

BUILDING SERVICES BRIEF

90-102 REGENT STREET REDFERN, WEE HUR
STUDENT HOUSING

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WEE HUR GROUP WEE HUR STUDENT VILLAGE

Building Services Brief

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1 . EXECUTIVE SUMMARY

1.1 Purpose

The purpose of this report is to provide a high-level overview of the Building services systems to be provided for as part of the design.

The assessment is based on the following:

- Review of “Dial Before You Dig (DBYD)” information
- Preliminary maximum demand calculations based on initial architectural designs
- Review of architectural drawings of the proposed development
- Review of Ausgrid GIS plans and single line diagrams
- Review of Sydney Water Pressure and Flow enquiry

Further coordination and discussions will be required with other disciplines and authorities to bring design into coordination.

This report will also provide a high-level description of the Mechanical, Electrical, Hydraulic and Fire Protection and Lift Services proposed for the development.

This report shall not be relied upon as providing any warranty or guarantee of the project, its services or equipment.

The report is based on architectural drawing set dated 28th September 2020, any subsequent updates and architectural changes shall not be fully represented by this report and may require changes in the services design requirements and provisions.

1.2 Description of Building

The development will comprise:

- 1 levels of basement
- Ground floor, entry, with lobby space
- 18 floors, inclusive of ground floor, with 14 Typical floors in tower
- Rooftop plant

The development site is located in Redfern at the intersection between Regent Street and Marian Street.

1.3 Proposed Infrastructure

For infrastructure provisions and details, please refer to Arcadis infrastructure report dated 02/10/2020 revision 02

It should be noted that where capacities are commented on, these are at the point in time when this report is prepared and may change subject to other developments in the vicinity.

2 ELECTRICAL SERVICES

The briefing stage of this project will involve the collection of detailed information about the areas and the equipment to be installed so that we can detail appropriate allowances for each space.

The electrical services component of this project comprises many electrical / electronic systems.

- Establish new substations and coordinate supply arrangement – Note that the HV network and substation detailed design (ASP L3 design) is not part of this brief
- Main Switchboard
- Supply Authority Metering
- Sub-mains cabling infrastructure & Distribution Boards
- General power
- General internal and external lighting.
- Emergency and Exit Lighting.
- Coordination of telecommunications service.
- Telecommunications cabling infrastructure.
- MATV & PayTV cabling system
- Access Control & Intruder Detection system.
- Entrance CCTV System
- Entry intercom system
- Lightning Protection System & Earthing System

2.1 Electrical Supply

The building will be served by an Ausgrid HV supply and associated substations. Ausgrid should be consulted with respect to the provision of services to the site and the street reticulation to service of the development.

Our estimated maximum demand calculation based on AS3000 recommendation and further diversification factor for the student bedrooms obtained from a reference building in Brisbane (as directed by developer) indicated that the development will have maximum demand of 1MVA and installation of an chamber substation on the site will be required (Utilizing Ausgrid Standard Surface Chamber Distribution Substation Single Transformer Up to 1000KVA Layout 1)

Consumers mains from the substation shall reticulate to the main switchboard within the main switchroom, located on Ground Floor, from here low voltage cabling shall distribute power throughout the building. Power factor correction equipment shall also be located within this room.

2.1.1 Main Switchboard

The site main switchboard shall be provided to serve the entire development. The main switchboards shall be located in the main switch rooms located in a Ground Floor designated switchrooms.

The main switchboard shall be divided into separate sections for essential services, house services and retail section. The main switchboards shall also provide power to mechanical, hydraulic, fire and vertical transportation services. Each section of the switchboard shall be provided with multi-function meters to display and record load information. The meters shall be also connected to the building management system.

The main switchboards shall be of the floor mounted top entry/exit, front connected cubicle type, of form 3B separation. The main switchboards shall be designed to incorporate additional 10% spare capacity.

Provision for 25% load current growth in the main bus bars in relation to the building design load will be provided.

And overall 30% spare circuit breaker spaces will be provided.

The main switchboard will generally feed:

- Essential fire and life safety systems (Stairwell pressurisation, stairwell lighting, emergency lifts, smoke management, fire control room, pumps etc.)
- House services lighting and power
- Air conditioning plant
- Hydraulic Services
- Main risers for accommodation floors
- Service protection devices installed within the main switchboards shall comply with Ausgrid requirements.

Main switch board room shall be constructed of 2hrs fire rated construction with 2 means of egress provided.

2.1.1.1 Power Factor Correction Equipment

Power Factor correction connection will be provided to achieve 0.95 lagging or better at the main switchboards.

2.1.1.2 Supply Authority Metering

Supply Authority meters shall be of the Ausgrid approved type, mounted within the main switch board room and accessible by Ausgrid personnel, and located in accordance with Ausgrid standards.

The architect shall be required to specify door locking hardware keyed to Ausgrid standard keying arrangements.

Generally, supply authority metering arrangements shall be to the approval of Ausgrid however it is proposed that electricity tariff meters be arranged and located as follows:

Meters shall be of the current transformer type. The entire building shall be metered as a single customer and no separate meters will be provided (except for the retail space)

2.1.1.3 Retail Metering

The retail spaces shall be provided with individual single or three phase direct connected metering. Metering for retail shall be provided in the main switch board room.

2.1.2 Distribution Boards

Distribution boards shall typically be of the surface mounted front connected, DIN circuit breaker type. All distribution boards shall be of sheet metal construction, enclosed and complete with hinged, lockable doors.

Outgoing final circuits will be controlled by miniature moulded case circuit breakers with RCD protection as per the requirements of AS/NZS 3000:2018, AS 2243 and BCA Section J requirements.

Circuit breakers shall be of the DIN-rail type and of minimum 10 kA rating with integral RCD for all lighting and general power sub-circuits.

Each room is to be provided with its own Load Centre type board (NHP CSB12ST or equivalent) to allow the interval systems in each room to be separately run.

2.1.2.1 Floor Distribution boards

Shall be of the 3-phase, minimum 160Amp rated, with separate chassis for:

- Lighting sub-circuits – for the general areas lighting
- Power sub-circuits – for the general areas power
- Rooms sub-circuits – for rooms supplies

Energy metering for each chassis will be provided, and clarification/confirmation required from your BCA consultant on the extend of the section J submetering provision proposed above.

House distribution boards shall be located within electrical riser cupboards.

2.1.2.2 Space Requirement

Refer to Appendixes for space requirements for key electrical infrastructure items.

2.1.3 Lightning and Surge Protection

Surge protection and a comprehensive lightning protection system in accordance with AS/NZ 1768 will be provided. Surge protection will be provided for all power, IT & security communication cabling entering or exiting the building. Surge protection will be equivalent to Novaris SF3200 for electrical services, and equal to Erico HSP10/K230 for communications services.

The lightning protection system will be capable of extension to accommodate aerials & masts above the building height.

2.1.4 Earthing

Earthing in accordance with AS/NZS 3000, AS1768 and Supply Authority requirements will be provided.

2.2 Lighting

The lighting systems will be designed to coordinate and enhance the architecture, interiors and ESD principles. Each area shall be provided with suitable lighting to meet the requirements of the architectural concept and energy efficiencies as required by the relevant issue National Construction Code Volume 1.

LED lights will be used wherever possible to ensure general efficiency and low maintenance of the lighting installation. Selection of the colour rendering characteristics of the lamps is important for the ambience of the space.

All lighting shall be designed to meet the lighting levels nominated in AS1680.

2.2.1.1 Main Entries & Lift Lobbies Lighting

Front of house corridors and lift lobbies on each floor will be provided with LED down lights, and LEP strip pelmet/coffer mounted style lighting to compliment the interior design concept.

Special areas such as the main entry lobby will be documented as per the specialized lighting designer requirements as applicable.

Lighting control shall be through a combination of motion detectors for lift lobbies, time switches for main entrances. As required a level of 24-hour lighting shall be provided to all lift lobbies and main entrances.

All external lighting is to be designed and installed in a manner which prevents glare and/or spillage having an adverse impact on occupants of adjacent properties and the landscape lighting will be provided in accordance with the landscape planes and details.

2.2.1.2 Basements, Plant rooms, Fire stairs

These areas shall utilise surface mounted batten style linear T5 fluorescent or LED luminaires complete with prismatic diffusers where applicable.

Lighting control in basement areas and the car park shall be through motion detections, time switches and a 25% of luminaires operating on a 24-hour basis.

All luminaires in all fire stairs and escape passages shall operate in 24-hour operation.

All luminaires in plant rooms shall operate through standard light switching arrangements. Lighting in utility spaces such as store rooms and cleaners cupboards etc shall be controlled through a motion detector in each space/cupboard.

2.2.1.3 Retail lighting

Lighting for retail will be provided for safe movement only, and final layout shall be provided and designed by the future tenants.

Lighting control shall be through local switch provided adjacent to the retail distribution boards.

2.2.2 Lighting Controls

The following types of lighting control methods will be used:

Zone	Operation
Common areas and offices	Centralized lighting control system with time scheduling for normal hours operation. Local motion sensor control for afterhours operation. Some 24hr lighting will be provided.
Lift Lobbies and corridors	Motion sensor control
Fire Stairs / Exits	24hr in accordance with AS/NZS2293 and BCA
Electrical / Communications Risers	Local control.
Service Areas	Local control.
Retails	By the tenants
Rooms	Local control.

A combination of Automated lighting control system (i.e. Dynalite) and 240V control system shall be used to achieve the best cost/value to the client.

2.2.3 Emergency and exit lighting systems

The emergency and EXIT lighting system shall generally include single point non-maintained mode luminaires. EXIT luminaires shall be maintained mode.

Emergency lighting testing functions shall be of the central computer monitored type utilising dedicated data signalling. The head end computer shall be located in the main communications room. The system shall be designed to the requirements of the Building Code of Australia (BCA) and AS2293.

Where applicable, the main entrance, lobbies and lift lobbies, corridors etc. will utilise recessed 'spitfire' type recessed luminaires and 'edge lit' type EXIT luminaires.

Plant rooms, fire stairs, car park, loading docks, back of house areas etc. will use integral emergency battery packs in fluorescent fittings to match the normal light fittings within the same area and surface mounted EXIT luminaires.

Each luminaire within fire stairs shall be complete with emergency light.

Exit luminaires will incorporate cold cathode type lamps or LED and use “running man style” green/white colour signage.

2.3 Telephone Cabling System

A telephone cabling system shall be provided to deliver telecommunications services to the building. The facilities for the installation of incoming telecommunications cabling shall be provided in the form of a minimum of one off 100mm diameter conduits and the main communication room.

It is anticipated that all incoming telecommunications cabling, multi-mode optical fibre and/or copper services shall be supplied and installed by the NBN.

The client shall be required to initiate and enter into a contract between themselves and the telecommunications carrier of their choice before any lead-in cabling infrastructure will be installed or any telecommunications services be provided.

2.3.1.1 Reticulation

The main communications room shall be designed to house the telephone main distribution frame (MDF). In addition to this the main communications room shall house central security and intercom system equipment with a dedicated space for NBN equipment.

A communications cabling cupboard and riser shall be provided at each level of the building to facilitate the reticulation of all communications services cabling throughout the building, from the main communications room to each level of the building.

2.3.1.2 Room Provisions

It is anticipated that no communication services required inside the rooms except for a WIFI coverage which can be provided as a part of the building network, and we would seek clarification from your client for this point.

2.4 ACCESS CONTROL AND INTRUDER DETECTION SYSTEM

The access control and intruder detection system shall be provided to control the access of areas within the building to appropriate persons and restrict entry of unauthorised persons into the building. The system shall typically comprise the following:

- Door Access Control facilities.
- Interface to fire alarm system.
- Lift Access Control System interface.
- Services areas access control.

The system shall be a stand-alone system of the fully programmable, integrated type. The central control point shall be housed in the main communications room. Space shall be provided in the main communications room to facilitate the requirements of locating the security head end at this location. Additional active equipment shall be located within communications cupboards on floors where required.

All building entry points shall be provided with a card reader style door access point.

The system shall utilize proximity card style access cards with card readers. Secure doors shall incorporate magnetic door hold devices or electric strikes and all external entrances shall utilize reed switches for monitoring of unauthorised entry.

The system can also be interfaced to the lift control system to limit access after-hours to various floors as programmed (TBC with the Client).

The complete security methodology shall be programmed to the client requirements to be confirmed.

2.5 CCTV SYSTEM

A separate closed circuit television (CCTV) system shall be provided to monitor the major entry and exit points of the building only. Internal cameras shall monitor the building main entrance. No additional areas of CCTV coverage are proposed (TBC with the Client).

The system shall be of the digital, IP based and colour type.

The system shall operate on a 24-hour basis and be capable of storage of up to 30 days of storage utilising a networked hard drive storage device. Storage equipment shall be located in the main communications rooms.

External CCTV coverage shall not be provided.

2.6 ENTRY INTERCOM SYSTEM

An intercom system shall be provided two way communication between nominated entry points and the reception desk. The system shall be of the fully digital type.

Entry panel shall be provided external to the front entrance. Each entry panel shall be of the recessed and vandal proof type, colour camera will be provided to allow viewing of caller.

The system shall be interfaced with the building access control system to enable opening of the front entrance doors and activation of appropriate lift access.

Reception desk will be provided with an intercom station complete with colour screen to view entry door call, full duplex audio facilities, and separate buttons for opening entrance point. Intercom stations shall be of the recessed and flush type.

2.7 LIGHTNING PROTECTION SYSTEM

A risk assessment shall be conducted based on the relevant standards to determine if a system is required. The system shall comprise:-

- "Dynasphere" air terminations on the roof, mast extension, stay cables.
- Down conductors shall be electrically isolated from the building structure using dedicated insulated down conductors.
- Earthing of down conductors shall be achieved by earthing pits and earth electrodes in accordance with manufacturer's recommendations. Pits shall incorporate event counters.
- Façade earthing

2.8 EARTHING AND SURGE PROTECTION

Earthing systems shall be provided in accordance with Australian Standards and Supply Authority requirements throughout the building. Earth bonding of structure shall be provided to the substation and building. A separate communications earthing system will be provided. Surge diversion will be installed at the main switchboard on the

incoming supply. Surge diversion will also be provided for copper communications cables entering building using surge diverter modules on the MDF.

2.9 COMMUNICATIONS SERVICES

2.9.1 DESCRIPTION OF WORKS

2.9.1.1 General

A fibre to the premises telecommunications (FTTP) system in line with the National Broadband Networks requirements shall be provided to deliver telecommunications services to the building and retail space.

Incoming telecommunications infrastructure shall be provided in the form of a minimum two off 100mm diameter conduits. Conduits shall reticulate between existing infrastructure located adjacent the development and the building distributor.

A pit and pipe network shall be provided by the developer for installation of the incoming telecommunications cabling. Cabling shall be supplied and installed by a National Broadband Network provider (TBC).

The client shall be required to initiate and enter into a contract between themselves and the telecommunications carrier of their choice before any lead-in cabling infrastructure will be installed or any telecommunications services be provided.

2.9.1.2 Lead in telecommunications facilities.

New lead in multi-mode fibre optic cables will be provided by a National Broadband Network provider installed within conduits, and shall terminate within the main communications room. The main communications room. The room shall be designed to house all incoming network termination devices and carrier equipment. In addition to this the main communications room shall house central security and intercom system equipment.

2.9.1.3 Communications Services Distribution and reticulation

A communications cabling cupboard and riser shall be provided at each third level of the building to facilitate the reticulation of all communications services cabling throughout the building.

Telecommunications cabling shall be of the multi core optical fibre type and originate from the building communication room and terminate within Fibre Distribution Terminals (FDTs) on each third level.

CAT 6a Cabling will be provided from each communication cupboard to the communication outlets, and we would recommend that WIFI coverage be provided throughout the building.

It is anticipated that wired communication connections are not required within the rooms, and we would seek clarification from your client in relation to the communication provisions.

Horizontal cabling shall be installed within ceiling voids, within flexible conduit or fixed to cable trays, in line with NBN Co and relevant service provider requirements.

2.10 TYPICAL ROOM PROVISIONS

2.10.1.1 Supply

Each room shall be provided with a single-phase supply as described in the distribution boards section. No separate metering will be provided for any room.

2.10.1.2 Lighting Provisions

Room's lighting will be typical throughout utilising LED fixtures - Typically a switched (non-dimmable) downlights

2.10.1.3 Power Provisions

Room's load centre to be located within each room in an approved location. Final location to suit the room fitout and the requirements of the wiring regulations.

Small power throughout the Student rooms (to suit the final layout). The numbers of GPO's and outlets anticipated as follows:

- 1 No. double GPO above kitchen counter for general use
- 1 No. Single GPO for hot plat
- 1 No. single GPO for range hood.
- 1 No. single GPO for microwave
- 2 No. Double GPO's per bedroom.
- 1 No. Double GPO per bathroom
- 1 No. Double GPO per study.

The general power arrangements shall be coordinated with the Architect's interior design for each apartment.

2.10.1.4 Security Provisions

Access to individual room can be achieved using card reader and electrical strike, and we would seek clarification from your Client in relation to the room's access system - (TBC).

The access control system shall also be used as an occupancy sensing device, and shall isolate all the non-essential circuits inside each room when no one is occupying the area.

2.10.1.5 Communication Provisions

Please confirm the communication requirements for the rooms. We would propose to provide WIFI coverage network to all spaces within the building which can be utilized by the management to grant access to the students.

An allowance for 1 No. CAT 6A data outlet per study desk, connecting back to the floor communication rack as a provision should the tenant requires direct connection in lieu of WIFI connection

Note: No provisions shall be made for any audio-visual system facilities such as in-ceiling speakers, wall outlets etc... as well as MATV system

3 MECHANICAL SERVICES

3.1 Scope of Works

The Works comprise the design, supply, delivery, installation, commissioning, testing, and placing into service the following mechanical services:

- Air conditioning to the apartments, common and retail areas, comprising typically of FCU's running off Reverse cycle VRF condenser units, with BS heat recovery units installed on floors. The indoor units are to be exposed as wall mounted at the end of the room bulk head
- Air Conditioning to Telecommunications room, Main Switchboard Room and Fire Control room via air cooled condenser unit split system.
- Centralised ventilation system from rooftop plant providing outside air to all SOU's
- Stair pressurisation systems.
- Decentralised toilet exhaust systems for each apartment.
- Ventilation for various rooms in the basement including refuse rooms.
- A building management system for control of the house services

3.2 Design Conditions

Design criteria for the design of the mechanical services are as follows:

Item	Design Criteria	
External ambient conditions	Cooling Calculations to be based on the following; Summer 32°C DB, 24°C WB Winter 7°C DB	
Internal Design Conditions	Summer	24°C DB, Maximum
	Winter	21°C DB, Minimum
	Humidity	Design Point Nominal 60% RH, not controlled
People Load	People Sensible	70W
	People Latent	60W
Other Internal Heat Loads	Studio	500W
	Common areas and reception	15 W/m ²
Lighting	Apartments	7 W/m ²
	Lobby	10 W/m ²
	Common areas and reception	10 W/m ²
	Retail	22 W/m ²
Population	Studio	1 Persons

Item	Design Criteria	
	Lobby	1 person per 5 sqm
	Reception, meeting rooms, residents lounge and gym	Per population based on architectural furniture layouts
Infiltration (Note 1)	Residential apartments	1 air change per hour of the area considered the conditioned space
	General Areas	0.5 air changes per hour
Ventilation / Exhaust provisions (Note 2)	Apartment bathroom	25L/s of exhaust
	Common Areas	Natural ventilation to achieve 5% openable area to floor area
	Switch rooms and Comms rooms	4 L/s/m ² of outside air
	Fire pump rooms	To be advised by the Fire Services Engineer (Note 4)
	Retail Kitchen Exhaust	5 L/s/m ²

Note 1 - Infiltration will be considered the greater of either the infiltration rates as identified in the table or the exhausts from the space, or adjacent spaces, which impact on the conditioned space. Infiltration rates will not be considered the sum of both infiltration rates and exhaust rates that affect the conditioned areas. Only the largest exhaust that affects a space is to be considered for the unit sizing.

Note 2 - The following spaces are to be considered naturally ventilated and are not allowed to be mechanically supplied or exhausted:

- All apartments
- All retail areas
- Substations
- All gas meter rooms
- Lobby areas for retail and residential

Note 3 – The exhaust volumes listed for the kitchen exhausts are based on a general exhaust from the kitchen area. Where range hoods are expected to be connected in lieu of general exhausts to the kitchens, the exhaust air volumes are expected to match the flows as detailed in the architectural package. Kitchen exhaust in residential to be via recirculating Charcoal range hoods

3.3 Description of works

3.3.1 Ground Floor Areas

3.3.1.1 General

The Ground Floor areas include the following areas that will be provided with air conditioning:

- Telecommunication room
- Main Switchboard Room
- Fire Control room
- Retail tenancies
- Common area

The gas meter and pressure regulator room and residential lobby will be naturally ventilated to the façade.

3.3.1.2 Air Conditioning

The air conditioning to the areas on ground floor listed above is expected to be provided with VRF indoor condenser units connected to indoor FCU's systems to the services rooms. The ducted indoor units are expected to be concealed in ceiling voids and connected to outdoor air intakes from louvres located in the façade. The ceiling space is expected to be adequate to allow for the installation of these ducted units and associated ducting. Access to these units will be required for safe regular maintenance. The retail will be conditioned through the same system, with option to run on separate package condenser unit.

3.3.1.3 Retail kitchen exhaust

The retail kitchen exhaust will be ceiling mounted fan discharging to the façade at the ground floor.

3.3.2 Apartments

3.3.2.1 Air Conditioning

The air conditioning for each apartment will be provided with bulk head mounted FCU's in the rooms connected to indoor condenser units located in a plant room on each floor. The indoor FRV condenser units will be connected to cooling towers on the roof.

The controls for the air conditioning systems serving the apartments will be standard arrangements as available with the units installed. A central controller option for turning off the whole area is to be considered during the detailed design process.

The areas served by the air conditioning are expected to be provided with windows for natural ventilation in accordance with the BCA. As these areas will be naturally ventilated they are therefore not required to be mechanically ventilated through the air conditioning systems.

3.3.2.2 Toilet Exhaust

Exhaust systems will be provided to serve the bathrooms for all apartments. The systems shall include ceiling space mounted fans ducted to louvres in the façade of the building.

The exhaust louvres are expected to be detailed in the architectural drawings and included in the building works package. Bulkheads or additional ceiling space for ducting to allow connection to the louvres on the façade are expected to be provided where appropriate.

The operation of the exhaust fans is to be considered during the detailed design process with options being available to interlock the fan to the lights or have a separate switch on the gang plate.

3.3.2.3 Kitchen Exhaust

The kitchens for apartments are to be provided with a range hood and will be ducted to the façade to a louvred discharge. The specification of these rangehoods will be detailed in the architectural package

The kitchen exhaust provided to the common areas will be a range hood system similar to the SOU's and will be ducted to the façade.

3.3.2.4 Power Supplies

All power supplies for mechanical services serving apartments is expected to be connected to the house power supplies as the rooms will be unmetered, power supply to the retail area will be metred separately.

3.3.3 Miscellaneous Ventilation Systems

Mechanical ventilation will be provided to the following areas as a minimum:

- Fire control room
- Hydraulics plant rooms
- Garbage/refuse rooms
- Comms rooms
- Fire pump room
- Main switchroom

3.3.4 Stair Pressurisation and Lobby Relief Systems

The stairwells in the tower will be provided with stair pressurisation. The supply fans will be located in the roof plantroom.

3.3.5 NOISE AND VIBRATION

The construction of the development is expected to account for acoustic considerations such as reverberant times being in accordance with AS2107 where possible and noise isolation being adequately provided in the construction of the building elements. For instance, when the condensers on the floor plant rooms of the tower are operating the noise transfer to the lift lobbies is adequately minimised by sufficiently acoustically treated walls and doors.

For the residential areas, recommendations for noise levels in AS2107 are not expected to be achievable with the air conditioning systems operating. This is due to the very low noise levels listed such as 35dB(A) for sleeping areas near minor roads. These noise levels are only achievable with systems with ducted units with attenuated supply and return ducting. In the case of this development,

the ducting is expected to be very short and to have little to no attenuation of the noise from the air conditioning systems.

For non-residential areas, noise levels are expected to be able to be addressed for the mechanical services. The noise levels for the mechanical services are expected to be designed for compliance with AS2107 where constraints of the development do not prohibit this.

More stringent levels of acoustic consideration than discussed above for the mechanical services will need to be addressed with additional space allowances. For instance in the case of residential ducted units, longer acoustically lined ducts in lowered ceiling areas would be required. Also lower noise levels may require indoor units to operate at lower fan speeds so larger units would be required to achieve the same cooling performance. This would affect the ceiling space requirements as well as increasing the size of the condensers connecting to the indoor units.

External noise levels shall comply with Local Authorities requirements where possible as part of the design of the mechanical services.

3.4 Hydraulic Services

3.4.1 Scope of Work

The Hydraulic Services Works comprises the design, supply, delivery, installation, commissioning, testing, and placing into service the following services:

- Stormwater drainage and downpipes
- Sanitary drainage and plumbing
- Trade waste drainage
- Domestic Potable and Non-potable water
- Non-potable cold-water service
- Hot and warm water services
- Natural Gas Service

3.4.2 Hydraulic services design criteria

Generally, the Hydraulic Services systems shall be designed to provide a quality service for this type of development that meets, the Local Authorities requirements, and represents a co-ordinated scheme to accepted industry standards.

In particular, the systems shall be designed and installed to conform with/to the approval of:

- AS 3500 - National Plumbing Code
- National Construction Code
- Building Code of Australia.
- Sydney Water Corporation.
- Sydney Water Corporation - Trade Waste.
- Sydney City Council
- Jemena including AS 5601 - Gas Installations
- Fire Rescue NSW
- Any other authorities having jurisdiction.

3.4.3 Description of Works

3.4.4 Stormwater drainage and Downpipes

Storm water and roof water drainage will be designed and installed in accordance with the requirements of Australian Standard AS3500.3: 2018 Part 3 Storm water Drainage and Redfern Council.

All rainwater will be collected and discharged based on the following minimum criteria:

- Box Gutters – 1 in 100-year 5-minute storm event

- Eaves Gutters – 1 in 20-year 5-minute storm event

Overflows will be provided to protect the building in the event of a system blockage.

It is intended that conventional storm water systems will drain the roof tower areas, ground floor, planter boxes and car park.

Storm water collected from roof outlets will gravitate to the Civil On-Site Detention (OSD) located at below Ground Level. Storm water overflow from the OSD tank will gravitate to the Authority storm water in the Street. Note that the OSD tank design documentation and connection to Redfern Council storm water main is by Civil.

Overflow from the fire tanks will gravitate via the Civil On-Site Detention subject to grade or alternatively the fire tank overflow pipe will discharge to the sub-soil collection sump for pump-out to the civil drainage system.

Storm water drainage lines and fittings will be constructed of sewer grade UPVC with solvent cement joints where in ground and of UPVC pipes and fittings with solvent welded joints where suspended.

Downpipes cast in structural elements shall be insulation wrapped HDPE pipe and fittings with welded joints.

3.4.5 Sub-Soil Water Drainage

The sub-soil drainage system will be installed in the basement of the building in accordance with the requirements of Australian Standard AS3500.3: 2018 Part 3 Storm water Drainage. The sub-soil drainage system will collect all sub-surface seepage water from around the perimeter of the site, under the lowest slabs on ground, at the base of lift pits and trenches and gravitate to a sub-soil collection sump.

The sump will be located away from car park spaces for convenient maintenance.

The sump will be provided with dual pumps (and control panel) that are each capable of the calculated duty required. Pumps will be activated by 4 float switches in the collection well. The pump control panel will automatically alternate the duty pump on a twenty-four (24) hour cycle to ensure even wear on both pumps.

Final pump calculations to be based on geotechnical report infiltration rates.

The sub soil drainage system shall be constructed of perforated UPVC pipes and fittings with solvent welded joints with a blue metal surround and overwrapped in filter fabric.

3.4.6 Sanitary Plumbing and Drainage

The sanitary drainage system will be designed and installed in accordance with Australian Standard AS3500.2: 2018 Part 2 Sanitary Plumbing and Drainage and the requirements of Sydney Water Corporation.

The sanitary drainage and vent system will be designed as a fully vented modified pipe system to provide flexibility of the drainage installation with special consideration where pressure zones are created at changes of direction, including the piping material used for mechanical durability and thermal movement to serve the proposed development. Stack vents shall extend to roof and be terminated through roof venting to atmosphere in discreet locations where possible.

Stack offsets will be minimised where possible.

The installations will be designed and installed such that they will be entirely accessible for easy maintenance. Horizontal pipe runs will be installed with sufficient gradients to achieve self-cleansing velocities to avoid potential problems with blockage.

All pipework installed within noise sensitive areas will be acoustically treated.

Sanitary fixtures and tap ware will be selected to meet ESD requirements;

Plant rooms and equipment requiring drainage connections will be incorporated in the hydraulic services design.

All exposed waste piping within habitable areas including basin or sink traps and floor waste grates in wet areas will be chromium plated, copper or brass.

New sewer connections will be provided to the authority mains infrastructure subject to Sydney Water Corporation approval.

The sanitary drainage system shall be fitted with overflow gullies to provide for the safe release of sewerage in the event of a blockage.

100mm diameter sanitary drainage capped points will be provided under slab for each retail tenancy, food court tenancies and beverage outlets.

50mm diameter branch vents will be provided in the ceiling of the tenancies, food court tenancies and beverage outlets for connection and extension to the main vents for compliance with Code.

A sewage pump out pit will be provided in the basement of the building. Sanitary drainage that cannot be discharged to the external sewer main by gravity including discharge from the grease arresters and car wash facility will be collected into this pit from where dual pumps will lift the sewage to the gravity system for disposal from the building.

Pumps will be activated by 4 float switches in the collection well. The pump control panel will automatically alternate the duty and stand-by pumps on a twenty-four (24) hour cycle to ensure even wear on both pumps.

Sewer drainage lines and fittings will be constructed of sewer grade UPVC with solvent cement joints where in ground and of UPVC pipes and fittings with solvent welded joints where suspended.

3.4.7 Trade Waste Drainage

The trade waste drainage for the project shall collect effluent from the trade waste generating areas from the retail tenancy and convey by gravity to a maximum 5,000L strategically located grease arrestors below ground of the development to facilitate gravity discharge to the sewage pump out pit.

The numbers and total capacity of the required grease arrestors will be calculated based on 1,000 litres per retail tenancies and food-court shops. (i.e. 20 shops x 1,000 Litres + 20,000 Litres)

100mm diameter grease drainage points capped off for future tenancy connection will be provided under slab for each retail tenancy, food court tenancies and beverage outlets.

50mm diameter branch grease vents will be provided in the ceiling of the tenancies for connection of vents for compliance with Code.

An 80mm minimum diameter remote suction line with kamlock fitting, extending from the adjacent walls of the grease arresters to the truck pump-out point on Ground Floor will be provided to facilitate the cleaning of the grease arresters. All kamlock fittings shall be of stainless steel manufacture with suction line piping being of minimum 80mm HDPE pressure rated smooth wall pipe.

The trade waste drainage shall also incorporate a system to collect effluent from the car wash bay for pre-treatment prior to discharge to the sewage pump out pit

3.4.8 Domestic Potable Water

The domestic potable water system will be designed and installed in accordance with Australian Standard AS3500.1: 2018 Part 1 Water Supply and the requirements of Sydney Water Corporation.

New connections for the domestic potable and fire water will be provided to the authority mains infrastructure in George Street subject to Sydney Water approval.

The domestic potable cold-water service for the project shall comprise a 100mm incoming service from the Sydney Water main with variable speed duty and stand-by pressurisation pumps to feed the upper levels of the development.

Domestic potable cold-water services will be designed for a high and low-rise application.

Cold water to the top floors of the tower will be via pressurized variable speed drive pumps with the lower floors by mains pressure. The exact amount of floors to be fed by the mains pressure will be determined once the mains amplification to site has been conducted

The water meter set with backflow prevention devices and variable speed duty and stand-by pressurisation pumps will be in the water meter room.

In addition to the authority meter, sub-water meters shall be installed to monitor the water use of all major water users. These will include though not be limited to:

- Retail Tenancy
- Plantrooms
- Fire services

The domestic potable cold-water system shall incorporate stop valves, which will be located in readily accessible locations to enable individual area isolation for maintenance purposes. Individual control valves will be provided to control each group of fixtures and wet areas including bathrooms, kitchens and the like.

The domestic cold-water system will also supply the domestic hot water and fire hose reel systems.

The cold-water risers will be installed within the services ducts. Pressure limiting valves will be installed in the cold-water supply to reduce the supply pressure on the lower levels, when required.

The domestic potable cold-water supply to the building will be reticulated in accordance with the following design parameters:

- Minimum 280kPa outlet pressure.
- Maximum 500kPa outlet pressure.

- Maximum system velocity of 1.6 m / sec.

Backflow prevention devices will be installed in the system in accordance with AS3500 and the Authority's requirements.

Cold water pipework and fittings will be type B copper tube with silver soldered or press fit. All exposed control valves and exposed pipework in wet areas will be chromium plated.

3.4.9 Hot and Warm Water services

Hot water service will be designed and installed in accordance with the requirements of the local Authority having jurisdiction and Australian Standard AS3500.4:2018 Part 4 Hot Water Supply Systems.

The following system description is based on plant option 1 in section 1.3.7 below. Option 2 in section 1.3.8 below will provide a simplified system description, utilising metered cold water from each apartment and a reduced plant allocation.

All heated water pipe work to be insulated in accordance with the BCA Part J.

A heat trace system shall be provided where required, to ensure any excessive 'dead legs' are kept to a minimum.

Design parameters will be in accordance with the 'Cold Water' section.

Individual control valves will be provided to control each group of fixtures and wet areas including bathrooms, kitchens and the like.

Hot/warm water temperatures to the toilets and amenities will be controlled by means of the installation of tempering valves and thermostatic mixing valves in accordance with the statutory requirements.

Hot water pipework will be constructed from type B copper tube with silver soldered joints and all pipework and fittings insulated of a size and thermal efficiency applicable to its location.

All exposed control valves and exposed pipework in wet areas will be chromium plated.

3.4.10 Centralised Gas system

Separate gas fired plant with instantaneous heaters and storage vessels will be provided for the generation of domestic hot water to supply hot water to the apartments, commercial floors and retail tenancies. The hot water plant assemblies will be located in roof plant room and reticulate throughout the building as required.

A complete flow and return systems incorporating circulating pumps will be provided to eliminate system dead legs and associated heated water delay times;

Heated water will be circulated at 65°C and returned to the heated water plant at 60°C.

Negotiations with the preferred gas retailer will provide options for supply of major plant in association with a long term (10yr) gas supply agreement. These negotiations can be facilitated in the next design phase.

3.4.11 Natural Gas services

Gas service will be designed and installed in accordance with Jemena requirements and Australian Standard AS5601-2013 Gas Installation.

A new gas connection will be provided to the medium pressure gas main within Marian Street subject to Jemena's approval. Gas regulator will be installed in the ground floor gas meter room to reduce pressure as required.

Low pressure natural gas will be brought into the building to supply the retail shops, food court tenancies, commercial hot water plant, residential apartment hot water system and cooktops. The gas pressure regulator and meter assembly will be located in the gas regulator/meter room in the ground floor of the building.

In addition to the main gas meter, gas sub-meters will be installed to monitor the gas usage of all major users. These will include though not be limited to:

- Retail Tenancy;
- Heated water plant (residential; retail and commercial office plant)

The gas riser will be located within the services ducts.

Emergency gas shut off device will be installed in the gas service to isolate the supply during emergency and will be linked to the mechanical system.

All pipework will be constructed from type B copper tube with silver soldered or press fit joints.

3.5 Fire Services

3.5.1 Scope of Services

Fire services for this building will be provided in accordance with the National Construction Code, relevant Australian Standards, and any future fire safety engineered solution.

Services shall include:

- Combined Sprinkler / Hydrant System
- Smoke Detection and Alarm System
- Smoke Hazard Management System
- Sound System and Intercom systems for Emergency Purposes (SSISEP)
- Fire Hose Reel System
- Portable Fire Extinguishers

3.5.2 Design Criteria

Fire Services System	BCA requirement	Australian Standard
Smoke Detection and Alarm System	NCC Spec E2.2a Clause 4	AS1670.1-2015
Sound System and Intercom systems for Emergency Purposes	NCC Spec E4.9	AS1670.4-2015
Combined Sprinkler/Hydrant System	NCC Spec E1.5	AS2118.6-2012 AS2419.1-2005 AS2118.1-2017 (secondary reference standard)
Fire Hose Reels	NCC Spec E1.4	AS2441-2005
Portable Fire Extinguishers	NCC E1.6	AS2444-2001

3.5.3 Systems Description

3.5.4 Fire Detection and Alarm System

Fire detection will be provided throughout the building, with detectors selected to suit the specific hazard of each area to minimise the possibility of false alarms.

The fire detection and alarm system will be design as analogue addressable looped detection system, and will be connected to an approved monitoring company to notify fire brigade in the event of a fire alarm.

Addressable smoke detection will be provided to all common areas of the building to provide smoke hazard management.

Addressable smoke detectors will be provided within the residential units between living and sleeping areas, with alarm verification facility to reduce false alarms only in the class 3 area of the building otherwise smoke alarms will be provided to all other residential units.

An analogue addressable Fire Indicator Panel will be provided in the Fire Control Room at ground level.

A mimic fire panel will be provided at the main entry lobby if the main panel is located remotely. A Fire Fan Control Panel (FFCP) will be provided adjacent to the Main Fire Panel and Secondary Fire Panel to allow manual operation of the Fire Fans by the brigade.

Interface will be provided with the following building services systems;

- Emergency warning system for controlled evacuation of building occupants
- Mechanical services system for operation in fire mode and system shut down upon fire alarm
- Combined sprinkler / hydrant system for monitoring of isolation valves, pumps, tanks, and system activation
- Security system for monitoring and release of locked doors in egress path
- Facility will be provided for isolation of incoming gas supply.

3.5.5 Sound System and Intercom systems for Emergency Purposes

A Sound System and Intercommunications system for Emergency Purposes will be provided throughout the building to allow controlled evacuation of the building during a fire condition, including floor by floor cascading evacuation as determined through detailed fire safety engineering.

Occupant warning speakers will emit a pre-recorded verbal evacuation message and will be located to ensure the required speech intelligibility and sound pressure level can be delivered to all occupied areas.

An Emergency Control Panel will be provided adjacent to the Fire Panel.

Visual Alarms (Strobes) will be provided in areas with high ambient noise level, and to any areas specified for use by hearing impaired occupants.

Warden Intercom Phones (WIP) will be provided to allow direct communication with the fire warden, and Emergency Alarms (EA) will be provided adjacent to required exits.

3.5.6 Combined Sprinkler / Hydrant System

A combined sprinkler / hydrant system will provide fire sprinkler protection and hydrant coverage throughout the building, and will be designed to the following design;

- Residential areas / Administration areas - light hazard class LH
- Plant areas / Ground floor and mezzanine retail areas - ordinary hazard class 1 OH1

Fire Hydrant coverage will be provided throughout the building, ensuring all areas of the building can be adequately reached with a 30m hose length and 10m nozzle spray from a fire hydrant outlet. Additional hydrants will be provided where adequate coverage cannot be achieved from hydrant outlets in the fire stairs.

Hydrant outlets will have a minimum of 5L/sec flow and 700kPa residual pressure at the two most disadvantaged hydrant outlets, as required for a system utilising on-site booster pumps.

3.5.6.1 System Arrangement

A Dual Supply as per AS 2118.1-2017 will be provided, comprising the following;

- One fire tank (5m (W) x 8m(L) x 3.33m (H)) with a multistage diesel/electric pump located adjacent to the fire stair on basement mezzanine which is dependent upon the available water supply in the street water main.

The pipework system will be sectioned into individual vertical pressure zones with maximum of 35m height (three pressure zones being -103mtr top to bottom) to ensure efficient system operation can be achieved. Pressure reduction stations will be provided between pressure zones, and will be located within the fire stair.

Sprinkler control valves for each level of the building will be provided within the fire stair.

3.5.6.2 Brigade Boosting

A brigade booster enclosure will be provided at ground level, within sight of the main building entry where possible or as agreed with the fire safety engineer. The booster assembly will be provided with the following: -

- Tank suction connection
- Low level boost connection
- High level boost connection
- Town's main suction connections

3.5.7 Fire Hose Reels

Fire Hose Reel coverage will be provided within the non-residential areas of the building (hose reels may not be required to residential levels as per the NCC 2019A).

Hose Reels will be provided to ensure all areas of the buildings are reached with a 36m hose and 4m of nozzle spray, and to ensure hoses are not required to extend between fire compartments.

The Hose Reel system will be supplied from the fire hydrant system risers.

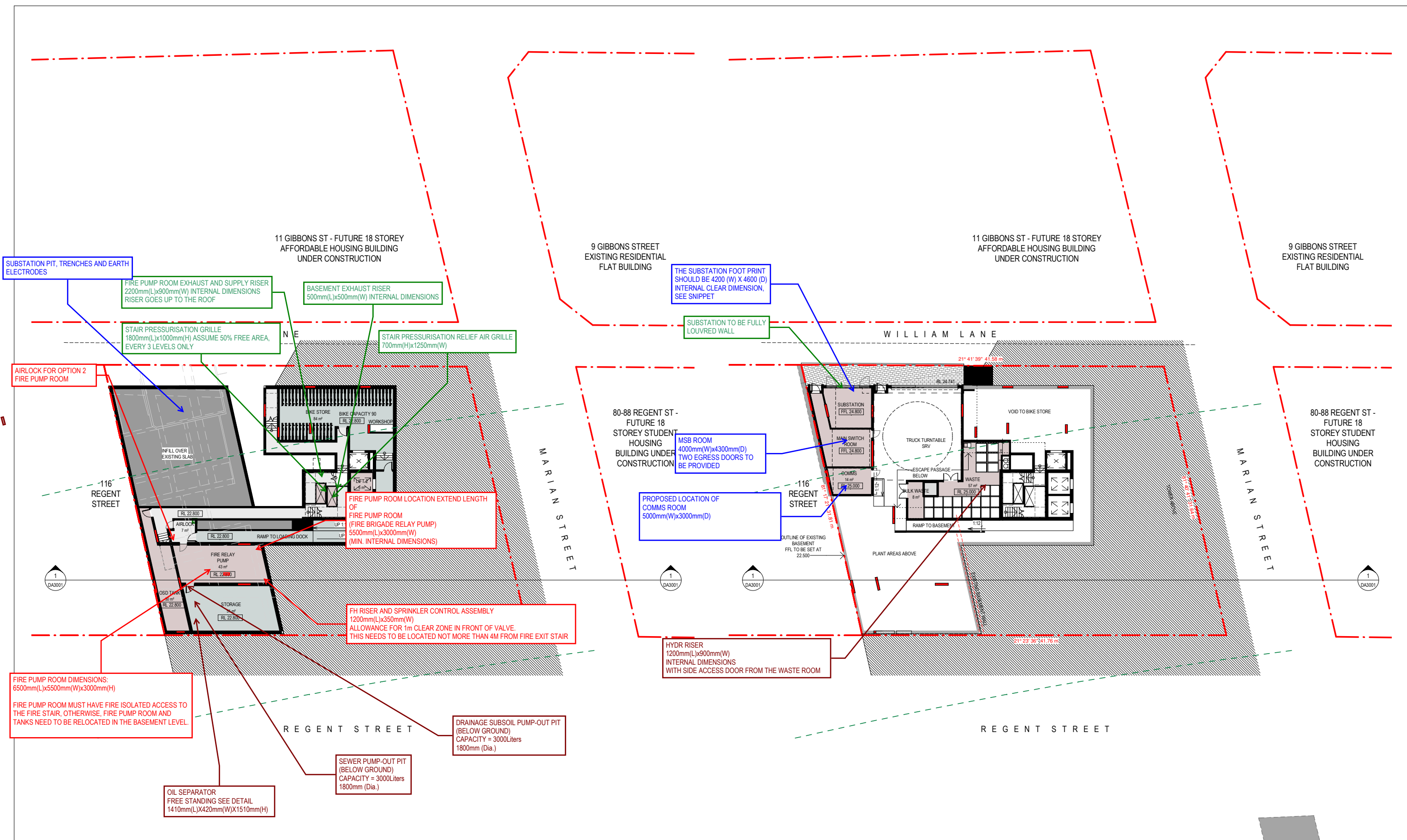
Fire Hose Reels will have a minimum of 0.33L/sec flow at the two most disadvantaged Hose Reels.

3.5.8 Portable Fire Extinguishers

Portable fire extinguishers to suit the relevant risk and associated signage will be provided throughout all areas of the building.

Fire blankets will be provided to all kitchen areas and similar risk areas

3.6 Appendix A – Preliminary DA Services Spatial Requirements



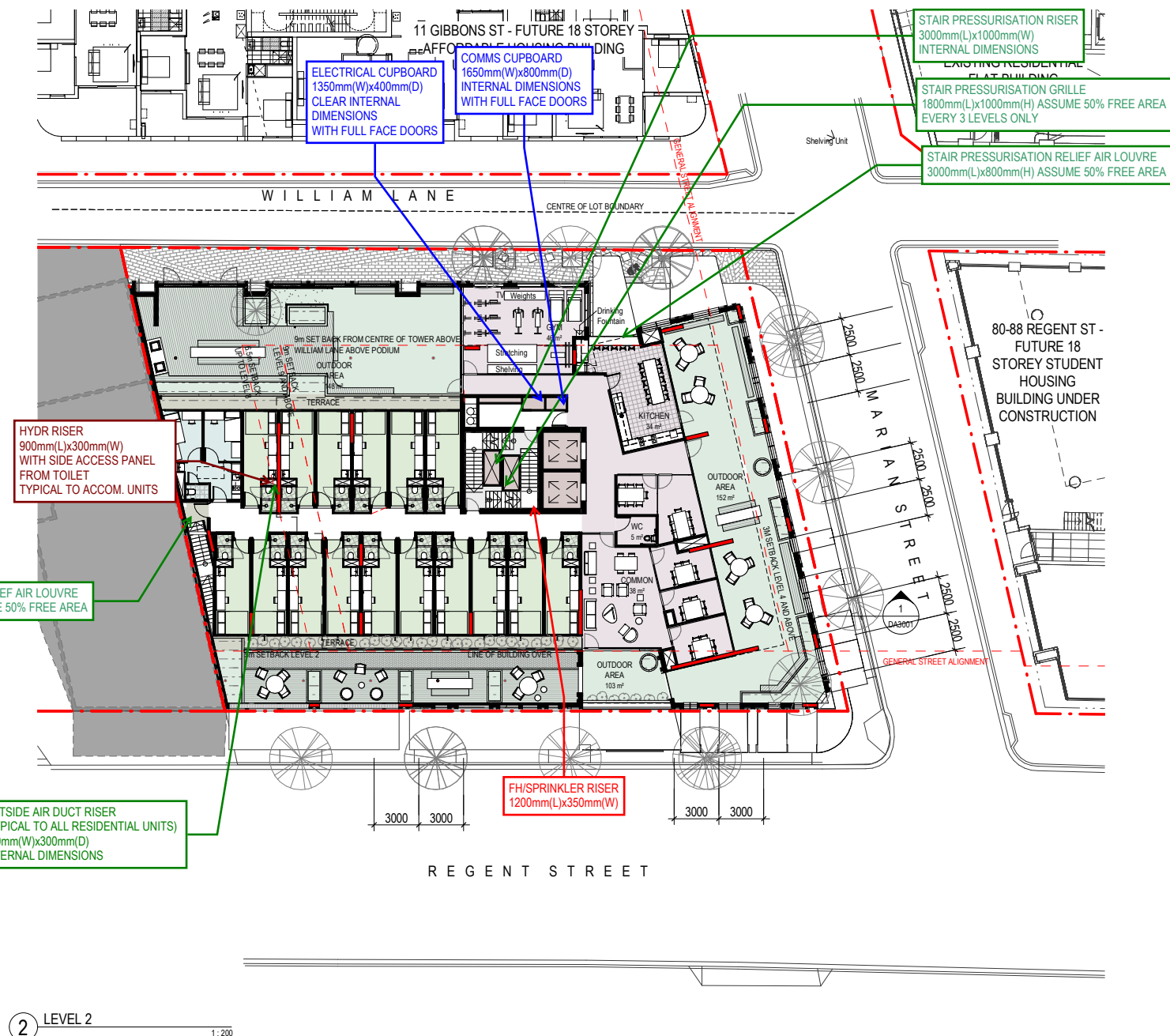
2 BASEMENT PLAN 1 : 200

1 LOWER GROUND PLAN 1 : 200

All indicated Dimension and areas are indicative and for the purpose of initial spatial allowances, final arrangement and dimensions to be further developed during detailed design stages

<div>Revisions</div> <table><tr><th>No.</th><th>Date</th><th>Description</th><th>Verified</th><th>Approved</th></tr><tr><td>1</td><td>11/05/2020</td><td>Issue for Information</td><td></td><td></td></tr><tr><td>2</td><td>18/06/2020</td><td>Issue for Information</td><td></td><td></td></tr><tr><td>3</td><td>30/07/2020</td><td>Issue for Information</td><td>RP</td><td>BM</td></tr><tr><td>4</td><td>10/08/2020</td><td>Issue for Coordination</td><td>RP</td><td>BM</td></tr><tr><td>5</td><td>13/09/2020</td><td>Issue for Information</td><td>RP</td><td>BM</td></tr><tr><td>6</td><td>25/09/2020</td><td>Issue for Coordination</td><td>RP</td><td>BM</td></tr><tr><td>7</td><td>31/09/2020</td><td>Issue for Coordination</td><td>RP</td><td>BM</td></tr><tr><td>8</td><td>11/09/2020</td><td>Issue for Coordination</td><td>RP</td><td>BM</td></tr><tr><td>9</td><td>14/09/2020</td><td>Issue for Coordination</td><td>RP</td><td>BM</td></tr><tr><td>10</td><td>24/09/2020</td><td>Issue for Information</td><td>RP</td><td>BM</td></tr></table>	No.	Date	Description	Verified	Approved	1	11/05/2020	Issue for Information			2	18/06/2020	Issue for Information			3	30/07/2020	Issue for Information	RP	BM	4	10/08/2020	Issue for Coordination	RP	BM	5	13/09/2020	Issue for Information	RP	BM	6	25/09/2020	Issue for Coordination	RP	BM	7	31/09/2020	Issue for Coordination	RP	BM	8	11/09/2020	Issue for Coordination	RP	BM	9	14/09/2020	Issue for Coordination	RP	BM	10	24/09/2020	Issue for Information	RP	BM	<div>Client</div> <div> WEE HUR CAPITAL PTE LTD (Wholly Owned Subsidiary of Wee Hur Holdings Ltd)</div>	<div>Architect</div> <div> AJ+C ALLEN JACK+COTTER 79 Myrtle Street Chippendale NSW 2008 AUSTRALIA ph +61 2 9311 8222 fx +61 2 9311 8200 ABN 53 003 782 250</div>	<div>Project</div> <div>Wee Hur Regent 90 - 102 Regent Street, Redfern Proj. No. 19026</div>	<div>Drawing Title</div> <div>BASEMENT & LOWER GROUND FLOOR PLAN</div> <div>Sheet Status NOT FOR CONSTRUCTION</div>	<div>Scale</div> <div>1 : 200 @A1</div> <div>Drawing No.</div> <div>DA2000 10</div> <div>Issue</div> <div></div>
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1. ALL ROOMS ARE PROVIDED WITH TOILET EXHAUST FANS (300MM DIA.) AND 200mm x 200mm EXHAUST AIR DUCT TO FACADE.
2. ALL ROOMS ARE ASSUMED TO HAVE RECIRCULATING KITCHEN RANGE HOOD.
3. ALL ROOMS MUST HAVE TRANSFER AIR GRILLES 200mm x 200mm, TRANSFERRING AIR FROM THE CORRIDOR TO EACH ROOM WHEN THE TOILET EXHAUST FAN IS TURNED ON. TOILET DOORS MUST ALSO HAVE DOOR LOUVRES.
4. THERE SHOULD BE ANOTHER STAIR PRESSURISATION SHAFT 3000mm(L)x1000mm(W) INTERNAL DIMENSIONS. LOCATION CAN BE ANYWHERE AROUND THE STAIRWELL.
5. STAIR PRESSURISATION RELIEF AIR LOUVRES AT CORRIDOR ENDS TO BE PROVIDED, 2-OFF 1200mm(L)x800mm(H) RELIEF AIR LOUVRES PER LEVEL.
6. BULKHEADS PER UNIT TO BE PROVIDED FOR FAN COIL UNIT SPATIALS.
7. THERE IS NO PROVISION FOR KITCHEN EXHAUST IN THE COMMON AREAS. COMMON AREAS ARE PROVIDED WITH DUCTED FAN COIL UNITS FOR AIR-CONDITIONING. SIZE OF CEILING CONCEALED FAN COIL UNIT TO BE 1200mm(L)x600mm(W)x400mm(H).



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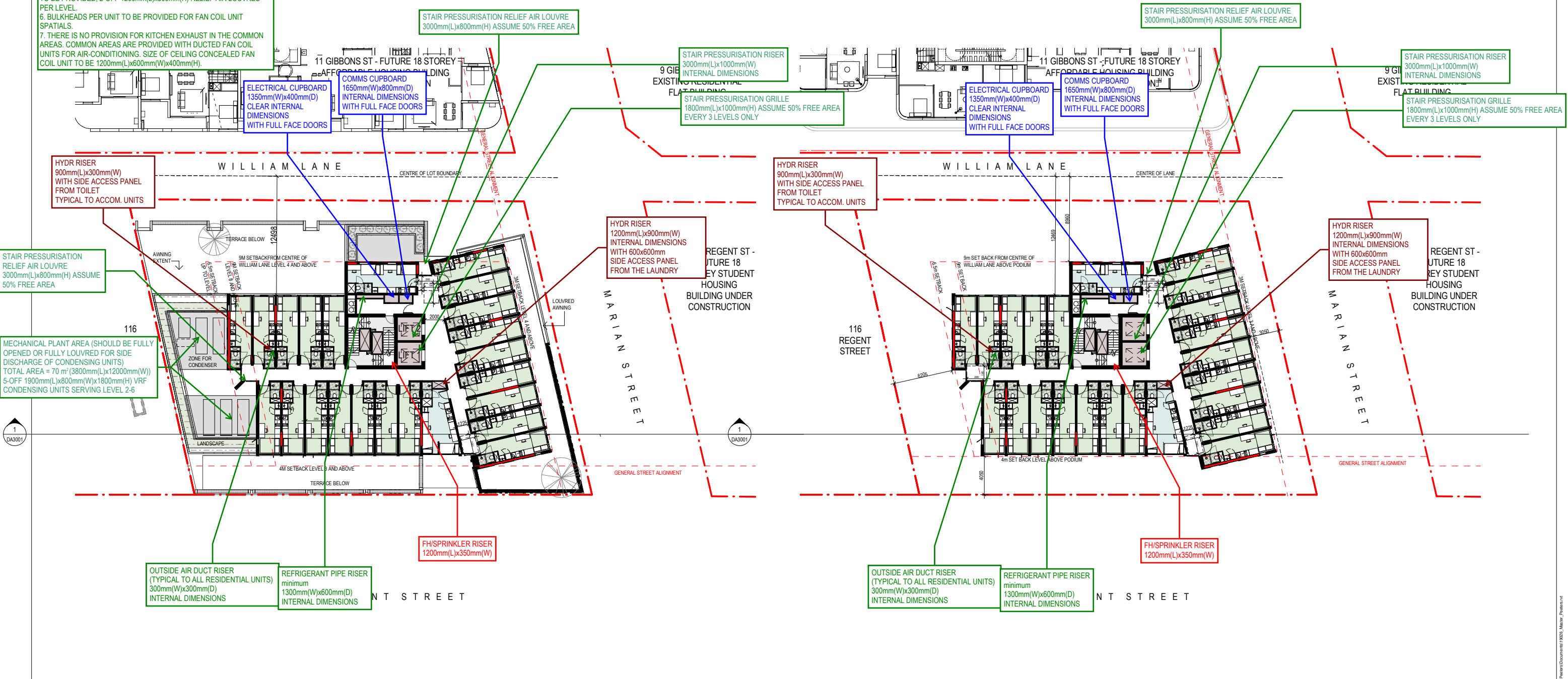
Proj. No. 19026

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1 : 200 @A1 DA2001 12
1 : 400 @A3

MECHANICAL NOTES:

1. ALL ROOMS ARE PROVIDED WITH TOILET EXHAUST FANS (300mm dia.) AND 200mm x 200mm EXHAUST AIR DUCT TO FACADE.
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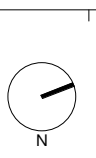
3 LEVEL 3 PLAN
1:200

1 LEVEL 4-11 PLAN
1:200

- TWIN STUDIO
- COMMON
- DORM OUTDOOR
- OUTDOOR
- BOH
- STAIR
- QUEEN STUDIO
- ADMINISTRATION
- GYM
- OUTDOOR DINING
- RETAIL
- CORRIDOR
- DDA
- DDA STUDIO
- KITCHEN
- SERVICES

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Revisions	Description	Verified	Approved
1	03/04/2020	RP	BM
2	06/05/2020	RP	BM
3	11/05/2020	RP	BM
4	18/06/2020	RP	BM
5	30/07/2020	RP	BM
6	10/08/2020	RP	BM
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Client
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Project
Wee Hur Regent
90 - 102 Regent Street, Redfern
Proj. No. 19026

Drawing Title
**LEVEL 3 & LOWER
TYPICAL FLOOR PLANS**
Sheet Status
NOT FOR CONSTRUCTION

Scale
1:200 @A1
1:400 @A3
Drawing No.
DA2002 11
Issue

MECHANICAL NOTES:

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STAIR PRESSURISATION RELIEF AIR LOUVRE
3000mm(L)x800mm(H) ASSUME 50% FREE AREA

STAIR PRESSURISATION RISER
3000mm(L)x1000mm(W)
INTERNAL DIMENSIONS

STAIR PRESSURISATION GRILLE
1800mm(L)x1000mm(H) ASSUME 50% FREE AREA
EVERY 3 LEVELS ONLY

STAIR PRESSURISATION RELIEF AIR LOUVRE
3000mm(L)x800mm(H) ASSUME 50% FREE AREA

STAIR PRESSURISATION RISER
3000mm(L)x1000mm(W)
INTERNAL DIMENSIONS

STAIR PRESSURISATION GRILLE
1800mm(L)x1000mm(H) ASSUME 50% FREE AREA
EVERY 3 LEVELS ONLY

ELECTRICAL CUPBOARD
1350mm(W)x400mm(D)
CLEAR INTERNAL
DIMENSIONS
WITH FULL FACE DOORS

COMMS CUPBOARD
1650mm(W)x800mm(D)
INTERNAL DIMENSIONS
WITH FULL FACE DOORS

ELECTRICAL CUPBOARD
1350mm(W)x400mm(D)
CLEAR INTERNAL
DIMENSIONS
WITH FULL FACE DOORS

COMMS CUPBOARD
1650mm(W)x800mm(D)
INTERNAL DIMENSIONS
WITH FULL FACE DOORS

HYDR RISER
900mm(L)x300mm(W)
WITH SIDE ACCESS PANEL
FROM TOILET
TYPICAL TO ACCOM. UNITS

HYDR RISER
1200mm(L)x900mm(W)
INTERNAL DIMENSIONS
WITH 600x600mm
SIDE ACCESS PANEL
FROM THE LAUNDRY

HYDR RISER
900mm(L)x300mm(W)
WITH SIDE ACCESS PANEL
FROM TOILET
TYPICAL TO ACCOM. UNITS

HYDR RISER
1200mm(L)x900mm(W)
INTERNAL DIMENSIONS
WITH 600x600mm
SIDE ACCESS PANEL
FROM THE LAUNDRY

FH/SPRINKLER RISER
1200mm(L)x350mm(W)

FH/SPRINKLER RISER
1200mm(L)x350mm(W)

OUTSIDE AIR DUCT RISER
(TYPICAL TO ALL RESIDENTIAL UNITS)
300mm(W)x300mm(D)
INTERNAL DIMENSIONS

REFRIGERANT PIPE RISER
minimum
1300mm(W)x600mm(D)
INTERNAL DIMENSIONS

OUTSIDE AIR DUCT RISER
(TYPICAL TO ALL RESIDENTIAL UNITS)
300mm(W)x300mm(D)
INTERNAL DIMENSIONS

REFRIGERANT PIPE RISER
minimum
1300mm(W)x600mm(D)
INTERNAL DIMENSIONS

1 LEVEL 9 PLAN

1 : 200

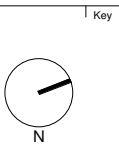
2 LEVEL 15 PLAN

1 : 200

TWIN STUDIO COMMON DORM OUTDOOR OUTDOOR BOH STAIR
QUEEN STUDIO ADMINISTRATION GYM OUTDOOR DINING RETAIL CORRIDOR
DDA DDA STUDIO KITCHEN SERVICES

All indicated Dimension and areas are indicative and for the purpose of initial spatial allowances, final arrangement and dimensions to be further developed during detailed design stages

Revisions No.	Date	Description	Verified RP	Approved BM
2	06/05/2020	Issue for Information		
3	11/05/2020	Issue for Information		
4	18/06/2020	Issue for Information		
5	30/07/2020	Issue for Information		
6	10/08/2020	Issue for Coordination	RP	BM
7	13/08/2020	Issue for Information	RP	BM
8	25/08/2020	Issue for Coordination	RP	BM
9	31/08/2020	Issue for Coordination	RP	BM
10	11/09/2020	Issue for Coordination	RP	BM
11	14/09/2020	Issue for Coordination	RP	BM
12	24/09/2020	Issue for Information	RP	BM



Client
WEE HUR CAPITAL PTE LTD
(Wholly Owned Subsidiary of Wee Hur Holdings Ltd)

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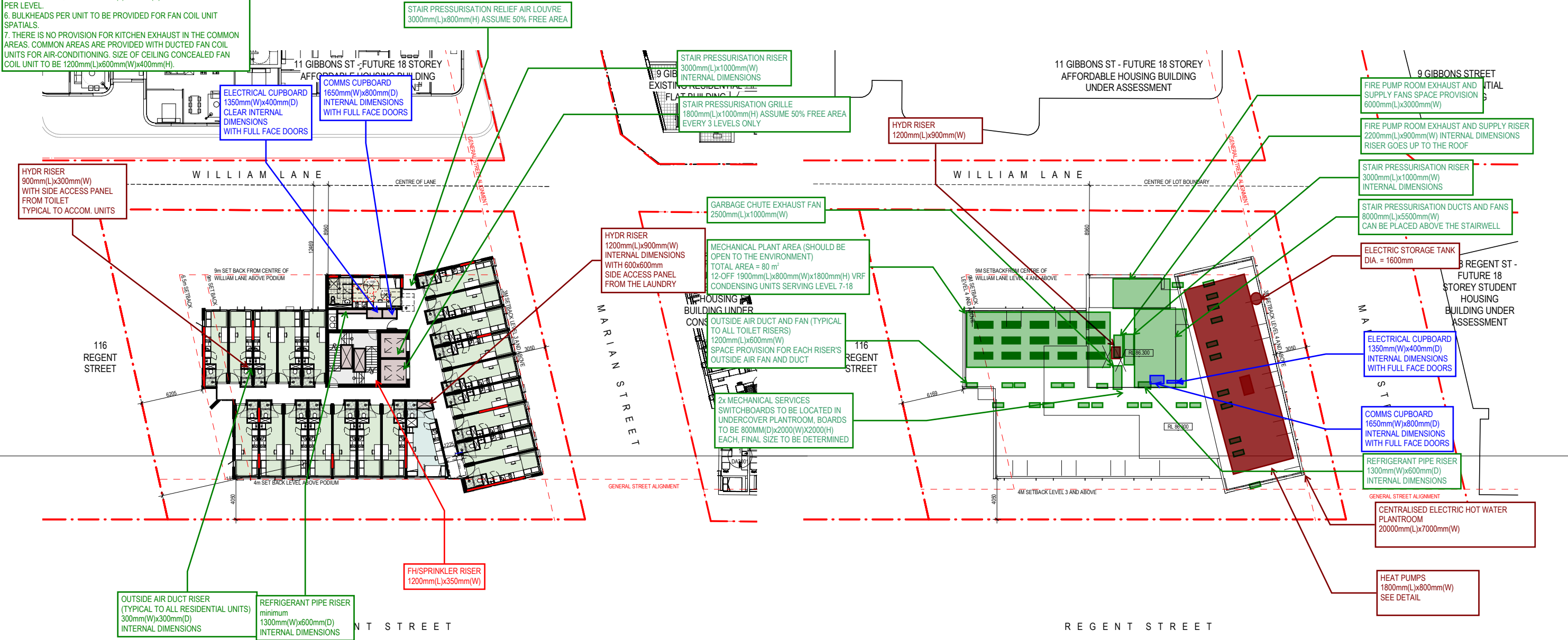
Project
Wee Hur Regent
90 - 102 Regent Street, Redfern
Proj. No. 19026

Drawing Title
**LEVEL 9 & 15 COMMUNAL
FLOOR PLANS**
Sheet Status
NOT FOR CONSTRUCTION

Scale
1 : 200 @ A1
Drawing No.
DA2003 12
Issue

MECHANICAL NOTES:

1. ALL ROOMS ARE PROVIDED WITH TOILET EXHAUST FANS (300mm dia.) AND 200mm x 200mm EXHAUST AIR DUCT TO FACADE.
2. ALL ROOMS ARE ASSUMED TO HAVE RECIRCULATING KITCHEN RANGE HOOD.
3. ALL ROOMS MUST HAVE TRANSFER AIR GRILLES 200mm x 200mm, TRANSFERRING AIR FROM THE CORRIDOR TO EACH ROOM WHEN THE TOILET EXHAUST FAN IS TURNED ON. TOILET DOORS MUST ALSO HAVE DOOR LOUVRES.
4. THERE SHOULD BE ANOTHER STAIR PRESSURISATION SHAFT 3000mm(L)x1000mm(W) INTERNAL DIMENSIONS. LOCATION CAN BE ANYWHERE AROUND THE STAIRWELL.
5. STAIR PRESSURISATION RELIEF AIR LOUVRES AT CORRIDOR ENDS TO BE PROVIDED, 2-OFF 1200mm(L)x800mm(H) RELIEF AIR LOUVRES PER LEVEL.
6. BULKHEADS PER UNIT TO BE PROVIDED FOR FAN COIL UNIT SPATIALS.
7. THERE IS NO PROVISION FOR KITCHEN EXHAUST IN THE COMMON AREAS. COMMON AREAS ARE PROVIDED WITH DUCTED FAN COIL UNITS FOR AIR-CONDITIONING. SIZE OF CEILING CONCEALED FAN COIL UNIT TO BE 1200mm(L)x600mm(W)x400mm(H).



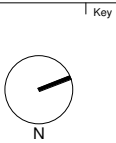
2 LEVEL 13-18 FLOOR PLAN 1:200

- | | | | | | |
|--------------|----------------|--------------|----------------|----------|----------|
| TWIN STUDIO | COMMON | DORM OUTDOOR | OUTDOOR | BOH | STAIR |
| QUEEN STUDIO | ADMINISTRATION | GYM | OUTDOOR DINING | RETAIL | CORRIDOR |
| DDA | DDA STUDIO | KITCHEN | | SERVICES | |

1 ROOF 1:200

All indicated Dimension and areas are indicative and for the purpose of initial spatial allowances, final arrangement and dimensions to be further developed during detailed design stages

Revisions No.	Date	Description	Verified RP	Approved BM
1	03/04/2020	Issue for Information		
2	11/05/2020	Issue for Information		
3	18/06/2020	Issue for Information		
4	30/07/2020	Issue for Information		
5	10/09/2020	Issue for Coordination	RP	BM
6	13/09/2020	Issue for Information	RP	BM
7	25/09/2020	Issue for Coordination	RP	BM
8	31/09/2020	Issue for Coordination	RP	BM
9	11/09/2020	Issue for Coordination	RP	BM
10	14/09/2020	Issue for Coordination	RP	BM
11	24/09/2020	Issue for Information	RP	BM



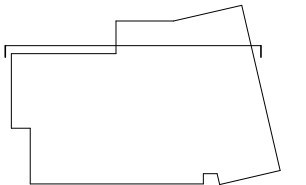
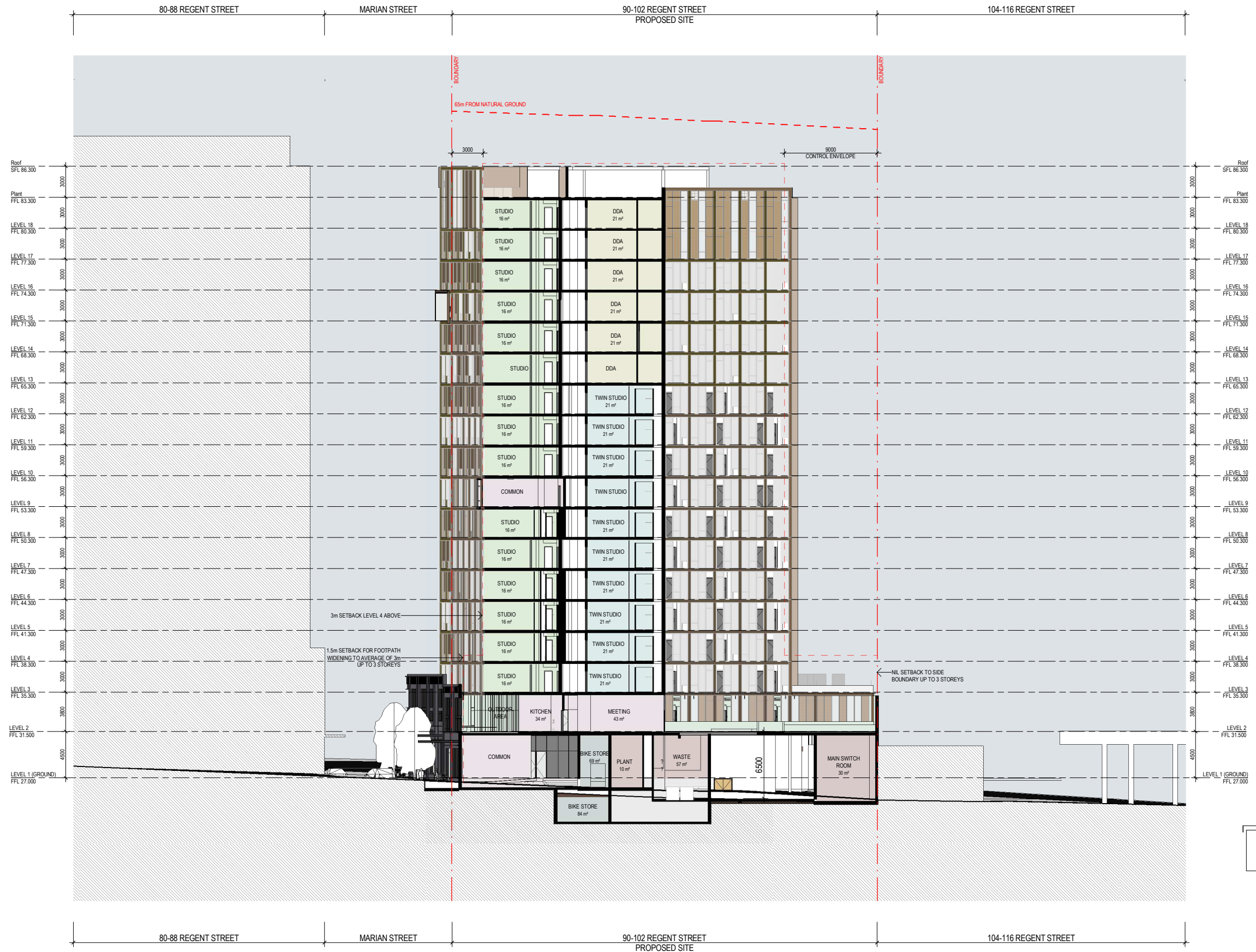
Client
WEE HUR CAPITAL PTE LTD
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Proj. No. 19026

Drawing Title
UPPER TYPICAL & ROOF PLAN
Sheet Status
NOT FOR CONSTRUCTION

Scale
1:200 @A1
Drawing No.
DA2004 11
Issue



Revisions No.	Date	Description	Verified	Approved
1	18/05/2020	Issue for Information	RP	BM
2	30/07/2020	Issue for Information	RP	BM
3	31/08/2020	Issue for Coordination	RP	BM
4	28/09/2020	Issue for Information	RP	BM

Key

Client



Architect



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Project

Wee Hur Regent
90 - 102 Regent Street, Redfern

Proj. No. 19026

Drawing Title

SECTION C

Sheet Status

NOT FOR CONSTRUCTION

Scale

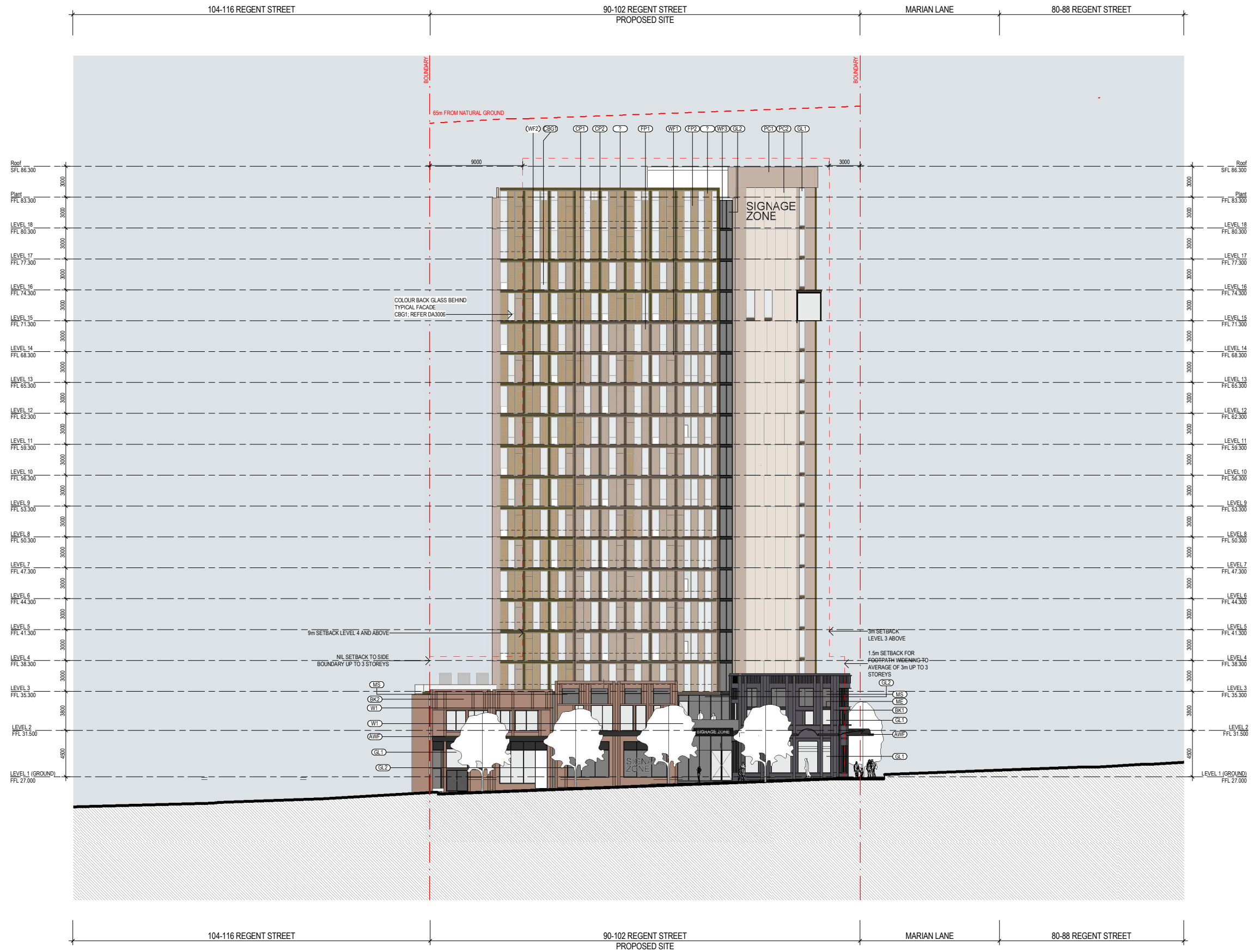
As indicated
@A1

Drawing No.

DA3003 4

Issue





Revisions No.	Date	Description	Verified	Approved
1	18/05/2020	Issue for Information	RP	BM
2	30/07/2020	Issue for Information	RP	BM
3	31/08/2020	Issue for Coordination	RP	BM
4	14/09/2020	Issue for Coordination	RP	BM
5	22/09/2020	Issue for Information	RP	BM
6	28/09/2020	Issue for Information	RP	BM

Key

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Project

Wee Hur Regent
90 - 102 Regent Street, Redfern

Proj. No. 19026

Drawing Title

EAST ELEVATION

Sheet Status

NOT FOR CONSTRUCTION

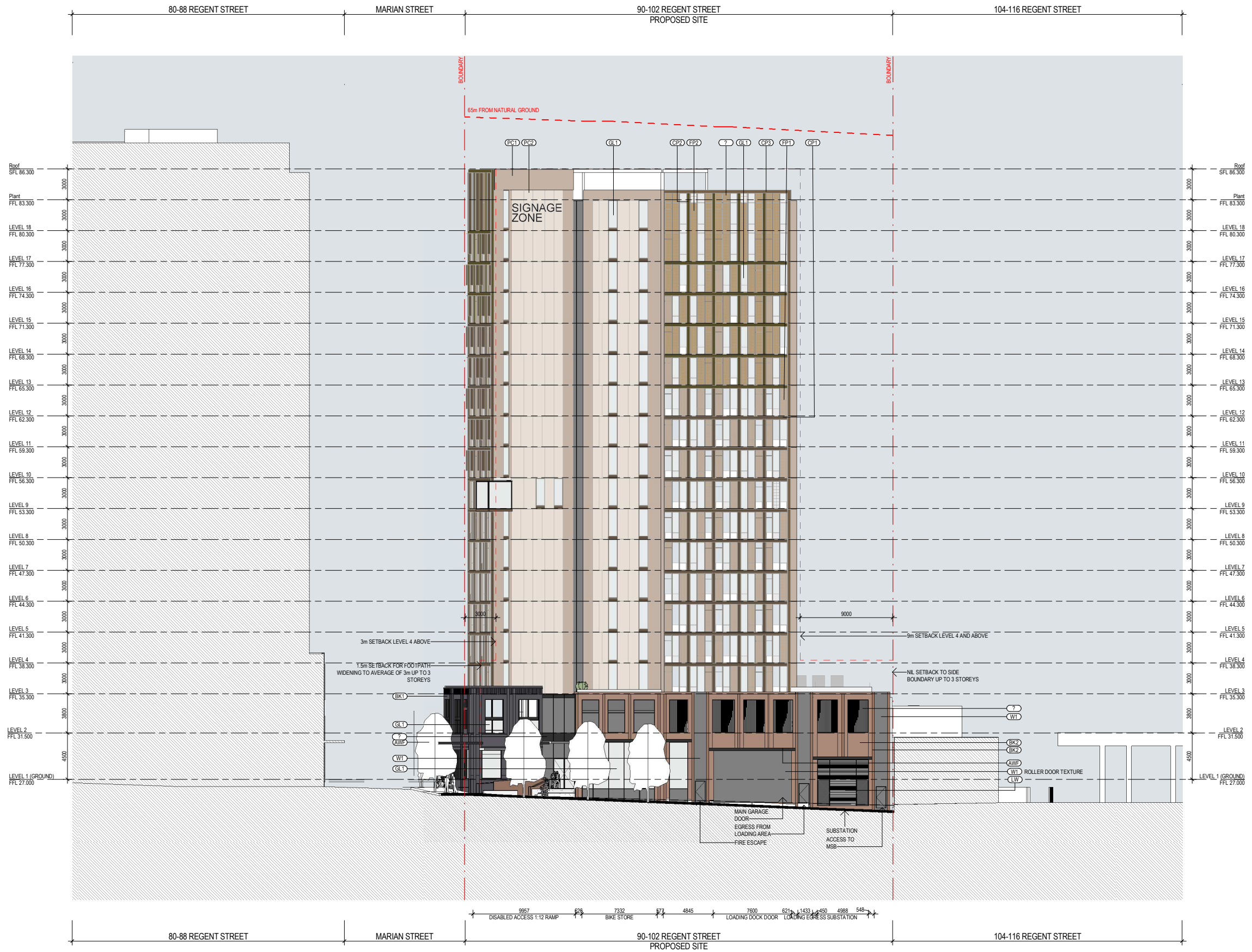
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Drawing No.

DA3005 6

Issue



Revisions No.	Date	Description	Verified	Approved
1	18/05/2020	Issue for Information	RP	BM
2	30/07/2020	Issue for Information	RP	BM
3	31/08/2020	Issue for Coordination	RP	BM
4	22/09/2020	Issue for Information	RP	BM
5	28/09/2020	Issue for Information	RP	BM

Key

Client



Architect



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Project

Wee Hur Regent
90 - 102 Regent Street, Redfern

Proj. No. 19026

Drawing Title

WEST ELEVATION

Sheet Status

NOT FOR CONSTRUCTION

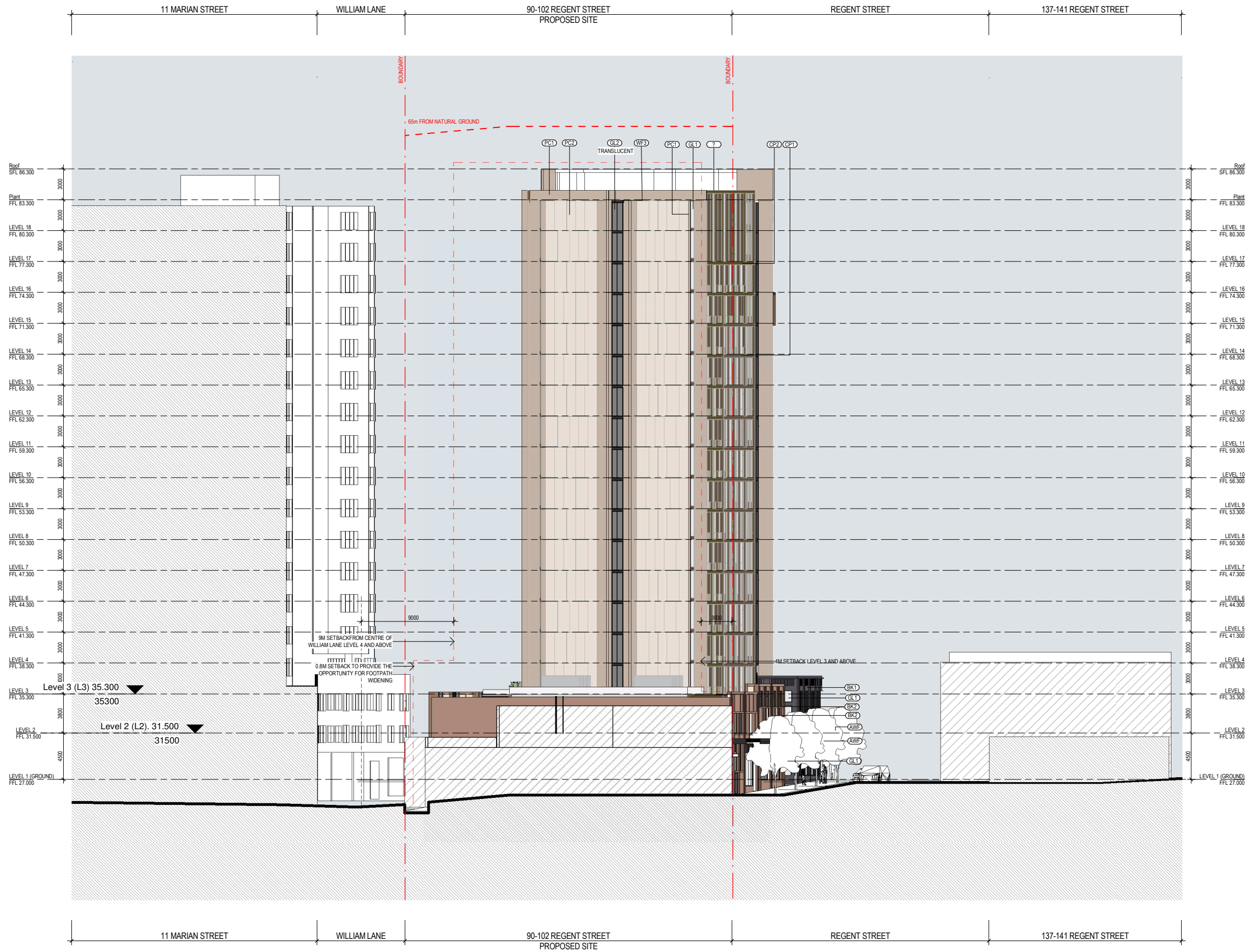
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Drawing No.

DA3007 5

Issue



Revisions No.	Date	Description	Verified	Approved
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2	30/07/2020	Issue for Information	RP	BM
3	31/08/2020	Issue for Coordination	RP	BM
4	22/09/2020	Issue for Information	RP	BM
5	28/09/2020	Issue for Information	RP	BM

Key

Client



Architect



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ABN 53 003 782 250

Project

Wee Hur Regent
90 - 102 Regent Street, Redfern

Proj. No. 19026

Drawing Title

SOUTH ELEVATION

Sheet Status

NOT FOR CONSTRUCTION

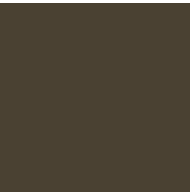
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Drawing No.

DA3008 5

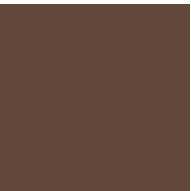
Issue



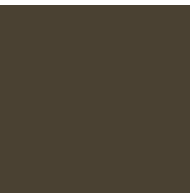
CP1
CAPPING PLATE
DULUX ANOTEC MID BRONZE



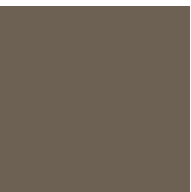
CP2
CAPPING PLATE
DULUX JASPER




CP3
CAPPING PLATE
BASSET BROWN



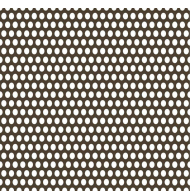
WF1
WINDOW FRAME
DULUX ANOTEC MID BRONZE



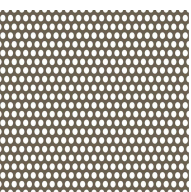
WF2
WINDOW FRAME
DULUX JASPER



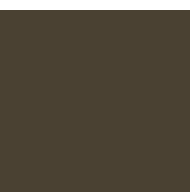
WF3
WINDOW FRAME
DULUX MONUMENT



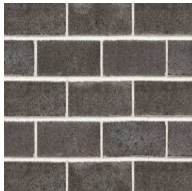
FP1
LGU FRIT PATTERN
DULUX ANOTEC MID BRONZE
30% PERFORATION



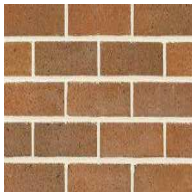
FP2
LGU FRIT PATTERN
DULUX JASPER
30% PERFORATION



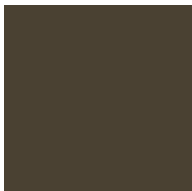
AP1
ALUMINIUM PANEL
DULUX ANOTEC MID BRONZE



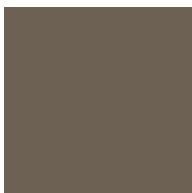
BK1
BRICK CAVITY WALL 1
PGH DRY BLACK BEAUTY




BK2
BRICK CAVITY WALL 2
PGH DRY HAWKESBURY BRONZE



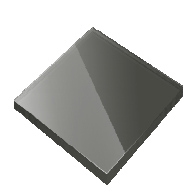
SH1
PERFORATED MESH SHADE
DULUX ANOTEC MID BRONZE
30% PERFORATION



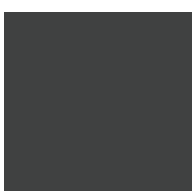
SH2
PERFORATED MESH SHADE
DULUX JASPER
30% PERFORATION




CBG1
COLOUR BACK GLASS
DULUX PEWTER PEARL




CBG2
COLOUR BACK GLASS
MONUMENT




LW
LOUVRED WALL WITH BUILT IN DOOR ACCESS
DULUX MONUMENT




AP2
ALUMINIUM PANEL
DULUX JASPER




VG1
VENTILATION GRILLE
DULUX JASPER OR DULUX ANOTEC MID
BRONZE TO MATCH ADJOINING AP




PC1
PRECAST CONCRETE PANEL TINT 1
KIEM 9288



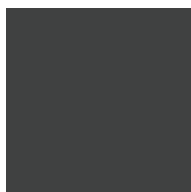
PC2
PRECAST CONCRETE PANEL TINT 2
KIEM 9292



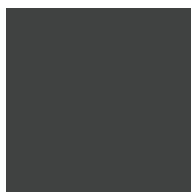
AWF
FOOTPATH AWNING
DULUX MONUMENT TO TOP AND SIDES
DULUX ELECTRO DURATE ZUES TALC TO SOFFIT



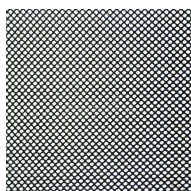
W1
PODIUM WALL
DULUX MONUMENT




ME
METAL EXTRUSION
DULUX MONUMENT




LV1
ANGLED LOUVRE
DULUX MONUMENT





MS
MESH
DULUX MONUMENT
50% PERFORATION



GL1
GLAZING
CLEAR LAMINATED GLAZING



GL2
GLAZING
DARK TINT LAMINATED GLAZING

	<div>Revisions No. Date Description 1 22/09/2020 Issue for Information 2 28/09/2020 Issue for Information</div>	<div>Verified RP Approved BM</div>	<div>Key</div>	<div>Client  WEE HUR CAPITAL PTE LTD (Wholly Owned Subsidiary of Wee Hur Holdings Ltd)</div>	<div>Architect  AJ+C ALLEN JACK+COTTIER 79 Myrtle Street Chippendale NSW 2008 AUSTRALIA ph +61 2 9311 8222 fx +61 2 9311 8200 ABN 53 003 782 250</div>	<div>Project Wee Hur Regent 90 - 102 Regent Street, Redfern Proj. No. 19026</div>	<div>Drawing Title MATERIAL BOARD Sheet Status NOT FOR CONSTRUCTION</div>	<div>Scale @A1 Drawing No. DA3011 2 Issue</div>	<div>Plot Date & Time 28/09/2020 12:58:40 PM</div>

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REF: C:\Users\Peter\Documents\19026_Material_Panels.rvt
Author
PLOTTED & CHECKED BY: