Sirius Site

2-60 Cumberland St, The Rocks

Building Services Development Application Statement

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Project Name: Sirius Site
Project Location: 2-60 Cumberland St, The Rocks
Building Services Development Application Statement

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CLIENT

Sirius Developments Pty Ltd

Amendment Register

Rev. No	Section & Page No.	Issue/Amendment	Author	Project Engineer	Checked	Date
01		Draft Issue	VA			31/07/2020
02		Final Issue	VA	OU/BS/JB/GM	VA	20/08/2020
03		Revised Final Issue	VA	OU/BS/JB/GM	VA	16/10/2020

Contents

1. GENERAL

1.1 Introduction

The works described in this Development Application brief will form the basis of the following services installations:

- Mechanical Services
- Electrical & Communication Services
- Hydraulic Services
- Fire Services
- Lift Services

The building services described in this report may be subject to change as the design develops at the discretion of the designers.

1.2 Development Description

The proposed development is for the adaptive reuse of the existing Sirius building, including alterations and additions. The existing building is proposed to be substantially retained and restored with integrity. New residential additions are proposed to be added to the existing structure in appropriate locations to maintain the legibility of the original architectural form, and new structures for commercial uses are proposed to be added at the Cumberland Street and Gloucester Walk frontages of the site.

The existing Sirius building has a varied height profile due to its modular form and due to the fall across the site when observed from Cumberland Street and from Gloucester Walk. The existing building rises from the north and south towards a central tower with a maximum height of 34.6m above ground level at Cumberland Street (equivalent to an 11-storey building). Due to the existing split-level apartments, the building is conveyed as having a greater number of levels (25 storeys).

The proposed alterations and additions to the existing building will increase the overall building height by 5.6m to a maximum building height of 40.2m above ground level at Cumberland Street. On the Cumberland Street entry side of the site, the building presents as thirteen (13) levels at the highest occupied level. When observed from Gloucester Walk, and due to the fall across the site, the building presents as fourteen (14) occupied levels.

The building incorporates two levels of basement car parking.

The proposed works include:

- Alterations and additions to the existing building to provide for:
  - Residential accommodation (a total of 76 apartments);
  - Commercial premises, including retail floorspace; and
  - Basement car parking.
- Provision of a through-site link between Cumberland Street and Gloucester Walk.
- Upgrades to Gloucester Walk including landscaping and pedestrian access.
- Improvements to Cumberland Street including landscaping and improved carpark entry.

- Associated works, including:
  - Minor demolition works;
  - Earthworks;
  - Structural upgrades;
  - Services upgrades; and
  - Landscaping works.

2. DESCRIPTION OF SERVICES

2.1 Mechanical Services

2.1.1 Regulations & Authority Requirements

All work will be in accordance with current relevant Standards, Codes and Regulations which include:

City of Sydney Council

National Construction Code

Fire and Rescue NSW

Australian Standards:

AS 4254 Ductwork for air handling systems in buildings

AS 1324.1 Air filters for use in general ventilation & air conditioning

Part 1 Application, performance and construction

Part 2 Methods of test

AS 1668 SAA Mechanical Ventilation and Air Conditioning Code

Part 1 Fire precautions in buildings with air-handling systems

Part 2 Ventilation requirements

AS 1851 Maintenance of fire protection equipment

Part 6 Management procedures for maintaining the fire precaution features of air handling systems

AS 3666 Air handling and water systems of buildings - Microbial control

AS 1530 Early fire hazard tests

AS 1682 Fire Dampers

Part 1 Specification

Part 2 Installation

AS 1469 Acoustics - Methods for the determination of noise rating numbers

AS 2107 Acoustics - Recommended design sound levels and reverberation times for building interiors.

AS 3000 SAA Wiring Rules

AS 1674 Cutting and Welding Code

2.1.2 Air Conditioning Systems

The following air conditioning systems are to be installed in the premises:

2.1.2.1 Apartments

Each apartment will be conditioned by multiple fan coil units connected via chilled and heating hot water pipework to a central multifunction chiller located in an acoustically treated plantroom on the roof of the commercial building at Cumberland Street.

The fan coil units are individually controllable for heating/or cooling via separate controllers in each space. Separate fan coil units will generally be located in the following spaces:

- Living area
- Dining area/kitchen
- Each bedroom
- Other rooms

The Gymnasium and the residential lift lobbies are to be air-conditioned.

The commercial lots (SOHO's) are to be provided with ducted air-conditioning.

The Retail lots are shell only with provision within the Lot for the tenant/owner to connect to a separate VRV system for each retail lot.

2.1.3 Ventilation Systems

2.1.3.1 Apartments

The following ventilation systems are to be provided for each apartment:

Bathroom, Laundry & Toilet Exhaust

A fully ducted system shall be provided with in line fans in each apartment, which can be operated from each separate enclosure. Bathroom, laundry and toilet exhaust shall be discharged vertically to the roof areas.

Kitchen Rangehood Exhaust

A fully ducted system shall be provided with in line fan in each apartment from kitchen rangehood. The ducted systems shall be discharged horizontally from each apartment.

Common Areas

The following residential common area ventilation systems are to be provided:

- Garbage exhausts to garbage chute enclosures at each level and basement garbage and waste areas.
- Plantroom and service areas supply and exhaust systems to code requirements, natural ventilation where practicable.
- Carpark supply and exhaust systems to code requirements.

Smoke Management Systems

The following smoke management systems are to be provided:

- Stair pressurisation systems for smoke hazard management to high rise portion of the building.
- Lobby relief in accordance with AS 1668.1.

2.2 Electrical Services

2.2.1 Authority Compliance

The electrical services will be designed in accordance with the requirements of the following:

1. National Construction Code
2. City of Sydney Council
3. Relevant Australian standards including:

2.2.2 Extent of Works

The electrical services shall include:

a. Consumers Mains
b. Main Switchboards and Distribution Switchboards
c. Sub-Mains to Essential and Non-Essential Plant and Equipment
d. Lighting and Power to All Areas
e. Emergency Lighting and Exit Signs
f. Telecommunication Cabling
g. Access Control System
h. Door Intercom System
i. MATV System
j. Emergency Warning and Intercommunication System
k. Self-Contained Smoke Alarms in Apartments and Automatic Fire Alarm System to Public Areas

2.2.3 Electrical Systems

2.2.3.1 Power Supply

Power supply to the project will be provided from the Ausgrid network in Cumberland St. Ausgrid have advised that a suitable supply up to a maximum of 400 amps/phase will be made available via a pillar on the Cumberland St frontage. Where building demand exceeds the available grid connected supply a gas fired microturbine will be provided to provide the additional energy requirements. The microturbine will also be provided with a heat recovery unit to recover waste heat which is used to supplement the domestic hot water and pool heating.

2.2.3.2 Photovoltaic System

A solar PV panels will be located on the available unused roof section to provide energy to the building. Energy generated by the PV system will be connected to the house services switchboards to reduce the energy imported from the grid during the daylight hours.

2.2.3.3 Consumers Mains

Fire rated consumers mains will be provided from the Ausgrid point of attachment to the building main switchboard located in basement.

2.2.3.4 Main Switchboards

The main switchboards will be manufactured in accordance with the relevant standards and will be housed in a fire rated room.

2.2.3.5 Sub-Mains

Sub-mains will be provided to all services plant and equipment in accordance with the requirements of other services.

2.2.3.6 Energy Metering

Metering equipment for house services will be provided in the main switchboard. Metering for apartments will be located on a floor by floor arrangement in accordance with Energy Australia and NSW Service and Installation Rules requirements.

Private energy metering will also be provided to meet the requirements of NCC Section J.

2.2.3.7 Lighting

The lighting in the public accessible areas will meet the minimum requirements of AS1680.0- Interior Lighting Part 0: Safe Movement. The illuminance levels will equal to those recommended in:

AS 1680.1 Interior Lighting Part 1: General Principles and Recommendations

AS 1680.2.0 Interior Lighting Part 2.0: Recommendation for Specific Tasks and Interiors

AS 1680.2.1 Interior Lighting Part 2.1: Circulation Spaces and Other General Areas

All house and public area lighting will be controlled by a lighting control system to minimise energy consumption.

All light fixtures will utilise LED sources to minimise energy use.

2.2.3.8 Emergency and Exit Lighting

The system will be designed and installed to the requirements of the NCC and AS2293 – Emergency evacuation lighting for buildings Parts 1, 2 and 3 using emergency and exit lights with integral batteries and chargers.

2.2.3.9 General Purpose Power

General purpose outlets (GPOs) and power connections to equipment will be designed and installed in accordance with AS3000 – SAA Wiring Rules.

To promote the use electric vehicles/bikes the following will be provided in the carpark areas:

10A charging outlet for each bike storage space.

15A charging outlet for each car space.

2.2.3.10 Telecommunications Cabling

Pathways for the future installation of a fibre optic distribution system in accordance with NBNCo requirements will be provided.

2.2.3.11 Access Control System

The building will be provided with an access control system that complies with AS2201 – Intruder Alarm Systems. Proximity card readers will be provided at the following locations:

- Car park entry and exit (via dual technology Airkeys or equivalent).
- In each lift.
- Ground floor foyer entries

2.2.3.12 Door Intercom System

Each apartment will be provided with an intercom system to the respective entry lobby. The handset will have a door release button to allow visitor entry interfaced with the respective lift to allow access to the floor which allowed access.

2.2.3.13 MATV System

The project will be provided with a MATV system that complies with AS1367 – Multiple Outlet Distribution Systems – Sound and vision as well as with AS3815 – A Guide to Coaxial cabling in Single and Multiple Premises.

The system will distribute to each apartment the local free to air television channels. The system will also distribute satellite Pay TV signals to each outlet.

2.2.3.14 Fire Alarms

Self-contained smoke detectors will be installed in each residential apartment located in accordance with NCC Clause E2.2a and AS3786

Public corridors and other public spaces will be provided with a smoke detection system in accordance with NCC Specification E2.2a.

2.2.3.15 Lightning Protection System

Each building will be provided with lighting protection ESE air terminal connected to down conductors within the building. The air terminal will be 5 metres above the highest point of the building structure. Surge arrestors will also be provided at each major switchboard.

2.3 Hydraulic Services

The following services systems are intended for installation within the building and are described as follows:

2.3.1 Sanitary Plumbing and Drainage

The proposed sanitary plumbing and drainage system will comprise a system of strategically placed stacks, vents and branches, collecting fixtures from all residential, and retail areas in accordance with AS3500 and Sydney Water guidelines.

Authority sewers will be available as part of the infrastructure redevelopment of the site.

2.3.2 Rainwater Plumbing and Stormwater Drainage

The proposed rainwater plumbing system will comprise a system of strategically placed downpipes, collecting rainwater from all roof, balcony and terrace areas in accordance with AS3500 and Council guidelines.

Rainwater from strategic roof areas will be collected and conveyed to rainwater collection tank.

Gutter and downpipe design will reflect the requirements of AS 3500 and shall be designed and sized in accordance with the following criteria:

- Box gutters: 1:100 year, 5 minute duration event
- Eaves gutters: 1:20 year, 5 minute duration event

2.3.3 Condensate Plumbing

The proposed condensate plumbing system will be a dedicated system, and comprise a system of strategically placed condensate stacks, vents and branches, collecting condensate from all residential air conditioning units, in accordance with AS3500 and Sydney Water guidelines.

The system will discharge into a series of tundishes connected to the sewer drainage system, at the ground plane, via approved water seal traps.

2.3.4 Rainwater Reclamation System (Non-Potable Cold Water System)

Rainwater reclamation will be provided to the development, to minimize water usage in relation to landscape watering systems.

The system will comprise a rainwater storage tank, sedimentation controls, and a piped system including valve and controls providing treated reclaimed rainwater to all areas required to be landscape watered.

2.3.5 Potable Cold Water System

Potable cold water will be provided to the development as part of the infrastructure redevelopment of the site to fixtures and fittings, including make-up supply to the rainwater reclamation tank as standby.

The system will comprise a single dedicated mains connection, water meter, and backflow prevention, while automatic, triplex, high efficiency, variable speed drive booster pumps will provide the required pressure and flow rate characteristics.

2.3.6 Hot Water System

Hot water will be provided to the residential portions of the development by gas fired central plants.

Flow and return piping circuits will be designed to minimize heat losses and hot water waiting times, which in turn will assist in minimizing water wastage.

Pressure limiting valves will control pressure in zones to apartments.

2.3.7 Fire Hydrant and Hose Reel Systems

Fire hydrants will be provided throughout the development in accordance with AS2419, AS2941, AS2441, AS2118.6 and NCC.

The system will comprise a combined fire storage tank, with diesel and electric pumps providing the required pressure and flow rate characteristics to all hydrants and hose reels throughout the building.

Pressure limiting zones shall be provided in accordance with AS2419, and a booster valve and suction point will be provided near the main building entry point.

A booster valve assembly will be provided at the main entry to the building.

Hose reels will be provided to the non-residential floors of the building.

2.3.8 Natural Gas System

Natural gas will be provided for the development, in accordance with AS5601 and Jemena guidelines utilizing a hybrid system of supply.

Fixtures and plant to be served will include:

- Hot water central plants
- Microturbine
- Apartment cooktops
- Commercial Lots/SOHO's

2.3.9 Fixtures and Tapware

The sanitary fixtures and tapware provided for the development will be of first quality in accordance with the BASIX certificates.

2.3.10 Fire Sprinkler Mains Supply

The fire sprinkler mains supply will comprise a connection to the water main as determined by Sydney Water via a Fire and Rescue NSW booster valve into the fire sprinkler valve room for connection to the fire sprinkler system.

2.4 Fire Services

2.4.1 Fire Sprinkler Protection System

The fire sprinkler protection system for the proposed development, shall be designed, documented and installed in accordance with NCC, AS2118.1 and the requirements of the Authorities having jurisdiction.

The system shall comprise a fully automatic wet pipe fire sprinkler protection system throughout the buildings.

Consideration shall be taken in the selection of materials equipment, its suitability, ease of installation, ease of maintenance and life expectancy of the service.

A tank model booster valve and 150mm suction point will be provided at the property boundary for Fire and Rescue NSW operation.

The fire indicator panel shall be provided within the fire control centre, within view of the designated building entry point.

The tanks will be sized and designed to cater for the protection of the development.

The system included in the fire sprinkler works are:

- Fast response sprinklers to all residential portion of the tower, foyers, public areas and plant.
- Fast response sprinklers to the ground floor foyer, public spaces and plant areas.
- Fast response sprinklers to the basement carpark.
- Sprinkler pumps.
- Sprinkler control valves.
- Interfaces to the fire indicator panel
- Connection to the fire sprinkler/hydrant water storage tank.
- Reticulation pipework.

2.4.2 Regulations, Standards and Codes

The whole of the works shall comply with all the latest relevant regulations and all local authority requirements including but not limited to:

NCC

Local Authority requirements

Fire and Rescue NSW

Australian Communication Authority

Work Cover Authority

Australian Standards

AS2118.1- Automatic Fire Sprinkler Systems

AS2941-2002 Fixed Fire Protection Installation – Pumpset Systems

AS1851 Maintenance of Fire Protection Equipment

AS3000 SAA Wiring Rules

2.4.3 Design Criteria

Residential Areas: Light Hazard risk affording a design density of discharge of 48l/min from each sprinkler within the hydraulically most unfavourable group of six (6) sprinklers.

Basement Carparks: Ordinary Hazard Group II risk affording a design density of discharge of 5.0mm/min. over an assumed area of operation of 144m^2.

2.4.4 Accessories

Fire extinguishers shall be provided, in accordance with the relevant Australian Standard and NCC.

2.5 Vertical Transportation

2.5.1 Authority Compliance

The vertical transportation services will be designed in accordance with the requirements and recommendations of the following:

Fire and Rescue NSW

NCC

WorkCover Authority

Australian and other relevant standards including:

- AS1170.4 – Structural Design Actions – Earthquake Actions in Australia
- AS1428.1 – Design for Access
- AS 1428.4.2 – Way finding signs
- AS1735.1 – General Requirements
- AS1735.11 – Fire Rated Landing Doors
- AS1735.12 – Facilities for Persons with Disabilities
- AS1735.19 – Remote alarm on passenger and goods passenger lifts
- AS3000 – SAA Wiring Rules
- AS60947 – Low Voltage Switch Gear and Control Gear – Protection of Electric Motors
- EN 81-20 – Safety rules passenger and goods passenger lifts
- EN 81-70 – Accessibility to lifts for persons including persons with disability
- ISO/IEC 27001 – Security techniques - Information security management systems - requirements
- ISO/IEC 27002 – Security techniques - Code of practice for information security controls
- ISO/IEC 27701 – Security techniques — Extension to ISO/IEC 27001 and ISO/IEC 27002 for privacy information management — Requirements and guidelines

2.5.2 Passenger Lifts

Lift Services shall be provided as follows:

- 6 lifts serving the residential apartments
- Internal Penthouse lift serving level 25 and 26.
- 1 passenger lift serving the Gym and the pool deck (Cumberland Street building)
- Gloucester Walk Lift serving the through site link and providing accessibility to Gloucester Walk.

The passenger lifts shall:

- Serve each lobby shown on the drawings
- Accommodate stretcher lifts to comply with the NCC.
- Comply with NCC
- Be provided with shaft and pit lighting to statutory requirements.

2.5.3 Truck Lift

A 10,000kg SWL truck lift 9700 long x 5200 wide x 3300 high with front and rear opening doors will be provided to convey garbage and furniture trucks from the Cumberland street carpark entry to the loading dock/garbage area.

floth

floth.com.au

BRISBANE
Level 2
69 Robertson St
Fortitude Valley QLD 4006
+61 7 3513 8000
bne@floth.com.au

SYDNEY
Level 8, Tower A
799 Pacific Hwy
Chatswood NSW 2067
+61 2 9406 4555
syd@floth.com.au

PERTH
Level 6
66 St Georges Tce
Perth WA 6000
+61 8 6162 2396
perth@floth.com.au

MELBOURNE
Suite 13.04, Level 13
470 Collins St
Melbourne VIC 3000
+61 3 9448 8755
mel@floth.com.au

JAKARTA
Wisma Kemang Level 2
JL Kemang Selatan Raya No. 1
Jakarta Selatan 12560, Indonesia
+62 21 781 6326
floth@flothindonesia.com