

BUSHFIRE PROTECTION ASSESSMENT

FOR THE

PROPOSED RETAIL DEVELOPMENT

ON

**LOT 101 in DP 1028645
OLD ILLAWARRA ROAD,
BARDEN RIDGE**

FOR

WOOLWORTHS LIMITED



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Assessment Number	Document	Preparation Date	Issue Date	Directors Approval
B111559 - 1	Final	14.7.2011	25.8.2011	<i>G.L.Swain</i>

EXECUTIVE SUMMARY

Australian Bushfire Protection Planners Pty Limited, at the request of the *Woolworths Limited*, has undertaken the bushfire consultancy on the proposed construction of a retail development on Lot 101 in DP 1028645, Old Illawarra Road, Barden Ridge.

The land over which the development proposal is being undertaken is an irregular shaped parcel of vacant land which is located on the corner of Old Illawarra Road and New Illawarra Road. The development site runs southeast to northwest along Old Illawarra Road with an Anglican Church and existing residential development located to the northeast and east of Old Illawarra Road; vacant land within Lot 102 in DP 1028645 to the southeast with land occupied by Lucas Heights Community College occupying the land to the southeast of Lot 102 and forming the land to the southwest of the development site.

The land to the northwest and west of the development site, beyond the New Illawarra Road carriageway forms part of the former Lucas Heights Landfill Site on which it is proposed to construct the 'Ridge Golf Course'.

The land to the north of the development site consists of the Old Illawarra Road/New Illawarra Road round-about beyond which is vacant vegetated land which is mapped as Category 1 Bushfire Prone Vegetation of the Certified Sutherland Bushfire Prone Land Map.

The development proposal seeks approval to construct a single level complex which contains a Supermarket, Speciality Shops, Kiosk and Amenities with at grade carparking located in the south-eastern portion of the site and a service area in the north-western portion of the site.

The south-western wall of the Supermarket/Amenities section of the building complex will be constructed on the property boundary, adjacent to the bushfire prone vegetation within the north-western portion of the adjoining School land. The western wall of the Supermarket will also be constructed on the property boundary.

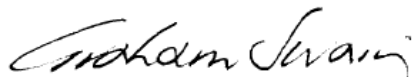
These walls will be constructed from precast concrete wall panels which have a fire rating of four [4] hours and are therefore adequate to withstand direct flame contact from a bushfire that may occur in the adjoining bushland within the School land.

A safe refuge, for shoppers and fire fighters is available within the Carpark and pedestrian access has been provided via two access points along the south-eastern aspect of the building. Both access points will not be exposed to direct bushfire attack.

The width of the New Illawarra Road [50m +] corridor and the round-about at the intersection of Old & New Illawarra Roads mitigates the bushfire impact on the proposed development from fires burning in the vegetation to the northwest of the round-about.

The development site and adjoining lands contain Category 1 Bushfire Prone vegetation and therefore the proposed retail development is triggered by the Bushfire Prone Land Map and the provisions of Section 79BA of the *Environmental Planning & Assessment Act 1979*.

The report examines the retail development proposal against the aim and objectives of *Planning for Bushfire Protection 2006* so as to address compliance with the provisions of Section 79BA of the *Environmental Planning & Assessment Act 1979*.



Graham Swain,
Managing Director,
Australian Bushfire Protection Planners Pty Limited.

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SECTION 1

INTRODUCTION

1.1 Aim of this Assessment.

The aim of this Bushfire Protection Assessment is to:

- Determine the formation of the vegetation within 140 metres of the development site, in accordance with the vegetation classification system contained in *Planning for Bushfire Protection 2006*;
- Undertake an assessment to determine the effective slope of the land on and surrounding the development site;
- Determine the Fire Danger Index [FDI] for the site;
- Undertake an assessment to determine bushfire protection strategies for the proposed development, including the bushfire protection measures required to be implemented in the design and construction of the retail development and the requisite bushfire protection measures required to address the safety of the staff and shoppers.
- Prepare a report that addresses the following matters:
 - (i) The provision of building setbacks (Asset Protection Zones) from vegetated areas and the siting of buildings to minimize the impact of radiant heat and direct flame contact;
 - (ii) Fire fighting water supplies;
 - (iii) Access requirements for emergency service vehicles;
 - (iv) Construction standards to be used for the future buildings within the proposed development to minimize the vulnerability of buildings to ignition from radiation and ember attack;
 - (v) Land management responsibilities; and
 - (vi) Evacuation management.

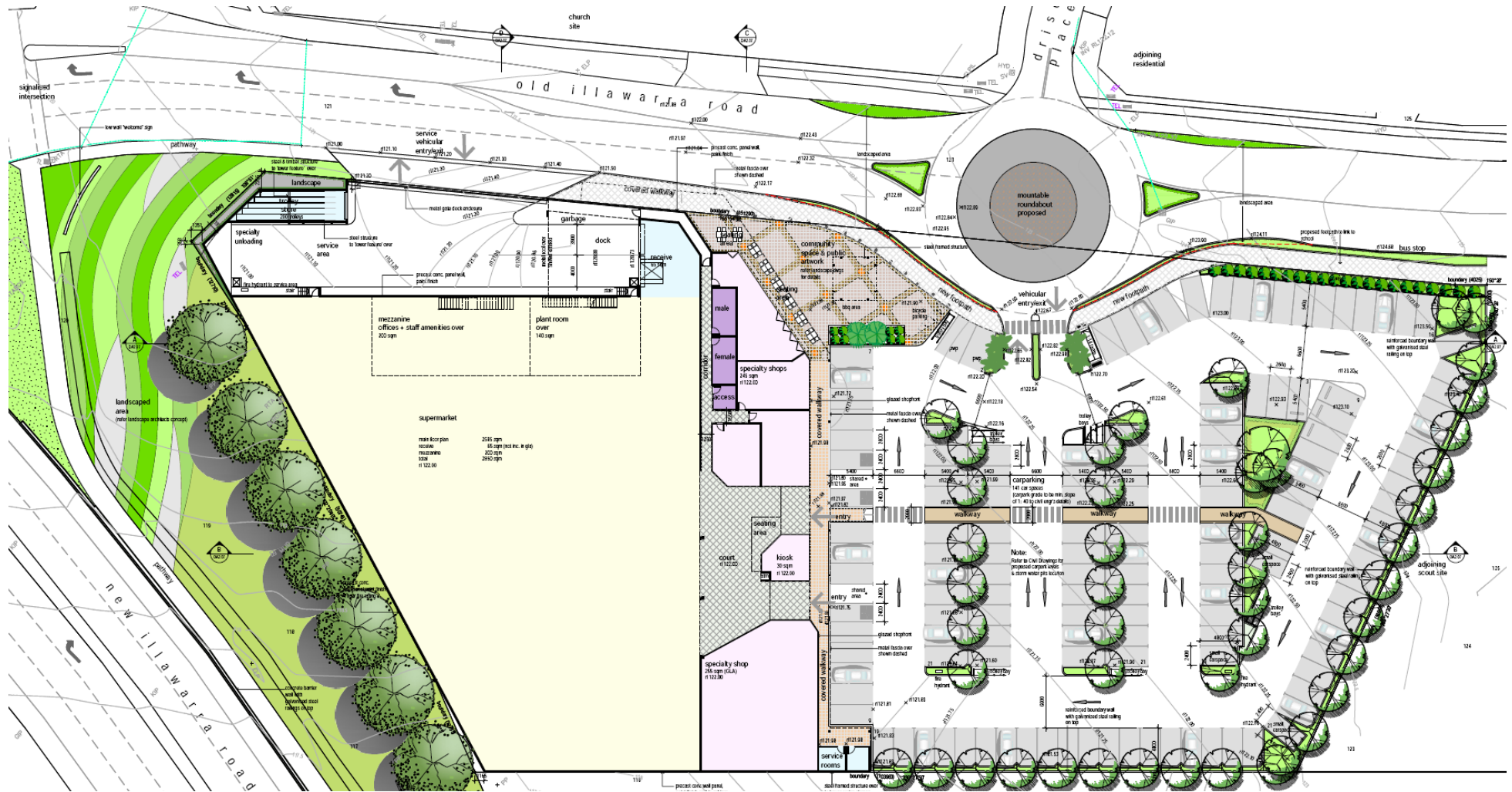
1.2 Development Proposal.

This Bushfire Protection Assessment has been prepared, at the request of *Woolworths Limited*, for the construction of a retail development on Lot 101 in DP 1028645, Old Illawarra Road, Barden Ridge.

The development proposal seeks approval to construct a building which contains a Supermarket, Speciality Shops, Amenities and Kiosk with vehicular and pedestrian access off Old Illawarra Road.

The south-eastern portion of the site contains the Carpark whilst a service area occupies the north-western portion of the site.

Figure No.1 – Site Plan of proposed Retail Development.



1.3 Statutory Requirements.

This report has been prepared having regard to the following legislative and planning requirements:

1.3.1 Legislation.

(a) Environmental Planning and Assessment Act (EPA Act)

Planning and development within NSW is regulated by the *Environmental Planning & Assessment Act, 1997* (EPA Act). In relation to bushfire protection planning for retail/commercial development in bushfire prone areas in NSW, the following section of the EPA Act applies:

- (i) **Section 79BA** of the *Environmental Planning & Assessment Act 1979* requires a consent authority to determine if a proposed development that is located within a designated Bushfire Prone Area or the buffer zone to the Bushfire Prone Land complies with *Planning for Bushfire Protection 2006*.

- (ii) **Section 79C(1)** states:

“In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

- *The likely impacts of the development (e.g. natural hazards such as bushfire threat);*
- *The suitability of a site for development (e.g. bushfires)*

(b) Rural Fires Act 1997

The objectives of the *Rural Fires Act* are to provide:

- The prevention, mitigation and suppression of fires;
- Coordination of bushfire fighting and prevention
- Protection of people and property from fires; and
- Protection of the environment.

In relation to the management of bushfire fuels on public and private lands within NSW, Sections 63(1) and 63(2) require public authorities and owners / occupiers of land to take all practicable steps to prevent the occurrence of bushfires on, and to minimize the danger of the spread of bushfires.

(c) Threatened Species Conservation Act 1995 (TSC Act).

The TSC Act aims to protect and encourage the recovery of threatened species, populations and communities as listed under the Act. The TSC Act is integrated with the EP&A Act and requires consideration of whether a development or an activity (such as the implementation of hazard reduction and asset protection) is likely to significantly affect threatened species, populations and ecological communities or their habitat.

1.3.2 Planning Policies.

Planning for Bushfire Protection – 2006 (Rural Fire Service).

Planning for Bushfire Protection 2006 provides specific deemed-to-satisfy provisions on the bushfire protection measures necessary for rural & residential subdivisions and the construction of “Special Fire Protection Developments” and the construction of Class 1, 2 and 3 buildings in Bushfire Prone areas.

The document does not specify specific deemed-to-satisfy protection measures for buildings of Class 5 to 8 and 10 under the *Building Code of Australia [BCA]*. The document does provide the following advice for these classes of buildings:

“The Building Code of Australia does not provide for any bushfire specific performance requirements and as such AS 3959 -1999 does not apply as a set of “deemed-to-satisfy” provisions. The general fire safety construction provisions [of the BCA] are taken as acceptable solutions, but the aim and objectives of Planning for Bushfire Protection 2006 apply in relation to other matters such as access, water and services, emergency planning and landscaping/vegetation management”.

“Where the aim and objectives of PfPFP [Section 1.1] are not met, then the construction requirements for bushfire protection will need to be considered on a case-by-case basis”.

“In many cases, these types of developments will require on-site parking and loading areas. In such cases, it is prudent to place these facilities in the most appropriate location in order to establish defensible space for firefighting purpose”.

The objectives of *Planning for Bushfire Protection 2006* are:

- (i) Afford occupants of any building adequate protection from exposure to a bushfire;
- (ii) Provide for a defensible space to be located around buildings;

- (iii) Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;
- (iv) Ensure that safe operational access and egress for emergency service personnel and residents is available;
- (v) Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the asset protection zones; and
- (vi) Ensure that utility services are adequate to meet the needs of fire-fighters and others assisting in bushfire fighting.

Sutherland Shire Council, upon receipt of an application for the construction of the proposed retail development, will consider if the development complies with *Planning for Bushfire Protection 2006* or refer the matter to the District Office of the NSW Rural Fire Service for advice.

1.4 Documentation reviewed in the preparation of this Assessment.

The following documents were reviewed in the preparation of this report:

- Detail Survey of Lot 101 in DP 1028645, Old Illawarra Road, Barden Ridge prepared by Rose Atkins, Consulting Surveyors;
- Floor & Site Plan of proposed development prepared by D & R Architects;
- Landscape Plans prepared by Habitation;
- Barden Ridge 2006 Zoning Context Plan;
- Aerial Photograph of the development site and surrounding lands;
- Sutherland Shire Council Bushfire Prone Land Map;
- *Planning for Bushfire Protection 2006* prepared by the NSW Rural Fire Service;
- Australian Standard AS3959 - 2009 '*Construction of Buildings in Bushfire Prone Areas*'.

1.5 Site Inspection.

Graham Swain of *Australian Bushfire Protection Planners Pty Limited* inspected the site and surrounding areas on the 5th July 2011 to assess the topography, slopes and vegetation classification within and adjoining the development property and to validate the future developments compliance with the requisite deemed-to-satisfy Asset Protection Zones and access provisions. Adjoining properties were also inspected to determine the surrounding land use / vegetation communities land management.

SECTION 2

PROPERTY DESCRIPTION

2.1 Location.

The property over which the proposed retail development is planned is known as Lot 101 in DP 1028645 Old Illawarra Road, Barden Ridge.

The development site occupies the irregular shaped parcel of land on the south-eastern corner of the intersection between Old Illawarra Road and New Illawarra Road.

Figure 2 – Site Location Plan – Lot 101 in DP 1028645

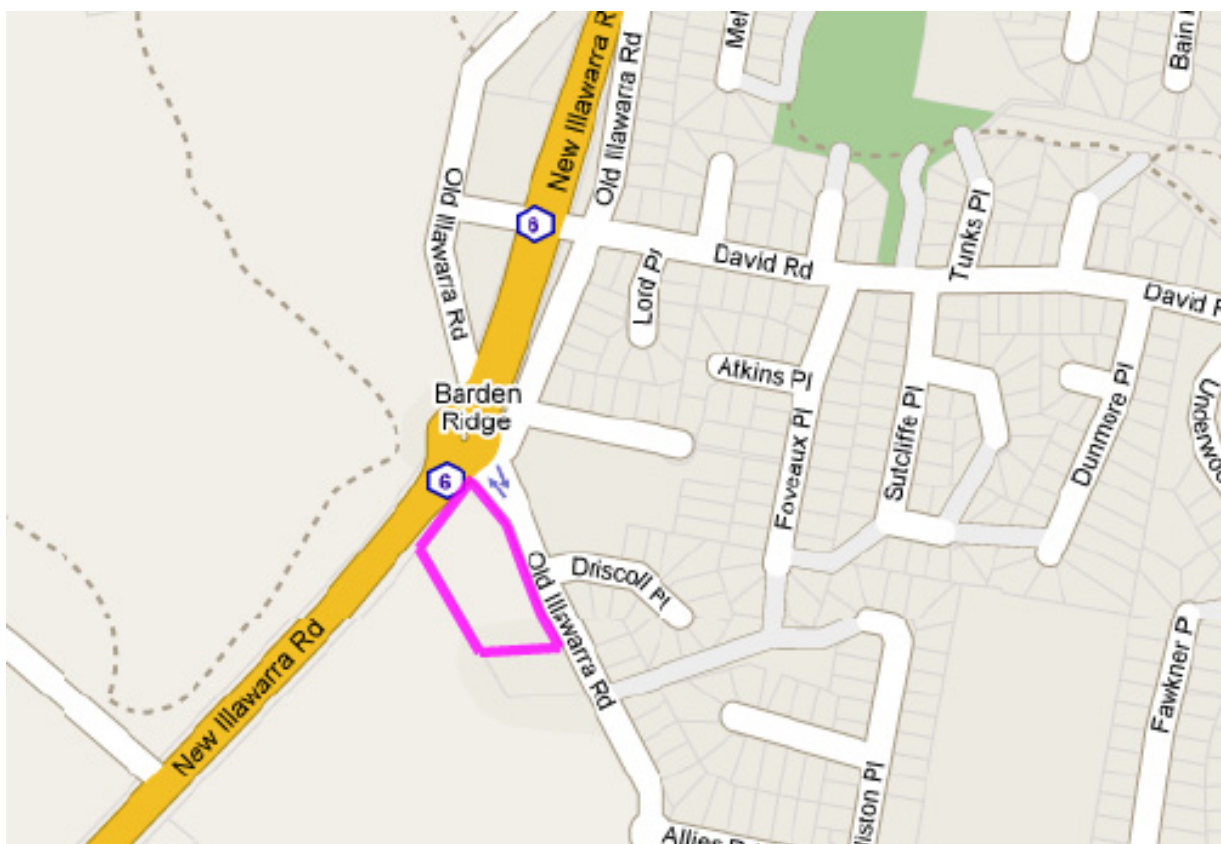
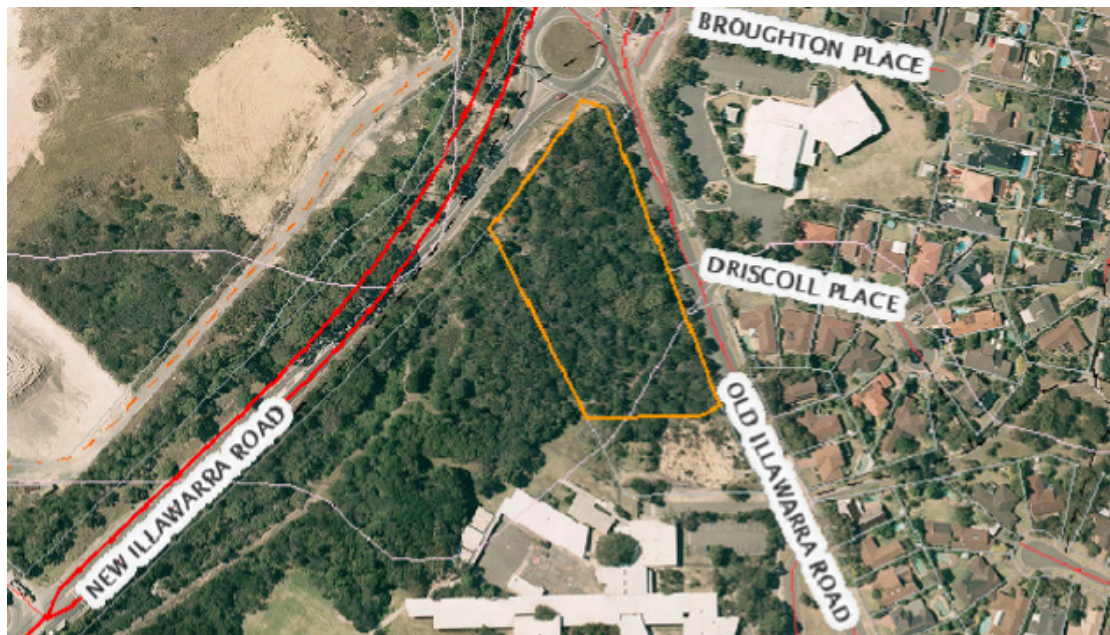


Figure 3 – Aerial Photograph showing location of Lot 101 in DP 1028645 in local context.



2.2 Existing Land Use.

The land within the development site is vacant, vegetated land which is zoned under the Sutherland Local Environment Plan as Zone 10 – Local Neighbourhood Centre.

Figure 4 – Zoning Map [Zone 10 (Blue) – Neighbourhood Centre].



2.3 Surrounding Land Use.

(a) Northeast

The land adjoining to the northeast is zoned residential/Place of Worship and contains an existing Anglican Church and residential development.

(b) Southeast

The land adjoining the south-eastern boundary of the development site [Lot 102] contains vacant land which is zoned “Neighbourhood Centre”.

The land to the southeast of Lot 102 is zoned for Educational Establishment and contains the Lucas Heights Community College.

(c) Southwest

The land adjoining the south-western boundary of the development site forms part of the land within the Lucas Heights Community College however it also contains vacant vegetated land.

(d) Northwest

The land adjoining the north-western boundary of the development site forms the New Illawarra Road carriageway which has recently been cleared as part of the completed road widening. Beyond the road corridor the land consists of vacant land within the former Lucas Heights Landfill site.

(e) North

The land to the north of the development site consists of the round-about at the intersection of Old Illawarra Road and New Illawarra Road. Beyond the round-about vacant vegetated land extends further to the northwest.

Refer to Figure 5 – Aerial photograph showing development site and surrounding landuse – dated April 2011.

Figure 5 – Aerial Photograph of Development Site and surrounding landuse.



2.4 Topography.

Appendix 2 of *Planning for Bushfire Protection 2006* states that slopes should be assessed, over a distance of at least 100m from a development site and that the gradient of the land should be determined which will most significantly influence the fire behaviour to the site.

The land within the development site slopes from RL 125.75m [AHD] in the south-eastern corner to RL 117.00m in the north-western corner with an average slope of 2 degrees.

The vacant land to the southeast rises above the site at < 2 degrees and the land to the northeast rises to the east and southeast at < 2 degrees. The land within the school site to the southwest follows the contours of the landform, falling towards New Illawarra Road at < 2 degrees whilst forming a level aspect to the southwest of the development site and an upslope of < 2 degrees to the south of the development site.

The land to the northwest falls to the northwest at < 2 degrees across New Illawarra Road, levelling within the Land Fill site whilst to the north, the land rises at < 5 across the roundabout, continuing to rise across the vacant vegetated land to the north.

2.5 Vegetation within the Development Site.

Appendix A2.3 of *Planning for Bushfire Protection 2006* provides a methodology for determining the predominant bushfire prone vegetation for at least 140 metres in all directions from the future development on the site.

Vegetation is classified using Table A2.1 of *Planning for Bushfire Protection 2006*, which classifies vegetation types into the following groups:

- (a) *Forests [wet & dry sclerophyll forests];*
- (b) *Woodlands;*
- (c) *Plantations – being pine plantations not native plantations;*
- (d) *Forested Wetlands;*
- (e) *Tall Heaths;*
- (f) *Freshwater Heaths;*
- (g) *Short Heaths;*
- (h) *Alpine Complex;*
- (i) *Semi – arid Woodlands;*
- (j) *Arid Woodlands; and*
- (k) *Rainforests.*

The vegetation within Lot 101 consists of Low Open Forest [Scribbly Gum and Casuarina] with a dense understorey. This vegetation will be removed as part of the proposed development.

2.6 Vegetation within 140 metres of Development Site.

The land to the northeast and east of the development site, beyond Old Illawarra Road contains landscaped gardens within the Church land and residential development.

Lot 102, to the immediate southeast of the development site, has been previously cleared of vegetation and now contains scattered shrubby regrowth. The School site adjacent to the vacant Lot 102 contains managed lawns/gardens whilst the School site to the southwest of the development site contains Low Open Forest vegetation similar to that found within the development site.

The Land Fill site to the northwest of the development site, beyond New Illawarra Road, contains managed grassland. The vacant land to the north of the roundabout contains Low Open Forest vegetation that extends further to the north.

2.7 Significant Environmental Features within the Development Site.

The land within the development site does not contain significant environmental features such as SEPP 14 Wetland; SEPP 44 Koala Habitat; SEPP 26 Littoral Rainforests; Land slip areas or National Parks Estate; Areas of Geological interest; Steep Lands [>18 degrees] or riparian corridors.

2.8 Known Threatened Species, Population or Ecological Community within the Development Site.

An Environmental Assessment was undertaken by Cumberland Ecology and found that there are no known threatened species, population or ecological communities within the development site.

2.9 Details and location of Aboriginal Relics or Aboriginal Place.

No Aboriginal relics or Aboriginal places are known to be located within the development site.

SECTION 3

FIRE MANAGEMENT RESPONSIBILITIES

Fire management within the development site is the responsibility of:

3.1 Sutherland Shire Council.

The Sutherland Shire Council has responsibility, under Section 66 of the *Rural Fires Act*, to issue a notice in writing requiring an owner / occupier of any land within the LGA to carry out bushfire hazard reduction works on that land. Section 100E of the *Rural Fires Act* requires Council to issue bushfire hazard reduction certificates for hazard reduction to be undertaken on private lands.

3.2 New South Wales Rural Fire Service.

The NSW Rural Fire Service (RFS) has the responsibility for undertaking fire suppression activities, hazard management activities and other functions relative to emergency management, within its areas of operation. *Section 73* of the *Rural Fires Act (1997)* enables the Commissioner to carry out bush fire hazard reduction works on any land as required by a bush fire risk management plan if the work has not been carried out satisfactorily. Incurred costs can be recovered as a debt owed to the Crown.

3.3 Fire & Rescue New South Wales.

Fire & Rescue NSW has the responsibility for undertaking fire suppression activities, and other functions relative to emergency management, within its area of operation and through Mutual Aid Agreements, provide assistance to the NSW Rural Fire Service, particularly for structural fire operations within the NSW Rural Fire Brigade Districts. Hazmat management within New South Wales is the responsibility of the NSW Fire Brigade.

3.4 Sutherland Bush Fire Management Committee.

The Sutherland Bushfire Management Committee has the responsibility for planning for co-ordinated fire fighting activities / hazard management activities on a local government level. It is not an operational organization, a fire fighting organization or a funding source for fire management activities.

The Bush Fire Management Committee is supported by the following provisions of the Rural Fires Act 1997:

- **Section 52** requires each Bush Fire Management Committee to prepare a draft bush fire management plan for their local areas which includes a plan of operations and a bush fire risk management plan.

- **Section 54** of the Act specifies that a draft bush fire risk management plan is to 'set out schemes for the reduction of bush fire hazards in the rural fire district or other part of the State'. A draft bush fire risk management plan may also restrict or prohibit the use of fire or other fire hazard reduction activities in all or specified circumstances or places to which the plan applies.

3.5 Public Authorities & owners/occupiers of land.

The Rural Fires Act, 1997 provides several legislative opportunities to require Public Authorities, land owners and occupiers to manage hazardous fuels. These are listed below:

- **Section 63(1)** states that it is the duty of a public authority to take any practicable steps to prevent the occurrence of bushfires on, and to minimise the danger of the spread of a bushfire on or from:
 - (a) any land vested in or under its control or management, or
 - (b) any highway, road, street, land or thoroughfare, the maintenance of which is charged on the authority.
- **Section 63(2)** states that 'it is the duty of the owner or occupier of land to take the notified steps (if any) and any other practicable steps to prevent the occurrence of fires on, and to minimise the danger of the spread of fires on or from that land'.
- **Section 65A** states that the 'Commissioner may nominate a member of the Service as a hazard management officer'.
- **Section 65(2)** states that 'an authorised person may, with the permission of the fire fighting authority or other authority responsible for unoccupied Crown land or managed land or a person nominated by the authority to give such permission, enter the land and carry out bushfire hazard reduction work with the assistance of such other persons as the authorised person considers to be necessary for the purpose'.
- **Section 65(3)** states that 'the authority responsible for unoccupied Crown land or managed land is to be taken to have given the permission under this section to the extent necessary to give effect to a bushfire risk management plan'.
- **Section 65(4)** states that 'if permission under this section is given subject to conditions, the conditions must be complied with'.

- **Section 66(1)** states that *‘a hazard management officer may, by notice in writing, require the owner or occupier [not being a public authority] of any land to carry out bushfire hazard reduction work specified in the notice on the land’.*
- **Section 66(2)** states that *‘a hazard management officer must serve a notice under this section if required to do so by a bushfire risk management plan applicable to the land that is in force’.*
- **Section 66(3)** states that *‘a hazard management officer must issue a bushfire hazard reduction certificate in respect of any bushfire hazard reduction work required by a notice issued in accordance within section (2)’.*
- **Section 66(6)** states that *‘the requirements and conditions so specified must include any requirements in a bushfire risk management plan that is applicable to the land and is in force and may include a requirement or condition that the burning of fire breaks or of combustible material;*
(a) must in fire district constituted under the Fire Brigades Act 1989 be carried out by or under the supervision of the fire brigade or an officer in charge of the fire brigade;
(b) must outside a fire district, be carried out by or under the supervision of the rural fire brigade specified in the notice or an appropriate officer of the rural fire brigade or any hazard management officer.
- **Section 66(7)** states that *‘a notice requiring the establishment of a firebreak cannot require an occupier or owner to kill or remove any trees that are reasonably necessary for shade, shelter, windbreak or fodder purposes or the protection of threatened species, populations, ecological communities or critical habitats within the meaning of the ‘Threatened Species Conservation Act 1995’.*
- **Section 66(8)** states that *‘an occupier or owner to whom a bushfire hazard reduction notice is given must, despite the fact that a fire permit has not been granted under Division 5, comply with the requirements specified in the notice’.*
- **Section 70(2)** states that *‘if within the time specified in the relevant notice the owner or occupier to whom it is given fails to comply with any requirement of the notice, the Commissioner may, without prejudice to liability of the owner or occupier, enter on the land and carry out the bushfire hazard reduction work the owner or occupier was required to do under the notice’.*

- **Section 70(3)** states that *‘any costs incurred by the Commissioner in carrying out such work may be recovered from the owner or occupier of the land as a debt due to the Crown in a court of competent jurisdiction’*.
- **Section 87** allows the removal of hazards in the bush fire danger period by the provision of a permit system. The permits are valid for 21 days, excluding TOBAN days.

Section 10 permits are not required to adhere to *Part V* provisions of the EPA Act 1979 in the assessment of impact, except for public authorities. An owner/occupier of private land must obtain from the NSW Rural Fire Service, a bushfire hazard reduction certificate before undertaking hazard reduction works on that land (Section 100E of the *Rural Fires Act 1997*).

3.6 Bushfire Hazard Management within the development site.

The responsibility for the management of the landscape gardens within the retail complex will be undertaken by the owner of the land.

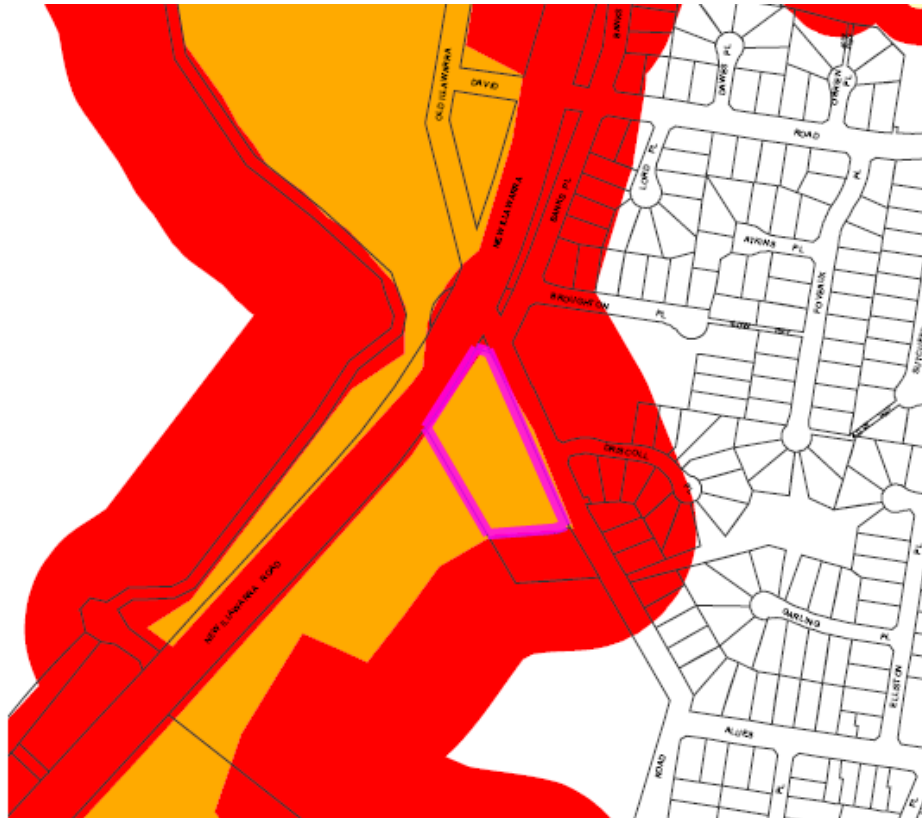
SECTION 4

PRECINCT LEVEL ASSESSMENT

4.1 Certified Bushfire Prone Land Map

The following Figure 4 is a copy of an extract of the Certified Sutherland Council Bushfire Prone Land Map showing the extent of the Category 1 Bushfire Prone Vegetation on the development site.

Figure 6 – Plan of Bushfire Prone Land



4.2 Precinct Level Assessment of Bushfire Prone Vegetation.

Planning for Bushfire Protection 2006 provides the following procedure for assessing a development at a defined precinct level in order to determine whether the development is bushfire prone and if so, be the need to provide appropriate setbacks [Asset Protection Zones]:

- (a) *Determine vegetation distance, type and class as follows:*
Identify all vegetation in each direction from the site for a distance of at least 140 metres, and then consult Table A2.1 to determine the vegetation formation which predominates;
- (b) *Determine the average slope of the land between the predominant vegetation class and the development.*

Table 1 summarises the information provided in Section 2 of this report, to undertake a precinct level assessment to determine those aspects of the development precinct that require provision of Asset Protection Zones.

Table 1. Precinct Level Assessment for Lot 101.

Aspect	Existing Land Use	Predominant Vegetation within 140 m of Development	Predominant vegetation class [Table A2.1 BfBFP]	Effective Slope of land for 100m.	Comments
North east of Lot 101	Church + Residential Development	Landscaped gardens	Nil	2 degrees upslope to the northeast	The adjoining vegetation is not bushfire prone.
South east of Lot 101	Cleared vacant lot + School	Managed lands	Nil	< 2 degrees upslope to the southeast	The adjoining vegetation is not bushfire prone.
South west of Lot 101	Vacant land within School site	Low Open Dry Sclerophyll Forest	Forest	< 2 degrees upslope to the south; Level to the southwest	The adjoining vegetation is bushfire prone.
North west of Lot 101	New Illawarra Road + vacant land within landfill site	Managed grassland	Nil	< 2 degrees downslope to the northwest across road corridor – level to upslope on landfill site	The vegetation on the landfill site is not bushfire prone vegetation.
North	Landscaped road corridor + vacant land to the north	Low Open Dry Sclerophyll Forest to the north of the road corridor	Forest	< 5 degrees upslope to the north	The vegetation on the land to the north of the roundabout is bushfire prone.

The Bushfire Prone Land Map accurately maps the existing vegetation within Lot 101 and the adjoining land to the southwest of the development site [within the school site] and north of the road corridor as Bushfire Prone Category 1 Vegetation.

However, the map has included a narrow corridor of screen trees along the north-western aspect of New Illawarra Road as Category 1 Bushfire Prone Vegetation.

This vegetation has been removed as part of the construction of the new road works.

SECTION 5

BUSHFIRE PROTECTION ASSESSMENT

5.1 Introduction.

Chapter 1, Section 1.3 of *Planning for Bushfire Protection 2006* states that the construction of Class 5 – 8 buildings on bushfire prone land, or land impacted by bushfire prone vegetation, must meet the aim and objectives of the document.

Chapter 1 of *Planning for Bushfire Protection 2006* states that the aim of the document is to use the NSW development assessment system to provide for protection of human life [including fire-fighters] and to minimize impacts on property from the threat of bushfire, while having due regard to development potential, on-site amenity and protection of the environment.

The objectives of the document are:

- (1) *Afford occupants of any building adequate protection from exposure to the impacts of a bushfire;*
- (2) *Provide for a defensible space to be located around buildings;*
- (3) *Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;*
- (4) *Ensure that safe operational access/egress for emergency service personnel and occupants relocating is provided and/or available;*
- (5) *Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads within the Asset Protection Zone/s;*
- (6) *Ensure that utility services are adequate to meet the needs of fire-fighters [and others assisting in bushfire fighting operations].*

Chapter 4, Section 4.3.6(f) of *Planning for Bushfire Protection 2006* discusses the bushfire protection to buildings of Class 5 to 8 and 10b of the Building Code of Australia and states:

“The BCA does not provide for any bushfire specific performance requirements and as such A.S.3959 – 1999 does not apply as a set of ‘deemed to satisfy provisions’.

The general fire safety construction provisions for this class of building are taken as acceptable solutions, but the aim and objective of Planning for Bushfire Protection 2006 apply in relation to access and water supply for firefighting operations, emergency planning [evacuation] and landscaping / vegetation management”.

A review of compliance with objectives of *Planning for Bushfire Protection 2006* is provided in the following sections.

5.2 Afford occupants of any building adequate protection from exposure to the impacts of a bushfire.

The location of the proposed retail development, adjacent to unmanaged bushfire prone vegetation results in a bushfire threat existing to the complex from the Low Open Forest vegetation on the School lands.

This risk has been addressed by the construction of the building to address the potential flame contact with the south-western wall of the Supermarket and Amenities and the provision of a safe refuge area for firefighters, staff and customers, remote from the bushfire hazard.

5.3 Provide for a defensible space to be located around buildings.

A defensible space [Asset Protection Zone] has not been provided between the bushfire hazard on the School site and the building.

However, the structure will incorporate four [4] hour fire rated external walls [to comply with the BCA fire safety requirements] and will therefore not be impacted by the radiant heat levels at edge of flame impact during bushfire events. Furthermore, emergency service fire operational access, complete with water supply Hydrants, have been provided at strategic locations in the Carpark, along the south-western boundary of the development site.

5.4 Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition.

The south-western wall of the building will come under direct flame contact during bushfire events in the Low Open Forest vegetation on the adjoining School site.

However, this impact has been addressed through the construction of the building with the structural and wall cladding components of the structure being able to withstand edge of flame levels of radiant heat for a period of four [4] hours – long enough to mitigate the effects of the initial bushfire flame contact on the building and the expenditure of the accumulated fuel in the forest vegetation.

The following general construction standards shall apply to the Building / External Equipment:

- External doors to the Loading Dock shall be fitted with seals to the threshold, stiles and head to protect against the entry burning of embers;
- External access/fire doors shall be fitted with seals to the threshold, stiles and head to protect against the entry of burning embers;
- Any external vents or grilles and air-conditioning intake grilles shall have stainless steel mesh with a maximum aperture of 2mm square fitted to prevent the entry of embers through the opening;
- No combustible materials are to be stored external to the building;
- Due to the building being impacted by bushfire smoke, the air-conditioning fresh-air intake shall be fitted with an automatic shut off damper designed to minimise the entry of smoke into the building. The damper should be activated by smoke detectors located on the external wall/roof, adjacent to the intake. During the period that the air intake dampers are activated the air-conditioning system shall be run on re-cycled air;
- External equipment having exposure to the impact of radiant heat/flame contact shall be shielded. Exposed electrical/data cables, conduits, plumbing and other service piping shall either be metal or sheathed with metal to minimise the impacts of radiant heat, ember attack and flame contact;
- No external timber shall be used where it is likely that it will be impacted by flame contact or high levels of radiant heat.

5.5 Ensure that safe operational access/egress for emergency service personnel and occupants relocating is provided and/or available

5.5.1 Public Roads:

The development site has frontage to Old Illawarra Road and New Illawarra Road with public vehicular and pedestrian access provided off Old Illawarra Road. This existing road is constructed to a standard which conforms to the deemed-to-satisfy specifications for Public Roads as defined by Chapter 4 of *Planning for Bushfire Protection 2006*.

New Illawarra Road is a main arterial road which is four lanes wide.

5.5.2 Fire Trail Access.

There are no fire trails provided or required within the development proposal.

5.5.3 Emergency Response Access / Egress.

The development proposal provides for vehicular access/egress [cars] off Old Illawarra Road into the open Carparking area in the south-eastern portion of the site. The traffic flow in the carpark provides for alternate routes to the entry/exit point onto Old Illawarra Road.

The truck access is provided of Old Illawarra Road to the Service Area/Loading Dock in the north-western portion of the site. This area will not be impacted by direct bushfire attack.

The emergency access/egress within the development provides safe operational access for emergency service personnel and safe egress is available for emergency service personnel and customers/staff of the retail development and satisfies item (iv) of the Objectives of *Planning for Bushfire Protection 2006*.

5.6 Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads within the Asset Protection Zone/s.

The proposed building is to be constructed up to the south-western and western boundaries therefore no defensible spaces are required to be managed.

The Carpark provides for separate areas of landscaping which will not present a bushfire hazard to the complex.

There is to be a landscaped area between the development site boundary and the recently completed road works, within the New Illawarra Road reserve. The management responsibility for the management of this vegetation rests with RTA/Woolworths.

5.7 Ensure that utility services are adequate to meet the needs of fire-fighters [and others assisting in bushfire fighting operations].

The proposed retail development will have a reticulated water supply connected to the Sydney Water Supply mains, located in Old Illawarra Road.

The fire fighting system to the development will include a fire main with Booster Valves and sprinklers/hydrants installed in compliance with A.S. 2419.1 – 2005.

Fire hydrants shall also be located in the Carpark and Service Area in order to address the threat to external assets.

5.8 Emergency Management for Fire Protection / Evacuation.

The Menai/Barden Ridge/Lucas Heights region has a history of being impacted by large scale, high intensity bushfires.

Therefore, whilst the development site is unlikely to be directly impacted by such fire events, an Evacuation Plan shall be prepared for the development and shall address the protocols required for the management of emergencies, including bushfire events which may warrant the relocation of customers and staff from the development site.

A Copy of the Evacuation Plan shall be provided to the Sutherland District Officer of the NSW Rural Fire Service and the Local Emergency Management Committee.

The Evacuation Plan shall comply with AS 3745 -2002 *“Emergency Control Organisation and Procedures for Buildings, Structures and Workplaces”*.

SECTION 6

RECOMMENDATIONS

Recommendation 1:

Management of Landscaped Gardens:

The landscape gardens within the development shall be maintained as an Inner Protection Area in accordance with Appendix 5 of *Planning for Bushfire Protection 2006* and the NSW Rural Fire Service's "*Specifications for Asset Protection Zones*".

Recommendation 2:

Construction Standards to Building:

The following general construction standards shall apply to the development:

- The south-western and western walls of the building shall have a minimum fire rating of FRL 60/30/30;
- External doors to the Loading Dock/s shall be fitted with seals to the threshold, stiles and head to protect against the entry burning of embers;
- External access/fire doors shall be fitted with seals to the threshold, stiles and head to protect against the entry of burning embers;
- Any external vents or grilles and air-conditioning intake grilles shall have stainless steel mesh with a maximum aperture of 2mm square fitted to prevent the entry of embers through the opening;
- No combustible materials are to be stored external to the building/s;
- Due to the building being impacted by bushfire smoke, the air-conditioning fresh-air intake should be fitted with an automatic shut off damper designed to minimise the entry of smoke into the building. The damper should be activated by smoke detectors located on the external wall/roof, adjacent to the intake. During the period that the air intake dampers are activated the air-conditioning system shall be run on re-cycled air;
- External equipment having exposure to the impact of radiant heat/flame contact shall be shielded. Exposed electrical/data cables, conduits, plumbing and other service piping shall either be metal or sheathed with metal to minimise the impacts of radiant heat, ember attack and flame contact;
- Roof gutters shall be protected with the installation of a non-combustible gutter guard;
- No external timber shall be used where it is likely that it will be impacted by flame contact or high levels of radiant heat.

Recommendation 3:

Water Supply for Firefighting Operations:

A fire fighting water supply shall be provided to the development, in compliance with A.S. 2419.1 – 2005.

Fire hydrants shall be located in the Carpark and Service Area in order to address the threat to external assets.

Recommendation 4:

Emergency Management:

An Evacuation Plan shall be prepared for the development and shall address the protocols required for the management of emergencies, including bushfire events which may warrant the relocation of customers and staff from the development site.

The Evacuation Plan shall be submitted to the Sutherland District Officer of the NSW Rural Fire Service and the Local Emergency Management Committee.

The Evacuation Plan shall comply with AS 3745 -2002 *“Emergency Control Organisation and Procedures for Buildings, Structures and Workplaces”*.

SECTION 7

CONCLUSION

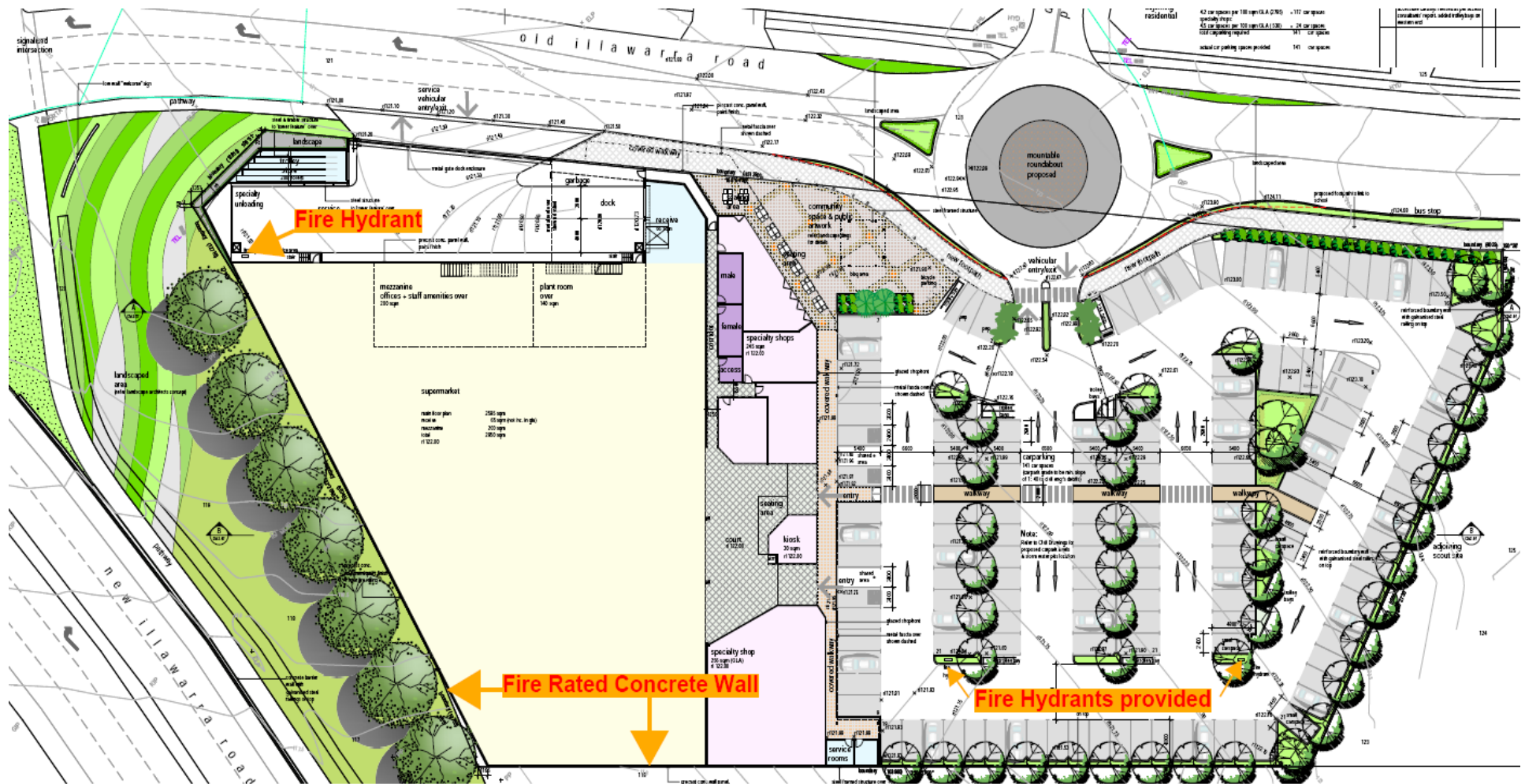
Australian Bushfire Protection Planners Pty Limited, at the request of *Woolworths Limited*, has undertaken the bushfire consultancy on the proposed retail development on Lot 101 in DP 1028645, Old Illawarra Road, Barden Ridge.

The development proposal seeks approval to construct a single storey building which contains a Supermarket and speciality retail shops.

The Supermarket is located with the south-western and western walls constructed on the property boundary. The bushfire risk to the south-western wall has been addressed by the construction of a non-combustible wall with a minimum fire rating of FRL 60/30/30. A similar fire rating will also apply to the western wall, therefore ensuring the integrity of the structure from the impact of a fire in the vegetation on the adjoining School site.

This report examines the extent of the bushfire prone vegetation adjacent to the development site and confirms that the proposed retail development complies with the aim and objectives of *Planning for Bushfire Protection 2006* to the extent that construction standards, access provisions and fire protection measures provide for a building which affords occupants adequate protection from exposure to a bushfire occurrence in the vegetation to the southwest of the development site.

SECTION 8 – Plan of Bushfire Protection Measures



REFERENCES:

- N.S.W Rural Fire Service – *Planning for Bushfire Protection 2006*;
- *Environmental Planning & Assessment Act – 1979*;
- *Rural Fires Act – 1997*;
- *Rural Fires and Environmental Assessment Legislation Amendment Act 2002*;
- NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping 2002*;
- *Threatened Species Conservation Act 1995*;
- *Native Vegetation Act*;
- *Bushfire Environmental Assessment Code 2006*;
- Building Code of Australia;
- Australian Standard A.S 3959-2009 “*Construction of Buildings in Bushfire Prone Areas*”;
- *Sutherland Shire Bushfire Prone Land Map*.