BCA CAPABILITY REPORT

FOR

BLUESTONE PROPERTY SOLUTIONS PTY LTD

PREMISES

CRONULLA SHARKS REDEVELOPMENT
461 CAPTAIN COOK DRIVE
WOOLOOWARE

Date: 11 February 2016

Our Ref: J140270

BCA FIRE LEGAL

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1.0 – Executive Summary

This report has been prepared so as to assess the architectural documentation as detailed in Part 6 in accordance with the Building Code of Australia (BCA) 2015 and adopted standards.

The building, the subject of this report, is the redevelopment of an existing site comprising alterations and additions to the existing grandstand / club building. The resultant building will comprise a mixed-use shopping centre development containing four levels of mixed commercial / retail / club use, the existing grandstand building and a four storey car park.

This report will provide the consent authority with a BCA analysis to assist in the determination of the application.

2.0 – Property Description

2.1 - Location

The subject building is to be located at 461 Captain Cook Drive, Woolooware which is bounded by Captain Cook Drive to the south and Woolooware Bay to the north.

2.2 - Building Description

Use/Classification	▪ Class 5 – Commercial tenancies ▪ Class 6 – Retail ▪ Class 7a – Car parking ▪ Class 7b – Loading docks ▪ Class 9b – Grandstand, registered club, child care, leisure facilities
Rise in Storeys	The development will have a rise of four (4) storeys
No. of Storeys	The development will contain four(4) storeys
Floor Area & Volume Limitations	▪ Floor area limitations not applicable to sprinkler protected Class 7a portions. ▪ Class 6 - maximum floor area of 5,000m^2 and volume of 30,000m^3 Note: The development will exceed the maximum compartment sizes and will be assessed under a fire engineered alternative solution to be prepared by Arup. It is noted the building does not achieve compliance with the provisions of a large isolated building due to non-compliant perimeter access provisions
Effective Height	The building will have an effective height less than than 25m
Type of Construction (BCA)	Type A construction required
Climate Zone	The development is located in climate zone 5 for the purposes of Section J

Population	Total population approximately based on BCA Table D1.13 and as proposed to be assessed under the fire engineered alternative solution to be prepared by Arup is as follows:

Area	Population
Level 1	
Loading Docks	137
Car Park	248
Retail / Mall	768
Gym	303
Club	251
Community	259
Total	**1,966**
Level 2	
Restaurant / Food Court	2,429
Retail / Mall	1,727
Childcare	240
Total	**4,396**
Level 3	
Major 1 Offices	26
Car Park	328
Club	1589
Total	**1,943**
Level 4	
Car Park	315
Club	512
Total	**827**

3.0 - Building Code of Australia Assessment

3.1 – Fire Resistance and Stability (Section C, BCA)

<table>
<tr><th>Item</th><th>Comment</th></tr>
<tr><td>Fire Resistance</td><td>The proposed building structure will achieve the necessary Fire Resistance Levels to achieve compliance with Table 3 of Specification C1.1 of the BCA deemed-to-satisfy provisions.

The applicant has advised a fire engineered alternative solution is to be adopted to reduce the required fire rating to the loading docks.</td></tr>
<tr><td>Compartmentation</td><td>The key areas for consideration with regards to compartmentation and separation are as follows:

▪ The retail component will exceed the maximum floor area and volume limitations as prescribed by Table C2.2 of the BCA (5,000m² and 30,000m³).
The oversize compartments will be addressed under the fire engineered alternative solution to be prepared by Arup at the construction certificate stage.

▪ The retail portions building elements must be separated from the remainder of the building by construction having an FRL not less than 180/180/180 (based on class 6).

With respect to the above requirements, the proposed development can achieve the required FRL’s which will be confirmed at the construction certificate phase.

The proposed fire compartments are:

<table>
<tr><th>Level</th><th>Compartment</th><th>Classification</th><th>Floor Area</th></tr>
<tr><td>1</td><td>Loading dock1</td><td>7b</td><td>2,013</td></tr>
<tr><td>1</td><td>Loading dock 2</td><td>7b</td><td>2,090</td></tr>
<tr><td>1</td><td>Retail</td><td>6</td><td>6,018</td></tr>
<tr><td>1</td><td>Club</td><td>9b</td><td>856</td></tr>
<tr><td>1, 3, 4</td><td>Car park</td><td>7a</td><td>26,508</td></tr>
<tr><td>2</td><td>Major 1</td><td>6</td><td>4,414</td></tr>
<tr><td>2</td><td>Retail south</td><td>6</td><td>2,011</td></tr>
<tr><td>2</td><td>Retail central</td><td>6</td><td>6,995</td></tr>
<tr><td>2</td><td>Retail north</td><td>6</td><td>3,713</td></tr>
<tr><td>3, 4</td><td>Club</td><td>9b</td><td>4,175</td></tr>
<tr><td>3</td><td>Major 1 offices</td><td>5</td><td>233</td></tr>
<tr><td>Total</td><td></td><td></td><td>58,996 m²</td></tr>
</table>
</td></tr>
</table>

Protection of Openings	All openings that require protection will be addressed via the deemed to satisfy provisions contained within Part C3 of the BCA. Further details are required to be provided during the Construction Certificate stage.
Vertical separation of openings	Not applicable.
Fire hazard properties	The wall and floor linings must achieve the fire hazard properties stipulated in BCA Specification C1.10.
Fire sealing of penetrations	All service penetrations must be sealed to the requirements of BCA Clause C3.12 and C3.15.
Protection of equipment.	The following equipment is to be fire separated with construction complying with BCA Clause C2.12(d). (i) lift motors and lift control panels; or (ii) emergency generators used to sustain emergency equipment operating in the emergency mode; or (iii) central smoke control plant; or (iv) boilers; or (v) a battery or batteries installed in the building that have a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours. Separation of on-site fire pumps must comply with the requirements of AS 2419.1-2005.
Electricity supply	Electrical equipment is to be separated from the building in accordance with Clause C2.13 of the BCA.

3.2 – Access & Egress (Section D, BCA)

Item	Comment
Number of exits required	The number exits in the building complies with the provisions of BCA Clause D1.2 of the BCA.
Exit travel distances.	The proposed travel distances in the building will be exceeded in a number of areas and not comply with the maximum exit travel distances permitted under Clauses D1.4 & D1.5 of the BCA. The extended travel distances will be addressed under the fire engineered alternative solution to be prepared by Arup at the construction certificate stage
Travel via fire isolated exits	The exits serving the building are well distributed and as a result achieve compliance with BCA Clause D1.10. The discharge of some fire isolated stairs are non-compliant as they discharge internally and will be addressed under the fire engineered alternative solution to be prepared by Arup
Dimensions of exits.	Exits and paths of travel to exits are to comply with D1.6 of the BCA. Generally exits are to be 1m in width clear of any obstruction including hand rails or other fixtures. The proposed aggregate egress width for the estimated population identified in section 2.2 (utilising table D1.13 of the BCA) is less than required under the DTS provisions of the BCA. This shortfall of exit width will be addressed under the fire engineered alternative solution to be prepared by Arup.
Non required escalator	The escalators serving the retail levels do not achieve compliance with Clause D1.12 and BCA Specification D1.12 as the escalator void connects four (4) levels. This is a non-compliance that will be addressed under the fire engineered alternative solution to be prepared by Arup.
Construction of exits	Exits are to be designed as fire isolated exits and the existing open stairs serving the grandstand and the future major retail tenancies and club parts are to be altered to be fully enclosed fire isolated stairs

Construction of Stairways.	Goings and risers are to be designed to comply with the provisions of Clause D2.13 of the BCA. Landings are to be designed to comply with the provisions of Clause D2.14 of the BCA. Further details are required to be provided during the Construction Certificate stage.
Egress Doors.	All required doorways will swing in the direction of egress and will be provided with the appropriate hardware in accordance with Clauses D2.20 & D2.21 of the BCA. Final discharge doors for all fire isolated stairs will be required to swing in the direction of egress and any automatic door located in a path of travel will be required to be fitted with fail safe operation.
Electrical distribution boards	Electrical distribution boards located in the path of travel to an exit must be enclosed in a non-combustible enclosure and sealed to prevent the escape of smoke.
Balustrades	Balustrades must be provided for all areas where it is possible to fall more than 1m. Balustrades are to be designed in accordance with Clauses D2.16 of the BCA. Balustrades protecting a difference in levels of over 4m must not have horizontal elements between 150mm and 760mm of the floor that facilitate climbing.
Signage	Signage must be provided to all fire safety doors (except those doorways providing access to sole occupancy units) and to doors leading from enclosed stairways as required Clause D2.23 of the BCA.
Handrails	Handrails are to be provided to stairways as required by Clause D2.17 of the BCA.
Protection of openable windows	Window openings where the floor is more than 2m above the surface beneath must be protected in accordance with BCA Clause D2.24 in a child care centre.

Access for people with disabilities.	The building is to comply with: ▪ The Disability Discrimination Act 1992); ▪ The Disability (Access to Premises — Buildings),Standards 2010; ▪ Part D3 of the BCA; ▪ Australian Standard AS 1428.1-2009. Buildings and parts of buildings must be accessible as required by Table D3.1, unless exempted by D3.4, which requires access as follows: **Class 5, 6 and 9b** To and within all areas normally used by the occupants. **Class 7a -** 1 space for every 100 car parking spaces or part thereof is required. An accessible path of travel must be provided from any required accessible car parking space on the allotment to the associated SOU's. The building is capable of compliance subject to detailed design.

3.3 – Services and Equipment (Section E, BCA)

Item	Comment
Hydrant Systems.	The building will be provided with a hydrant system in accordance with the provisions of BCA Clause E1. 3 and AS 2419.1- 2005 The design of the service will be subject to review by a hydraulic consultant.
Hose Reel Systems.	The building will be provided with a fire hose reel system in accordance with the provisions of BCA Clause E1.4 and AS 2441 - 2005. The design of the service will be subject to review by a hydraulic consultant.
Portable Fire Extinguishers.	Fire extinguishers will be provided in accordance the provisions of BCA Clause E1.6 and AS2444 - 2001.
Smoke Hazard Management.	The building will be provided with an automatic smoke detection and alarm system and smoke exhaust in accordance with the provisions of BCA Table E2.2a and Specification E2.2a. The smoke exhaust system requirements will be addressed under the fire engineered alternative solution to be prepared by Arup at the construction certificate stage The design of the service will be subject to review by a fire services consultant.
Emergency Lighting.	Emergency lighting will be provided throughout the building in accordance with BCA Clauses E4.2 & E4.4 and AS2293.1 - 2005. The design of the service will be subject to review by a fire services consultant.
Exit Signs.	Exit signs will be provided throughout the building in accordance with BCA Clauses E4.5, E4.6 & E4.8 and AS2293.1- 2005 The design of the service will be subject to review by a fire services consultant.

Sprinklers	The development will require a sprinkler system throughout all levels of the building including the car parking levels complying with BCA Specification E1.5 and AS2118.1- 1999 The design of the service will be subject to review by a fire services consultant.
Fire control centre	The building is to be provided with a fire control centre compliant with the provision of BCA Specification E1.8 The proposed location is capable of compliance with Specification E1.8 of the BCA.
Sound systems and intercommunication systems for emergency purposes	Not required
System Monitoring	The smoke detection system installed throughout will be monitored in accordance with clause 7 of BCA Specification E2.2a and AS 1670.3-2004
Lifts	An emergency lift in accordance with BCA Clause E3.4 is not required as the building has an effective height of less than 25m. A sign must be provided in accordance with BCA Clause E3.3 warning against the use of lifts in a fire. The proposed lifts shall also comply with all requirements nominated by AS1735.12 and BCA Clause E3.6 with regards to facilities for people with disabilities.

3.4 – Health and Amenity (Section F, BCA)

Item	Comment
Sanitary & Other Facilities.	Facilities will be provided in accordance with the provisions of Clause/Table F2.3 of the BCA. The development will be provided with both ambulant, non-ambulant and accessible sanitary facilities in accordance with AS1428.1-2009 Further details will be required at the construction certificate stage to correctly determine population numbers and sanitary requirements with particular note to future restaurants.
Ceiling height	The following minimum building ceiling heights must be maintained. ▪ Common kitchen, laundry or the like – 2.1m ▪ Corridor, passageway or the like – 2.1m ▪ Bathroom, shower, sanitary compartment or the like – 2.1m ▪ Habitable rooms including common areas – 2.4m ▪ Stairways – 2.0m ▪ Car parking areas – 2.2m ▪ Disabled car parks – 2.5m including a 2.3m path of travel height
Ventilation.	The building is required to be provided with ventilation in accordance with the provisions of BCA Clause F4.5. Ventilation may be provided by natural means or a mechanical system complying with AS 1668.2- 1991.
Lighting.	The development appears to capable of providing natural lighting to the proposed child care centre. Artificial lighting may be provided throughout the of the building in accordance with the provisions of BCA Clause F4.4 and AS1680.1. Further details are required to be provided during the Construction Certificate stage.
Sound insulation	Not applicable

3.5 – Ancillary provisions (Section G, BCA)

Item	Comment
Refrigerated chambers	All refrigerated chambers are to be designed to ensure: ▪ The door is capable of being opened by hand from the inside without a key; ▪ Internal lighting is controlled by as witch located adjacent to the doorway within the chamber; ▪ The chamber is provided with an alarm achieving a sound pressure level of not less than 90 dB(A).
Cleaning of windows	Provision must be made for the cleaning of windows located 3 or more storeys above ground level to the requirements of the Occupational Health & Safety Act 2000.

3.6 – Energy Efficiency Construction (Section J, BCA)

Item	Comment
Building Fabric	The external fabric to the retail portion of the development with a conditioned space will be insulated in accordance with Part J1 of the BCA.
Glazing	The external glazing of the development with a conditioned space will have the appropriate U value and solar heat gain co efficiency in accordance with Part J2 of the BCA.
Building Sealing	The external fabric of the development with a conditioned space will be appropriately sealed in accordance with Part J3 of the BCA.
Air-Conditioning and Ventilation System	The air-conditioning and ventilation system of the development with a conditioned space will be designed to comply with Part J5 of the BCA.
Artificial Lighting and Power	The building is to maintain maximum lighting power levels and control systems as applicable. The design of lighting systems must comply with BCA Part J6. The following maximum lighting power loads (W/m²) are applicable to the building 1. Car park - 6

	2. Car park entry zone (20m) - 25 3. Common rooms, corridors - 8 4. Entry lobby from outside - 15 5. Control room, switch room - 9 6. Plant room - 5 7. Service areas & store rooms – 5 8. Public hall – 10 9. Restaurant – 18 10. Retail – 22 These rates are able to be adjusted as detailed in BCA Clause Table J6.2 where daylight or motion sensors or dimming systems are provided or in particularly small rooms.
Hot Water Supply	Hot water supply systems will be installed in accordance with Part J7 of the BCA and AS/NZS 3500.4.
Access for Maintenance and Energy Monitoring	The building is to have facilities for maintenance and energy monitoring in compliance with BCA Part J8 and the NSW variations.

4.0 – Fire Safety and Other Measures

4.1 – Proposed Fire Safety Measures

In terms of the proposed works the following fire safety measures are proposed to be installed: -

Fire Safety Measure	Standard of Performance
Access panels, doors and hoppers to fire-resisting shafts	BCA Clause C3.13
Automatic fail safe devices	BCA Clause C3.4, C3.6, D2.19, D2.21, D2.22, Spec C3.4, AS 1670.1- 2004
Automatic fire detection and alarm system	BCA Clause C3.5, C3.6, C3.7, C3.8, E2.2, Spec. C3.4, Spec. E2.2a, AS 1670.1-2004,
Automatic fire suppression system	BCA Clause E1.5, E2.2, Spec. E1.5, Spec. E2.2, AS 2118.1-1999,
Automatic shutdown air handling systems	BCA Clause E2.3 NSW Table E2.2b
Emergency lighting	BCA Clause E4.2 & E4.4, AS 2293.1-2005
Exit and directional signage	BCA Clause E4.4, E4.5, (NSW E4.6) & E4.8, AS 2293.1-2005
Fire alarm monitoring system	BCA Spec E2.2a, AS 1670.3-2004
Fire control centres	BCA Clause E1.8, Spec E1.8
Fire dampers	BCA Clause E2.2, AS/NZS 1668.1-1998, AS 1682.2-1990
Fire doorsets	BCA Clause C2.12, C2.13, C3.4, C3.6, C3.8, Spec C3.4, AS 1905.1-2005
Fire Engineering Report	Report prepared by: TBA
Fire hydrant systems	BCA Clause C2.12, E1.3, AS 2419.1-2005
Fire hose reel systems	BCA Clause E1.4, AS 2441-2005
Fire seals (protecting openings and service penetrations in fire resisting components of the building)	BCA Clause C3.15, Spec C3.15, Manufacturer's specifications
Fire shutters	BCA Clause C3.4, Spec C3.4, AS 1905.2-2005
Lightweight construction	BCA Clause C1.8, Spec A2.3, Spec C1.8, Manufacturer's specifications
Mechanical air handling systems	BCA Clause E2.2, Table E2.2a, AS/NZS 1668.1-1998, AS 1668.2-2012 (clause 5.5 car park exhaust operation)
Openings in fire-isolated lift shafts	BCA Clause C3.10, AS 1735.11-1986
Occupant warning system	BCA Clause E2.2, Spec E2.2a (clause 6), AS 1670.1-2004
Portable fire extinguishers	BCA Clause E1.6, AS 2444-2001
Power operated exit doors	BCA Clause D2.19, D2.21
Smoke dampers	BCA Clause E2.2, AS/NZS 1668.1-1998
Smoke exhaust system	BCA Clause E2.2, Spec E2.2b, AS/NZS 1668.1-1998
Smoke doors	BCA Clause C2.5, C2.14, Spec C3.4
Smoke-proof walls	BCA Clause C2.5(b), Spec C2.5
Wall wetting sprinkler and drencher systems	BCA Clause C3.4, Spec G3.8, AS 2118.2-1995
Warning and operational signs	BCA Clause C3.6, D2.23, D3.6, E3.3, Spec E1.8, Clause 183 of the Environmental Planning and Assessment Regulation 2000

5.0 – Recommendations and Conclusions

5.1 - Recommendations

Subsequent to our assessment of the proposed development, it is recommended that the following matters are to be addressed to comply with the BCA utilising either the 'deemed to satisfy' or via an alternate solution under the performance requirements (as advised by our clients):

1. The retail component will exceed the maximum floor area and volume limitations as prescribed by Table C2.2 of the BCA.

2. Structural fire rating and fire separation of loading dock fire compartments,,

3. The proposed travel distances in the building will generally be exceeded and not comply with the maximum exit travel distances permitted under Clauses D1.4 & D1.5 of the BCA.

4. The discharges of some fire isolated stairs are non-compliant as they discharge internally.

5. The proposed aggregate egress width for the estimated population is less than that required under the provisions of the BCA Clause D1.6.

6. The smoke exhaust will not be in accordance with the provisions of BCA Table E2.2a and Specification E2.2a.

7. The escalators serving the retail levels do not achieve compliance with BCA Clause D1.12 and BCA Specification D1.12 as the escalator void connects four (4) levels.

8. The building is to be served by the services nominated under Section 4.0.

5.2 – Conclusions

It is the opinion of this office that, on satisfaction of the above recommendation, the proposed combined building is capable of achieving compliance with the requirements of the Building Code of Australia (BCA) 2015 and relevant adopted standards without undue modification to the design or appearance of the building.

Whilst the above recommendation have been made as a means of achieving compliance with the various provisions of BCA Performance Requirements their acceptability has not been verified at this time. It will be necessary for the design to be reviewed by an appropriately qualified person prior to the issue of a Construction Certificate for the works.

Prepared by:

Geoff Smith
A1 Accredited Certifier – BPB No. 0229
VIC LILLI & PARTNERS **Date:** 11 February 2016

6.0 - References

This BCA Capability report has been prepared on the basis of the following:-

1. Architectural Plans as prepared by Rice Daubney Group .

Drawing No.	Title	Rev	Date
DA10	Level 1 Floor Plan	A	12.02.16
DA11	Level 2 Floor Plan	A	12.02.16
DA12	Level 3 Floor Plan	A	12.02.16
DA13	Level 4 Floor Plan	A	12.02.16
DA14	Roof Plan	A	12.02.16
DA15	Gross Building Area Plan	A	12.02.16
DA16	Gross Floor Area Plan	A	12.02.16
DA17	South & East Elevations	A	12.02.16
DA18	North & West Elevations	A	12.02.16
DA19	N-S and E-W Sections	A	12.02.16

2. Building Code of Australia (BCA) 2015;

3. Environmental Planning and Assessment Act, 1979, and Regulations.