

Our Ref: D2022-076

09 December 2022

26-30 CUTLER DRIVE, WYONG

BUILDING CODE OF AUSTRALIA 2019

CAPABILITY STATEMENT FOR DA SUBMISSION

Prepared for

BARRY RUSH & ASSOCIATES PTY LTD

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0.0 Author and Reviewer

Revision history

Revision No.	Reviewed by	Description	Date
R00	Dean Morton	Final	09/12/2022

1.0 Executive Summary

This report has been prepared to assess the architectural documentation as detailed in Part 6 in accordance with the Building Code of Australia Volume 1 (BCA) 2019 including amendment 1 and adopted standards.

The proposed development is the construction of a residential apartment building (seniors housing) and associated on grade car parking

The assessment has revealed that the proposed development will be capable of achieving compliance with BCA 2019. The following matters will require further consideration during detailed design development at the construction stage of the project:

1. The building is to adopt type B construction throughout.
2. There are openings exposed to adjacent fire compartments that will require protection in accordance with Part C3 of the BCA and/or adopting a performance solution.
3. The internal non fire isolated exits are to be smoke separated at the ground floor.
4. The provision of fire services including hydrants are to be coordinated with a hydraulic consultant at the construction certificate stage.
5. Disabled access is to be subject to detailed review at the construction certificate stage.
6. The use of combustible materials forming external walls are restricted and all materials forming such parts of the building are to be specified as non combustible materials.
7. The building is to be comply with Section J for energy efficiency for climate zone 5 and will require input from specialist energy consultants regarding the envelope performance.

2.0 Property Description

2.1 Location

The subject building is located at 26-30 Cutler Drive, Wyong and is bounded to the north, south and east by residential developments. The property is taken to face west for the purpose of the report.

2.2 Building Description

<i>Use / Classification</i>	Class 2: apartments (ground & first floors) Class 7a: car park (ground floor)
<i>Rise in Storeys</i>	The development will have a rise of 2 storeys (2 storeys contained)
<i>Compartmentation</i>	There are no maximum floor area or volume limitations imposed to class 2 parts of the building or the class 7a part that is deemed to be an open deck car park.
<i>Effective Height</i>	The building will have an effective height of 4.9m (RL11.9m – RL16.8m)
<i>Type of Construction</i>	The building requires Type B Construction
<i>Climate Zone</i>	For the purposes of Section J the climate zone is 5
<i>Population</i>	The population as determined from table D1.13 is: Ground – 6 persons (1 person per 30m ² for car park) Note the BCA does not impose a population by floor area ratio for the class 2 apartments.

3.0 Building Code of Australia Assessment

3.1 Fire Resistance and Stability (Section C, BCA)

Fire Resistance

The building is to comply with Clause C1.1 and Clause 2 & 3 of Specification C1.1, for a building required to have Type A construction. Refer to Table 4 of Specification C1.1 of the BCA for the specific Fire Resistance Levels [FRL's].

Structural: the ability to maintain stability and adequate load-bearing capacity as determined by AS 1530.4.

Integrity: the ability to resist the passage of flames and hot gases specified in AS 1530.4.

Insulation: The ability to maintain a temperature on the surface not exposed to the furnace below the limits specified in AS 1530.4. FRL's are generally as follows for the building:

Table 4 Type B construction: FRL of building elements

Building element	Class of building—FRL: (in minutes)			
	<i>Structural adequacy/Integrity/Insulation</i>			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated within it) or other external building element, where the distance from any <i>fire-source feature</i> to which it is exposed is—				
For <i>loadbearing</i> parts—				
less than 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/ 60/ 30	120/ 90/ 60	180/120/ 90	240/180/120
3 to less than 9 m	90/ 30/ 30	120/ 30/ 30	180/ 90/ 60	240/ 90/ 60
9 to less than 18 m	90/ 30/—	120/ 30/—	180/ 60/—	240/ 60/—
18 m or more	—/—/—	—/—/—	—/—/—	—/—/—
For non- <i>loadbearing</i> parts—				
less than 1.5 m	—/ 90/ 90	—/120/120	—/180/180	—/240/240
1.5 to less than 3 m	—/ 60/ 30	—/ 90/ 60	—/120/ 90	—/180/120
3 m or more	—/—/—	—/—/—	—/—/—	—/—/—
EXTERNAL COLUMN not incorporated in an <i>external wall</i> , where the distance from any <i>fire-source feature</i> to which it is exposed is—				
For <i>loadbearing</i> columns—				
less than 18 m	90/—/—	120/—/—	180/—/—	240/—/—
18 m or more	—/—/—	—/—/—	—/—/—	—/—/—
For non- <i>loadbearing</i> columns—				
For non- <i>loadbearing</i> columns—	—/—/—	—/—/—	—/—/—	—/—/—
COMMON WALLS and FIRE WALLS—	90/ 90 / 90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS—				
<i>Fire-resisting</i> lift and stair <i>shafts—</i>				
<i>Loadbearing</i>	90/ 90/ 90	120/120/120	180/120/120	240/120/120
<i>Fire-resisting</i> stair <i>shafts—</i>				
Non- <i>loadbearing</i>	—/ 90/ 90	—/120/120	—/120/120	—/120/120
Bounding <i>public corridors</i> , public lobbies and the like—				
<i>Loadbearing</i>	60/ 60/ 60	120/—/—	180/—/—	240/—/—
Non- <i>loadbearing</i>	—/ 60/ 60	—/—/—	—/—/—	—/—/—
Between or bounding <i>sole-occupancy units—</i>				
<i>Loadbearing</i>	60/ 60/ 60	120/—/—	180/—/—	240/—/—
Non- <i>loadbearing</i>	—/ 60/ 60	—/—/—	—/—/—	—/—/—
OTHER LOADBEARING INTERNAL WALLS and COLUMNS—	60/—/—	120/—/—	180/—/—	240/—/—
ROOFS	—/—/—	—/—/—	—/—/—	—/—/—

Lightweight construction & fire hazard properties

Where lightweight fire rated construction is proposed for walls, the system must comply with Specification C1.8 of the BCA and the manufactures tested specification.

Columns protected with lightweight fire rated construction that are subject to mechanical damage must be protected and/or internally filled in accordance with Clause C1.8 (b) of the BCA.

The fire hazard properties of floor, wall and ceiling linings are to comply with Part C1.10 and Specification C1.10 of the BCA. All materials selected for use in the construction should be accompanied by a valid test report demonstrating compliance with defined fire hazard properties.

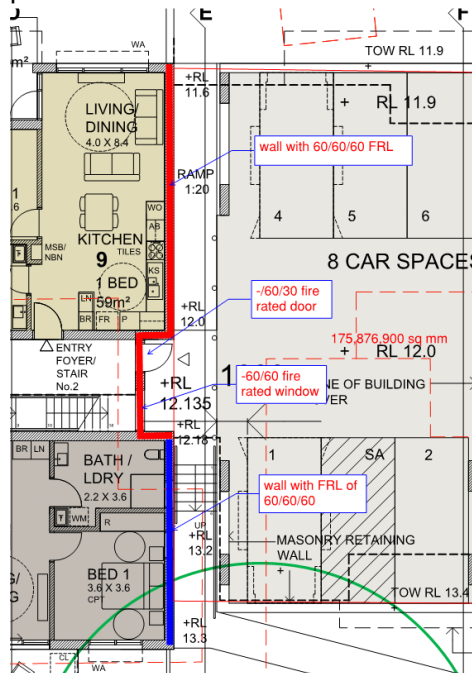
The use of combustible facade materials as either wall systems or as attachments to a wall are restricted under the BCA. The plans do not reflect the use of combustible materials generally.

Compartmentation & separation

Parts of the building with different classifications on the same storey must be fire separated by a fire wall of the higher FRL specified under Specification C1.1 of the BCA for the classifications concerned or the entire storey is to be constructed to the higher FRL. Intervening floors between different classes are required to have the FRL of the classification in the lower storey applied to the separating floor. In this regard the following is to be considered in respect of the structural design for fire resistance:

1. The car park levels are to adopt class 7a FRL's throughout (generally being 120 minutes) with the slab separating the first floor having a FRL of 30/30/30.

The car park portion is to be fire separated from the remainder of the ground floor to form a separate fire compartment. In this regard the internal wall bounding to unit 9 is required to have a FRL of 60/60/60 (as per clause 4.2 of Spec C1.1). The door to the entry point is to have a FRL of -/60/30 and the window is to have a FRL of -/60/60 or be subject to a performance solution. The external wall of unit 2 is to have a FRL of 60/60/60.

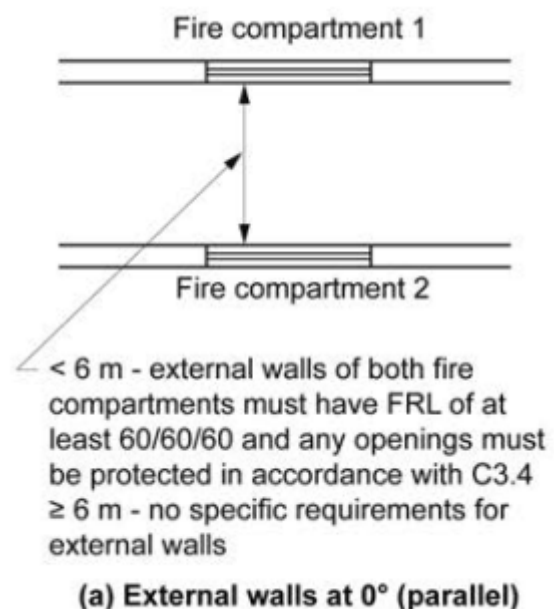
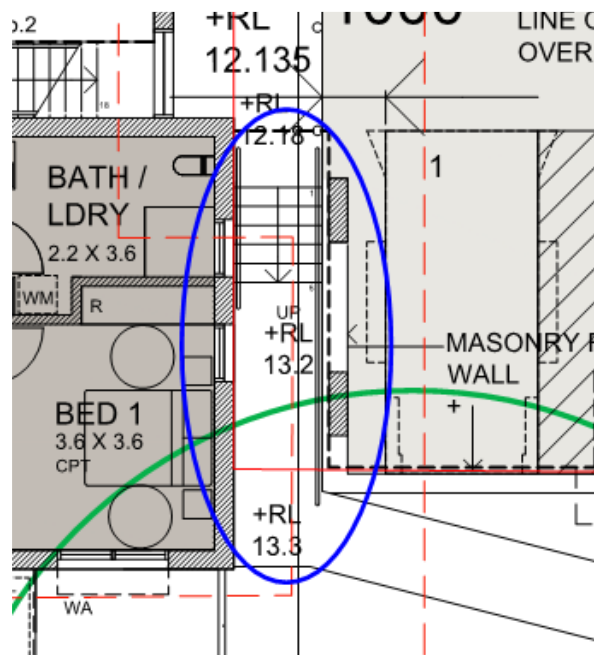


2. To the first floor the use of the lightweight roof is to ensure the bounding walls required to have a FRL extend to the underside of the roof sheet and are not crossed by any element other than by a batten with dimension not exceeding 75mm x 50mm and sarking materials. Alternatively, a ceiling with a resistance to the insipient spread of fire of not less than 60 minutes is to be provided through the entire storey.
3. Refer to 'Protection of openings' regarding requirements for protection of external walls openings in adjacent fire compartments.
4. Bounding construction between residential sole occupant units (SOU) in class 2 parts are to comply with the provisions of Specification C1.1 and Clause C3.11 of the BCA and generally achieve a FRL of 60/60/60 (loadbearing) or -/60/60 (non loadbearing). The doors to SOU's are to be minimum 35mm thick self closing solid core doors that are tight fitting

The proposed development is capable of achieving the required FRL's, and are to be confirmed by the structural engineer, any reduction to FRL's is to be assessed by way of a performance solution.

Protection of Openings

The openings formed between opposing fire compartments of the class 2 and 7a parts is to be subject to a performance solution for the form of protection relying on the external wall of unit 3 having a FRL in two directions and the openings formed to the car park compartment having no protection.



Vertical Separation of openings

The building is to be of type B construction and therefore vertical fire separation of openings is not applicable.

Fire sealing of penetrations

All service penetrations must be sealed to the requirements of Clause C3.12 and C3.15 of the BCA

Electrical Supply

Electrical equipment is to be separated from the building in accordance with Clause C2.13 of the BCA. The main switchboard is to be constructed to achieve a fire resistance level of 120/120/120 with the door being –/120/30 fire rated.

Protection of Equipment

The following equipment is to be fire separated with construction complying with Clause C2.12 (d) of the BCA.

- (i) lift motors and lift control panels; or
- (ii) a battery or batteries installed in the building that have a voltage exceeding 12 volts and a storage capacity exceeding 200kWh.
- (iii) Separation of on-site fire pumps must comply with the requirements of AS 2419.1-2005.

It is noted plans do not detail any such equipment required to be separated.

3.2 Access and Egress (Section D, BCA)

Number of exits required

There is a requirement for a minimum of 1 exit to each storey and the design is considered compliant.

Exit travel distances

Exit travel distances to a required exit or a point of choice between exits complies with Clause D1.4 of the BCA.

Distance between alternative exits

Alternate exits are provided to the first floor and the distance between them is considered compliant.

Travel via non fire isolated exits

The non fire isolated stairs are to be smoke separated at the ground floor in compliance with clause D1.9 with construction equivalent to a solid imperforate wall element (solid wall or glazing) with a self and auto closing door with medium temperature smoke seals.

Dimensions of exits

Exits and paths of travel to exits are to comply with D1.6 of the BCA. Generally exits widths are 1m in width clear of any obstruction including hand rails or other fixtures. Reductions in width are available at doorways to not less than 750mm clear.

The required aggregate width based on the population determined in Section 2.2 of the report is generally compliant.

Construction of Stairways

Goings and risers are to be designed to comply with the provisions of Clause D2.13 of the BCA and to generally achieve a minimum going of 250mm and maximum rise of 190mm.

There is to be no step or ramp within the width of the door leaf to a door threshold unless it is an external door in which the maximum step is not to exceed 190mm. The plans generally detail compliance in this regard.

Handrails

Handrails will be provided to stairways and ramps as required by Clause D2.17 of the BCA. For non fire isolated stairs they are to be provided both sides of the flight, the plans generally note compliance can be achieved.

Barriers

Barriers will be provided for all areas where it is possible to fall more than 1m from the floor level to a lower surface. In general balustrades are to have no gap that will permit a 125mm diameter sphere to pass through, balustrades protecting a difference in levels of over 4m must not have horizontal elements between 150mm and 760mm above the floor that facilitate climbing.

Egress Doors

All exit doors will swing in the direction of egress and are required to be provided with the appropriate hardware in accordance with Clauses D2.20 & D2.21 of the BCA, the latches will be downward or pushing action on a single device located between 900-1100mm above floor level.

Protection of openable windows

Openable windows in bedrooms where the floor is more than 2m above the surface beneath and with a sill height below 1.7m require restricted openings or protection in accordance with D2.24 of the BCA, measures to restrict the window opening may include security mesh or to restrict the opening to not permit a 125mm diameter sphere to pass through.

Where the window opening is restricted calculations are to be provided at Construction Certificate stage that sufficient natural ventilation is provided by Part F4.5. For all windows not in bedrooms where the fall exceeds 4m from floor level to the surface below the sill height is to be minimum 865mm above floor level or a balustrade or similar provided in front of the opening.

Access for people with a disability

The proposed building is required to comply with the following:

- The Disability (Access to Premises — Buildings) Standards 2010;
- Part D3 of BCA;
- Australian Standard AS 1428.1-2009, AS/NZS 1428.4.1-2009, AS/NZS 2890.6-2009

The following areas are identified with respect to further review for accessibility:

1. Access is required via the main Cutler Drive entry.
2. The lift is to comply with AS 1735.12 and have an internal lift car dimension of 1400 x 1100mm and a clear doorway opening width of 900mm.
3. No fire isolated stairs are to have a handrail to both sides being 30-50mm in diameter and have contrasting nosings being 50-75mm wide as per clause 11.1(f)&(g) of AS 1428.1-2009.
4. Accessible car parking where proposed is to comply with AS 2890.6 incorporating shared zones with a minimum width of 2400mm and 2500mm head clearance. NOTE the BCA does not impose requirements for accessible parking for this building.
5. Tactile ground surface indicators are to be provided to all stairs in compliance with AS/NZS 1428.1-2009.

3.3 Services and Equipment (Section E, BCA)

Hydrant Systems

The building is required to be provided with a system of hydrant coverage in accordance with the provisions of Clause E1.3 of the BCA and AS 2419.1-2005 and may utilize the street hydrant network for coverage.

The design of the hydrant service is subject to input from an accredited practitioner (fire safety).

Hose Reel Systems

The building will be provided with a fire hose reel system in accordance with the provisions of Clause E1.4 of the BCA and AS 2441-2005 where internal fire hydrants are provided. This system must cover the car park area of the development. Locations of fire hose reels are required to be located 4m from an exit.

The design of the hose reel service is subject to input from an accredited practitioner (fire safety).

Portable Fire Extinguishers

Fire extinguishers are to be provided in accordance the provisions of Clause E1.6 of the BCA and AS2444 - 2001. There is to be a type ABE 2.5kg extinguisher located within 10m of the entry door to every SOU within the common corridors and provided at the main switch board.

Exit and Emergency Lighting

Emergency lighting will be provided throughout the building in accordance with Part E4 of the BCA and AS/NZS 2293.1.2018.

Lifts

A sign must be provided in accordance with Clause E3.3 of the BCA warning against the use of lifts in a fire.

Compliance with Specification E3.1 is required for an electric or electrohydraulic lift installation.

Every passenger lift is to be provided with handrails, minimum internal floor dimensions, clear door opening dimensions and car control buttons in accordance with AS1735.12 and be fitted with a series of sensory devices per clause E3.6 of the BCA.

Sprinklers

A sprinkler system in accordance with the provisions of Clause E1.5 and Specification E1.5a of the BCA is not required for this building.

Smoke Hazard Management

The building is to be provided with the following fire and smoke detection measures:

- Class 2: An automatic smoke detection and alarm system in accordance with Specification E2.2a and AS 1670.1-2018 and AS 3786-2014.
- The entire building is to be provided with an occupant warning system complying with clause 7 of Specification E2.2a.

3.4 Health and Amenity (Section F, BCA)

Damp and Weatherproofing

Adequate measures will be employed to ensure compliance Part F1 of the BCA is achieved in terms of weatherproofing, this is to include compliance with AS 4654.2-2012 in respect of waterproofing of external balconies. It is advised that the building façade must be designed as a performance solution against the performance solution FP1.4.

Sanitary and Other facilities

Within each apartment there is to be facilities for cooking, washing and laundry facilities comprising a wash tub and space for a washing machine and either a clothes line min 7.5m long or space for a heat operated dryer in the same room as the washing machine. Plans generally detail compliance in this regard.

Ceiling Heights

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 and office spaces – 2.4m
- Stairways – 2.0m

Natural and Artificial Lighting

Natural lighting is to be provided class 2 sole occupancy units to habitable rooms and is to be not less than 10% of the floor area of the room concerned based on the light transmitting area of the glazing element (eg exclusive of framing elements), artificial lighting may be provided throughout other parts in accordance with the provisions of Clause F4.4 of the BCA and AS 1680.0. Compliance can be readily achieved and is subject to detailed design development at the construction certificate stage.

Ventilation

The building is required to be provided with ventilation in accordance with the provisions of Clause F4.5 of the BCA. Ventilation may be provided by natural means or a mechanical system complying with AS 1668.2-2012.

Sound Transmission and Insulation

The floor separating the residential units and separating the sole occupancy units from public areas must achieve a sound insulation rating of R_w+C_{tr} (airborne) of not less than 50 and an $L_{n,w}+C_i$ (impact) not more than 62.

Walls separating units must achieve a sound insulation rating of R_w+C_{tr} (airborne) of not less than 50.

Walls separating units from plant rooms, lift shafts, stairways corridors or other public areas must have an insulation rating of R_w (airborne) not less than 50.

Walls separating a bathroom, sanitary compartment, laundry or kitchen in one sole occupancy unit from a habitable room in another or separating a unit from a lift shaft must be of discontinuous construction.

The doorway separating to sole occupancy unit from the public area must have an R_w not less than 30. Soil, waste & stormwater services must be separated by construction having an R_w+C_{tr} (airborne) not less than:

- 40 if the room is a habitable room
- 25 if the room is a non-habitable room

3.5 Energy Efficient Construction (Section J, BCA)

Building Fabric

The class 2 apartments are to comply with BASIX and the relevant provision of Clause NSW J(A). It is noted there are no conditioned spaces for the class 7a part.

Building Sealing

Openings in the building such as doors, windows, exhaust fans and ventilation systems forming part of an envelope to a conditioned space must be sealed to the requirements of Part J3 of the BCA to prevent loss of conditioned air.

In that regard, all external doorways and windows must be fitted with a draft seal, exhaust fans to have dampers, there are to be tight fitting skirting boards, cornices and architraves. The requirement for seals does not apply to fire doors fitted between the fire-isolated stairways in the conditioned areas of the building.

Air-conditioning and Ventilation System

The design of all mechanical air-conditioning and ventilation systems must achieve compliance with Part J5 of the BCA with regard to input power and efficiency features.

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 class 2 parts are to comply with the relevant BASIX Certificate.

Maximum illumination power densities for the car parking and general use areas are to be as follows:

- First 15m of entry to car park 11.5 W/m² (day time) and 2.5 W/m² (night time for first 20m). Next 4m of entry to car park 2.5 W/m² at daytime
- Generally throughout car park 2 W/m²

Hot Water Supply

Hot water supply systems will be installed in accordance with Part J7 of the BCA and AS/NZS 3500.4 and incorporate insulation to inlet and outlet lines of hot water storage units.

Access for Maintenance and Facilities for Monitoring of Energy Use

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
Automatic fire detection and alarm system	BCA 2019 A1 Clause E2.2, Spec. E2.2a, AS 1670.1-2018, AS 3786-2014
Emergency lighting	BCA 2019 A1 Clause E4.2 & E4.4, AS 2293.1-2018
Exit and directional signage	BCA 2019 A1 Clause E4.5, (NSW E4.6) & E4.8, AS 2293.1-2018
Fire dampers	BCA 2019 A1 Clause E2.2, AS/NZS 1668.1-2015, AS 1682.2-1990
Fire doorsets	BCA 2019 A1 Clause C3.5, AS 1905.1-2015
Fire windows (including frame)	NCC 2019 A1, Clause C2.7, AS 1530.4-2014
Fire hydrant systems	BCA 2019 A1 Clause C2.12, E1.3, AS 2419.1-2005
Fire hose reel systems	BCA 2019 A1 Clause E1.4, AS 2441-2005
Fire seals (protecting openings and service penetrations in fire resisting components of the building)	BCA 2019 A1 Clause C3.15, Spec C3.15, Manufacturer's specifications
Portable fire extinguishers	BCA 2019 A1 Clause E1.6, AS 2444-2001
Fire engineered solutions	TBA
Solid core doors	NCC 2019 A1, Clause C3.11, NSW C3.11(d)

5.0 Conclusion

Following an assessment of the proposed building it is considered that the proposed building is capable of compliance with the provisions of BCA 2019 A1 and is subject to detailed design development at the time of seeking consent for construction.

6.0 Referenced plans

Architectural plans prepared by Barry Rush and Associates Pty Ltd

DRAWING SCHEDULE

ARCHITECTURAL	REFERENCE No
COVER PAGE	A00 -
SITE ANALYSIS PLAN	A01 -
SITE PLAN	A02 -
GROUND FLOOR PLAN	A03 -
FIRST FLOOR PLAN	A04 -
ROOF PLAN	A05 -
ELEVATIONS	A06 -
SECTIONS	A07 -
SECTIONS 2	A08 -
FINISHES SCHEDULE	A09 -
DEMOLITION PLAN	A10 -
BLOCK ANALYSIS PLAN	A11 -
SHADOW DIAGRAMS MID WINTER	A12 -
VIEWS FROM SUN DIAGRAM	A13 -
STREET PERSPECTIVE	A14 -
AREAS OF EXCAVATION & FILL	A15 -