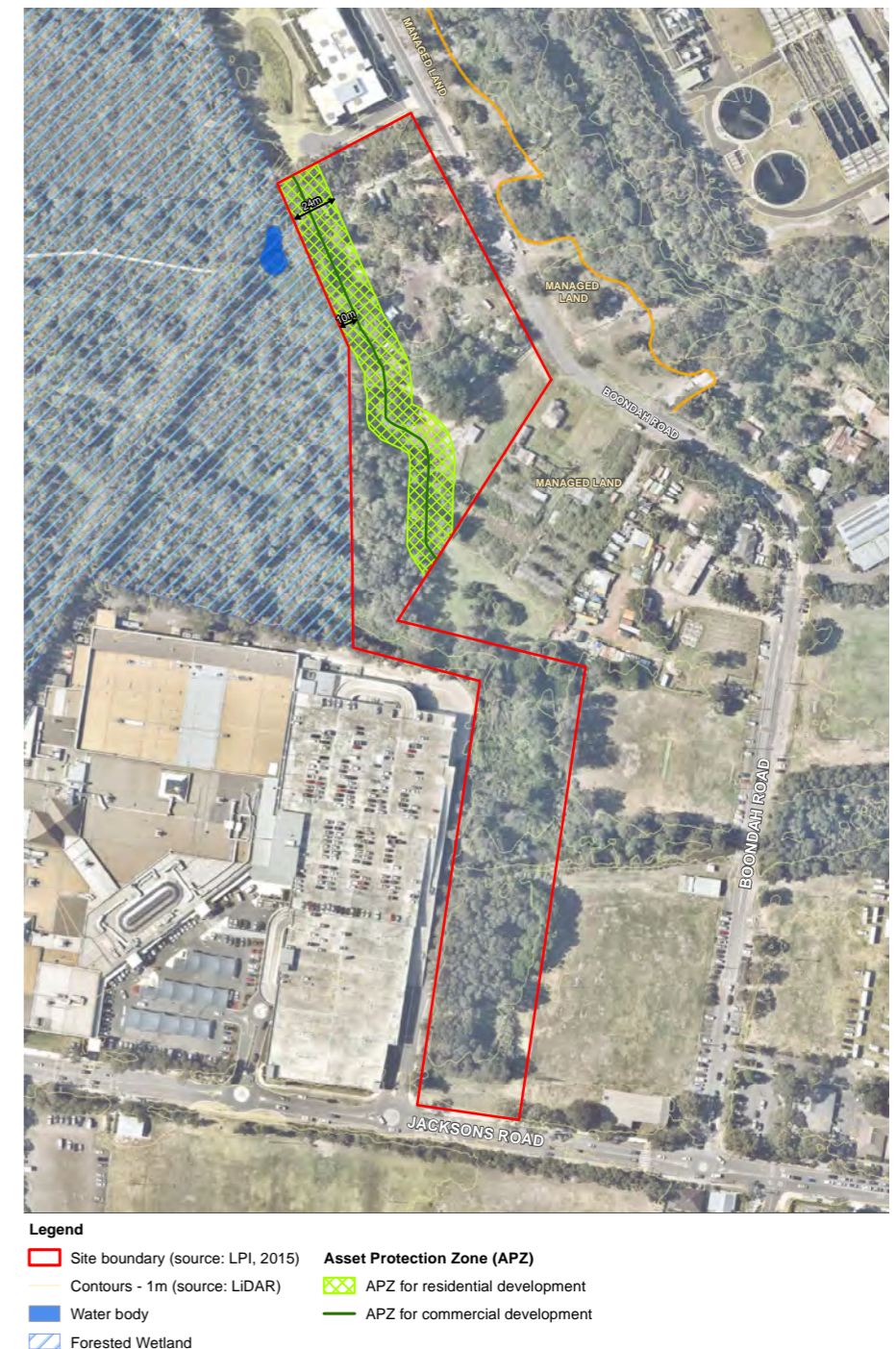


Figure 21. Schedule 1 - Bushfire Protection Measures (Source: Bushfire Protection Assessment by Travers Bushfire & Ecology)

Photographic documentation of the site



The subject site viewed along Boondah Road looking south



View looking north along Boondah Road (the subject site on the left side)



Meriton development (3st) with a raised private road facing the northern boundary of the subject site



View looking south along raised portion of Boondah Road



View looking the Warriewood Wetlands from the western side of the site



The structure car park when viewed from Boohdah Reserve 6 & 7



The existing walkway through the southern part of the site to Warriewood Centre



No. 6 Jacksons Road



The interface between No. 6 Jacksons Road and the multi-level car park