ESD Report

85 Harrington Street

Time and Place

Job No:	1012539
Revision:	D
Revision Date:	20 December 2018

Project title	ESD Report	Job Number
Report title	85 Harrington Street	1012539

Document Revision History

Revision Ref	Issue Date	Purpose of issue / description of revision
A	31/12/2015	Drat for review and comment
B	04/02/2016	Issue.
C	21/11/2018	Recertification for S4.55 submission
D	20/12/2018	Updated statement from FJMT

Document Validation (latest issue)

20/12/2018

X

Principal author

Signed by: Neill, Zoe

Checked by

Approved by

Clarification notes

In August 2017, in light of a number of changes to the design, the 85 Harrington Street development was remodelled with the FirstRate5 modelling software approved by the National House Rating Energy Scheme (NatHERS) and recertified for BASIX compliance under the certificate numbers:

- 689521M_02 for the Baker's Terraces
- 686596M_02 for Blocks 1 and 2.

Cundall provided updated BASIX certificates and an updated report at this stage, and the project submitted for DA. An extracted copy of this BASIX report has been included in Appendix E.

The ESD Report created prior to this recertification was not updated at this stage. Revision B of the ESD report (which included a BASIX assessment from February 2016) was in fact superseded considering the updates to BASIX compliance in August 2017, however an updated copy was not provided. This has caused confusion. An extracted copy of the ESD report from February 2016 has been included in the Appendix F.

For this reason, Cundall has provided this update to supersede Revision B of the ESD report and the BASIX report created in August 2017.

This report (Rev D dated 20th December 2018) therefore supersedes all other ESD, BASIX and NatHERS documentation NatHERS modelling and BASIX have been recertified for the latest design drawings available to ensure the S4.55 submission is accurate and up-to-date. All drawings and documentation used for the assessment have been included in Appendices C and D.

Executive Summary

The following report provides an outline of the Ecologically Sustainable Design (ESD) initiatives that will be incorporated within the proposed development located at 85 Harrington St, The Rocks, NSW. The project includes two buildings of 5 and 8 storeys, referred to as Block 1 and Block 2, as well as two adjacent town houses, the Bakers Terraces. As multi-dwelling developments, Blocks 1 and 2 have been assessed together, while the Bakers Terraces has been assessed separately. All results have been summarised in parallel. The project also includes retail space.

The following minimum regulatory requirements apply to the development:

- BCA Section J for Energy Efficiency
- Building and Sustainability Index (BASIX)

In addition to these minimum compliance requirements, the design team is committed to providing the residents and the local community with a sustainable and environmentally conscious development, in its design, construction and operation. The focus of the ESD initiatives relate to providing high levels of indoor and outdoor environmental quality and amenity, in addition to minimising on-going energy and water consumption.

The ESD measures outlined below have been developed through the detailed design stages:

- Low emission materials – Limit the health risks associated with the selection of toxic constituents
- Passive design – Optimisation of daylight, natural ventilation and solar access to increase occupancy wellbeing and reduce energy consumption requirement

BASIX reduced water use

Fittings, fixtures and appliances have been specified to allow the development to reduce its water consumption.

- Blocks 1 and 2 exceed water reduction target by 4% achieving a water use reduction of 44%
- The Bakers Terraces exceed water reduction target by 1% achieving a water use reduction of 41%

BASIX reduced energy use

Systems and controls have been designed to reduce energy consumption across dwellings and common areas in the development. Appliances and lighting have also been selected to reduce energy consumption.

- Blocks 1 and 2 meet the energy reduction target of 20%
- The Bakers Terraces exceeds the energy reduction target by 2% achieving an energy reduction of 42%.

BASIX thermal comfort

All 56 apartments and 2 town houses have been modelled with the NatHERS accredited software FirstRate5 v5.2.9. They have all met the thermal requirements for the Rocks location, as follows:

- Heating and cooling loads for individual apartments must not exceed the limits specified climate zone 17;
- The collective average heating and cooling loads of all the proposed apartments in the residential precinct must not exceed the specified averages climate zone 17.

At the time of initial certification, which applies to this recertification for section 4.55, the specified limits for climate zone 17 were as follows:

	Max. Load (MJ/m^2)	Max. Average (MJ/m^2)
Heating	50	40
Cooling	41	32

Contents

1.0

Project overview

1.0 Project overview

The project consists of a new mixed-use development, with ground floor retail tenancies, pedestrian links and car parking. The project includes two buildings of 5 and 8 storeys, referred to as Block 1 and Block 2, as well as two adjacent town houses, the Bakers Terraces.

Across the two blocks, there are 56 apartments, a mix of one, two and three-bedroom options and 3 penthouse apartments. The three-level basement car park includes 54 car spaces.

The Bakers Terraces and Block 2 do not include any common areas; however, the Block 1 has an enclosed and external common area on level H9.

There are three pools of 5 m^3 in the development, belonging to apartments H801, H802 in Block 1 and C601 in Block 2.

While there is no lawn, there are planters on the upper levels and around the stairs between the blocks (please see drawings in Appendix D).

The external walls will have a terracotta panel finish in Blocks 1 and 2, with precast concrete frames on the east and western facades. The heritage-listed Bakers Terraces will have a concrete finish. There are movable screens around the Blocks 1 and 2 on all levels except level H7 in Block 1 and level C5 in Block 2.

Systems and appliances have been selected to reduce water and energy impacts of the development.

Construction and glazing types have been selected to ensure the apartments and townhouses meet thermal requirements in BASIX, as well as other ESD initiatives undertaken by the project team.

2.0

ESD initiatives

2.0 ESD initiatives

2.1 Introduction

The 85 Harrington St development is committed to exceeding standard environmental performance. The scope and systems described herewith cater for these performance requirements and will be further developed through the design stages.

2.2 Minimum Requirements

Minimum regulatory ESD requirements applying to this site include the following:

- BCA Section J for Energy Efficiency;
- Building and Sustainability Index (BASIX);

2.2.1 BCA Section J for Energy Efficiency

The retail component of the development is required to comply with the BCA Section J for Energy Efficiency.

The Building Code Australia (BCA) Section J, sets minimum energy performance requirements for all new development, which cover air-conditioning, ventilation, lighting, power and hot water, in addition to building fabric considerations including thermal construction and insulation, building sealing, glazing and shading. The building construction materials will be designed in line with deemed-to-satisfy requirements for building fabric and services, as outlined in Section 4 of this report.

2.2.2 BASIX

New residential developments in NSW must reduce their energy and water use, according to BASIX requirements developed by the Department of Planning and Infrastructure. The objectives of the BASIX scheme are relative to an average development in NSW.

Targets for 85 Harrington St development are as follows:

Bakers terrace

- 40% reduction in water consumption
- 40% reduction in greenhouse gas emissions
- Minimum thermal performance requirements for heating and cooling loads

Apartment Buildings

- 40% reduction in water consumption
- 20% reduction in greenhouse gas emissions
- Minimum thermal performance requirements for heating and cooling loads

A detailed BASIX update has been carried out for the purposes of the Section 4.55 submission and the related strategies are presented in Section 3.0 of this report.

2.3 Ecologically Sustainable Design (ESD) Approach

The following section identifies the ESD objectives and key principles that apply to the proposed development through design, construction and operational phases.

2.3.1 ESD Principles in Design

The design team aims to provide residents and the local community with a sustainable and environmentally conscious development through a focus on providing high levels of indoor and outdoor environmental quality and amenity along with minimising energy and water loads.

2.3.2 Site wide

Element	Passive Design Strategies
Management and Education	In recognition of effective handover being critical to the success of a building achieving its environmental aspirations, a simple and concise building users' guide has been considered to inform and educate building users, residents and tenants on how to capture and promote strong on-going environmental performance. The development of the guide has not as yet been confirmed by the project team.
Materials	Forestry Stewardship Certified (FSC), Australian Forest Certified (AFS) or post-consumer recycled timber is preferred. Low emission paints, carpets, sealants, adhesives and composite wood products will be specified. Materials will be selected to avoid toxic constituents such as cadmium, lead, mercury, phthalates, chlorofluorocarbons, polychlorinated biphenyls and chloroprene where practical alternatives exist.

2.3.3 Passive Design

Effective passive design can reduce the amount of air-conditioning required and improve internal comfort and amenity. A building's form, fabric and orientation will have the biggest influence on its thermal comfort and environmental performance.

Element	Passive Design Strategies
Orientation	The residential spaces of the development have been designed where possible, to consider the impact of daylight and natural cross-flow ventilation on the health and wellbeing of the building occupants. Where possible, apartments have been oriented to take advantage of solar access throughout the day while balconies and operable shading devices provide adequate protection from the sun. Most residential living rooms are configured to take advantage of prevailing winds for cooling while providing protection from the wind during cold winter periods.
Glazing	The selection of appropriate performance glazing will decrease heat loss during the winter months and help to avoid heat gains in the summer.

2.3.4 Occupant Amenity

Facilities that provide good occupant amenity will improve the lifestyle of residents and help to enhance the local community. Indoor Environmental Quality (IEQ) affects occupant health and wellbeing and comprises of thermal comfort, indoor air quality, views, daylight, and acoustic quality. These factors are outlined below with respect to the development application and will be developed further during detailed design.

Element	Occupant Amenity Strategies
Enhanced landscaping	Communal spaces are provided with access to the ground floor retail shops, whilst rooftop gardens enhance ecological value and occupant amenity for the development.
Transport	The site is well serviced by the nearby train line, ferry terminal and a number of bus stops with regular bus services.
Daylight, Glare and Views	The extent of glazing has been designed to optimise daylight, views, and winter sun. Operable shading devices have been provided for glare control.
Air quality	Contamination of indoor air will be minimised at source through careful consideration of finishes and materials to reduce air-borne pollutants, toxins and irritants. Examples include, selection of low VOC paints and carpets and low formaldehyde emitting wood products.
Private External Space	The majority of individual dwellings will be provided with private external space.

2.3.5 Efficient Systems

Energy consumption can be reduced through the efficient design of lighting, air-conditioning and ventilation systems, in addition to water heating and other services. The following table outlines the initiatives that will reduce energy consumption relating to building services.

System	GHG Emissions Reduction Strategies
Lighting	Efficient light fittings such as LED lamps are preferred throughout common areas and dwellings. Efficiency controls where possible will be provided including timers and motions sensors in car parks and common areas.
Heating, Cooling & Ventilation	Where AC is provided, energy-efficient systems will be specified. Residential kitchens exhaust hoods for all dwellings will be fitted with individual fans and be ducted to the building façade or roof. Car parks areas will be provided with mechanical ventilation for supply and exhaust and will incorporate CO monitoring and Variable Speed Drives (VSD).

2.3.6 Water Efficiency

Where possible, mains/potable water consumption will be minimised on-site.

System	Water-saving Strategies
Fittings & Fixtures	All fittings will be WELS rated to minimise total water consumption (all residential areas and common areas).
Appliances & Equipment	Where installed, WELS rated water-efficient appliances will be selected and pipe work sized to maximise efficiency.
Landscape	The use of native, low-water planting species will be encouraged to reduce water consumption used in irrigation.
Alternative sources	Landscape irrigation will utilize rainwater harvesting to limit potable water consumption.
Flows to Sewer	Estimated wastewater discharge to sewer will be significantly reduced relative to a standard building through the implementation of water efficiency measures.

Please note the below requirements for non-residential water features

Toilets installed within the non-residential components must be of water efficient dual flush with at least 4-star ratings under the Water Efficiency and Labelling Scheme (WELS).

All taps and shower heads installed within the non-residential components must be water efficient with at least 3-star rating under WELS.

New urinal suites, urinals and urinal flushing control mechanism installed with the non-residential components of the development must be selected with at least a 4-star rating under WELS.

Systems must include smart controls to reduce unnecessary flushing. Continuous flushing systems are not approved.

2.4 BCA Section J for Energy Efficiency

The retail component of the development is required to comply with the BCA Section J for Energy Efficiency. It is intended that the retail component will meet the BCA Section J requirements with deemed to satisfy constructions and services.

3.0

BASIX

3.0 BASIX

New residential developments in NSW must reduce their energy and water use, according to BASIX requirements developed by the Department of Planning. The objectives of the BASIX scheme are relative to an average development in NSW; the compliance is defined by two sustainability tools which regulate residential development, namely:

- BASIX, a planning tool which calculates energy and water efficiency and sets minimum thermal performance requirements;
- NatHERS, which calculates a star rating based on predicted space heating and cooling loads.

The targets for these tools applied to 85 Harrington St are as follows:

- 40% reduction in water consumption;
- 20% reduction in greenhouse gas emissions (for Block 1 & Block 2);
- 40% reduction in greenhouse gas emissions (for Bakers Terraces), and
- Minimum thermal performance requirements for heating and cooling loads.

Strategies employed to achieve these targets are outlined in the following sections.

3.1 BASIX Reduced Water Use

Strategies to achieve a potable water consumption reduction target of 40% are outlined in the table below:

Water Conservation Strategy	
Fixtures[1] (All Dwellings)	3 Star showerheads (>7.5 and ≤9 L/min) 4 Star toilets 6 Star kitchen taps (Penthouse apartments will have an additional outdoor kitchen mixer with a 4 star rating; kitchen taps have been modelled as 4 Star in these apartments) 5 Star bathroom taps
Appliances (For Block 1 & Block 2 only)	4.5 Star clothes washers in 1 and 2-bedroom apartments and Bakers Terraces 5 Star clothes washers in 3-bedroom apartments 5 Star dishwasher
Communal area	4 Star toilets 5 Star taps
Other	10kL water tank Pool covers to be provided, pools are not shaded
Water Saving Required	**40%**
Water Saving Achieved (Block 1 and Block 2)	**44%**
Water Saving Achieved (Bakers Terraces)	**41%**

[1] Water Efficiency Labelling - To help to reduce urban water consumption on a national scale, the Australian Government, in collaboration with State and Territory governments, has introduced a Water Efficiency Labelling and Standards (WELS) Scheme, which applies national mandatory water efficiency labelling and minimum performance standards to household water-using products. This system replaces the existing AAA water rating system for appliances but is not a like for like comparison. Fixtures in the water conservation table are approximately equivalent to a 3A rating. The star rating of the appliances can be referenced on the following web site- www.waterrating.gov.au

3.2 BASIX Reduced Energy Use

Strategies to achieve an energy reduction target of:

- 20% for Block 1 & Block 2;
- 40% for Bakers Terraces;

are outlined in the table below:

Energy Conservation Strategy		
	Block 1 & Block 2	**Bakers Terraces**
Mechanical Systems (Central System and Common Areas)	Car Park: Mechanical ventilation (supply and exhaust) with Variable Speed Drive (VSDs) and CO sensors	NA
	Garbage Rooms: Continuous mechanical exhaust ventilation	
	Plant rooms and switch rooms: continuous ventilation supply only	
	Hallways and Lobbies (Block 1 and level C6 Block2): Continuous mechanical supply ventilation Hallways/lobby for Block 2 except level C6: naturally ventilated	
	Community room: time clock-controlled air conditioning	
	Ground floor lobby: continuous air conditioned	
Hydraulic Systems	2 separate central gas-fired hot water systems with R1.0 external and R0.6 internal piping insulation for Domestic Hot Water (DHW)	3 Star individual instantaneous gas systems
Mechanical Systems (Dwellings)	1-phase air-conditioning for living areas and bathroom areas (EER 3.0 – 3.5)	3-phase air conditioning for living areas and bathroom areas (EER 3.0 – 3.5)
	Separate individual fan ducted to façade or roof for bathrooms, kitchen and laundry with: • manual switch on/off for kitchen, • interlocked to light for bathroom, and • interlocked to light for laundry	Separate individual fan ducted to façade or roof for bathrooms, kitchen and laundry with: • manual switch on/off for kitchen, • manual switch on/off for bathrooms, and • manual on / timer off for laundry

Energy Conservation Strategy		
	Block 1 & Block 2	**Bakers Terraces**
Electrical Systems (Common Areas)	Car Park: LED with motion sensor controls	NA
	Garbage rooms: LEDs with motion sensors	
	Corridors and Lobbies: Compact fluorescent with time clock or motion sensor controls	
	Plant and Switch Room: Fluorescent or LEDs with manual switch	
	Hallways and Lobbies: LED lighting with motion sensor controls	
	Community room: time clock-controlled air conditioning	
	Ground floor lobby: LED with motion sensor controls	
Electrical Systems (Dwellings)	Dedicated fluorescent or LED lamps, all downlights to be sealed and non-ventilated	Dedicated fluorescent or LED lamps, all downlights to be sealed and non-ventilated
Appliances	Gas cooktop and electric oven to all dwellings	Gas cooktop and electric oven Refrigerator and clothes dryer not specified
	Well ventilated fridges spaces	
	2.5 refrigerator for 3-bedroom apartments in Blocks 1 and 2 2 Star refrigerator for penthouse apartments 3.5 Star for 2-bedroom town homes	
	4.5 Star dishwasher for all apartments	
	4.5 Star clothes washer for 1 and 2-bedroom apartments in Blocks 1 and 2 5 Star clothes washer for 3-bedroom apartments in Blocks 1 and 2	
	4 Star clothes dryer for 3-bedroom apartments in Block 1 (not including penthouse apartments) 3 Star clothes dryer for 2-bedroom apartments in Block 1 (not	

Energy Conservation Strategy		
	Block 1 & Block 2	**Bakers Terraces**
	including the double storey apartments)	
Vertical Transportation Systems	Gearless traction lifts with VVVF motor Lift cars with LED lighting connected to the lift call buttons	NA
Other	Active power factor correction (PFC) to be utilised There is no BMS Pools to use timer-controlled electric heat pumps	There is no BMS
Energy Saving Required	**20%**	**40%**
Energy Saving Achieved	**20%**	**43%**

3.3 BASIX Thermal Comfort

3.3.1 Targets

BASIX requires that each apartment achieve a minimum thermal performance. This is calculated using National House Energy Rating Scheme (NatHERS), which predicts annual heating and cooling loads for each apartment.

In order to pass BASIX requirements, the following objectives must be met:

- Heating and cooling loads for individual apartments must not exceed the limits specified below for climate zone 17; and
- The collective average heating and cooling loads of all the proposed apartments in the residential precinct must not exceed the specified averages below for climate zone 17.

	Max. Individual Load (MJ/m^2)	Max. Average Load (MJ/m^2)
Heating	50	40
Cooling	41	32

3.3.2 Thermal Comfort Summary

Based on the constructions outlined in Section 3.3.3, the following collective average thermal comfort results were achieved for each building of the development:

Building	Heating (MJ/m^2)	Cooling (MJ/m^2)	Total (MJ/m^2)	Star Rating
Bakers Terraces	6.2	31.6	37.7	6.2
Block 1	12.7	22.7	37.0	6.5
Block 2	28.4	31.7	60.2	4.4
Average	**14.9**	**24.4**	**40.7**	**6.2**

3.3.3 Constructions

The following construction specifications achieve the thermal comfort requirements:

Thermal Comfort Strategy – Building Envelope Construction Requirement	
Construction Type	**Construction**
Construction & shading	As indicated on the architectural drawings
External Wall (Blocks 1 and 2)	30mm thick terracotta rainscreen system (125mm thickness) over waterproof insulated 150mm stud wall / **R2.0** insulation / 2 layers plasterboard
External Wall (Bakers Terraces)	30mm thick terracotta rainscreen system (125mm thickness) over waterproof insulated 150mm stud wall / **R2.0** insulation / 2 layers plasterboard
Internal Wall (corridor) Block 1 and 2	Hebel 90mm / **R1.0** insulation / plasterboard Not naturally ventilated
Internal Wall (between apartments) Block 1 and 2	13mm plasterboard x 2 / Hebel AAC panel 90mm / air gap 35mm min / 64mm insulated stud wall/ **R1.0** insulation / 13mm plasterboard
Internal Wall (in apartments) all buildings	13mm Plasterboard / 90mm airgap / 13mm plasterboard
Floor (above unconditioned)	Carpet, tile or timber / suspended concrete slab 200mm / **R1.0** insulation (above outside air) Note that all apartments have the option to have stone or timber floor coverings. Worst case will be modelled so apartments failing on cooling must use timber and those failing on heating must use stone
Floor (above conditioned)	Carpet, tile or timber / suspended concrete slab 200mm Note that all apartments have the option to have stone or timber floor coverings. Worst case will be modelled so apartments failing on cooling must use timber and those failing on heating must use stone
Roof (Block 1 and 2) – ceiling is not insulated	Plasterboard **/ R3.0** Insulation / Concrete slab (outside air above)
Roof (Bakers Terrace)	Timber construction with attic space / **R3.0** Insulation Attic used for A/C plant, HW plant
Glazing (glass and frame)[2] All apartments except Block 2 401	Mixture of window types. Predominantly sliding and double-hung. Double hung windows can only open 120mm to comply with BCA. B type windows: U = 5.4 $W\,m^{-2}\,K^{-1}$, SHGC = 0.58 A type windows: U= 5.4 $W\,m^{-2}\,K^{-1}$, SHGC = 0.49
Glazing (glass and frame)[3] Block 2 401	Mixture of window types, sliding and double-hung: B type windows: U = 4.8 $W\,m^{-2}\,K^{-1}$, SHGC = 0.59 A type windows: U = 4.8 $W\,m^{-2}\,K^{-1}$, SHGC = 0.51
Ceiling	30mm set down at bathrooms

[2] Installed glazing systems must have a U-value less than the modelled U-value and be within 10% of the SHGC shown in the table above.

[3] Installed glazing systems must have a U-value less than the modelled U-value and be within 10% of the SHGC shown in the table above.

Ceiling Penetration	Sealed to prevent the complete movement of air between floors or a roof space. Downlight 50mm penetration width/length/clearance Exhaust 100mm penetration width/length (clearance =0mm)

4.0

Appendices

4.0 Appendices

4.1 Appendix A - BASIX certificates

BASIX® Certificate

Building Sustainability Index www.basix.nsw.gov.au

Multi Dwelling

Certificate number: 689521M_03

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 06/10/2017 published by the Department. This document is available at www.basix.nsw.gov.au

This certificate is a revision of certificate number 689521M lodged with the consent authority or certifier on 29 April 2016 with application SSD 15_7037.

It is the responsibility of the applicant to verify with the consent authority that the original, or any revised certificate, complies with the requirements of Schedule 1 Clause 2A, 4A or 6A of the Environmental Planning and Assessment Regulation 2000

Secretary
Date of issue: Wednesday, 21 November 2018
To be valid, this certificate must be lodged within 3 months of the date of issue.

NSW GOVERNMENT Planning & Environment

Project summary	
Project name	85 Harrington St - Bakers Terrace_03
Street address	85 Harrington Street The Rocks 2000
Local Government Area	Sydney City Council
Plan type and plan number	deposited 777033
Lot no.	1
Section no.	-
No. of residential flat buildings	0
No. of units in residential flat buildings	0
No. of multi-dwelling houses	2
No. of single dwelling houses	0

Project score		
Water	✔ 41	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 42	Target 40

Certificate Prepared by
Name / Company Name: Cundall
ABN (if applicable): 16104924370

Description of project

Project address	
Project name	85 Harrington St - Bakers Terrace_03
Street address	85 Harrington Street The Rocks 2000
Local Government Area	Sydney City Council
Plan type and plan number	deposited 777033
Lot no.	1
Section no.	-
Project type	
No. of residential flat buildings	0
No. of units in residential flat buildings	0
No. of multi-dwelling houses	2
No. of single dwelling houses	0
Site details	
Site area (m²)	162
Roof area (m²)	162
Non-residential floor area (m²)	0.0
Residential car spaces	0
Non-residential car spaces	0

Common area landscape		
Common area lawn (m²)	0.0	
Common area garden (m²)	0.0	
Area of indigenous or low water use species (m²)	0.0	
Assessor details		
Assessor number	16/1756	
Certificate number	O3ZGGH62QS	
Climate zone	17	
Project score		
Water	✔ 41	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 42	Target 40

Description of project

The tables below describe the dwellings and common areas within the project

Multi-dwelling houses

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
BT 01	3	174.4	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
BT 02	3	108.0	14.2	0.0	0.0

No common areas specified.

Schedule of BASIX commitments

1. Commitments for multi-dwelling houses

    (a) Dwellings

        (i) Water

        (ii) Energy

        (iii) Thermal Comfort

2. Commitments for single dwelling houses

3. Commitments for common areas and central systems/facilities for the development (non-building specific)

        (i) Water

        (ii) Energy

Schedule of BASIX commitments

The commitments set out below regulate how the proposed development is to be carried out. It is a condition of any development consent granted, or complying development certificate issued, for the proposed development, that BASIX commitments be complied with.

1. Commitments for multi-dwelling houses

(a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install: (aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and (bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✔ ✔	✔ ✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	3 star (> 7.5 but <= 9 L/min)	4 star	6 star	5 star	no	-	-	-	-	-	-	-	-	-

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
None	-	-	-	-	-	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✔	✔
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✔	✔	✔
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must:			
(aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and		✔	
(bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✔	
(h) The applicant must install in the dwelling:			
(aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;		✔	
(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and		✔	✔
(cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔	
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	
(j) The applicant must install the photovoltaic system specified for the dwelling under the "Photovoltaic system" heading of the "Alternative energy" column of the table below, and connect the system to that dwelling's electrical system.	✔	✔	✔

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	gas instantaneous 3 star	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual on / timer off

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
All dwellings	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	-	-	-	no	no

	Alternative energy
Dwelling no.	Photovoltaic system (min rated electrical output in peak kW)
All dwellings	0.0

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.	✔		
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.		✔	
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✔	✔	✔
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✔	✔	✔

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
BT 01	6.9	30.5
All other dwellings	5.4	32.6

	Construction of floors and walls				
Dwelling no.	Concrete slab on ground(m²)	Suspended floor with open subfloor (m²)	Suspended floor with endclosed subfloor (m²)	Suspended floor above garage (m²)	Primarily rammed earth or mudbrick walls
BT 01	-	-	94	-	No
All other dwellings	19	-	45	-	No

3. Commitments for common areas and central systems/facilities for the development (non-building specific)

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	no common facility	no common facility	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

Notes

1. In these commitments, "applicant" means the person carrying out the development.
2. The applicant must identify each dwelling, building and common area listed in this certificate, on the plans accompanying any development application, and on the plans and specifications accompanying the application for a construction certificate / complying development certificate, for the proposed development, using the same identifying letter or reference as is given to that dwelling, building or common area in this certificate.
3. This note applies if the proposed development involves the erection of a building for both residential and non-residential purposes (or the change of use of a building for both residential and non-residential purposes). Commitments in this certificate which are specified to apply to a "common area" of a building or the development, apply only to that part of the building or development to be used for residential purposes.
4. If this certificate lists a central system as a commitment for a dwelling or building, and that system will also service any other dwelling or building within the development, then that system need only be installed once (even if it is separately listed as a commitment for that other dwelling or building).
5. If a star or other rating is specified in a commitment, this is a minimum rating.
6. All alternative water systems to be installed under these commitments (if any), must be installed in accordance with the requirements of all applicable regulatory authorities. NOTE: NSW Health does not recommend that stormwater, recycled water or private dam water be used to irrigate edible plants which are consumed raw, or that rainwater be used for human consumption in areas with potable water supply.

Legend

1. Commitments identified with a "✔" in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).
2. Commitments identified with a "✔" in the "Show on CC/CDC plans and specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.
3. Commitments identified with a "✔" in the "Certifier check" column must be certified by a certifying authority as having been fulfilled. (Note: a certifying authority must not issue an occupation certificate (either interim or final) for a building listed in this certificate, or for any part of such a building, unless it is satisfied that each of the commitments whose fulfilment it is required to monitor in relation to the building or part, has been fulfilled).

BASIX® Certificate

Building Sustainability Index www.basix.nsw.gov.au

Multi Dwelling

Certificate number: 686596M_03

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 06/10/2017 published by the Department. This document is available at www.basix.nsw.gov.au

This certificate is a revision of certificate number 686596M lodged with the consent authority or certifier on 29 April 2016 with application SSD 15_7037.

It is the responsibility of the applicant to verify with the consent authority that the original, or any revised certificate, complies with the requirements of Schedule 1 Clause 2A, 4A or 6A of the Environmental Planning and Assessment Regulation 2000

Secretary
Date of issue: Wednesday, 21 November 2018
To be valid, this certificate must be lodged within 3 months of the date of issue.

NSW GOVERNMENT Planning & Environment

Project summary	
Project name	85 Harrington St_03
Street address	85 Harrington Street The Rocks 2000
Local Government Area	Sydney City Council
Plan type and plan number	deposited 777033
Lot no.	1
Section no.	-
No. of residential flat buildings	2
No. of units in residential flat buildings	56
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Project score		
Water	✔ 44	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 20	Target 20

Certificate Prepared by
Name / Company Name: Cundall
ABN (if applicable): 16104924370

Description of project

Project address	
Project name	85 Harrington St_03
Street address	85 Harrington Street The Rocks 2000
Local Government Area	Sydney City Council
Plan type and plan number	deposited 777033
Lot no.	1
Section no.	-

Project type	
No. of residential flat buildings	2
No. of units in residential flat buildings	56
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Site details	
Site area (m²)	2123
Roof area (m²)	915
Non-residential floor area (m²)	4960.0
Residential car spaces	54
Non-residential car spaces	0

Common area landscape	
Common area lawn (m²)	0.0
Common area garden (m²)	20.7
Area of indigenous or low water use species (m²)	0.0

Assessor details	
Assessor number	16/1756
Certificate number	O3ZGGH62QS
Climate zone	17

Project score		
Water	✔ 44	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 20	Target 20

Description of project

The tables below describe the dwellings and common areas within the project

Residential flat buildings - Building1, 47 dwellings, 9 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
GT76	3	124.1	0.0	0.0	0.0
GT84	2	98.1	0.0	0.0	0.0
H202	1	66.1	0.0	0.0	0.0
H301	2	90.0	0.0	0.0	0.0
H306	3	129.2	0.0	0.0	0.0
H505	2	96.2	0.0	0.0	0.0
H509	1	48.8	0.0	0.0	0.0
H513	2	72.7	0.0	0.0	0.0
H605	2	95.9	0.0	0.0	0.0
H609	1	48.2	0.0	0.0	0.0
H613	2	71.9	0.0	0.0	0.0
H801	3	311.3	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
GT78	2	118.6	0.0	0.0	0.0
GT86	2	96.3	0.0	0.0	0.0
H203	2	96.2	0.0	0.0	0.0
H302	1	66.2	0.0	0.0	0.0
H501	2	90.0	0.0	0.0	0.0
H506	3	129.0	0.0	0.0	0.0
H510	1	49.3	0.0	0.0	0.0
H601	2	84.4	0.0	0.0	0.0
H606	3	121.0	0.0	0.0	0.0
H610	1	48.3	0.0	0.0	0.0
H701	3	264.1	0.0	0.0	0.0
H802	3	278.2	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
GT80	2	86.0	0.0	0.0	0.0
GT88	3	132.5	0.0	0.0	0.0
H205	2	96.2	0.0	0.0	0.0
H303	2	96.2	0.0	0.0	0.0
H502	1	66.2	0.0	0.0	0.0
H507	3	111.2	0.0	0.0	0.0
H511	1	54.8	0.0	0.0	0.0
H602	1	66.2	0.0	0.0	0.0
H607	3	111.0	0.0	0.0	0.0
H611	1	53.3	0.0	0.0	0.0
H702	3	220.8	0.0	0.0	0.0
H803	3	228.9	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
GT82	2	84.9	0.0	0.0	0.0
H201	2	90.0	0.0	0.0	0.0
H206	3	114.0	0.0	0.0	0.0
H305	2	96.2	0.0	0.0	0.0
H503	2	96.2	0.0	0.0	0.0
H508	1	53.4	0.0	0.0	0.0
H512	1	53.0	0.0	0.0	0.0
H603	2	95.9	0.0	0.0	0.0
H608	1	52.2	0.0	0.0	0.0
H612	1	52.2	0.0	0.0	0.0
H703	3	207.1	0.0	0.0	0.0

Residential flat buildings - Building2, 9 dwellings, 6 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
C101	2	65.7	0.0	0.0	0.0
C306	3	107.8	0.0	0.0	0.0
C610	3	226.9	0.0	7.4	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
C102	1	52.7	6.0	0.0	0.0
C307	2	93.6	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
C203	2	65.4	0.0	0.0	0.0
C508	3	99.3	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m^2)	Unconditioned floor area (m^2)	Area of garden & lawn (m^2)	Indigenous species (min area m^2)
C205	1	53.6	6.0	0.0	0.0
C509	2	85.5	0.0	0.0	0.0

Description of project

The tables below describe the dwellings and common areas within the project

Common areas of unit building - Building1

Common area	Floor area (m²)
Car park area (No. 1)	1725.0
Lift car (No. 1)	-
Garbage room (No. 1)	28.0
Plant or service room (No. 2)	13.7
Hallway/lobby type (No. 1)	319.2

Common area	Floor area (m²)
Car park area (No. 2)	1706.0
Lift car (No. 2)	-
Community room (No. 1)	53.0
Plant or service room (No. 4)	71.1

Common area	Floor area (m²)
Car park area (No. 3)	1706.0
Switch room (No. 1)	16.0
Plant or service room (No. 1)	106.0
Ground floor lobby type (No. 1)	35.1

Common areas of unit building - Building2

Common area	Floor area (m²)
Lift car (No. 3)	-
Ground floor lobby type (No. 2)	44.9

Common area	Floor area (m²)
Garbage room (No. 2)	10.8
Hallway/lobby type (No. 2)	40.8

Common area	Floor area (m²)
Plant or service room (No. 3)	33.8
Hallway/lobby type (No. 3)	10.0

Schedule of BASIX commitments

1. Commitments for Residential flat buildings - Building1
    - (a) Dwellings
        - (i) Water
        - (ii) Energy
        - (iii) Thermal Comfort
    - (b) Common areas and central systems/facilities
        - (i) Water
        - (ii) Energy

2. Commitments for Residential flat buildings - Building2
    - (a) Dwellings
        - (i) Water
        - (ii) Energy
        - (iii) Thermal Comfort
    - (b) Common areas and central systems/facilities
        - (i) Water
        - (ii) Energy

3. Commitments for multi-dwelling houses

4. Commitments for single dwelling houses

5. Commitments for common areas and central systems/facilities for the development (non-building specific)
    - (i) Water
    - (ii) Energy

Schedule of BASIX commitments

The commitments set out below regulate how the proposed development is to be carried out. It is a condition of any development consent granted, or complying development certificate issued, for the proposed development, that BASIX commitments be complied with.

1. Commitments for Residential flat buildings - Building1

(a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install: (aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and (bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✔ ✔	✔ ✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
H802	3 star (> 7.5 but <= 9 L/min)	4 star	4 star	5 star	no	5 star	5.5 star	-	-	-	-	-	-	-
H801, H803	3 star (> 7.5 but <= 9 L/min)	4 star	4 star	5 star	no	5 star	5.5 star	5.0	yes	outdoors	no	0.0	no	no
GT76, GT88, H206, H306, H506, H507, H606, H607, H701, H702, H703	3 star (> 7.5 but <= 9 L/min)	4 star	6 star	5 star	no	5 star	5.5 star	-	-	-	-	-	-	-
All other dwellings	3 star (> 7.5 but <= 9 L/min)	4 star	6 star	5 star	no	4.5 star	5 star	-	-	-	-	-	-	-

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
None	-	-	-	-	-	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✔	✔
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✔	✔	✔
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must: (aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and (bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✔ ✔	
(h) The applicant must install in the dwelling: (aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below; (bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔ ✔ ✔	✔
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	interlocked to light	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	interlocked to light

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
GT76, GT88, H206, H306, H506, H507, H606, H607, H701, H702, H703, H801, H802, H803	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
H202, H302, H502, H508, H509, H510, H511, H512, H602, H608, H609, H610, H611, H612	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
All other dwellings	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
H802	-	-	-	-	gas cooktop & electric oven	2 star (new rating)	yes	4.5 star	5 star	-	no	no
H801, H803	electric heat pump	yes	-	-	gas cooktop & electric oven	2 star (new rating)	yes	4.5 star	5 star	-	no	no
GT78, GT80, GT82, GT84, GT86	-	-	-	-	gas cooktop & electric oven	3.5 star (new rating)	yes	4.5 star	4.5 star	-	no	no
GT76, GT88, H206, H306, H506, H507, H606, H607, H701, H702, H703	-	-	-	-	gas cooktop & electric oven	2.5 star (new rating)	yes	4.5 star	5 star	4 star	no	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
H201, H203, H205, H301, H303, H305, H501, H503, H505, H513, H601, H603, H605, H613	-	-	-	-	gas cooktop & electric oven	-	yes	4.5 star	4.5 star	3 star	no	no
All other dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	4.5 star	4.5 star	-	no	no

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.	✔		
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.		✔	

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✔	✔	✔
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✔	✔	✔

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
GT76	8.5	19.8
GT78	9.8	36.6
GT80	17.9	22.7
GT82	13.2	34.1
GT84	10.9	23.5
GT86	8.7	27.9
GT88	24.6	33.9
H201	18.7	36.1
H202	5.5	19.0
H203	5.8	25.4
H205	4.6	27.6
H206	11.3	32.7
H301	25.7	20.8
H302	4.3	14.1
H303	7.9	17.8

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
H305	7.3	17.8
H306	11.1	21.1
H501	22.5	20.0
H502	4.8	14.9
H503	8.3	17.5
H505	7.7	18.0
H506	13.5	18.8
H507	6.1	25.0
H508	7.3	18.4
H509	11.3	16.9
H510	21.6	17.3
H511	8.7	16.3
H512	9.5	16.5
H513	16.8	15.2
H601	37.1	26.7
H602	9.5	21.8
H603	6.7	15.4
H605	6.9	15.8
H606	16.4	19.2
H607	9.5	18.9
H608	8.1	17.9
H609	17.7	19.3
H610	21.8	17.6
H611	8.5	13.7
H612	8.6	16.7
H613	19.6	15.5
H701	4.4	40.8

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
H702	8.2	40.8
H703	12.7	28.7
H801	16.5	33.5
H802	20.6	33.3
All other dwellings	31.1	26.2

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	4 star	5 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	10000.0	To collect run-off from at least: - 915.0 square metres of roof area of buildings in the development - 0.0 square metres of impervious area in the development - 20.7 square metres of garden/lawn area in the development - 0.0 square metres of planter box area in the development (excluding, in each case, any area which drains to, or supplies, any other alternative water supply system).	- irrigation of 20.7 square metres of common landscaped area on the site - car washing in 0 car washing bays on the site
Fire sprinkler system (No. 1)	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Car park area (No. 1)	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	light-emitting diode	motion sensors	No
Car park area (No. 2)	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	light-emitting diode	motion sensors	No
Car park area (No. 3)	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	light-emitting diode	motion sensors	No
Lift car (No. 1)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No. 2)	-	-	light-emitting diode	connected to lift call button	No
Switch room (No. 1)	ventilation supply only	none ie. continuous	fluorescent	manual on / manual off	No
Garbage room (No. 1)	ventilation exhaust only	-	fluorescent	motion sensors	No
Community room (No. 1)	air conditioning system	time clock or BMS controlled	light-emitting diode	manual on / manual off	No
Plant or service room (No. 1)	ventilation supply only	none ie. continuous	fluorescent	manual on / manual off	No
Plant or service room (No. 2)	ventilation supply only	none ie. continuous	fluorescent	manual on / manual off	No
Plant or service room (No. 4)	ventilation supply only	none ie. continuous	fluorescent	manual on / manual off	No

	Common area ventilation system		Common area lighting		
Common area	**Ventilation system type**	**Ventilation efficiency measure**	**Primary type of artificial lighting**	**Lighting efficiency measure**	**Lighting control system/BMS**
Ground floor lobby type (No. 1)	air conditioning system	none ie. continuous	light-emitting diode	motion sensors	No
Hallway/lobby type (No. 1)	ventilation supply only	none ie. continuous	light-emitting diode	motion sensors	No

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired boiler	Solar collector area (minimum, in square metres): 0.0 Piping insulation (ringmain & supply risers): (a) Piping external to building: R1.0 (~38 mm); (b) Piping internal to building: R0.6 (~25 mm)
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 10
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 10

2. Commitments for Residential flat buildings - Building2

(a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install: (aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and (bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✔ ✔	✔ ✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
C610	3 star (> 7.5 but <= 9 L/min)	4 star	4 star	5 star	no	5 star	5.5 star	5.0	yes	outdoors	no	0.0	no	no
C306, C508	3 star (> 7.5 but <= 9 L/min)	4 star	6 star	5 star	no	5 star	5.5 star	-	-	-	-	-	-	-
All other dwellings	3 star (> 7.5 but <= 9 L/min)	4 star	6 star	5 star	no	4.5 star	5 star	-	-	-	-	-	-	-

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
None	-	-	-	-	-	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✔	✔
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✔	✔	✔
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must: (aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and (bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✔ ✔	
(h) The applicant must install in the dwelling: (aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below; (bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔ ✔ ✔	✔
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 2	individual fan, ducted to façade or roof	interlocked to light	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	interlocked to light

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
C102, C205	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
C306, C508, C610	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
All other dwellings	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
C610	electric heat pump	yes	-	-	gas cooktop & electric oven	2 star (new rating)	yes	4.5 star	5 star	-	no	no
C306, C508	-	-	-	-	gas cooktop & electric oven	2.5 star (new rating)	yes	4.5 star	5 star	-	no	no
All other dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	4.5 star	4.5 star	-	no	no

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.	✔		
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.		✔	
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✔	✔	✔
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✔	✔	✔

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
C101	20.8	34.3
C102	25.9	29.3
C203	23.0	28.1
C205	17.0	31.7
C306	21.4	34.4
C307	31.6	31.3
C508	24.0	35.7
C509	45.6	30.9

	Thermal loads	
Dwelling no.	**Area adjusted heating load (in mJ/m²/yr)**	**Area adjusted cooling load (in mJ/m²/yr)**
All other dwellings	46.0	29.2

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	4 star	5 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Fire sprinkler system (No. 2)	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

	Common area ventilation system		Common area lighting		
Common area	**Ventilation system type**	**Ventilation efficiency measure**	**Primary type of artificial lighting**	**Lighting efficiency measure**	**Lighting control system/BMS**
Lift car (No. 3)	-	-	light-emitting diode	connected to lift call button	No
Garbage room (No. 2)	ventilation exhaust only	-	fluorescent	motion sensors	No
Plant or service room (No. 3)	ventilation supply only	none ie. continuous	fluorescent	manual on / manual off	No
Ground floor lobby type (No. 2)	air conditioning system	none ie. continuous	light-emitting diode	motion sensors	No
Hallway/lobby type (No. 2)	no mechanical ventilation	-	light-emitting diode	motion sensors	No
Hallway/lobby type (No. 3)	ventilation supply only	none ie. continuous	light-emitting diode	motion sensors	No

Central energy systems	Type	Specification
Central hot water system (No. 2)	gas-fired boiler	Piping insulation (ringmain & supply risers): (a) Piping external to building: R1.0 (~38 mm); (b) Piping internal to building: R0.6 (~25 mm)
Lift (No. 3)	gearless traction with V V V F motor	Number of levels (including basement): 7

5. Commitments for common areas and central systems/facilities for the development (non-building specific)

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	4 star	5 star	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

Notes

1. In these commitments, "applicant" means the person carrying out the development.
2. The applicant must identify each dwelling, building and common area listed in this certificate, on the plans accompanying any development application, and on the plans and specifications accompanying the application for a construction certificate / complying development certificate, for the proposed development, using the same identifying letter or reference as is given to that dwelling, building or common area in this certificate.
3. This note applies if the proposed development involves the erection of a building for both residential and non-residential purposes (or the change of use of a building for both residential and non-residential purposes). Commitments in this certificate which are specified to apply to a "common area" of a building or the development, apply only to that part of the building or development to be used for residential purposes.
4. If this certificate lists a central system as a commitment for a dwelling or building, and that system will also service any other dwelling or building within the development, then that system need only be installed once (even if it is separately listed as a commitment for that other dwelling or building).
5. If a star or other rating is specified in a commitment, this is a minimum rating.
6. All alternative water systems to be installed under these commitments (if any), must be installed in accordance with the requirements of all applicable regulatory authorities. NOTE: NSW Health does not recommend that stormwater, recycled water or private dam water be used to irrigate edible plants which are consumed raw, or that rainwater be used for human consumption in areas with potable water supply.

Legend

1. Commitments identified with a "✔" in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).
2. Commitments identified with a "✔" in the "Show on CC/CDC plans and specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.
3. Commitments identified with a "✔" in the "Certifier check" column must be certified by a certifying authority as having been fulfilled. (Note: a certifying authority must not issue an occupation certificate (either interim or final) for a building listed in this certificate, or for any part of such a building, unless it is satisfied that each of the commitments whose fulfilment it is required to monitor in relation to the building or part, has been fulfilled).

4.2 Appendix B – NatHERS certificates

Nationwide House Energy Rating Scheme* — Class 2 summary

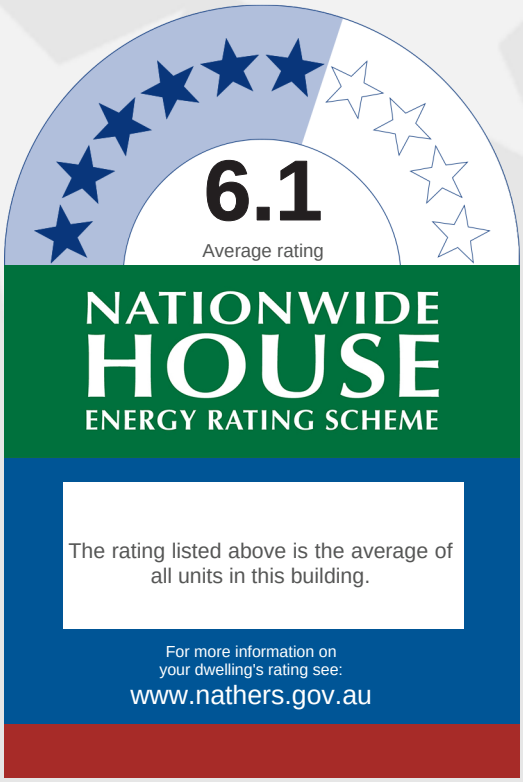
Certificate Number: **O3ZGGH62QS** Date of Certificate: **20 Nov 2018** ★ Average star rating: **6.1**

Assessor details

Accreditation number:	**VIC/BDAV/16/1756**
Name:	**Richard Noble**
Organisation:	**BEAC**
Email:	**rnoble@beac.com.au**
Phone:	**0433678298**
Declaration of interest:	**No potential conflicts of interest to declare**
Software:	**FirstRate5 v5.2.9**
AAO:	**BDAV**

Dwelling details

Address:	**85 Harrington Street & 68-72 Gloucester Street**
Suburb:	**The Rocks**
State:	**NSW**
Postcode:	**2000**



Summary of all dwellings

Certification details

		Annual thermal performance loads (MJ/m2)			
Certificate number	Unit number	Heating load	Cooling load	Total load	Star rating
YN24YHYQEV	BT01	6.9	30.5	37.4	6.2
WRQ8CMQ2N5	BT02	5.4	32.6	38	6.1
PWI3FWPJCI	C101	20.8	34.3	55.1	4.7
CJATQN0MU4	C102	25.9	29.3	55.2	4.7
99YMVY4TBT	C203	23	28.1	51.1	4.9
L1FTXCF9ZC	C205	17	31.7	48.7	5.1
1ON5SNR6SZ	C306	21.4	34.4	55.8	4.6
VEIS5P85HQ	C307	31.3	34.9	66.2	4.1
68N8AW2PWF	C508	24	35.7	59.7	4.4
1TGICYP27I	C509	45.6	30.9	76.5	3.7
GKSE51USOC	C610	46	29.2	75.2	3.7
I1WRDVV24I	GT76	8.5	19.8	28.3	7.2
H7BM7HTWYH	GT78	9.8	36.6	46.4	5.3
EJ1IK5G38H	GT80	17.9	22.7	40.6	5.8
JA9DR3R0PK	GT82	13.2	34.1	47.3	5.2
4FB9J445WZ	GT84	10.9	23.5	34.4	6.6

continued

* Nationwide House Energy Rating Scheme (NatHERS) is an initiative of the Australian, state and territory governments. For more details see www.nathers.gov.au

Nationwide House Energy Rating Scheme* — Class 2 summary

Certificate Number: **O3ZGGH62QS** Date of Certificate: **20 Nov 2018** ★ Average star rating: **6.1**

Summary of all dwellings continued

Certification details continued

		Annual thermal performance loads (MJ/m2)			
Certificate number	Unit number	Heating load	Cooling load	Total load	Star rating
2R2ZK8AOHH	GT86	8.7	27.9	36.6	6.3
26HT7LER6O	GT88	24.6	33.9	58.5	4.4
Q28R1VW1B3	H201	18.7	36.1	54.8	4.7
T2F3DJ0XJN	H202	5.5	19	24.5	7.7
0N6C07QUIA	H203	5.8	25.4	31.2	6.9
04K31HYYVX	H205	4.6	27.6	32.2	6.8
9S6Y03Y82J	H206	11.3	32.7	44	5.5
OYP6YD5603	H301	25.7	20.8	46.5	5.3
FCSACYRMC6	H302	4.3	14.1	18.4	8.4
UCBVNIQHL6	H303	7.9	17.8	25.7	7.5
JR29VCPOEY	H305	7.6	18.8	26.4	7.4
L271S795WC	H306	11.1	21.2	32.3	6.8
LL65YMX4SQ	H501	22.5	20	42.5	5.7
WYU3UYKSOA	H502	4.8	14.9	19.7	8.2
JCHNV2EJCP	H503	8.3	17.5	25.8	7.5
IUUIV7U6LJ	H505	7.7	18	25.7	7.5
PU5YBWHDG4	H506	13.5	18.8	32.3	6.8
Z2GOM8H28P	H507	6.1	25	31.1	6.9
BLHJO1HK3S	H508	7.3	18.4	25.7	7.5
3CTI5CMOAD	H509	11.3	16.9	28.2	7.2
659S99LOMM	H510	21.6	17.3	38.9	6
1HP1GCTUIH	H511	8.7	16.3	25	7.6
9XFMJWJ8SJ	H512	9.5	16.5	26	7.4
V315SFLYJP	H513	16.8	15.2	32	6.8
T54T0JJLBF	H601	37.1	26.7	63.8	4.2
CVGLMGKTKR	H602	9.5	21.8	31.3	6.9
8E764A03DT	H603	7	15.9	22.9	7.9
6ODMPYGTRS	H605	6.9	15.8	22.7	7.9
R27JJH6LC5	H606	16.4	19.2	35.6	6.4
0IR8BO88Y0	H607	9.5	18.6	28.1	7.2
SQHRIYR36Y	H608	8.1	17.9	26	7.4

continued

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Nationwide House Energy Rating Scheme* — Class 2 summary

Certificate Number: **O3ZGGH62QS** Date of Certificate: **20 Nov 2018** ★ Average star rating: **6.1**

Summary of all dwellings continued

Certification details continued

		Annual thermal performance loads (MJ/m2)			
Certificate number	**Unit number**	**Heating load**	**Cooling load**	**Total load**	**Star rating**
91C19FHXWX	H609	17.7	19.3	37	6.3
EP0H2X6FLA	H610	21.8	17.6	39.4	5.9
ZH41ABUPBV	H611	8.5	13.7	22.2	7.9
0COO69G095	H612	8.6	16.7	25.3	7.6
GLLBVDZ9ZU	H613	19.6	15.5	35.1	6.4
1MR5816K18	H701	4.4	40.8	45.2	5.4
U2VA6CAML3	H702	8.2	40.5	48.7	5.1
HN2DIBDMIX	H703	12.7	28.7	41.4	5.8
DNHFVYGTM8	H801	16.5	33.5	50	4.9
UBCI21D8OM	H802	20.6	33.3	53.9	4.8
2CWOBB22P9	H803	31.1	26.2	57.3	4.5
				This building achieves an average star rating of:	**6.1**

* Nationwide House Energy Rating Scheme (NatHERS) is an initiative of the Australian, state and territory governments. For more details see www.nathers.gov.au

4.3 Appendix C - Architectural drawings and elevations

Memorandum

Project	**85 Harrington Street**			Code	GA85H
Subject	Basix Report and Architectural Documentation			Date	20/Dec/2018
From	Name	Title			
	FJMT	Daniel Nolan	Architect		
		Stephen Hubbard	Senior Architect		
From					
	Cundall	Zoe Neil	ESD Consultant		
		Julian Bott	Director		
To					
	Cundall	Andrew Melham	Development Manager		
		Paola Do Berardino	Development Manager		
CC					

Attn: Zoe Neill.

This letter is to confirm that drawings “Rev A6 - December 2018” prepared by fjmt, for the purposes of the S4.55 submission, and provided to Cundall for the purposes of BASIX / ESD sign off, are generally consistent with “Rev U - 5 November 2018”.

Regards,

Daniel Nolan
Architect (NSW 10636)

S4.55 Schedule of Modifications

To be read in conjunction with drawings issued for S4.55(1A) Modification Submission, Revision U, dated 05.11.2018 *Revision U*

Location	Amendment Number	Description of Amendment	Reason for Amendment	Impact on scheme
General	**A(i)**	Amendments to core to include wall south of common corridor	Structural Design Development	Amendment to basement layout to allow carpark and aisle width adjacent to core Minor Changes to dimensions in common corridor to accommodate shear walls
General	**A(ii)**	General structural amendments	Structural Design Development	Some changes to facade to encapsulate columns (see plans) General changes to column locations internally
Basement	**B(i)**	Reduction of car spaces from 63 to 53. Space remaining from reduction in carpark numbers amended to caged storage in close proximity to owner's car space.	Amended to satisfy consent condition B2(a) - Amended Architectural plans	Envelope of basements remains the same. 10 car spaces less in basement.
	B(ii)	Structure revised. Core, car parking & storage revised to suit.	Structural Design Development	Shift in aisle and car space
	B(iii)	Lift lobbies enclosed	Interior Design Development	Improved functionality and amenity of space
	B(iv)	Reconfiguration of basement services and plant areas	Design Development	Improved efficiency of services area layout
	B(v)	Extent of basement adjusted to match existing excavation on B1	Structural Design Development	Captures continuing structure from Ground Floor down to Basement 1 and Basement 2
Ground Level	**G(i)**	Floor levels adjusted to suit footpath levels. Northern Building Ground RL lowered by 450mm, Retail Tenancies 2 and 3 raised by 120mm and 100mm respectively. Southern retail box raised by 540mm.	Further survey information, civil design development, and minimum heights to B1	Ensuring accessible transition into retail floor levels from footpath and compliant cross falls on the northern end of the site
	G(ii)	Facade changes	Minor amendments to shop front configuration facing Harrington Street including introducing fixed glazed shopfronts and new automated swing door entries to retail tenancies. Columns integrated within retail tenancy rather than within facade wall. Improved definition of residential entry	Minimal impact to elevation. Simplification and improvement to shop front design. Minor change to configuration of fire egress and Harrington lobby
	G(iii)	Relocation of Retail/Commercial bicycle parking, its associated End of Trip and storage facilities, and Visitor bicycle parking from B1 to Ground Floor.	Architectural design development. Improved security and utility of facilities.	Minor change to retail areas. Revised BOH layout. More efficient allocation of space.
	G(iv)	Extent of Ground Floor adjusted to suit existing excavation	To suit existing excavation	Utilises existing excavated space as potential location for building services and/or rainwater tank
Level C1	**L0(i)**	Block 2 Northern Apartment amended from 1 br to 2 br apartment	Previously oversized 1BR which comfortably accommodates 2BR layout	2BR apartment complies with ADG guidelines and does not alter sun access or ventilation percentages
Level H1 - C2	**L1(i)**	Block 2 Northern Apartment amended from 1 br to 2 br apartment	Previously oversized 1BR which comfortable accommodates 2BR layout	2BR apartment complies with ADG guidelines other than 1 sqm < ADG guidelines for private open space. Amendment does not alter sun access or ventilation percentages
	L1(ii)	Exceptional Fabric within the Bakers Terraces retained	Amended to satisfy consent condition B2(c) - Amended Architectural plans Refer to drawing DA-9901	
	L1(iii)	Public amenities and associated entry reconfigured	Design development, and to satisfy BCA minimum amenity requirements for the servicing of retail tenancies	Minimal impact on design intent of façade/northern elevation.
Level H2 - C3	**L2(i)**	Bakers Terrace changes to comply with PMNSW Heritage Office requirements.	Location of stair amended in BT01. Dining and amenities swapped in Bakers Terrace BT02, in compliance with PMNSW Heritage Office requirements to maintain integrity of NW room. Design Development of BT01 to provide better amenity for upper level of terrace.	BT01 stair provides improved planning of bedrooms. BT02 amendment better reflects proportion of existing rooms and maintains wet areas in current location
Level H3 - C5	**L3(i)**	Block 1 Minor glazing amendments facing Gloucester Street	Improve functionality of living space interface with entry stair	Minimal impact on elevations, improved detailing and geometry of Gloucester Street entry courtyards.
	L3(ii)	See L2(i)		
Level H5 - C6	**L4(i)**	Block 2 Penthouse screens & glazing line extended slightly to align with precast concrete frames below, matching the northern end	Simplification of geometry and improve buildability and functionality of living room	Minimal impact
Level H6 - C7	**L5(i)**	Block 1 Internal layout amendments to Apartment H601	To improve amenity and size of living space	Improved functionality of layout
Level H7	**L6(i)**	Block 1 Minor change to facade line	To accommodate continuous structure and simpler geometry	Minimal impact on elevation or areas
Level H8	**L7(i)**	Block 1 Minor amendment to façade to suit roof geometry	To improve connection with roof geometry	Minimal impact on elevation or areas
Level H9 & Roof	**L8(i)**	Block 1 Additional louvred opening introduced in roof to West	To provide proportion of open area and ventilation for plant under	View studies indicate minimal view into plant from surrounding vantage points. Plant remains concealed in a uni[illegible]ture [illegible]sing roof form

S4.55 Schedule of Modifications

Elevations	**E(ii)**	Heritage Stone wall now mapped to retain stone blocks and rocks identified by Urbis for retention	Design development	Retention of original stone blocks (not relocated) integrated in design. Refer to Landscape Documentation for further information.
	E(iii)	Facade development and standardisation of window openings and facade modules	Facade Design Development, opening side of public walkway to lift on North facade of Block 1 for CPTED safety considerations	Minimal impact on design intent of facade, minor modifications to locations and dimensions of windows

fjmt studio architecture interiors urban landscape

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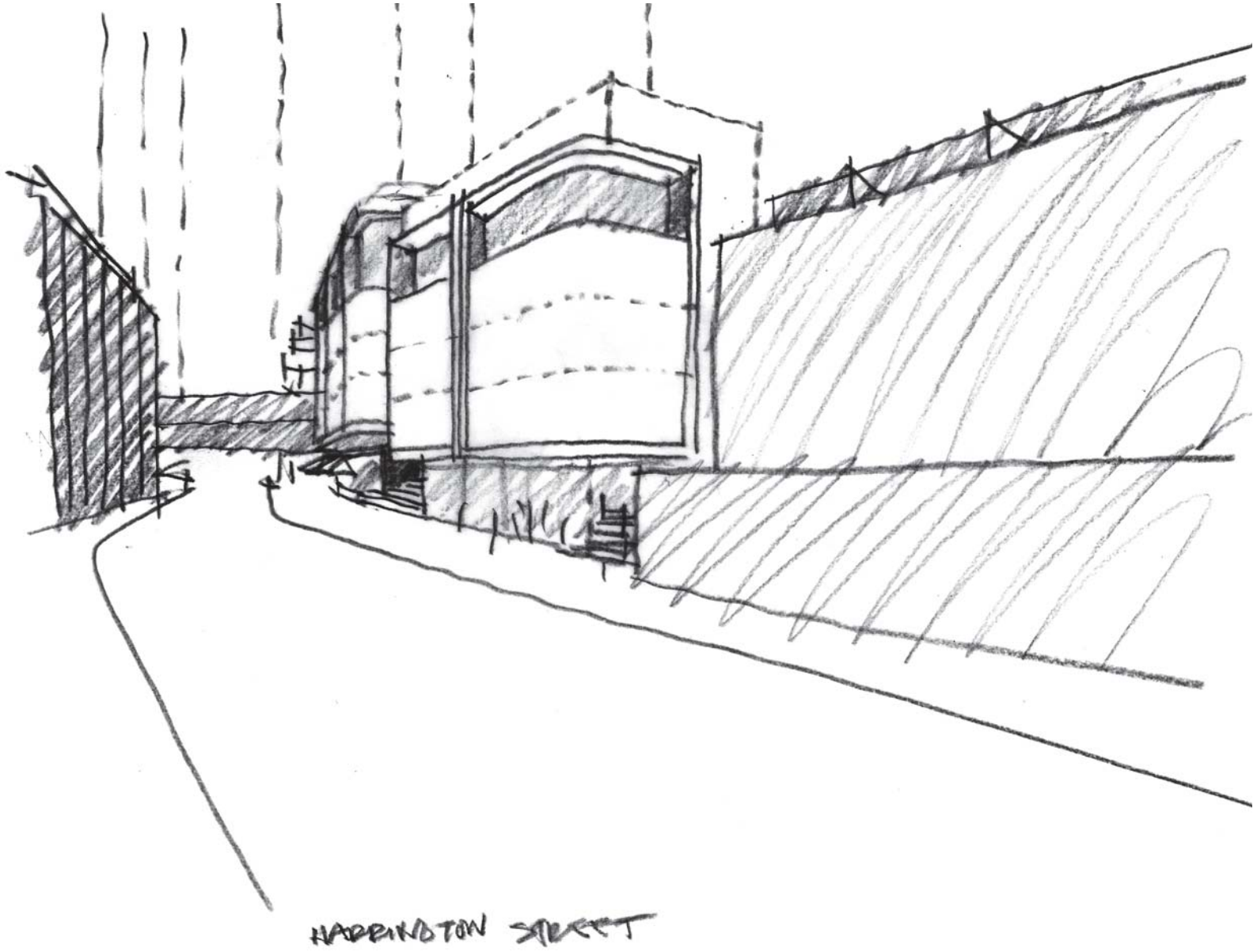
Francis-Jones Morehen Thorp Pty Ltd ABN 28 101 197 219 Nominated architect Richard Francis-Jones ARBNSW 5301



A2

GENERAL NOTES

- ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR BEFORE PROCEEDING WITH THE WORK
- ALL LEVELS RELATIVE TO 'AUSTRALIAN HEIGHT DATUM'
- DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY

legend

1 BED	
2 BED 2 BATH	
3 BED	
TOWNHOUSE	
LOBBY	
COMMERCIAL	
LIVE/ WORK	
RETAIL	

	Adaptable Apartment
	Livable Apartment (Silver Level)
	Cross Ventilated Apartment
	Solar Compliant Apartment
	Solar Compliant Balcony
	Cross Ventilated Apartment
ALP	Aluminium Panel
BAL1	Glazed Balustrade 1
BAL2	Glazed Balustrade 2
BAL3	Palisade Balustrade
GL1	Aluminium Framed Retail Glazing
GL2	Aluminium Framed Performance Glazing
LV1	High Level Louvre (Retail)
PAV1	Paving 1
PC1	Precast Concrete 1
SC1	Operable Bronze Screen
SC2	Operable Terracotta Baguette Screen
SC3	Operable Exterior Venetian Blinds
ST1	Sandstone Cladding
TC1	Terracotta Cladding 1
TC2	Terracotta Cladding 2
TC3	Terracotta Cladding 3
TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

INDICATES BUILDING OUTLINE "AS APPROVED"

INDICATES CHANGES FORMING THIS APPLICATION

rev	date	name	by	chk
U	05/11/2018	S4.55 Submission	DN	SH
A4	11/05/2018	S4.55(1A) Submission	DN	AH
A3	04/04/2018	S4.55(1A) Submission	DN	AH
A2	04/04/2018	S4.55(1A) Coordination Package	DN	AH
A1	03/04/2018	S4.55(1A) Coordination Package	DN	AH

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project

85 Harrington Street & 68-72 Gloucester Street
Lot 1 in DP 777033
The Rocks NSW 2000

title

General
Cover Sheet

scale	As Noted @ A2	**first issued**	29/03/2018
project code	**sheet no.**		**revision**
GA85H	**DA-1000**		U

6.1 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
www.nathers.gov.au

Certificate Number: O3ZGGH62QS
Assessor Name: Richard Noble
Accreditation number: VIC/BDAV/16/1756
Certificate date: 20 Nov 2018
Dwelling address: 85 Harrington Street & 68-72 Gloucester Street, The Rocks NSW 2000
www.nathers.gov.au

G(i)
FLOOR LEVELS ADJUSTED TO SUIT FOOTPATH LEVELS - RETAIL 1 RAISED BY 540mm

G(i)
FLOOR LEVELS ADJUSTED TO SUIT FOOTPATH LEVELS - RETAIL 2 AND 3 RAISED BY 120mm AND 100mm RESPECTIVELY

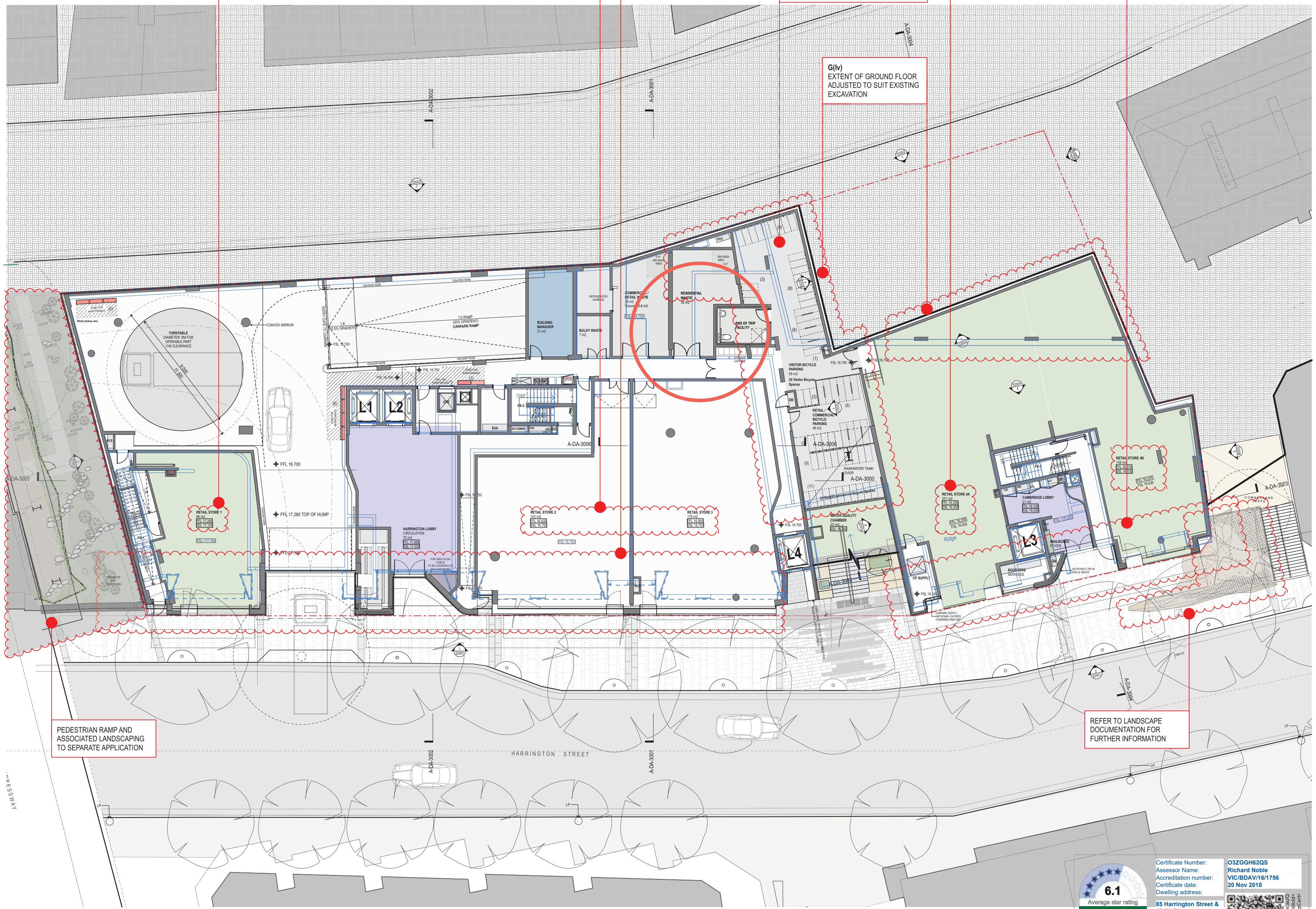
G(ii)
FACADE CHANGES

G(iii)
BICYCLE PARKING AND ASSOCIATED END OF TRIP FACILITIES RELOCATED FROM B1 TO GF (RETAIL/COMMERCIAL AND VISITOR BICYCLE PARKING SPACES) TO IMPROVE ACCESS

G(i)
FLOOR LEVELS ADJUSTED TO SUIT FOOTPATH LEVELS - NORTHERN BUILDING GROUND RL LOWERED BY 445mm & 630mm

G(ii)
FACADE CHANGES

G(iv)
EXTENT OF GROUND FLOOR ADJUSTED TO SUIT EXISTING EXCAVATION



PEDESTRIAN RAMP AND ASSOCIATED LANDSCAPING TO SEPARATE APPLICATION

REFER TO LANDSCAPE DOCUMENTATION FOR FURTHER INFORMATION

BICYCLE PARKING
35 BICYCLE SPACES FOR RETAIL/COMMERCIAL
30 BICYCLE SPACES FOR VISITORS

A2

GENERAL NOTES
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legend

1 BED
2 BED 2 BATH
3 BED
TOWNHOUSE
LOBBY
COMMERCIAL
LIVE/ WORK
RETAIL

Adaptable Apartment
Livable Apartment (Silver Level)
Cross Ventilated Apartment
Solar Compliant Apartment
Solar Compliant Balcony
Cross Ventilated Apartment

ALP	Aluminium Panel
BAL1	Glazed Balustrade 1
BAL2	Glazed Balustrade 2
BAL3	Palisade Balustrade
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INDICATES CHANGES FORMING THIS APPLICATION

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A2	04/04/2018	S4.55(1A) Coordination Package	DN	AH
A1	03/04/2018	S4.55(1A) Coordination Package	DN	AH

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fjmt

project
85 Harrington Street & 68-72 Gloucester Street
Lot 1 in DP 777033
The Rocks NSW 2000

title
Plans
Ground Floor Plan (Harrington Street)

scale	As Noted @ A2	first issued	29/03/2018
project code		sheet no.	revision
GA85H		DA-2000	U

6.1
Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
www.nathers.gov.au

Certificate Number:	O3ZGGH62QS
Assessor Name:	Richard Noble
Accreditation number:	VIC/BDAV/16/1756
Certificate date:	20 Nov 2018
Dwelling address:	85 Harrington Street & 68-72 Gloucester Street, The Rocks NSW 2000

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A2

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legend

- 1 BED
- 2 BED 2 BATH
- 3 BED
- TOWNHOUSE
- LOBBY
- COMMERCIAL
- LIVE/ WORK
- RETAIL

- Adaptable Apartment
- Livable Apartment (Silver Level)
- Cross Ventilated Apartment
- Solar Compliant Apartment
- Solar Compliant Balcony
- Cross Ventilated Apartment

ALP	Aluminium Panel
BAL1	Glazed Balustrade 1
BAL2	Glazed Balustrade 2
BAL3	Palisade Balustrade
GL1	Aluminium Framed Retail Glazing
GL2	Aluminium Framed Performance Glazing
LV1	High Level Louvre (Retail)
PAV1	Paving 1
PC1	Precast Concrete 1
SC1	Operable Bronze Screen
SC2	Operable Terracotta Baguette Screen
SC3	Operable Exterior Venetian Blinds
ST1	Sandstone Cladding
TC1	Terracotta Cladding 1
TC2	Terracotta Cladding 2
TC3	Terracotta Cladding 3
TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

INDICATES BUILDING OUTLINE "AS APPROVED"

INDICATES CHANGES FORMING THIS APPLICATION

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project
85 Harrington Street & 68-72 Gloucester Street
Lot 1 in DP 777033
The Rocks NSW 2000

title
Plans
Level C1 Floor Plan

scale	As Noted @ A2	first issued	29/03/2018
project code	sheet no.	revision	
GA85H	DA-2001	U	

6.1 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
www.nathers.gov.au

Certificate Number:	O3ZGGH62QS
Assessor Name:	Richard Noble
Accreditation number:	VIC/BDAV/16/1756
Certificate date:	20 Nov 2018
Dwelling address:	85 Harrington Street & 68-72 Gloucester Street, The Rocks NSW 2000

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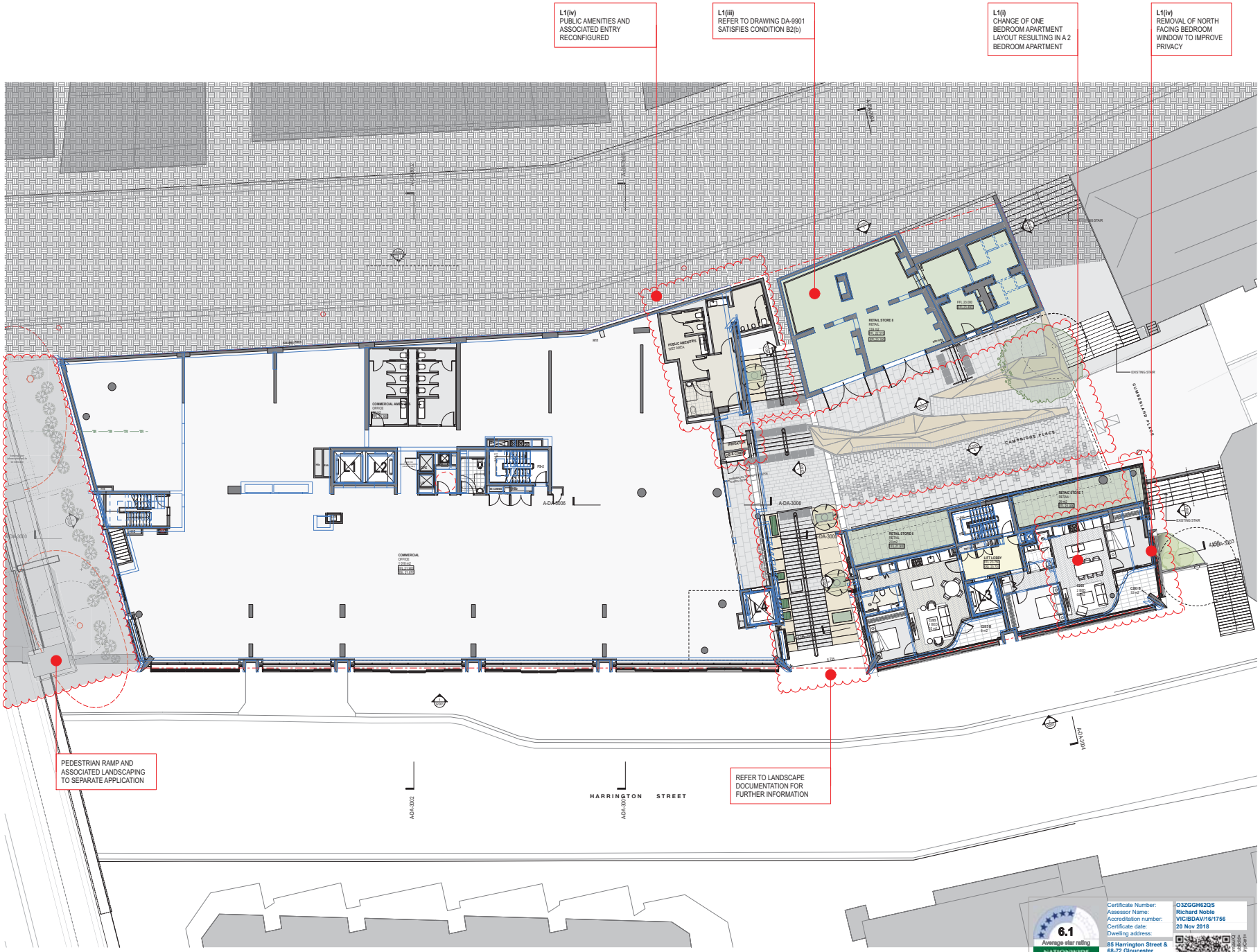

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- DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY

legend

1 BED	
2 BED 2 BATH	
3 BED	
TOWNHOUSE	
LOBBY	
COMMERCIAL	
LIVE/ WORK	
RETAIL	

	Adaptable Apartment
	Livable Apartment (Silver Level)
	Cross Ventilated Apartment
	Solar Compliant Apartment
	Solar Compliant Balcony
	Cross Ventilated Apartment
ALP	Aluminium Panel
BAL1	Glazed Balustrade 1
BAL2	Glazed Balustrade 2
BAL3	Palisade Balustrade
GL1	Aluminium Framed Retail Glazing
GL2	Aluminium Framed Performance Glazing
LV1	High Level Louvre (Retail)
PAV1	Paving 1
PC1	Precast Concrete 1
SC1	Operable Bronze Screen
SC2	Operable Terracotta Baguette Screen
SC3	Operable Exterior Venetian Blinds
ST1	Sandstone Cladding
TC1	Terracotta Cladding 1
TC2	Terracotta Cladding 2
TC3	Terracotta Cladding 3
TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

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project

85 Harrington Street & 68-72 Gloucester Street
Lot 1 in DP 777033
The Rocks NSW 2000

title

Plans
Level H1 - C2 Floor Plan

scale	As Noted @ A2	first issued	29/03/2018
project code	sheet no.		revision
GA85H	DA-2002		U

6.1 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
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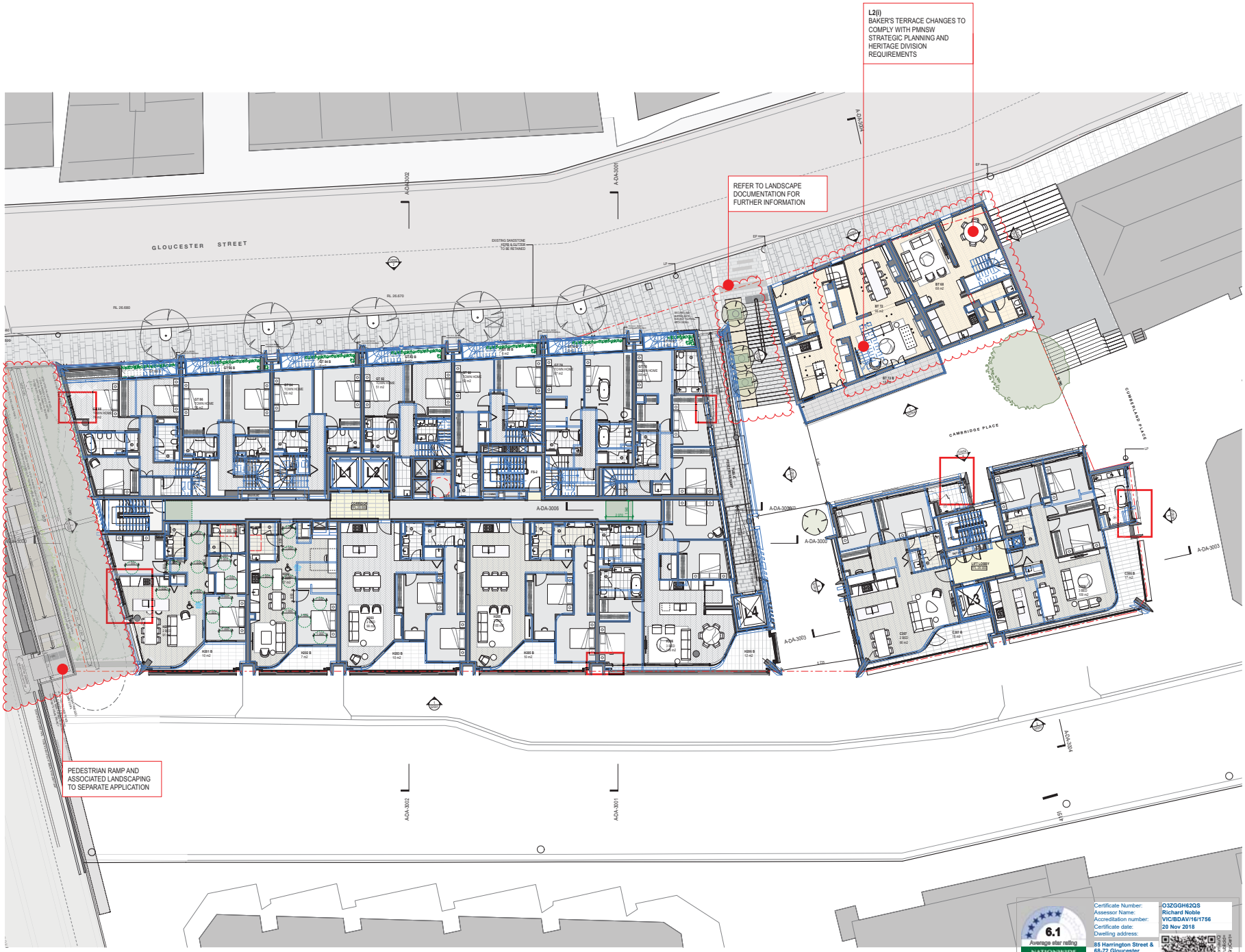
A2



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legend

1 BED	
2 BED 2 BATH	
3 BED	
TOWNHOUSE	
LOBBY	
COMMERCIAL	
LIVE/ WORK	
RETAIL	

	Adaptable Apartment
	Livable Apartment (Silver Level)
	Cross Ventilated Apartment
	Solar Compliant Apartment
	Solar Compliant Balcony
	Cross Ventilated Apartment
ALP	Aluminium Panel
BAL1	Glazed Balustrade 1
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GL2	Aluminium Framed Performance Glazing
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PAV1	Paving 1
PC1	Precast Concrete 1
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SC3	Operable Exterior Venetian Blinds
ST1	Sandstone Cladding
TC1	Terracotta Cladding 1
TC2	Terracotta Cladding 2
TC3	Terracotta Cladding 3
TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

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project

85 Harrington Street & 68-72 Gloucester Street
Lot 1 in DP 777033
The Rocks NSW 2000

title

Plans
Level H2 - C3 Floor Plan (Gloucester Street)

scale	As Noted @ A2	first issued	29/03/2018
project code	sheet no.		revision
GA85H	DA-2003		U

6.1 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
www.nathers.gov.au

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A2

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legend

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- 2 BED 2 BATH
- 3 BED
- TOWNHOUSE
- LOBBY
- COMMERCIAL
- LIVE/ WORK
- RETAIL

- Adaptable Apartment
- Livable Apartment (Silver Level)
- Cross Ventilated Apartment
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- Solar Compliant Balcony
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TC3	Terracotta Cladding 3
TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

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6.1 Average star rating
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fjmt

project
85 Harrington Street & 68-72 Gloucester Street
Lot 1 in DP 777033
The Rocks NSW 2000

title
Plans
Level H3 - C5 Floor Plan

scale	As Noted @ A2	first issued	29/03/2018
project code	sheet no.	revision	
GA85H	DA-2004	U	

GENERAL NOTES

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legend

1 BED	
2 BED 2 BATH	
3 BED	
TOWNHOUSE	
LOBBY	
COMMERCIAL	
LIVE/ WORK	
RETAIL	

	Adaptable Apartment
	Livable Apartment (Silver Level)
	Cross Ventilated Apartment
	Solar Compliant Apartment
	Solar Compliant Balcony
	Cross Ventilated Apartment
ALP	Aluminium Panel
BAL1	Glazed Balustrade 1
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BAL3	Palisade Balustrade
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LV1	High Level Louvre (Retail)
PAV1	Paving 1
PC1	Precast Concrete 1
SC1	Operable Bronze Screen
SC2	Operable Terracotta Baguette Screen
SC3	Operable Exterior Venetian Blinds
ST1	Sandstone Cladding
TC1	Terracotta Cladding 1
TC2	Terracotta Cladding 2
TC3	Terracotta Cladding 3
TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

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85 Harrington Street & 68-72 Gloucester Street
Lot 1 in DP 777033
The Rocks NSW 2000

title

Plans
Level H5 - C6 Floor Plan

scale	As Noted @ A2	first issued	29/03/2018
project code	sheet no.		revision
GA85H	DA-2005		U

A2

L5 (i)
INTERNAL LAYOUT AMENDMENTS TO APARTMENT H601

GENERAL NOTES

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legend

1 BED
2 BED 2 BATH
3 BED
TOWNHOUSE
LOBBY
COMMERCIAL
LIVE/ WORK
RETAIL

	Adaptable Apartment
	Livable Apartment (Silver Level)
	Cross Ventilated Apartment
	Solar Compliant Apartment
	Solar Compliant Balcony
	Cross Ventilated Apartment
ALP	Aluminium Panel
BAL1	Glazed Balustrade 1
BAL2	Glazed Balustrade 2
BAL3	Palisade Balustrade
GL1	Aluminium Framed Retail Glazing
GL2	Aluminium Framed Performance Glazing
LV1	High Level Louvre (Retail)
PAV1	Paving 1
PC1	Precast Concrete 1
SC1	Operable Bronze Screen
SC2	Operable Terracotta Baguette Screen
SC3	Operable Exterior Venetian Blinds
ST1	Sandstone Cladding
TC1	Terracotta Cladding 1
TC2	Terracotta Cladding 2
TC3	Terracotta Cladding 3
TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

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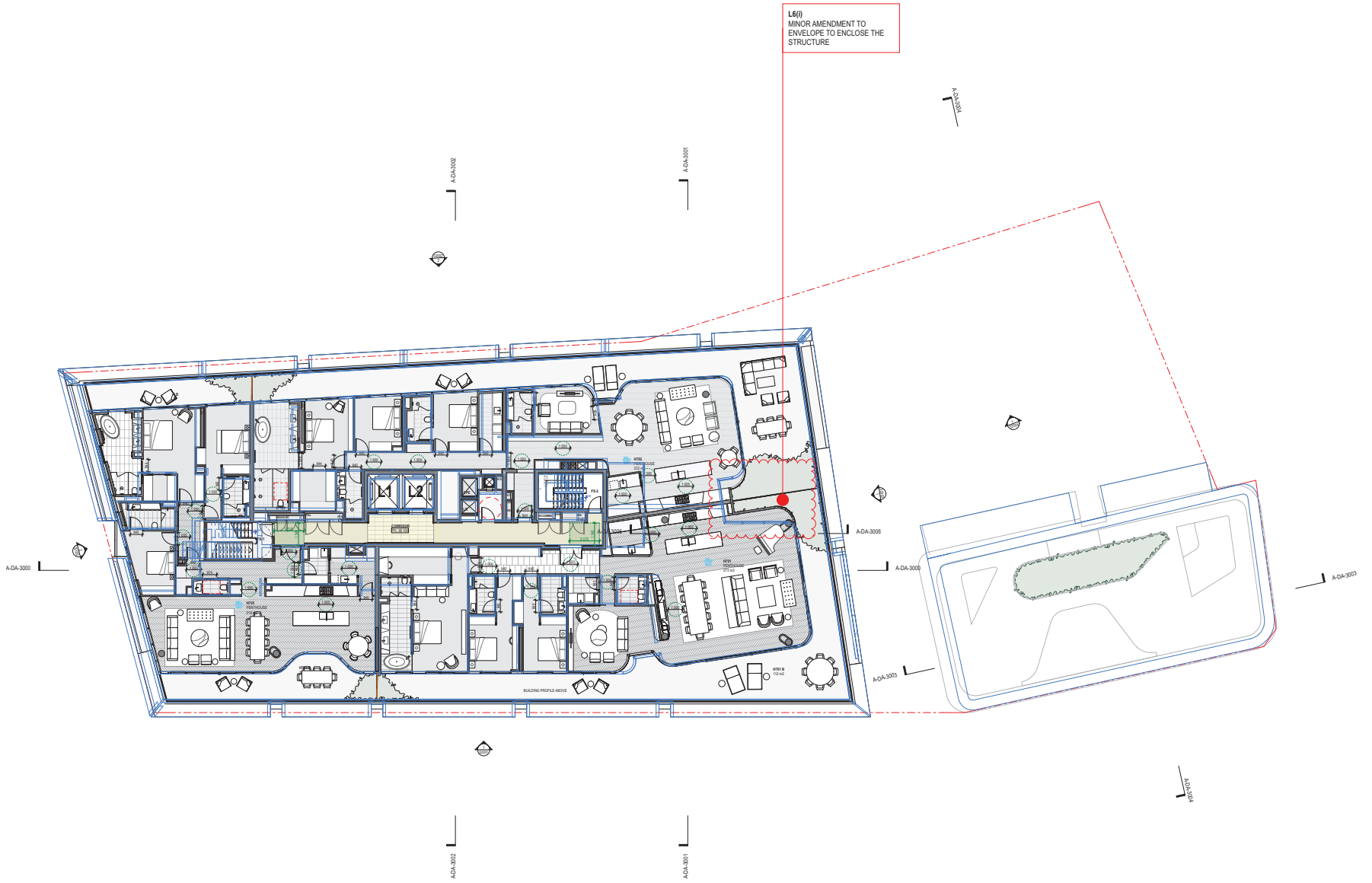
project
85 Harrington Street & 68-72 Gloucester Street
Lot 1 in DP 777033
The Rocks NSW 2000

title
Plans
Level H6 - C7 Floor Plan

scale	As Noted @ A2	first issued	29/03/2018
project code	sheet no.		revision
GA85H	DA-2006		U

A2



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legend

1 BED
2 BED 2 BATH
3 BED
TOWNHOUSE
LOBBY
COMMERCIAL
LIVE/ WORK
RETAIL

Adaptable Apartment
Livable Apartment (Silver Level)
Cross Ventilated Apartment
Solar Compliant Apartment
Solar Compliant Balcony
Cross Ventilated Apartment

ALP	Aluminium Panel
BAL1	Glazed Balustrade 1
BAL2	Glazed Balustrade 2
BAL3	Palisade Balustrade
GL1	Aluminium Framed Retail Glazing
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LV1	High Level Louvre (Retail)
PAV1	Paving 1
PC1	Precast Concrete 1
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SC3	Operable Exterior Venetian Blinds
ST1	Sandstone Cladding
TC1	Terracotta Cladding 1
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TC3	Terracotta Cladding 3
TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

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project
85 Harrington Street & 68-72 Gloucester Street
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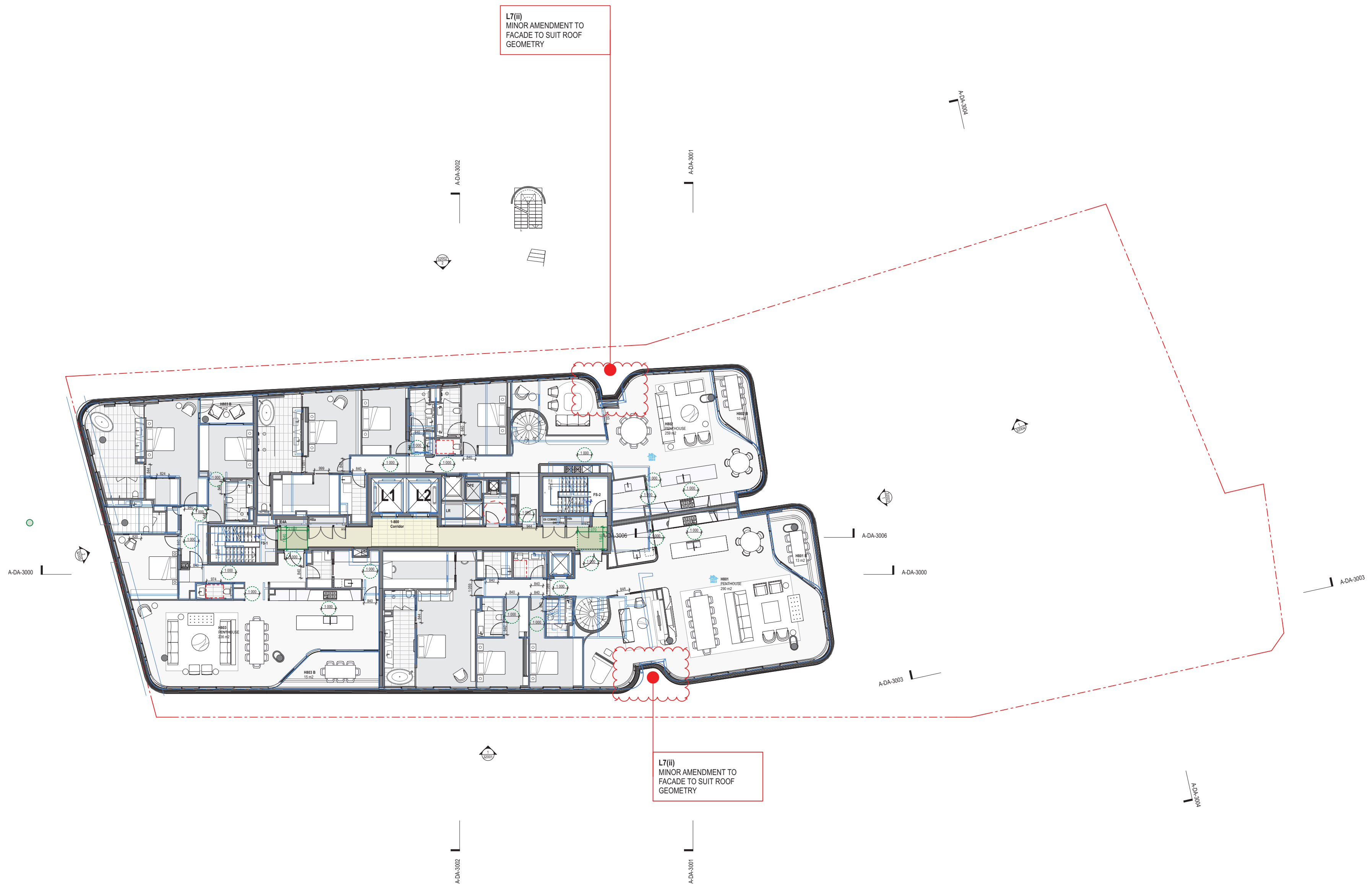
The Rocks NSW 2000

title
Plans
Level H7 Floor Plan (Setback)

scale	As Noted @ A2	first issued	29/03/2018
project code	sheet no.		revision
GA85H	DA-2007		U

A2



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legend

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- 2 BED 2 BATH
- 3 BED
- TOWNHOUSE
- LOBBY
- COMMERCIAL
- LIVE/ WORK
- RETAIL

- Adaptable Apartment
- Livable Apartment (Silver Level)
- Cross Ventilated Apartment
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ALP	Aluminium Panel
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PAV1	Paving 1
PC1	Precast Concrete 1
SC1	Operable Bronze Screen
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SC3	Operable Exterior Venetian Blinds
ST1	Sandstone Cladding
TC1	Terracotta Cladding 1
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fjmt

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title
Plans
Level H8 Floor Plan (Penthouse)

scale	As Noted @ A2	first issued	29/03/2018
project code	sheet no.	revision	
GA85H	DA-2008	U	

6.1
Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
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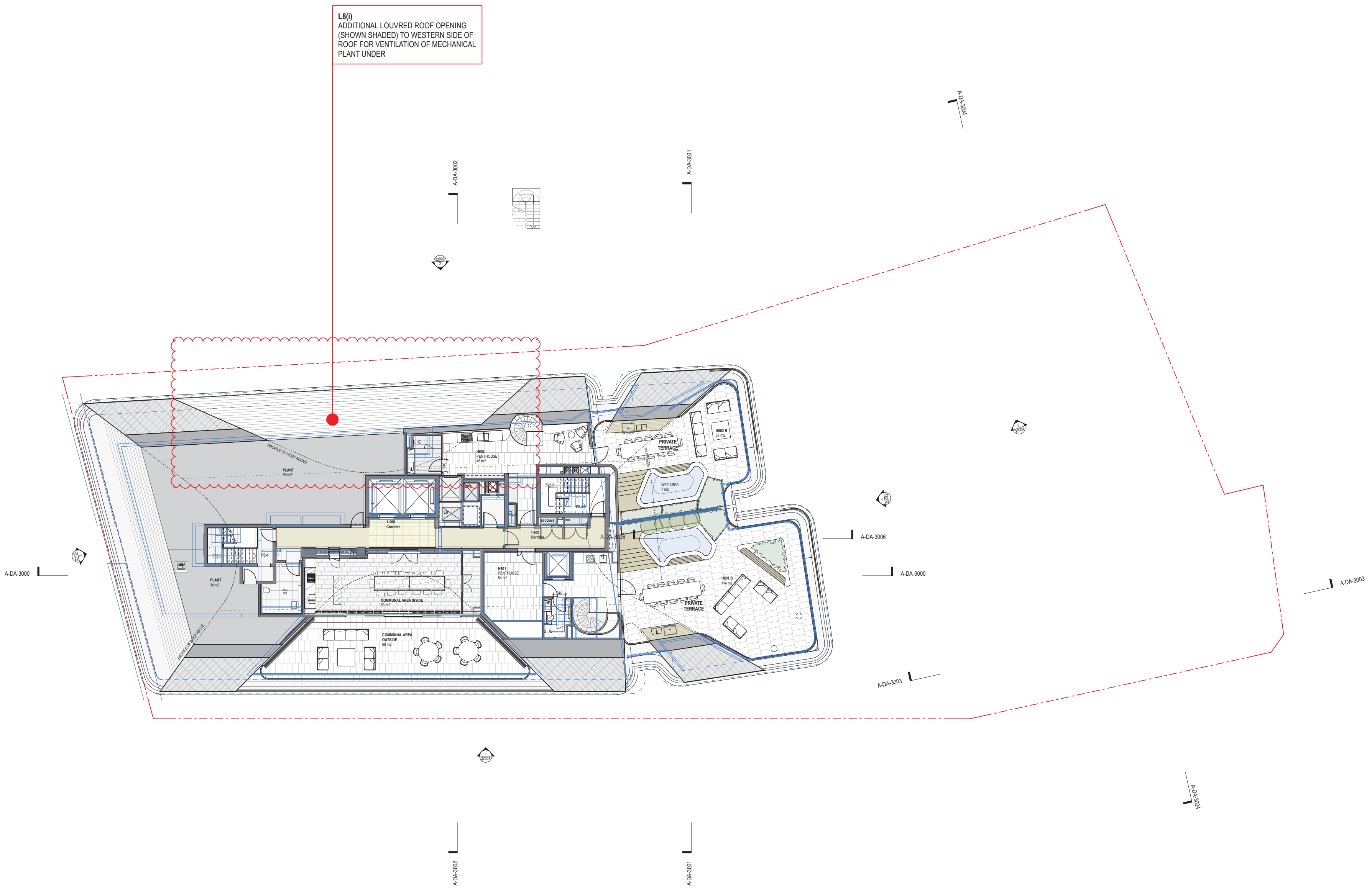
A2



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- 1 BED
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project
85 Harrington Street & 68-72 Gloucester Street
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The Rocks NSW 2000

title
Plans
Level H9 Floor Plan (Rooftop Terrace)

scale	As Noted @ A2	first issued	29/03/2018
project code	sheet no.	revision	
GA85H	DA-2009	U	

6.1 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
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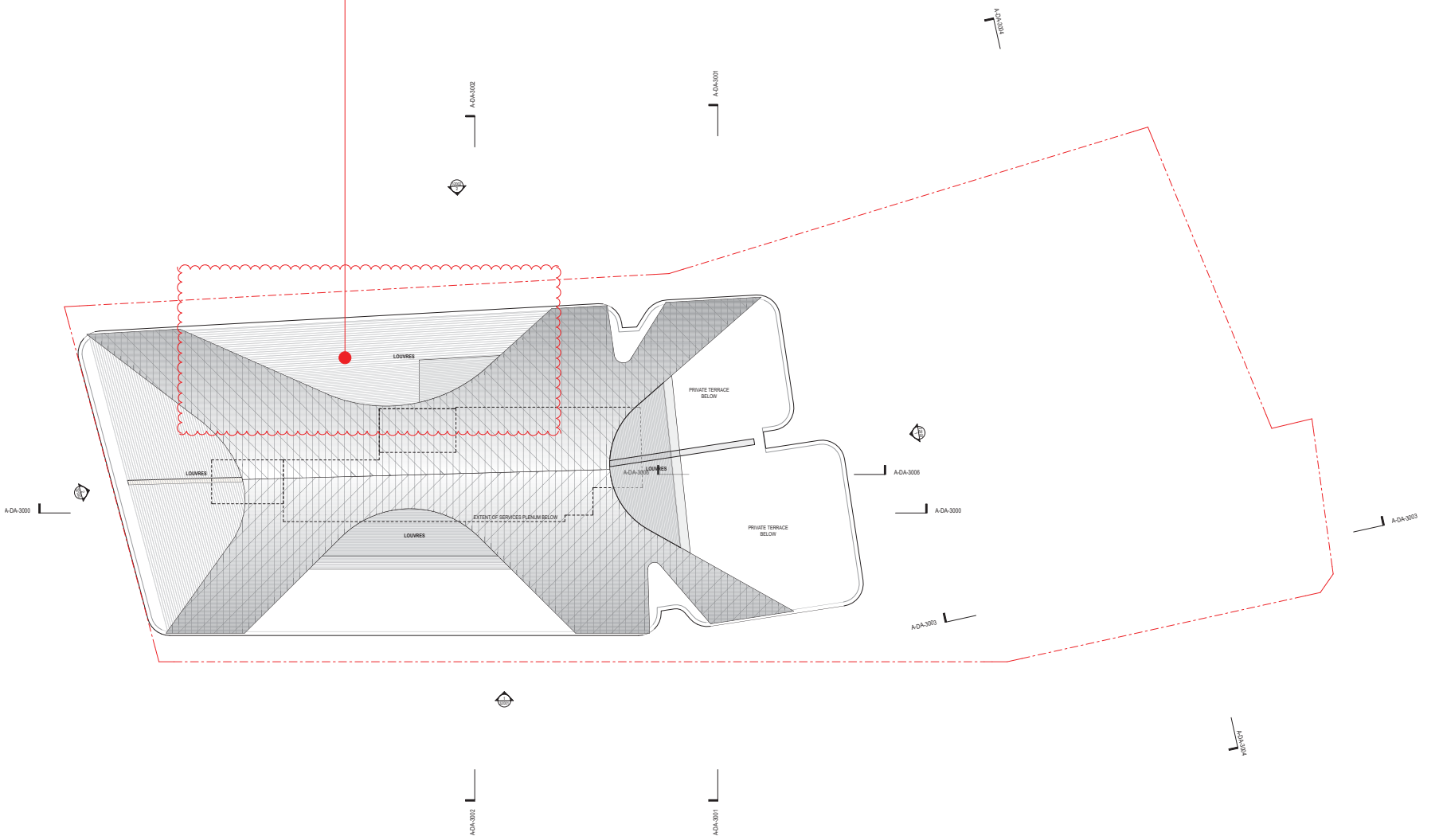
A2

L8(i)
ADDITIONAL LOUVRED OPENING (SHOWN SHADED) INTRODUCED TO ROOF AT WESTERN SIDE TO PROVIDE PROPORTION OF OPEN AREA AND VENTILATION FOR PLANT UNDER



A2

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legend

1 BED
2 BED 2 BATH
3 BED
TOWNHOUSE
LOBBY
COMMERCIAL
LIVE/ WORK
RETAIL

Adaptable Apartment
Livable Apartment (Silver Level)
Cross Ventilated Apartment
Solar Compliant Apartment
Solar Compliant Balcony
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project
85 Harrington Street & 68-72 Gloucester Street
Lot 1 in DP 777033
The Rocks NSW 2000

title
Plans
Roof Plan

scale	As Noted @ A2	first issued	29/03/2018
project code	sheet no.		revision
GA85H	**DA-2010**		U

6.1 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
www.nathers.gov.au

Certificate Number: **O3ZGGH62QS**
Assessor Name: **Richard Noble**
Accreditation number: **VIC/BDAV/16/1756**
Certificate date: **20 Nov 2018**
Dwelling address: **85 Harrington Street & 68-72 Gloucester Street, The Rocks NSW 2000**
www.nathers.gov.au

B(i)
AMENDED CAR PARKING NUMBERS TO SATISFY CONDITIONS B2(C) AND B29

B(iii)
LIFT LOBBY ENCLOSED

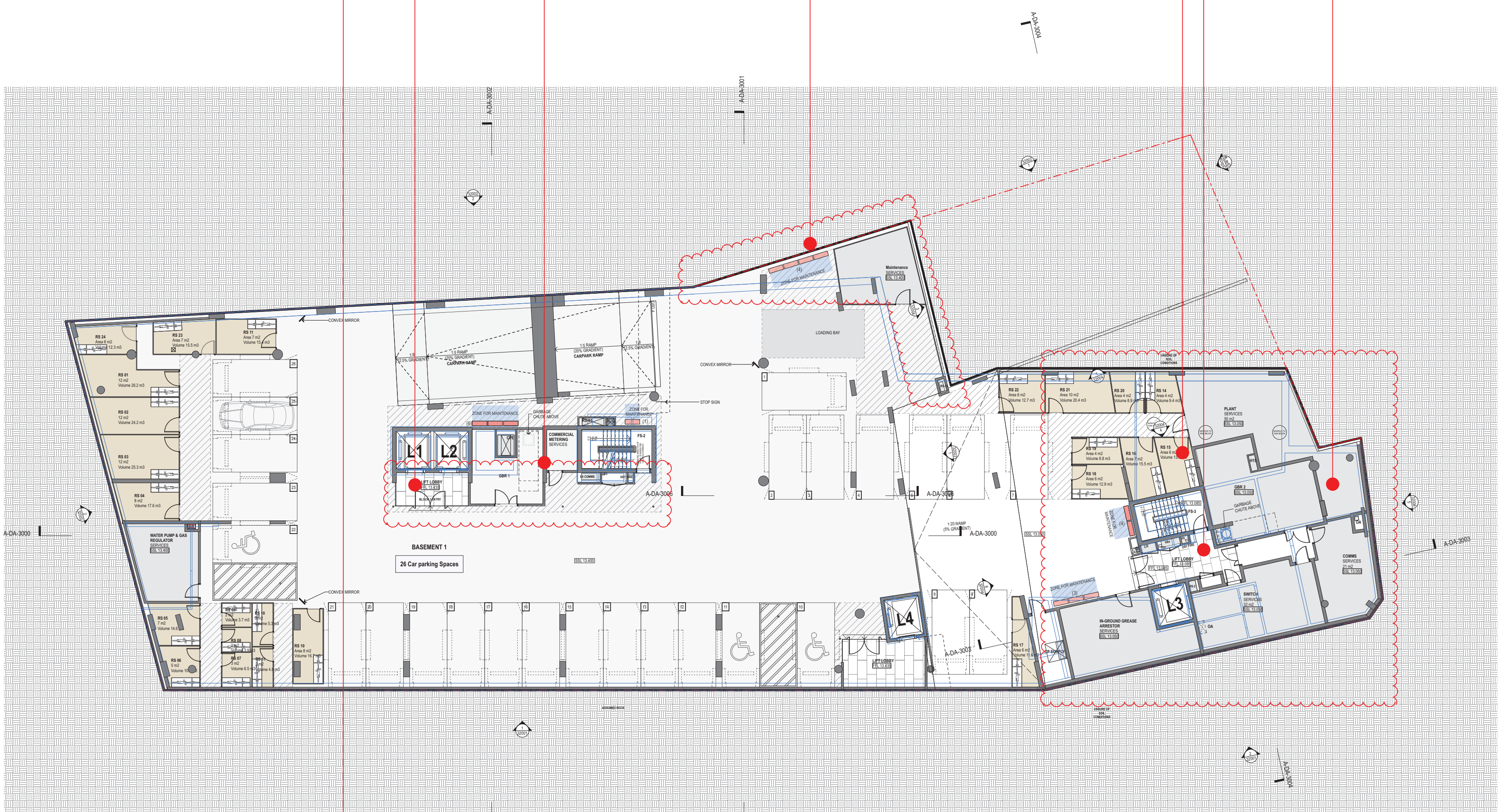
B(ii)
STRUCTURE REVISED. CORE, CARPARKING & STORAGE REVISED TO SUIT

B(v)
EXTENT OF BASEMENT ADJUSTED TO SUIT EXISTING EXCAVATION

G(iii & v)
RELOCATION OF BICYCLE PARKING AND END OF TRIP FACILITIES TO GROUND FLOOR

B(iii)
LIFT LOBBY ENCLOSED

B(iv)
RECONFIGURATION OF BASEMENT SERVICES AND PLANT AREAS



APPROVED CAR PARKING RATES

B1 TOTAL CAR PARKING SPACES 32
INCLUDING
27 RESIDENTIAL SPACES
4 ACCESSIBLE SPACES
1 LOADING BAY

OTHER
27 BICYCLE SPACES
(IN RESIDENTIAL STORAGE CAGES)
35 BICYCLE SPACES FOR RETAIL/COMMERCIAL
30 BICYCLE SPACES FOR VISITORS

AMENDED CAR PARKING RATES

B1 TOTAL CAR PARKING SPACES 26
INCLUDING
26 RESIDENTIAL SPACES
3 ACCESSIBLE (INCLUSIVE)
1 LOADING BAY (EXCLUSIVE)

OTHER
24 BICYCLE SPACES
(IN INDIVIDUAL RESIDENTIAL STORAGE CAGES)

A2

GENERAL NOTES

- ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR BEFORE PROCEEDING WITH THE WORK
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- DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY

legend

1 BED
2 BED 2 BATH
3 BED
TOWNHOUSE
LOBBY
COMMERCIAL
LIVE/ WORK
RETAIL

Adaptable Apartment
Livable Apartment (Silver Level)
Cross Ventilated Apartment
Solar Compliant Apartment
Solar Compliant Balcony
Cross Ventilated Apartment

ALP	Aluminium Panel
BAL1	Glazed Balustrade 1
BAL2	Glazed Balustrade 2
BAL3	Palisade Balustrade
GL1	Aluminium Framed Retail Glazing
GL2	Aluminium Framed Performance Glazing
LV1	High Level Louvre (Retail)
PAV1	Paving 1
PC1	Precast Concrete 1
SC1	Operable Bronze Screen
SC2	Operable Terracotta Baguette Screen
SC3	Operable Exterior Venetian Blinds
ST1	Sandstone Cladding
TC1	Terracotta Cladding 1
TC2	Terracotta Cladding 2
TC3	Terracotta Cladding 3
TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

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project
85 Harrington Street & 68-72 Gloucester Street
Lot 1 in DP 777033
The Rocks NSW 2000

title
Plans
Level Basement 1

Certificate Number: O3ZGGH62QS
Assessor Name: Richard Noble
Accreditation number: VIC/BDAV/16/1756
Certificate date: 20 Nov 2018
Dwelling address: 85 Harrington Street & 68-72 Gloucester Street, The Rocks NSW 2000
6.1 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
www.nathers.gov.au

scale	As Noted @ A2	first issued	29/03/2018
project code	GA85H	sheet no. DA-2011	revision U

B(i)
AMENDED CAR PARKING NUMBERS TO SATISFY CONDITIONS B2(C) AND B29

B(iii)
LIFT LOBBY ENCLOSED

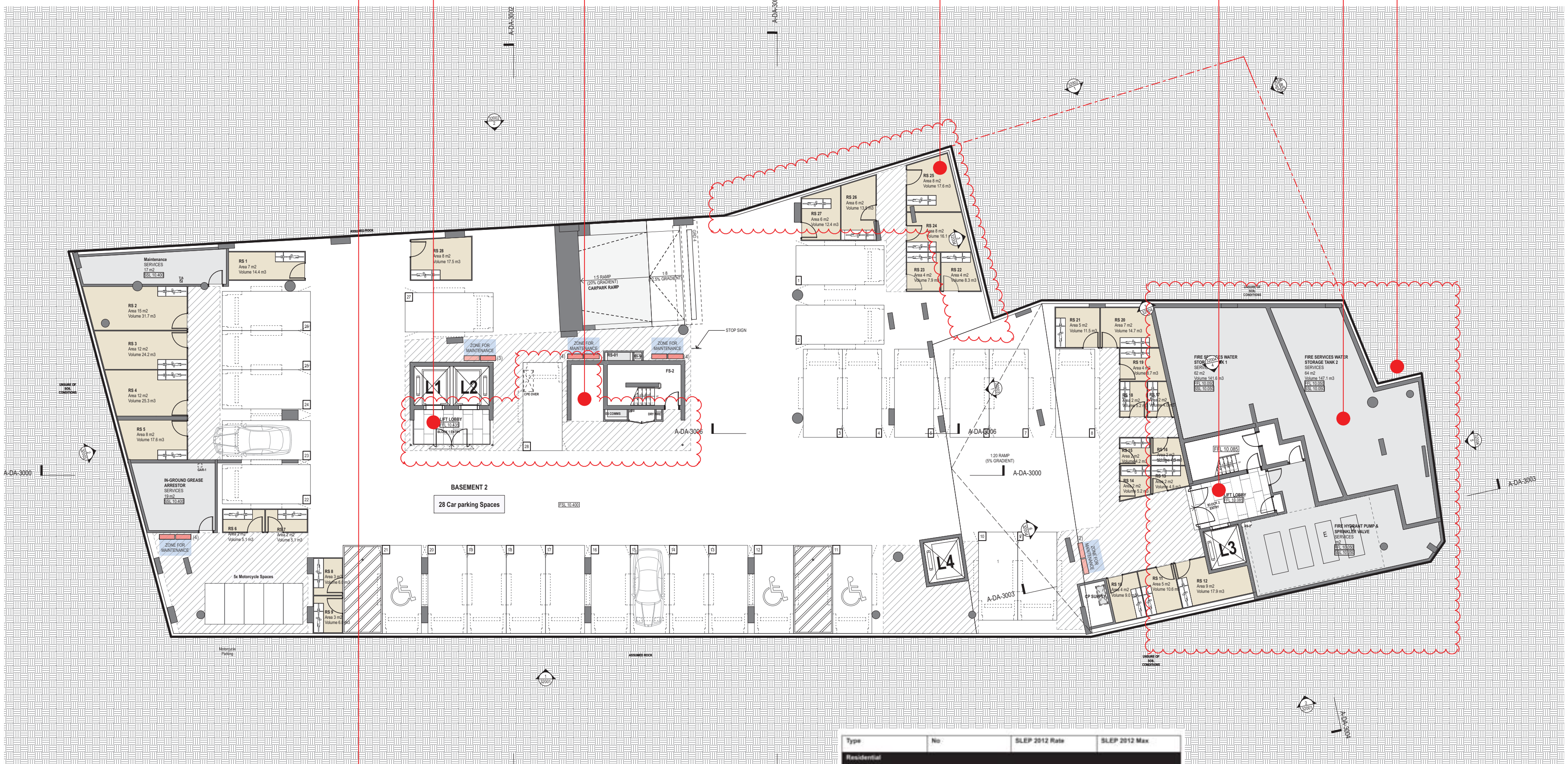
B(ii)
STRUCTURE REVISED. CORE, CARPARKING & STORAGE REVISED TO SUIT

B(v)
EXTENT OF BASEMENT ADJUSTED TO SUIT EXISTING EXCAVATION ABOVE

B(iii)
LIFT LOBBY ENCLOSED

B(iv)
RECONFIGURATION OF BASEMENT SERVICES AND PLANT AREAS

B(v)
EXTENT OF BASEMENT ADJUSTED TO SUIT EXISTING EXCAVATION



APPROVED CAR PARKING RATES

B2 TOTAL CAR PARKING SPACES 32
INCLUDING
- 29 RESIDENTIAL SPACES
- 3 ACCESSIBLE SPACES

OTHER
- 5 MOTORBIKE SPACES
- 29 BICYCLE SPACES
- (IN RESIDENTIAL STORAGE CAGES)

AMENDED CAR PARKING RATES

B2 TOTAL CAR PARKING SPACES 28
INCLUDING
- 28 RESIDENTIAL SPACES
- 3 ACCESSIBLE (INCLUSIVE)

OTHER
- 5 MOTORBIKE SPACES
- 28 BICYCLE SPACES
- (IN INDIVIDUAL RESIDENTIAL STORAGE CAGES)

Type	No	SLEP 2012 Rate	SLEP 2012 Max
Residential			
1 bed	~~48~~ 16	0.3	~~6.4~~ 4.8
2 bed	~~47~~ 19	0.7	~~11.9~~ 13.3
3 bed	9	1	9
Town Home (2 or 3 bedrooms)	7	1	7
Penthouse (3 or more bedrooms)	7	1	7
Visitors	58	No requirement	0
		Subtotal	~~40.3~~ **41.1**
Non-residential			
Retail	938 sqm	Subject to formula	6
Commercial (office)	1,130 sqm	Subject to formula	7
		Subtotal	13
		TOTAL	~~53.3~~ **54.1**

A2

6.1
Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
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Certificate Number: O3ZGGH62QS
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https://www.fr5.com.au/QRCodeLanding?PublicId=O3ZGGH62QS&GrpCert=

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legend

- 1 BED
- 2 BED 2 BATH
- 3 BED
- TOWNHOUSE
- LOBBY
- COMMERCIAL
- LIVE/ WORK
- RETAIL
- Adaptable Apartment
- Livable Apartment (Silver Level)
- Cross Ventilated Apartment
- Solar Compliant Apartment
- Solar Compliant Balcony
- Cross Ventilated Apartment

ALP	Aluminium Panel
BAL1	Glazed Balustrade 1
BAL2	Glazed Balustrade 2
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GL1	Aluminium Framed Retail Glazing
GL2	Aluminium Framed Performance Glazing
LV1	High Level Louvre (Retail)
PAV1	Paving 1
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SC1	Operable Bronze Screen
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ST1	Sandstone Cladding
TC1	Terracotta Cladding 1
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TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

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fjmt

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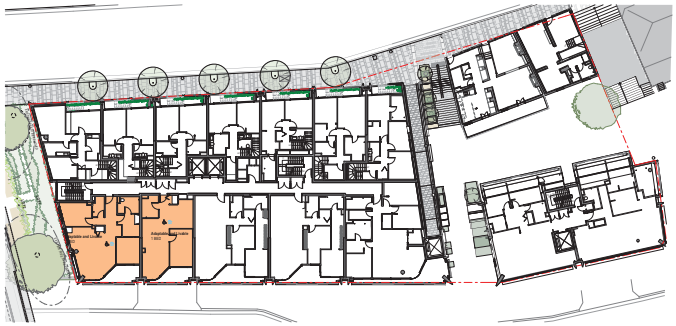
Lot 1 in DP 777033
The Rocks NSW 2000

title
Plans
Level Basement 2

scale As Noted @ A2 | first issued 29/03/2018

project code GA85H | sheet no. DA-2012 | revision U

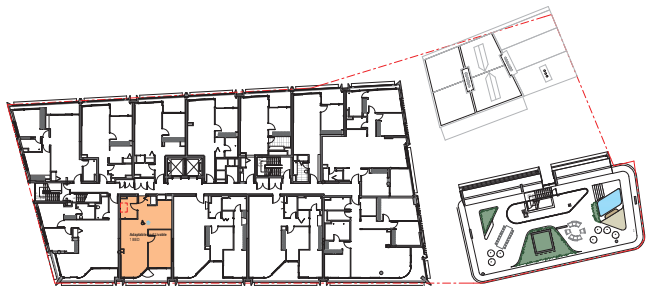
1 PLAN Level H1 - C2
1:500



2 PLAN Level H2 - C3
1:500

3 PLAN Level H3 - C5
1:500

4 PLAN Level H5 - C6
1:500



5 PLAN Level H6 - C7
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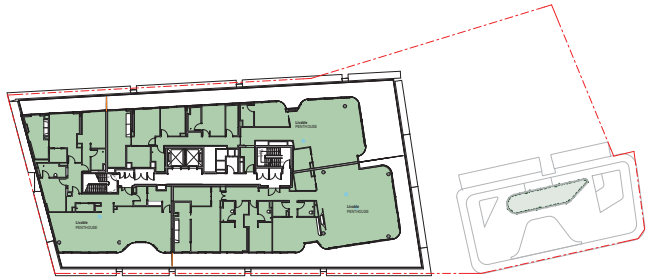
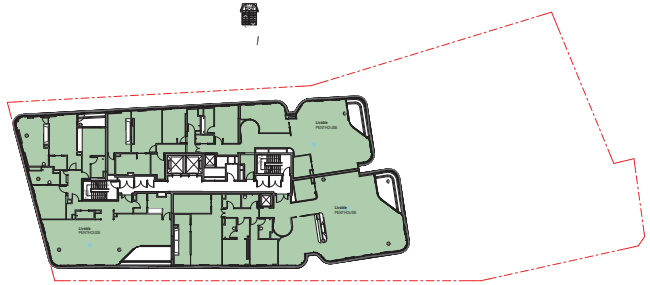


6 PLAN Level H7
1:500



7 PLAN Level H8
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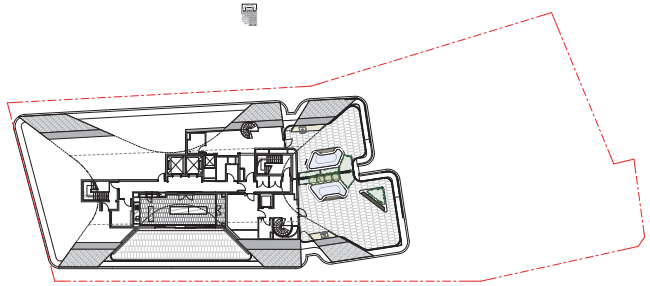

8 PLAN Level H9
1:500

A2

Adaptable and Silver Level Livable Apartment
6 / 58 = 10% - compliant

Silver Level Livable Apartment Only
12 / 58 = 20% - compliant

GENERAL NOTES

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legend

1 BED
2 BED 2 BATH
3 BED
TOWNHOUSE
LOBBY
COMMERCIAL
LIVE/ WORK
RETAIL

Adaptable Apartment
Livable Apartment (Silver Level)
Cross Ventilated Apartment
Solar Compliant Apartment
Solar Compliant Balcony
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TC3	Terracotta Cladding 3
TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

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project
85 Harrington Street & 68-72 Gloucester Street
Lot 1 in DP 777033
The Rocks NSW 2000

title
Plans
Adaptable and LHG Compliant Key

scale	As Noted @ A2	first issued	29/03/2018
project code	sheet no.		revision
GA85H	DA-2025		U

6.1 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
www.nathers.gov.au

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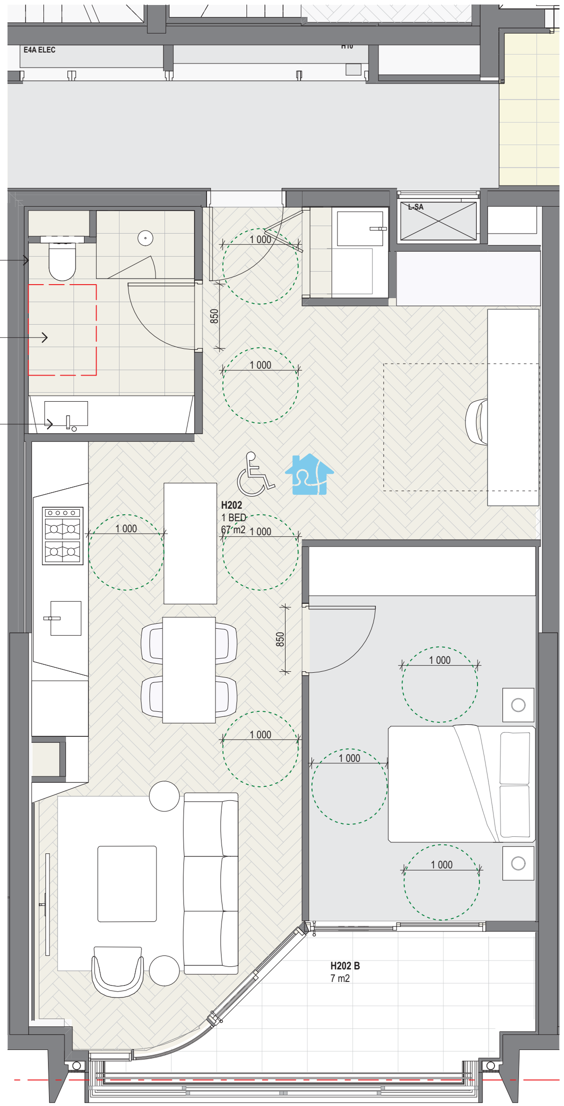
REINFORCEMENT OF BATHROOM & TOILET WALLS

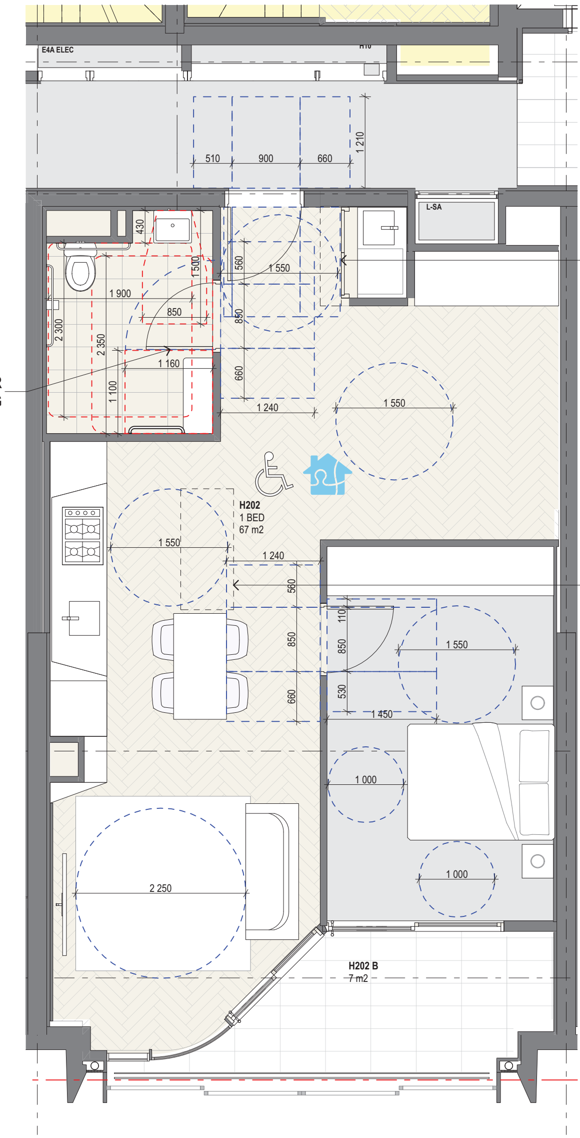
ZONE FOR VISITABLE WC 900 x 1200mm

PROVIDE CAPPED OFF SERVICES FOR RELOCATION OF BASIN & SHOWER



1 PLAN 1 BED - Pre-Adapted Livable Layout
1:50

CHANGE DOOR SWING



2 PLAN 1 BED - Post-Adapted Layout
1:50

REDUCTION OF LAUNDRY CUPBOARD

ISLAND KITCHEN BENCHTOP TO BE RELOCATED IN ADAPTABLE MODE

Units H202, H302, H502

GENERAL NOTES

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Adaptable Apartment

6.1 Average star rating
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project
85 Harrington Street & 68-72 Gloucester Street
Lot 1 in DP 777033
The Rocks NSW 2000

title
Plans
Adaptable and Livable Housing Guide

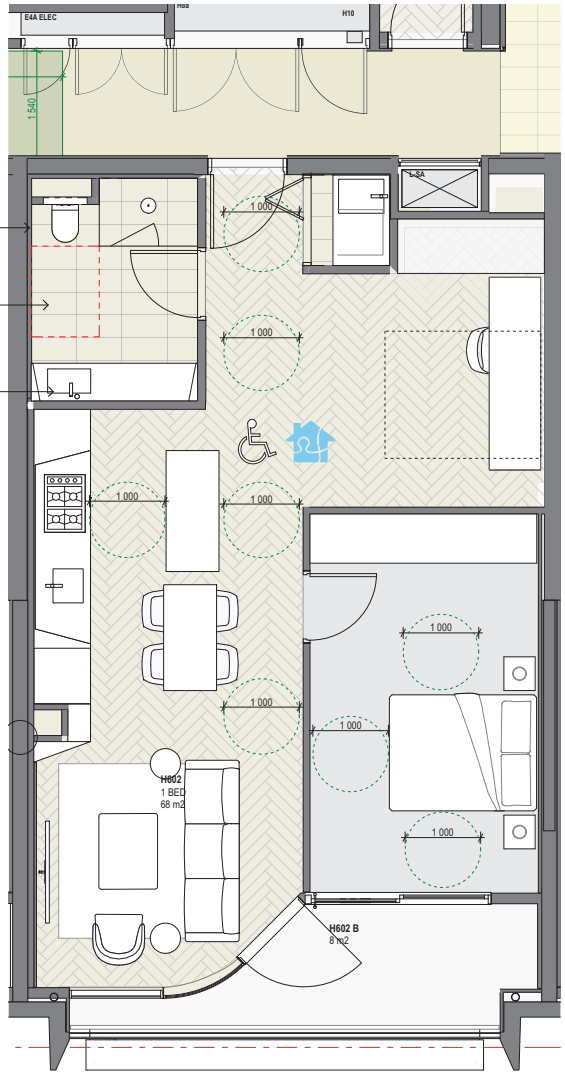
scale	As Noted @ A2	first issued	29/03/2018
project code	GA85H	sheet no. DA-2030	revision U

A2

REINFORCEMENT OF BATHROOM & TOILET WALLS

ZONE FOR VISITABLE WC 900 x 1200mm

PROVIDE CAPPED OFF SERVICES FOR RELOCATION OF BASIN & SHOWER

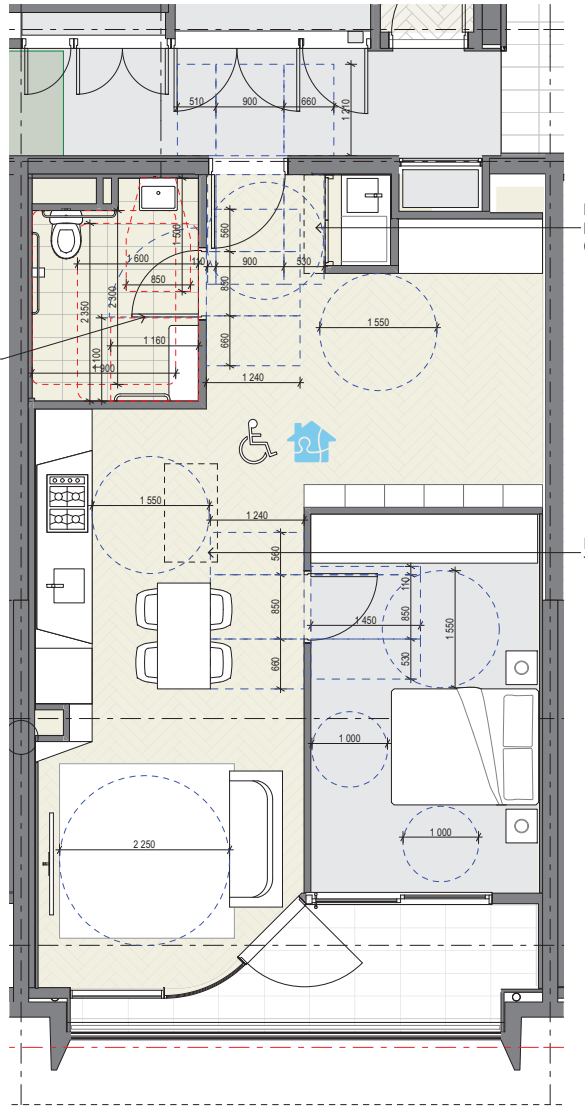


1 PLAN 1 BED - Pre-Adapted Livable Layout
1:50

CHANGE DOOR SWING

REDUCTION OF LAUNDRY CUPBOARD

ISLAND KITCHEN BENCHTOP TO BE RELOCATED IN ADAPTABLE MODE



2 PLAN H601 PROPOSED FLOOR PLAN
1:50

Unit H602

GENERAL NOTES

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legend

1 BED
2 BED 2 BATH
3 BED
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Adaptable Apartment

6.1 Average star rating
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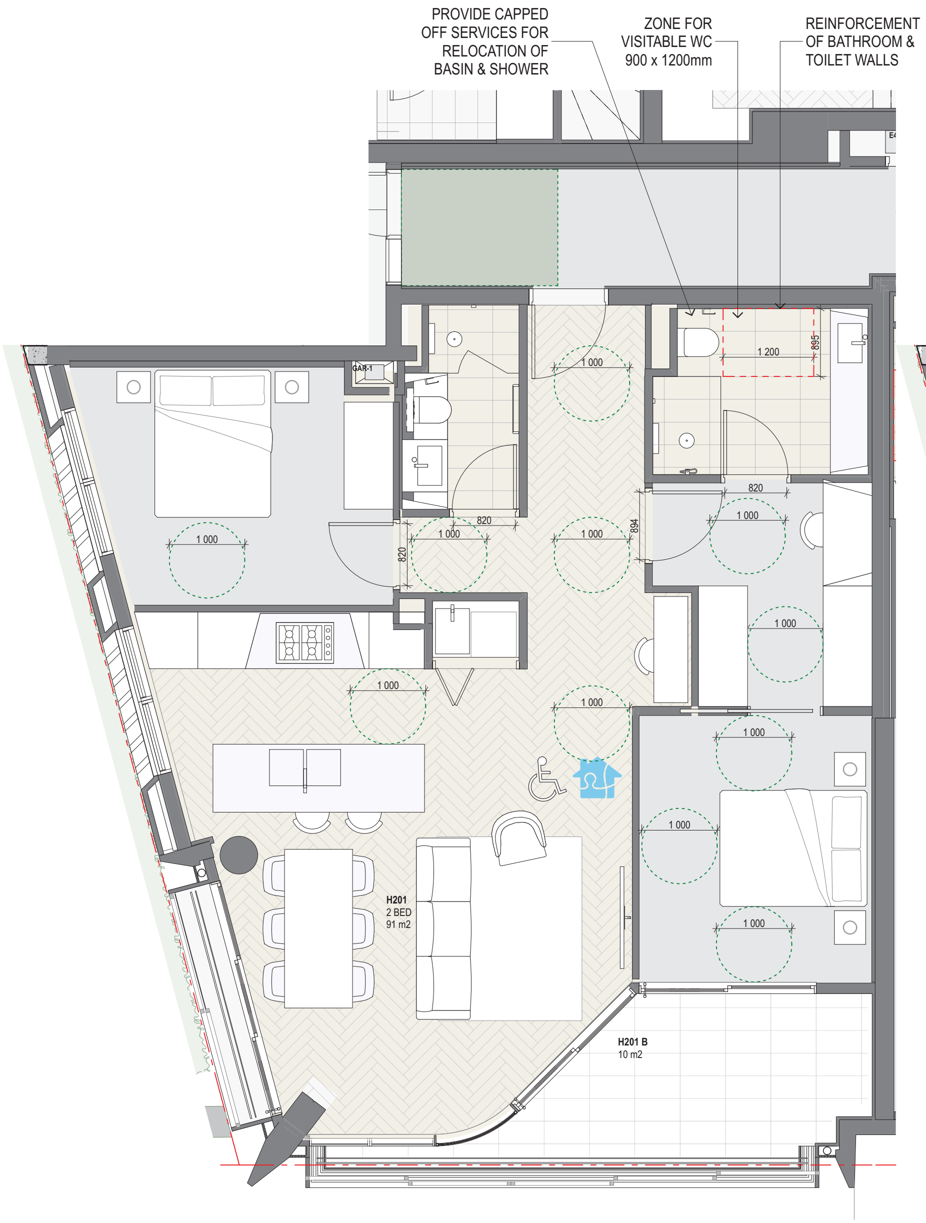
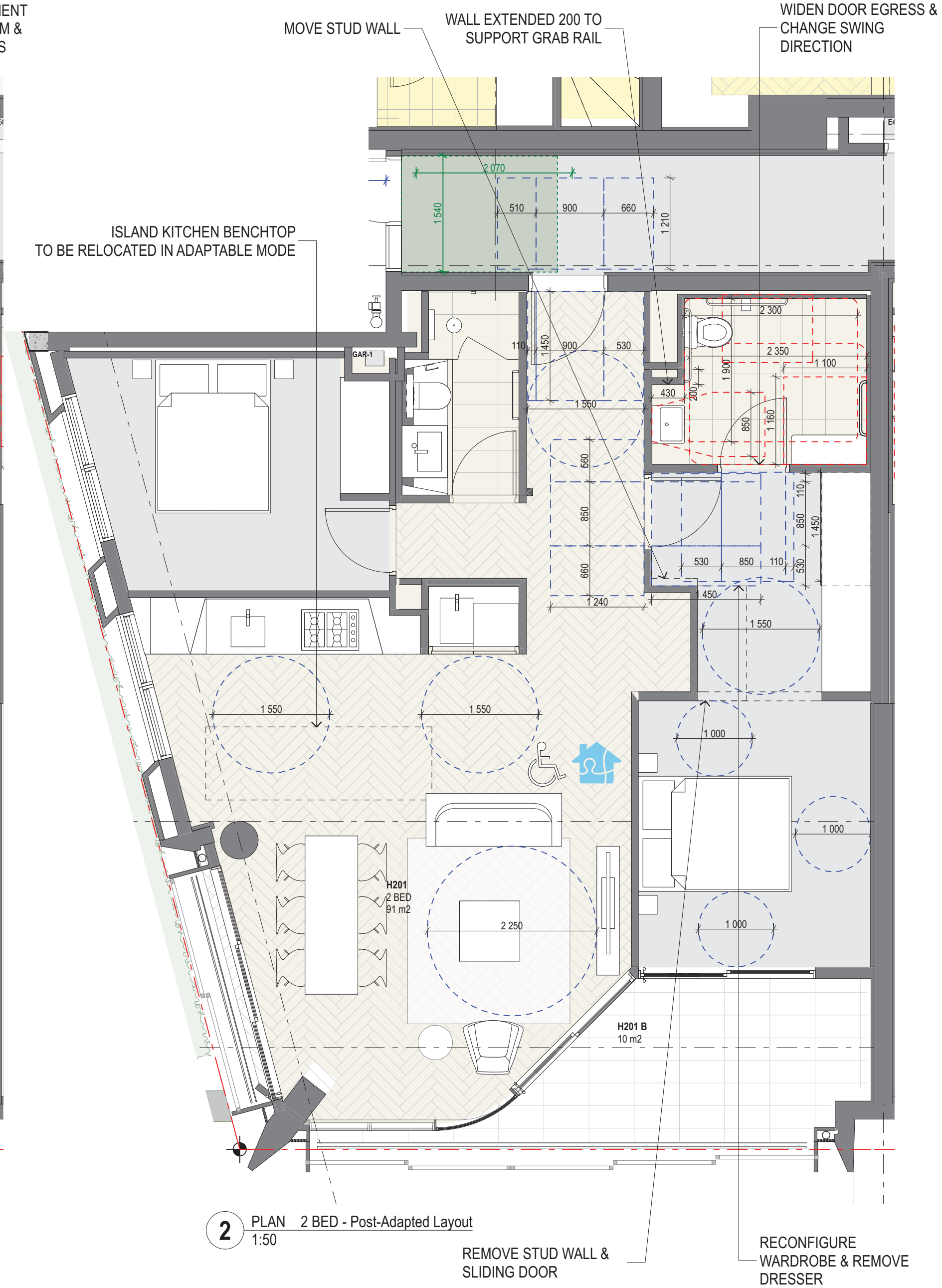
Plans
Adaptable and Livable Housing Guide

scale	As Noted @ A2	first issued	29/03/2018
project code	sheet no.		revision
GA85H	DA-2031		U

A2



1 PLAN 2 BED - Pre-Adapted Layout
1:50



2 PLAN 2 BED - Post-Adapted Layout
1:50

Units H201, H301

GENERAL NOTES

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legend

- 1 BED
- 2 BED 2 BATH
- 3 BED
- TOWNHOUSE
- LOBBY
- COMMERCIAL
- LIVE/ WORK
- RETAIL

- Adaptable Apartment
- Livable Apartment (Silver Level)
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6.1 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
www.nathers.gov.au
Silver Level Livable Apart

A2

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fjmt

project
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title
Plans
Adaptable and Livable Housing Guide

scale	As Noted @ A2	first issued	29/03/2018
project code	sheet no.	revision	
GA85H	DA-2032	U	

1 PLAN Penthouses - Livable Only Apartments
1:100

Unit H701, H702

GENERAL NOTES

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- DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY

legend

1 BED	
2 BED 2 BATH	
3 BED	
TOWNHOUSE	
LOBBY	
COMMERCIAL	
LIVE/ WORK	
RETAIL	

	Adaptable Apartment
	Livable Apartment (Silver Level)
	Cross Ventilated Apartment
	Solar Compliant Apartment
	Solar Compliant Balcony
	Cross Ventilated Apartment
ALP	Aluminium Panel
BAL1	Glazed Balustrade 1
BAL2	Glazed Balustrade 2
BAL3	Palisade Balustrade
GL1	Aluminium Framed Retail Glazing
GL2	Aluminium Framed Performance Glazing
LV1	High Level Louvre (Retail)
PAV1	Paving 1
PC1	Precast Concrete 1
SC1	Operable Bronze Screen
SC2	Operable Terracotta Baguette Screen
SC3	Operable Exterior Venetian Blinds
ST1	Sandstone Cladding
TC1	Terracotta Cladding 1
TC2	Terracotta Cladding 2
TC3	Terracotta Cladding 3
TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

INDICATES BUILDING OUTLINE "AS APPROVED"

INDICATES CHANGES FORMING THIS APPLICATION

rev	date	name	by	chk
U	05/11/2018	S4.55 Submission	DN	SH
A4	11/05/2018	S4.55(1A) Submission	DN	AH
A3	04/04/2018	S4.55(1A) Submission	DN	AH
A2	04/04/2018	S4.55(1A) Coordination Package	DN	AH
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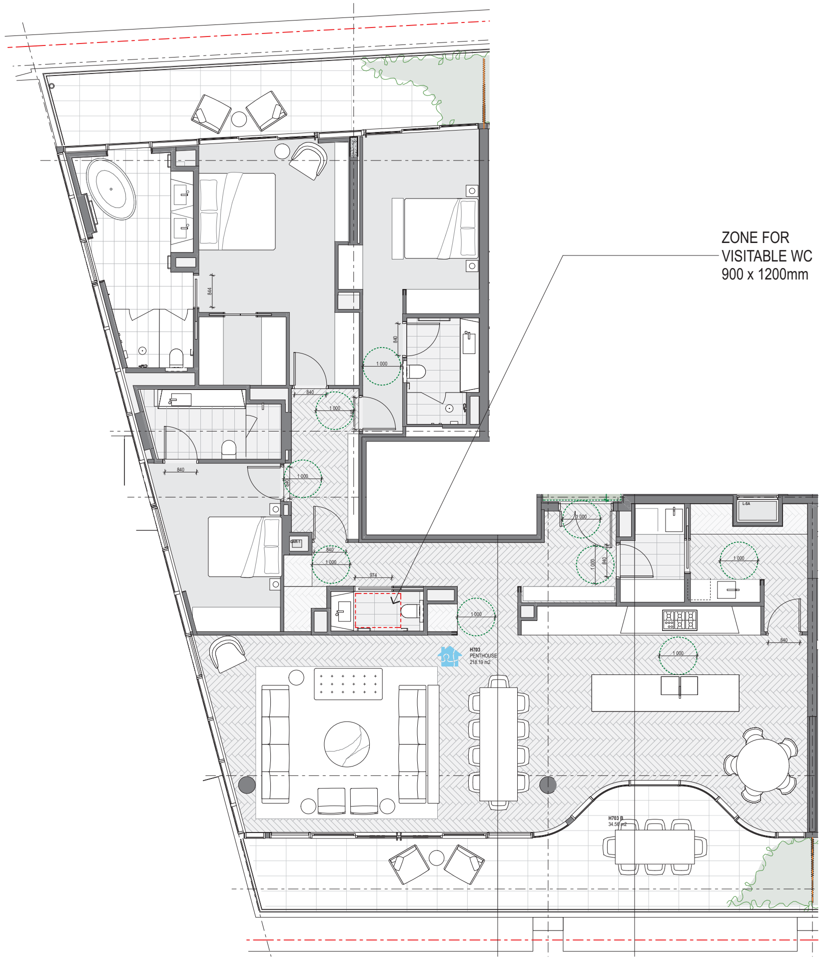
Lot 1 in DP 777033
The Rocks NSW 2000

title
Plans
Adaptable and Livable Housing Guide

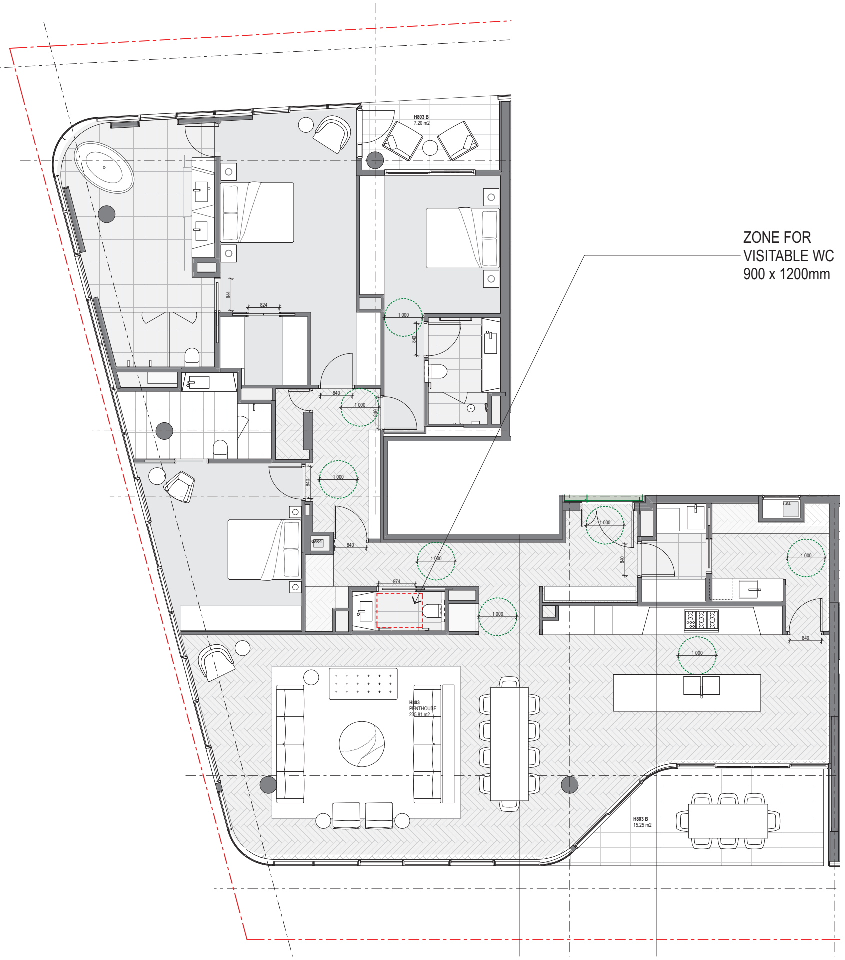
Adaptable Apartment

scale	As Noted @ A2	first issued	29/03/2018
project code		sheet no.	revision
GA85H		DA-2033	U

A2



1 PLAN Penthouse H703 - Livable Only Apartments
1:100



2 PLAN Penthouse H803 - Livable Only Apartments
1:100

Unit H703, H803

Adaptable Apartment

Certificate Number:	O3ZGGH62QS
Assessor Name:	Richard Noble
Accreditation number:	VIC/BDAV/16/1756
Certificate date:	20 Nov 2018
Dwelling address:	85 Harrington Street & 68-72 Gloucester Street, The Rocks NSW 2000

6.1 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
www.nathers.gov.au

GENERAL NOTES

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legend

- 1 BED
- 2 BED 2 BATH
- 3 BED
- TOWNHOUSE
- LOBBY
- COMMERCIAL
- LIVE/ WORK
- RETAIL
- Adaptable Apartment
- Livable Apartment (Silver Level)
- Cross Ventilated Apartment
- Solar Compliant Apartment
- Solar Compliant Balcony
- Cross Ventilated Apartment

ALP	Aluminium Panel
BAL1	Glazed Balustrade 1
BAL2	Glazed Balustrade 2
BAL3	Palisade Balustrade
GL1	Aluminium Framed Retail Glazing
GL2	Aluminium Framed Performance Glazing
LV1	High Level Louvre (Retail)
PAV1	Paving 1
PC1	Precast Concrete 1
SC1	Operable Bronze Screen
SC2	Operable Terracotta Baguette Screen
SC3	Operable Exterior Venetian Blinds
ST1	Sandstone Cladding
TC1	Terracotta Cladding 1
TC2	Terracotta Cladding 2
TC3	Terracotta Cladding 3
TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

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Plans
Adaptable and Livable Housing Guide

scale	As Noted @ A2	first issued	29/03/2018
project code	sheet no.	revision	
GA85H	DA-2034	U	

A2

1 PLAN Penthouses - Livable Only Apartments
1:100

Unit H801, H802

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legend

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- 2 BED 2 BATH
- 3 BED
- TOWNHOUSE
- LOBBY
- COMMERCIAL
- LIVE/ WORK
- RETAIL

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- Cross Ventilated Apartment
- Solar Compliant Apartment
- Solar Compliant Balcony
- Cross Ventilated Apartment

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BAL2	Glazed Balustrade 2
BAL3	Palisade Balustrade
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ST1	Sandstone Cladding
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TC2	Terracotta Cladding 2
TC3	Terracotta Cladding 3
TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

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Adaptable Apartment

Certificate Number: O3ZGGH62QS
Assessor Name: Richard Noble
Accreditation number: VIC/BDAV/16/1756
Certificate date: 20 Nov 2018
Dwelling address: 85 Harrington Street & 68-72 Gloucester Street, The Rocks NSW 2000
6.1 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
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A2

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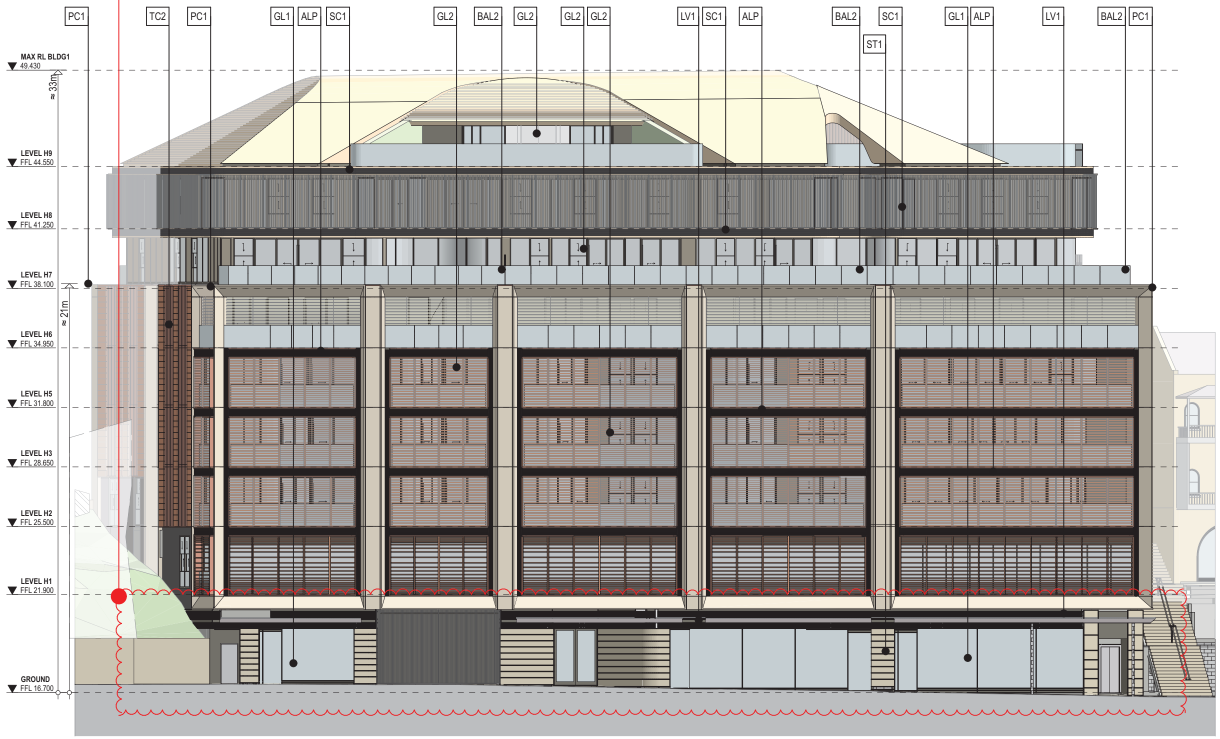
The Rocks NSW 2000

title
Plans
Adaptable and Livable Housing Guide

scale As Noted @ A2 first issued 29/03/2018

project code	sheet no.	revision
GA85H	DA-2035	U

G(ii)
MINOR DESIGN CHANGES TO RETAIL FRONTAGE.

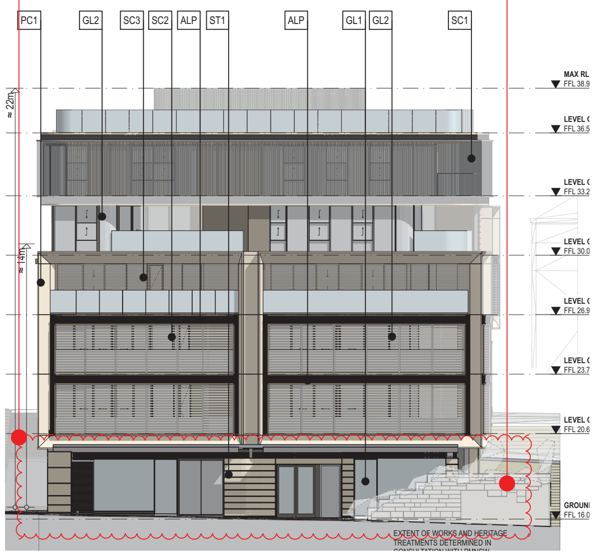


1 ELEVATION East Elevation Outer Block 1
1:200

G(ii)
MINOR DESIGN CHANGES TO RETAIL FRONTAGE.

E(ii)
HERITAGE STONE WALL NOW MAPPED TO RETAIN BLOCKWORK AND ROCKS IDENTIFIED BY URBIS FOR RETENTION.

REFER TO LANDSCAPE DOCUMENTATION FOR FURTHER INFORMATION



2 ELEVATION East Elevation Outer Block 2
1:200

GENERAL NOTE:
ANNOTATIONS COMPARING PREVIOUSLY CONSIDERED DA'S / SCRA ENVELOPE REMOVED AS NOT RELEVANT TO THIS APPLICATION

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legend

1 BED
2 BED 2 BATH
3 BED
TOWNHOUSE
LOBBY
COMMERCIAL
LIVE/ WORK
RETAIL

Adaptable Apartment
Livable Apartment (Silver Level)
Cross Ventilated Apartment
Solar Compliant Apartment
Solar Compliant Balcony
Cross Ventilated Apartment

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TC3	Terracotta Cladding 3
TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

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Lot 1 in DP 777033
The Rocks NSW 2000

title
Elevations
Outer East Elevation (Harrington Street)

scale	As Noted @ A2	first issued	29/03/2018
project code	GA85H	sheet no. DA-3001	revision U

6.1
Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
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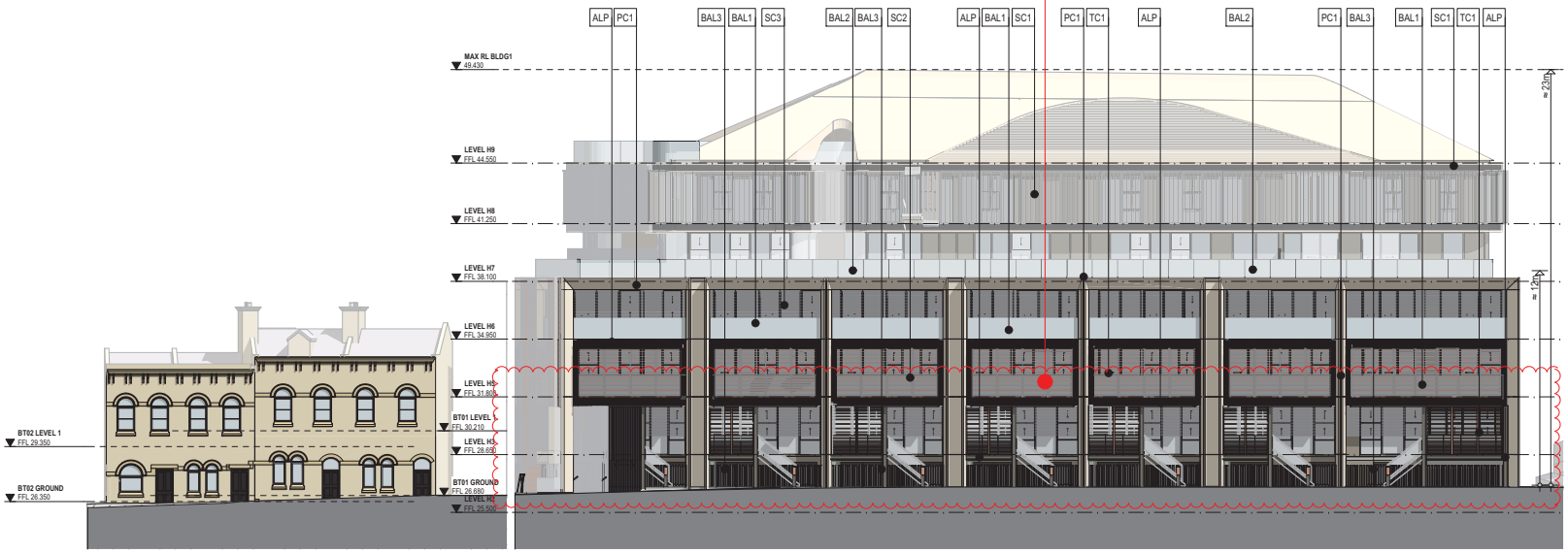
Certificate Number: O3ZGGH62QS
Assessor Name: Richard Noble
Accreditation number: VIC/BDAV/16/1756
Certificate date: 20 Nov 2018
Dwelling address: 85 Harrington Street & 68-72 Gloucester Street, The Rocks NSW 2000
www.nathers.gov.au

A2

L3(iii)
MINOR DESIGN CHANGES TO FRONT ENTRANCES OF TOWNHOUSES TO PROVIDE A GREATER DESIGN AMENITY TO LIVING ROOMS



1 ELEVATION West Elevation Outer
1:200 Bakers Terrace

2 ELEVATION West Elevation Outer
1:200 Block 1

GENERAL NOTE:
ANNOTATIONS COMPARING PREVIOUSLY CONSIDERED DA'S / SCRA ENVELOPE REMOVED AS NOT RELEVANT TO THIS APPLICATION

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legend

- 1 BED
- 2 BED 2 BATH
- 3 BED
- TOWNHOUSE
- LOBBY
- COMMERCIAL
- LIVE/ WORK
- RETAIL

- Adaptable Apartment
- Livable Apartment (Silver Level)
- Cross Ventilated Apartment
- Solar Compliant Apartment
- Solar Compliant Balcony
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TC2	Terracotta Cladding 2
TC3	Terracotta Cladding 3
TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

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The Rocks NSW 2000

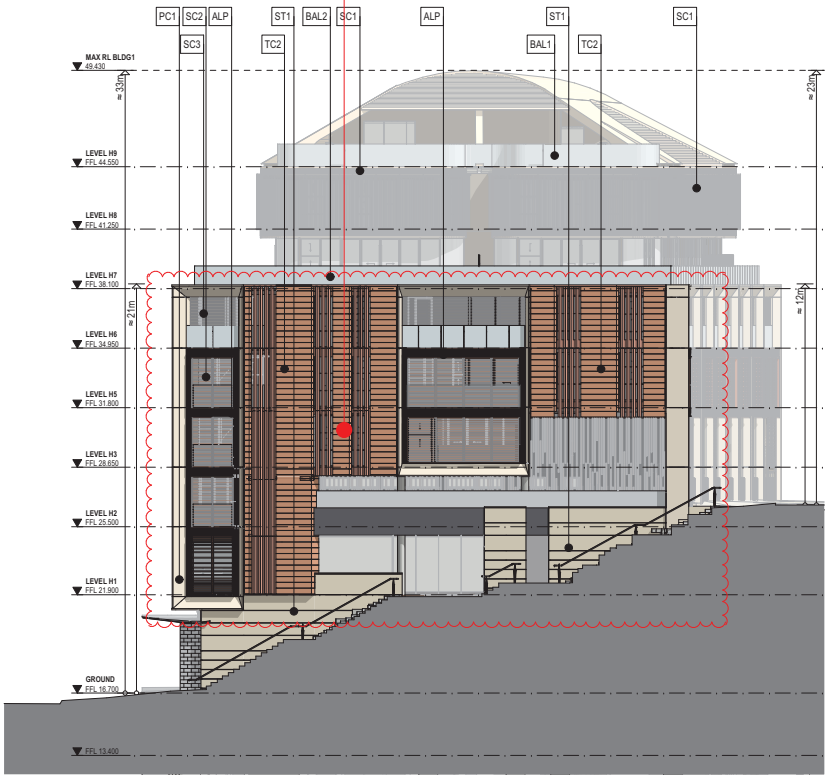
title
Elevations
Outer West Elevation (Gloucester Street)

scale	As Noted @ A2	first issued	29/03/2018
project code	GA85H	sheet no.	DA-3002
		revision	U

A2

Certificate Number: O3ZGGH62QS
Assessor Name: Richard Noble
Accreditation number: VIC/BDAV/16/1756
Certificate date: 20 Nov 2018
Dwelling address: 85 Harrington Street & 68-72 Gloucester Street, The Rocks NSW 2000
www.nathers.gov.au

E(iii)
MINOR DESIGN CHANGES TO
NORTHERN FACADE



1 ELEVATION North Elevation Outer
1:200 Block 1

E(iii)
MINOR DESIGN CHANGES TO
SOUTHERN FACADE

2 ELEVATION South Elevation Outer
1:200 Block 1

GENERAL NOTE:
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legend

1 BED	
2 BED 2 BATH	
3 BED	
TOWNHOUSE	
LOBBY	
COMMERCIAL	
LIVE/ WORK	
RETAIL	

	Adaptable Apartment
	Livable Apartment (Silver Level)
	Cross Ventilated Apartment
	Solar Compliant Apartment
	Solar Compliant Balcony
	Cross Ventilated Apartment
ALP	Aluminium Panel
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BAL3	Palisade Balustrade
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GL2	Aluminium Framed Performance Glazing
LV1	High Level Louvre (Retail)
PAV1	Paving 1
PC1	Precast Concrete 1
SC1	Operable Bronze Screen
SC2	Operable Terracotta Baguette Screen
SC3	Operable Exterior Venetian Blinds
ST1	Sandstone Cladding
TC1	Terracotta Cladding 1
TC2	Terracotta Cladding 2
TC3	Terracotta Cladding 3
TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

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project
85 Harrington Street & 68-72 Gloucester Street
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The Rocks NSW 2000

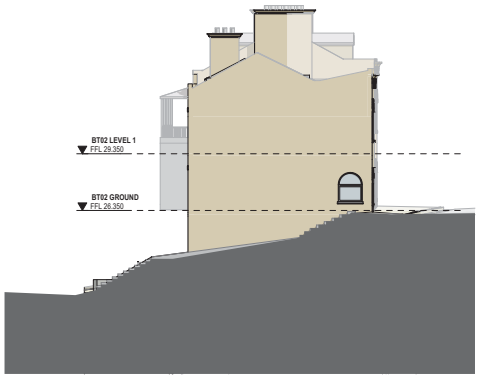
title
Elevations
Outer North / South Elevations

scale	As Noted @ A2	first issued	29/03/2018
project code	sheet no.		revision
GA85H	DA-3003		U

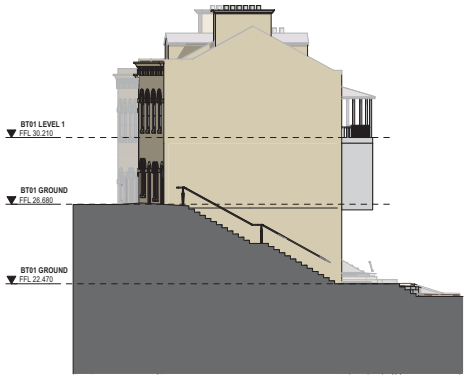
A2

Certificate Number: O3ZGGH62QS
Assessor Name: Richard Noble
Accreditation number: VIC/BDAV/16/1756
Certificate date: 20 Nov 2018
Dwelling address: 85 Harrington Street & 68-72 Gloucester Street, The Rocks NSW 2000
6.1 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
www.nathers.gov.au

1 ELEVATION East Elevation Outer
1:200 Bakers Terrace

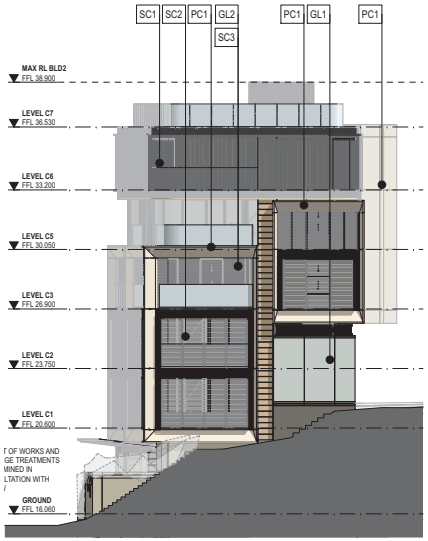


2 ELEVATION North Elevation Outer
1:200 Bakers Terrace

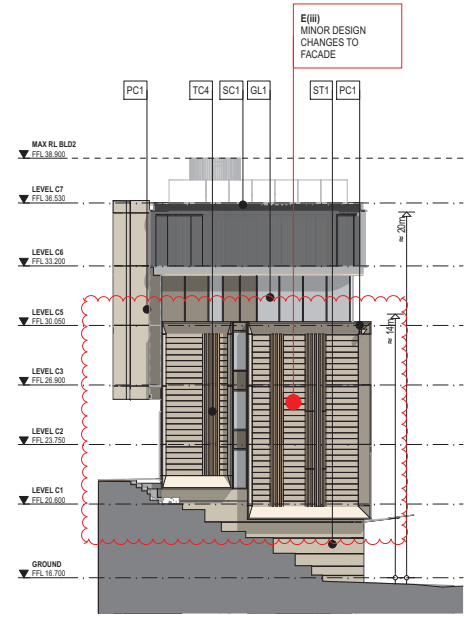


3 ELEVATION South Elevation Outer
1:200 Bakers Terrace

4 ELEVATION West Elevation Outer
1:200 Block 2



5 ELEVATION North Elevation Outer
1:200 Block 2



6 ELEVATION South Elevation Outer
1:200 Block 2

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legend

1 BED
2 BED 2 BATH
3 BED
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LOBBY
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LIVE/ WORK
RETAIL

Adaptable Apartment
Livable Apartment (Silver Level)
Cross Ventilated Apartment
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ALP	Aluminium Panel
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TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

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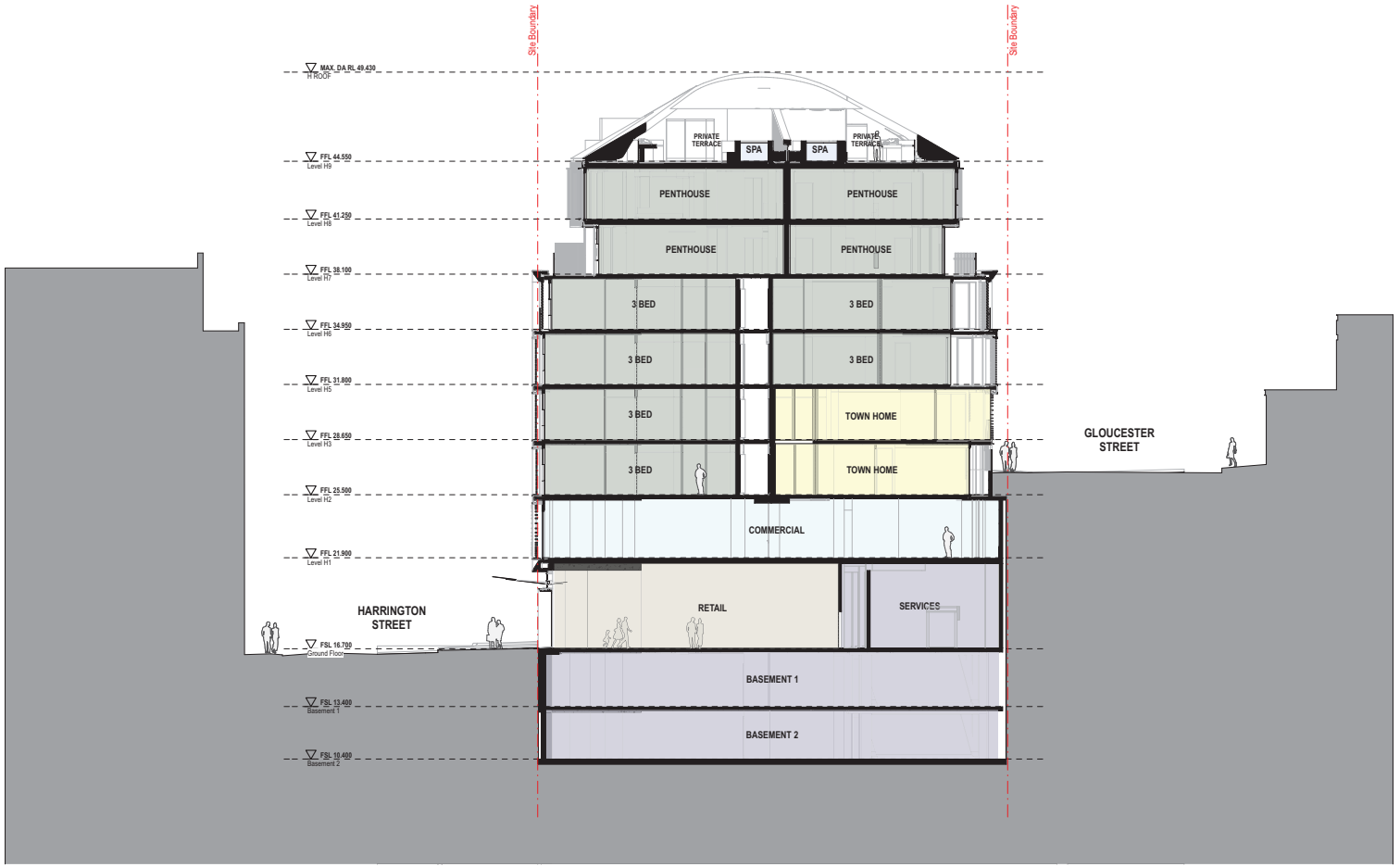
project
85 Harrington Street & 68-72 Gloucester Street
Lot 1 in DP 777033
The Rocks NSW 2000

title
Elevations
Outer Cambridge Place Elevations

scale	first issued	
As Noted @ A2	29/03/2018	
project code	sheet no.	revision
GA85H	DA-3004	U

A2



1 SECTION Block 1 North Cross Section
1:200

GENERAL NOTES

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project
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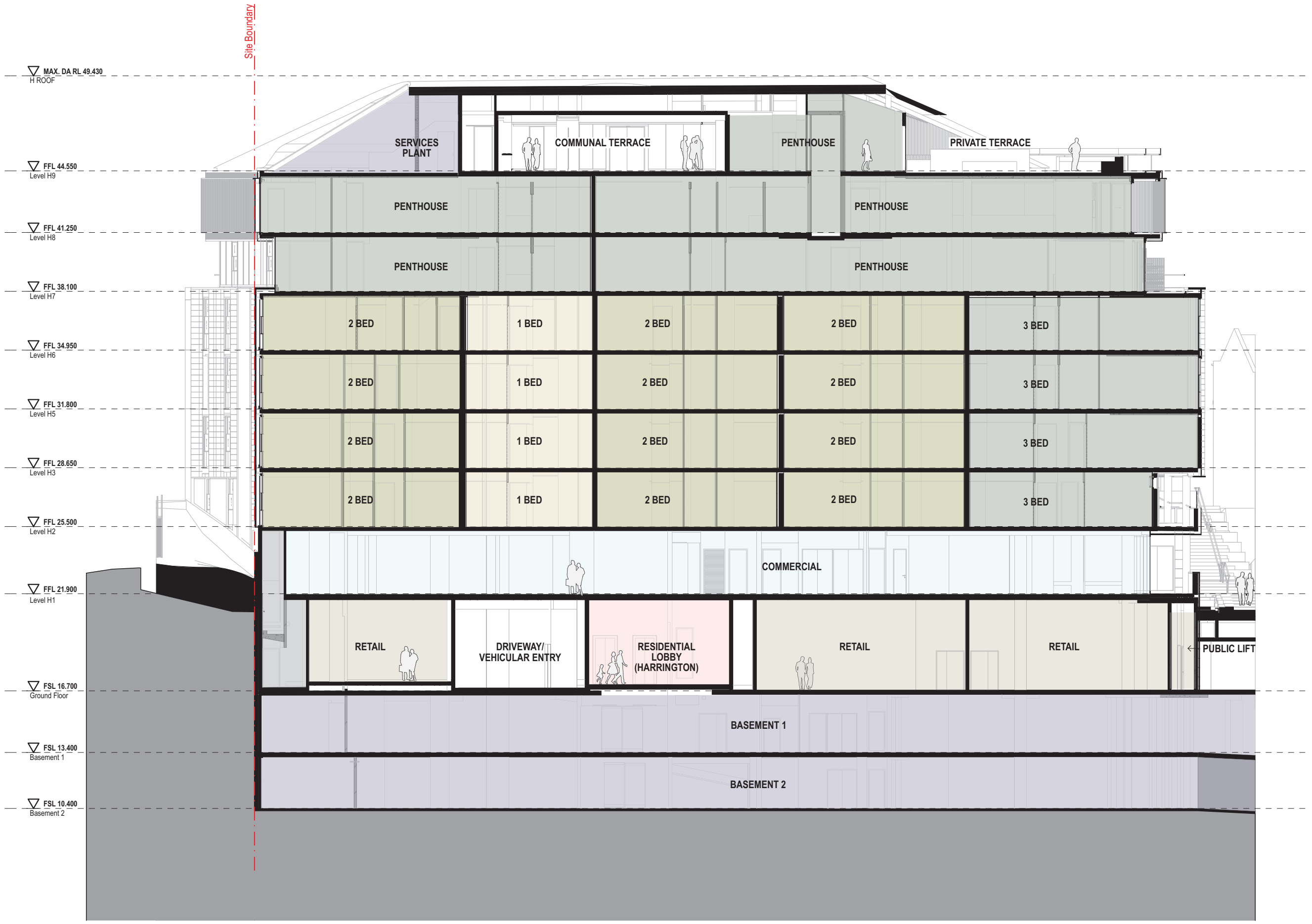
title
Sections
Block 1 North Cross Section

scale	As Noted @ A2	first issued	29/03/2018
project code		sheet no.	revision
GA85H		DA-4101	U

A2



1 SECTION Block 1 Longitudinal Section
1:200

GENERAL NOTES

- ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR BEFORE PROCEEDING WITH THE WORK
- ALL LEVELS RELATIVE TO 'AUSTRALIAN HEIGHT DATUM'
- DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY

legend

1 BED
2 BED 2 BATH
3 BED
TOWNHOUSE
LOBBY
COMMERCIAL
LIVE/ WORK
RETAIL

Adaptable Apartment
Livable Apartment (Silver Level)
Cross Ventilated Apartment
Solar Compliant Apartment
Solar Compliant Balcony
Cross Ventilated Apartment

ALP	Aluminium Panel
BAL1	Glazed Balustrade 1
BAL2	Glazed Balustrade 2
BAL3	Palisade Balustrade
GL1	Aluminium Framed Retail Glazing
GL2	Aluminium Framed Performance Glazing
LV1	High Level Louvre (Retail)
PAV1	Paving 1
PC1	Precast Concrete 1
SC1	Operable Bronze Screen
SC2	Operable Terracotta Baguette Screen
SC3	Operable Exterior Venetian Blinds
ST1	Sandstone Cladding
TC1	Terracotta Cladding 1
TC2	Terracotta Cladding 2
TC3	Terracotta Cladding 3
TC4	Terracotta Cladding 4
RF1	Rendered Finish 1

INDICATES BUILDING OUTLINE "AS APPROVED"

INDICATES CHANGES FORMING THIS APPLICATION

rev	date	name	by	chk
U	05/11/2018	S4.55 Submission	DN	SH
A4	11/05/2018	S4.55(1A) Submission	DN	AH
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A2	04/04/2018	S4.55(1A) Coordination Package	DN	AH
A1	03/04/2018	S4.55(1A) Coordination Package	DN	AH

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The Rocks NSW 2000

title
Sections
Block 1 Longitudinal Section

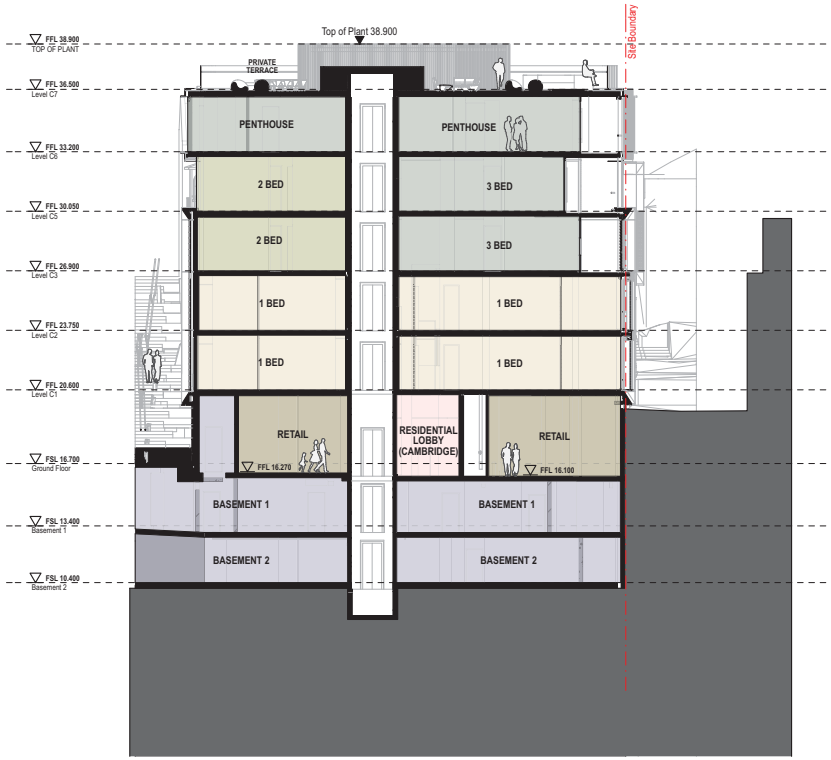
GENERAL NOTE:
ANNOTATIONS COMPARING
CONSIDERED DA'S / SCRA
REMOVED AS NOT RELEVA
APPLICATION

6.1
Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME
www.nathers.gov.au

Certificate Number: O3ZGGH62QS
Assessor Name: Richard Noble
Accreditation number: VIC/BDAV/16/1756
Certificate date: 20 Nov 2018
Dwelling address: 85 Harrington Street & 68-72 Gloucester Street, The Rocks NSW 2000
www.nathers.gov.au
https://www.fr5.com.au/QRCodeLanding?PublicId=O3ZGGH62QS&GrpCert=

A2

scale	As Noted @ A2	first issued	29/03/2018
project code	sheet no.		revision
GA85H	DA-4102		U



1 SECTION Block 2 - Longitudinal Section
1:200

GENERAL NOTES

- ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR BEFORE PROCEEDING WITH THE WORK
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legend

1 BED	
2 BED 2 BATH	
3 BED	
TOWNHOUSE	
LOBBY	
COMMERCIAL	
LIVE/ WORK	
RETAIL	

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	Livable Apartment (Silver Level)
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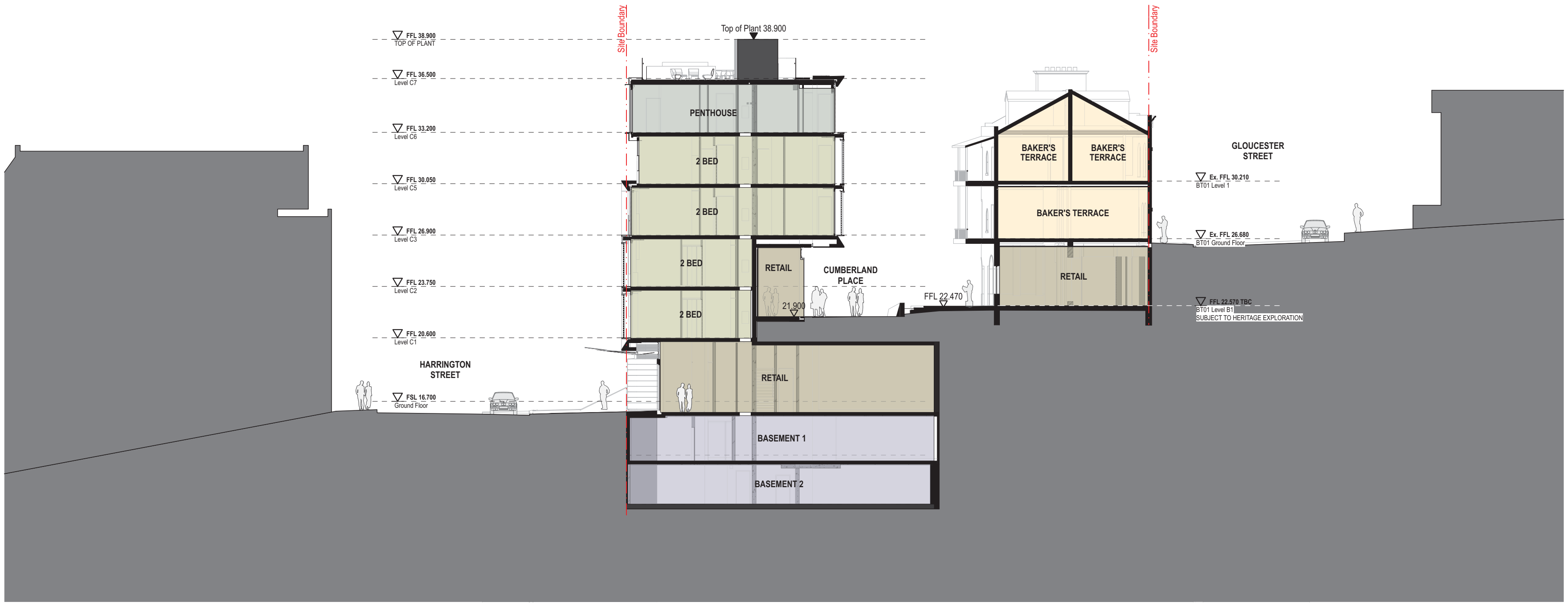
title
Sections
Block 2 Longitudinal Section

scale	As Noted @ A2	first issue	29/03/2018
project code	sheet no.		revision
GA85H	DA-4150		U

A2



1 SECTION Block 2 & Bakers Terrace Cross Section
1:200

A2

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title
Sections
Block 2 & Baker's Terrace Cross Section

scale	As Noted @ A2	first issue	29/03/2018

project code	sheet no.	revision
GA85H	DA-4151	U

6.1
Average star rating
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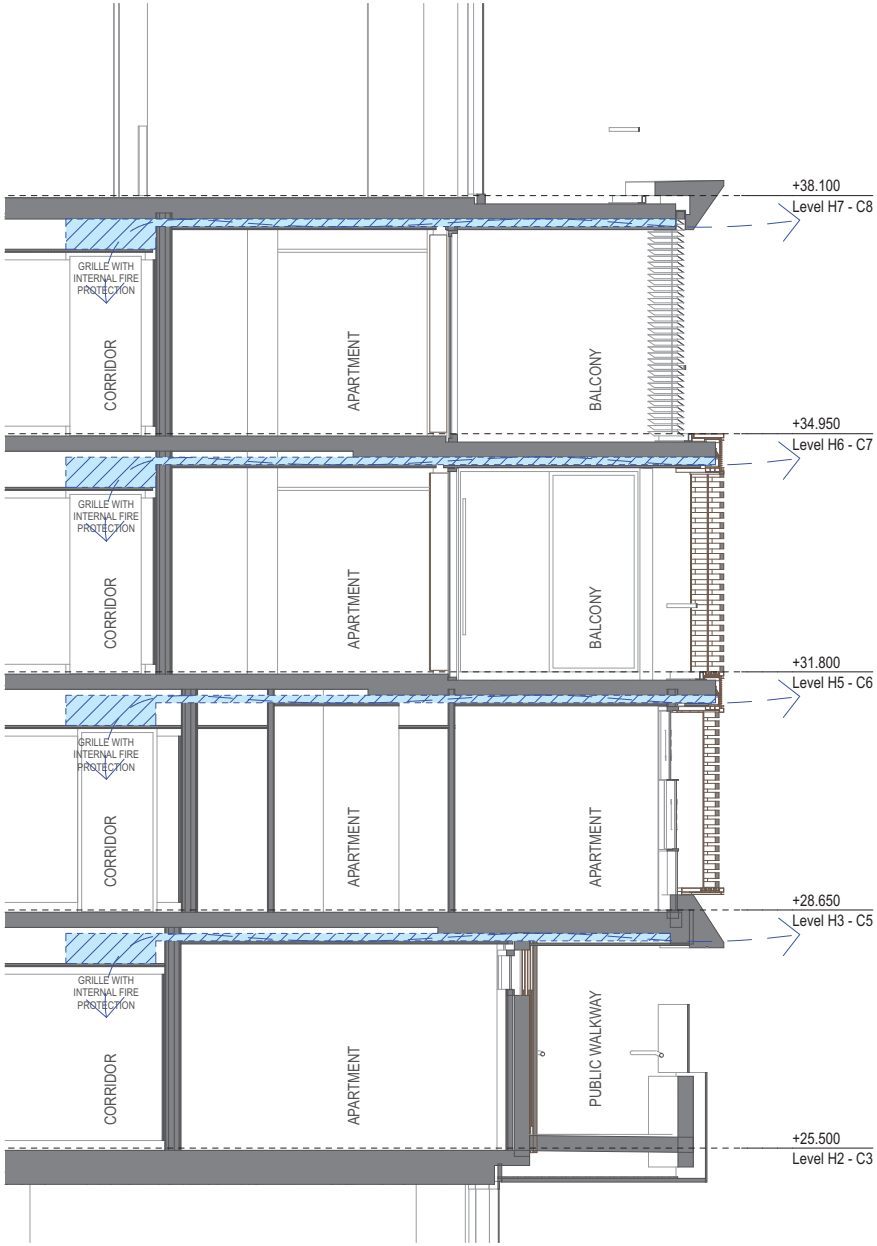
Certificate date: 20 Nov 2018
Dwelling address: 85 Harrington Street & 68-72 Gloucester Street, The Rocks NSW 2000

REMOVED AS NOT RELEVANT TO APPLICATION

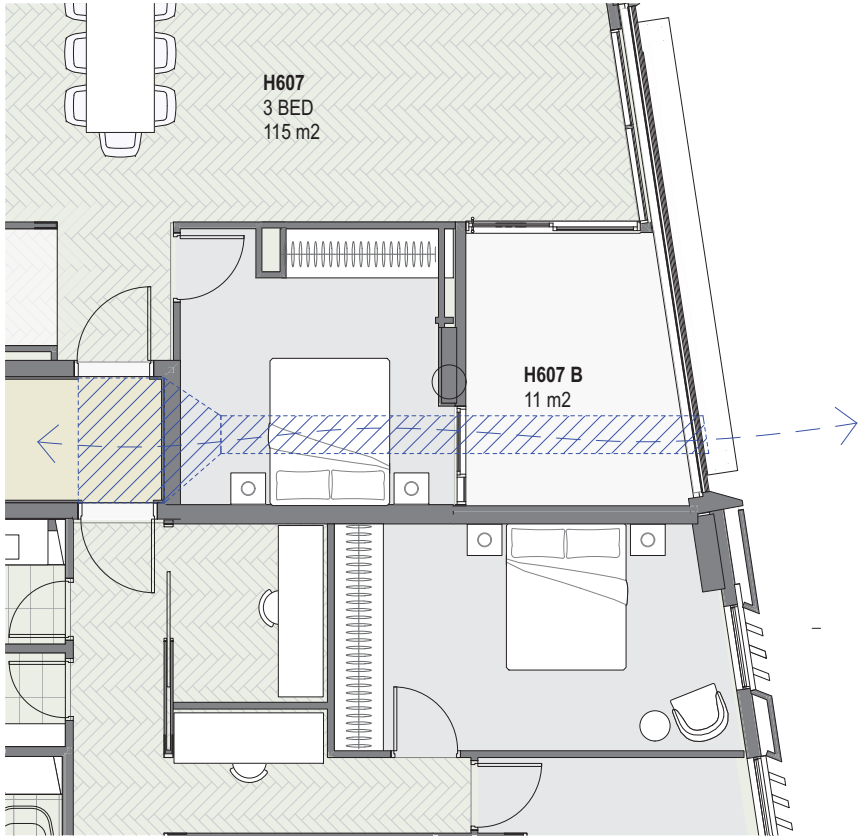
Condition B2(a)

Condition Description:
Prior to the issue of any Construction Certificate, the following amended architectural plans / elevations and documentation shall be prepared for review and approved by the Secretary:

(a) a plenum, as shown indicatively on drawing DA-4200, shall be provided on levels 2, 3, 4 and 5 at the northern end of the communal corridor of Building 1;



4 SECTION Bldg1 Plenum
1:50



2 PLAN Level H6-C7 Indicative Plan showing Plenum
1:50

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project
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title
Section4.55(1A) Additional Drawings Condition B2(a)

scale	As Noted @ A2	first issued	29/03/2018
project code		sheet no.	revision
GA85H		DA-9900	U

Certificate Number: O3ZGGH62QS
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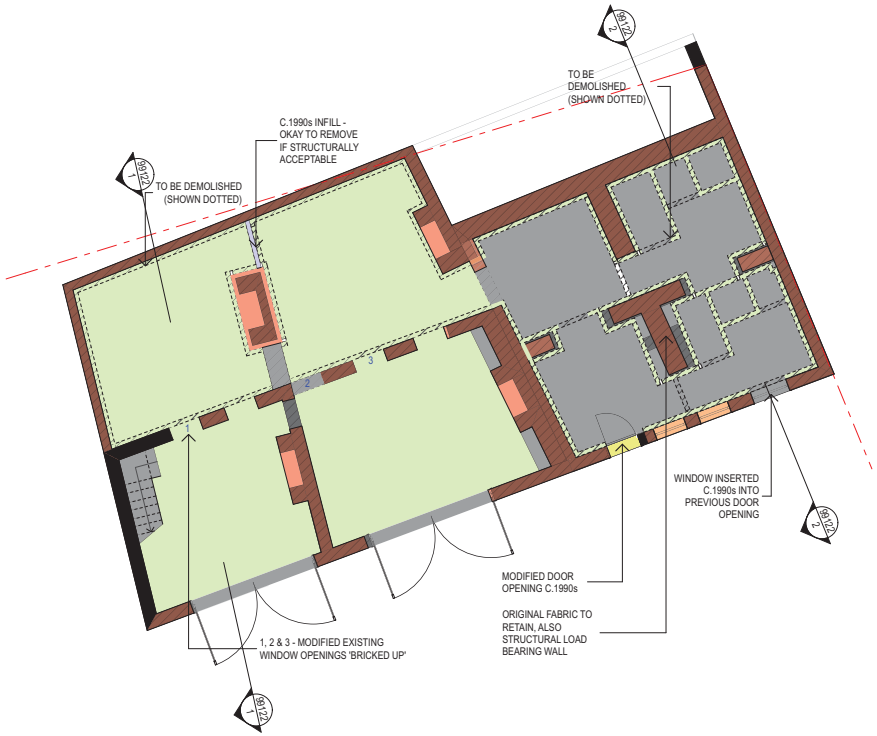
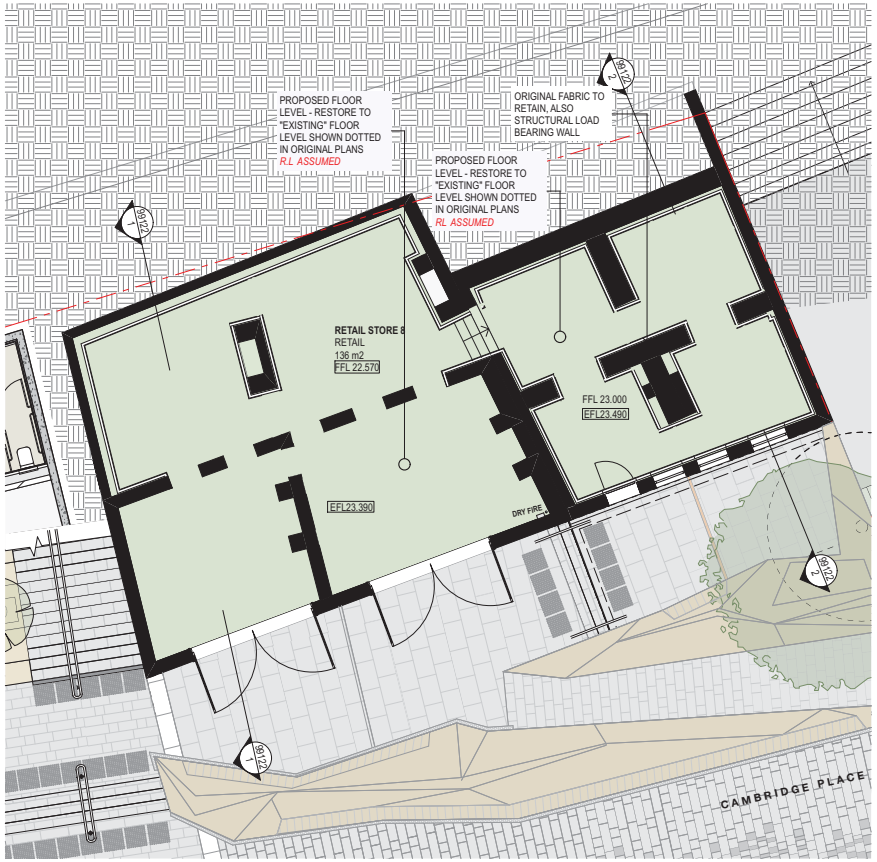
A2

Condition B2(b)

Condition Description:
Prior to the issue of any Construction Certificate, the following amended architectural plans / elevations and documentation shall be prepared for review and approved by the Secretary:
(b) a revised Level 1 Floor Plan (drawing number DA-2002) detailing the retention of all other fabric (basement walls) that has been assigned a significance grading of 'High' and 'Exceptional' in the basement of the Bakers Terraces as indicated in the Conservation Management Plan, Bakers Terrace, 66-68 & 70-72 Gloucester Street, The Rocks, prepared by Urbis, dated January 2016; and

Amendment/Comment:
Condition B2(b) satisfied.
All fabric that has been assigned a significance grading of "high" and/or "exceptional" in the basement of the bakers terrace, as outlined in the CMP prepared by URBIS will be retained. FJMT and Time and Place are working closely with PMNSW strategic planning and heritage division to satisfy the land owners consent and ensure the ongoing retention of all heritage fabric. The below illustrates compliance of the SSD conditions - Approvals outside the scope of this condition not assessable under this submission





Heritage Grades Of Significance

- Exceptional
- High
- Moderate
- Little
- Neutral
- Intrusive

Minor Works Legend

- Existing/Retained - N/A to s.57 application
- To Be Demolished
- To Be Excavated

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title
Section4.55(1A) Additional Drawings Condition B2(b)

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GA85H		DA-9901	U

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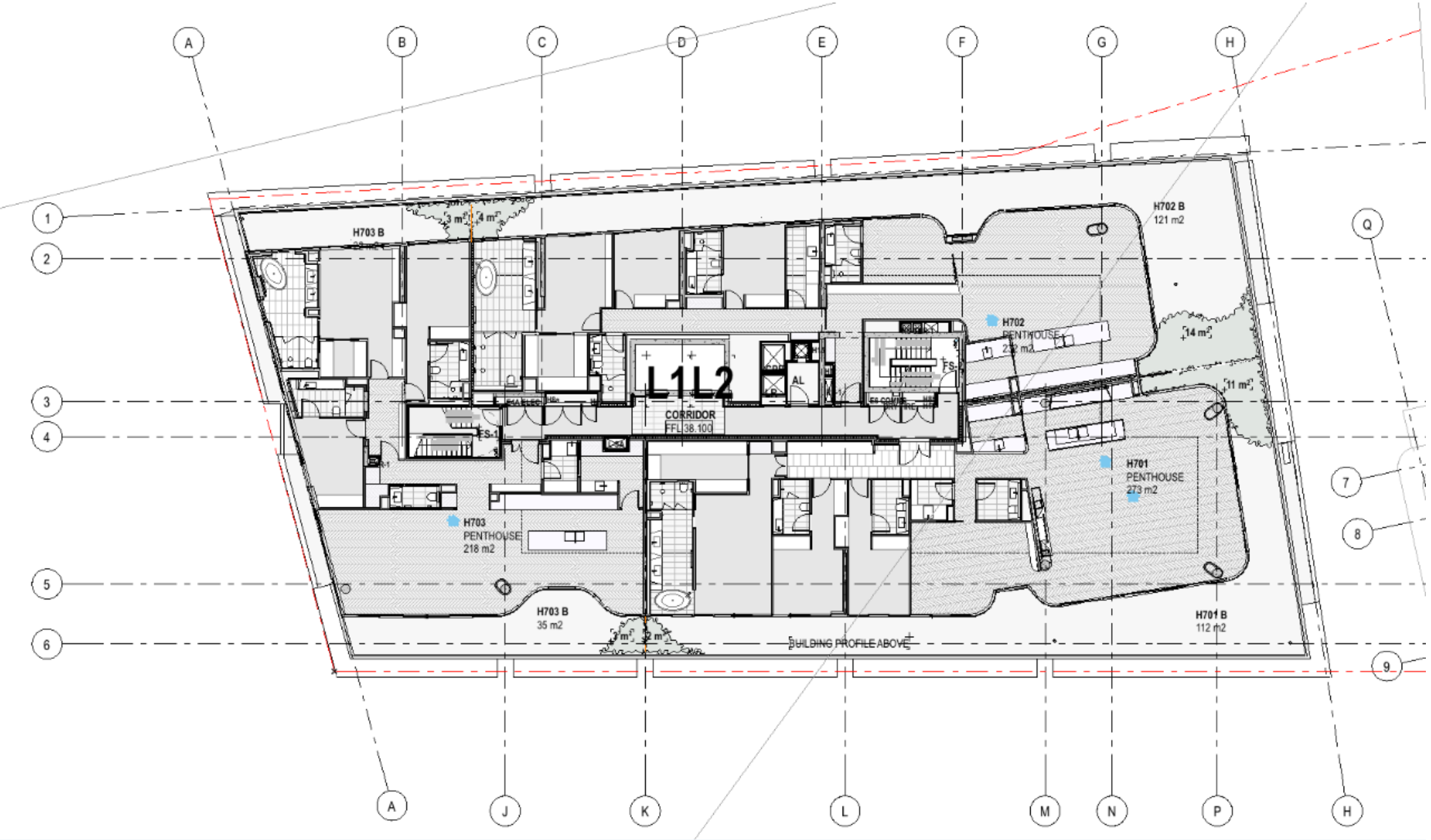
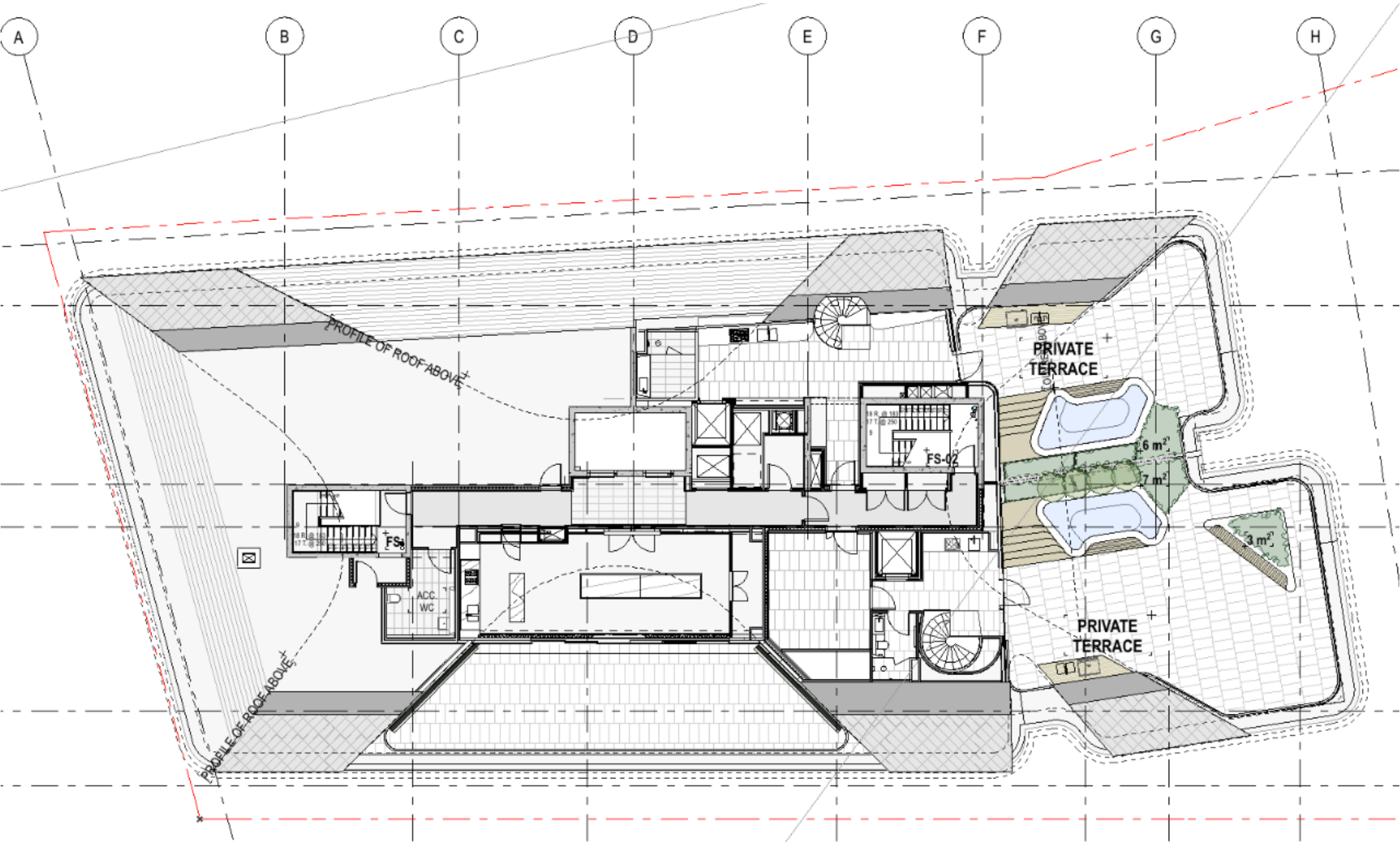
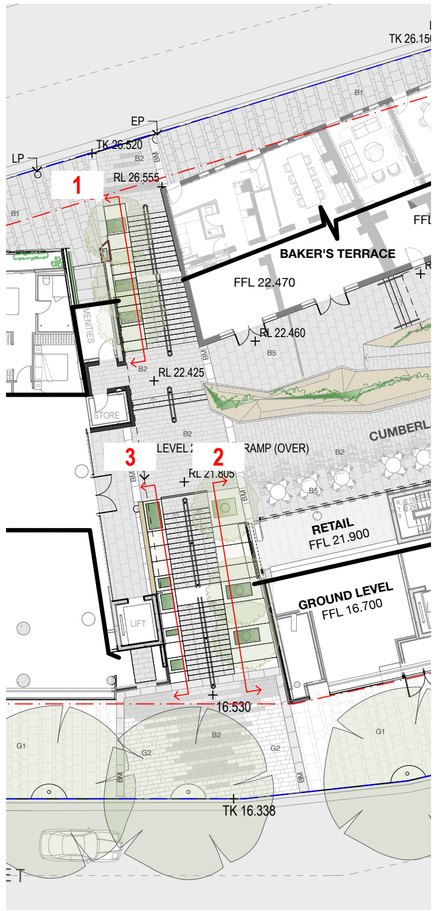
A2

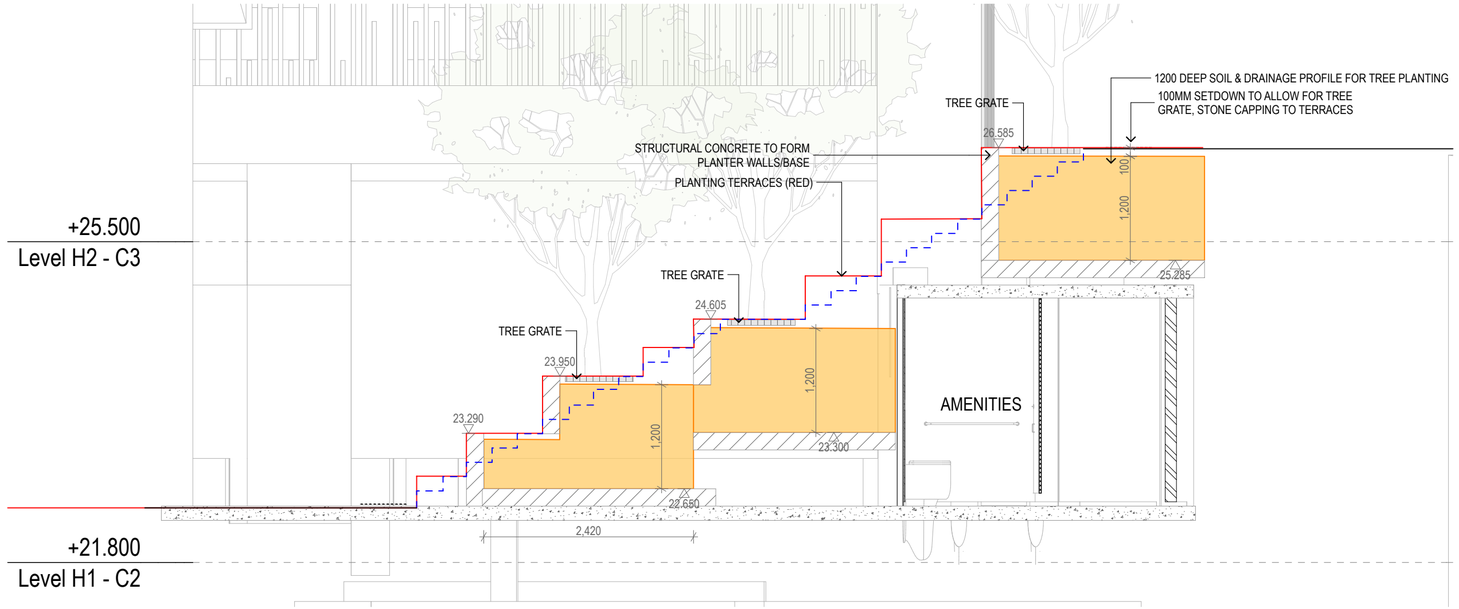
4.4 Appendix D - Landscaping details

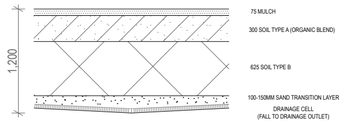

A
B
C
D
E
F
G
H
1
2
3
4
5
6
Q
7
8
9
J
K
L
M
N
P
H703 B
3 m²
4 m²
H702 B
121 m2
H702
PENTHOUSE
14 m²
L1L2
CORRIDOR
FFL 38.100
AL
FS-1
11 m²
H701
PENTHOUSE
273 m2
H703
PENTHOUSE
218 m2
H703 B
35 m2
2 m²
2 m²
BUILDING PROFILE ABOVE
H701 B
112 m2


A
B
C
D
E
F
G
H
PROFILE OF ROOF ABOVE
PROFILE OF ROOF ABOVE
PRIVATE TERRACE
PRIVATE TERRACE
6 m²
7 m²
3 m²
FS-02
FS
ACC. WC



1 PLAN SECTIONS THROUGH PLANTING TERRACES
NTS





2 Stair Planting Zones (Harrington 1:50)

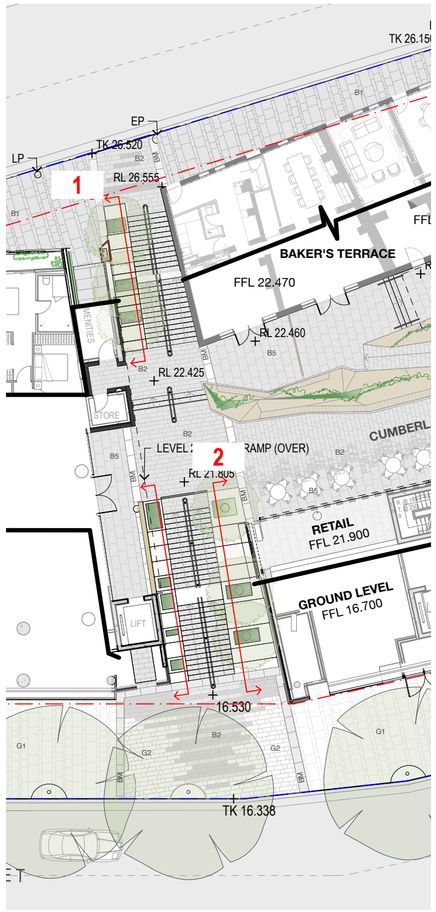
NEW CUMBERLAND STEPS
PLANTING PROFILES FOR STRUCTURAL COORDINATION

fjmt

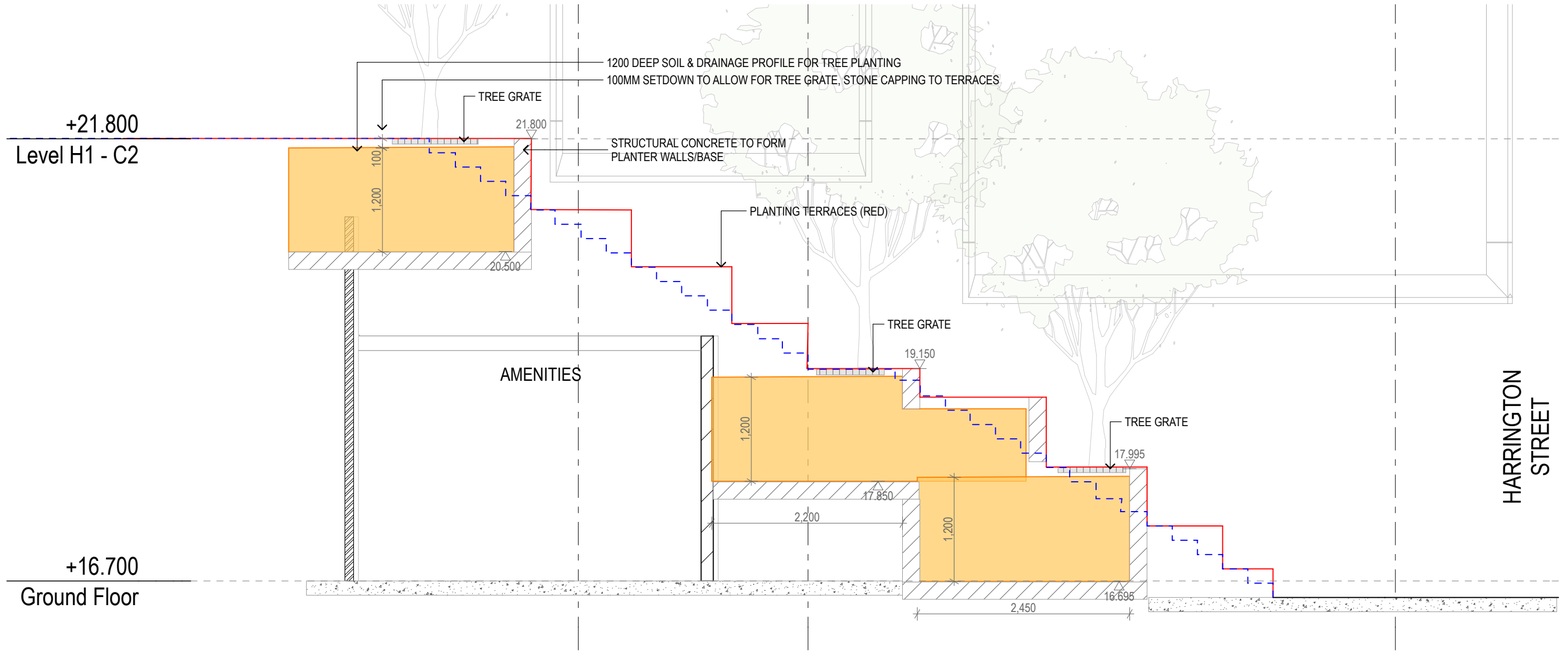
SK-180910_01

0 1 2 5m

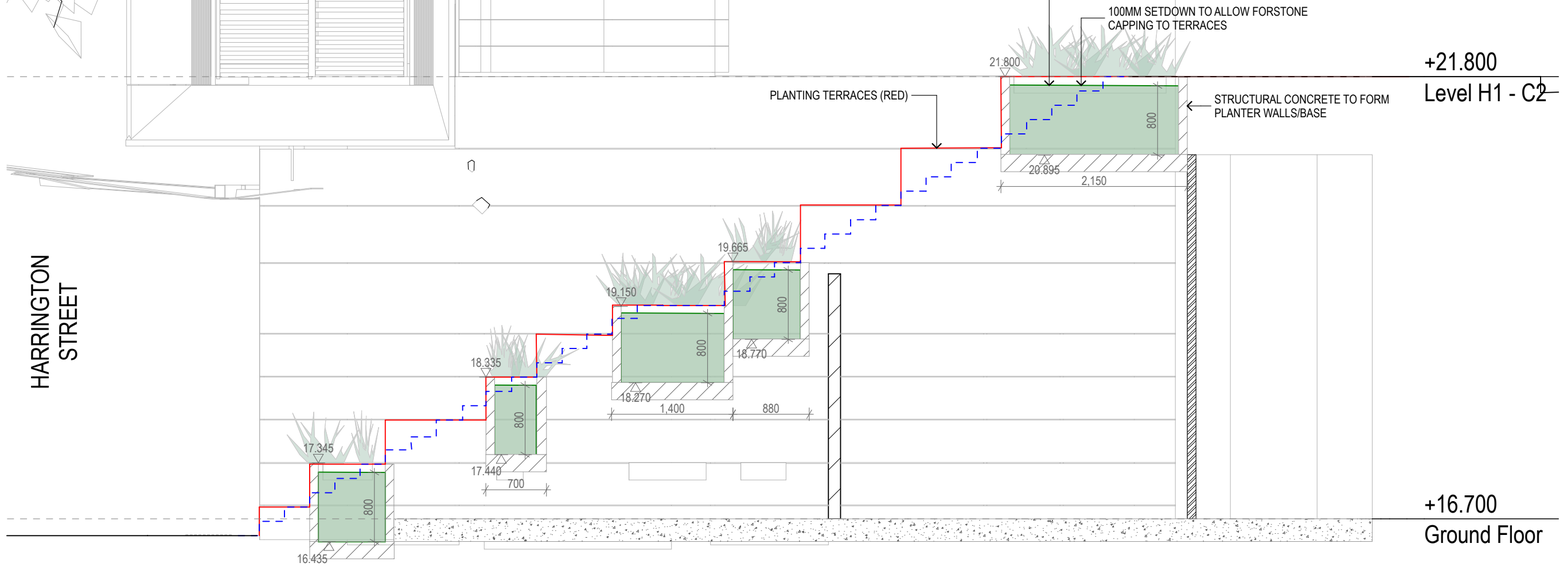
1:100 @ A2 6/9/18



PLAN SECTIONS THROUGH PLANTING TERRACES
NTS

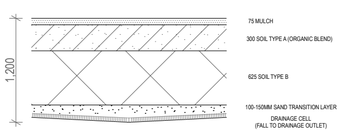


2 PLAN Section through Terraced Tree Planting
1:50

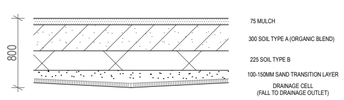


3 PLAN Section through Terrace Gardens
1:50

TREE PLANTING SOIL PROFILE



SHRUB / GROUNDCOVER SOIL PROFILE



NEW CUMBERLAND STEPS
PLANTING PROFILES FOR STRUCTURAL COORDINATION

fjmt

SK-180910_02

0 1 2 5m

1:100 @ A2 6/9/18

4.5 Appendix E – BASIX report from August 2017

08/08/2017

BASIX Report

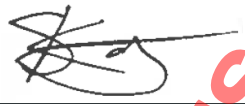
1012539 85 Harrington Street

Prepared for:

Savils

By Cundall
Level 1, 48 Alfred Street
Milsons Point, NSW 2061
Ph (02) 8424 7000
Fax (02) 8424 7099

Please contact: Hannah Morton

Author:	Sean Kahn	
Checked by:	Zoe Neill	
Approved by:	Christopher Mann	

Revision	Description	Date
A	Issued for review	08/08/2017

This report has been prepared in accordance with the terms and conditions of appointment. Cundall Johnston & Partners Pty Ltd trading as Cundall (ABN 16 104 924 370) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

The success and realisation of the proposed initiatives will be dependent upon the commitment of the design team, the development of the initiatives through the life of the design and also the implementation into the operation of the building. Without this undertaking the proposed targets may not be achieved.

Contents

1 Introduction

This BASIX report assesses the 85 Harrington Street development according to two sustainability tools which regulate residential development, namely:

- BASIX, a planning tool which calculates energy and water efficiency and sets minimum thermal performance requirements;
- NatHERS, which calculates a star rating based on predicted space heating and cooling loads.

2 BASIX

New residential developments in NSW must reduce their energy and water use, according to BASIX requirements developed by the Department of Planning. The objectives of the BASIX scheme are relative to an average development in NSW;

- 40% reduction in water consumption;
- 20% reduction in greenhouse gas emissions (for Block 1 & Block 2);
- 40% reduction in greenhouse gas emissions (for Bakers Terraces), and
- Minimum thermal performance requirements for heating and cooling loads.

Strategies employed to achieve these targets are outlined in the following sections.

BASIX Reduced Water Use

Strategies to achieve a potable water consumption reduction target of 40% are outlined in the table below:

Water Conservation Strategy	
Fixtures[1] (All Dwellings)	3 Star showerheads (>6 and ≤7.5 L/min) 4 Star toilets 5 Star kitchen taps 6 Star bathroom taps
Appliances (For Block 1 & Block 2 only)	4 Star dishwasher 4 Star clothes washer
Water Saving Required	**40%**
Water Saving Achieved (Block 1, Block 2 & Bakers Terraces)	**48%**
Water Saving Achieved (Bakers Terraces)	**44%**

[1] Water Efficiency Labelling - To help to reduce urban water consumption on a national scale, the Australian Government, in collaboration with State and Territory governments, has introduced a Water Efficiency Labelling and Standards (WELS) Scheme, which applies national mandatory water efficiency labelling and minimum performance standards to household water-using products. This system replaces the existing AAA water rating system for appliances but is not a like for like comparison. Fixtures in the water conservation table are approximately equivalent to a 3A rating. The star rating of the appliances can be referenced on the following web site- www.waterrating.gov.au

BASIX Reduced Energy Use

Strategies to achieve an energy reduction target of:

- 20% for Block 1 & Block 2;
- 40% for Bakers Terraces;

are outlined in the table below:

Energy Conservation Strategy		
	Block 1 & Block 2	**Bakers Terraces**
Appliances	Gas cooktop and electric oven 4 Star dishwasher 4 Star clothes washer Refrigerator and clothes dryer not specified	Gas cooktop and electric oven Refrigerator and clothes dryer not specified
Mechanical Systems (Central System and Common Areas)	Car Park: Mechanical ventilation (supply and exhaust) with Variable Speed Drive (VSDs) and CO sensors Garbage Rooms: Continuous mechanical exhaust ventilation Plant: No mechanical ventilation Hallways and Lobbies: Continuous mechanical supply ventilation	-
Mechanical Systems (Dwellings)	1-phase air-conditioning for living areas and bathroom areas (EER 3.0 – 3.5) Individual fan ducted to façade or roof, with: • manual switch on/off for kitchen, • interlocked to light for bathroom, and • manual on / timer off for exhaust	3-phase air conditioning for living areas and bathroom areas (EER 3.5 – 4.0) Individual fan ducted to façade or roof, with: • manual switch on/off for kitchen, • interlocked to light for bathroom, and • manual on / timer off for exhaust
Electrical Systems (Common Areas)	Car Park: Fluorescent with motion sensor controls Corridors and Lobbies: Compact fluorescent with time clock or motion sensor controls Plant and Switch Room: Fluorescent with manual switch	-

Energy Conservation Strategy		
	Block 1 & Block 2	**Bakers Terraces**
	Hallways and Lobbies: LED lighting with daylight and motion sensor controls	
Electrical Systems (Dwellings)	Dedicated fluorescent or LED lamps, all downlights to be sealed and non-ventilated	Dedicated fluorescent or LED lamps, all downlights to be sealed and non-ventilated
Hydraulic Systems	Central gas-fired hot water system with R1.0 external and R0.6 internal piping insulation for Domestic Hot Water (DHW)	Central gas-fired hot water system with R1.0 external and R1.0 internal piping insulation for Domestic Hot Water (DHW)
Vertical Transportation Systems	Gearless traction lifts with VVVF motor Lift cars with LED lighting connected to the lift call buttons	-
Other	Indoor clothes drying lines Day-night zoning	Indoor clothes drying lines
Energy Saving Required (Block 1 & Block 2)	**20%**	**40**
Energy Saving Achieved (Block 1 & Block 2)	**21%**	**45**

BASIX Thermal Comfort

2.1.1 Targets

BASIX requires that each apartment achieve a minimum thermal performance. This is calculated using National House Energy Rating Scheme (NatHERS), which predicts annual heating and cooling loads for each apartment.

In order to pass BASIX requirements, the following objectives must be met:

- Heating and cooling loads for individual apartments must not exceed the limits specified below for climate zone 17; and
- The collective average heating and cooling loads of all the proposed apartments in the residential precinct must not exceed the specified averages below for climate zone 17.

	Max. Load (MJ/m^2)	Max. Average (MJ/m^2)
Heating	50	40
Cooling	41	32

2.1.2 Thermal Comfort Summary

Based on the constructions outlined in Section 2.4.3, the following collective average thermal comfort results were achieved for each building of the development:

Building	Heating (MJ/m^2)	Cooling (MJ/m^2)	Total (MJ/m^2)	Star Rating
Bakers Terrace	12.6	22.5	35.1	6.4
Block 1	26.0	29.7	55.7	4.7
Block 2	21.6	21.7	43.3	5.7
Average	**20.1**	**24.6**	**44.7**	**5.6**

2.1.3 Constructions

The following construction specifications achieve the thermal comfort requirements:

Thermal Comfort Strategy – Building Envelope Construction Requirement	
Construction Type	**Construction**
Construction & shading	As indicated on the architectural drawings
External Wall	190mm concrete block / **R2.0** insulation / plasterboard
Internal Wall	140mm concrete block / **R1.0** insulation / plasterboard (to neighbours)
	Plasterboard / 90mm airgap / plasterboard
Floor	Carpet, tile or timber / suspended concrete slab / **R1.0** insulation (above outside air)
	Carpet, tile or timber / suspended concrete slab
Roof (Block 1 and 2)	Plasterboard / suspended concrete slab (to neighbour)
	Plasterboard **/ R3.0** Insulation / Concrete slab (outside air above)
Roof (Bakers Terrace)	Timber construction with no attic space / **R3.0** Insulation
Glazing (glass and frame)[2] All apartments except Block 2 401	Mixture of window types. Predominantly sliding and double-hung: U = 5.4 W m^{-2} K^{-1}, SHGC = 0.58
Glazing (glass and frame)[3] Block 2 401	Mixture of window types, sliding and double-hung: U = 4.8 W m^{-2} K^{-1}, SHGC = 0.59
Ceiling Penetration	Sealed to prevent the complete movement of air between floors or a roof space.

[2] Installed glazing systems must have a U-value less than the modelled U-value and be within 10% of the SHGC shown in the table above.

[3] Installed glazing systems must have a U-value less than the modelled U-value and be within 10% of the SHGC shown in the table above.

Appendices

Appendix A: BASIX Certificate

4.6 Appendix F - ESD report from February 2016

CUNDALL

February 2016

85 Harrington St, The Rocks

ESD Report for DA

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A	Draft for review and comment	31/12/2015
B	Issue.	04/02/2016

The success and realisation of the proposed initiatives will be dependent upon the commitment of the design team, the development of the initiatives through the life of the design and also the implementation into the operation of the building. Without this undertaking the proposed targets may not be achieved.

Contents

Executive Summary

The following report provides an outline of the Ecologically Sustainable Design (ESD) initiatives that are being investigated to be incorporated within the proposed development located at 85 Harrington St, The Rocks, NSW. This project comprises 62 residential apartments in two apartment buildings, the redevelopment of Bakers terrace and retail and commercial space.

The following minimum regulatory requirements apply to the development:

- BCA Section J for Energy Efficiency
- Building and Sustainability Index (BASIX)

In addition to these minimum compliance requirements, the design team is committed to providing the residents and the local community with a sustainable and environmentally conscious development, in its design, construction and operation. The focus of the ESD initiatives relate to providing high levels of indoor and outdoor environmental quality and amenity, in addition to minimising on-going energy and water consumption.

The ESD measures outlined below are proposed and will be investigated in further detail and developed through the detailed design stages:

- Low emission materials – Limit the health risks associated with the selection of toxic constituents
- Passive design – Optimisation of daylight, natural ventilation and solar access to increase occupancy wellbeing and reduce energy consumption requirement

1 Introduction

This report outlines the key Ecologically Sustainable Design (ESD) initiatives for the 85 Harrington St, NSW, which is committed to exceeding standard environmental performance. The scope and systems described herewith cater for these performance requirements, and will be further developed through the design stages.

2 Minimum Requirements

Minimum regulatory ESD requirements applying to this site include the following:

- BCA Section J for Energy Efficiency;
- Building and Sustainability Index (BASIX);

2.1 BCA Section J for Energy Efficiency

The retail component of the development is required to comply with the BCA Section J for Energy Efficiency.

The Building Code Australia (BCA) Section J, sets minimum energy performance requirements for all new development, which cover air-conditioning, ventilation, lighting, power and hot water, in addition to building fabric considerations including thermal construction and insulation, building sealing, glazing and shading. The building has been designed in line with deemed-to-satisfy requirements for building fabric and services, as outlined in Section 4 of this report.

2.2 BASIX

New residential developments in NSW must reduce their energy and water use, according to BASIX requirements developed by the Department of Planning and Infrastructure. The objectives of the BASIX scheme are relative to an average development in NSW.

Targets for 85 Harrington St development can be seen below:

Bakers terrace

- 40% reduction in water consumption
- 20% reduction in greenhouse gas emissions
- Minimum thermal performance requirements for heating and cooling loads

Apartment Buildings

- 40% reduction in water consumption
- 20% reduction in greenhouse gas emissions
- Minimum thermal performance requirements for heating and cooling loads

A detailed BASIX assessment has been carried out and the related strategies are presented in Section 5 of this report.

3 Ecologically Sustainable Design (ESD) Approach

The following section identifies the ESD objectives and key principles that will apply to the proposed development through design, construction and operational phases.

3.1 ESD Principles in Design

The design team aims to provide residents and the local community with a sustainable and environmentally conscious development through a focus on providing high levels of indoor and outdoor environmental quality and amenity along with minimising energy and water loads.

3.1.1 Site wide

Element	Passive Design Strategies
Management and Education	In recognition of effective handover being critical to the success of a building achieving its environmental aspirations, a simple and concise building users' guide will be developed to inform and educate building users, residents and tenants on how to capture and promote strong on-going environmental performance.
Materials	Forestry Stewardship Certified (FSC), Australian Forest Certified (AFS) or post-consumer recycled timber preferred. Low emission paints, carpets, sealants, adhesives and composite wood products will be specified. Materials will be selected to avoid toxic constituents such as cadmium, lead, mercury, phthalates, chlorofluorocarbons, polychlorinated biphenyls, chloroprene.

3.1.2 Passive Design

Effective passive design can reduce the amount of air-conditioning required and improve internal comfort and amenity. A building's form, fabric and orientation will have the biggest influence on its thermal comfort and environmental performance.

Element	Passive Design Strategies
Orientation	The residential spaces of the development have been designed where possible, to consider the impact of daylight and natural cross-flow ventilation on the health and wellbeing of the building occupants. Where possible, apartments have been oriented to take advantage of solar access throughout the day while balconies and operable shading devices provide adequate protection from the sun. Most residential living rooms are configured to take advantage of prevailing winds for cooling while providing protection from the wind during cold winter periods.
Glazing	The selection of appropriate performance glazing will decrease heat loss during the winter months and help to avoid heat gains in the summer.

3.1.3 Occupant Amenity

Facilities that provide good occupant amenity will improve the lifestyle of residents and help to enhance the local community. Indoor Environmental Quality (IEQ) affects occupant health and wellbeing and comprises of thermal comfort, indoor air quality, views, daylight, and acoustic quality. These factors are outlined below with respect to the development application, and will be developed further during detailed design.

Element	Occupant Amenity Strategies
Enhanced landscaping	Communal spaces are provided with access to the ground floor retail shops, whilst rooftop gardens enhance ecological value and occupant amenity for the development.
Transport	The site is well serviced by the nearby train line, ferry terminal and a number of bus stops with regular bus services.
Daylight, Glare and Views	The extent of glazing has been designed to optimise daylight, views, and winter sun. Operable shading devices and blackout blind systems will be provided for glare control.
Air quality	Contamination of indoor air will be minimised at source through careful consideration of finishes and materials to reduce air-borne pollutants, toxins and irritants. Examples include, selection of low VOC paints and carpets and low formaldehyde emitting wood products.
Private External Space	The majority of individual dwellings will be provided with private external space.

3.1.4 Efficient Systems

Energy consumption can be reduced through the efficient design of lighting, air-conditioning and ventilation systems, in addition to water heating and other services. The following table outlines the initiatives that will reduce energy consumption relating to building services.

System	GHG Emissions Reduction Strategies
Lighting	Efficient light fittings such as LED lamps are preferred throughout common areas and dwellings. Efficiency controls where possible will be provided including timers and motions sensors in car parks and common areas.
Heating, Cooling & Ventilation	Where AC is provided, energy-efficient systems will be specified. Residential kitchens exhaust hoods for all dwellings will be fitted with individual fans and be ducted to the building façade or roof. Car parks areas will be provided with mechanical ventilation for supply and exhaust and will incorporate CO monitoring and Variable Speed Drives (VSD).

3.1.5 Water Efficiency

Where possible, mains/potable water consumption will be minimised on-site. Potable water consumption will reduced through a rainwater harvesting system and demand management.

System	Water-saving Strategies
Fittings & Fixtures	All fittings will be WELS rated to minimise total water consumption (all residential areas and common areas).
Appliances & Equipment	Where installed, WELS rated water-efficient appliances will be selected and pipe work sized to maximise efficiency.
Landscape	The use of native, low-water planting species will be encouraged to reduce water consumption used in irrigation.
Alternative Sources	Landscape irrigation and car wash bays will utilise rainwater harvesting to limit potable water consumption
Flows to Sewer	Estimated wastewater discharge to sewer will be significantly reduced relative to a standard building through the implementation of water efficiency measures.

4 BCA Section J for Energy Efficiency

The retail component of the development is required to comply with the BCA Section J for Energy Efficiency. It is intended that the retail component will meet the BCA Section J requirements with deemed to satisfy constructions and services.

5 BASIX

New residential developments in NSW must reduce their energy and water use, according to BASIX requirements developed by the Department of Planning and Infrastructure. The objectives of the BASIX scheme are relative to an average development in NSW and the targets for the Green Square Development are listed below;

Apartment Buildings

- 40% reduction in water consumption
- 20% reduction in greenhouse gas emissions
- Minimum thermal performance requirements for heating and cooling loads

Bakers terrace

- 40% reduction in water consumption
- 40% reduction in greenhouse gas emissions
- Minimum thermal performance requirements for heating and cooling loads

5.1.1 BASIX Water

Unit Buildings 1 and 2

Proposed strategies to achieve the BASIX water target of 40% reduction in potable water consumption are outlined in the table below:

BASIX Base Case	Water Conservation Strategies
Individual Dwellings	Efficient fixtures including • 3-star showerheads (>6 but ≤ 7.5L/min); • 5-star kitchen • 6-star bathroom wash hand basin; and • 4-star dual-flush toilets
Appliances	For all individual dwellings • 4 star clothes washer • 4 star dishwasher
Common areas	Landscaping • Garden area is planted with 50% native or low water-use species
Alternative water	• 100kL rainwater tank collecting off 915m^2 of roof area and serving 100m^2 common landscape, courtyard and car wash area
BASIX Water Target	**40%**
Water Score	**48%**

Bakers Terrace

Proposed strategies to achieve the BASIX water target of 40% reduction in potable water consumption are outlined in the table below:

BASIX Base Case	Water Conservation Strategies
Individual Dwellings	Efficient fixtures including • 3-star showerheads (>6 but ≤ 7.5L/min); • 5-star kitchen • 6-star bathroom wash hand basin; and • 4-star dual-flush toilets
Appliances	For all individual dwellings • 4 star clothes washer • 4 star dishwasher
Common areas	Landscaping • N/A
BASIX Water Target	**40%**
Water Score	**44%**

5.1.2 BASIX Energy

Apartment Buildings

Proposed strategies to achieve the BASIX energy target of 20% reduction in energy consumption are outlined in the following table:

BASIX Base Case	Energy Conservation Strategies
HVAC	**Unit Building 1: Apartments 2, 3, 51 and 52** – Three phase VRF with electric driven compressor and COP3.5-4.0 **Unit Building 2: Apartments 7 and 8** – Three phase VRF with electric driven compressor and COP3.5-4.0 • **Remainder of Apartments** – Single phase Individual and zoned, air conditioning units with 3.0-3.5 EER cooling and heating for living rooms and bedrooms • **Common Areas –** Mechanical ventilation • **Corridors and Lobby –** Mechanical ventilation supply only • **Bathroom and Laundry Exhaust** - Individual fans ducted to facade (manual on/off switch connected to the light). • **Kitchen Exhaust –** Individual Fan ducted to facade (on/off switch) • **Car Park** - Variable Speed Drive (VSD) ventilation with carbon monoxide sensors • **Plant Space:** ○ Garbage – Exhaust ventilation ○ Plant rooms – No ventilation ○ Switch room – Air conditioned with thermostatic control
Lighting	• **Dwellings** - Dedicated LED or fluorescent lighting • **Common Areas** - Fluorescent or LED lighting with daylight and motion sensor • **Corridors** – Fluorescent or LED lighting with daylight and motion sensors • **Car Park** - Fluorescent or LED lighting with time clocks and motion sensors • **Lift Car** – Lighting connected to lift call button • **Plant Space:** ○ Storage and garbage rooms – Motion sensors ○ Lighting in plant areas and switch rooms - Manual on/off switch
Appliances	• Gas cooktop and electric oven • 4 star dishwashers • 4 star clothes washer
Central Systems	• **Central hot water system** - Gas-fired boiler with R1.0 insulation external and R0.6 internal • **Residential lifts** - Gearless traction with VVVF motor • **Photovoltaic system** – 10kWe peak • **Active Power Correction**
Other	• **Indoor clothes drying line** • **Well ventilated fridge space**
BASIX Target	**20%**
Energy Score	**27%**

Bakers Terrace

Proposed strategies to achieve the BASIX energy target of 40% reduction in energy consumption are outlined in the following table:

BASIX Base Case	Energy Conservation Strategies
HVAC	Three phase VRF with electric driven compressor and COP3.5-4.0 • **Kitchen and Bathroom Exhaust** - Individual fans ducted to facade (manual on/off switch).
Lighting	• **Dwellings** - Dedicated LED or fluorescent lighting
Appliances	• Gas cooktop and electric oven
Central Systems	• **Central hot water system** - Gas-fired boiler with R1.0 insulation external and R0.6 internal
Other	• **Indoor clothes drying line** • **Well ventilated fridge space**
BASIX Target	**40%**
Energy Score	**40%**

BASIX Thermal Comfort

The comfort levels of typical dwellings have been assessed using Accurate, second generation software approved by the National House Energy Rating Scheme (NatHERS), which predicts annual heating and cooling loads.

To satisfy BASIX, each dwelling must achieve the following objectives:

- Heating and cooling loads for individual dwellings must not exceed the limit specified in the BASIX scheme;
- The average of heating and cooling loads of all the proposed dwellings in a development must not exceed the specified average limit.

The development has been assessed using the following building envelope to achieve the BASIX thermal comfort targets:

Building Element	Construction	Total R-Value
Construction & shading	• As indicated on the architectural drawings	-
External Wall	• 130mm concrete + Insulation and plasterboard. Total thickness of 250mm • Sandstone Cladding + Insulation and plasterboard • Terracotta Cladding + Insulation and plasterboard	R2.5
Internal Walls	• Partitions: Plasterboard on studs	R0.4
	• Party walls insulation + plasterboard	R1.0
Roof	• 200mm concrete + R3.0 insulation and plasterboard to all exposed roof except above Building 1- 901 and 902 which require R4.0 Bulk Insulation	R3.2 R4.0
Floor	• 200mm concrete slab + carpet/tile • Bakers Terrace: Timber floor between floors • Bakers Terrace above retail: Concrete floor	R2.0 where adjacent to car park R1.0 where adjacent to outside air
Ceiling	• Suspended concrete slab between apartments	-
Glazing	Aluminium Framed Windows First Rate 5 Reference ALM-002-01 for all windows The following apartments have been model with a diff glazing performance for compliance. – Building 1 - 306 – Building 2 – 401 – Building 1 - 402	U Value 5.4 SHGC 0.58 U Value 4.8 SHGC 0.51

Appendix A – BASIX Certificates

A.1 85 Harrington Street

A.2 Baker Terrace

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