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Edgelea Urban Design Guidelines

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Issue Register

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Introduction

1.1 Purpose of the Document

Edgelea is to be a residential community offering a unique lifestyle in a bushland setting within the site of the former UTS Ku-ring-gai Campus at Eton Road, Lindfield.

The Edgelea Urban Design Guidelines establish principles, objectives and controls to promote design outcomes that will contribute to and enhance the overall ambience and bushland character of the site. Importantly, the guidelines address the heritage significance of the campus and the way in which buildings are to be integrated with surrounding bushland.

The guidelines are also intended to assist in the creation of a visually cohesive community of residential buildings and landscape which will produce a unified development character while maintaining opportunities for diversity and variety within each precinct of Edgelea. Although many of the guidelines may appear to be prescriptive, they are written to inspire and encourage innovative building design in addition to establishing minimum design standards.

The Urban Design Guidelines will also help to maintain the long term value and desirability of Edgelea by ensuring the ongoing delivery of high quality built form and landscape outcomes.

The aims of the Urban Design Guidelines are to:

- Provide designers, builders and consent authority with design requirements for Edgelea.
- Establish the design criteria for approval.

Introduction

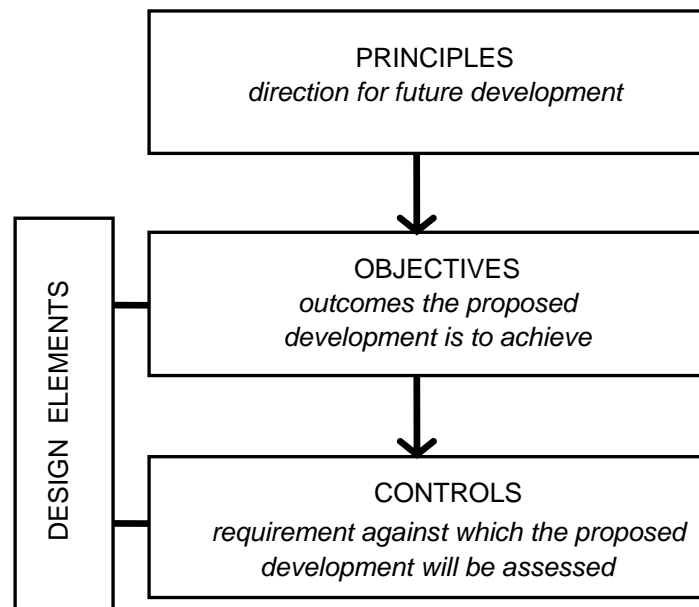
1.2 How to Use this Document

The Guidelines adopt a place-based planning approach by defining the desired **future character** of Edgelea and developing a place-specific built form. **Principles, objectives** and **controls** are described in the document to support the character statement and provide a framework for design decisions.

Principles underpin the preferred future character of Edgelea and establish the design direction for buildings and landscaped open space.

Objectives, for a range of design elements, identify the outcomes the proposed development is required to achieve.

Controls outline ways in which the objectives can be met and establish design requirements against which the proposed development will be assessed.



Controls in these urban design guidelines may be varied provided that it can be demonstrated, to the satisfaction of Council, that the objectives for that particular control have been achieved.

The Edgelea Urban Design Guidelines have been prepared in accordance with the following:

- Amendment 30 to State Environmental Planning Policy (Major Development) 2005.
- State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Development.
- New South Wales Residential Flat Design Code.
- Consent Conditions.

Introduction

1.3 Definitions

Definitions

A series of definitions are included in Part 6 to clarify terms used in this document. It does not include terms defined in the dictionary of the Standard Instrument – Principal Local Environmental Plan, which will also apply to these Guidelines.

Introduction

1.4 Reference Documents

The Guidelines are to be read in conjunction with the following reports and management plans for Edgelea comprising Volume 2 of these Guidelines:

- Heritage Assessment and Conservation Strategy 2007 for the UTS Campus Kuring-gai – Graham Brooks and Associates Pty Ltd.
- Landscape Management Plan – DEM (Aust) Pty Ltd.
- Threatened Species Management Plan – Environmental Resources Management Australia Pty Ltd (ERM).
- Vegetation Management Plan – Environmental Resources Management Australia Pty Ltd (ERM).
- Weed Management Plan – Environmental Resources Management Australia Pty Ltd (ERM).
- Bushfire Management Plan – Eco Logical Australia Pty Ltd.
- Stormwater Management Plan – Northrop Consulting Engineers Pty Ltd.

Introduction

1.5 Heritage Context of the Overall Site

The former William Balmain Teachers College, currently the UTS Ku-ring-gai campus was a component in the late 1960s development of tertiary level teacher training in NSW. It was one of three major new teacher training centres at the time, the others being at Newcastle and Goulburn, responding to a need for greater numbers of qualified teachers within the State school system.

The College is associated with the institutional building design programme of the Government Architect's Office, most notably with its design architect, David Don Turner, who was closely involved in the design work for all of the major stages of work from 1968 until 1989. The natural bushland character and setting of the campus is also closely associated with the well known and influential Landscape Architect, Bruce Mackenzie and Associates.

The main building complex has a distinctive Post War Brutalist architectural expression, establishing a close and confident relationship between architecture and its bushland setting. It was notable for its adoption of an internal pedestrian spine and compact organisational planning achieving a level of design continuity from the involvement of the original design architect in all major stages of development. The campus was conceived as an "Italian Hill Town", set confidently on a prominent wooded ridgeline, designed to be viewed from a distance. It used of a compact building footprint to retain the majority of the original bushland setting to the east, south and west.

The new College was designed at a time when the suburban expansion of the Northern Suburbs of Sydney were pushing out from the Federation and Interwar settlement of the ridgelines into the surrounding heavily wooded sloping topography. The Sydney School of Architecture, known from the work of a number of pioneer architects and landscape design professionals, developed a strong affinity with and respect for the bushland settings of the many houses that epitomised this movement. At an institutional level, the College translated these ideas into a major educational complex.

The College design concept integrated the buildings with the landscape by allowing the natural bushland to come as close as possible to the buildings, creating a visual backdrop that was highly visible through large windows. External platforms and terraces allowed students to sit in close proximity to the bush without the direct access that can lead to environmental deterioration. The overall setting reveals the success of its carefully managed construction techniques for both buildings and roads, which protected the surrounding natural landscape.

The College has positive associations with the wider Ku-ring-gai community who utilise its community facilities, with the architectural and landscape architectural community for its strongly expressed design and planning principles and with the wider public who see the main buildings rising above the bushland setting from the south east. The College was recognised for its architectural, planning and landscape qualities. It was awarded the Sulman Award for Architecture in 1978.

Introduction

1.5 Heritage Context of the Overall Site (continued)

The well defined heritage nature of the main buildings and their setting within the overall site create a number of key project objectives:

- Conserve and use the main buildings in a manner that respects their architectural character.
- New development to respect the well resolved direct relationships between buildings and the surrounding bushland.
- Minimise new intervention into the bushland by concentrating new development in those sections of the site that have already been previously impacted by development.
- Retain and reuse the main internal road network as the primary on-site vehicle circulation routes.

Key Strategies for new Development

- 1 New development on the site should be largely contained within the areas that have already been developed for either buildings, roads and parking areas or recreation facilities.
Refer to Part 1 Figure 1.1-1 Edgelea Context.
- 2 The strongly defined bushland character around the perimeter of the overall site should be retained and closely integrated with new buildings by means of sharply defined edges and interfaces.
Refer to Figure 5.7.3-2
- 3 The natural qualities of the bushland are to be protected by establishing close visual connections in preference to direct physical access.
- 4 The bushland edges of the site should be regarded as a community asset and be available for as many members of the on-site population as possible.
- 5 The existing buildings should be largely retained, with uses that support its on-going conservation and relevance to the wider community. Re-use of the main building complex should respect its architectural character and integrity.
- 6 The existing roads and parking areas, combined with pedestrian pathways and stairways, particularly within the eastern and southern portions of the site should be retained and re-used where possible. Refer to Appendix 2 - Illustrative Plan.
- 7 The introduction of new roads within the area identified for development should be restricted to the minimum necessary for residential and emergency vehicle access.
- 8 The introduction of new roads or landscaped road reservations into the bushland should be restricted to those required for emergency and fire fighting vehicles.

Introduction

1.5 Heritage Context of the Overall Site (continued)

- 9 The embankment below the existing Oval, that delineates the change in levels in that part of the site should be retained as a significant site feature, although some limited modification is permissible. Refer to Landscape Management Plan.
- 10 No new buildings or extensions to the existing building complex shall be erected to the east, south or south west of the complex.
- 11 New development is acceptable within the zone extending to the north west of the main building complex, including on the Oval, Tennis Courts and north western car park.
- 12 The zone to the north east, associated with the existing car parks, roads and adjacent existing residential development, is appropriate for development.
- 13 New development should be arranged on site in a manner that respects the philosophy of a strong interface with the edge of the surrounding bushland, with the main pedestrian and vehicle access routes being located away from the bushland edges.
Refer to Appendix 2 - Illustrative Plan.
- 14 New parking should be underground to minimise additional impacts on the site character.
- 15 Building footprints and circulation routes should be compact to reflect the scale and compactness of the original college layout and maximise opportunities for new or retained natural landscape.
Refer to Part 1: Planned Future Character of Edgelea.
- 16 New development should respond to the existing topography of the site.
- 17 New development on the boundary north-western car park should be scaled to respond to the surrounding residential areas. Major trees should be retained if possible. New roadways should respond to the location of major trees.
Refer to Part 1.3 – Character Area A: North-West Area.
- 18 New development on the site, with the possible exception of single houses on the north-western and integrated houses in the north-eastern extremities, should achieve a unity in design and external materials that reflect the unity of the retained college buildings.
- 19 Future construction management activities should be modelled on those utilised during the initial development stages, to minimise the extent of any damage to existing bushland and maximise the potential for regeneration.

Introduction

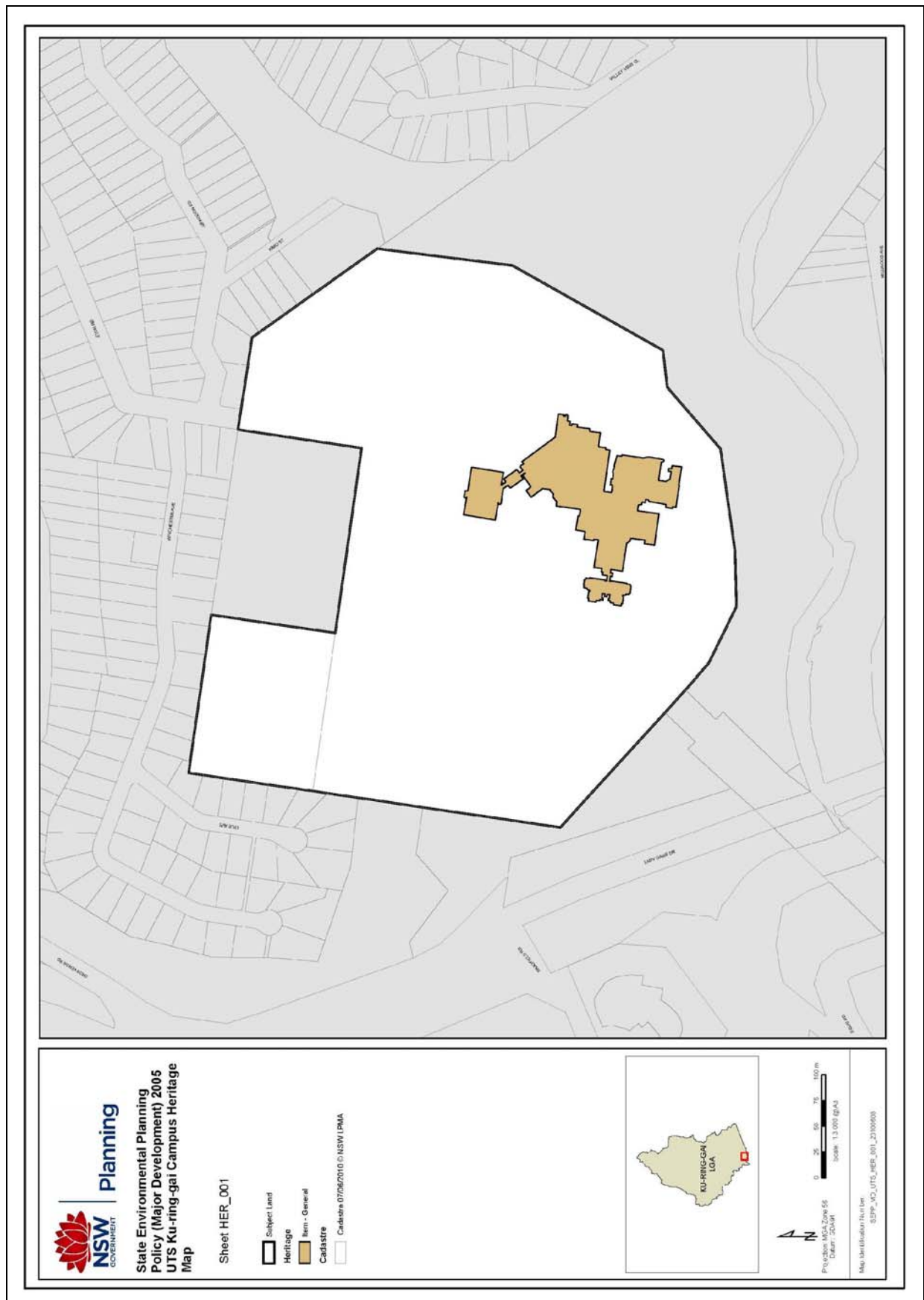
1.5 Heritage Context of the Overall Site (continued)

- 20 Careful management of the bushfire asset protection zones will be required to retain as much of the bushland character as possible, within constraints for controlling fuel loads under the tree canopies. New fire fighting vehicle access routes across the bushland frontage of any new or existing development should be limited to fire trails in preference to public roadways. Refer to Bushfire Management Plan.
- 21 Any future use or redevelopment of the site should include a reliable and enduring procedure, appropriately resourced, for the management and maintenance of the site's landscape qualities. Refer to Landscape Management Plan.

The main complex of buildings and gymnasium and footbridge that comprise the UTS Ku-ring-gai Campus are identified as Local Heritage Items under Amendment 30 to State Environmental Planning Policy (Major Development) 2005 and identified on the following plan. Items such as alterations to roadways or other forms of development that fall within this legal curtilage shall be managed under the relevant heritage provisions of the local planning regime (currently KPSO) as work "to a Heritage Item". All other development on the overall site shall be managed under the relevant heritage provisions as work "in the vicinity of a heritage item".

Introduction

1.5 Heritage Context of the Overall Site (continued)



Introduction

1.6 Approvals Process

To ensure development at Edgelea meets the standards set out in the Urban Design Guidelines, developers are to seek approval for any Development Activity from the Edgelea Design Review Panel (EDRP) prior to submitting Development Applications to Ku-ring-gai Council.

Development Activities are:

- (a) the construction of Improvements of any kind;
- (b) the extension or addition to an Improvement;
- (c) altering the external appearance of an Improvement;
- (d) altering the external colour of an Improvement;
- (e) the demolition of an Improvement;
- (f) changing the use of a Lot from that existing and permitted by any current Development Consent; and
- (g) any other matter determined by the Original Proprietor or the Executive Committee to be a Development Activity.

Part 1: Planned Future Character of Edgelea

- 1.1 Introduction
- 1.2 Character Area Objectives, Principles and Controls
- 1.3 Character Area A: North-West Area
- 1.4 Character Area B: Central Area
- 1.5 Character Area C: Bushland Entry

Part 1 – Planned Future Character of Edgelea

1.1 Introduction

Edgelea is to be a new medium density housing community within the site of the former UTS Ku-ring-gai Campus at Eton Road, Lindfield. It is to incorporate the following:

- 345 dwellings including 10 dwelling houses, 25 small lot houses and 310 apartments.
- Asset Protection Zones adjacent to the residential areas.
- Public access to areas of existing bushland.
- Retained and protected cluster of the threatened plant species *Darwinia biflora*.

The remaining area of the former UTS Ku-ring-gai Campus is to comprise non-residential uses and will incorporate the following:

- The main campus building and gymnasium.
- The existing entry road from Eton Road and the existing campus bus stop.
- A new soccer field on the site of the existing sports oval.
- A new Community Centre.
- Bushland dedicated to National Parks.
- Retained and protected clusters of the threatened plant species *Darwinia biflora*.

The campus is recognised for the significance of its Post War Brutalist architectural expression. Of note is the “Italian Hill Village” approach adopted by its designers and expressed by a compact building footprint and clear demarcation between developed and bushland areas. Retention of significant areas of bushland across the site was also a fundamental part of the original design. Refer to Heritage Assessment and Conservation Strategy 2007 for the UTS Campus Kuring-gai in Volume 2 of these Guidelines.

New development within Edgelea is to be generally limited to existing disturbed areas in recognition of the original design vision and to protect areas of existing bushland.

Edgelea and adjoining areas within the former UTS Ku-ring-gai Campus site are shown in Figure 1.1-1 on the following page.

Part 1 – Planned Future Character of Edgelea

1.1 Introduction



- Legend
- Edgelea Boundary
 - New Residential Areas
 - Asset Protection Zone
 - Existing Campus Building
 - Sports Oval
 - Site of Proposed Community Centre
 - Bushland Dedicated to National Park
 - Fenced Area of *Darwinia biflora*
 - Existing Bus Stop

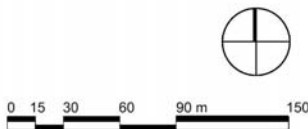


Figure 1.1-1: Edgelea Context.

Part 1 – Planned Future Character of Edgelea

1.2 Character Area Objectives, Principles and Controls

Edgelea is comprised of the following three key character areas:

- A** North-West Area.
- B** Central Area.
- C** Bushland Entry.

The character areas are shown below in Figure 1.2-1

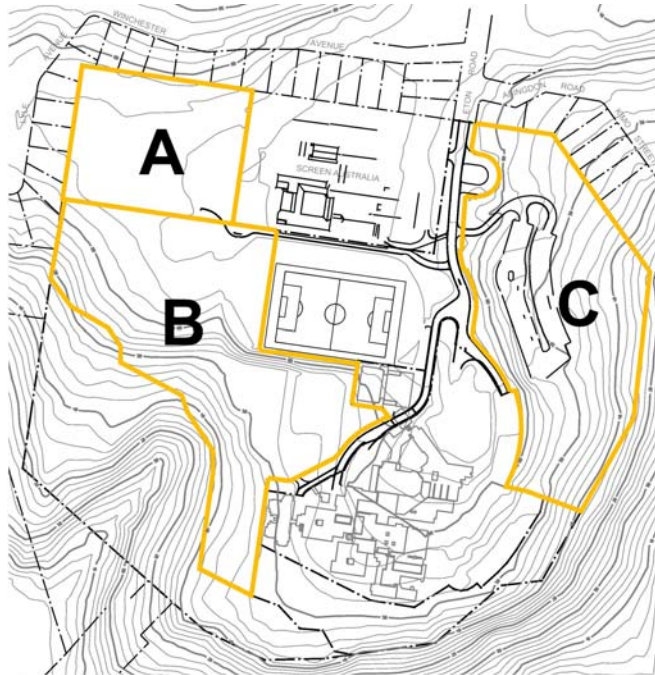


Figure 1.2-1: Edgelea Character Areas.

1.2.1 Character Area A: North-West Area

The North-West Area is currently used for car parking and is bounded by residential dwellings to the north and west and by Screen Australia to the east. Bands of planting, including mature trees, are located between rows of car parking and adjacent to the boundaries.

As this character area was previously developed as part of the campus, new development within the North-West area will not impact bushland areas.

Buildings located within this area are to respond to the scale of the surrounding residential area. Existing significant trees are to be retained where possible and the siting of new roadways is to consider the location of major trees.

Part 1 – Planned Future Character of Edgelea

1.2 Character Area Objectives, Principles and Controls

1.2.2 Character Area B: Central Area

This character area adjoins the existing campus buildings and soccer field and is bounded by bushland to the west.

New development within the Central Area is to acknowledge the heritage of the site by adopting a strong interface between buildings and the surrounding bushland. To achieve this, pedestrian and vehicular access routes are to be located away from the bushland edge and building footprints are to be compact to reflect the original campus layout.

The Asset Protection Zone adjoining the housing is to be carefully managed to retain as much of the bushland character as possible, within constraints for controlling fuel loads.

Public access is to be provided through the Central Area to adjoining bushland.

The *Darwinia biflora* located within this area is to be retained and protected.

1.2.3 Character Area C: Bushland Entry

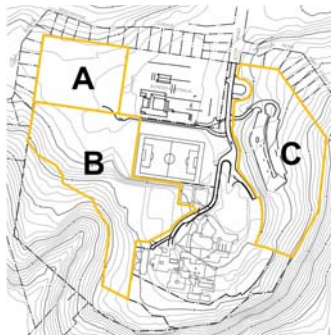
The Bushland Entry character area comprises the eastern sloping land in the north-eastern section of the former campus, adjoining the Eton Road entry. The area is bounded to the north and north-east by a residential area of detached dwelling houses.

The existing entry road constitutes an element of heritage significance. The bushland entry experience was considered an integral part of the original design, defining a threshold to the site that signified a departure from surrounding suburban housing. To reinforce the unique location and character of the site, bushland adjoining the entry road is to be retained where possible. In addition, to minimise intervention into existing bushland, the siting of new buildings within this area is to be restricted to:

- i) the existing at-grade car park; and
- ii) the north and north-eastern portion adjoining the existing housing, where the bushland has been degraded by heavy weed infestation.

New buildings are to be sited to allow for retention of significant mature trees and the Asset Protection Zone adjoining the housing is to be carefully managed to retain as much of the bushland character as possible, within constraints for controlling fuel loads.

New development adjoining the northern and north-eastern boundaries is to respond to the scale of surrounding residential areas.



Part 1 – Planned Future Character of Edgelea

1.3 Character Area A: North-West Area

Objectives

- 1 To ensure the development complements surrounding residential areas.
- 2 To retain significant vegetation.

1.3.1 Planned Future Character

The North-West Area is to provide a transition in building scale and form from the campus and flat buildings within Edgelea to the detached dwellings of adjoining residential areas.

Small lot housing and dwelling houses in the North-West Area are to reflect the character of houses in adjoining residential areas through compatible roof forms, response to topography and the garden settings of the buildings.

The design of the residential flat building within this area is to be consistent with others within Edgelea to achieve a unified development character.

Significant trees are to be retained within lots and within road verges where possible to assist in maintaining the bushland character of the development.

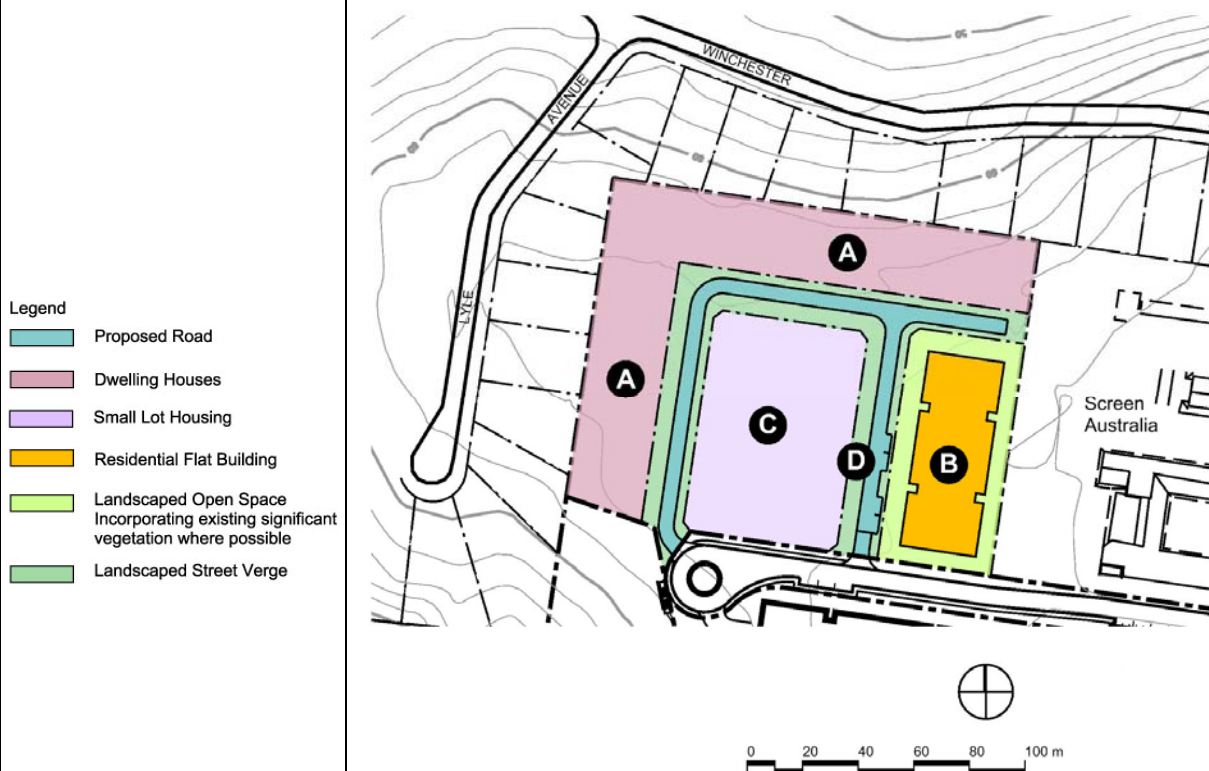
Part 1 – Planned Future Character of Edgelea

1.3 Character Area A: North-West Area

1.3.2 Design Principles

The design principles for the North-West Area are:

- A** Locate dwelling houses along northern and western boundaries adjacent to existing residential areas. Site buildings and roads to allow for retention of significant trees where possible to maintain the bushland setting of the site.
- B** Locate residential flat building adjacent to Screen Australia.
- C** Retain significant trees where possible within areas of small lot housing.
- D** Use street verges to support stormwater management and landscaping.



Part 1 – Planned Future Character of Edgelea

1.4 Character Area B: Central Area

Objectives

- 1 *To provide a built form that responds to the scale and character of the existing campus building.*
- 2 *To protect areas of existing vegetation.*

1.4.1 Planned Future Character

This character area adjoins the retained campus buildings and soccer field. New buildings in the Central Area are to complement the bulk, scale and geometric forms of the existing campus buildings but are to be articulated to present a domestic and human scale.

Buildings are to be sited to reinforce the compact design approach previously adopted for the Campus, and to minimise impact on the bushland. The design of the residential flat buildings is to be consistent with others within the development to achieve a unified development character.

Buildings are also to provide a strongly defined edge to the development to sharply define the interface with the bushland. Pedestrian access into the bushland is to be controlled, with connections to existing bushland tracks being provided for the public at a limited number of clearly designated places.

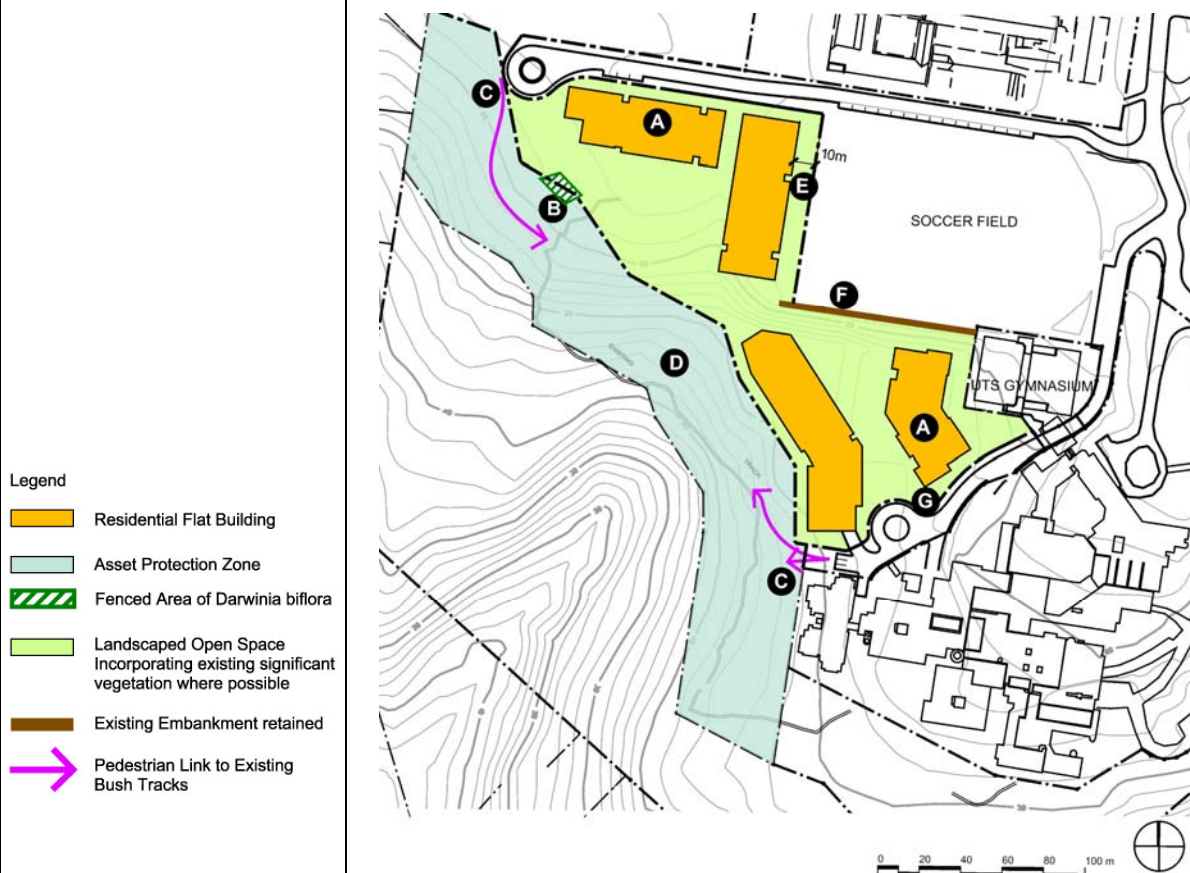
Part 1 – Planned Future Character of Edgelea

1.4 Character Area B: Central Area

1.4.2 Design Principles

The design principles for the Central Area are:

- A** Locate residential flat buildings primarily within areas that have already been developed. Configure buildings to maximise opportunities for retained / new landscaping and outdoor living spaces.
- B** Retain and protect area of *Darwinia biflora* by fencing off significant cluster.
- C** Provide pedestrian connections to existing bush tracks.
- D** Manage the Asset Protection Zone to retain its bushland character within constraints for controlling fuel loads.
- E** Provide a 10m setback from the north-east boundary adjoining the soccer field.
- F** Retain and protect existing rock fill oval batter and associated vegetation.
- G** Provide heavy landscaping between the existing main campus building and any future development on its northern side.



Part 1 – Planned Future Character of Edgelea

1.5 Character Area C: Bushland Entry

Objectives

- 1 To reinforce the bushland character of the site.
- 2 To ensure the development complements surrounding residential areas.

1.5.1 Planned Future Character

The distinctive bushland entry experience of this area is to be retained to reinforce the unique location and qualities of Edgelea.

New development is to be restricted to previously developed areas and the northern section of the site adjoining existing housing, to allow for the retention of significant areas of bushland.

The Asset Protection Zone within this area is to provide a visual and recreation asset for residents and is to be managed to maintain the existing bushland character as far as is practicable within safety constraints.

A consistent design approach is to be adopted for all residential flat buildings in Edgelea to create a unified development character that acknowledges the heritage value of the site by reflecting the unity of the retained campus buildings. New buildings are to complement the built form of the retained campus buildings without replicating their architectural style or external finishes.

Small lot housing in the Bushland Entry Area is to reflect the character of houses in adjoining residential areas through compatible roof forms, response to topography and the garden settings of the buildings.

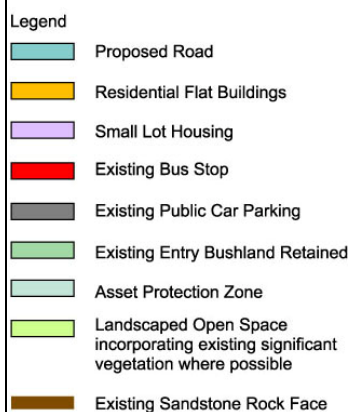
Part 1 – Planned Future Character of Edgelea

1.5 Character Area C: Bushland Entry

1.5.2 Design Principles

The design principles for the Bushland Entry are:

- A** Provide heavy landscaping between the access road and proposed adjoining development. Provide pedestrian connections to existing bus stop.
- B** Site residential flat buildings on the existing at-grade car park to minimise intervention into bushland.
- C** Utilise existing at-grade carpark for future car parking and landscaped open space.
- D** Locate small lot housing along the northern and north-eastern boundaries, adjacent to existing residential area, where bushland has been degraded by weed infestation. Site buildings to allow for retention of existing significant trees where possible.
- E** Manage the Asset Protection Zone to retain its bushland character within constraints for controlling fuel loads.
- F** Consider retention of existing sandstone rock face.



Part 2: Specific Building Type Controls

2.1 Residential Flat Building

2.2 Small Lot Housing

2.3 Dwelling House

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

Objectives

- 1 To create a strong defined edge between the built form and the natural bushland.
- 2 To retain existing significant vegetation.
- 3 To maintain views to and from the main campus building.

2.1.1 Building Siting

Controls

- 1 There is to be grade separation between private / communal spaces and the adjacent Asset Protection Zone to restrict direct access.
- 2 Buildings are to be positioned to allow for retention and protection of *Darwinia biflora* and significant trees where possible.
- 3 Consider siting in relation to:
 - i) Asset Protection Zones;
 - ii) soccer field;
 - iii) site circulation;
 - iv) provision of adequate space for water sensitive urban design;
 - v) solar access; and
 - vi) adequate separation for amenity and landscaping.
- 4 Buildings must not be located on or within a drainage depression, easement, or piped drainage system.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.2 Building Separation

Objectives

- 1 *To ensure building configuration that protects and enhances visual and acoustic privacy for occupants.*
- 2 *To provide building form and layout that minimises overshadowing of adjacent properties and open space.*
- 3 *To provide building configuration that facilitates the provision of useable communal open space, landscaping and view corridors.*
- 4 *To provide building form and layout that maximises view sharing.*

Controls

- 1 The minimum separation between residential buildings on the development site must comply with the following controls:
Up to 4th storey
 - i) 12m between habitable rooms / balconies;
 - ii) 9m between habitable / balconies and non-habitable rooms.**5th storey**
 - i) 18m between habitable rooms / balconies;
 - ii) 13m between habitable room / balcony and non-habitable room;
 - iii) 9m between non-habitable rooms.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.3 Building Setbacks and Site Coverage

Objectives

- 1 To ensure there is adequate space between streets, boundaries and buildings to allow for effective landscaping and tree planting.
- 2 To ensure adequate separation between buildings on different sites for solar access, privacy, natural ventilation and acoustic control.
- 3 To ensure adequate deep soil landscaping is provided.
- 4 To ensure buildings are located within a landscape setting.
- 5 To maximise pervious surfaces to reduce stormwater runoff.
- 6 To integrate the built form with landscape to soften the built form.

Controls

Edgelea comprises six Precincts as shown below in Figure 2.1.3-1. Precinct 6 consists of the Asset Protection Zones and Precincts 1 to 5 incorporate housing. Residential flat buildings are located in Precincts 1, 2, 3 and 4. Setback, site coverage and deep soil requirements for the flat buildings in these precincts are described on the following pages.

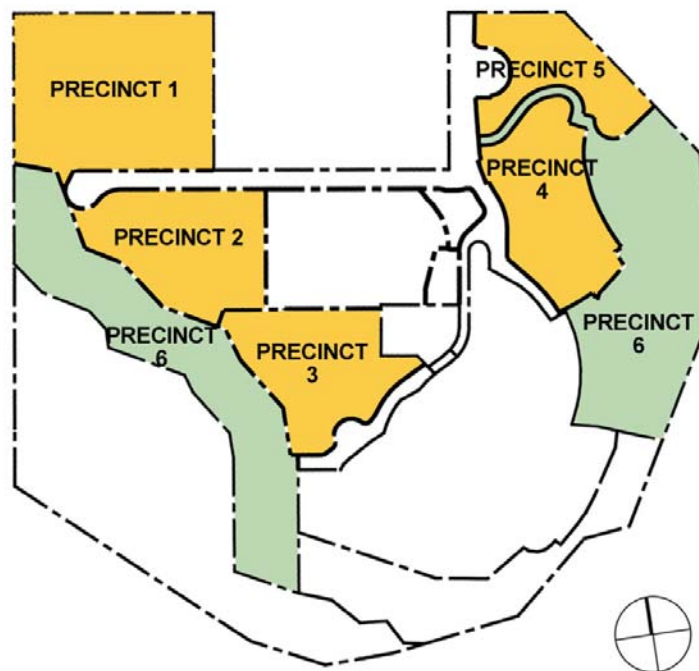


Figure 2.1.3-1: Edgelea Precinct Layout.

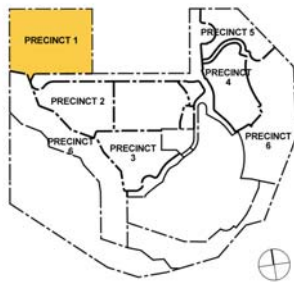
Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.3 Building Setbacks and Site Coverage (continued)

Controls – Precinct 1

- 1 Residential flat buildings in Precinct 1 must meet the minimum setback requirements shown below in Figure 2.1.3-2.



Key Plan

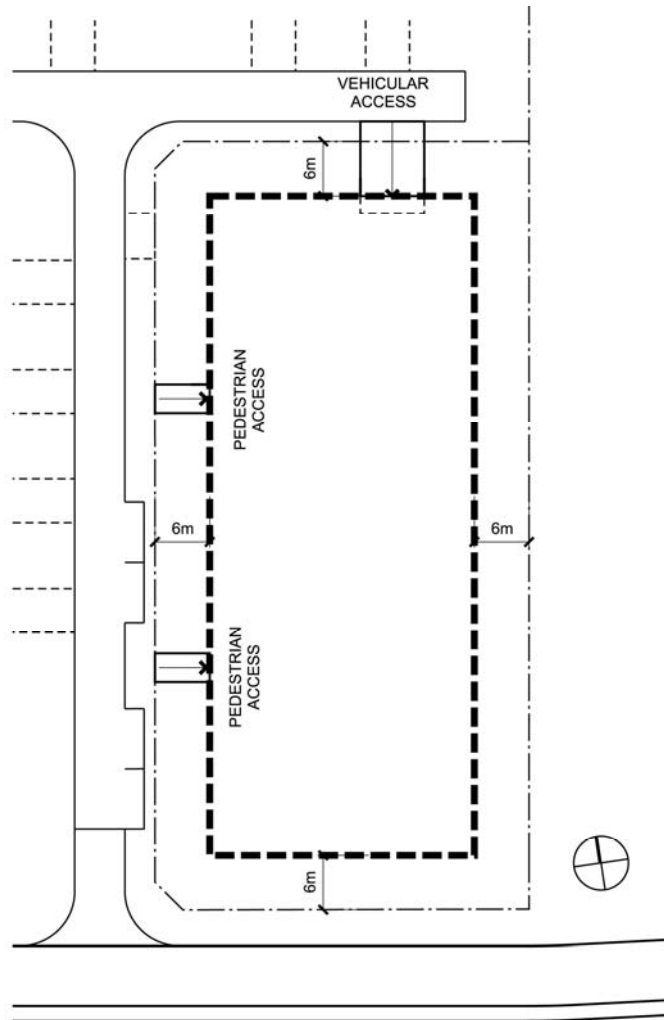


Figure 2.1.3-2: Precinct 1 – Residential Flat Building Setbacks.

- 2 Site coverage is to be a maximum of 65% of the site area.
- 3 The deep soil landscaping area is to be a minimum of 25% of the site area.

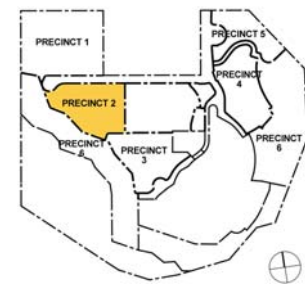
Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.3 Building Setbacks and Site Coverage (continued)

Controls – Precinct 2

- 1 Residential flat buildings in Precinct 2 must meet the minimum setback requirements shown below in Figure 2.1.3-3.



Key Plan

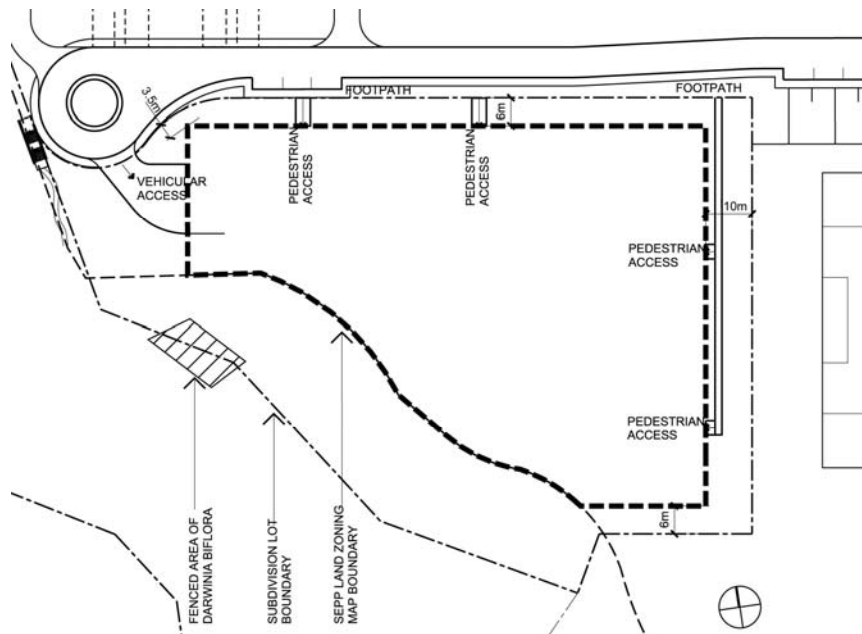


Figure 2.1.3-3: Precinct 2 – Residential Flat Building Setbacks.

- 2 Site coverage is to be a maximum of 75% of the site area.
- 3 The deep soil landscaping area is to be a minimum of 25% of the site area.

Note: buildings must not overshadow *Darwinia biflora* between the hours of 10am and 3pm.

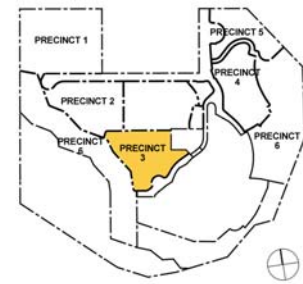
Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.3 Building Setbacks and Site Coverage (continued)

Controls – Precinct 3

- 1 Residential flat buildings in Precinct 3 must meet the minimum setback requirements shown below in Figure 2.1.3-4.



Key Plan

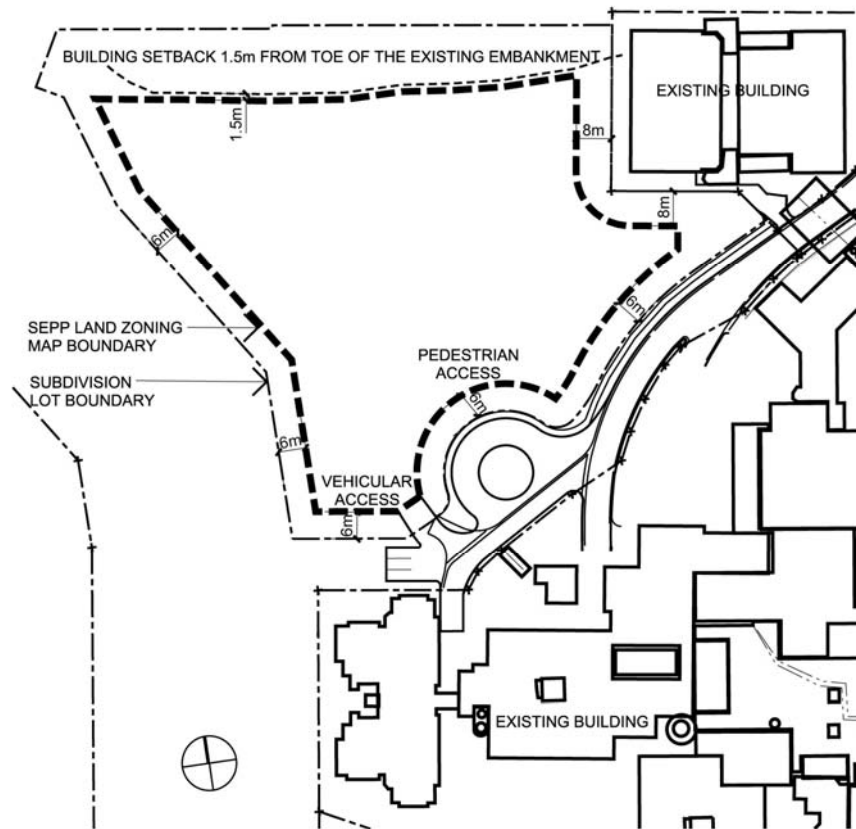


Figure 2.1.3-4: Precinct 3 – Residential Flat Building Setbacks.

- 2 Site coverage is to be a maximum of 70% of the site area.
- 3 The deep soil landscaping area is to be a minimum of 30% of the site area.
- 4 Future applications for development of buildings within Precinct 3 are to include the following:
 - i) Sections and elevations to demonstrate the relationship to the existing main campus building and suitable landscaping to screen the existing campus building.
 - ii) Visual Impact Assessment Report.
 - iii) Heritage Impact Statement.

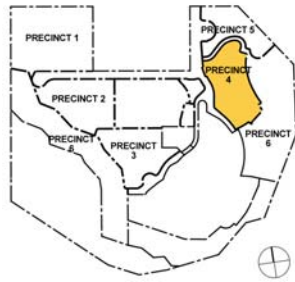
Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.3 Building Setbacks and Site Coverage (continued)

Controls – Precinct 4

- 1 Residential flat buildings in Precinct 4 must meet the minimum setback requirements shown below in Figure 2.1.3-5.



Key Plan

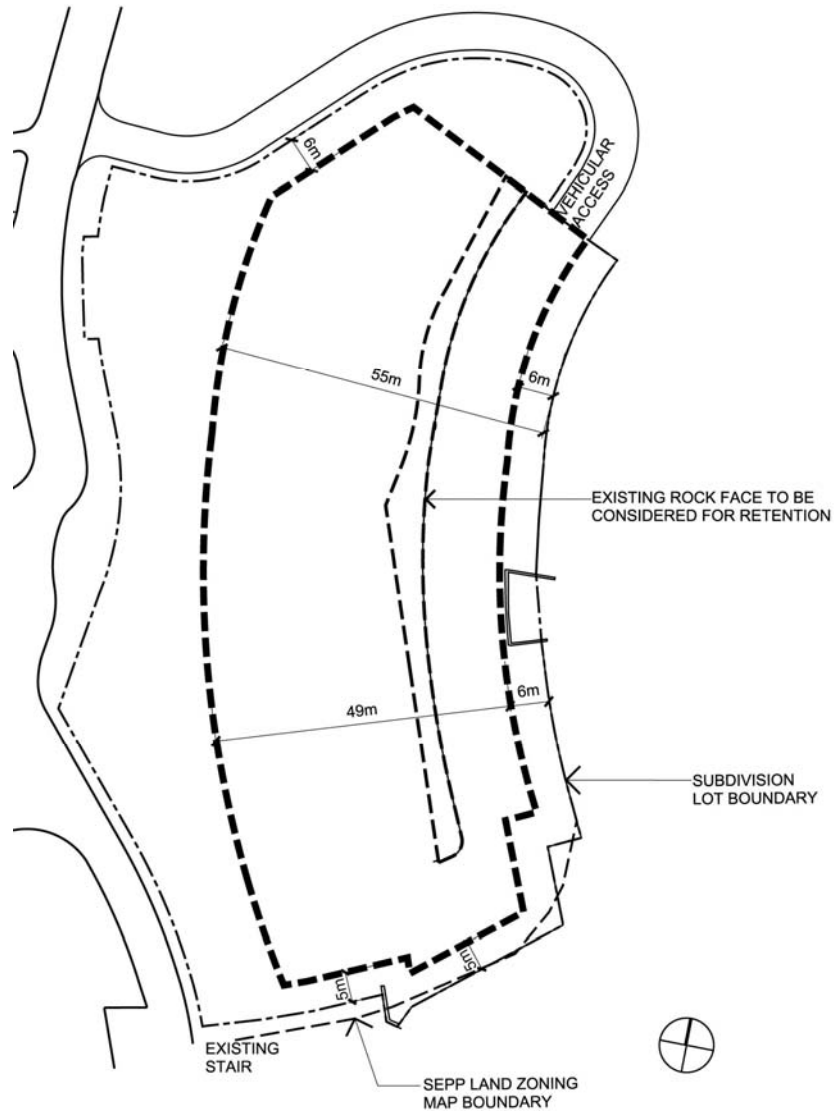


Figure 2.1.3-5: Precinct 4 – Residential Flat Building Setbacks.

- 2 Site coverage is to be a maximum of 60% of the site area.
- 3 The deep soil landscaping area is to be a minimum of 40% of the site area.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.3 Building Setbacks and Site Coverage (continued)

General Considerations

- 1 Notwithstanding compliance with the permissible site coverage requirements, the bulk and relative mass of development is to be established in consideration of:
 - overshadowing and privacy;
 - streetscape considerations;
 - parking and landscape requirements;
 - visual impact and impact upon existing views and heritage setting;
 - existing significant trees on site;
 - the size and shape of the allotment; and
 - site topography.

Encroachments

- 2 Basements must not encroach into the front, side or rear setbacks.
- 3 Ground floor private terraces / courtyards may encroach into the setback areas with a minimum setback of:
 - i) 4m to the site boundary where the minimum setback is 6m;
 - ii) 6m to the site boundary where the minimum setback is 8-10m.
- 4 No more than 15% of the total area of the front setback area is to be occupied by private terraces / courtyards.
- 5 The following elements may also encroach into setback areas:
 - i) eaves;
 - ii) sun shading; and
 - iii) blades, fins and columns.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

<p>Objectives</p> <ol style="list-style-type: none"> 1 To ensure adequate deep soil zones for each residential development. 2 To retain and enhance the existing bushland character of Edgelea. 3 To provide landscaping that is appropriate to the scale and context of the development. 4 To create high quality landscaped areas through retention and/or planting of large and medium sized trees. 5 To ensure that most of the deep soil planting is within common areas. 6 To complement the heritage character of the site. 7 To provide space for habitat for indigenous species. 	<p>2.1.4 Deep Soil Landscaping</p> <p>Controls</p> <p>Design</p> <ol style="list-style-type: none"> 1 Residential flat development at Edgelea must have a minimum deep soil landscaping areas in accordance with Section 2.1.3 2 Deep soil zones must be configured to allow for required tree planting and for screen planting at side and rear boundaries. 3 Deep soil planting must be provided in common areas as a buffer between buildings. 4 Driveways are not to dominate the street setback zone to maximise deep soil landscaping areas. 5 Permeable pathways are to be used for pathways wider than 1m. Note: Such pathways must comply with standards for access for people with disabilities. 6 Natural ground level must be maintained beneath the canopy spread of trees to be retained. Note: If the ground level is modified by excavation or fill within the canopy spread, a report from a suitably qualified arborist will be required. <p>Tree replenishment and planting</p> <ol style="list-style-type: none"> 7 Lots are to support tall trees capable of attaining a mature height of at least 13m on shale / transitional soils and 10m on sandstone derived soils at the following rate: 1 tall tree per 300m² of site area or part thereof. 8 In addition to tall trees, a range of medium trees, small trees and shrubs are to be selected to ensure that vegetation softens the building form. 9 Species are to be chosen for an appropriate range of height and foliage density, and for their low maintenance characteristics, water efficiency, aesthetic appeal and suitability to the characteristics of the site and location. Species for screen planting are also to be chosen for relatively fast growth. 10 Siting and choice of trees must consider: <ol style="list-style-type: none"> i) good solar access to useable open space areas; ii) provision of summer shade; iii) proximity to buildings, fences and other structures; iv) proximity to stormwater, electricity, gas, sewer, other infrastructure and services; and v) measures to minimise the potential hazard on sites prone to bushfire risk.
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Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.5 Building Storeys

Objectives

- 1 To ensure buildings are of an appropriate scale to the surrounding context.
- 2 To ensure that buildings heights are no greater than the existing Campus buildings.
- 3 To minimise overshadowing on private and communal open spaces.
- 4 To ensure buildings do not overshadow *Darwina biflora*.
- 5 To provide quality interior spaces and private open space.
- 6 To provide adequate daylight, sunlight and ventilation to habitable rooms.

Controls

- 1 Maximum building heights are to be in accordance with Amendment 30 to State Environmental Planning Policy (Major Development) 2005.

The maximum number of storeys that applies to each Precinct is as follows:

Precinct	Maximum Building Height	Maximum Storeys
Precinct 1	9 metres	2
Precinct 2	16 metres	4
Precinct 3	20 metres	5
Precinct 4	16 metres	4
Precinct 5	9 metres	2

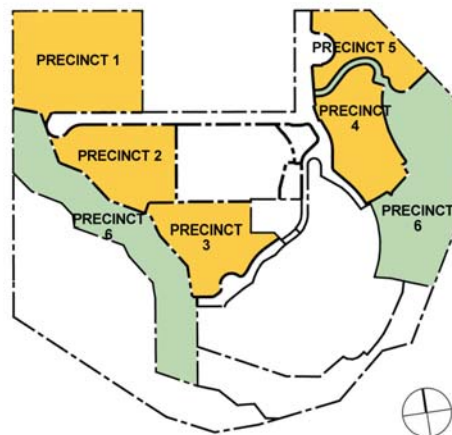


Figure 2.1.5-1: Edgelea Precinct Layout.

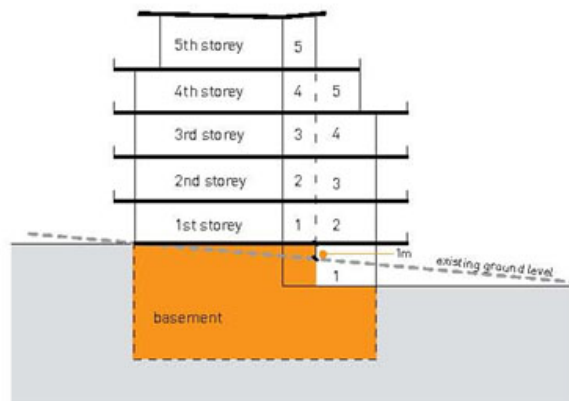


Figure 2.1.5-2: Building Storey Controls.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

Objectives

- 1 To ensure buildings complement the cultural environment of the existing UTS campus as well as surrounding neighbourhoods.
- 2 To create building facades that express a transition in scale from retained campus buildings to the detached dwelling houses adjoining the site.
- 3 To ensure facades are articulated and composed of architectural elements of a human scale.
- 4 To promote buildings of high architectural quality that contribute to a distinctive Edgelea character.
- 5 To create building facades that reduce the bulk and scale of the building.
- 6 To create building facades that are environmentally responsive.
- 7 To integrate building elements into the overall building form and façade design.
- 8 To ensure building façade design contributes to the safety of the public domain.
- 9 To ensure buildings respond to heritage setting, topography and articulation of campus building.

2.1.6 Building Facades

Controls

- 1 Buildings are to reflect the character of the existing campus buildings through a consistent use of geometric forms, deep reveals and the use of a limited palette of colours and materials.
- 2 Building design is to emphasise strong horizontal massing and vertical articulation.



Figure 2.1.6-1:
UTS Campus circa 1975 Source: Max Dupain
Existing campus buildings incorporate strong geometric forms, horizontal massing and vertical articulation.



Figure 2.1.6-2:
Robust, geometric building forms, vertical articulation and use of limited palette of colours and materials.



Figure 2.1.6-3:
Horizontal massing articulated with vertical components.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.6 Building Facades (continued)

Controls

- 3 Street, side and rear building facades are to respond to the articulation of the retained campus buildings. Methods of achieving articulation and modulation include:
 - i) defining a base, middle and top related to the overall proportions of the building;
 - ii) expressing building layout or structure, such as vertical bays or party walls;
 - iii) using a variety of window types to create a rhythm or express the building uses;
 - iv) using recessed balconies and deep windows to add visual depth; and / or
 - v) using change of material, texture, colour to break down large flat facades, and create a rhythm.
- 4 No single wall plane is to exceed 81m² in area.
- 5 The continuous length of a single building on any elevation must not exceed 36m unless site constraints necessitate additional length or it can be demonstrated that building design complements the existing campus buildings. In such cases, the building shall be sufficiently recessed and / or articulated so as to present as a separate building.
- 6 Building facades must be designed to respond to solar access by using solar protection elements such as eaves, louvres and other sun shading devices as environmental controls.
- 7 All building elements including shading devices, signage, drainage pipes, awnings / colonnades and communication devices must be coordinated and integrated with the overall façade design.



Figure 2.1.6-4:
Deep reveals accentuate form through light and shade.



Figure 2.1.6-5:
Horizontal building massing with strong vertical articulation. Windows used to express building uses and create interest.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.6 Building Facades (continued)

Controls

- 8 When individual air conditioning units are used, they must not be located on the building façade or within the private open space, (e.g. balconies or terraces).
- 9 Balconies that run the full length of the building façade are not permitted.
- 10 Blade walls are not to be the sole element used to provide articulation.
- 11 Windows to a habitable room are to be situated to encourage opportunities for passive surveillance to the street, on site areas surrounding the building and to bushland.
- 12 Corner buildings are to address both street frontages.
- 13 Building façades are to incorporate a limited palette of colours and materials in earthy, neutral tones which respond to the context of the neighbouring heritage buildings. Materials are to be concrete, honed or polished concrete blockwork, face brick, glass or metal sheet panel. Accent elements may be cement rendered with painted finish / integral colour render, metal or stone cladding.

Note: Refer to Section 3.3 for relevant controls on materials finishes and colours.



Figure 2.1.6-6:
Robust building massing articulated with vertical elements. Use of limited palette of colours and materials.



Figure 2.1.6-7:
Well articulated building façade with use of limited palette of colours and materials.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.7 Building Entries

Objectives

- 1 To ensure the building entry is a clear and identifiable element in the street and is accessible to all.
- 2 To ensure the building entry contributes positively to the streetscape and building façade design.
- 3 To provide a safe entry to the building.

Controls

- 1 Provide access to and within all developments in accordance with the *Disability Discrimination Act 1992*.
- 2 Buildings must address the street either:
 - i) with main entrances to lift lobbies directly accessible and visible from the street; or
 - ii) with the path to the building entry readily visible from the street where site configuration is conducive to having a side entry.
- 3 Buildings with frontages over 18m long must have multiple entries.
- 4 Building entry must be integrated with building façade design. At street level, entry is to be articulated with awnings, porticos, recesses or projecting bays for clear identification.
- 5 All entry areas must be well lit and designed to avoid any concealment or entrapment areas. All light spill to apartments is prohibited.
- 6 Lockable mail boxes must be provided close to the street. They must be at 90 degrees to the street and to Australia Post standards and integrated with front fences or building entries.
- 7 On large development site comprising multiple building blocks, clear way-finding signs are to be provided.



Figure 2.1.7-1:
Well defined building
entry visible from the
street.



Figure 2.1.7-2:
Building entry clearly signified at
street level.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.8 Top Storey Design and Roof Forms

Objectives

- 1 *To ensure that the design of the top floor of buildings reduces visual bulk.*
- 2 *To provide articulation that prevents any increased overshadowing.*
- 3 *To contribute to the overall design and environmental performance of buildings.*

Controls

- 1 Roofs are to be simple and geometric e.g. low pitched, mono-pitched, skillion or flat with parapets. Hip and gable roofs should be screened by parapets.
- 2 Roofs should be steel or concrete; tiled roofs are not appropriate for buildings in Edgelea. Roof gardens should be considered.
Note: Refer to Section 3.3 for relevant controls on materials, finishes and colours.
- 3 Projecting roof elements may be used to break up long, consistent roof lines, but elements should relate to the plan of the building or massing of the form. Avoid superfluous roof elements.
- 4 Service elements are to be integrated into the overall design of the roof so as not to be visible from the public domain or any surrounding development. These elements include lift overruns, plant equipment, chimneys, vent stacks, water storage, communication devices and signage.
- 5 Roof design must respond to solar access, for example, by using eaves and skillion roofs.
- 6 Where solar panels are provided they must be integrated into the roof line.
- 7 Lightweight pergolas, sun screens, privacy screens and planters are permitted on the roof, provided they do not increase the bulk of the building and create visual clutter.



Figure 2.1.8-1:
Simple, flat roof design.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

Objectives

- 1 To ensure front property boundaries to residential flat buildings relate to their bushland setting and Ku-ring-gai UTS campus context.
- 2 To ensure fencing design responds to the character of the streetscape in terms of:
 - open landscape character;
 - visibility and security;
 - materials selection;
 - solid or transparent qualities;
 - height;
 - vertical and horizontal composition of the materials; and
 - location of entries.
- 3 To ensure that fencing does not detract from the overall visual amenity and character of Edgelea.



Figure 2.1.9-1:
Existing low sandstone
wall within Edgelea.

Controls

Front Fences

- 1 A landscaped frontage with a mix of trees, shrubs and groundcover plantings is desirable. High hedges along the entire front boundary are not encouraged.
- 2 No fences or walls higher than 500mm are to be built on the boundary to a street. Low stone walls / hobs (500mm maximum) and or bush rocks / rock cuttings with a combination of planting can be used.
- 3 Private courtyard fencing (to a public street) is to be set back a minimum of 4m from the street and be a maximum of 1.8m in height.
- 4 Private courtyard fencing can comprise a solid component to a maximum height of 1.5m and a minimum transparent component of 0.3m. The solid component is to be either sandstone block work, off-form concrete or face brick.
- 5 Planting is to be used to soften the look of the fencing to the street.
- 6 A gate should be provided to common areas from the private open space where available.
- 7 All front boundary treatment must be designed to highlight entrances.

Rear boundary and fences to APZ

- 8 Rear boundaries should be delineated where required by retaining bushland, rock outcrops and new retaining walls.
- 9 Fencing to be complimentary and to the bushland setting and site slopes and contours.

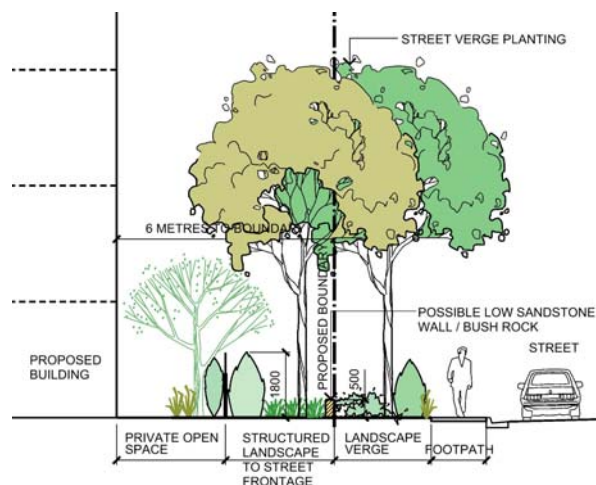


Figure 2.1.9-2:
Typical section through residential flat building street frontage.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

<p>Objectives</p> <ol style="list-style-type: none"> 1 To create a defined edge between bushland and adjoining buildings. 2 To create a physical separation between bushland and private open spaces. 3 To clearly define private open spaces from communal and public open spaces. 4 To provide private open space that is functional and responsive to the environment for the enjoyment of outdoor living for residents. 5 To provide private open space (e.g. balcony, deck, terrace) that is integrated into the overall design of development. 6 To ensure that private open space design allows views and passive surveillance of the street while providing for safety and visual privacy of residents. 	<p>2.1.10 Private Open Space</p> <p>Controls</p> <ol style="list-style-type: none"> 1 Where buildings adjoin the Asset Protection Zone, a grade separation of up to 1.2m is to be provided between ground level private open spaces and the natural bushland. 2 Ground level and podium level apartments are to have a private outdoor courtyard / terrace with a minimum (internal dimension) of 25m². 3 Ground level private open space is to have a minimum dimension of 2.4m. 4 All apartments that are not at ground or podium level are to include private open space (such as a roof garden, balcony, deck or terrace) with a minimum area (internal dimension) of: <ol style="list-style-type: none"> i) 10m² for each one bedroom apartment; ii) 12m² for each two bedroom apartment; and iii) 15m² for each apartment with three or more bedrooms. 5 Primary balconies for all apartments are to have a minimum depth of 2.4m. 6 All private open space area requirements are exclusive of any areas for the provision of services, e.g. external clothes drying facilities. 7 The primary open space is to have direct access from the main living areas. 8 Primary private open space with southern orientation should be avoided. 9 Balcony or terrace design may incorporate building elements such as pergolas, sun screens, shutters, operable walls and the like to respond to the street context, building orientation and residential amenity. The use of such building elements must not enable the balcony or terrace to be used as a habitable room. 10 Private open space (outdoor) for ground and podium level apartments is to be differentiated from common areas by: <ol style="list-style-type: none"> i) a change in level; ii) screen planting, such as hedges and low shrubs; iii) fence / wall to a maximum height of 1.8m. - refer to Section 2.1.9 Fencing. 11 One gas outlet (where gas services are available) and one water outlet are to be provided to the primary private open space. 12 Air conditioning units must not be located in private open space.
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Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.10 Private Open Space (continued)

Controls

- 13 Retain and incorporate existing landscape features, such as sandstone outcrops and significant trees, into private open spaces where possible.
- 14 Planting in private open spaces is to consist of not less than 50% of local native tree species and 50% native understorey species.
- 15 Select planting that provides screening to private open space, allows passive surveillance of public and communal areas and allows good solar access.
- 16 Provide direct access where possible from ground floor courtyards to adjacent communal open space.
- 17 Avoid providing direct access to the APZ from private open space.
- 18 Planting should be in accordance with planting lists in Section 5.6.



Figure 2.1.10-1:
Residential flat building private open space incorporating native plant species.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.11 Communal Open Space

Objectives

- 1 *To provide communal open spaces that reflect and reinforce the bushland character of the site.*
- 2 *To provide useable, attractive and accessible communal open space that adds to the amenity of the development and facilitates social interaction.*
- 3 *To provide communal open space that is responsive to the site and its context.*
- 4 *To ensure high quality communal open space that is well integrated within the development.*

Controls

- 1 The landscape treatment of communal open spaces is to complement the natural bushland features of the site.
- 2 Communal open spaces are to be located and designed to maximise passive surveillance from adjoining apartments.
- 3 At least 10% of the site area must be provided as communal open space with a minimum dimension of 5m.
- 4 At least one single parcel of communal open space with the following requirements must be provided:
 - i) a minimum area of 80m²; and
 - ii) a minimum dimension of 8m.
- 5 The communal open space must be located at ground level behind the building line.
- 6 Access to and within the communal open space must be provided for people with a disability (refer to AS1428).
- 7 The location and design of communal open space should optimise opportunities for social and recreation activities, solar access and orientation, summer shade, outlook and the privacy of residents.
- 8 Communal open space should be integrated with significant natural features of the site and soft landscape areas.
- 9 Concealment or entrapment areas should not be created within the communal open space.
- 10 Communal open space should be well lit with an energy efficient lighting system to be used in conjunction with timers or daylight controls. All light spill to apartments is prohibited.
- 11 Shared facilities such as barbeques, shade structures, play equipment and seating, are to be provided within the communal open space.
- 12 Garden maintenance storage areas and connections to water and drainage must be provided to communal open space.
- 13 Planting within communal open space, other than turf, should consist of 70% native species, preferably locally occurring native plants.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.11 Communal Open Space (continued)

Controls

- 14 Communal open spaces are to incorporate a structured and ordered landscape treatment to provide a distinction between developed and natural bushland areas.
- 15 Accent planting should be used to highlight nodal points and building entries.
- 16 A minimum 1.5 metre wide planted buffer of small trees, shrubs and groundcovers should be provided between communal open space and private courtyard fences where possible.

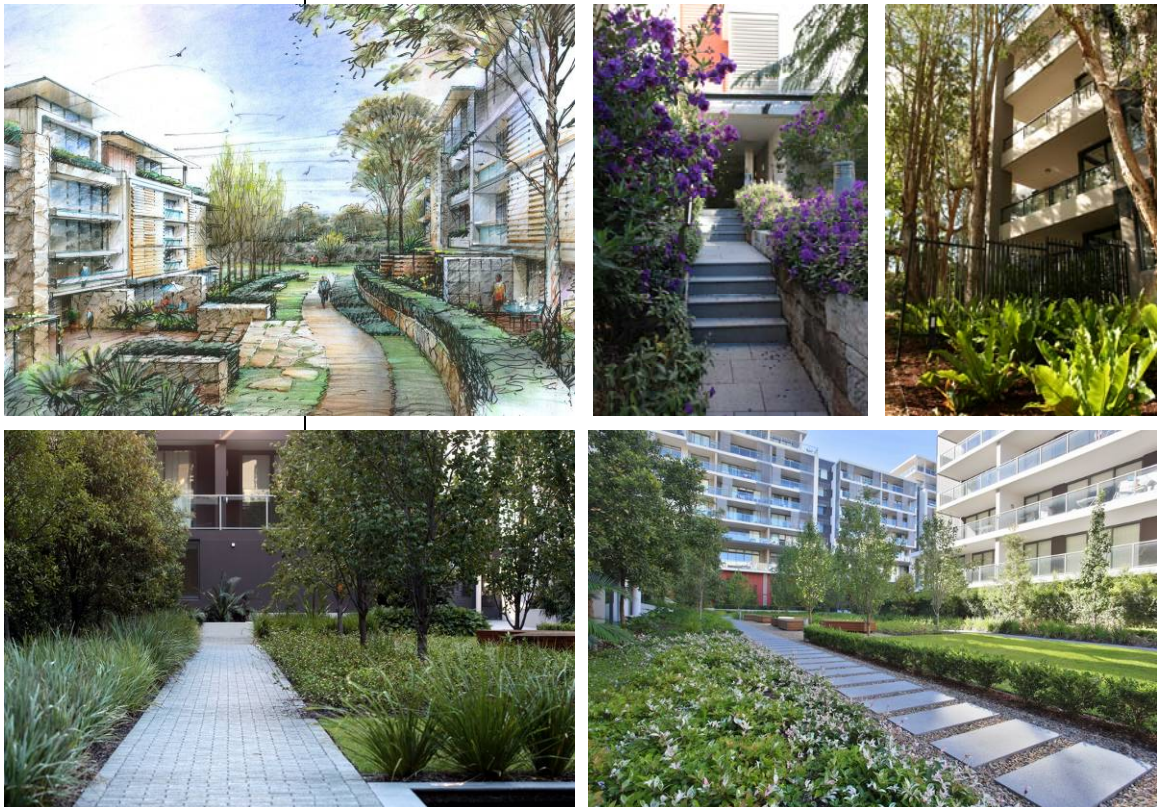


Figure 2.1.11-1:
Structured and ordered communal open spaces.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.12 Apartment Depth and Width

Objective

- 1 To provide apartments with good amenity for occupants in terms of sun access and natural ventilation.

Controls

- 1 Dual aspect apartments are to have a maximum internal plan depth of 18m from glass line to glass line.
- 2 Single aspect apartments are to have a maximum internal plan depth of 8m from glass line to internal face of wall of habitable area unless the design of the apartment can clearly demonstrate that adequate natural light and ventilation can be achieved.
- 3 The width of dual aspect apartments over 15m deep must be 4m or greater to avoid deep narrow apartment layouts.
- 4 All kitchens must be located no more than 8m to the back wall of the kitchen, from an external opening unless the design of the apartment can clearly demonstrate that adequate natural light and ventilation can be achieved.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.13 Ground Floor Apartments

Objectives

- 1 To provide good daylight and ventilation to ground floor apartments and associated private open space.
- 2 To minimise excavation on the site.

Controls

- 1 The finished ground level of private open space adjacent to living areas of ground level apartments must not be more than 0.9m below existing ground level.
- 2 Where the finished ground level outside the living area at the building line is more than 0.5m, the private open space must be level for a minimum of 2.4m from the living area.
- 3 No obstructions, such as retaining walls or fences, are permitted to project beyond a 45° control plane, (10am sun angle at 23 March) drawn from the finished ground level outside the living area at the building line to the end of the private open space. Plants may project beyond the 45° control plane. See Figure 2.1.13-1 below.

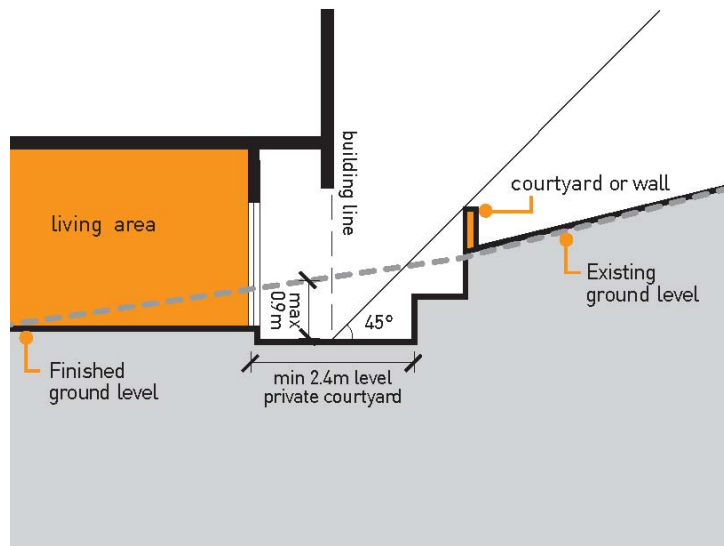


Figure 2.1.13-1:
Ground floor apartments on sloping sites.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

Objectives

- 1 *To ensure a high level of internal amenity for all occupants with direct access to daylight in all habitable rooms.*
- 2 *To minimise the negative impact of overshadowing on living areas and private and communal open space areas of neighbouring buildings.*
- 3 *To minimise the impact of development on existing solar collection devices.*

2.1.14 Solar Access

Controls

- 1 All developments must comply with the Apartment Depth Controls in Part A2.1.13 to optimise solar access to habitable rooms.
- 2 Buildings must be oriented to optimise the northern aspect.
- 3 At least 70% of apartments must receive a minimum of three hours direct sunlight to living rooms and adjacent private open space between 9am and 3pm on 21st June.

Note: shadows cast by trees and vegetation are excluded from this calculation.
- 4 At least 50% of the communal open space for residents' use must receive direct sunlight for at least three hours between 9 am and 3 pm on 21st June.
- 5 The number of single aspect apartments with a southern orientation (SW-SE) must be limited to a maximum of 10% of the total apartments proposed in the development. Developments which seek to vary from the minimum standards must demonstrate how site constraints and orientation prohibit the achievement of these controls.
- 6 Use light shelves, reflectors, lightwells, skylights, atriums and clerestories where possible to maximise the quantity and quality of natural light within internal areas.
- 7 The use of lightwells / skylights as a primary source of daylight in habitable rooms is prohibited.
- 8 All developments must allow the retention of at least three hours of sunlight between 9am and 3pm on 21st June to the living areas and the principal portion of the private and communal open space of:
 - existing residential flat buildings and multi-dwelling housing on adjoining lots; and
 - any adjoining residential development.
 Where existing overshadowing by buildings is greater than this, sunlight is not to be reduced by more than 20%.
- 9 Overshadowing must not compromise the development potential of the adjoining under-developed site(s).
- 10 Developments must allow the retention of a minimum of 4 hours direct sunlight between 9am to 3pm on 21st June to all existing neighbouring solar collectors and solar hot water services.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.14 Solar Access (continued)

Controls

Sun Shading

- 11 All developments must utilise shading and glare control. Design solutions include:
 - i) providing external horizontal shading to north-facing windows such as eaves, overhangs, pergolas, awnings, colonnades, upper floor balconies, and / or deciduous vegetation;
 - ii) providing vertical shading to east and west windows such as sliding screens, adjustable louvres, blinds and / or shutters;
 - iii) providing shading to glazed and transparent roofs;
 - iv) using low glare high performance glass with an overall 3 star Window Energy Rating Scheme rating (refer to www.wers.net); and
 - v) using glass with reflectance below 20%.
- 12 All shading devices must be integrated with building façade design.
- 13 Consideration should be given to the integration of solar shading with solar energy collection technology.
- 14 Reflective films applied to windows and glazing is to be avoided.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

Objective

- 1 To ensure a high level of internal amenity for all occupants with direct access to fresh air for all habitable rooms.

2.1.15 Natural Ventilation

Controls

- 1 All habitable rooms are to have operable windows or doors.
- 2 At least 60% of apartments must have natural cross ventilation.
- 3 At least 25% of all kitchens are to be naturally ventilated.
- 4 Use the building layout and section to increase the potential for natural ventilation. Design solutions include:
 - i) facilitating cross ventilation by designing narrow building depths and providing dual aspect apartments (cross-through and corner apartments) - refer to Section 2.1.12 Apartment Depth and Width;
 - ii) facilitating convective currents by designing units which draw cool air in at lower levels and allow warm air to escape at higher levels (eg. maisonette and two-storey apartments);
 - iii) minimising interruptions in air flow through the apartment, the more corners or rooms airflow must negotiate, the less effective the natural ventilation;
 - iv) grouping rooms with similar usage together, for example, keeping living spaces together and sleeping spaces together, this allows the apartment to be compartmentalised for efficient summer cooling or winter heating.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

Objective

- 1 To ensure high standards of visual privacy for all occupants within the development and to its neighbours.

2.1.16 Visual Privacy

Controls

- 1 All developments must comply with the Building Separation Controls in Section 2.1.2 to ensure visual privacy.
- 2 Buildings must be designed to ensure privacy without compromising access to light and air. Design solutions include:
 - i) off-setting windows in relation to adjacent buildings/windows;
 - ii) using recessed balconies and/or vertical fins between adjacent private balconies;
 - iii) using solid or semi-transparent balustrades to balconies;
 - iv) using louvres/screen panels to windows and balconies;
 - v) providing vegetation as a screen between spaces;
 - vi) incorporating planter boxes into walls or balustrades to increase the visual separation between areas;
 - vii) utilising pergolas or shading devices to limit overlooking of lower building levels or common and private open space.
- 3 Continuous transparent balustrades are not permitted to balconies or terraces for the lower 3 storeys where buildings address public roads.
- 4 Screening between apartments must be integrated with the overall building design.
- 5 Landscaped screening must be provided to adjoining site(s).

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

<p>Objective</p> <p>1 To ensure high standards of acoustic privacy for all occupants of the development.</p>	<p>2.1.17 Acoustic Privacy</p> <p>Controls</p> <ol style="list-style-type: none"> 1 All developments must comply with the Building Separation Controls in Section 2.1.2 to ensure adequate acoustic privacy for building occupants. 2 Buildings must be designed to minimise the impact of traffic noise through planning, construction and materials in accordance with: <ol style="list-style-type: none"> i) AS2107-2000: Acoustics- Recommended design sound levels and reverberation times for building interiors. ii) AS3671-1989: Acoustics- Road traffic noise intrusion- Building siting and construction. 3 Residential flat buildings must be designed to minimise noise transition by, but not limited to, the following means: <ol style="list-style-type: none"> i) grouping room uses according to the noise level generated; ii) using storage or circulation zones within an apartment to buffer noise from adjacent apartments, mechanical equipment or corridors and lobby areas; iii) minimising the amount of shared walls with other apartments; iv) using service areas/corridors to buffer noise sensitive areas (i.e. bedrooms) from noise generators including traffic, service and loading vehicle entries; v) incorporating appropriate noise shielding or attenuation techniques into the design and construction of the building.
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Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.18 Internal Ceiling Heights

Objectives

- 1 *To ensure that internal ceiling heights are coordinated with external building form requirements.*
- 2 *To provide internal ceiling heights that contribute to flexibility and adaptability of use in the future.*
- 3 *To create buildings that facilitate a 'sense of space' by maximising natural light and ventilation.*

Controls

- 1 All residential flat buildings must comply with the following minimum ceiling heights, measured from finished floor level (FFL) to finished ceiling level (FCL):
 - i) 2.7m for all habitable rooms;
 - ii) 2.25m for all non-habitable rooms.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

Objective

- 1 *To provide well proportioned and functional rooms.*

2.1.19 Room Sizes

Controls

- 1 Living areas must have a minimum internal plan dimension as follows:
 - i) 4m for apartments with 2 or more bedrooms;
 - ii) 3.5m for other apartments.
- 2 One and two bedroom apartments must have a minimum internal plan dimension of 3m (excluding wardrobe space) in all bedrooms.
- 3 Apartments with three or more bedrooms are to have at least two bedrooms with a minimum internal plan dimension of 3m (excluding wardrobe space).

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.20 Internal Common Circulation

Objective

- 1 *To provide accessible, safe and pleasant circulation spaces for all occupants and users.*

Controls

- 1 The design of internal common circulation space must comply with the provisions in AS1428.1 and AS1428.2 to provide adequate pedestrian mobility and access.
- 2 All common circulation areas including foyers, lift lobbies and stairways must have:
 - i) appropriate levels of lighting with a preference for natural light where possible;
 - ii) short corridor lengths that give clear sight lines;
 - iii) clear signage noting apartment numbers, common areas and general direction finding;
 - iv) natural ventilation;
 - v) low maintenance and robust materials.
- 3 Where artificial lighting is required energy efficient lights are to be used in conjunction with timers or daylight controls.
- 4 All single common corridors must:
 - i) serve a maximum of 8 apartments;
 - ii) be at least 1.5m wide (to allow ease of movement of furniture); and
 - iii) be at least 1.8m wide at lift lobbies.
- 5 Buildings must be designed to avoid blind corners or dark alcoves near lifts and stairwells, at the entrances, along corridors and walkways, and within car parks.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

Objective

- 1 To ensure all apartments have adequate and accessible storage for everyday household items.

2.1.21 Storage

Controls

- 1 Storage space shall be provided for each apartment at the following minimum volumes:
 - i) 6m³ for studio;
 - ii) 8m³ for one bedroom apartments;
 - iii) 10m³ for two bedroom apartments; and
 - iv) 12m³ for apartments with three or more bedrooms.

- 2 At least 50% of the storage space must be provided within the apartment. The remaining storage space outside apartments, such as within basements, must be separately allocated to the relevant apartments.

Note 1: Storage space within apartments can be in the form of cupboards in halls, living rooms, laundries, flexible spaces (which can also be used as studios/media rooms etc). Storage in kitchens, bedrooms or bathrooms will not count towards this requirement.

Note 2: Storage space outside apartments can be in basements and dedicated storerooms. The rear of a parking space is an appropriate location in the basement for part of the storage controls.

Note 3: Where two car spaces are provided for an apartment, the requirement for the basement storage component may be waived in order to ensure basements do not extend greater than 10% of the ground floor perimeter.

Note 4: Refer to Section 3.13 for waste storage.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.22 External Air Clothes Drying Facilities

Objectives

- 1 To ensure buildings maximise the opportunities for sun and wind drying of clothes.
- 2 To provide external air clothes drying areas that do not detract from the visual appearance of the building and common areas.

Controls

- 1 Each apartment is required to have access to an external air clothes drying area, e.g. a screened balcony, a terrace or common area.
- 2 External air clothes drying areas must be screened from public and common open space areas.
- 3 Where provided in common areas facilities are to be provided including clothes lines.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

Objectives

- 1 To provide adequate car parking for the building's users and visitors.
- 2 To locate and design car parking which is integrated with the site and building design.

2.1.23 Car Parking Provision

Controls

Car parking design

- 1 All residential flat developments must provide on-site car parking within basements.
- 2 To maximise landscaping area, basement car park areas must be consolidated under building footprints.

Note: Basements may be permitted to extend under the space between buildings on the site.
- 3 The basement car park must not project more than 1m above existing ground level to the floor level of the storey immediately above.

Note: refer to Section 3.7 for additional basement car parking design controls.
- 4 Direct internal access from basement car parks must be provided to each level of the building.
- 5 A space for temporary parking for service and removalist vehicles must be provided and clearly signposted.
- 6 The temporary space for service and removalist vehicles may be provided as a visitors' space provided it has a minimum dimension of 3.5m x 6m, a minimum manoeuvring area 7m wide and adequate headroom.

Car parking rates

- 7 The following parking rates apply to residential flat developments:

Apartment Size	Parking Space Requirement per apartment
Studio	0 – 0.5 spaces
One bedroom	0.7 - 1 spaces
Two bedrooms	1 - 1.5 spaces
Three or more bedrooms	1 - 2 spaces

- 8 At least one visitor car space is to be provided within the site for every 4 apartments or part thereof.
Note: refer to Section 3.8 for visitor parking design controls.
- 9 Any spaces provided which exceed the upper range are to be included in the calculation of gross floor area.
- 10 Each adaptable housing dwelling must be provided with at least one disabled car parking space designed in accordance with AS 1428 and AS 4299.
Note: Refer to Section 3.9 for parking for people with a disability design controls.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.24 Bicycle Parking Provision

<p>Objective</p> <p>1 To provide bicycle parking that is safe and easily accessible.</p>	<p>Controls</p> <p>1 Provide on-site, secure bicycle parking spaces and storage at the following rates:</p> <ul style="list-style-type: none">i) 1 bicycle parking space per 5 units (or part thereof) for residents within the residential car park area; andii) 1 bicycle parking space (in the form of a bicycle rail) per 10 units for visitors in the visitor car park area. <p>Note: Refer to Section 3.11 for bicycle parking design controls.</p>
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Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.25 Adaptable Housing

Objectives

- 1 To increase the housing choice for seniors and people with disabilities.
- 2 To provide housing that allows people to stay in their home as their needs change due to aging or disability.

Controls

- 1 All residential flat buildings must contain at least one apartment for each 10 apartments (or part thereof) designed as adaptable housing in accordance with the provisions of AS 4299-1995: *Adaptable Housing Class C*.
- 2 A minimum of 10% of one bedroom apartments are to be designed as adaptable housing.
- 3 Each adaptable housing apartment must be provided with at least one disabled car parking space designed in accordance with AS 2890.6.
- 4 At least 70% of apartments are to be “visitable” in accordance with AS 4299.

Part 2 – Specific Building Type Controls

2.1 Residential Flat Building

2.1.26 Apartment Mix and Sizes

Objectives

- 1 *To provide a range of apartment types, sizes and layouts for housing choice.*
- 2 *To make ground floor apartments available for a range of household types.*

Controls

- 1 A range of apartment sizes and types must be included within the development.
- 2 Apartments are to be a minimum size (GFA) of:
 - i) 50m² for studios and one bedroom apartments;
 - ii) 70m² for two bedroom apartments;
 - iii) 95m² for three bedroom apartments.
- 3 A mix of one, two and three-bedroom apartments are to be located on the ground level.
- 4 A minimum of 10% of the total number of dwellings on the site are to be a maximum of one bedroom.

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

<p>Objectives</p> <p>1 To provide a transition between residential flat buildings and dwelling houses within Edgelea.</p> <p>2 To ensure adequate separation between buildings on different sites for privacy, sun access, acoustic control and natural ventilation.</p> <p>3 To ensure adequate space between sites to enable effective landscaping and tree planting.</p>	<p>2.2.1 Site Layout and Building Controls</p> <p>Controls</p> <p>1 Small lot housing within Edgelea is located in Precincts 1 and 5 – refer to Figure 2.2.1-1 below. The total number of small lot houses permitted in Precincts 1 and 5 is 25. Setback, site coverage and deep soil requirements for small lot housing in these areas are described on the following pages.</p> <div data-bbox="614 696 1316 1361"></div> <p>Figure 2.2.1-1: Edgelea Precinct Layout.</p> <p>2 Buildings must not be located on or within a drainage depression, easement, or piped drainage system.</p>
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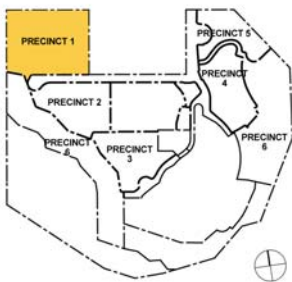
Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

2.2.1 Site Layout and Building Controls (continued)

Controls – Precinct 1

The indicative location of small lot housing types SL1-1 to SL1-4 is shown below in Figure 2.2.1-2. The minimum lot size is to be 336m². The minimum lot frontage is to be 11.5m.



Key Plan



Figure 2.2.1-2: Indicative Location of Small Lot Housing – Precinct 1.

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

2.2.1 Site Layout and Building Controls (continued)

Controls – Precinct 1 Small Lot Housing Type SL1-1

- 1 The site layout and building setbacks for small lot housing type SL1-1 are shown below in Figure 2.2.1-3.

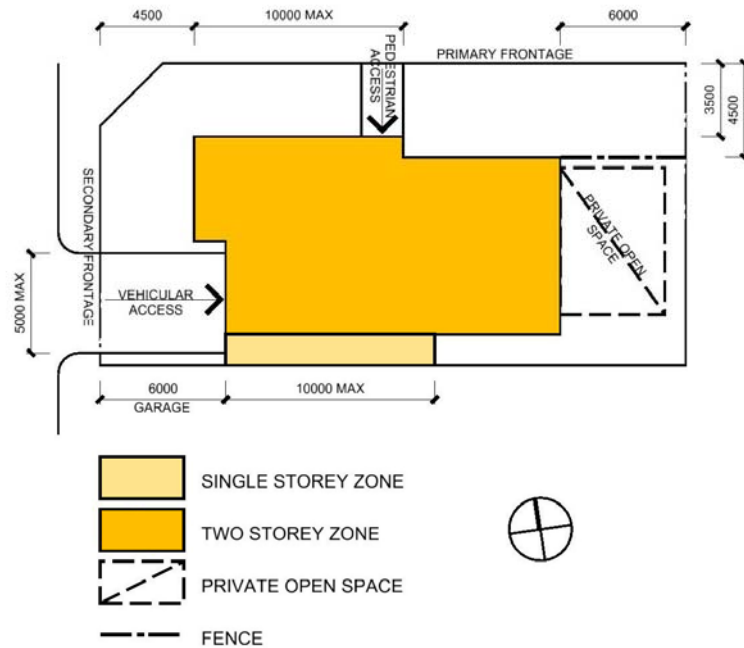


Figure 2.2.1-3: Small Lot Housing Type SL1-1 Site Layout.

- 2 The built upon area is to be a maximum of 68% of the site area.
- 3 The landscaped area is to be a minimum of 32% of the site area.
- 4 The landscaped area in the front setback is to be a minimum of 50% of the front setback area.

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

2.2.1 Site Layout and Building Controls (continued)

Controls – Precinct 1 Small Lot Housing Type SL1-2

- 1 The site layout and building setbacks for small lot housing type SL1-2 are shown below in Figure 2.2.1-4.

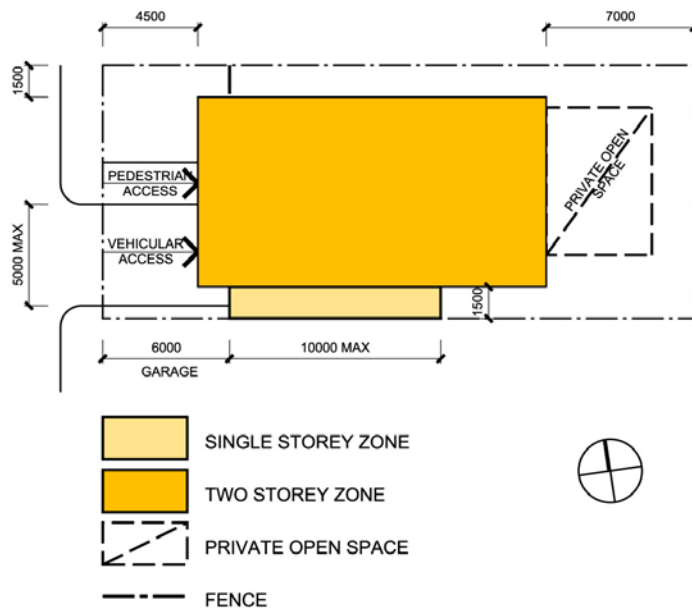


Figure 2.2.1-4: Small Lot Housing Type SL1-2 Site Layout.

- 2 The built upon area is to be a maximum of 72% of the site area.
- 3 The landscaped area is to be a minimum of 28% of the site area.
- 4 The landscaped area in the front setback is to be a minimum of 30% of the front setback area.

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

2.2.1 Site Layout and Building Controls (continued)

Controls – Precinct 1 Small Lot Housing Type SL1-3

- 1 The site layout and building setbacks for small lot housing type SL1-3 are shown below in Figure 2.2.1-5.

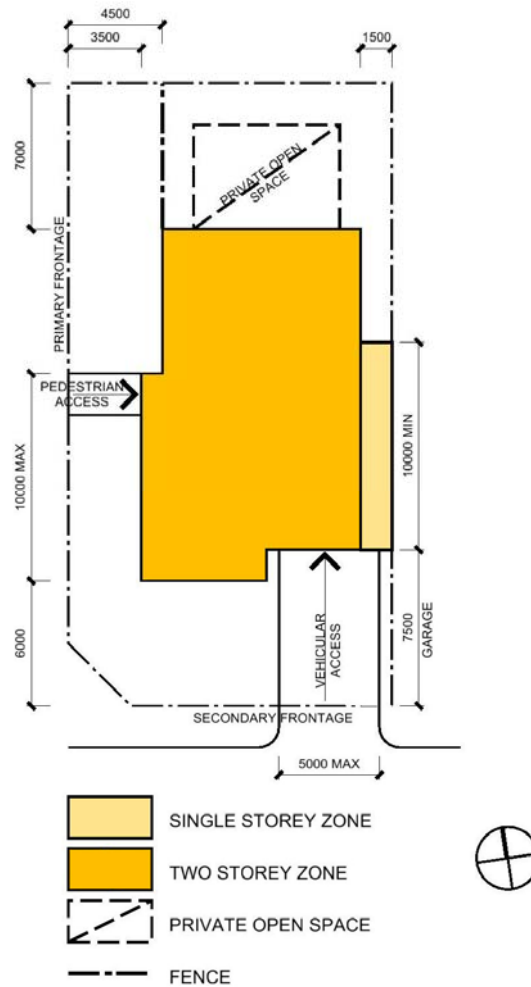


Figure 2.2.1-5: Small Lot Housing Type SL1-3 Site Layout.

- 2 The built upon area is to be a maximum of 62% of the site area.
- 3 The landscaped area is to be a minimum of 38% of the site area.
- 4 The landscaped area in the front setback is to be a minimum of 50% of the front setback area.

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

2.2.1 Site Layout and Building Controls (continued)

Controls – Precinct 1 Small Lot Housing Type SL1-4

- 1 The site layout and building setbacks for small lot housing type SL1-4 are shown below in Figure 2.2.1-6.

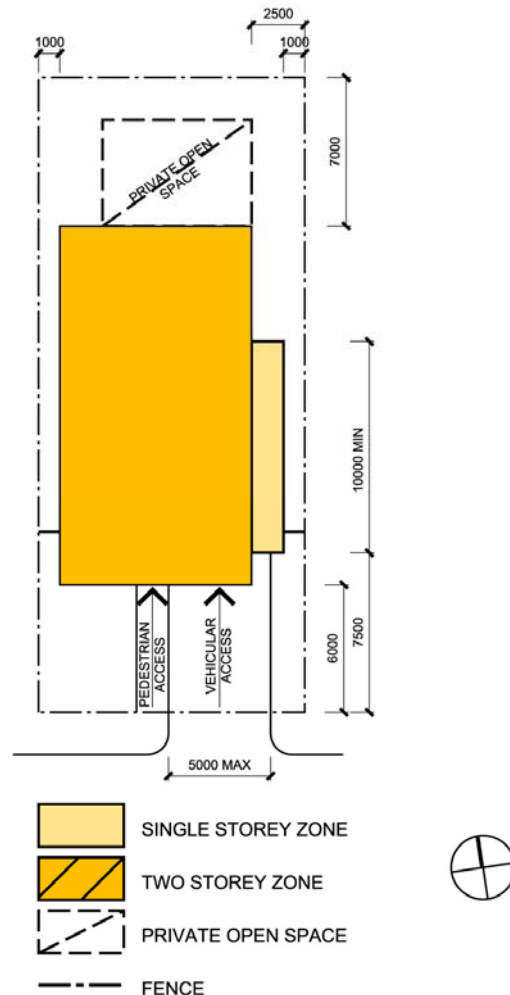


Figure 2.2.1-6: Small Lot Housing Type SL1-4 Site Layout.

- 2 The built upon area is to be a maximum of 72% of the site area.
- 3 The landscaped area is to be a minimum of 28% of the site area.
- 4 The landscaped area in the front setback is to be a minimum of 40% of the front setback area.

Edgelea Urban Design Guidelines

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

2.2.1 Site Layout and Building Controls (continued)

Controls – Precinct 5 Small Lot Housing Type SL5-1

- 1 The site layout and building setbacks for small lot housing type SL5-1 are shown below in Figure 2.2.1-8.

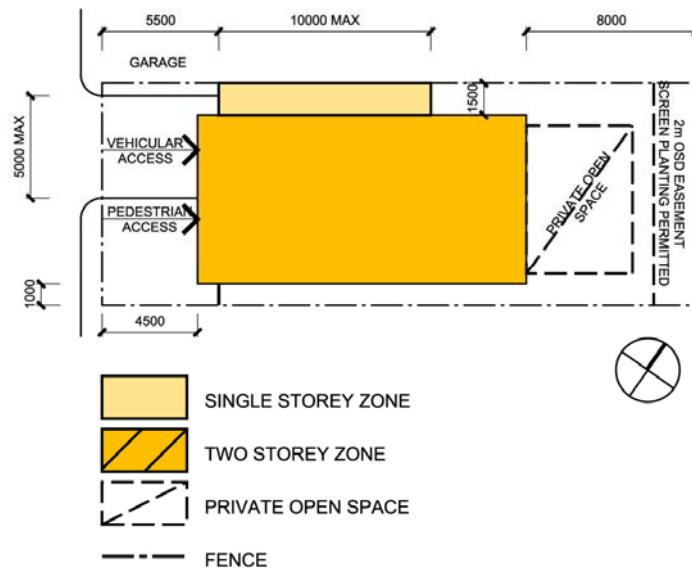


Figure 2.2.1-8: Small Lot Housing Type SL5-1 Site Layout.

- 2 The built upon area is to be a maximum of 73% of the site area.
- 3 The landscaped area is to be a minimum of 27% of the site area.
- 4 The landscaped area in the front setback is to be a minimum of 30% of the front setback area.

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

2.2.1 Site Layout and Building Controls (continued)

Controls – Precinct 5 Small Lot Housing Type SL5-2

- 1 The site layout and building setbacks for small lot housing type SL5-2 are shown below in Figure 2.2.1-9.

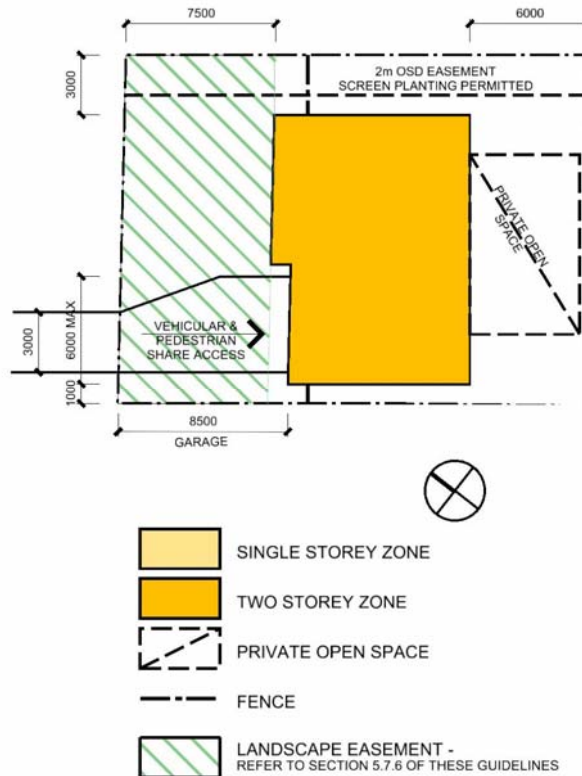


Figure 2.2.1-9: Small Lot Housing Type SL5-2 Site Layout.

- 2 The built upon area is to be a maximum of 60% of the site area.
- 3 The landscaped area is to be a minimum of 40% of the site area.
- 4 The landscaped area in the front setback is to be a minimum of 60% of the front setback area.

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

2.2.1 Site Layout and Building Controls (continued)

Controls – Precinct 5 Small Lot Housing Type SL5-4

- 1 The site layout and building setbacks for small lot housing type SL5-4 are shown below in Figure 2.2.1-11.

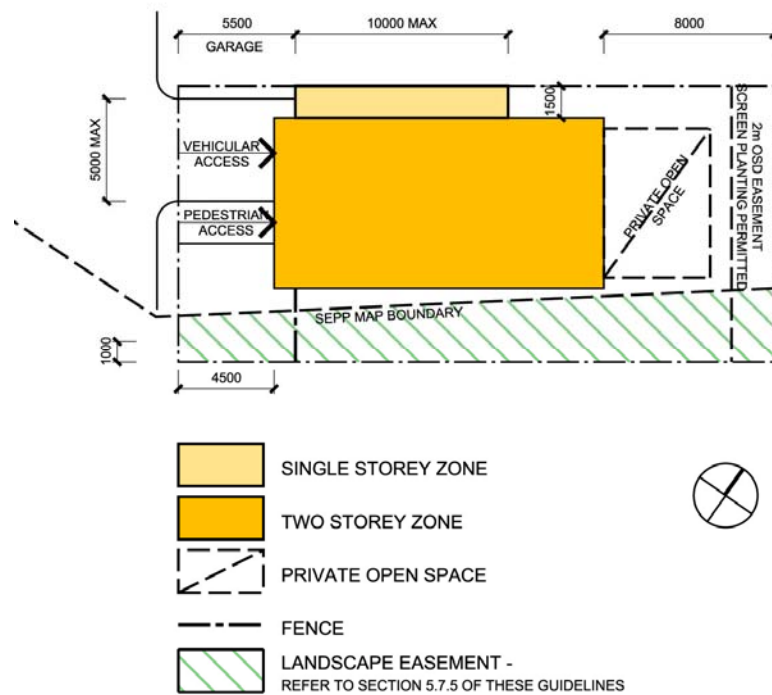


Figure 2.2.1-11: Small Lot Housing Type SL5-4 Site Layout.

- 2 The built upon area is to be a maximum of 80% of the site area.
- 3 The landscaped area is to be a minimum of 20% of the site area.
- 4 The landscaped area in the front setback is to be a minimum of 30% of the front setback area.

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

2.2.2 Landscaped Area

Objectives

- 1 *To provide landscaping that is appropriate to the scale and context of the development.*
- 2 *To provide landscaping that provides habitat for native indigenous plants and animals and contributes to biodiversity in the area.*
- 3 *To ensure landscaping that contributes to the garden character of the locality.*
- 4 *To promote landscaping that minimises water use.*

Controls

- 1 Landscaped areas are to:
 - i) avoid the creation of drainage and run-off problems;
 - ii) allow for screen planting between buildings;
 - iii) enhance the visual character of development when viewed from adjacent streets, parks and neighbouring properties by providing suitable landscaping so that the built form does not dominate; and
 - iv) retain and protect significant trees, shrubs and gardens.
- 2 Natural ground level must be maintained beneath the canopy spread of trees to be retained.
 Note: If the ground level is modified within the canopy spread, a report from a suitably qualified arborist will be required.

Tree Replenishment and planting

- 3 A range of medium trees, small trees and shrubs are to be selected to ensure that vegetation is predominantly in the view of buildings.
- 4 Species are to be chosen for an appropriate range of height and foliage density, and for their low maintenance characteristics, water efficiency, aesthetic appeal and suitability to the characteristics of the site and location. Species for screen planting are also to be chosen for relatively fast growth.
- 5 Siting and choice of trees must consider:
 - i) good solar access to useable open space areas;
 - ii) provision of summer shade;
 - iii) proximity to buildings, fences and other structures;
 - iv) proximity to stormwater, electricity, gas, sewer, other infrastructure and services; and
 - v) measures to minimise the potential hazard on sites prone to bushfire risk.

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

2.2.3 Building Facades

Objectives

- 1 *To promote buildings of high architectural quality that contribute to a distinctive Edgelea character.*
- 2 *To ensure development demonstrates individual identity for each dwelling.*
- 3 *To create building facades that reduce the bulk and scale of the building.*
- 4 *To create building facades that are environmentally responsive.*
- 5 *To integrate building elements into the overall building form and façade design.*
- 6 *To ensure that building façade design contributes to the safety of the public domain.*

Controls

- 1 Buildings are to reflect the character of the existing campus buildings and residential flat buildings through a consistent use of geometric forms, deep reveals and the use of a limited palette of colours and materials.
- 2 The external appearance of small lot housing must adopt an asymmetrical design to provide each dwelling with an individual identity when viewed from the street.
- 3 All building facades must be modulated and articulated with wall planes varying in depth by not less than 0.6m. This can be achieved through the following:
 - i) expressing building layout or structure;
 - ii) using a variety of window types to create interest, express the building uses or respond to microclimatic conditions;
 - iii) using recessed balconies and deep windows to add visual depth; and / or
 - iv) using change of texture and colour.
- 4 Building facades must be designed to respond to solar access by using solar protection elements such as eaves and louvres as environmental controls.
- 5 All building elements including shading devices and awnings must be coordinated and integrated with the overall façade design.



Figure 2.2.3-1:
Geometric building forms and use of limited palette of colours and materials.



Figure 2.2.3-2:
Modulation and articulation of building facades.

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

2.2.3 Building Facades (continued)

Controls

- 6 When individual air conditioning units are used, they must not be visible from the adjoining streets.
- 7 Balconies must not project more than 1.2m from the outermost wall of the building façade.
- 8 Blade walls are not to be the sole element used to provide articulation.
- 9 Street corners must be addressed by giving visual prominence to parts of the building façade, such as a change in building articulation, material or colour.
- 10 Building façades are to incorporate a limited palette of colours and materials in earthy, neutral tones. Materials are to be honed or polished concrete blockwork, face brick or rendered masonry with painted finish / integral colour render. Timber, metal or stone cladding may be used for accent elements.

Note: Refer to Section 3.3 for relevant controls on materials, finishes and colours.



Figure 2.2.3-3:

Well articulated building façade with eave overhang for solar protection. Use of limited palette of colours and materials.

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

2.2.4 Building Entries

Objectives

- 1 To ensure the building entry is a clear and identifiable element in the street and is accessible to all.
- 2 To ensure the building entry contributes positively to the streetscape and building façade.

Controls

- 1 Provide access to and within all developments in accordance with the *Disability Discrimination Act 1992*.
- 2 Buildings must address the street with at least one entry directly accessible and visible from the street.
- 3 Building entry must be integrated with building façade design. At street level, entry is to be articulated with awnings, porticos, recesses or projecting bays for clear identification.
- 4 All entry areas must be well lit and designed to avoid any concealment or entrapment areas.



Figure 2.2.4-1:
Entry clearly visible and
accessible from the street.

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

2.2.5 Top Storey Design and Roof Forms

Objectives

- 1 To ensure that the design of the top floor of buildings minimises visual bulk.
- 2 To provide articulation that prevents any increased overshadowing.
- 3 To contribute to the overall design and environmental performance of buildings.

Controls

- 1 Roofs are to be simple and geometric e.g. low pitched, mono-pitched, skillion or flat.
- 2 Roofs should be steel; tiled roofs are not appropriate for buildings in Edgelea.
Note: Refer to Section 3.3 for relevant controls on materials, finishes and colours.
- 3 Service elements are to be integrated into the overall design of the roof so as not to be visible from the public domain or any surrounding development.
- 4 Roof design must respond to solar access, for example, by using eaves and skillion roofs.
- 5 Where solar panels are provided they must be integrated into the roof line.



Figure 2.2.5-1:
Simple, geometric roof design.



Figure 2.2.5-2:
Modulation of simple roof form creates interest.

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

Objectives

- 1 To ensure front property boundaries to dwelling houses relate to their bushland setting and Ku-ring-gai UTS campus context.
- 2 To allow private gardens to merge with their neighbours' to reinforce the landscape bushland character of the area.
- 3 To reinforce the streetscape character of Edgelea.

2.2.6 Fencing

Controls

Front Fences

- 1 The use of picket fences and similar to front boundaries is not permitted within Edgelea.
- 2 Front fencing to the street is not permitted and a mix of planting should be used.
- 3 Low stone walls (500mm) and or bush rocks / rock cuttings with a combination of planting can be used.
- 4 A landscaped frontage with a mix of trees, shrubs and groundcover plantings are desirable. High hedges along the entire front boundary are not permitted.



Figure 2.2.6-1:
Typical section through front garden of
Small Lot Housing.

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

2.2.7 Private Open Space

Objectives

- 1 *To provide private open space that is functional and responsive to the environment for the enjoyment of outdoor living for residents.*
- 2 *To provide private open space (e.g. balcony, deck, terrace) that is integrated into the overall design of development.*
- 3 *To ensure that private open space design allows views and passive surveillance of the street while providing for safety and visual privacy of residents.*

Controls

- 1 Multi-dwelling housing development must provide a minimum (internal dimension) 35m² of private open space per dwelling at ground floor, and must ensure:
 - i) a single space of minimum 25m² with a minimum internal dimension of 4m and direct access from a living area of the dwelling; and
 - ii) the remaining spaces must have a minimum internal dimension of 2m.
- 2 All private open space area requirements are exclusive of any areas for the provision of services, e.g. external clothes drying facilities.
- 3 The primary open space is to have direct access from the main living areas.
- 4 Primary private open space with southern orientation should be avoided.
- 5 Primary private open space to have a minimum gradient of 1:30
- 6 One gas outlet (where gas services are available) and one water outlet are to be provided to the primary private open space.
- 7 Air conditioning units must not be located in private open space.
- 8 Retain and incorporate existing landscape features, such as sandstone outcrops and significant trees, into private open spaces where possible.
- 9 Planting in private open spaces is to consist of not less than 50% of local native tree species and 50% native understorey species.
- 10 Existing trees are to be retained where possible.
- 11 Planting to the frontages of dwellings is to consist predominantly of native species.
- 12 No direct access to the APZ from private open space.
- 13 Planting should be in accordance with planting lists in Section 5.6.

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

2.2.8 Natural Ventilation

Objectives

- 1 To ensure a high level of internal amenity for all occupants with direct access to fresh air for all habitable rooms.

Controls

- 1 All habitable rooms are to have operable windows or doors.
- 2 All dwellings must have natural cross ventilation.
- 3 All kitchens are to be naturally ventilated.
- 4 Select doors and operable windows to maximise natural ventilation opportunities established by the dwellings layout. Design solutions include:
 - i) locating small windows on the windward side (facing prevailing winds) and larger windows on the leeward side (away from prevailing winds) of the building thereby utilising air pressure to draw air through the dwellings;
 - ii) using higher level casement or sash windows, clerestory windows or operable fanlight windows (including above internal doors) to facilitate convective currents; and
 - iii) selecting windows which the occupants can reconfigure to funnel breezes into the dwelling such as vertical louvered, casement windows and externally opening doors.
- 5 The use of light wells / skylights as a primary source of ventilation in habitable rooms is prohibited.

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

Objectives

- 1 *To ensure a high level of internal amenity for all occupants with direct access to daylight in all habitable rooms.*
- 2 *To minimise the negative impact of overshadowing on living areas and private and communal open space areas of neighbouring development.*
- 3 *To minimise the impact of development on existing solar collector devices.*

2.2.9 Solar Access

Controls

- 1 Buildings must be oriented to optimise the northern aspect.
- 2 Dwellings must receive a minimum of three hours direct sunlight to living rooms and adjacent private open space between 9am and 3pm on 21st June.
Note: shadows cast by trees and vegetation are excluded from this calculation.
- 3 Use light shelves, reflectors, lightwells, skylights, atriums and clerestories where possible to maximise the quantity and quality of natural light within internal areas.
- 4 The use of lightwells / skylights as a primary source of daylight in habitable rooms is prohibited.
- 5 All developments must allow the retention of at least three hours of sunlight between 9am and 3pm on 21st June to the living areas and the principal portion of the private and communal open space of any adjoining residential development.
- 6 Overshadowing must not compromise the development potential of the adjoining under-developed site(s).

Sun Shading

- 7 All developments should utilise shading and glare control. Design solutions include:
 - i) providing external horizontal shading to north-facing windows such as eaves, overhangs, pergolas, awnings, colonnades, upper floor balconies, and / or deciduous vegetation;
 - ii) providing vertical shading to east and west windows such as sliding screens, adjustable louvres, blinds and / or shutters;
 - iii) providing shading to glazed and transparent roofs;
 - iv) using low glare high performance glass with an overall 3 star Window Energy Rating Scheme rating (refer to www.wers.net);
 - v) using glass with reflectance below 20%.
- 8 All shading devices must be integrated with building façade design.
- 9 Consideration should be given to the integration of solar shading with solar energy collection technology.
- 10 Reflective films applied to windows and glazing is to be avoided.

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

2.2.10 Visual Privacy

Objective

- 1 To ensure high standards of visual privacy for all occupants within the development and its neighbours.

Controls

- 1 Buildings must be designed to ensure privacy without compromising access to light and air. Design solutions include:
 - i) off-setting windows in relation to adjacent buildings/windows;
 - ii) using recessed balconies and/or vertical fins between adjacent private balconies;
 - iii) using solid or semi-transparent balustrades to balconies;
 - iv) using louvres/screen panels to windows and balconies;
 - v) providing vegetation as a screen between spaces;
 - vi) incorporating planter boxes into walls or balustrades to increase the visual separation between areas;
 - vii) utilising pergolas or shading devices to limit overlooking of lower building levels or private open space.
- 2 Continuous transparent balustrades are not permitted to balconies/terraces.
- 3 Screening between dwellings must be integrated with the overall building design.
- 4 Landscaped screening must be provided to adjoining site(s).

Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

<p>Objective</p> <p>1 To ensure high standards of acoustic privacy for all occupants of the development.</p>	<p>2.2.11 Acoustic Privacy</p> <p>Controls</p> <p>1 Buildings must be designed to minimise the impact of traffic noise through planning, construction and materials in accordance with:</p> <ul style="list-style-type: none"> i) AS2107-2000: Acoustics- Recommended design sound levels and reverberation times for building interiors. ii) AS3671-1989: Acoustics- Road traffic noise intrusion- Building siting and construction. <p>2 The transmission of noise between adjoining properties should be minimised.</p> <p>This may be achieved by:</p> <ul style="list-style-type: none"> i) locating the following away from bedroom windows of adjacent dwellings: <ul style="list-style-type: none"> - active recreation areas (eg swimming pools, spas, BBQ areas); - driveways and car ports; - services such as garbage collection areas, pumps and air conditioners. ii) locating bedrooms and other noise sensitive rooms away from the road; and iii) solid wall construction. <p>3 Development should be designed so as to minimise the impact of external noise sources on both internal and external space likely to be used by occupants.</p> <p>When designing and siting active living areas (e.g. bbq areas, swimming pools, games rooms etc) regard to potential noise impacts on sensitive areas (e.g. bedrooms) of adjoining properties should be considered.</p>
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Part 2 – Specific Building Type Controls

2.2 Small Lot Housing

2.2.12 Car Parking Provision

Objectives

- 1 To provide adequate car parking for the building's users and visitors.
- 2 To locate and design car parking which is integrated with the site and building design.
- 3 To ensure that garage structures do not dominate the site or the streetscape.

Controls

- 1 Garages must be integrated within the building and located behind the building line facing the street.
- 2 The width of the garage visible from the street must not be greater than 6m, as measured between exterior walls, or more than 40% of the site frontage, whichever is the lesser.
- 3 The design of the garage must be in keeping with the dwelling scale, form and design, and be compatible with the streetscape.

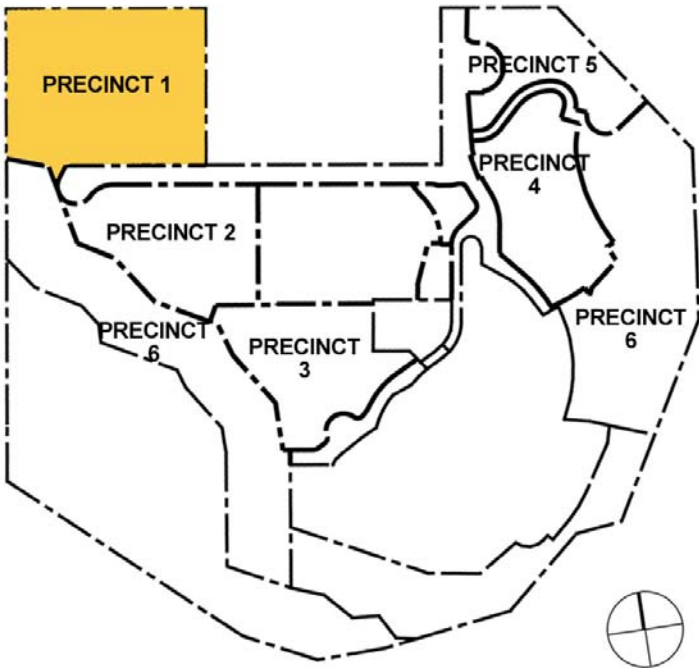
Car parking rates

- 4 The following parking ranges apply to small lot housing development:

Dwelling Size	Parking Space Requirement per dwelling
Two bedrooms	1 - 1.5 spaces
Three or more bedrooms	1 - 2 spaces

Part 2 – Specific Building Type Controls

2.3 Dwelling House

<p>Objectives</p> <p>1 To ensure that the appearance of new development is of high visual quality, enhances the streetscape and complements surrounding residential neighbourhoods.</p> <p>2 To provide sufficient soft landscaped area for the planting and retention of large canopy trees.</p> <p>3 To provide adequate space for screen planting between buildings.</p>	<p>2.3.1 Site Layout and Building Controls</p> <p>Controls</p> <p>1 Dwelling houses within Edgelea are located in Precinct 1 – refer to figure 2.3.1-1 below. The total number of dwelling houses permitted in Precinct 1 is 10. Setback, site coverage and deep soil requirements for dwelling houses in this precinct are described on the following pages.</p> <div data-bbox="619 705 1321 1370"></div> <p>Figure 2.3.1-1: Edgelea Precinct Layout.</p> <p>2 Buildings must not be located on or within a drainage depression, easement, or piped drainage system.</p>
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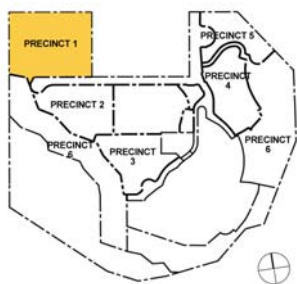
Part 2 – Specific Building Type Controls

2.3 Dwelling House

2.3.1 Site Layout and Building Controls (continued)

Controls – Precinct 1

The indicative location of dwelling house types DH1-1 to DH1-3 is shown below in Figure 2.3.1-2. The minimum lot size is to be 583m². The minimum lot frontage is to be 22m excluding corner lots.



Key Plan

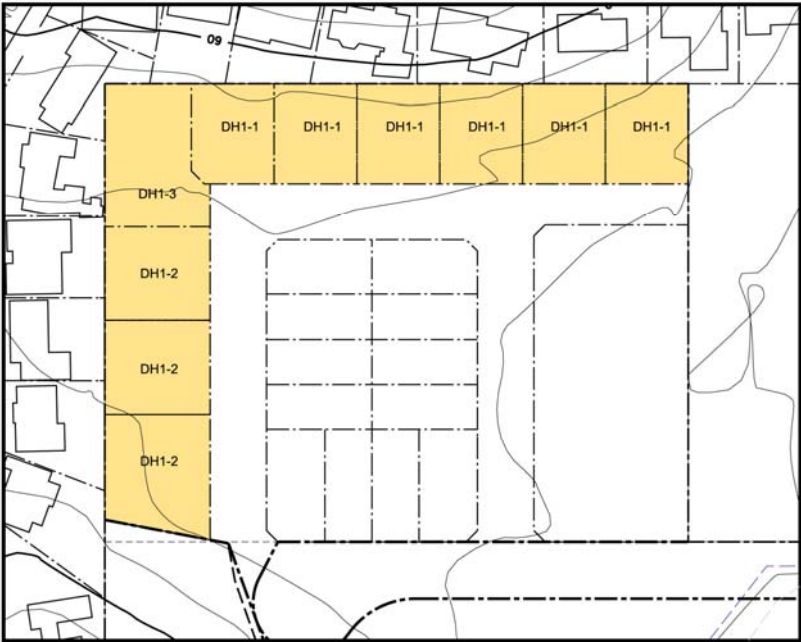


Figure 2.3.1-2: Indicative Location of Dwelling Houses – Precinct 1.

Part 2 – Specific Building Type Controls

2.3 Dwelling House

2.3.1 Site Layout and Building Controls (continued)

Controls - Housing Type DH1-1

- 1 The site layout and setbacks for dwelling house type DH1-1 are shown below in Figure 2.3.1-3.

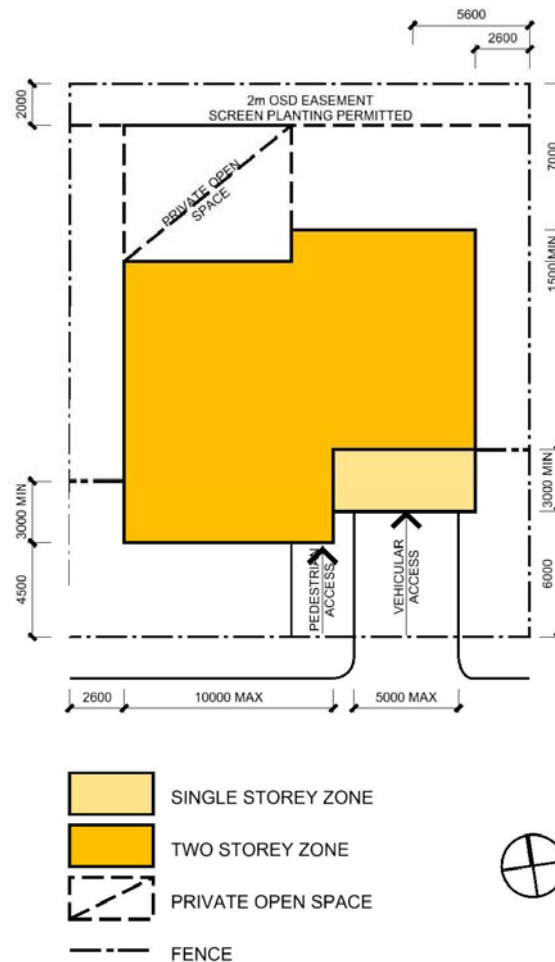


Figure 2.3.1-3: Dwelling House Type DH1-1 Site Layout.

- 2 The built upon area is to be a maximum of 60% of the site area.
- 3 The landscaped area is to be a minimum of 40% of the site area.
- 4 The landscaped area in the front setback is to be a minimum of 50% of the front setback area.

Part 2 – Specific Building Type Controls

2.3 Dwelling House

2.3.1 Site Layout and Building Controls (continued)

Controls - Housing Type DH1-2

- 1 The site layout and setbacks for dwelling house type DH1-2 are shown below in Figure 2.3.1-4.

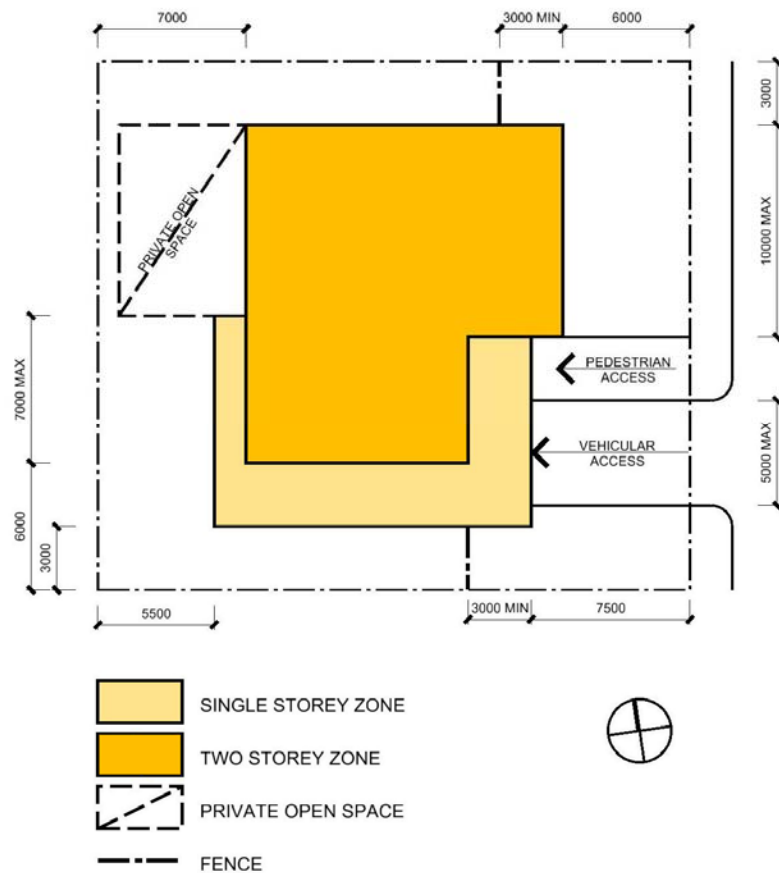


Figure 2.3.1-4: Dwelling House Type DH1-2 Site Layout.

- 2 The built upon area is to be a maximum of 60% of the site area.
- 3 The landscaped area is to be a minimum of 40% of the site area.
- 4 The landscaped area in the front setback is to be a minimum of 50% of the front setback area.

Part 2 – Specific Building Type Controls

2.3 Dwelling House

2.3.1 Site Layout and Building Controls (continued)

Controls - Housing Type DH1-3

- 1 The site layout and setbacks for dwelling house type DH1-3 are shown below in Figure 2.3.1-5.

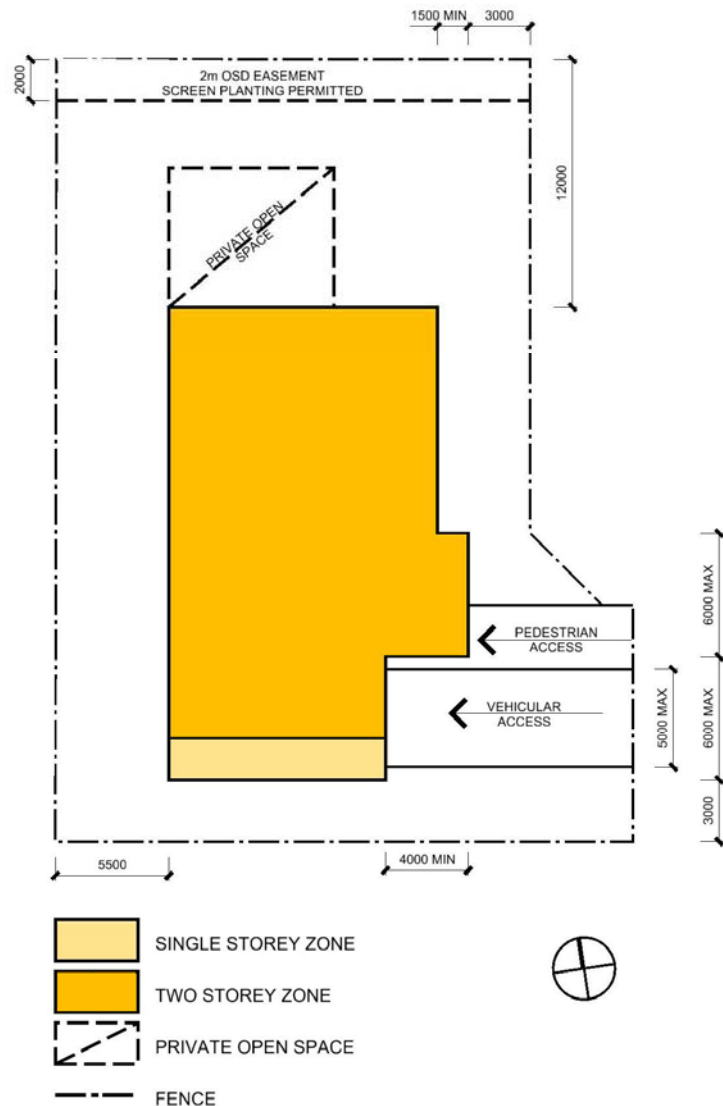


Figure 2.3.1-5: Dwelling House Type DH1-3 Site Layout.

- 2 The built upon area is to be a maximum of 60% of the site area.
- 3 The landscaped area is to be a minimum of 40% of the site area.

Part 2 – Specific Building Type Controls

2.3 Dwelling House

<p>Objectives</p> <ol style="list-style-type: none"> 1 To protect and enhance the tree canopy of Kuring-gai. 2 To ensure that the built form does not dominate views from adjacent streets and neighbouring properties. 3 To provide landscaped areas that are appropriate to the scale and location of the development and its context. 4 To ensure that landscaped areas assist with the maintenance of privacy between neighbouring dwellings. 5 To ensure that landscaped areas minimise water use. 6 To provide landscaped areas with high quality and amenity. 7 To provide habitat and connectivity for native indigenous plants and animals and contribute to biodiversity. 8 To prevent future damage from vegetation to dwellings, structures and infrastructure located on the site and on adjoining properties. 	<p>2.3.2 Landscaped Areas</p> <p>Controls</p> <ol style="list-style-type: none"> 1 Landscape proposals should retain existing trees, where possible. Trees are to be valued and conserved as an integrated feature of the area and their dominant role in the landscape is to be protected and enhanced. This should be achieved by: <ol style="list-style-type: none"> i) avoiding alterations to existing ground levels; ii) planting compatible species; and iii) confining building works where appropriate to pre-existing building footprints. <p>Tree replenishment and planting</p> <ol style="list-style-type: none"> 2 Landscaping must include tall trees, small trees, shrubs and groundcovers. 3 Landscape designs are to reflect the prevailing landscape character of the area and relate to the existing streetscape in terms of scale and planting style. 4 Siting and choice of trees must consider: <ol style="list-style-type: none"> i) The retention of reasonable solar access to dwellings, pools and private open space on the site and on adjacent sites; ii) The proximity to dwellings, pools, tennis courts, fences, pavement and other structures located on the site and on adjoining properties; iii) The proximity to stormwater, electricity, gas, sewer and other infrastructure and services; iv) On sites prone to bushfire risk, measures to minimise the potential hazard (Refer to Section 3.1). <p>Screen planting</p> <ol style="list-style-type: none"> 5 The retention of existing screen planting is encouraged. 6 Adequate width for planting beds must be provided to establish screen planting where required. 7 Within the front setback, the height of planting is to allow partial views to and from the dwelling and beyond. 8 Species selected must have an appropriate range of height and foliage density. Note : Potential species lists for a variety of heights and locations are available from Council and on Council's website (www.kmc.nsw.gov.au)
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Part 2 – Specific Building Type Controls

2.3 Dwelling House

2.3.3 Building Facades

Objectives

- 1 *To provide a transition from the flat buildings and multi-dwelling housing within Edgelea to the surrounding residential neighbourhoods.*
- 2 *To encourage well designed, attractive and site responsive buildings.*
- 3 *To minimise the bulk and scale of the built form.*



Figure 2.3.3-1:
Residential dwellings in adjoining neighbourhood.

Controls

- 1 Building facades are to complement the flat buildings and small lot housing of Edgelea as well as adjoining residential areas by incorporating both geometric forms and traditional residential building elements that characterise buildings in surrounding neighbourhoods.
- 2 New development should incorporate architectural relief and modulation of facades to avoid a bulky appearance. This must be achieved by the following:
 - i) No unrelieved walls in excess of 12m.
 - ii) No unrelieved walls in excess of 8m are permitted where walls exceed 4m in height.
 - iii) Substantial articulation of wall recesses.
 - iv) Incorporating variations in elevations to provide visual interest to buildings.
 - v) The use of horizontal elements such as verandahs or pergolas.
 - vi) Integrating landscaped areas and natural site features with building design.
- 3 Buildings must address the street with at least one entry directly accessible and visible from the street.



Figure 2.3.3-2:
Use of geometric building forms to provide consistent design approach throughout Edgelea.

Part 2 – Specific Building Type Controls

2.3 Dwelling House

2.3.3 Building Facades (continued)

Controls

- 4 Corner properties should address primary and secondary street frontages.
- 5 Extensive blank or unarticulated walls to street frontages will not be accepted.
- 6 Building façades are to incorporate a limited palette of colours and materials in earthy, neutral tones. Materials are to be honed or polished concrete blockwork, face brick or rendered masonry with painted finish / integral colour render. Timber, metal or stone cladding may be used for accent elements.

Note: refer to Section 3.3 for relevant controls on materials, finishes and colours.



Figure 2.3.3-3:
Geometric building form and limited palette of colours and materials in earthy, neutral tones.



Figure 2.3.3-4:
Limited palette of colours and materials with timber, metal and stone cladding highlight elements.

Part 2 – Specific Building Type Controls

2.3 Dwelling House

<p>Objectives</p> <ol style="list-style-type: none"> 1 To limit the height and bulk of buildings so that they do not dominate the natural landscape or the tree canopy. 2 To ensure that buildings are responsive to the site. 3 To provide for quality interior spaces while considering the external building form requirements. 4 To limit the extent of visual and aural intrusion on the private spaces of neighbouring properties. 5 To allow adequate daylight, sunlight and ventilation to living areas and private open spaces for residents of the site and of neighbouring sites. 6 To provide for view sharing by ensuring that significant views from neighbouring dwellings are not unduly compromised. 	<p>2.3.4 Building Envelopes</p> <p>Controls</p> <ol style="list-style-type: none"> 1 The maximum height of a dwelling shall be 2 storeys including any garage, basement or the like. 2 The maximum ceiling height of a building must be: <ol style="list-style-type: none"> i) 8 metres for sites where the slope, averaged over the ground level change along the building foundation from front to rear or from side to side is more than 20 degrees or; ii) 7 metres for slopes less than 20 degrees; iii) a dwelling is to have a maximum 2 storey presentation to the public domain. A 3rd storey element will only be considered where it does not result in unacceptable bulk, scale and overshadowing impacts; iv) for the purposes of this section, the maximum ceiling height of a building is defined as the distance measured vertically from any point on the ceiling of the topmost floor of the building to the existing ground level immediately below that point. 3 The following matters must be considered with regard to the potential impact on neighbouring properties and local character: <ol style="list-style-type: none"> i) opportunities to minimise overshadowing of living and private open space areas and solar panels; ii) opportunities to minimise overlooking of living and private open space areas; iii) opportunities to minimise adverse impacts on any significant bushland, distant or water views; iv) the relationship with the streetscape. <p>Relationships with Adjoining Dwellings</p> <ol style="list-style-type: none"> 4 Development should avoid the creation of an overbearing effect upon adjoining development in order to: <ol style="list-style-type: none"> i) maintain the relative scale relationship between buildings; ii) ensure that daylight to habitable rooms in adjacent dwellings is not significantly reduced; iii) ensure that sunlight to the private open spaces of the subject property and adjacent properties is not significantly reduced; iv) Encourage increased setback with increased height. <p>This may be achieved by ensuring appropriate side setbacks and landscaping are incorporated in the design. (Refer to Section 2.3.1 for setback requirements).</p>
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Part 2 – Specific Building Type Controls

2.3 Dwelling House

2.3.5 First Floor Designs and Roof Forms

Objectives

- 1 *To reflect the character of houses in the adjoining residential area through compatible roof forms.*
- 2 *To integrate the first floor of dwellings into the design of the development.*
- 3 *To avoid overbearing bulk and scale relationship with neighbouring properties.*
- 4 *To allow adequate daylight, sunlight and ventilation to living area and private open spaces of new and neighbouring dwellings.*

Controls

- 1 Roofs may be low pitched, mono-pitched, skillion, flat with parapets or hip or gable.
- 2 Roofs should be steel; tiled roofs are not appropriate for buildings in Edgelea.

Note: Refer to Section 3.3 for relevant controls on materials, finishes and colours.

- 3 The first floor of dwellings should be well integrated into the design of the development to avoid overbearing bulk / scale relationship with neighbouring properties. This is particularly important on sloping sites.



Figure 2.3.5-1:
Traditional and contemporary steel roofs.

Part 2 – Specific Building Type Controls

2.3 Dwelling House

2.3.5 First Floor Designs and Roof Forms (continued)

Controls

- 4 Use of attic rooms within the roof space for habitable purposes is encouraged in lieu of a secondary storey, particularly in neighbourhoods that are predominantly single storey dwellings. Attic rooms should not:
 - i) increase the bulk of the building;
 - ii) cause undue overshadowing of adjacent properties and open spaces;
 - iii) cause loss of significant views from adjacent properties; or
 - iv) be excessive in scale and bulk relative to the rest of the building.
- 5 The form and placement of any windows must respect the privacy of neighbouring properties.
- 6 The maximum roof pitch permitted is 35°.

Part 2 – Specific Building Type Controls

2.3 Dwelling House

Objectives

- 1 To ensure front property boundaries to dwelling houses relate to their bushland setting and Ku-ring-gai UTS campus context.
- 2 To allow private gardens to merge with their neighbours' to reinforce the landscape bushland character of the area.
- 3 To reinforce the streetscape character of Edgelea.



Figure 2.3.6-1:
Planting used to define
front boundary.

2.3.6 Fencing

Controls

Front Fences

- 1 Front fencing to the street is not permitted and a mix of planting should be used.
- 2 Low stone walls (500mm) and or bush rocks / rock cuttings with a combination of planting can be used.
- 3 A landscaped frontage with a mix of trees, shrubs and groundcover plantings are desirable. High hedges along the entire front boundary are not permitted.
- 4 The use of picket fences and similar to front boundaries are not to be used within Edgelea.



Figure 2.3.6-2:
Typical section through front garden of
dwelling house.

Part 2 – Specific Building Type Controls

2.3 Dwelling House

2.3.7 Private Open Space

Objective

- 1 *To provide quality private open space areas for the amenity and enjoyment of residents.*

Controls

- 1 Landscape development proposals are to provide functional outdoor recreation spaces as part of the overall design. This may be achieved by ensuring landscape areas:
 - i) are usable and relate well to indoor living areas;
 - ii) have a character that is consistent with or enhances the landscape character of the area;
 - iii) are located in consideration of noise, temperature, shade and screening;
 - iv) are not dominated by adjoining development (in terms of overshadowing and overlooking);
 - v) provide at least one area of private useable open space which has a minimum depth of 5m and a minimum area of 50m²;
 - vi) contribute to energy efficiency; and
 - vii) contain at least one north facing area providing adequate solar access.
- 2 Retain and incorporate existing landscape features, such as sandstone outcrops and significant trees, into private open spaces where possible.
- 3 Planting in private open spaces is to consist of not less than 50% of local native tree species and 50% native understorey species.
- 4 Existing trees are to be retained where possible.
- 5 Planting to the frontages of dwellings is to consist predominantly of native species.
- 6 No direct access to the APZ from private open space is to be provided.
- 7 Planting should be in accordance with planting lists in Section 5.6.



Figure 2.3.7-1:
Dwelling house private
open space.

Part 2 – Specific Building Type Controls

2.3 Dwelling House

2.3.8 Visual Privacy

Objectives

- 1 *To ensure the siting and design of buildings provides reasonable visual privacy for residents and their neighbours in their dwellings and private open space.*
- 2 *To ensure the rights of owners to privacy are balanced with the public benefit of maintaining streetscape character and the predominantly garden and tree dominated landscape character of Ku-ring-gai.*

Controls

- 1 Private open spaces and living rooms of the proposed dwelling and adjacent dwellings should be protected from direct or unreasonable overlooking.

This must be achieved by:
 - i) use of distance or slope;
 - ii) appropriate dwelling layout.
 In conjunction with the above, applicants must consider:
 - i) careful siting of windows and use of obscure glass or highlight windows where necessary;
 - ii) screen planting;
 - iii) screening devices such as fences, window screens and courtyard walls.
- 2 The windows of one dwelling (particularly windows to living areas) should not be located opposite the windows of another dwelling unless direct views are restricted.

This must be achieved by, for example, offsetting windows, providing highlight or opaque windows, or screen planting.
- 3 First floor decks, balconies and roof top terraces are not permitted where they overlook or have the potential to directly overlook habitable rooms or private open space. Privacy screens on upper level balconies and decks may be required to minimise adverse privacy effects on neighbours.

Part 2 – Specific Building Type Controls

2.3 Dwelling House

2.3.9 Acoustic Privacy

Objectives

- 1 *To ensure the siting and design of buildings provides reasonable acoustic privacy for residents and their neighbours in their dwellings and private open space.*
- 2 *To ensure the rights of owners to privacy are balanced with the public benefit of maintaining streetscape character and the predominantly garden and tree dominated landscape character of Ku-ring-gai.*

Controls

- 1 The transmission of noise between adjoining properties should be minimised.

This may be achieved by:
 - i) locating the following away from bedroom windows of adjacent dwellings:
 - active recreation areas (eg swimming pools, spas, BBQ areas);
 - driveways and car ports;
 - services such as garbage collection areas, pumps and air conditioners.
 - ii) locating bedrooms and other noise sensitive rooms away from the road; and
 - iii) solid wall construction.
- 2 Development should be designed so as to minimise the impact of external noise sources on both internal and external space likely to be used by occupants.

When designing and siting active living areas (e.g. bbq areas, swimming pools, games rooms etc) regard to potential noise impacts on sensitive areas (e.g. bedrooms) of adjoining properties should be considered.

Part 2 – Specific Building Type Controls

2.3 Dwelling House

<p>Objective</p> <p>1 <i>To allow adequate daylight and sunlight to living areas and private open spaces of new and neighbouring dwellings.</i></p>	<p>2.3.10 Solar Access</p> <p>Controls</p> <ol style="list-style-type: none">1 The design and siting of new development is to maintain a reasonable level of solar access to habitable rooms, solar collectors and open space of adjoining development by:<ol style="list-style-type: none">i) careful siting and orientation of buildings;ii) use of setbacks which increase with building heights; andiii) the careful placement of deciduous or tall high canopy trees.2 A building should be designed and sited to maintain solar access to adjoining properties of at least 4 hours between 9am and 3pm on 22 June to north facing windows and all living areas (family rooms, rumpus, lounge and kitchen) and the principal open space recreational areas such as swimming pools and patios.3 Dwelling design and orientation should also provide a similar level of solar access as detailed above, to the proposed dwelling.4 Where shadows cast by existing trees and buildings preclude satisfying the above requirements, sunlight during winter solstice should not be reduced by more than 20%.
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Part 2 – Specific Building Type Controls

2.3 Dwelling House

<p>Objectives</p> <ol style="list-style-type: none">1 <i>To encourage the integrated design of vehicle access and functional car parking facilities to minimise adverse visual and environmental impacts on the streetscape.</i>2 <i>To minimise stormwater runoff from driveway surfaces.</i>3 <i>To minimise the extent of hard surfaces forward of the building line.</i>	<p>2.3.11 Vehicle Access</p> <p>Controls</p> <ol style="list-style-type: none">1 Vehicular movement to and from the site are to be designed to reduce potential conflict with street traffic and pedestrians and optimise safety.2 Wherever possible, driveways must be located so that driver and pedestrian sight lines are clear.3 Driveways should be functional, safe and designed to minimise hard surface runoff from the site, not to be visually intrusive to the existing streetscape and have minimal impact on existing trees.4 Driveway levels should be applied for and approved at the time of issue of the Construction certificate, if not provided by Council with the Development Consent.5 Not more than one driveway may be established on any site.6 The desirable maximum gradient for a driveway is 20%.7 Driveways and driveway crossings should be located and constructed so as to avoid disturbances (including altered soil level) to the root zones beneath the canopy of trees to be retained.8 Construction of porous driveways and use of planting strips down the centre of the driveway is encouraged to reduce runoff. Providing a deep gravel underlay for tree roots to penetrate and remove excess water will enable planting of trees adjacent to porous driveway surfaces. <p>Note: driveways within the property shall be designed in accordance with AS 2890.1 (2004) <i>Off Street Car Parking</i>.</p>
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Part 2 – Specific Building Type Controls

2.3 Dwelling House

Objectives

- 1 *To encourage the integrated design of functional car parking facilities to minimise adverse visual and environmental impacts on the streetscape.*

2.3.12 Car Parking Provision, Carports and Garages

Controls

- 1 The size of parking spaces/structures must reflect:
 - i) functional requirements;
 - ii) the amount of space available (for example having regard to the location of existing buildings or trees); and
 - iii) bulk/scale relationship with existing development on-site and adjacent.
- 2 The width of the carport / garage visible from the street must not be greater than 6m, as measured between exterior walls, or more than 40% of the site frontage, whichever is the lesser.
- 3 The parking space must be designed in accordance with *AS2890.1:2004* or any standard that replaces it.
- 4 If the parking space is roofed, the structure must complement the design of the dwelling.
- 5 The location of carports or garages needs to consider existing trees, structures on adjacent sites, streetscape and visual character.

Part 2 – Specific Building Type Controls

2.3 Dwelling House

Objectives

- 1 *To ensure that ancillary facilities are integrated into the landscape and are unobtrusive to neighbours and the public domain.*
- 2 *To ensure ancillary facilities are adequate, and well designed and located.*
- 3 *To ensure reasonable provision is made on site and within the site plan for the provision of Ancillary Facilities.*

2.3.13 Ancillary Facilities

Controls

Swimming Pools/Spas & Enclosures

- 1 The swimming pool/spa and/or enclosure must be well designed and located so that there is sufficient area adjacent to the property boundary for substantial landscape planting to minimise potentially adverse impacts such as noise, glare, and visual intrusion.

This must be achieved by ensuring that the swimming pool/spa coping is sited a minimum of 2m from the property boundary.
- 2 Enclosures will be included in floor space ratio calculations and built upon area calculations.
- 3 The swimming pool/spa should be sited so as to minimise the visual impact of the structure when viewed from adjacent public reserves and private property and minimise the impact on the landform.

The pool coping level must not be more than 0.5m above existing ground level at any point.

On steeply sloping sites, levels greater than 0.5m will be considered subject to increased setbacks and landscaping to protect the amenity and privacy of neighbouring properties.
- 4 Swimming pools should be sited to minimise the impact on existing trees both on site and on adjoining properties.

Pool excavation should not be beneath the canopy of trees to be retained.
- 5 The siting of the swimming pool/spa as well as the colour and design of the pool fencing should be selected so to complement and enhance garden/curtilage areas, or, natural bushland area.

Paving adjoining pool areas should be porous where it lies beneath an existing tree canopy.
- 6 The swimming pool/spa should be sited and designed so as to ensure that pool waters do not discharge to stormwater drains, natural waterways, natural bushland, or neighbouring private property.

This must be achieved by:
 - i) connecting backwash to the sewer; and
 - ii) installing a surface drain to collect overflow stormwater; or
 - iii) ensure the immediate pool surrounds slope toward the pool; or
 - iv) other acceptable design solutions approved by Council.

Part 2 – Specific Building Type Controls

2.3 Dwelling House

2.3.13 Ancillary Facilities (continued)

Controls

- 7 The swimming pool/spa should be sited and designed to improve energy efficiency of the structure and where possible management and maintenance should reflect energy efficient principles.

Consideration must be given to:

- i) amenity of the pool in terms of access to sunlight;
- ii) relationship to trees;
- iii) provision of insulation;
- iv) choice of colour;
- v) use of solar powered heating systems.

- 8 Where a swimming pool or spa adjoins natural bushland, it should be able to be utilised as a secondary water supply for fire fighting purposes.

This must be achieved by the installation of an independent pumping system with an appropriate hose.

- 9 The swimming pool must be fenced in accordance with the Swimming Pools Act 1992 in order to reduce the incidence of drowning of young children.

Out-buildings

- 10 Out-buildings (such as studios, hobby rooms, storage structures, cubby houses or cabanas) should be located on the site having regard to the relationship with existing development on-site and on adjoining properties.

Consideration must be given to the position of windows associated with habitable rooms and the potential impact of noise, fumes, loss of light, and ventilation.

- 11 Out-buildings (including garages) should be designed so as not to exceed a single storey. All out-buildings will be included in both floor space ratio calculations and built upon area calculations.

A minimum setback of 2m from boundaries is to apply for any outbuilding with a wall height exceeding 2m relative to the ground level at the boundary.

- 12 Pool motor enclosures and filters, pumps and the like should be soundproofed to ensure there is no noise reading exceeding 5dba above background noise level when measured at the nearest residential property boundary.

Part 2 – Specific Building Type Controls

2.3 Dwelling House

2.3.13 Ancillary Facilities (continued)

Controls

- 13 Air conditioning enclosures are also required to ensure that noise levels do not exceed 5 dba above the background noise level when measured at the nearest residential property boundary.
- 14 Any fan forced air from these units should not be directed on to plants so as to cause them stress.

Other Site Facilities

- 15 The location and design of facilities such as mail boxes, utility poles, clothes drying areas should be considered as an integral part of the site design and development.

This may be achieved by:

- i) the undergrounding of utilities.
- ii) ensuring that clothes lines are not visible from the street.

Part 3: General Development Controls

- 3.1 Landscape for Biodiversity and Bushfire Management
 - 3.2 Earthworks and Slope
 - 3.3 Materials, Finishes and Colours
 - 3.4 Sustainability of Building Materials
 - 3.5 Roof Terraces and Podiums
 - 3.6 Vehicle Access
 - 3.7 Basement Car Parking
 - 3.8 Visitor Parking
 - 3.9 Parking for People with a Disability
 - 3.10 Pedestrian Movement within Car Parks
 - 3.11 Bicycle Parking and Facilities
 - 3.12 Building Services
 - 3.13 Waste Management
 - 3.14 Social Impact
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Part 3 – General Development Controls

3.1 Landscape for Biodiversity and Bushfire Management

<p>Objectives</p> <ol style="list-style-type: none"> <i>To ensure the bushland character of the local context is protected while integrating the site into the Ku-ring-gai residential character as displayed by the local residential context.</i> <i>To support the protection of critical habitat, threatened species, populations and ecological communities.</i> <i>To enhance the contribution of indigenous species and natural landscape to the character of Ku-ring-gai.</i> <i>To integrate bushfire and biodiversity management.</i> <i>To contribute to climate control.</i> <i>To increase the resilience of significant vegetation and habitat, through the improvement of condition, extent and connectivity of such areas.</i> 	<p>The design of any development must consider the natural features of site, including indigenous trees, shrubs and groundcovers, and soils rock outcrops and water features. These provide habitat, breeding sites food and shelter for a wide variety of life forms and ecological processes that support life and define the character of the locality. The natural areas of the site should be viewed as a resource to be conserved.</p> <p>Controls</p> <p>Site Planning and Design</p> <ol style="list-style-type: none"> All developments must: <ol style="list-style-type: none"> be designed to conserve indigenous vegetation, habitat and existing natural features on the site as part of the site planning and the site layout process; <p>Note: Where losses occur, compensatory actions are likely to be required. These include measures such as tree replenishment and site rehabilitation.</p> <ol style="list-style-type: none"> retain the most significant, intact and sustainable areas of vegetation; be located to retain views of public reserves; be designed to retain habitat within and adjacent to the site (where it is safe to do so) including: <ul style="list-style-type: none"> drainage features and damp areas; old or dead trees and hollow logs; leaf litter and fallen branches; bushrock and rock outcrops. If bushrock cannot be retained in place, it is to be relocated within the site; be designed to consider subsurface / groundwater flows near bushland and other significant vegetation or habitats. Where development is located close to a reserve, passive surveillance of the reserve is encouraged. Structures (including stormwater pipes and structures) must be located outside the canopy spread of the trees to be retained. This applies to street trees, trees on site and on adjoining sites. Disturbance of natural soil profiles must be minimised. The introduction of imported soils and disturbance of local seed banks must be avoided wherever possible. Vegetation retention and planting must also consider resilience: <ol style="list-style-type: none"> Healthy, undamaged specimens are to be the priority for conservation, particularly habitat trees. While single trees may be ecologically important in their own right, or as part of a broader community, groups of trees generally provide increased resilience to storm events.
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Part 3 – General Development Controls

3.1 Landscape for Biodiversity and Bushfire Management

Bushland Protection

Refer to Bushfire Management Plan, Vegetation Management Plan, Threatened Species Management Plan, Weed Management Plan, Stormwater Management Plan and Landscape Management Plan.

Planting

- 7 All planting in communal open space within Edgelea is to consist of 100% native planting preferably where possible locally occurring native plants, apart from turf areas.
- 8 All planting in private open space within Edgelea is to consist of not less than 50% locally native tree species and 50% native understorey species.
- 9 Private and communal open spaces should use fire retardant plants where possible.
- 10 Exotic tree species are to be selectively used for solar access purposes within private courtyards and gardens.
- 11 The *Darwinia biflora* communities are to be retained and protected within the site and the APZ.
- 12 The planting of species listed in Council's Weed Management Policy as 'Urban Environmental Weeds' will not be permitted.
- 13 Species used for planting or revegetation in or directly adjacent to areas with significant vegetation or habitat must be of local provenance.

Note: To enable this, propagation must be started well before any construction begins. Council's community bursary may be contacted to discuss availability of appropriate species. A list of appropriate species for native vegetation communities within Ku-ring-gai is available from Council and on Council's website (www.kmc.gov.nsw.au)

Bushfire prone land

Note: Development on Bushfire Prone Land must comply with the requirements of Planning for Bushfire Protection (2006) as updated.

Protection of life and property from bushfire must be considered in the early design phase, to allow for appropriate construction and design techniques to be incorporated with biodiversity management on the site.

- 14 An APZ of a minimum width of 50m will be maintained between the south – east edge of the existing building and the north - west edge of the site.
- 15 An APZ of a minimum width of 60m is to be maintained to the east of the residential development, to the north east of the site.
- 16 The APZ should be maintained in accordance with a Bushfire Management Plan.
- 17 Only locally occurring native species are to be used within APZ.

Part 3 – General Development Controls

3.1 Landscape for Biodiversity and Bushfire Management

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| | <ul style="list-style-type: none">18 Assessment of flora and fauna must consider the impact of bushfire management measures on the ecological values of the site, and outline the measures proposed to mitigate these.19 Development must be located and designed to minimise the need for bushfire hazard reduction, while protecting life and property.20 Measures such as increased construction standards, improved access and water supplies must be considered where this would reduce the need for removal of native vegetation.21 APZs must be designed to minimise impact on significant vegetation or habitat.22 APZs must be designed to retain trees, shrubs or groundcover in clumps. Clumped areas should be designed to create vertical separation between canopy and understorey layers. Trees may also be arranged or retained within the APZ on the hazard side to provide a windbreak. Refer to NSW Rural Fire Service: <i>Standard for Asset Protection Zones</i> (www.rfs.nsw.gov.au)23 Clumps must be separated by appropriate low vegetation, pathways etc. |
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Part 3 – General Development Controls

3.2 Earthworks and Slope

Objectives	Controls
<ol style="list-style-type: none"> 1 To respect the natural topography of a site. 2 To maintain the health of existing trees. 3 To maintain subsurface / groundwater flows and direction. 4 To protect downstream properties from changes in water flows due to earthworks or retaining walls. 5 To minimise downstream impacts from erosion and sedimentation due to site disturbance. 6 To ensure that development is designed considering the stability of the land on which it is located. 7 To prevent damage to adjoining land or to buildings and structures on adjoining land. 8 To minimise excavated materials going off site. 9 To minimise land degradation, water pollution and damage to infrastructure from erosion and accumulated sediment. 	<ol style="list-style-type: none"> 1 Development must demonstrate consideration of site topography, drainage, soil landscapes, flora, fauna and bushfire hazard. 2 Development must be accommodated within the natural slope of the land. Level changes across the site are to be primarily resolved within the building footprint. This may be achieved by: <ol style="list-style-type: none"> iii) stepping buildings down a site; iv) locating the finished ground floor level as close to existing ground level as practicable. 3 Avoid earthworks on steeply sloping sites. <p>Note: Sites with a slope in excess of 15% may require certification from a geotechnical engineer as to the stability of the slope in regard to the proposed design.</p> 4 For any dwelling house or small lot dwelling, excavation within the building footprint must not exceed 1.0m depth relative to ground level (existing), fill must not exceed 0.9m relative to ground level, with a maximum level difference across the building footprint of 1.8m. See Figure 3.2-1 below. <div data-bbox="587 1048 1369 1299" data-label="Figure"> </div> <p>Figure 3.2-1: Earthworks within the building footprint.</p> <ol style="list-style-type: none"> 5 A minimum 0.6m width is required between retaining walls to provide adequate soil area and depth to ensure that they do not read as a single level change, and for the viability of landscaping. <p>Note: A minimum width of 2m is required between retaining walls for this area to be included in deep soil calculations.</p> 6 Existing ground level is to be maintained for a distance of 2m from any boundary. 7 Grassed embankments are not to exceed a 1:6 slope. Vegetated embankments, planted with soil stabilising species, may be to a maximum of 1:3.

Part 3 – General Development Controls

3.2 Earthworks and Slope (continued)

Controls

- 8 Excavated and filled areas shall be constructed to have no adverse impact on:
 - i) structures to be retained on the site;
 - ii) structures on adjacent public or private land;
 - iii) trees to be retained on site or on adjoining sites;
 - iv) waterways or bushland.

Note: A geotechnical / hydrological report may be required to demonstrate this.
- 9 The use of imported fill is to be avoided.
- 10 Excavated and filled areas shall be constructed so as not to redirect or concentrate stormwater or surface water runoff onto adjoining properties or bushland.
- 11 Retaining walls and excavation and fill areas must not compromise the long term health and stability of trees.
- 12 Avoid excavation and fill beneath the canopy of trees. If the ground level is modified within the canopy spread, an arborist's report will be required to assess the impact of the proposed works in accordance with *AS 4970-2009: Protection of Trees on Development Sites*.
- 13 The design of the proposal must consider the impacts of altered subsurface / groundwater flows or direction on groundwater dependent ecosystems or species.

Note: Riparian systems and a number of vegetation communities or species may be fully or partially dependent on subsurface / groundwater flows. A hydrological report may be required to address changes to groundwater. Details of measures proposed to mitigate such impacts are required.
- 14 All development applications must be accompanied by an 'Erosion and Sediment Control Plan' (ESCP) that will describe the measures to be taken at development sites to minimise land disturbance and erosion and to control sediment pollution. An ESCP shall be prepared in accordance with Landcom "Managing Urban Stormwater, Soil and Construction".

Part 3 – General Development Controls

3.3 Materials, Finishes and Colours

Objectives

- 1 *To ensure that building materials, finishes and colours reinforce a unified Edgelea character that responds to the heritage item and complements surrounding residential areas and the natural environment.*
- 2 *To promote the use of high quality materials, finishes and colours for building façade articulation design and visual interest.*
- 3 *To ensure the use of materials, finishes and colours creates well proportioned facades and minimises the visual bulk.*

Controls

Materials and Finishes

- 1 External walls must be constructed of high quality and durable materials and finishes.
- 2 Reuse or recycling of existing materials from the locality such as sandstone and brick is encouraged.
- 3 Large, unbroken expanses of any single material and finish (rendered or not) to building facades must be avoided.

Note: refer to Part 2 for relevant building façade articulation controls.
- 4 New development is to avoid extensive use of highly reflective or gloss materials on the exterior of buildings.
- 5 The exterior finish material must be integral to the overall building façade design and must not appear to be cosmetic.
- 6 Contrasting materials / colours are to be used to assist in the articulation of building elements.
- 7 Louvres are encouraged as an integral element to the building façade design.
- 8 Where building cladding is used, consider dual purpose solution. For example, use of photovoltaic cells mounted on panels used for cladding.
- 9 Where additions and alterations are proposed, external materials and finishes must complement the existing building.



Figure 3.3-1:
Contrasting materials assist in articulation of the building elements.

Part 3 – General Development Controls

3.3 Materials, Finishes and Colours (continued)

Controls

Colours

- 10 The selection of a colour scheme must comply with the following guidelines:
 - i) Base colours for major areas of building façade are to be in earthy, neutral tones with minimal colour intensity (or hue). Apartment building colours are to complement but not duplicate colours of the existing campus building; light cream or sandy colours are to be avoided. Use of a greater variety of colours is permitted for dwelling houses adjoining existing residential areas. Pure colours, black and white must be avoided, as these detract from the prominence of other façade details. Contrasting tints, tones and shades are to be restricted to small areas.
 - ii) Highlight colours to window and door mouldings, string courses, parapet details and the like, are to be in sufficient contrast to the base colour. Pure colours must be avoided. Details should be finished in a matt to semi gloss range.
 - iii) Trim colours for window frames and awning fascias are to be darker contrast to base and highlight colours. Window frames should be finished in either semi gloss or full gloss.
- 11 For buildings of 3 storeys or above, recessive colours are encouraged for the upper levels of buildings to assist in minimising the bulk and scale of the building.



Figure 3.3-2:
Use of lighter building
colours restricted to
dwelling houses.



Figure 3.3-3:
Base building colours in earthy, neutral tones.



Part 3 – General Development Controls

3.3 Materials, Finishes and Colours (continued)

Controls

Indicative Building Materials and Colours

12 Buildings are to incorporate a limited palette of materials in earthy, neutral tones for the following building types:

i) Residential Flat Buildings

- concrete, honed or polished concrete block work, face brick or metal sheet panel;
- cement rendered masonry with painted / integral colour render, metal or stone cladding for accent elements.

ii) Small Lot Housing or Dwelling House

- honed or polished concrete block work, face brick or cement rendered masonry with painted / integral colour render;
- timber, metal or stone cladding for accent elements.



Figure 3.3-4:
Preferred materials and colour selection.



Figure 3.3-5:
Grey steel roofing and
natural, earth tone
building materials.

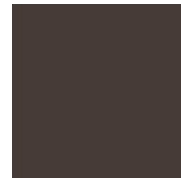
13 All new buildings within Edgelea are to have steel or concrete roofs; terracotta or concrete tiles are not permitted. Roof colours with low reflectivity are to be used such as mid-grey and dark-grey as shown below.



Windspray



Woodland Grey



Loft

Figure 3.3-6:
Indicative roofing colours (*Colorbond*).

Part 3 – General Development Controls

3.4 Sustainability of Building Materials

Controls

- 1 Developments should use building materials which:
 - i) are recycled or recyclable with low embodied energy;
 - ii) come from renewable sources or those that are sustainable and generate a lower environmental cost;
 - iii) have acceptable life cycle costs and durability; and
 - iv) involve environmentally acceptable production methods.
- 2 Rainforest timbers and timbers from old growth forests must not be specified for the construction or finishing of the development.
- 3 Medium Density Fibreboard (MDF) and particleboard must not be specified as a construction material for the development.
- 4 The use of alternatives to PVC piping is encouraged including Colorbond (above ground only), and HDPE where appropriate.
- 5 Avoid the use of construction materials and chemicals with toxic components to facilitate recycling and reduce pollution.
- 6 Structures must be designed with physical, rather than chemical, termite measures. This can be achieved by:
 - i) appropriate materials and construction design;
 - ii) physical barriers;
 - iii) suspended floor systems.
- 7 Low Volatile Organic Compounds (VOC) should be used throughout the building interior (carpets, paints, adhesives, sealants and all other finishes), and low emission building materials are to be used across the site.
- 8 Avoid the use of ozone depleting products and materials, or products and materials manufactured using ozone depleting substances.
- 9 Avoid materials likely to contribute to poor internal air quality, such as those generating formaldehyde, or those that may create a breathing hazard in the event of fire, such as polyurethane.

Part 3 – General Development Controls

3.5 Roof Terraces and Podiums

Objectives	Controls
<p>1 To provide high quality of private and public common open space on roof terraces and podiums.</p> <p>2 To design roof terraces so that they contribute to the streetscape.</p> <p>3 To encourage use of low maintenance planting and low water use on roof terraces and podiums with appropriate support systems.</p>	<p>1 All roof terraces and podiums must provide appropriate building systems to make them trafficable, and to support landscaping.</p> <p>2 Roof and terrace common open areas must incorporate sun shading devices and wind screens, alongside facilities such as BBQ and kitchenette area to encourage usage.</p> <p>3 Where artificial lighting is required, energy efficient lights must be used in conjunction with timers or daylight controls. All light spill is prohibited.</p> <p>4 Roof terraces and podiums must provide soft landscaping areas that complement the appearance of the building; soften the edges of the building; and reduce the scale of raised terraces and other built elements such as services.</p> <p>5 Robust and drought tolerant plant material must be used to minimise maintenance and ensure long term survival.</p> <p>6 Roof terraces and podiums are to be designed for optimum conditions for plant growth by appropriate solar access, soil mix, and the provision of water connections and drainage.</p> <p>7 Minimum soil provision for a range of plant sizes must be in accordance with the following:</p> <ul style="list-style-type: none"> i) Large trees (canopy diameter of up to 16m at maturity) <ul style="list-style-type: none"> - minimum soil volume 150m³ - minimum soil depth 1.3m - minimum soil area 10m x 10m area or equivalent ii) Medium trees (8m canopy diameter at maturity) <ul style="list-style-type: none"> - minimum soil volume 36m³ - minimum soil depth 1m - approximate soil area 6m x 6m or equivalent iii) Small trees (4m canopy diameter at maturity) <ul style="list-style-type: none"> - minimum soil volume 11m³ - minimum soil depth 0.8m - approximate soil area 3.5m x 3.5m or equivalent iv) Shrubs <ul style="list-style-type: none"> - minimum soil depth 0.5-0.6m v) Ground cover <ul style="list-style-type: none"> - minimum soil depth 0.3-0.45m vi) Turf <ul style="list-style-type: none"> - minimum soil depth 0.1-0.3m <p>Note : Any subsurface drainage requirements are in addition to the minimum soil depths quoted above.</p>

Part 3 – General Development Controls

3.6 Vehicle Access

Objectives

- 1 To minimise the size, quantity and visual intrusion of vehicle access points for pedestrian amenity and safety.
- 2 To provide well located and designed vehicle entrances that facilitate streetscape continuity and a high quality and amenity of the public domain.

Controls

- 1 Vehicle access driveways must be set back a minimum of 10m from street intersections or as specified in *Clause 3.2.3 of AS2890.1* (whichever is the greater).
- 2 Vehicle and pedestrian access to buildings must be separated and clearly distinguished. Vehicle access must be located a minimum of 3m from pedestrian entrances.
- 3 Provide clear sight lines at pedestrian and vehicle crossings.
- 4 Driveway width is to comply with the table below. Greater widths will only be considered where it is required by Australian Standards relating to off-street parking and pedestrian safety.

Proposed Number of Car Parking Spaces in Development	Driveway Clear Width
Less than 25 spaces	3.7m min. – 5m max.
25 - 100 spaces	3.7 min. – 6m max.
100 – 300 spaces	6m min – 9m max

- 5 For residential flat buildings, vehicles must be able to enter and exit from the site in a forward direction.
- 6 Vehicle entries and service areas are to be set back or recessed from the main facade line and integrated into the overall façade design, so as not to dominate the building elevation.
- 7 Vehicle entries, walls and ceilings are to be finished with high quality materials, finishes and detailing, similar to the external facades of the building.
- 8 Service ducts, pipes and storage facilities must not be visible from the street.
- 9 External security doors may be provided where necessary. Security doors are to be of high quality material and detail and must blend into the building facade.

Part 3 – General Development Controls

3.7 Basement Car Parking

Objectives	Controls
<p>1 <i>To ensure basement car parking design is of high efficiency and ecologically sustainable.</i></p> <p>2 <i>To provide safe and secure access for building users within the car park areas.</i></p>	<ol style="list-style-type: none"> 1 A logical and efficient structural grid must be provided to the basement car park areas. 2 The minimum height between floor level and an overhead obstruction is to be 2.2m, except for the following: <ol style="list-style-type: none"> i) 2.5m for parking area for people with a disability; ii) 2.6m for residential waste collection and manoeuvring area; and iii) 4.5m for commercial waste collection and manoeuvring area. 3 Where natural ventilation is not possible, a ventilation system for the basement car park is to be provided and designed in accordance with <i>AS1668.2 The use of ventilation and air conditioning in buildings - Ventilation design for indoor air contaminant control</i>. Monitoring of CO₂ and variable speed fans are to be provided with any basement car park mechanical ventilation systems. 4 Unimpeded access to visitor parking and waste and recycling rooms located within a secure basement parking must be maintained. 5 Where ventilation grilles or screening devices are provided they are to be recessed and integrated into the overall facade and landscape design of the development. 6 Vehicle access ways to basement car parking must not be located in direct proximity to doors or windows of habitable rooms.

Part 3 – General Development Controls

3.8 Visitor Parking

Objectives

- 1 *To provide well designed and accessible car parking for all visitors.*

Controls

- 1 All visitor parking spaces are to be provided on site and clearly marked.
- 2 Visitor parking spaces must be conveniently located and must not be obstructed by security grilles or similar devices wherever possible.
- 3 If visitor parking is located behind security grilles, an intercom system will be required for users to gain entry.
- 4 For residential flat buildings, at least one visitor parking space is to be adaptable by complying with the dimensional and locational requirements of AS 2890.6.
- 5 For residential flat buildings, one visitor parking bay is to be provided with a tap, to make provision for on-site car washing.

Part 3 – General Development Controls

3.9 Parking for People with a Disability

Objectives

- 1 To provide well designed, clearly identified and accessible car parking spaces for people with disabilities.

Controls

- 1 Accessible car parking spaces are to be level and have a continuous path of travel to the building's principal entrance or lift.
- 2 Accessible car parking spaces are to be identified by a sign incorporating the international symbol specified in AS1428 and be designed in accordance with the provisions of AS2890.6.
- 3 Appropriate international symbols for the disabled must be displayed/used where appropriate to assist in direction to ramps, lifts etc.

Part 3 – General Development Controls

3.10 Pedestrian Movement within Car Parks

Objectives	Controls
<p>1 To ensure all car parks provide a safe pedestrian environment.</p>	<ol style="list-style-type: none">1 Marked pedestrian pathways, with clear sight lines and appropriate energy efficient lighting must be provided in all car parks.2 Pedestrian pathways, entrances, stairway and lift areas must be clearly visible, conveniently located, well lit and have minimal conflict with vehicular traffic3 All pathways and ramps within car parks must conform to the minimum dimensional requirements set out in AS1428.1.4 All pedestrian path surfaces within car parks are to be stable, even and constructed of slip resistant material.

Part 3 – General Development Controls

3.11 Bicycle Parking and Facilities

Objectives	Controls
<p>1 <i>To provide well designed bicycle parking and facilities that are functional and secure.</i></p>	<p>1 Bicycle parking and storage facilities are to be designed in accordance with AS2890.3 to ensure:</p> <ul style="list-style-type: none">i) both wheels and frames can be locked to the device without damaging the bike;ii) easy access from a bicycle lane or roadway with appropriate signage;iii) access paths have a minimum width of 1.5m to accommodate a person pushing a bicycle, and adequate sight lines for safety.

Part 3 – General Development Controls

3.12 Building Services

Objectives	Controls
<ol style="list-style-type: none">1 To ensure the considered placement of visually intrusive service elements away from the streetscape.2 To ensure that proposed or future service provision does not detract from the visual or general amenity of the building users.	<ol style="list-style-type: none">1 All applicants must consult with providers for services such as energy, electricity, gas, water, telephone and fire. For residential flat buildings any services and structures required by the providers are to be located within the basement, or concealed within the facade, with appropriate access. Where this is not possible, the proposal must demonstrate an alternative method of minimising street impact, such as screening with landscape or built elements. Particular care should be taken to ensure substations and fire hydrants are not visible from the primary street and principal active street frontages.2 Residential flat buildings must accommodate proposed or future air conditioning units within the basement or on rooftops, with provision of associated vertical/horizontal stacks to all sections of the building.3 Air conditioning units located within basements must be screened and have adequate ventilation.4 Air conditioning units located on the roof must be well screened and integrated into the building form.

Part 3 – General Development Controls

3.13 Waste Management

Objectives	Controls
<ol style="list-style-type: none"> 1 To enable efficient, effective and sustainable waste management practices. 2 To ensure waste collection and storage within the site that does not affect the amenity of residents with regard to smell, visual appearance or noise disturbance. 3 To ensure waste and recycling storage areas are designed and constructed to meet the requirements of the building's use and its occupants. 4 To ensure design and management of waste and recycling facilities protect public health. 	<ol style="list-style-type: none"> 1 All waste and recycling facilities must comply with the BCA and all relevant Australian Standards. 2 All waste and recycling storage containers must be stored within the boundary of the subject site. 3 All putrescible and non-putrescible waste materials stored in any waste and recycling room or at centralised collection points must be contained in approved rigid containers supplied by the Council. <p>Storage Room</p> <ol style="list-style-type: none"> 4 Sufficient space must be provided within the premises for the storage and manoeuvring of the number of bins required to store the volume of waste and recycling materials likely to be generated during the period between collections. 5 Sufficient space must be provided to adequately house any additional equipment to handle or manage the waste generated. 6 For buildings exceeding four (4) storeys, where a chute system is proposed, a fully enclosed waste and recycling materials compartment must be provided within each storey of the building. The facility shall be designed to contain the waste chute hopper and the number of recycling storage bins equivalent to 2 x 240 litre bins for every 4 units per storey. <p>Access to collection point</p> <p>Note: This does not apply to residential developments of 4 dwellings or less, which do not have an internal collection point.</p> <ol style="list-style-type: none"> 7 The location of the waste and recycling room must be conveniently accessible and have unimpeded access for both occupants and collection service operators. In the event that the proposed development is protected by a security system and/or locked gates, the waste and recycling room/s must have unimpeded access for the collection service providers. Where security gates are provided to the development, gates must be accessible by Council's master key. 8 The maximum grade of any access road leading to a waste and recycling room must be not more than 1:5 (20%). The turning area at the base of any ramp must be sufficient to allow for the manoeuvre of a 6.0m rigid vehicle to exit the building in a forward direction. 9 The waste and recycling collection point must be located on a level surface away from gradients and vehicle ramps, with the path of travel being free from any floor obstructions such as steps to allow for the transfer of wheelie bins to and from the storage room to the collection vehicle.

Part 3 – General Development Controls

3.13 Waste Management (continued)

Controls

- 10 The vehicle access road leading to and from the collection point in a waste and recycling room must have a minimum finished floor to ceiling height of 2.6m for residential waste rooms and 4.5m for commercial waste rooms for the entire length of travel within the building. (Includes being free from conduits, ducting or other obstructions fitted to ceilings).

Construction of waste and recycling rooms

- 11 The floor of any waste and recycling room must be constructed of either:
- i) concrete which is at least 75mm thick; or
 - ii) other equivalent material; and
 - iii) graded and drained to a floor waste which is connected to the sewer.
- 12 All floors are to be finished to a smooth even surface, coved at the intersection of walls and floor.
- 13 The walls of any waste room, recycling room and waste service compartment are to be constructed of solid impervious material and shall be cement rendered internally to a smooth even surface coved at all intersections.
- 14 All waste and recycling rooms must be provided with an adequate supply of hot and cold water mixed through a centralised mixing valve with hose cock. This does not include waste and recycling service compartments located on residential floors of multi-occupancy dwellings.
- Note: This control is to aid in cleaning of the area.
- 15 A close-fitting and self-closing door that can be opened from within the room must be fitted to all waste and recycling rooms.
- 16 In the event that Council permits the installation of a roller shutter door (under special circumstance only), a sign must be erected in a conspicuous position drawing attention to the fact the door must be kept closed at all times when not in use.
- 17 All waste and recycling rooms must be constructed in such a manner (eg. no gaps under access doors etc) as to prevent the entry of vermin.
- 18 All waste and recycling rooms must be ventilated by either:
- i) mechanical ventilation system exhausting at a rate of 5L/s per m² of floor area, with a minimum rate of 100L/s; or
 - ii) permanent, unobstructed natural ventilation openings direct to the external air, not less than one-twentieth (1/20th) of the floor area.
- 19 All waste and recycling rooms must be provided with artificial light controlled by switches located both outside and inside the rooms.

Part 3 – General Development Controls

3.13 Waste Management (continued)

Controls

- 20 Clearly printed “NO STANDING” signs must be affixed to the external face of each waste and recycling room.
- 21 Clearly printed signage must be affixed in all communal waste collection and storage areas, specifying which materials are acceptable in the recycling system and identifying the location of waste and recycling storage areas, as well as waste and recycling service compartments.
- 22 No compaction equipment is to be used for 120 and 240 litre bins.
- 23 Waste management systems must not be visible from outside the building. Where this is unavoidable and Council is in agreement, it must be designed to be consistent with the overall appearance of the development.

Residential Buildings

- 24 Centralised waste collection points are required where site characteristics (e.g. steep sites, narrow street frontage) make access to the street difficult for individual unit holders and where placement of bins on the street frontage is assessed as dangerous for either the public or service personnel, or would have a detrimental effect on the street amenity.

Residential Flat Buildings

- 25 Ku-ring-gai Council’s standard waste and recycling service for residential flat buildings is as follows:

Waste Type	Number of Units	Number of Bin/s
Waste (garbage)	N/A	1 x 120L MGB per unit dwelling or 1 x 240L MB per 2 units
Co-mingled recycling of glass, steel and aluminium cans and plastic etc	For every 4 units or part thereof	1 x 240L MGB (communal)
Recycling of paper and cardboard	For every 4 units or part thereof	1 x 240L MGB (communal)
Green waste	Optional	Subject to Owners Corporation Agreement on a fee for service basis.

- 26 A centralised waste and recycling room must be provided in the basement that has sufficient capacity to store all waste and recycling likely to be generated in the entire building in the period between normal collection times.

Part 3 – General Development Controls

3.13 Waste Management (continued)

Controls

- 27 The full path of travel to and from the waste and recycling room is to be designed to allow a 6m rigid vehicle, weighing GVM 7 tonnes, to enter and exit the development in a forward direction.
- 28 The minimum floor to ceiling height within the vehicle accessway leading to and from the waste and recycling room(s) must be 2.6m for the entire length of travel required within the development.
- 29 Noise attenuation measures are required to ensure that the use of, and collection from, the waste and recycling room do not give rise to “offensive noise” as defined under the *Protection of the Environment Operations Act 1997*.
- 30 An area is to be nominated for on-site communal composting.

Small Lot Housing and Dwelling Houses

- 31 Ku-ring-gai Council's standard waste and recycling service for small lot housing and dwelling houses is as follows:

Waste Type	Number of Bin/s
Waste (garbage)	1 x 120L
Co-mingled recycling	1 x 240L
Recycling of paper and cardboard	1 x 240L
Green waste (communal except for single dwellings) (subject to Owners Corporation Agreement on a fee for service basis)	1 x 360L

- 32 Developments must allocate, within each property boundary, an area for storing Council specified waste and recycling bins, preferably located at the rear of the premises to minimise visual clutter. The storage area is to be a minimum of 3m from openable windows and integrated with the landscaping.
- 33 All new dwellings must be designed so as to allow the internal accommodation of one receptacle to collect waste and another to collect recycling materials, each with the capacity to store one day's worth of material.
- 34 A path must be established for wheeling bins to the collection point; it must be level and free of steps or kerbs.
- 35 An area is to be nominated for on-site composting.

Part 3 – General Development Controls

3.14 Social Impact

Objectives	Controls
<p>1 <i>To ensure that social considerations are an integral part of development proposals.</i></p>	<p>1 Where relevant, proposals must consider the impacts of the development on the following groups:</p> <ul style="list-style-type: none">- children;- young people;- women;- older people;- people with a disability;- people from culturally and linguistically diverse background;- Aboriginal and Torres Strait Islander people. <p>2 Community integration statements are to be provided with the first application for works.</p>



Part 4: Community Centre Controls

4.1 Building Setbacks

4.2 Building Facades

4.3 Roof Form

Part 4 – Community Centre Controls

4.1 Building Setbacks

Objectives

- 1 To provide community facilities integrated with the public realm.
- 2 To provide facilities to support the use of the soccer field.
- 3 To allow for future connections with the adjoining existing building.

Controls

- 1 The Community Centre building envelope is to meet the setback requirements shown below in Figure 4.1-1.

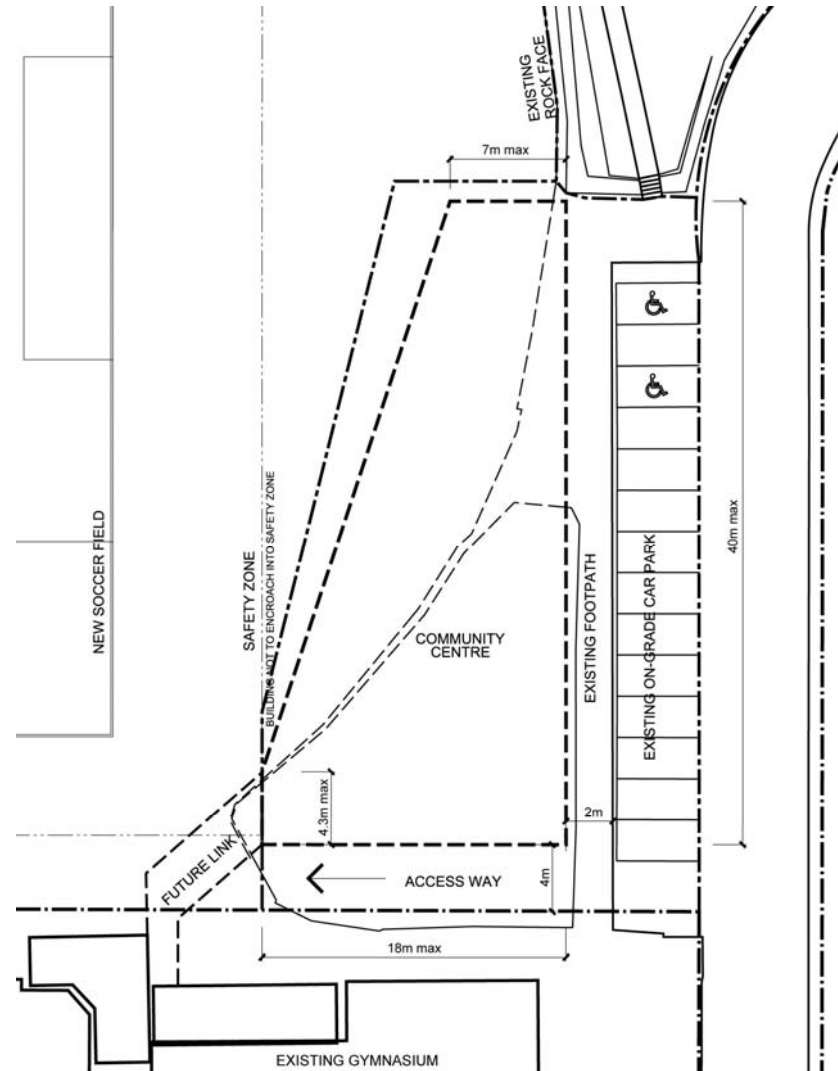


Figure 4.1-1: Community Centre Setbacks.

- 2 Damage to the natural rock outcrop beneath the new Community Centre is to be minimised. The rock face is to be retained, protected and made visible to the greatest extent possible, subject to the excavation for lower level amenities / facilities.
- 3 Consideration is to be given to provision of a future link between the Gymnasium and the Community Centre to extend the concept of “internal street” that links the campus buildings.
- 4 Future application for development of the Community Centre is to include a Heritage Impact Statement.

Part 4 – Community Centre Controls

4.2 Building Facades

Objectives

- 1 *To ensure the building complements the cultural environment of the existing UTS campus.*
- 2 *To promote a building of high architectural quality that contributes to the distinctive character of Edgelea.*
- 3 *To create building facades that respond to the uses within the building.*
- 4 *To create building facades that are environmentally responsive.*
- 5 *To integrate building elements into the overall building form and façade design.*
- 6 *To ensure building façade design contributes to the safety of the public domain.*



Figure 4.2-1:
Large glazed areas to allow clear views of the Soccer Field.

Controls

- 1 The community centre is to reflect the character of the existing campus buildings through a consistent use of robust, geometric forms, deep reveals and the use of a limited palette of colours and materials.
- 2 Large glazed areas on the western façade are encouraged to ensure the building engages with the Soccer Field.
- 3 Building facades must be designed to respond to solar access by using solar protection elements such as eaves, louvres and other sun shading devices as environmental controls.
- 4 All building elements including shading devices, signage, drainage pipes, awnings / colonnades and communication devices must be coordinated and integrated with the overall façade design.
- 5 Building façades are to incorporate a limited palette of colours and materials in earthy, neutral tones. Materials are to be concrete, honed or polished concrete blockwork or face brick. Accent elements may be cement rendered with painted finish / integral colour render, metal or stone cladding.

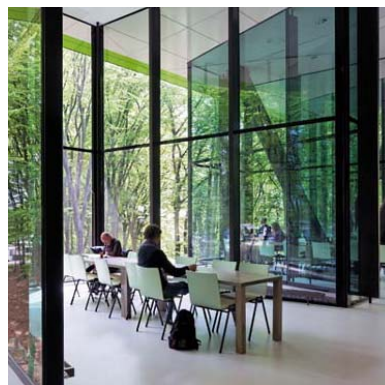


Figure 4.2-2:
Geometric forms and a limited use of colours and materials.



Figure 4.2-3:
Contrasting solid and glazed facades.

Part 4 – Community Centre Controls

4.3 Roof Form

Objectives

- 1 To contribute to the overall design and environmental performance of buildings.

Controls

- 1 Roofs are to be simple low pitched, mono-pitched, skillion or flat with parapets. Hip and gable roofs are to be avoided.
- 2 Roofs are to be steel or concrete; terracotta or concrete tiles are not permitted.
Note: refer to Part 3.3 for relevant controls on materials, finishes and colours.
- 3 Service elements are to be integrated into the overall design of the roof so as not to be visible from the public domain or any surrounding development. These elements include plant equipment, chimneys, vent stacks, water storage, communication devices and signage.
- 4 Roof design must respond to solar access, for example, by using eaves and skillion roofs.
- 5 Where solar panels are provided they must be integrated into the building or roof line.



Figure 4.3-1:
Simple, flat roof design. Hip and gable roofs are to be avoided.

Part 5: Landscape Controls

- 5.1 Landscape Character
- 5.2 Street Character
- 5.3 Street Tree and Understorey Planting
- 5.4 Pedestrian Access
- 5.5 Tree Canopy
- 5.6 Planting and Plant Schedules
- 5.7 Precinct Interface Relationships
- 5.8 Materials
- 5.9 Lighting

Part 5 – Landscape Controls

5.1 Landscape Character

<p>Objectives</p> <ol style="list-style-type: none"> 1 To achieve a high quality landscape that respects and responds to the cultural heritage of the former UTS Kuring-gai Campus. 2 To protect the ecological value of the surrounding existing bushland. 3 To provide landscaping that is appropriate to the scale and context of the development. 4 To build upon the philosophy and design principles of the original landscape architect Bruce Mackenzie. 5 To ensure ESD principles are incorporated in the landscape design of each precinct. 6 To achieve a sense of place through landscape design that helps define the future Edgelea community within the greater Kuring-gai Municipality. 	<p>The Urban Design Guidelines and associated Landscape Management Plan are to satisfy the Concept Plan approval condition B2 Landscaping.</p> <p>Approval Condition B2 Landscaping.</p> <ol style="list-style-type: none"> a. Maintenance of the bushland setting of the Site. b. Heavy landscaping between the access road and proposed adjoining development; c. Heavy landscaping between the existing main building and any future development on its northern side. <p>The Urban design guidelines and Landscape Management Plan have been prepared in accordance with the draft statement of commitments by JBA Planning, February 2008, is to address:</p> <ol style="list-style-type: none"> d. Retention or replacement of planting around the Playing Field. e. Long term preservation and maintenance of tree assets. f. Retention and maintenance of planting along the entry road from Eton Road. g. Retention of the planted retaining wall between the existing oval and tennis courts retained. <p>Controls</p> <ol style="list-style-type: none"> 1 Protect and retain existing significant trees and understorey where possible and introduce supplementary planting in clumps to reflect the natural bushland setting. 2 Provide a clear definition between the built environment and the surrounding bushland. 3 Landscape designs within each precinct should provide an urban bushland park character through provision of a structured landscape that incorporates predominantly native plant species. 4 Plant species and landscape materials should be selected to complement the bushland character of the site, the retained campus buildings and the new residential buildings of Edgelea.
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Part 5 – Landscape Controls

5.2 Street Character

Objectives

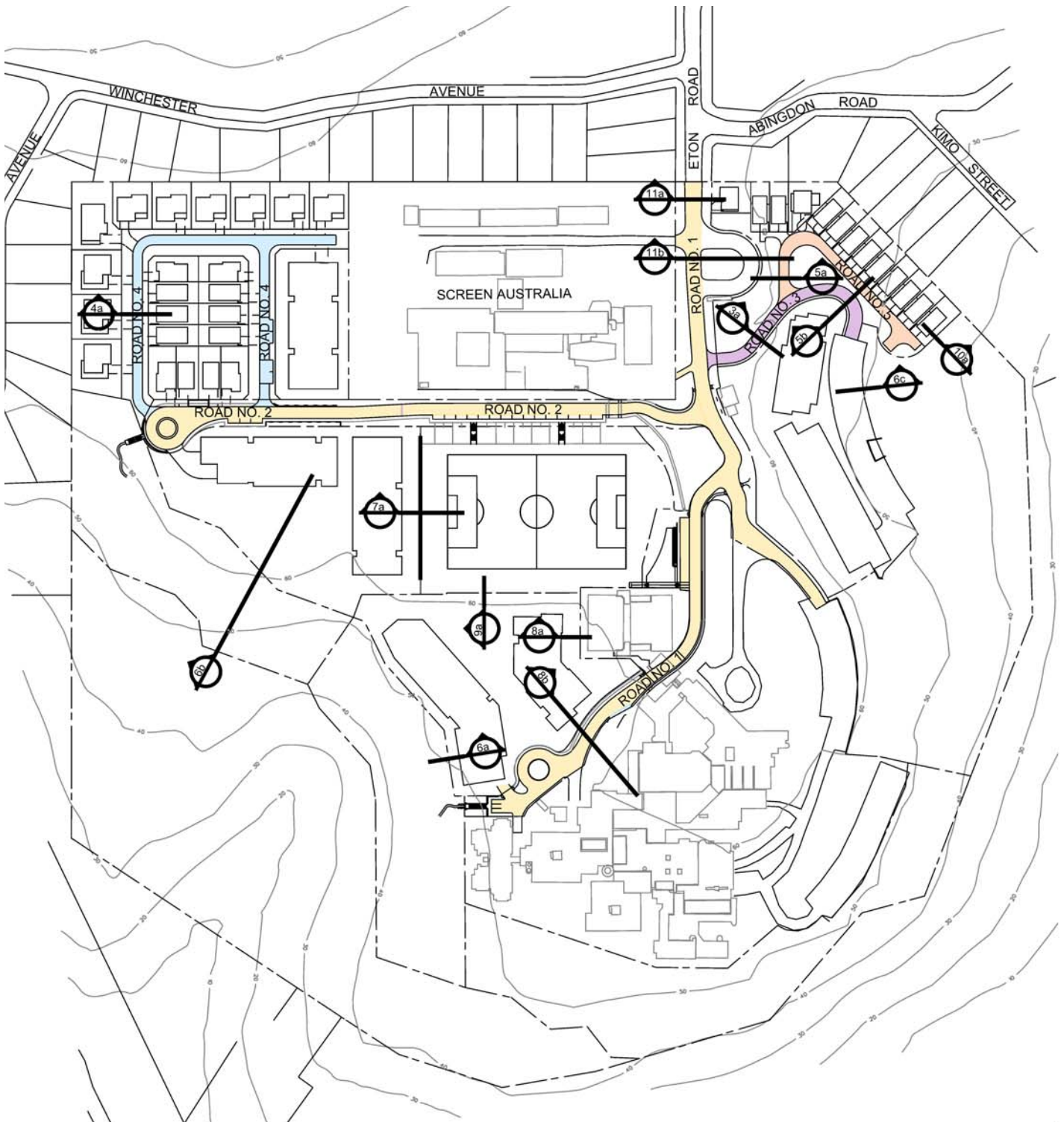
- 1 *To provide safe, legible and accessible residential streets.*
- 2 *To maintain and enhance and the bushland character along existing roads.*
- 3 *To adopt water sensitive urban design principles for all roads.*

Controls

The roads within Edgelea are shown in Figure 5.2-1 on the following page. Public road 1 and 2 are not subject to the Urban Design Guidelines. The following landscape guidelines apply to the community titled roads 3, 4 and 5.

- 1 Tree canopy and understory planting within the corridor of Roads 3, 4 and 5 are to be selected from native and locally occurring native species. See Section 5.3 for plant species list.
- 2 Clumping of street tree planting canopy and understorey is encouraged to provide a more natural bushland character. Street trees planted at regular intervals should be avoided.
- 3 Significant landscape features on site such as bush rock outcrops and rock cuttings are to be retained within road corridors where possible.
- 4 Bio-swales / raingardens are to be considered for inclusion within road verges where appropriate.

Part 5 – Landscape Controls



Legend

- Road No. 1 & 2 - Public Roads
- Road No. 3 - Proposed Residential Bushland Character
- Road No. 4 - Proposed Residential Bushland Character
- Road No. 5 - Proposed Residential Bushland Character

SCALE (m)



Figure 5.2-1: Edgelea Street Character

Part 5 – Landscape Controls

5.2 Street Character

5.2.1 Road No. 3

Controls

Road 3 is illustrated in Figures 5.2.1-1 and 5.2.1-2 on the following page and is to comprise the following:

- 1 Parking and access:
 - two-way traffic.
- 2 Paving:
 - concrete foot path to the south side of the street
- 3 Street tree planting:
 - medium and large locally occurring tree canopy and understorey species
 - Northern side extend planting to base of embankment at a minimum.
 - Southern side provide a minimum 5m vegetation easement adjacent Road 3.

Refer to Section 5.3 for plant species list.
- 4 Lighting:
 - street lighting to a minimum category of P3.
- 5 Powerlines:
 - underground powerlines.
- 6 Swales / Bioretention
 - None

Part 5 – Landscape Controls

5.2.1 Road No. 3 (continued)



Figure 5.2.1-1: Road No. 3 Plan

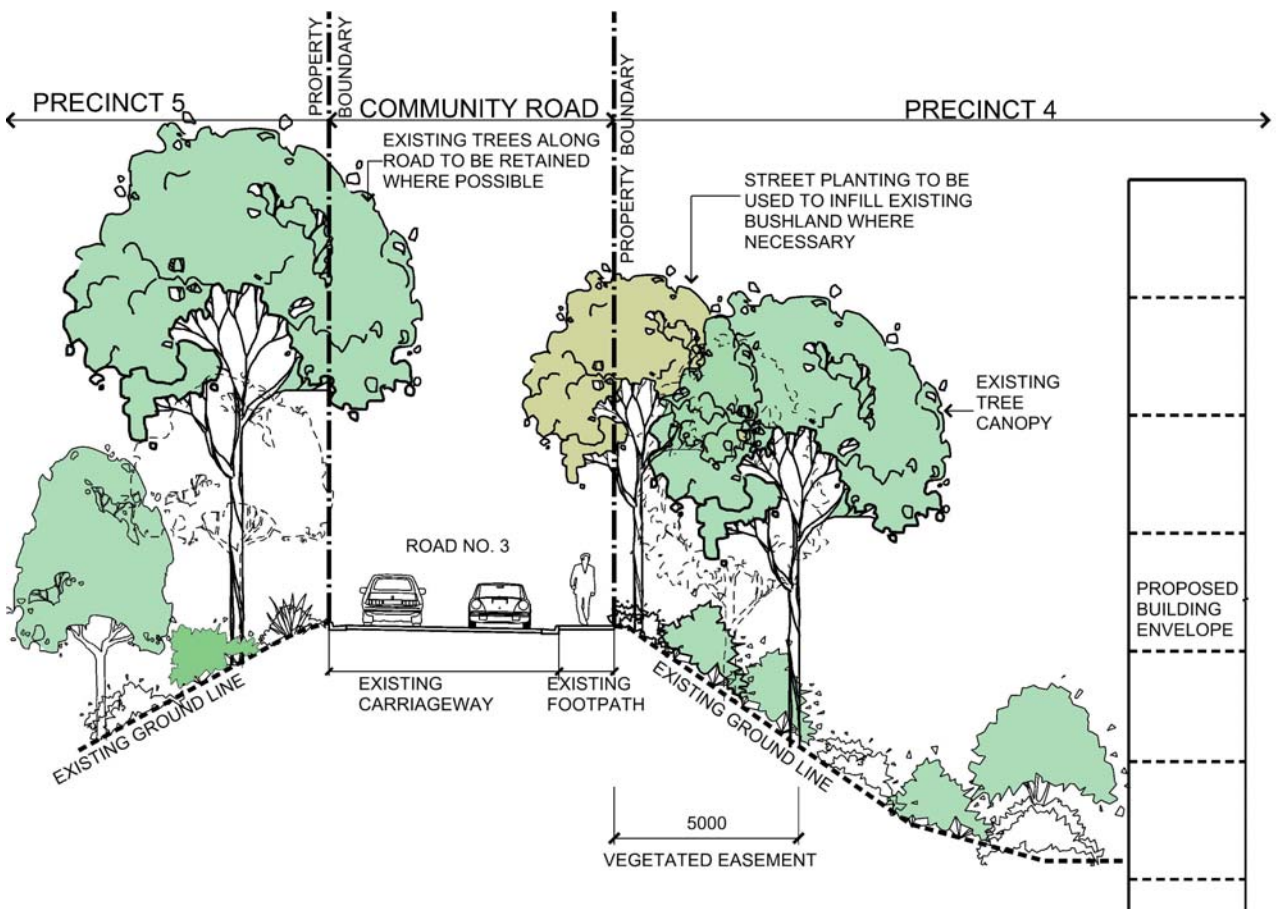


Figure 5.2.1-2: Section 3a through Road No. 3

Part 5 – Landscape Controls

5.2 Street Character

5.2.2 Road No. 4

Controls

Road 4 is illustrated in Figures 5.2.2-1 and 5.2.2-2 on the following page and is to comprise the following:

- 1 Parking and access:
 - two way traffic.;
 - on-street parking in parking bays in front of the residential flat building.
- 2 Paving:
 - grass verge to both side of street;
 - concrete footpath in front of residential flat building only.
- 3 Street tree planting:
 - a mix of medium and tall locally occurring trees alternatively spaced along the top of the swale located on one side of the street;
 - small native trees between the service corridor and road.

Refer to Section 5.2 for plant species list.
- 4 Lighting:
 - street lighting to a minimum category of P3.
- 5 Powerlines:
 - underground powerlines.
- 6 Swales / Bioretention
 - Swales and Bioretention to one side of road as per plan and section.

Part 5 – Landscape Controls

5.2.2 Road No. 4 (continued)



Figure 5.2.2-1: Road No. 4 Plan

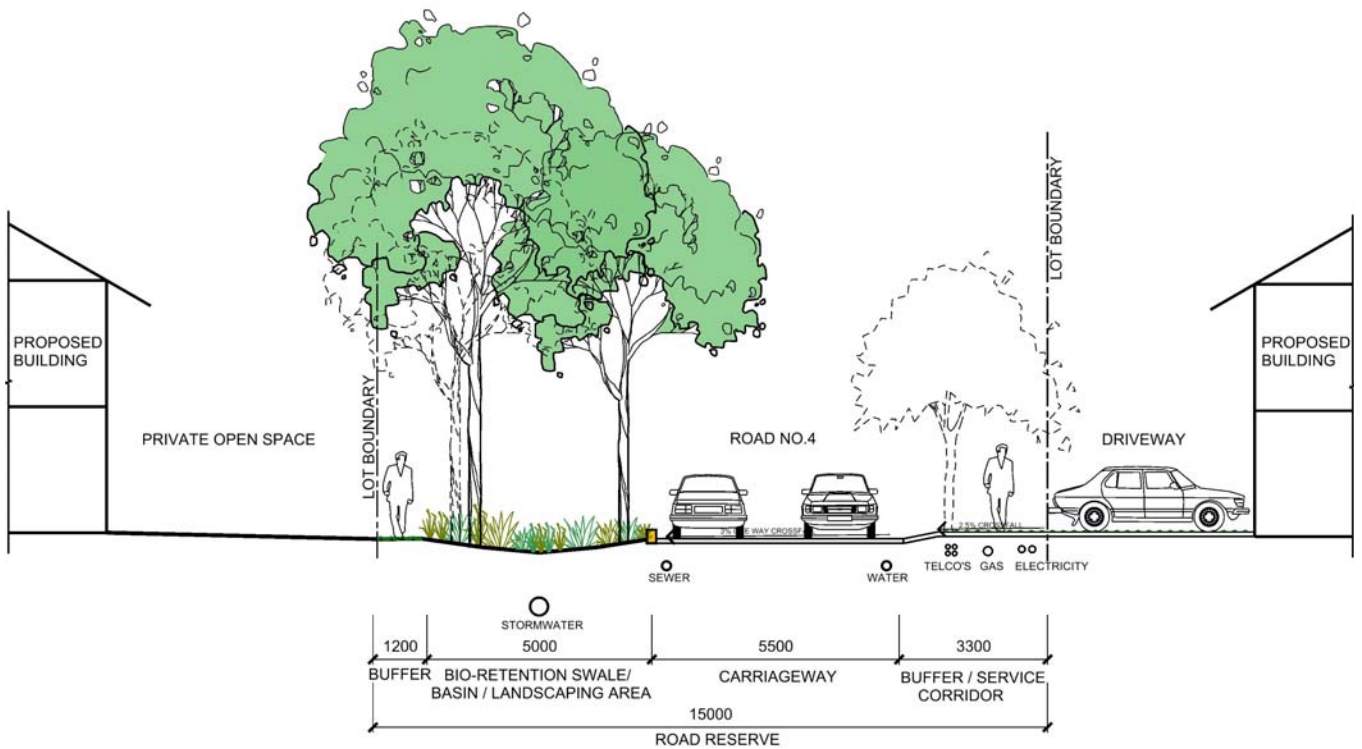


Figure 5.2.2-2: Section 4a through Road No. 4

Part 5 – Landscape Controls

5.2 Street Character

5.2.3 Road No. 5

Controls

Road 5 is illustrated in Figures 5.2.3-1 and 5.2.3-2 on the following page and is to comprise the following:

- 1 Parking and access:
 - narrow width road with passing bays;
 - two- way traffic with turning space to the eastern end.
 - shared pedestrian and vehicle
- 2 Paving:
 - segmental paving
 - shared pedestrian and vehicle
- 3 Street tree planting:
 - small, medium and tall locally occurring trees to be incorporated as infill between existing trees where space allows.

Refer to Section 5.3 for plant species list.
- 4 Lighting
 - street lighting to a minimum category of P3.
- 5 Powerlines
 - underground powerlines.
- 6 Swales and Bioretention
 - Swales and Bioretention where space permits

Part 5 – Landscape Controls

5.2.3 Road No. 5 (continued)

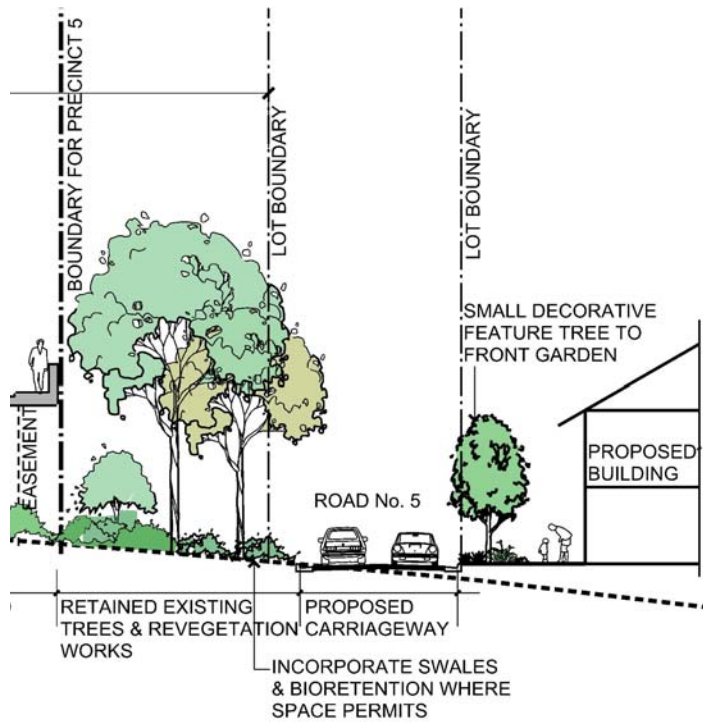


Figure 5.2.3-1: Section 5a through Road No. 5

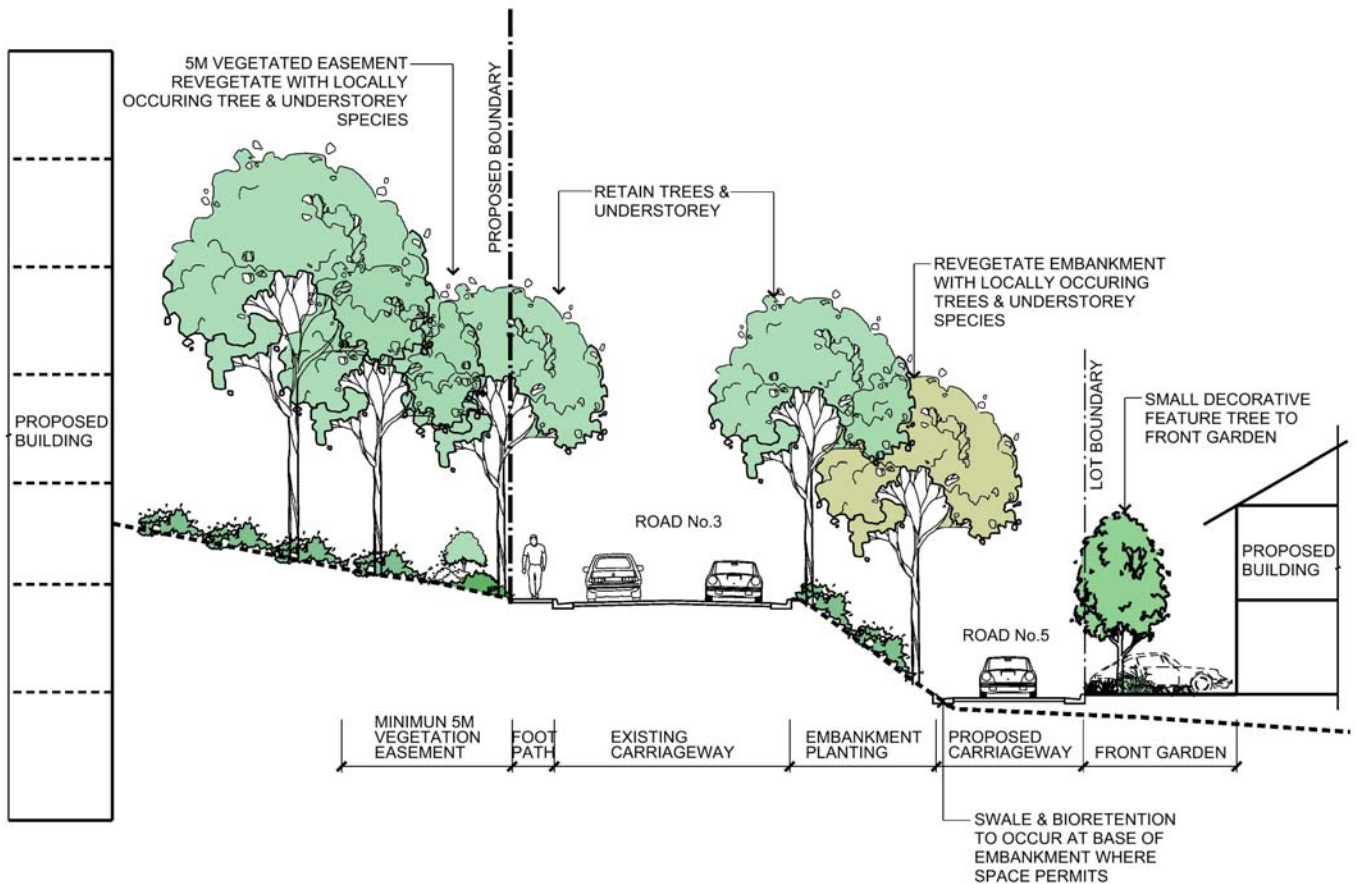


Figure 5.2.3-2: Section 5b through Road No. 5

Part 5 – Landscape Controls

5.3 Street Tree and Understorey Planting

5.3.1 Road No. 3

Trees

Allocasuarina littoralis (Black Sheoak)
(^) Angophora costata (Sydney Red Gum)
Banksia serrata (Old Man Banksia)
Eucalyptus haemastoma (Scribbly Gum)

Shrub Layer

Acacia falcata (Wattle)
Acacia parramattensis (Parramatta Green Wattle)
Acacia suaveolens (Sweet-scented Wattle)
Banksia ericifolia (Heath-leaved Banksia)
Hakea sericea (Bushy Needlebush)
Leptospermum polygalifolium (Lemon-scented Tea Tree)
Leptospermum trinervium (Paperbark Tea Tree)
Persoonia laevis (Smooth Geebung)
Petrophile sessilis (Cone-stick)
Platysace linearifolia (Carrot Tops)

Ground Cover Layer

Dianella revoluta (Mauve Flax Lily)
Doryanthes excelsa (Gynea Lily)
Entolasia stricta
Goneocarpus teucroides (Germander Raspwort)
Lomandra glauca (Mat Rush)
Lomandra oblique (Mat Rush)
Patersonia sericea (Silky Purple Flag)
Themeda australis (Kangaroo Grass)

Note: All species to be sourced where possible from local provenance stock.

(^) Bushfire retardant species

Part 5 – Landscape Controls

5.3 Street Tree and Understorey Planting

5.3.2 Road No. 4

Trees

- # Allocasuarina littoralis (Black Sheoak)
- (^) Angophora costata (Sydney Red Gum)
- Banksia serrata (Old Man Banksia)
- (^) Elaeocarpus reticulatus (Blueberry Ash)
- Eucalyptus haemastoma (Scribbly Gum)
- (^) Tristaniopsis laurina Spp (Water Gum)

Groundcovers

- Dianella caerulea varieties (Blue Flax Lily)
- Dianella revoluta varieties (Flax Lily)
- Lomandra longifolia 'Tanika'
- Lomandra longifolia 'Katrinus'

Raingardens & Bio-swales

- Carex appressa (Tall Sedge)
- Ficinia nodosa (Knobbly Club Rush)
- Juncus usitatus (Common Rush)
- Lomandra hystrix (Green Matrush)

Note: All species to be sourced where possible from local provenance stock.

- (^) Bushfire retardant species

Part 5 – Landscape Controls

5.3 Street Tree and Understorey Planting

5.3.3 Road No. 5

Trees

- # Allocasuarina littoralis (Black Sheoak)
- (^) Angophora costata (Sydney Red Gum)
- Banksia serrata (Old Man Banksia)
- (^) Elaeocarpus reticulatus (Blueberry Ash)
- Eucalyptus haemastoma (Scribbly Gum)
- (^) Tristaniopsis laurina Spp (Water Gum)

Shrub Layer

- Acacia falcata (Wattle)
- Acacia parramattensis (Parramatta Green Wattle)
- Acacia suaveolens (Sweet-scented Wattle)
- Banksia ericifolia (Heath-leaved Banksia)
- Hakea sericea (Bushy Needlebush)
- Leptospermum polygalifolium (Lemong-scented Tea Tree)
- Leptospermum trinervium (Paperbark Tea Tree)
- Persoonia laevis (Smooth Geebung)
- Petrophile sessilis (Cone-stick)
- Platysace linearifolia (Carrot Tops)

Groundcovers

- Dianella caerulea varieties (Blue Flax Lily)
- Dianella revoluta varieties (Flax Lily)
- Lomandra longifolia 'Tanika'
- Lomandra longifolia 'Katrinus'

Raingardens & Bio-swales

- Carex appressa (Tall Sedge)
- Ficinia nodosa (Knobbly Club Rush)
- Juncus usitatus (Common Rush)
- Lomandra hystrix (Green Matrush)

Note: All species to be sourced where possible from local provenance stock.

- (^) Bushfire retardant species

Part 5 – Landscape Controls

5.4 Pedestrian Access

Objectives

- 1 *To provide access to local and regional walking trails.*
- 2 *To provide safe and legible pedestrian circulation within Edgelea.*

Controls

- 1 Access is to be provided from the western end of Roads 2, South and East ends of Road 1 and East end of roads 3 and 5 to the existing and proposed walking tracks located within the APZ, refer to Figure 5.4-1.
- 2 Existing walking tracks within the APZ's are to be upgraded to provide safe and legible pedestrian connections to existing local bush tracks within the Lane Cove National Park.

Part 5 – Landscape Controls

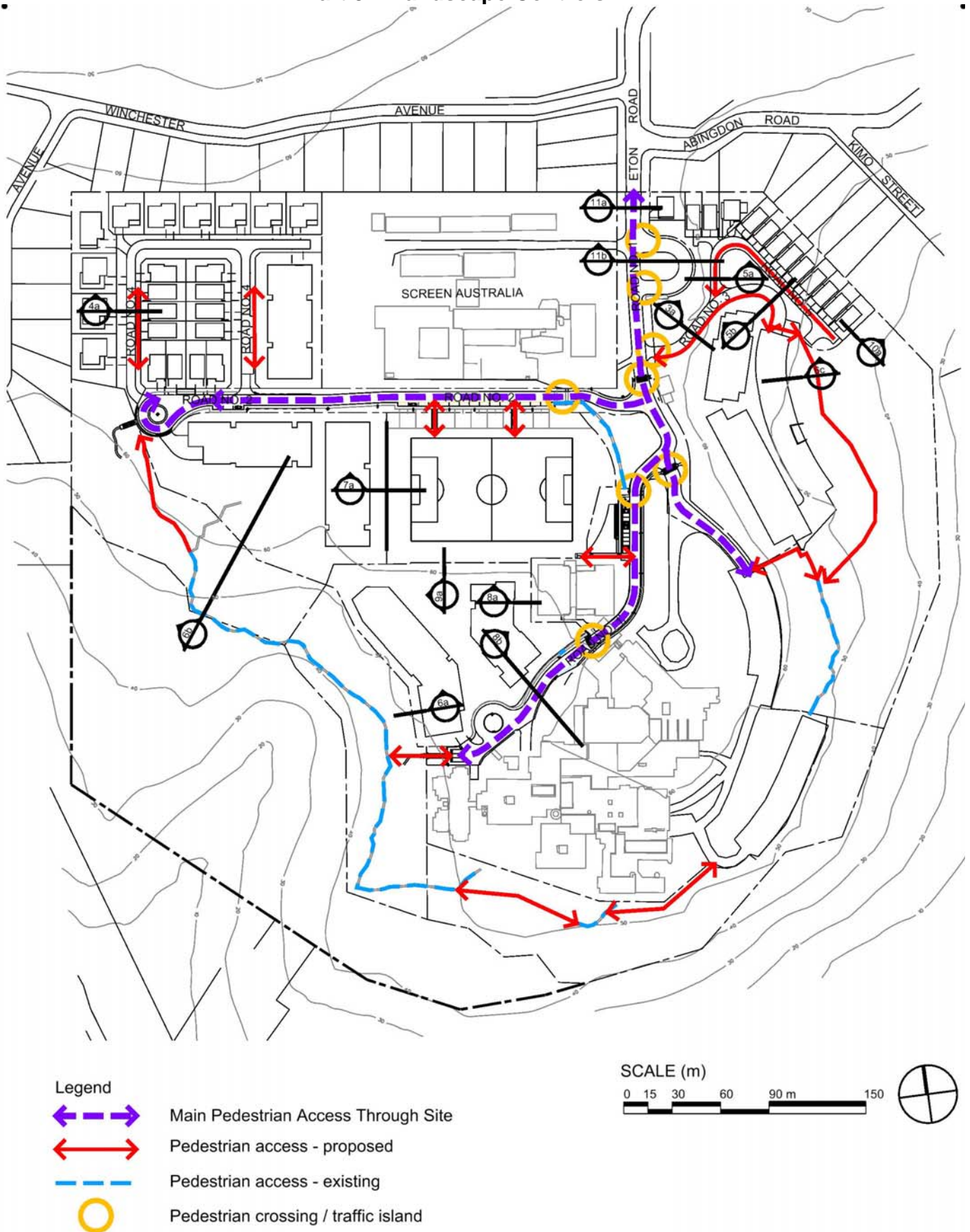


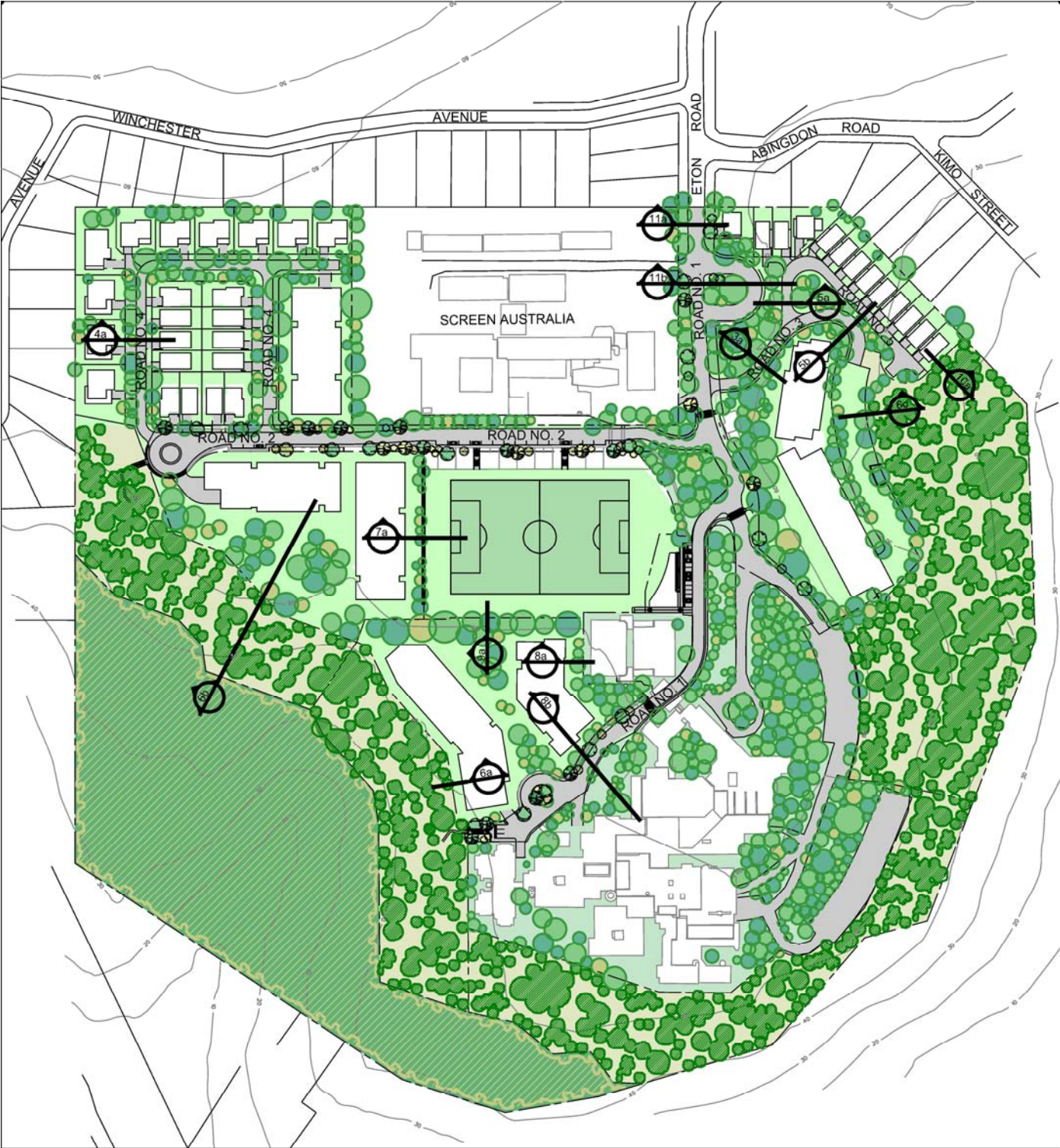
Figure 5.4-1: Pedestrian Access

Part 5 – Landscape Controls

5.5 Tree Canopy

Objectives	Controls
<ol style="list-style-type: none">1 <i>To retain and enhance existing native tree canopy where possible.</i>2 <i>To provide native street tree planting along all community titled streets.</i>3 <i>To retain and protect trees of local significance.</i>	<ol style="list-style-type: none">1 Retain, protect and enhance groupings of native vegetation associated with the 5 component areas B, C, D, F and G as described within the Landscape Management Plan and section 5.1.2 Street tree planting should be locally occurring native species – refer to Section 5.33 Retain significant native canopy trees that are not impacted by development.4 Retain and protect existing groupings of native vegetation other than the component areas where possible.

Part 5 – Landscape Controls



Legend

- Open space - Playing Field
- Existing tree canopy & supplementary tree planting
- Asset Protection Zone
- Existing bushland
- Supplementary street tree planting



Figure 5.5-1: Tree Canopy

Part 5 – Landscape Controls

5.6 Planting and Plant Schedules

- 1 Fire retardant planting should be used in private and communal open spaces where possible.
- 2 Exotic tree species should be incorporated within private courtyards and gardens to assist passive solar access control.
- 3 *Darwinia biflora* communities are to be retained and protected.
- 4 The planting of species listed in Council's Weed Management Policy as 'Urban Environmental Weeds' will not be permitted.
- 5 Species used for planting or revegetation in or directly adjacent to areas with significant vegetation or habitat must be of local provenance.
- 6 For vegetation communities and plant species refer to the Vegetation Management Plan by ERM

Note: To enable use of species of local provenance, propagation must be started well before any construction begins. Council's community nursery may be contacted to discuss availability of appropriate species. A list of appropriate species for native vegetation communities within Ku-ring-gai is available from Council and on Council's website (www.kmc.gov.nsw.au)

Part 5 – Landscape Controls

5.6 Planting and Plant Schedules

5.6.1 Precinct 1 Proposed Plant List

	Botanic Name	Common Name
<p>Note: All species to be sourced from local provenance stock where possible.</p> <p>(^) Bushfire retardant species</p> <p># Native local species (within 3km)</p>	Canopy	
	Allocasuarina torulosa	Forest Oak
	Allocasuarina littoralis	Black Sheoak
	(^) # Angophora costata	Sydney Red Gum
	# Banksia serrata	Old Man Banksia
	(^) Eleocarpus reticulatus	Blueberry Ash
	# Eucalyptus haemastoma	Scribbly Gum
	Tristaniopsis laurina spp	Water Gum
	Shrub Layer	Shrub Layer
	# Acacia falcata	Wattle
	# Acacia parramattensis	Parramatta Green Wattle
	Acmena smithii 'minor'	Small Leafed-Lillypilly
	# Acacia suaveolens	Sweet-scented Wattle
	# Banksia ericifolia	Heath-leaved Banksia
	Banksia marginata	Silver Banksia
	Boronia ledifolia	Sydney Boronia
	Callistemon spp	Bottlebrushes
	Grevillea spp	Grevillea
	Grevillea buxifolia	Grey Spider Flower
	Grevillea juniperina	Juniper-leaf grevillea
	Grevillea linearifolia	Grevillea
	# Hakea sericea	Bushy Needlebush
	Kunzea ambigua	White Kunzea
	# Leptospermum polygalifolium	Lemon-scented Tea Tree
	# Leptospermum trinervium	Paperbark Tea Tree
	# Persoonia laevis	Smooth Geebung
	# Petrophile sessilis	Cone-stick
	# Platysace linearifolia	Carrot Tops
	Syzygium leuhmanii 'Royal Flame'	Lillypilly 'Royal Flame'
	Westringia fruticosa	Coastal Rosemary
	# Xanthorrhoea australis	Grass Tree
	Ground Cover Layer	Ground Cover Layer
	Carex appressa	Tall Sedge
	Dianella caerulea	Blue Flax Lily
	# Dianella revoluta	Mauve Flax Lily
	# Doryanthes excelsa	GyMEA Lily
	# Entolasia stricta	
	Ficinia nodosa	Knobbly Club Rush
	Hardenbergia violacea	Native Sarsaparilla
	Juncus usitatus	Common Rush
	# Goneocarpus teucrioides	Germander Raspwort
	# Lomandra glauca	Mat Rush
	# Lomandra hystrix	Green Mat Rush
	Lomandra longifolia	Mat Rush
	# Lomandra oblique	Mat Rush
	# Patersonia sericea	Silky Purple Flag
	Themedia australis	Kangaroo Grass

Part 5 – Landscape Controls

5.6 Planting and Plant Schedules (continued)

5.6.2 Precincts 2,3,4 + 5 Proposed Plant List

	Botanic Name	Common Name
<p>Note: All species to be sourced from local provenance stock where possible.</p> <p>(^) Bushfire retardant species</p> <p># Native local species (within 3km)</p>	Canopy	
	Allocasuarina torulosa	Forest Oak
	Allocasuarina littoralis	Black Sheoak
	(^) # Angophora costata	Sydney Red Gum
	# Banksia serrata	Old Man Banksia
	# Eucalyptus haemastoma	Scribbly Gum
	Shrub Layer	Shrub Layer
	# Acacia falcata	Wattle
	# Acacia parramattensis	Parramatta Green Wattle
	Acmena smithii 'minor'	Small Leafed-Lillypilly
	# Acacia suaveolens	Sweet-scented Wattle
	# Banksia ericifolia	Heath-leaved Banksia
	Banksia marginata	Silver Banksia
	Boronia ledifolia	Sydney Boronia
	Callistemon spp	Bottlebrushes
	Grevillea spp	Grevillea
	Grevillea buxifolia	Grey Spider Flower
	Grevillea juniperina	Juniper-leaf grevillea
	Grevillea linearifolia	Grevillea
	# Hakea sericea	Bushy Needlebush
	Kunzea ambigua	White Kunzea
	# Leptospermum polygalifolium	Lemon-scented Tea Tree
	# Leptospermum trinervium	Paperbark Tea Tree
	# Persoonia laevis	Smooth Geebung
	# Petrophile sessilis	Cone-stick
	# Platysace linearifolia	Carrot Tops
	Syzygium leuhmanii 'Royal Flame'	Lillypilly 'Royal Flame'
	Westringia fruticosa	Coastal Rosemary
	# Xanthorrhoea australis	Grass Tree
	Ground Cover Layer	Ground Cover Layer
	Carex appressa	Tall Sedge
	Dianella caerulea	Blue Flax Lily
	# Dianella revoluta	Mauve Flax Lily
	# Doryanthes excelsa	Gynea Lily
	# Entolasia stricta	
	Ficinia nodosa	Knobbly Club Rush
	Hardenbergia violacea	Native Sarsaparilla
	Juncus usitatus	Common Rush
	# Goneocarpus teucrioides	Germander Raspwort
	# Lomandra glauca	Mat Rush
	# Lomandra hystrix	Green Mat Rush
	Lomandra longifolia	Mat Rush
	# Lomandra oblique	Mat Rush
	# Patersonia sericea	Silky Purple Flag
	Themedia australis	Kangaroo Grass

Part 5 – Landscape Controls

5.7 Precinct Interface Relationships

5.7.1 Communal open space and common area adjoining the Asset Protection Zone (APZ) – Precincts 2, 3 and 4

Objectives

- 1 To provide functional communal open space with minimal damage to bushland areas.
- 2 To provide a contrasting defined edge between communal open space and bushland APZ.

Controls

- 1 Communal open spaces adjoining the APZ should be designed to incorporate landscape features such as rock outcrops and large groupings of trees and understorey plants.
- 2 The interface between the communal open space or common area and APZ should be defined by a sandstone edge or retaining wall to a height of up to 1 metre. The wall should be designed to avoid damage to existing significant trees.
- 3 Where possible, turf areas are to be located on previously disturbed land and defined by stone edging and / or level changes.
- 4 To minimise damage and introduction of weed species to the APZ and the bushland, access to the APZ is to be limited to the designated pedestrian access points located at the ends of Roads 1, 2 and 3.



Figure 5.7.1-1:
Clear demarcation of developed and bushland areas featured in the original campus design.

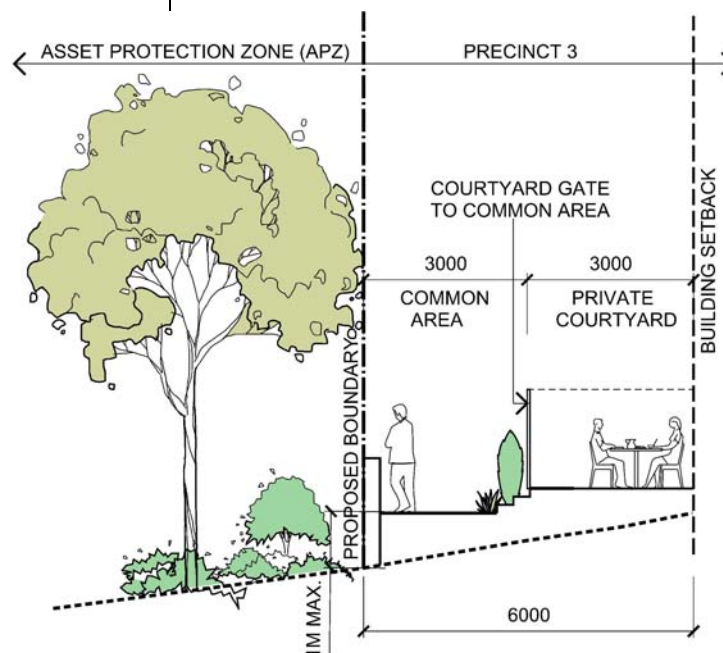


Figure 5.7.1-2:
Precinct 3 and APZ
Interface. Section 6a

Part 5 – Landscape Controls

5.7.1 Communal open space adjoining the Asset Protection Zone (APZ) – Precincts 2 and 4 (continued)

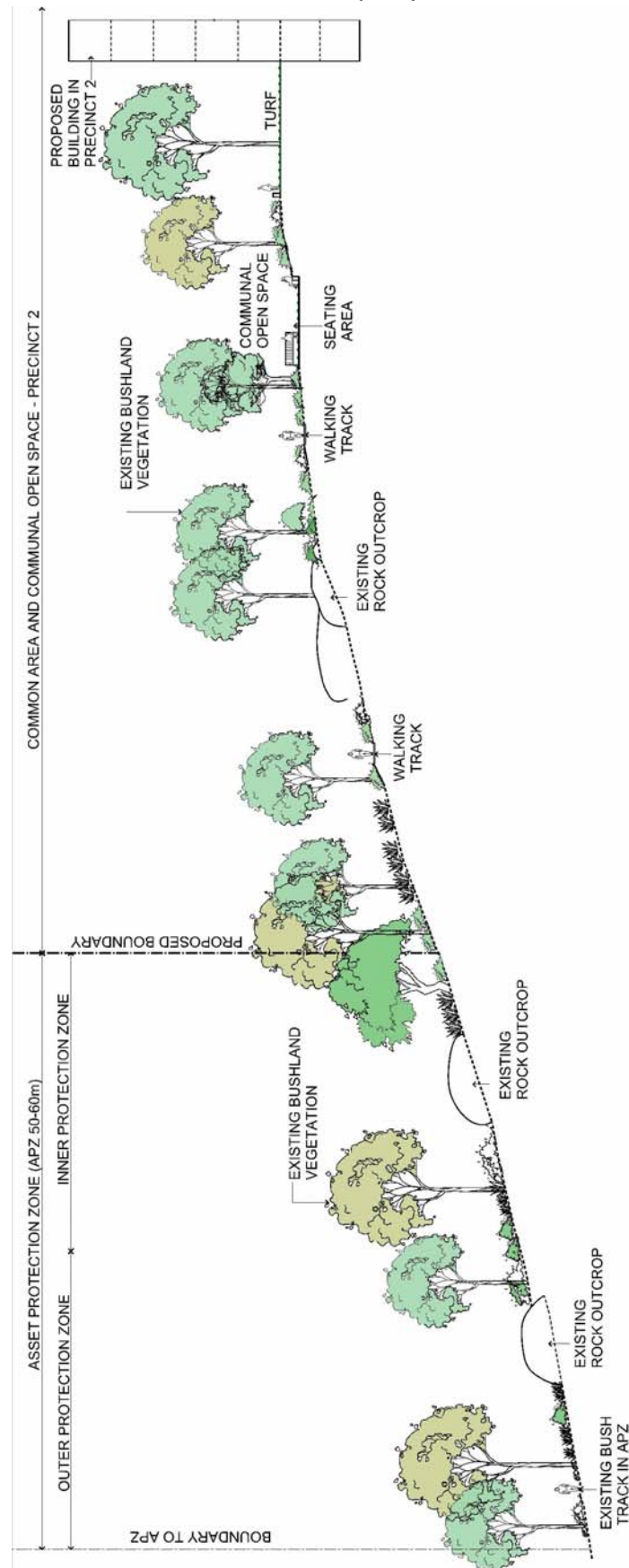


Figure 5.7.1-3:
Precinct 2 and APZ Interface
Section 6b

Part 5 – Landscape Controls

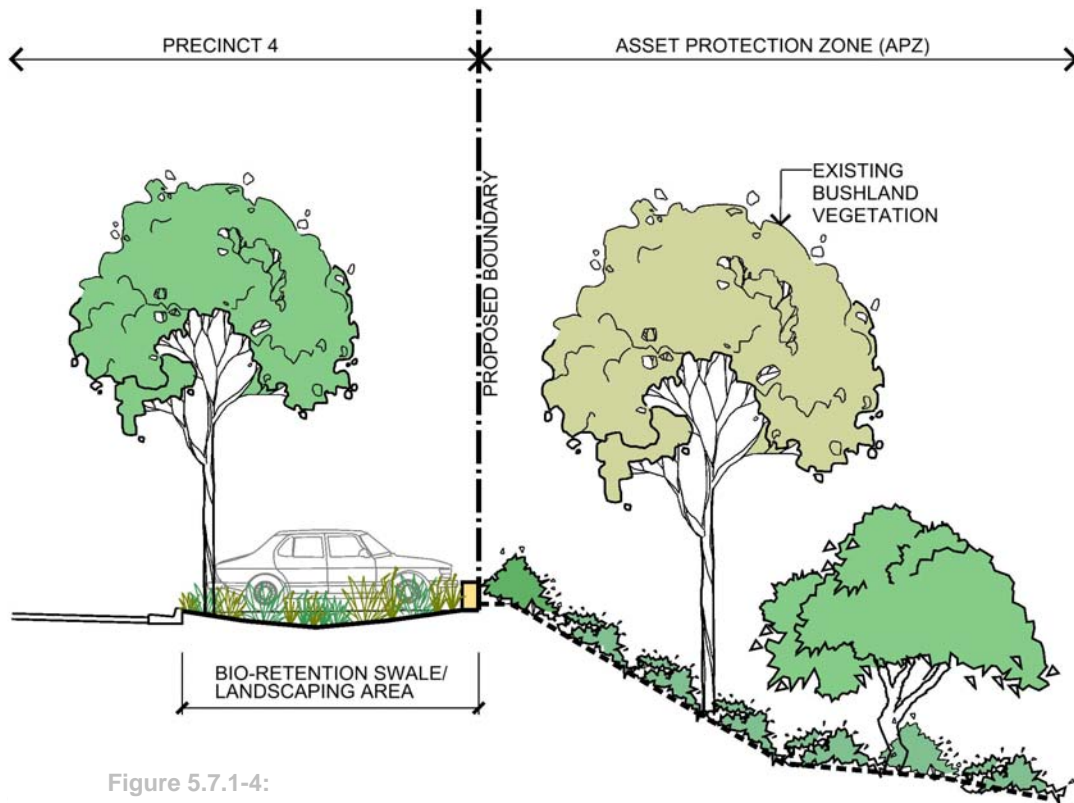


Figure 5.7.1-4:
Precinct 4 and APZ Interface. Section 6c

Part 5 – Landscape Controls

5.7 Precinct Interface Relationships

5.7.2 Landscape treatment to interface between Precinct 2 and Soccer Field

Objectives

- 1 To ensure adequate screening is provided for privacy, through appropriate selection of trees, shrubs and groundcovers.

Controls

- 1 Provide a maximum 1.5 metre high retaining wall along the eastern boundary of Precinct 2 between communal open space and the soccer field.
- 2 Separate communal open space / common area and private open space by planting and providing a courtyard fence.
- 3 Planting within the 10m building setback should be native and locally occurring native species in an informal layout.

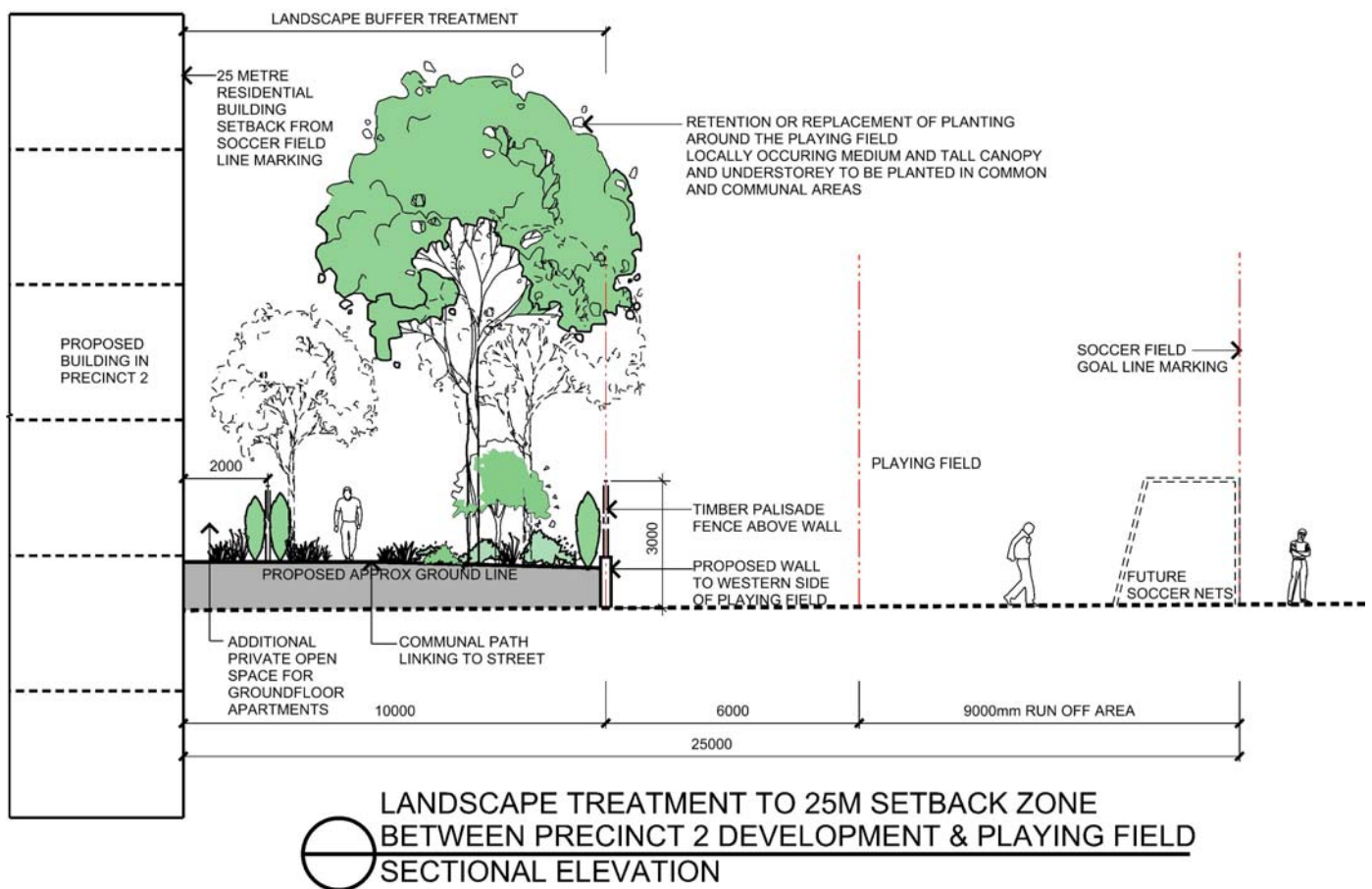


Figure 5.7.2-1:

Landscape treatment to 25m setback zone between Precinct 2 Development and Playing Field. Section 7a

Part 5 – Landscape Controls

5.7 Precinct Interface Relationships

5.7.3 Landscape treatment between Precinct 3 and the retained Campus Building

Objectives

- 1 To ensure the bushland character is maintained and enhanced.
- 2 To utilise bushland planting in a structured form to define building entries.
- 3 To protect heritage setting of campus building

Controls

- 1 Retain existing trees adjacent to the street frontage where possible.
- 2 Allow for a 6 metre wide band of planting adjacent to Road 1. Heavy landscaping as per Approval Condition B2 (Section 5.1) will be incorporated through retained and supplementary plantings of locally occurring native vegetation.
- 3 Within the 8m setback between precinct 3 and the Gym provide heavy landscaping as per approval condition B2 (Section 5.1) with a mix of canopy and understorey locally occurring native species.
- 4 New planting is to be predominantly locally occurring native species.

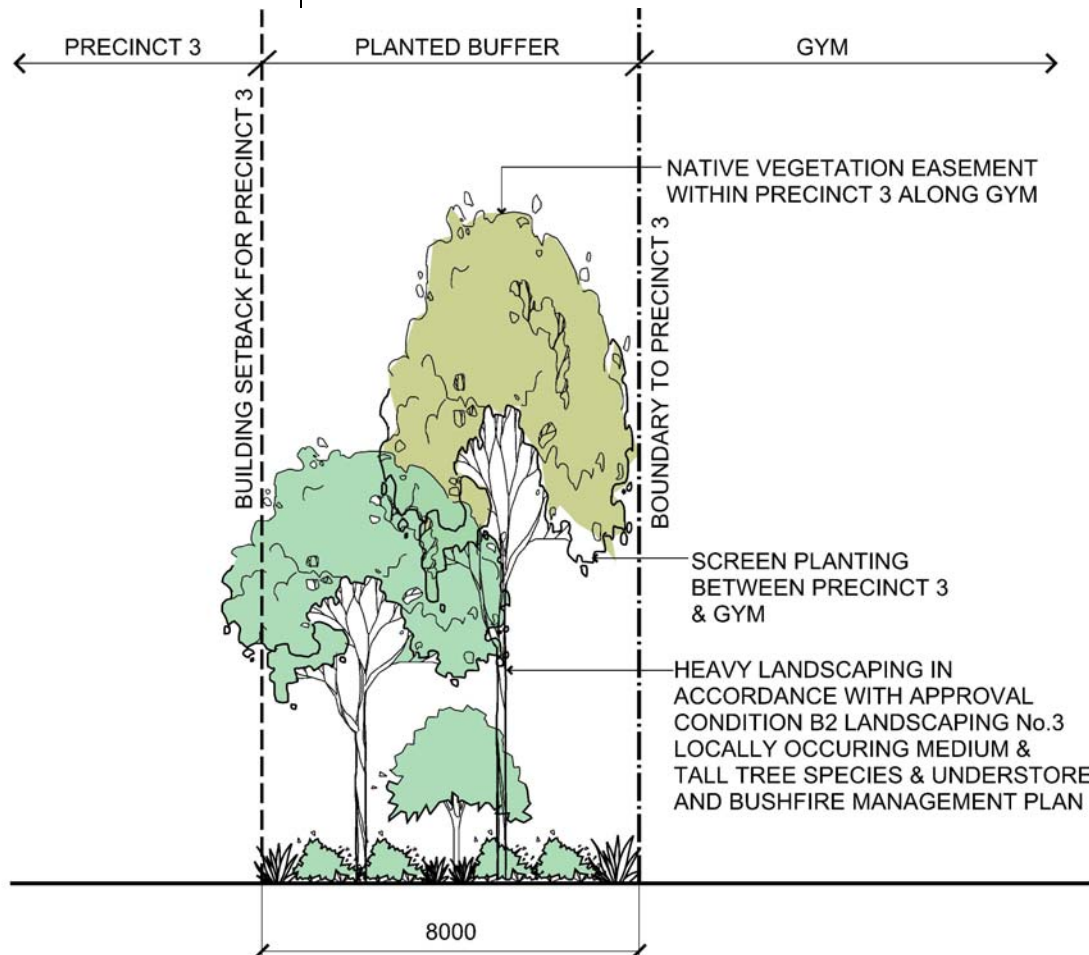


Figure 5.7.3-1:
Typical landscape treatment
between Precinct 3 and retained
Gym, Campus Building. Section 8a

Part 5 – Landscape Controls

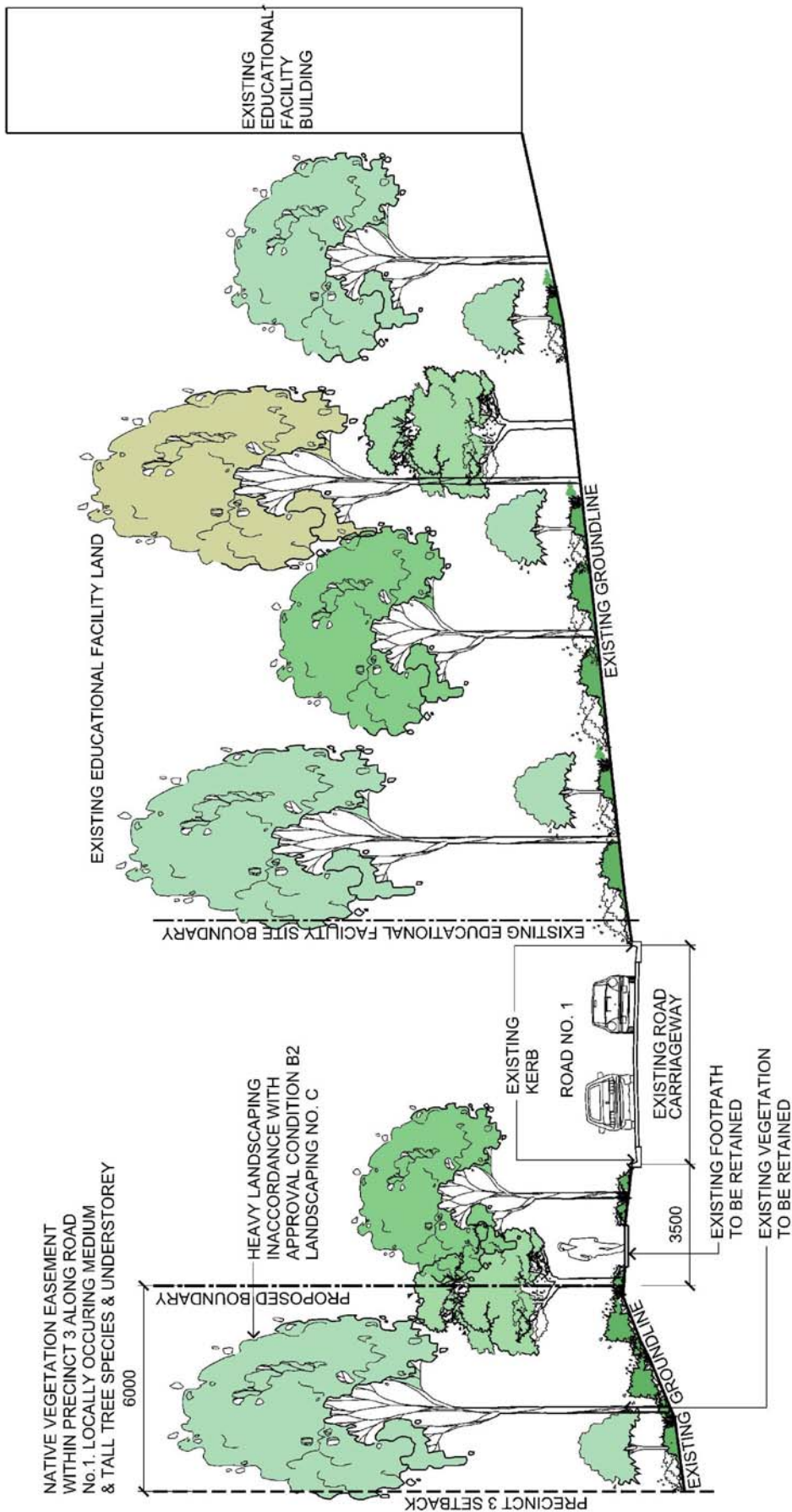


Figure 5.7.3-2:
Typical landscape treatment
between Precinct 3 and the
retained campus building.
Section 8b

Part 5 – Landscape Controls

5.7 Precinct Interface Relationships

5.7.4 Landscape treatment between Precinct 3 and the retained embankment

Objectives

- 1 To ensure the bushland character is maintained and enhanced.
- 2 Retention of the planted retaining wall between the existing oval and tennis courts removed (Precinct 3) in accordance with the draft statement of commitments by JBA Planning Feb 2008.

Controls

- 1 Provide a 1.5m set back from the toe of the planted embankment.
- 2 Protect embankment and associated planting during construction works with a construction fence to be place at toe of the embankment.
- 3 Maintain the embankment in accordance with the landscape management plan.
- 4 New planting is to be predominantly locally occurring native species.

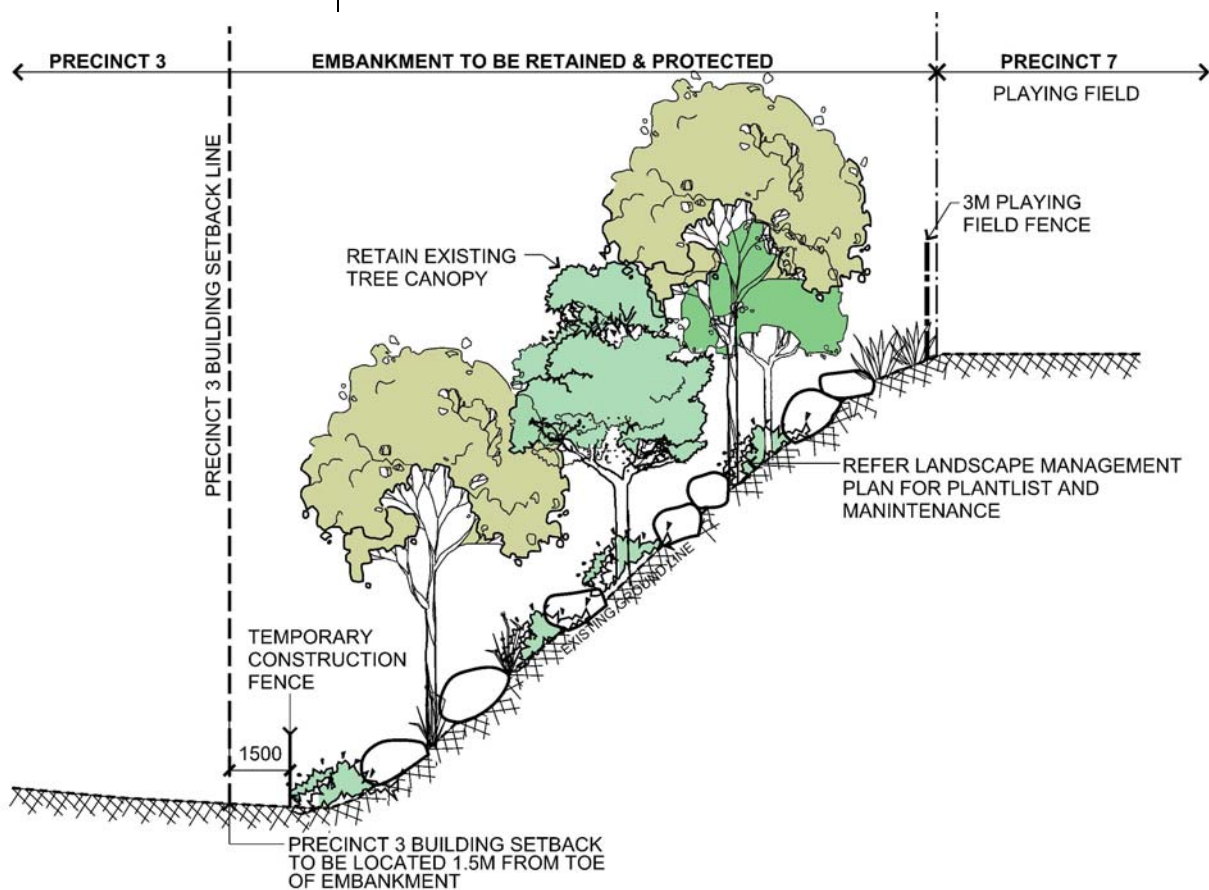


Figure 5.7.4-1:
Typical landscape treatment
between Precinct 3 and retained
embankment. Section 9a

Part 5 – Landscape Controls

5.7 Precinct Interface Relationships

5.7.5 Landscape treatment between Precinct 5 private open space and adjoining Asset Protection Zone

Objectives

- 1 To provide a defined edge between private open space and the APZ
- 2 To minimise ongoing disturbance and weed infestation of APZ
- 3 To provide maintenance access to APZ next to private open space.

Controls

- 1 Provide a 4 metre grassed maintenance area adjacent the Private open space within the APZ lot.
- 2 Provide a change in level (max 1m) where possible with stone wall between grassed area and APZ bushland area.
- 3 Private open space to be delineated by a 1.8m high paling fence.

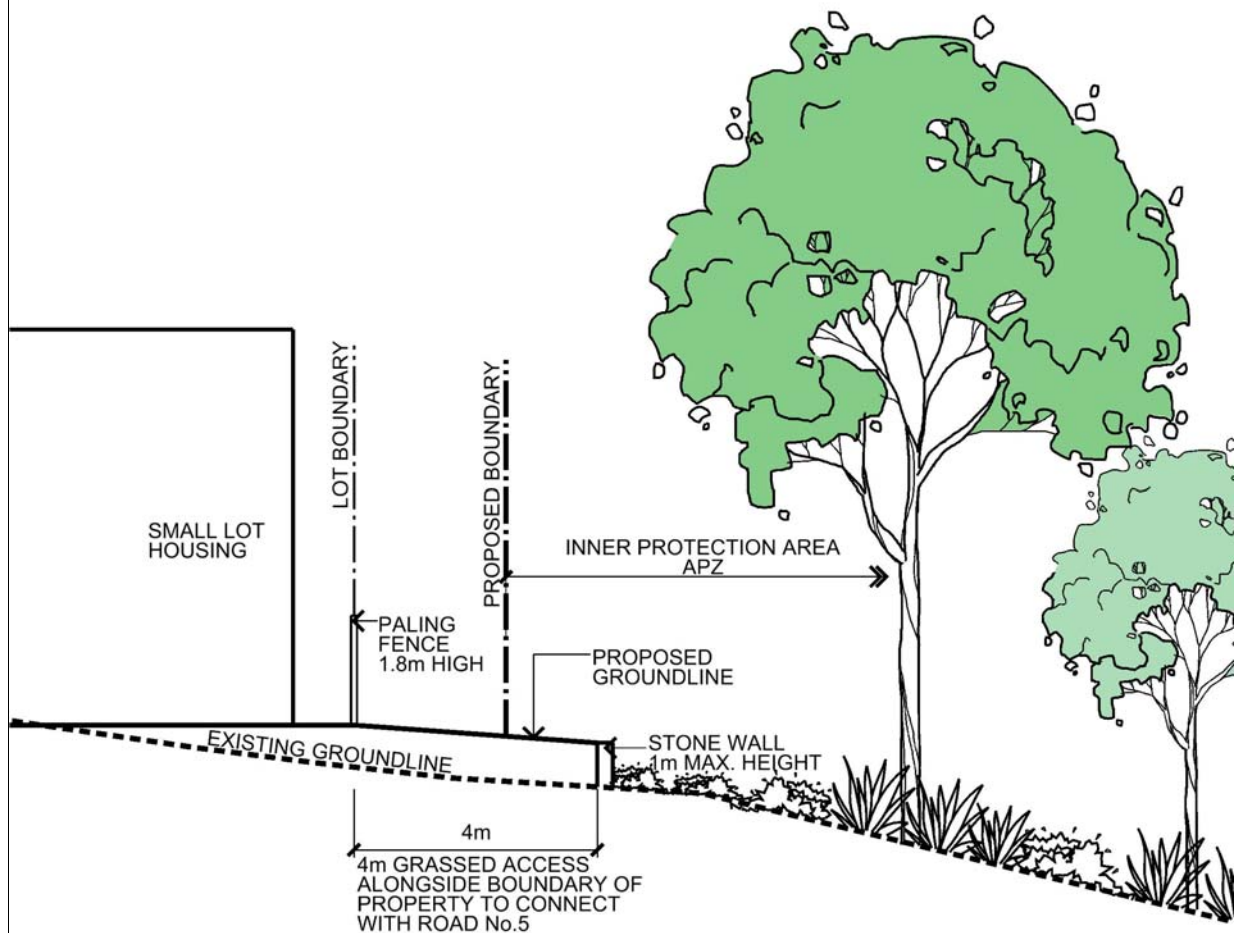


Figure 5.7.5-1:
Typical landscape treatment
between Precinct 3 and retained
Campus Building, Section 10a

Part 5 – Landscape Controls

5.7 Precinct Interface Relationships

5.7.6 Landscape treatment between Precinct 5 and Entry Road

Objectives

- 1 To ensure the bushland character is maintained and enhanced.
- 2 Retention and maintenance of planting along the entry road from Eton Road.

Controls

- 1 Retain and protect existing trees adjacent to the street frontage between the entry road and road 3. Refer to the landscape Management Plan for extents for this protection zone within this area.
- 2 A 7.5 metre landscape easement is to be provided to the frontage of the small lot housing adjacent to Road 1. Add supplementary plantings of locally occurring native canopy and understorey. Private driveway and footpath to have access through landscape easement.

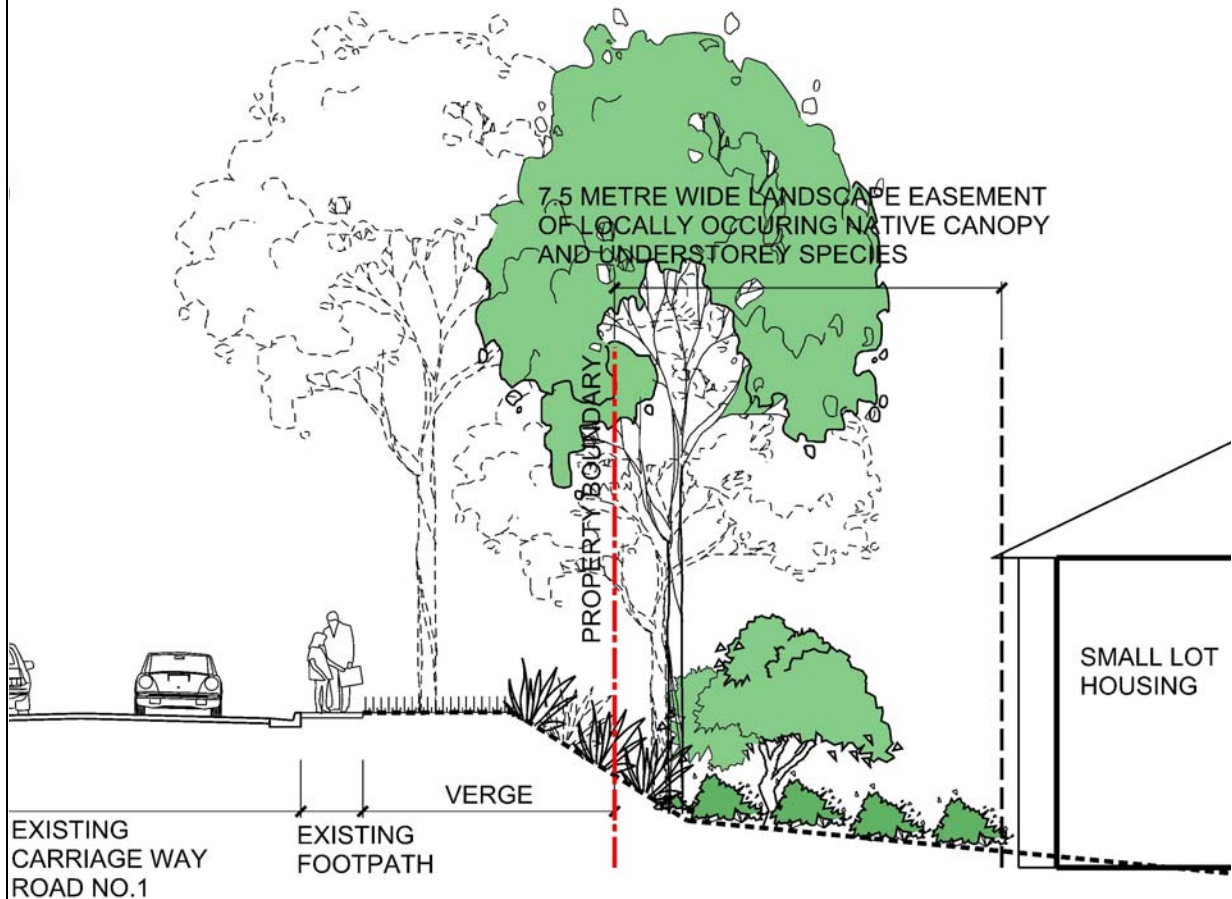


Figure 5.7.6-1:
Typical landscape treatment
between Precinct 5 and Entry
Road. Section 11a

Part 5 – Landscape Controls

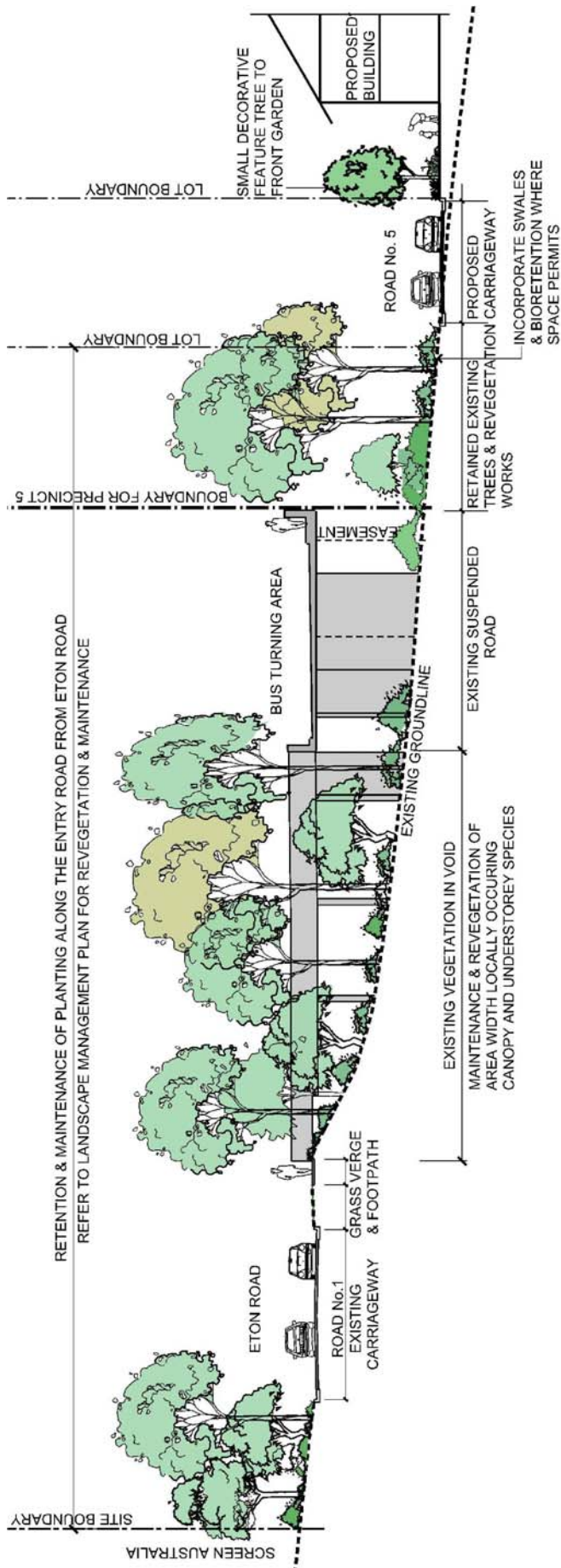


Figure 5.7.6-2:
Typical landscape treatment
between Precinct 5 and Entry
Road

Part 5 – Landscape Controls

5.8 Materials

Objectives

- 1 To ensure landscape materials are durable, high quality, vandal resistant and complement the character of the existing site.

Controls

Materials

- 1 The materials should complement the robust form of the sandstone cuttings and outcrops on the site as well as the natural bushland and the Brutalist architecture of the retained campus buildings.



Figure 5.8-1:
The existing site features sandstone and concrete landscape elements.

Part 5 – Landscape Controls

5.9 Lighting

Objectives

- 1 To provide a safe and secure environment for residents and visitors.
- 2 To facilitate use of communal open spaces in accordance with their intended use.
- 3 To protect areas of habitat value.
- 4 To provide lighting that optimises energy efficiency.

Controls

- 1 Lighting is not to be incorporated in the APZ's and light spill into these areas is to be minimised.
- 2 Lighting is to be provided that maximises safety along streets and within communal open space. Lighting levels are to reflect the use and function of the space.
- 3 Light spill from communal open spaces to dwellings is prohibited.
- 4 Design lighting to minimise the source of the light and use lighting fixtures that promote this effect.
- 5 Utilise lighting design to showcase landscape features.
- 6 Lighting selection should consider light output and energy efficiency.



Figure 5.9-1:
External lighting.

Part 6: Definitions

Part 6 – Definitions

	<i>Definitions</i>
accessible car parking	car parking that is designed and built in accordance with the provisions in AS2890.6 to accommodate the needs of occupants with mobility impairment.
acoustic privacy	a measure of sound insulation between apartments, between apartments and communal areas, and between external and internal spaces.
adaptable housing	housing that is designed and built to accommodate future changes to suit occupants with mobility impairment or life cycle needs (<i>Australian Standard 4299: Adaptable Housing</i>).
adjoining land	land that has a boundary in common with the site on which the development is proposed or that is separated from the site by not more than a pathway, driveway, laneway, roadway or similar thoroughfare.
amenity	the 'liveability' or quality of a place which makes it pleasant and agreeable to be in for individuals and the community. Amenity is important in both the public and private domain and includes the enjoyment of sunlight, views, privacy and quiet.
ancillary	in the context of residential development, includes but is not limited to, such related facilities as a swimming pool, outbuilding, pergola, patio, pathway, driveway or tennis court.
articulation zone	the area of three dimensional modelling at the periphery of the building, including any changes in façade alignment, balconies, bay windows and sun shading devices.
at-grade	on ground level (not on a building structure).
balcony	any unenclosed platform (with balustrades) located at the height of 0.3 metres or more above adjacent finished ground level either cantilevered or supported over open space, which is attached to a dwelling and used for the exclusive enjoyment of the occupants.
barrier free access	approach and entry of a facility which is accessible by persons with disabilities (eg. grade level entry).
bay window	a large window or series of windows projecting from the outer wall of a building and forming a recess within.
bedroom	any habitable room, which in the opinion of Council, is capable of being used as a bedroom.
blank wall	an expanse of wall that does not contain any openings. Walls with advertising or facade modelling, which have no openings, are considered blank walls.
built upon area	the area of a site containing any built structure (whether covered or uncovered), any building, carport, terrace, pergola, hard-surface recreation area, swimming pool, tennis court, driveway, parking area, or any like structures, but excluding minor landscape features.

Part 6 – Definitions

	<i>Definitions</i>
building sustainability index (BASIX)	State Environmental Planning Policy (Building Sustainability Index: BASIX 2004).
building zone	the area within which a building can be built, usually represented in plan and section.
bushland	defines land that contains proposed and existing locally occurring native vegetation consisting of all layers of the local forest community, canopy, understorey and groundcovers. These areas will be maintained in accordance with the bushfire management plan.
common area	that part of the site not subject to exclusive or private use by any particular residents or occupants of the building(s).
communal open space	an outdoor open space within the common area with shared facilities for recreation and social activities of residents and occupants of a development. Deep soil landscaping area may be included as part of the calculation of communal open space area.
conservation	the use, management and protection of resources so that they are not degraded, depleted or wasted and are available on a sustainable basis for present and future generations.
core (relating to a building)	component of building for vertical circulation (eg. lift, stairs).
cross-through apartment	apartment on one level with two opposite aspects.
datum or datum line	a significant point or line in space established by the existing or desired context, often defined as an Australian Height Datum.
deck	an external platform, usually elevated, located alongside and accessible from an interior space and often made of timber.
deep soil landscaping	<p>the soft landscaped part of the site area:</p> <ul style="list-style-type: none"> i) that is not occupied by any structure, whether above or below the surface of the ground, except for minor structures such as: <ul style="list-style-type: none"> - paths to 1.2m wide; - stormwater pipes of 300mm or less in diameter; - lightweight fences; - bench seats; - lighting poles; - drainage pits with a surface area less than 1m². ii) that has a minimum width of 2m; iii) that is not used for car parking; iv) may be used for water sensitive urban design, provided it does not compromise the ability to achieve the screen and canopy planting required by this guideline document.

Part 6 – Definitions

	<i>Definitions</i>
development	has the same meaning set down in the <i>Environmental Planning and Assessment Act 1979</i> .
development application	has the same meaning set down in the <i>Environmental Planning and Assessment Act 1979</i> .
dripline of a tree	the horizontal extent of the canopy of the tree.
dual aspect apartment	apartments which have at least two major external walls facing in different directions, including corner, cross over and cross through apartments.
erosion control devices	measures to assist in minimising erosion and downstream sedimentation.
façade	the external face of a building.
finished ceiling level (FCL)	the level of the lower surface of the relevant ceiling.
finished floor level (FFL)	the level of the upper surface of the relevant floor.
fire egress	a path or opening for going out (ie. an exit) in a fire or emergency situation.
french (or juliet) balcony	a small projecting balcony, generally ornamental or only large enough for one person standing.
green building	is one that incorporates design, construction and operational practices that significantly reduce or eliminate the negative impact of development on the environment and building occupants.
habitable room	any room or area used for normal domestic activities, including living, dining, family, lounge, bedrooms, study, kitchen, sun room and play room – but excludes bathrooms, separate toilets and laundries.
heavy landscaping	defined as an area of locally occurring flora species consisting of all layers of a forest community, canopy, understorey and ground covers. The density is as follows; 1 tree per 50m ² , 1 shrub per 5m ² and groundcovers at a min of 8 per 1m ² . These planting numbers are inclusive of any existing native species that already exist within the designated heavy landscaping areas.
hydrology	the study of water as it relates to rainfall and the runoff process – in particular, catchment behaviour, flow rates and volumes.
impervious	land or material that is not readily penetrable by water.
internal collection point	a designated hard stand area suitable in size for the number and type of containers utilised by the development. Waste and recyclable materials are placed at the collection point, by the occupant, for collection of the day of service and are then returned to the designated waste storage area. Applicable to residential development where the number of units is more than 4 and for commercial and industrial development.

Part 6 – Definitions

	<i>Definitions</i>
landscaped area	the area planted with gardens, trees, lawns and / or includes remnants of the natural landscape.
light spill	light that escapes from the area requiring to be lit and lights up adjoining areas.
living room	shall be one room of either sunroom, lounge room or open plan living areas including eat-in kitchen areas; and it shall not include bedrooms, bathrooms, storage areas, laundries or separate toilets.
local provenance	plant or seed stock of local origin or seed, used to maintain the patterns of variation exhibited by a species over its range, reflecting its evolutionary history.
local road	a street with a prime function to provide access to adjacent land uses.
maisonette	a two-storey apartment, where the storeys are vertically stacked.
neighbouring land	any land, other than adjoining land, within the Ku-ring-gai local government area, the enjoyment of which the assessment team leader considers may be detrimentally affected by the development proposal.
non-habitable room	spaces of a specialised nature not occupied frequently or for extended periods, including bathrooms, toilets, pantries, walk-in wardrobes, corridors, lobbies, photographic darkrooms and clothes drying rooms.
north facing	between 30 degrees east and 20 degrees west of true solar north.
nutrients	substances that provide nourishment to another organism. In the context of stormwater, they consist primarily of Total Phosphorus (filterable phosphorus and particulate phosphorus) and Total Nitrogen (nitrates, nitrites, ammonium compounds and organically bound nitrogen compounds).
on-site detention	a device used to control the rate of stormwater runoff in order to reduce peak discharges during storm events.
on-site retention	a device that controls the rate and volume of stormwater runoff to reduce peak and total volume discharges during and after storm events by ensuring that water is reused on the site.
overshadowing	shadows caused by a proposed structure, together with any existing structures to be retained, but not including shadows cast by trees, vegetation or boundary fences.
parapet	a horizontal low wall or barrier at the edge of a balcony or roof. Often taken to refer to the decorative element which establishes the street wall height of heritage buildings.
passive surveillance	the casual surveillance of public spaces and streets by the users of the local area or adjoining land.
pervious	land or material that is penetrable by water.

Part 6 – Definitions

	<i>Definitions</i>
Planning for Bushfire Protection	the publication produced by the NSW Rural Fire Service and PlanningNSW to provide guidance to Councils, planners, fire authorities, developers and home owners with regard to bushfire protection strategies.
pollutant	a substance that adversely affects the physical, chemical or biological properties of the environment.
portico	a porch or walkway with a roof supported by columns, often leading to the entrance of a building.
primary street	the street or streets (where there is more than one primary street) which typically forms the main address of the lot or property and has the wider carriageway or carries the greater volume of traffic. Primary streets include highways, main roads and local streets.
private courtyard	private open space which may be on a structure (eg. podium, parking deck) or at ground level.
public street	<ul style="list-style-type: none"> i) any road that is opened or dedicated as a public road, whether under the <i>Roads Act 1993</i> or any other Act or law, and ii) any road that is declared to be a public road for the purposes of the <i>Roads Act 1993</i>.
putrescible waste system	food or animal matter (including dead animal parts) or unstable or untreated biosolids.
recyclable	material capable of being reprocessed into useable material and includes any item collected by Council's Recycling Service (e.g. plastic, vegetation, paper etc).
regionally significant species, populations and habitat	flora and fauna species, populations, ecological communities and habitat identified as regionally significant in Council's Biodiversity Strategy.
runoff	rainfall that ends up as stormwater.
secondary street	a street that is not a primary street and is typically a local road or lane.
significant tree	<p>a tree which</p> <ul style="list-style-type: none"> i) is visible over a wide area due to its size; ii) is a large specimen in a prominent location; iii) has ecological values because it forms part of the remnant vegetation iv) has ecological values because it forms part of the remnant vegetation of the area and contributes to the gene flow, has habitat hollows, provides food for wildlife; v) is a rare species in good condition; exhibits exceptional form; vi) is associated with the history of a place and vii) forms part of an avenue of trees.
skylight	an overhead window, as in a roof, admitting daylight.

Part 6 – Definitions

	Definitions
stormwater	untreated rain water that runs off the land onto which it falls.
streetscape	the character of the locality (whether it be a street or precinct) defined by the spatial arrangement and visual appearance of built and landscape features when viewed from the street.
street wall	the wall of the building from street level to the top of the podium, which faces the street or public domain.
terrace (outdoor area)	an unroofed and usually paved area connected to an dwelling and accessible from at least one room. May be on-grade or on a structure (podium).
threatened ecological community	an ecological community listed as an 'endangered ecological community' or 'critically endangered ecological community' under the <i>NSW Threatened Species Conservation Act</i> (1995) or the <i>Commonwealth Environmental Protection of Biodiversity Conservation Act</i> (1999).
tree	<ul style="list-style-type: none"> i) a perennial plant with at least one self-supporting woody, fibrous stem, whether native or exotic, which is 5 metres or more in height; or ii) a plant that has a trunk diameter of 150mm or more measured at ground level.
trunk drainage	the stormwater drainage system that links property, interallotment and street drainage with the receiving waters.
visitable	a place that is to be visitable by people who use wheelchairs, in that there must be at least one wheelchair accessible entry and path of travel to the living area and to a toilet that is either accessible or visitable.
waste	<p>as defined by the Protection of the Environment Operations Act 1997 (POEO Act) includes:</p> <ul style="list-style-type: none"> i) any substance (whether solid, liquid or gaseous) that is discharged, emitted or deposited in the environment in such volume, constituency or manner as to cause an alteration in the environment, or ii) any discarded, rejected, unwanted, surplus or abandoned substance, or iii) any otherwise discarded, rejected, unwanted, surplus or abandoned substance intended for sale or for recycling, reprocessing, recovery or purification by a separate operation from that which produced the substance, or iv) any substance prescribed by the regulations to be waste for the purposes of this Act. v) a substance is not precluded from being waste for the purposes of the POEO Act merely because it can be reprocessed, re-used or recycled.

Part 6 – Definitions

<i>Definitions</i>	
waste and recycling room	a designated room or a combination of designated rooms upon the site (can be located inside or outside) of a building for the housing of approved containers to store all waste material (including recyclable material) likely to be generated by the buildings' occupants.

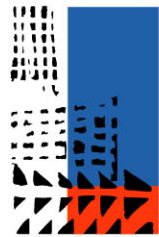


Appendix 1: Edgelea Layout Plan



LEGEND

- PRECINCT 1
- PRECINCT 2
- PRECINCT 3
- PRECINCT 4
- PRECINCT 5
- APZ
- FENCED AREA OF *Darwinia biflora*
- EXISTING EDUCATIONAL FACILITY
- ROADS
- PEDESTRIAN ACCESS
- APPROX. LOCATION OF SWALES



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EDGELEA LAYOUT PLAN

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proj no.
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