



Electrical Services

Concept Design Report

Social and Affordable Housing – Stage 2

15 Northumberland St, Liverpool

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1 Executive Summary

1.1 Summary

This electrical services concept design report outlines the scope of works, design criteria, components and materials which will be adopted by Insync Services Pty Ltd for completion of the electrical services design and documentation for the proposed Social and Affordable Housing – Stage 2 development site at 15 Northumberland St, Liverpool.

The report will form the basis for communication of design principles to the Client for review, comment and sign-off, such that the electrical services design and documentation can be completed for the project.

1.2 Code Compliance

The electrical services covered by this concept design report will be designed to comply with the following requirements;

Electrical Services	Design Codes	Proposed Compliance
Power Supply	National Construction Code A.S.3000 (SAA Wiring Rules) A.S.3008 – Selection Of Cables NSW Installations and Wiring Rules	Deemed To Satisfy
Lighting System	National Construction Code A.S.2293 - Emergency & Exit Lighting A.S.1158 – Road Lighting A.S.1680 –General Lighting in a workplace Series A.S.4282 –Control of the obtrusive effects of outdoor lighting	Deemed To Satisfy
Communications System	National Construction Code A.S.3015 – Extra Low Voltage D.C. Power Supplies Within Public Telecommunications Networks Austel Technical Standard TS008 – Authorised Cabling Products Austel Technical Standard TS009 – Customer Cabling Requirements A.S.1367 – Coaxial Cable Systems A.S.3080 – Information technology – generic cabling for customer premises A.S.3084 – Telecommunications installations pathways and spaces in commercial buildings	Deemed To Satisfy
Fire Detection System	National Construction Code A.S.3786 – Smoke Alarms A.S 1670 – Automatic Smoke Detection System	Deemed To Satisfy

*NCC – National Construction Code which includes:

- Volume 1 – Building Code of Australia – Class 2 to Class 9 Buildings
- Volume 2 – Building Code of Australia – Class 1 and 10 Buildings
- Volume 3 – Plumbing Code of Australia

1.3 Site HV Infrastructure

Insync Services has undergone an early maximum demand calculation to ascertain approximate total load of the proposed site. The calculated electrical maximum demand for the site based on AS/NZS 3000:2018 is calculated to be 775A/ph (535kVA). A new kiosk substation will likely be

required for the proposed site. An application for connection to Endeavour Energy will be required to ascertain the type of electricity supply to the building.

The pad-mount substation location shall comply with all clearances met in accordance to the Level 3 ASP designer and local supply authority requirements.

An accredited Level 3 service provider (ASP) will be required to undergo the design and to undergo an investigation for the most effective location the substation to connect to the existing Endeavour Energy electricity network. Dial Before You Dig information suggests that the electricity network is available along Northumberland St.

1.4 Communications Infrastructure

NBN fibre appears to be available in the area and is proposed to be used for the development.



Figure 1 – NBN Service Availability (www.nbnco.com.au)

2 Introduction

2.1 Background

Anglicare has engaged Insync Services Pty Ltd to provide building services consultancy for the proposed Social and Affordable Housing – Stage 2 development site at 15 Northumberland St, Liverpool. Specifically, Insync Services Pty Ltd have been engaged to provide engineering consultancy concept design reports to cover the following building services disciplines;

- Electrical Services
- Fire Services
- Hydraulic Services
- Mechanical Services
- Lift Services

2.2 Aims

The aim of this concept design report is to provide a detailed description of the electric services design proposals associated with the development. Specifically the report is intended to provide a summary of the following;

- Identification of services to be provided.
- Description of the codes to which they will be installed.
- Description of the basis for design.
- Description of the required performance.
- Description of the materials to be used.

This document shall form the basis for communication of design principles and specific building services design requirements to the Client and wider design team, such that the building services design principles can be fundamentally incorporated into the architectural planning proposal to be submitted for the development.

2.3 Briefing Documents

The electrical services engineering elements considered within this report have taken into account the following briefing documentation and investigations;

- National Construction Code.
- Relevant Australian Standards.
- Authority design and guidelines.
- Authority Main Diagrams
- Preliminary architectural drawings prepared by Group GSA Pty Ltd.

2.4 Development Description

The proposed development scheme is yet to be finalised however for the purposes of this review we have made the following assumptions;

1. The development will contain 1 level of basement carparking.
2. The development will contain ground floor retail, day care/ childcare and administration space.
3. The development will contain approximately 109 SAH rentals.
4. The development will contain approximately 28 private rentals
5. The development will be more than 25m in effective height as Classified by the National Construction Code.
6. The development will comply with Basix requirements, in terms of environmental performance.

2.5 Associated Services

The associated services engineering elements will be considered in conjunction within this report are as follows;

- Fire Rated Construction as detailed by the Architect and Structural Engineer.
- Acoustic Performance as detailed by the Acoustic Engineer.
- Alternative Solutions as detailed by the Fire Engineer.
- Site specific requirements as detailed by the Mechanical Engineer.
- Site specific requirements as detailed by the Hydraulic Engineer.
- Site specific requirements as detailed by the Landscape Contractor.
- Site specific requirements as detailed by ASP3
- Site specific requirements as per NBN Co design guidelines.

3 Scope of Work

3.1 Extent of Services

The extent of Electrical services required throughout the development will include the following:

- Power Supply Systems
- Lighting Systems
- Communication Systems
- Security & Access Control systems

3.2 Code Compliance

The proposed code compliance for electrical services required throughout the development will include the following:

Electrical Services	Design Codes	Proposed Compliance
Power Supply	National Construction Code A.S.3000 (SAA Wiring Rules) A.S.3008 – Selection Of Cables A.S.3439 – Low Voltage Switchgear & Control Gear Assemblies NSW Installations and Wiring Rules	Deemed To Satisfy
Lighting Design	National Construction Code A.S.2293 - Emergency & Exit Lighting A.S.1158 – Road Lighting A.S.1680 – Interior Lighting in a workplace A.S.4282 – Control of the obtrusive effects of outdoor lighting	Deemed To Satisfy
Communications	National Construction Code A.S.3015 – Extra Low Voltage D.C. Power Supplies Within Public Telecommunications Networks Austel Technical Standard TS008 – Authorised Cabling Products Austel Technical Standard TS009 – Customer Cabling Requirements A.S.1367 – Coaxial Cable Systems A.S.3080 – Information technology – generic cabling for customer premises A.S.3084 – Telecommunications installation pathways and spaces in commercial buildings	Deemed To Satisfy
Lightning Protection	National Construction Code A.S.1768 – Lightning Protection	Deemed To Satisfy

3.3 Scope of Work – Power Supply

The electrical services engineering elements considered within this report are as follows;

- Site infrastructure and reticulation design systems with respect to the High Voltage work. This includes providing an application for connection to the electricity supply authority (Endeavour Energy) and paying all associated fees.
- Low Voltage Power distribution systems
- Metering to suit strata arrangement
- Earthing systems and bonding
- Site Maximum Demand Calculation Estimates
- Electrical Spatial requirements (Electrical Risers, Switchrooms, and other electrical

- rooms).
- General and Permanent power provisions
- Cable Management Systems
- Building Management System Integration

3.4 Scope of Work - Lighting

The scope of work required will include, but not be limited to, the following:

- General internal lighting Systems
- Lighting Control system to comply to BCA Section J
- External lighting and integrated control systems
- Security lighting and public walkways.
- Exit and Emergency lighting systems (Non-monitored System)
- Luminaire schedule

3.5 Scope of Work - Communications

The scope of work required will include, but not be limited to, the following:

- Make application to NBN Co and carry out full design of NBN Co infrastructure to the full requirements of the NBN Co design guideline for NBN Co final certification.
- Installation of NBN Co communications infrastructure
- Fibre Communication infrastructure provision residential apartment units and retail space (Reticulation by developer. NBN fibre cabling and NBN active equipment by NBN Co.)
- CAT6a structured cabling from NBN Network Termination Device (NTD) to data outlets (by Contactor)
- Communications Earthing and Bonding to NBN Co Requirements
- Communication Spatial requirements (IT rooms, Communication Riser, other IT cupboards per common floor, internal residential apartment units, commercial, etc)
- Cable management systems
- Free to Air and Pay TV systems

3.6 Scope of Work – Security, Access Control & Intercom System

The scope of work required will include, but not be limited to, the following:

- Door Access Control facilities at site entry and building/foyer entry points.
- Intruder Detection monitoring facilities to the perimeter of the building, common and circulation areas, within the lifts and carpark and building entrances. **No door monitoring to apartments.**
- Lift Access Control System interface
- Video intercom system
- Separate system to accommodate strata and stratum titles
- Building re-entry on every forth floor per NCC requirement for buildings over 25m

3.7 Scope of Work – Dry Fire

- Main fire indicator panel at main entry lobby to AS1670
- Fire Fan Control Panel (FFCP) at the main entry lobby to AS1668
- Mimic panels at alternative building entries as required
- Main SSISEP (Sound System and Intercom System for Emergency Purposes) panel at the main entry lobby
- Warden intercom phones (WIPs) on each level adjacent fire stair
- Break glass fire alarm push button on every level adjacent fire stair
- Smoke detectors to AS1670
- Thermal detectors to AS1670
- Emergency speakers to AS1670

3.8 Separation

The scope of work required shall include, but not be limited to, the following:

- Services penetrations to be fire-rated to a standard detail and certified by a single company across all trades. All to coordinate with all other service trades.
- Electrical services risers to be fire rated on a floor to floor basis (fire rate the vertical penetrations through slabs).

4 Design Principles

4.1 Background

Anglicare have specific requirements in terms of building services outcomes with regard to this development including the following areas;

- Cost & Efficiency
- Quality & Longevity
- Uniformity
- Serviceability

All design shall be prepared with due regard to building services design such that the clients overall objectives for the development can be realised. In particular, the spatial requirements for building services shall be determined and incorporated into the architectural proposals from first principles so that further development of the architectural proposals can be undertaken as the design progresses without the need to backtrack and compromise architectural integrity of the submission as a result of building services requirements that have not previously been adequately considered.

4.2 Cost & Efficiency

The client has aggressive cost benchmarks which will be required to be achieved for the procurement of this development. These benchmarks are not able to be achieved without the fundamental integration and coordination of building services concurrent with development of the architectural design. Specific areas for consideration include the following;

- Equipment location for maximum efficiency.
- Adequate floor to floor heights.
- Vertical alignment of services risers.
- Standardised design forms that bring cost savings through repetition.
- Development of typical components that can be pre-fabricated off site.
- Continuity of wet area locations at typical floor changes to reduce bulkheads below.
- Modular design of plant where applicable to match proposed construction staging.
- Selection of standard manufacture equipment that is readily available.
- Selection of low maintenance plant & equipment.
- Duplication of equipment where required to provide operational redundancy in critical aspects of the buildings operation.

4.3 Quality & Longevity

The client requires a building that is fit for purpose in terms of the requirements for its ongoing operation. **Selection of plant and equipment shall provide trouble free operation over the duration of its life cycle, aside from the regular maintenance program.** Equipment shall be selected with due consideration to having demonstrated proven reliability on similar installations, in similar operating conditions. Equipment supply shall be via companies that can demonstrate a long-term trading history in the Australian market, and have local agents capable of providing the necessary technical support and parts availability as will be required throughout the equipment's life cycle.

4.4 Uniformity

Uniformity of type and manufacture of each specific type of equipment and accessory shall be preserved throughout the whole installation. Where possible, the number of types of equipment provided by an individual supplier shall be maximised.

4.5 Serviceability

The client requires a building that is fit for purpose in terms of the requirements for its ongoing operation. Spatial allocation for plant and equipment shall provide due consideration for all ongoing

maintenance requirements of the equipment, including total replacement of the equipment at completion of its life cycle. Adequate clearance shall be provided around all equipment for maintenance access, with due consideration given to aspects of Safety In Design principles as may be applicable. Access shall be arranged so as to provide minimal disruption to the normal operation of the building and minimise any inconvenience to the building occupants. **Any need to alter or damage building fabric to effect equipment maintenance shall be avoided under all circumstances.**

5 Power Services

Generally, the low voltage power design will cover the overall electrical infrastructure works and power distribution system arrangement through to the retail outlet and residential apartments and common areas including power supply to all services deemed to be essential to the safety and normal operation to the site:

5.1 LV Power Infrastructure

- Liaison with the supply authority with respect to the calculated site maximum power demand. Furthermore, the electrical design involvement will extend to include liaison and coordination with a level 3 Accredited Service Provider to ensure service mains and protective device coordination and grading are designed in accordance with the Supply Authority Design Guidelines and AS3000 requirements.
- A main switchboard shall be provided for the site. The main switchboard shall be minimum form 3bih and have a minimum fault current of 36kA for 1 second. The main switchboard shall be rated to the full capacity of the kiosk substation.
- A combine electrical/communications riser cupboard will be provided on each level with the intent of staggering electrical and communications equipment on alternating levels. Apartment meters shall be situated on every alternative level.
- Common house electrical distribution boards shall service no more than 5 levels above and 5 levels below the location of the house electrical distribution board.
- The power infrastructure will be designed to allow future growth. The power cables will utilize cable support systems throughout the whole installations via heavy duty PVC conduits, cable ladders, cable trays and catenary wires.
- For all spare conduits a draw string wire will be noted as a requirement for future installation and alterations.
- The design will allow for separation with all other services be highlighted in accordance with the Australian Codes.
- Electrical Pits will be specified to be of high insulation properties, high mechanical strengths, chemical resistance and zero water absorption. Drainage will also be highlighted to comply with the NSW Service and Installations Rules and the Australian Codes.

5.2 Electrical Reticulation

The electrical reticulation will be sized to cater for the following load densities:-

- Consumer mains will have 25% spare capacity.
- Residential unmetered risers shall be sized on the calculated diversified maximum demand as per AS3000, the NSW Services and Installation Rules and the supply authority requirements.
- Residential apartment electrical supplies will be design with a minimum submain size of 63A single phase terminating in a 18 pole single phase load-centre distribution board. 3-phase supplies are not proposed for the residential apartments.
- House service electrical supplies will be design with a minimum submain size of 100A 3-phase terminating in 72 pole 3-phase distribution boards located within the electrical cupboards.

- Calculated maximum demand plus 25% spare for Mechanical Services.
- Calculated maximum demand plus 10 % spare for lifts.
- Cable trays and riser ducts will be sized to allow for 30% space capacity for future additional cabling.

5.3 Main Switchboard and Distribution Boards

- The proposed Main switchboard is generally required to be positioned within 50 meters from the substation. This requirement is nominated within the NSW Services & Installation Rules and is essential to minimise the cable length and size and subsequent cost.
- In addition to cost, and provided that the site is effectively focus on a central path of connection (being the spine of the building where electrical Risers will be located), other factors will also be calculated such as voltage drop (maximum of 5%) and total earth fault loop impedance which will provide an overview of the correct size and length adequate enough to excite the protective device to operate and isolate to safety.
- The proposed main switchroom shall be located in close proximity to the location of the substation but also located centrally to the footprint of the electrical risers (where the maximum load will be delivered).
- The main switchboard shall be located within an electrical cupboard in the basement. The main electrical cupboard shall be 2hr fire rated.
- The house distribution Boards will be located in the main electrical cupboard and strategically throughout the building to service all the house electrical loads including general power and lighting.
- Energy Monitoring for all other services will also be required (subject to NCC report), such as essential/safety services, power and lighting, central hot water supply and other ancillary plants for compliance with Section J of the NCC.
- All electrical risers will be designed to have space to accommodate an estimated total floor apartment supply authority meters equal to minimum 250A 3-phase, together with associated fuses and circuit breakers in accordance with the latest revision of the NSW Service and Installation Rules.

5.4 Metering

Tariff Metering arrangement will be provided as follows:-

- House services meter for carpark/Basement level and common areas located in main switchboard.
- Residential meter panels will be provided on each floor of each apartment.
- Retail meter will be located within the retail space.

Private meters to monitor energy consumed by:-

- Separate metering for Strata and SAH common areas
- Mechanical switchboard.
- Common area power for each switchboard.
- Common area lighting for each switchboard.
- Lifts.
- Other significant loads as required by BCA Section J8.3.

5.5 Residential Apartment Power Outlets

General Purpose Outlets (GPO's) will be provided typically as listed below:

Location	Comments/Others
Bedrooms	1 x DGPO in each bedroom for general power circuit adjacent bed (one side only) 1 x DGPO for NBN NTD (one bedroom only within robe)
Bathroom/ Ensuite	1 x DGPO within vanity 1 x isolator for exhaust fan
Laundry	1 x DGPO for washing machine & dryer 1 x isolator for exhaust fan
Study (If applicable)	1 x DGPO
Kitchen	1 x GPO for dishwasher 2 x DGPO for general use 1 x single phase 32A isolator for cooktop & oven 1 x isolator for rangehood 1 x GPO for hot water unit 1 x GPO for fridge Load center location proposed over fridge location
Lounge	1 x DGPO for TV/PayTV 2 x DGPO for general use
Dining	1 x DGPO for general use
Balcony	1 x single phase 20A isolator for A/C (weatherproof)

5.6 Retail Tenancies/ Offices Power Outlets

Location	Comments/Others
Café/ Offices	1 x GPO per 15m for cleaners 1 x DGPO for NBN NTD Other power requirements TBC
Building Managers Office	2 x DGPOs for computers/ general use

5.7 Public Area Power Outlets

Location	Comments/Others
Corridor	1 x GPO per 15m for cleaners
Electrical Risers	1 x DGPO (electrical)
Communications Risers	1 x DGPO (communications) 1 x DGPO (security)
Foyer	1 x DGPO
Communications Room	6 x DGPO (NBN Provision, security, MDL, FIP and Lifts) 1 x GPO for CCTV 1 x DGPO for Security
Main Switchroom	2 x DGPO General power
Carpark	1 x DGPO per 30m
Plant Rooms	As required by other services Minimum 2 x DGPO for general use

6 Data Communications

6.1 Data Communications Services

The Electrical Contract Works related to the data communication and NBN requirements of this project will comprise of the following:

- Design of data communication reticulation systems and associated accessories for future fibre cable entry into the site and to each residential apartment via dedicated communications route.
- Co-ordination of fibre lead-in conduit from new NBN pit appropriate to site
- Provision of adequate spatial clearance as per NBN's requirements in the communications cupboard and dedicated communications riser.
- Schematically design for NBN Co active equipment for all Network Termination Device per commercial tenancy and Fibre Termination Devices per each floor.
- Full Design of horizontal pathways i.e. conduit from communications riser to each individual commercial tenancy per floor for NBN Co approval.

6.2 Duct/Conduit Requirements – Lead In

The Design will allow for 2 x 100mm DIA communications conduit from the new NBN reticulation outside site boundary into to the main communications room.

The lead in conduits will run into the main communications room, where future NBN Co fibre cable and equipment will be installed by NBN Co.

Furthermore, the design will provide schematic for all designated communication conduits to be installed from the main communications room to each residential apartments and retail tenancies via Fibre Distribution Terminals (FDTs located in common electrical/ communications cupboards) and apartment Network Termination Devices (NTDs located in bedroom robe).

6.3 Residential Apartment Data Outlets

Location	Comments/Others
Bedrooms	1 x Data outlet in each bedroom adjacent bed for general use 4 x Data outlets for NBN NTD (one bedroom only within robe)
Bathroom/ Ensuite	Nil
Laundry	Nil
Study (If applicable)	1 x Data outlet for general use
Kitchen	Nil
Lounge	2 x Data outlets for TV/PayTV 1 x Data outlet for phone
Dining	Nil
Balcony	Nil

6.4 Retail Tenancy/ Office Data Outlets

Location	Comments/Others
Café/ Offices	4 x Data outlets for NBN NTD Other data outlet requirements TBC

Building Managers Office	1 x Double data outlet for computer and phone
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6.5 Public Area Data Outlets

Location	Comments/Others
Main Communications Room	1 x Data outlet for security panel 1 x Data outlet for CCTV network video recorder
Communications Cupboard	1 x Data outlet for MDL 1 x Data outlet for security panel
Lobby	1 x Data outlet for FIP
Lifts	1 x Data outlet per lift

7 Lighting Services

7.1 Internal Lighting Generally

Generally all internal lighting will be designed in accordance to Australian Standard AS1680 and the NCC2016 (consideration to people with disability lighting levels and glare will be emphasized and implemented).

7.2 Calculations

To achieve code compliance a national and international approved software tool such as DiaLUX will be used to provide lighting levels generated calculations as close to reality. This method is used as pre-installation method to ensure compliance are achieved and quantity of luminaire fittings are correct minimizing variation during construction.

7.3 External Lighting Generally

Generally all external lighting will be designed in accordance to Australian Standard AS1158 and AS4282. These standards focus on road lighting taking into account public safety for better visibility during the night, theft, security and crimes within a given suburb and also preventing disturbances via glare emitting from the luminaires to the neighboring sites.

7.4 Controls

The lighting design will ensure compliance to the National Construction Code in particular section J6 for energy saving during occupied and unoccupied space.

By utilizing control methods within common areas such as motion sensors and zoning, photoelectric sensors, Timers and others means of control to ensure minimization of the building energy consumption and subsequent carbon footprint reduction.

Residential apartments will be solely controlled via manual light switches

7.5 Development Illumination Level

Generally lighting in the apartments will be designed as follows:

Area	Lighting Level	Other/Comments
Bedrooms	100 Lux	LED Oyster (non-dimmable, 3000k)
Bathrooms/ Ensuities	100 Lux	LED Oyster (non-dimmable, 3000k)
Laundry	80 Lux	LED Oyster (non-dimmable, 3000k)
Study (If applicable)	100 Lux	LED Oyster (non-dimmable, 3000k)
Kitchen	160 Lux	LED Oyster (non-dimmable, 3000k)
Lounge	100 Lux	LED Oyster (non-dimmable, 3000k)
Dining	100 Lux	LED Oyster (non-dimmable, 3000k)
Balcony	N/A	Wall mounted LED light proposed (Weatherproof, non-dimmable, 3000k)

7.6 Common Area Illumination Level

Area	Lighting Level	Other/Comments
Corridor	80lux	LED recessed Downlight (non-dimmable, 3000k)
General Basement Carpark Carpark Entry - First (15m)	40lux 800lux	LED Surface batten, 4000k non-dimmable, Weatherproof) Surface mounted LED Low Bay (non-

- Next (4m)	160lux	dimnable, 4000k, Weatherproof)
- Night-Time	160lux	
- Aisles, Ramps and circulations	40lux	
Fire Stairs	80lux	LED Surface batten (4000k non-dimnable)
Plant Room/Switchroom	160lux	LED Surface batten (4000k non-dimnable, Weatherproof)
Communications room		
External Security	20lux	LED Bollard Downlight (Asymmetric Forward throw beam, Weatherproof)
External Lighting	To AS1158 & AS4282	LED controlled via Time Clock and Photo-electric Cell
Foyer	160Lux	LED Downlights, 3000k, flood beam, non-dimnable

7.7 Exit & Emergency Lighting

A complete emergency lighting system incorporating self-contained emergency luminaires and exit signs will be designed in accordance with the requirements of AS 2293.

All emergency luminaires and illuminated exit signs will be designed and checked for the following:-

- Compliance with AS 2293.
- Be classified by an approved Authority in accordance with AS 2293, with the classification being clearly marked on the luminaire label.
- Be numerically identified with a permanent approved engraved label with numbers corresponding with the log book identification and as-installed drawings.
- Be circuited in accordance with the intent of AS 2293, enabling testing to be performed without interruption to general lighting.

7.8 Emergency Luminaires

Emergency luminaires and exit signs shall comply with AS 2293 and be National Construction Code (NCC). Each emergency lighting unit will be of the self-contained single point type complete with LED light source, batteries, dual rate battery charger, inverter, test switch and light emitting diode to indicate that the charger is operating.

Where emergency lighting units are contained within normal luminaires, the batteries and associated control equipment will be housed on a separate metal enclosure attached to the luminaire and located so that the batteries are not affected by the high temperatures generated within the luminaire during normal operation.

Emergency exit luminaires will be of the 'Running Man' pictorial type complete with arrows as required and classified by an approved authority in accordance with AS/NZS2293.1, with the classification being clearly identified on the luminaire label.

All distribution boards will be labelled in accordance with AS2293 to indicate circuits which supply emergency luminaires.

Emergency light test switches will be located within house distribution boards.

8 Security Access Control, CCTV and Intercom Systems

8.1 Security Access Control System

The system will be a standalone system of the fully programmable type. The central hub will be housed in the main communications room in the basement or where shown on the electrical drawings. Additional control equipment will be located throughout the development within communications cupboards on floors where required, in tamperproof enclosures. The system will utilise distributed intelligence so it can continue to function locally in the event of communication errors or loss of the central control hub.

All building entry points will be provided with a card reader style door access point. Each of the lobbies will operate independently of each other on programmed time sequencing as directed by the building operator.

Security card reader and reed switches will not be installed at apartment doors.

The system will utilize proximity card style access cards or tokens with card readers. Proximity cards will be key fob type.

Secure doors will incorporate mortise lock, magnetic door hold devices or electric strikes suitable to match the door style and hardware. Secure doors will be electrically locked and operable by either presenting a valid access card or access being granted through the entry intercom system. On the secure side of doors, a pushbutton to unlock doors will be provided. External entrances will additionally utilize reed switches for monitoring of unauthorised entry or forced entry at external doors to the building and to areas requiring an increased level of security e.g. plant rooms, main switch room and building communications room.

The car park roller shutter/door system, will contain an interface to facilitate access to the car park for residents and other authorised via dual technology proximity and radio remote key fobs. A pedestal will be located at entrance and exits to the car park to facilitate the mounting of intercom entry/exit stations.

The pedestal if required will be mounted to enable use from a standard sedan car window and no inhibit traffic flow.

Additionally, radio frequency remote control access buttons, for issue to building occupants, will be utilised for resident vehicular access to the car park. Each proximity/ radio remote control will be individually identifiable by the security system and have events recorded in the security system log. Provide a carpark roller shutter open/close pushbutton in the building manager's office or other nominated personnel.

An induction loop will be installed within the car park to enable the car park door to automatically open upon detection of exiting vehicles.

The system will also be interfaced to the lift control system to limit access various floors as programmed. The lift control interface will operate to control access for residents to their floor level only and other common areas. Visitor access would also be controlled such that the lift would only allow visitor access to the level associated with their entry intercom call.

The access control system will be provided with facilities to allow for remote monitoring from a security service.

8.2 Access Control

Access Control are to be used to control access and flow of traffic in the following areas:

- Car park entry and exit for the combined development.
- Main entry lobbies at Ground Level.
- All lifts: lift-by-lift, floor-by-floor control (after hours and as required by tenants).
- Building re-entry from fire stairs on every forth floor. The proposed building re-entry system will use a push button to activate a sounder bell for that level within the corridor.

Card readers located off car park entries, lift lobbies, front entry doors and secure rooms will control access into the areas nominated. Exit from the area will be via free egress with PIR "request-to-exit" sensors to temporarily deactivate door open alarm from within the secure area and credential readers on the car park entries and fire stair doors. Egress doors will have single-handed action to exit.

8.3 CCTV System

A closed circuit television (CCTV) system will be provided to monitor the major entry and exit points of the building, and basement and foyer spaces, including fire stair egress points. Internal cameras will monitor the building main entrance and car park entrance and main entrance foyer.

The system will be of the digital, IP based and colour type. Monitoring stations for the CCTV system shall be set up for remote monitoring from an external security service.

The system will operate on a 24-hour basis and be capable of storing up to 30 days of storage footage on site utilising a networked hard drive storage device. Storage equipment shall be located in the main communications rooms. The system will be provided with facilities to record information and store on site, and also store off site, if required

8.4 Entry Intercom System

A colour video intercom system will be provided to allow communication between visitors and residents for visitor access. The system shall be of the fully digital type and interfaced with the building access control system to enable opening of the front entrance doors, activation of appropriate lift access and operation of car park roller shutters.

Entry panels shall be provided external to the front entrance of the building lobbies, and the car park entrance for visitor access to parking spaces. Each entry panel shall be of the recessed and vandal proof type and contain a keypad for addressing each tenancy number, colour camera to allow viewing of caller to building occupants, and full duplex audio facilities.

Each residential apartment shall be provided with an intercom station complete with colour screen to view entry door call, full duplex hands free type audio facilities, and separate buttons for opening each separate entrance point. Intercom stations shall be of the recessed and flush type.

9 MATV/ PayTV

A new MATV/ PayTV system will be installed within the development. The MATV system will utilise a 5-wire solution with head-end located at the main communications room. RG11 and RG6 coaxial cable backbone is proposed to the residential apartments. Splitters shall be located within communications cupboards and residential apartments. A new MATV Antenna will be installed on each building roof.

A new PayTV satellite dish will be installed on each building roof to enable Foxtel. The entire PayTV system will be Foxtel compliant and installed by a suitably qualified contactor with Foxtel accreditation.

MATV/ PayTV outlets will be installed within lounge rooms only.

10 Dry Fire Services

10.1 Electric Fire Generally

The fire detection system will be designed to comply with the NCC and the fire detection standards AS1670.1 and AS1670.4.

The proposed design will have a central Fire Indicator Panel (FIP) with separate SSISEP panel at the main entrance. The FIP and SISSEP panels must be interconnected.

Mimic Panel may also be provided at other entries to the building or at the building manager or security office.

10.2 Automatic Fire Alarm and EWIS

The following table provides the design criteria and performance requirements for the dry fire services systems within the building:

Item	Area	Fire Detection	SSEP
1	Main Switchroom	Smoke Detector to AS1670.1:2015	Horn Speaker
2	Building Common Areas	Smoke Detector to AS1670.1:2015	Recessed ceiling speaker
3	Residential Apartments	AS3786 smoke alarms	Recessed speakers in bedrooms
4	Electrical Risers	Smoke Detector to AS1670.1:2015	-
6	Mechanical Return Air Inlet	Smoke Detector to AS1670.1:2015	-
7	Basements	Thermal Detector to AS1670.1:2015 "smoke zone control systems"	Horn Speaker
8	Within 1.5m from Fire Stair Door within Corridor	Smoke Detector to AS1668	

11 Spatial Requirements

Project: 15 Northumberland St, Liverpool
Project Number: 20180079
Engineer: Alexander Rodriguez
Revision: E

11.1 Electrical Services:

Item	Description	Area	Configuration	Comments
1	1 x pad mount transformer	18m ²	2.75m x 5.3m (Easement)	Fire blast clearance within 3m from building and mechanical ventilation clearance to be 6m radius from the top of the substation housing.
2	Main Switchroom	15m ²	3.0m x 7.0m x 3.0m high	Fire rated Switchroom (2hr) as near as possible to sub-station for economy. Two exit doors.
5	Electrical Cupboard	0.8m ²	1.6m x 0.5m	Typical cupboard on all residential floors of the building, with a 0.6m clearance required in front of cupboard calculated from the cupboard door in the open position. Cupboard to be smoke sealed with non-combustible metallic lining on the inside of the cupboard doors
6	Communications Cupboard	0.45m ²	0.9m x 0.5m	

11.2 Communication Services:

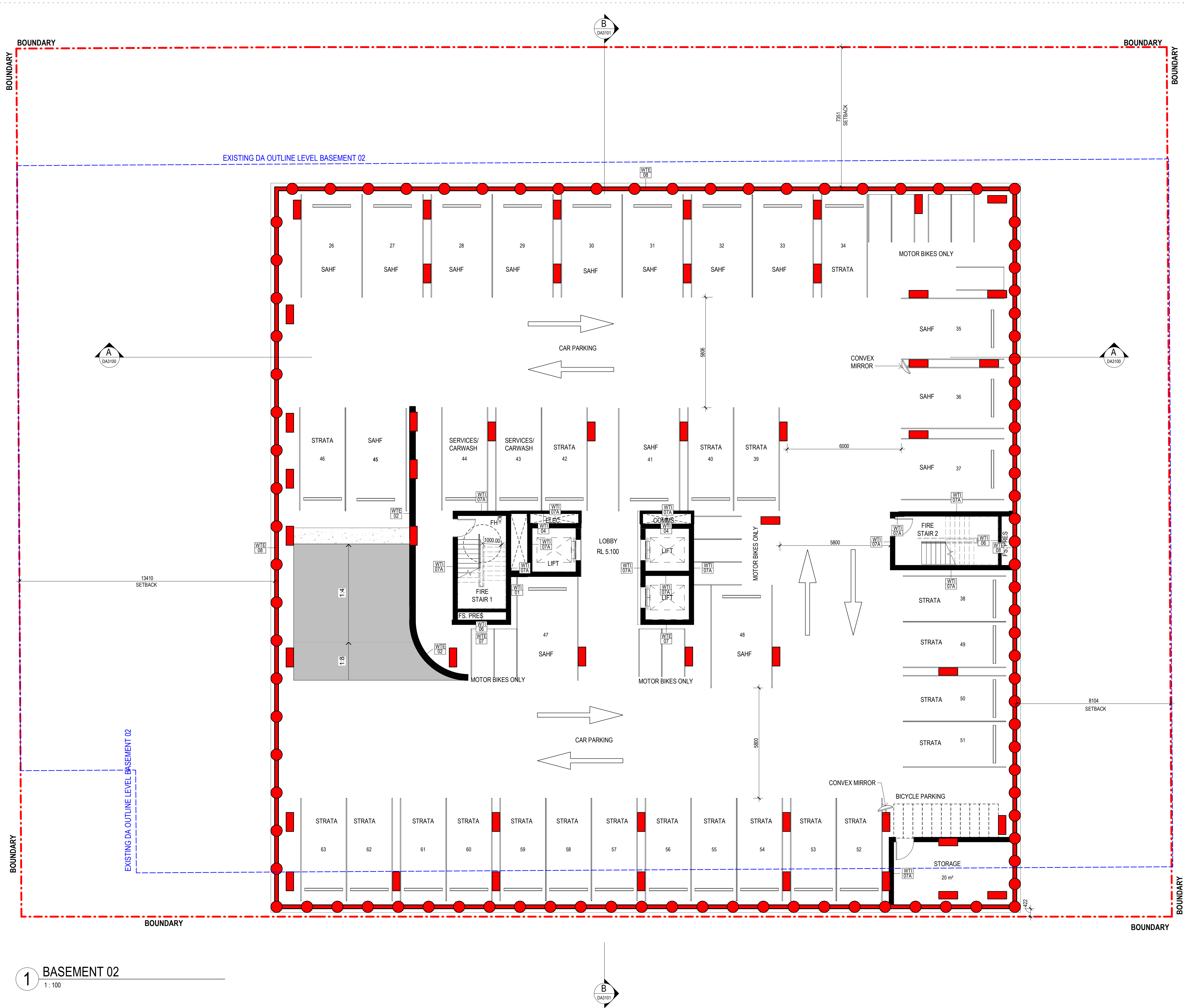
Item	Description	Area	Configuration	Comments
1	Main Communications Room	12m ²	4.0m x 3.0m	

11.3 Dry Fire Services:

Item	Description	Area	Configuration	Comments
1	Fire Indicator Panel & SSISEP panel Cupboard		W D 0.7m x 0.3m	Located within main building entry at ground level located within cupboard. 500mm clearance on either side of the panel and a 1000mm in front of the panel
2	Fire Indicator Mimic Panel (As required)		0.15m x 0.1m	Locate within alternate main building entry of at ground level.

Note: All riser sizes shown above are provided as minimum requirement to satisfy future works. These are preliminary sizes to fit expected services. Final riser sizes to be confirmed once service layouts are completed. All dimensions are provided for internal configuration.

12 Appendix A – Concept Drawings & Schematics





INSYNC SERVICES
by Intra Consulting Engineers

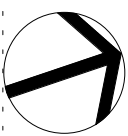
Electrical Services
Engineer: AR
Date: 04/12/2018

Amendments

Issue	Description	Date
A	ISSUE FOR COORDINATION	14/08/2018
B	ISSUE FOR INFORMATION	03/09/2018
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nom architect M. Sheldon 3990
Project Title

ANGLICARE - LIVERPOOL

Drawing Title

BASEMENT 2 GA PLAN

Scale 1 : 100

Drawing Created (date)	14/08/2018	
Drawing Created (by)	MF	
Plotted and checked by	LMC	
Verified	MB	
Approved	LR	
Project No	Drawing No	Issue
180350	DA2000	E

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1

BASEMENT 02

1 : 100

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Issue	Description	Date
A	ISSUE FOR COORDINATION	14/08/2018
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E	ISSUE FOR INFORMATION	28/11/2018

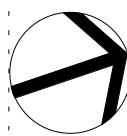
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INSYNC SERVICES
by Inetex Consulting Engineers

Electrical Services
Engineer: AR
Date: 04/12/2018



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Waste Consultant

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nom architect M. Sheldon 3990
Project Title

ANGLICARE - LIVERPOOL

Drawing Title

BASEMENT 1 GA PLAN

Scale 1 : 100

Drawing Created (date) 14/08/2018

Drawing Created (by) MF

Plotted and checked by LMC

Verified MB

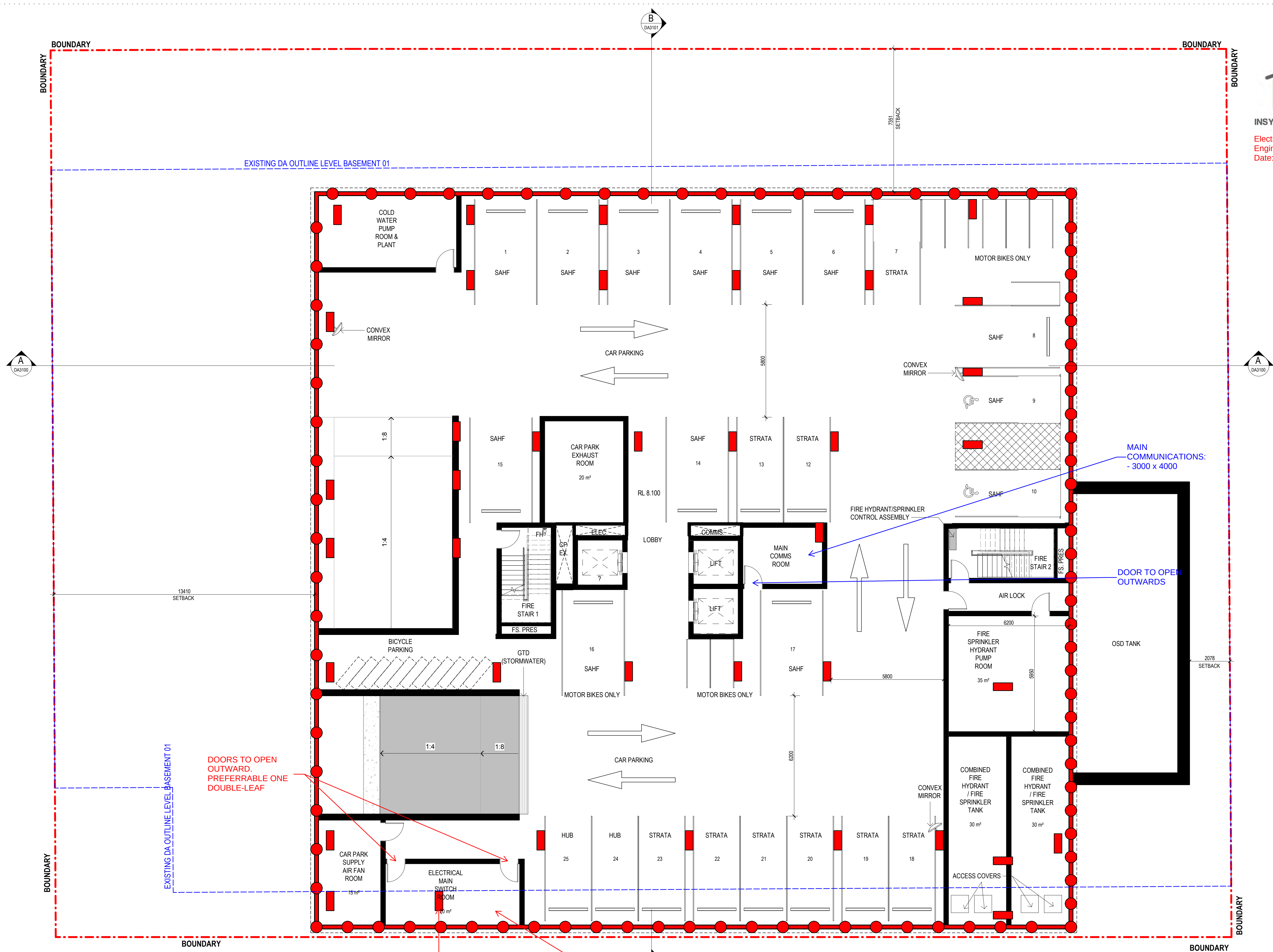
Approved LR

Project No Drawing No Issue

180350 DA2001 E

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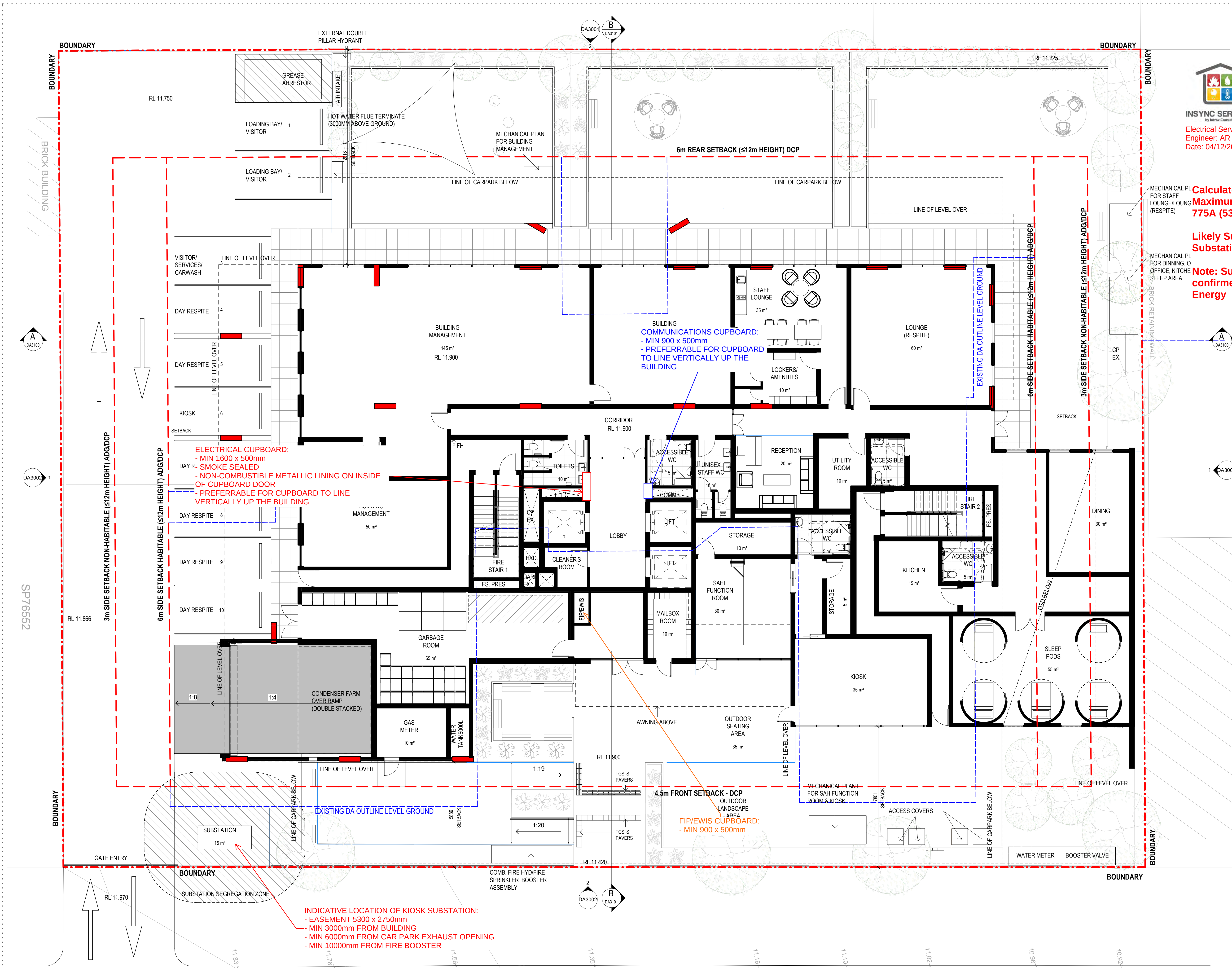


1 BASEMENT 01

1 : 100

RELOCATE COLUMN
OUTSIDE OF ROOM

ELECTRICAL MAIN SWITCH ROOM:
- 7000 x 3000 (CLEAR INTERNAL)
- 2HR FIRE RATED
- 2 POINT OF EXIT. ONE ON EACH SIDE OF
THE ROOM



Issue	Description	Date
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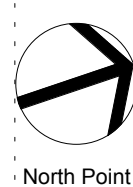
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89 York Street
Sydney NSW 2000
Tel: (02) 9262 3400
Fax: (02) 9262 3422

Electrical Services
Engineer: AR
Date: 04/12/2018

Calculated Electrical
Maximum Demand:
775A (535kVA)

Likely Supply: Kiosk
Substation

Note: Supply to be
confirmed by Endeavour
Energy



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Project Title

ANGLICARE - LIVERPOOL

Drawing Title

GROUND FLOOR GA
PLAN

Scale 1:100

Drawing Created (date) 14/08/2018

Drawing Created (by) MF

Plotted and checked by LMC

Verified MB

Approved LR

Project No Drawing No Issue

180350 DA2002 E

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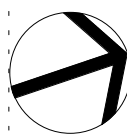


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ANGLICARE - LIVERPOOL

Drawing Title

LEVEL 1 GA PLAN

Scale 1 : 100

Drawing Created (date) 14/08/2018

Drawing Created (by) MF

Plotted and checked by LMC

Verified MB

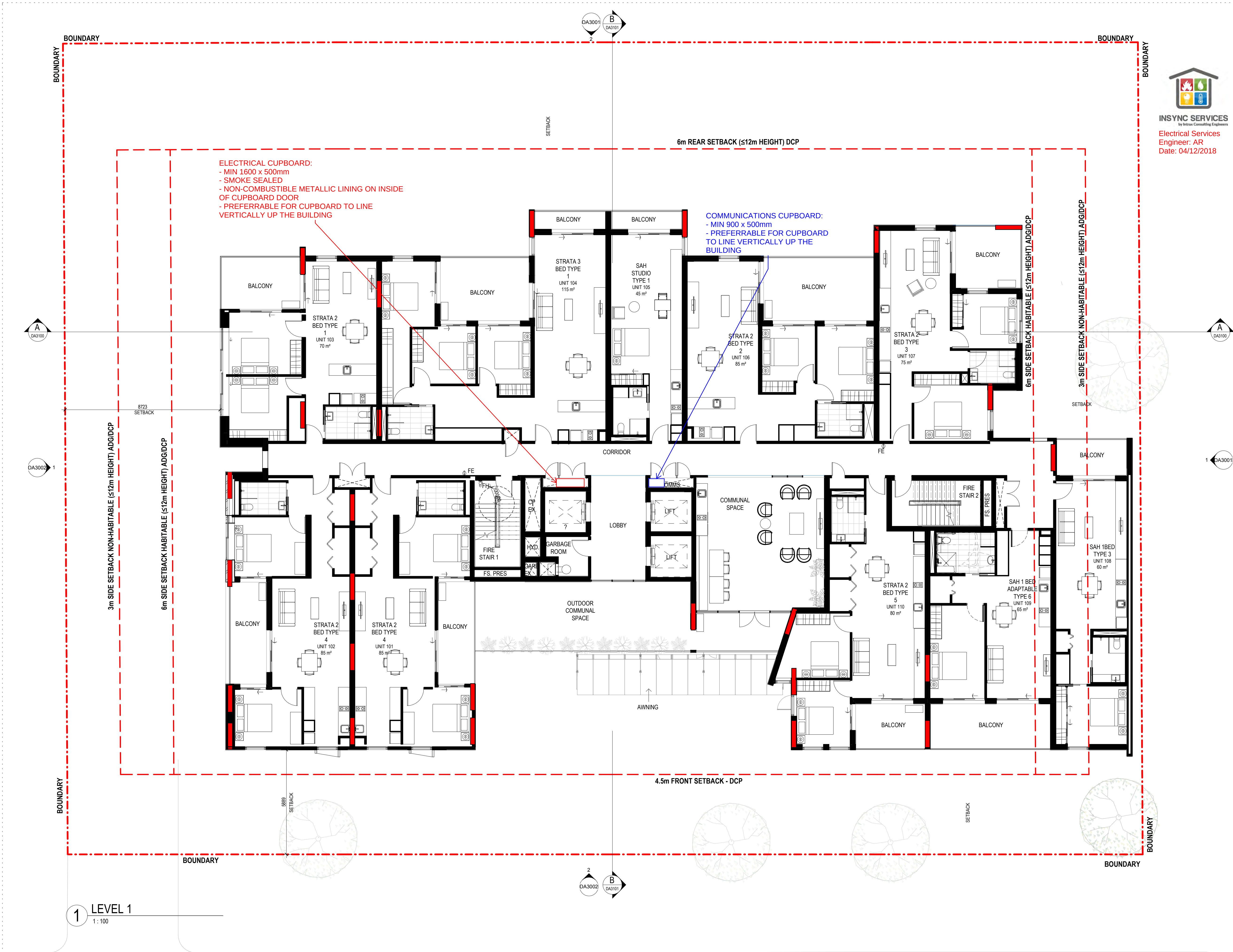
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Project No Drawing No Issue

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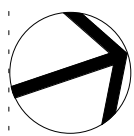
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Issue	Description	Date
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ANGLICARE - LIVERPOOL

Drawing Title

LEVEL 2-3 GA PLAN

Scale 1:100

Drawing Created (date) 14/08/2018

Drawing Created (by) MF

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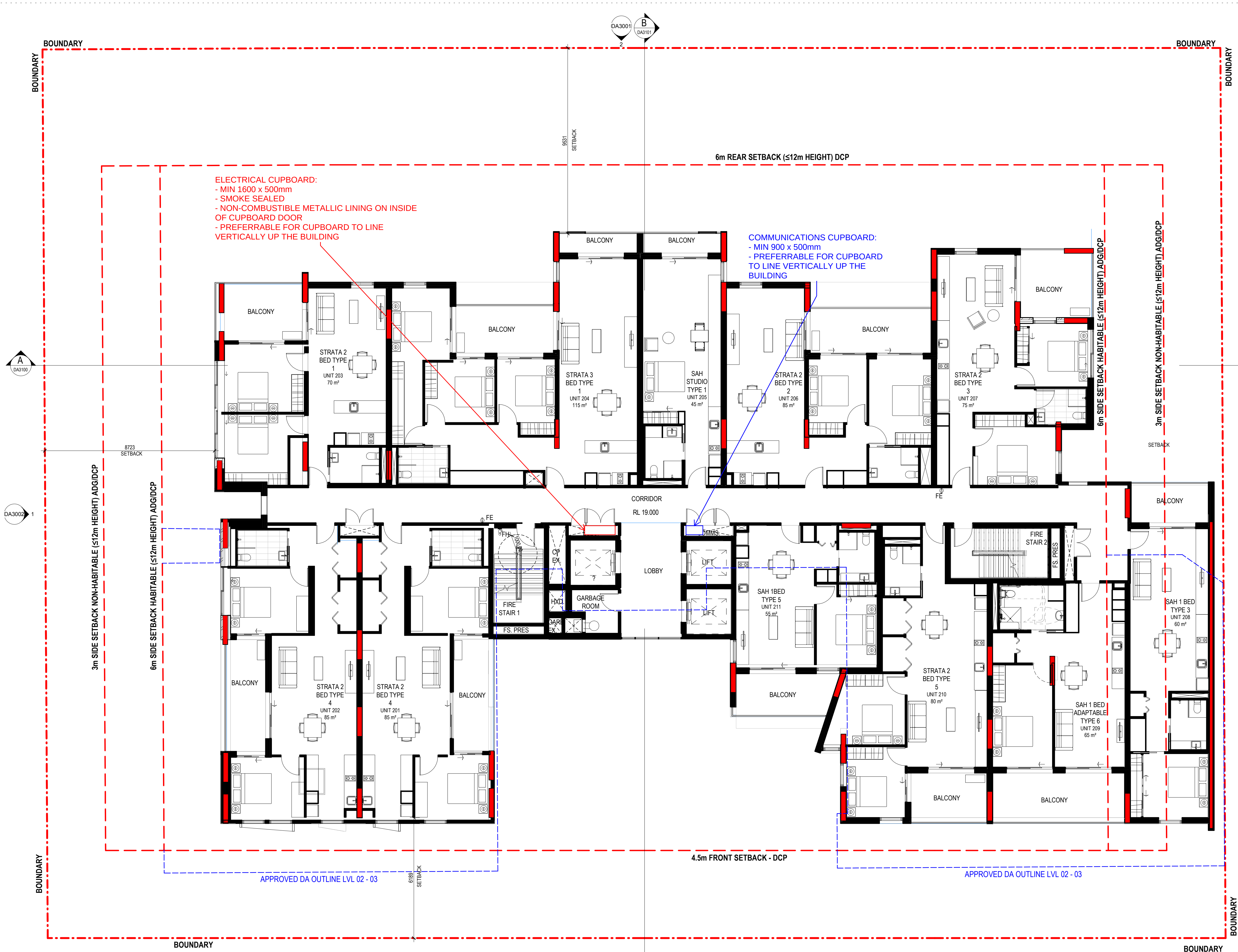
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Project No Drawing No Issue

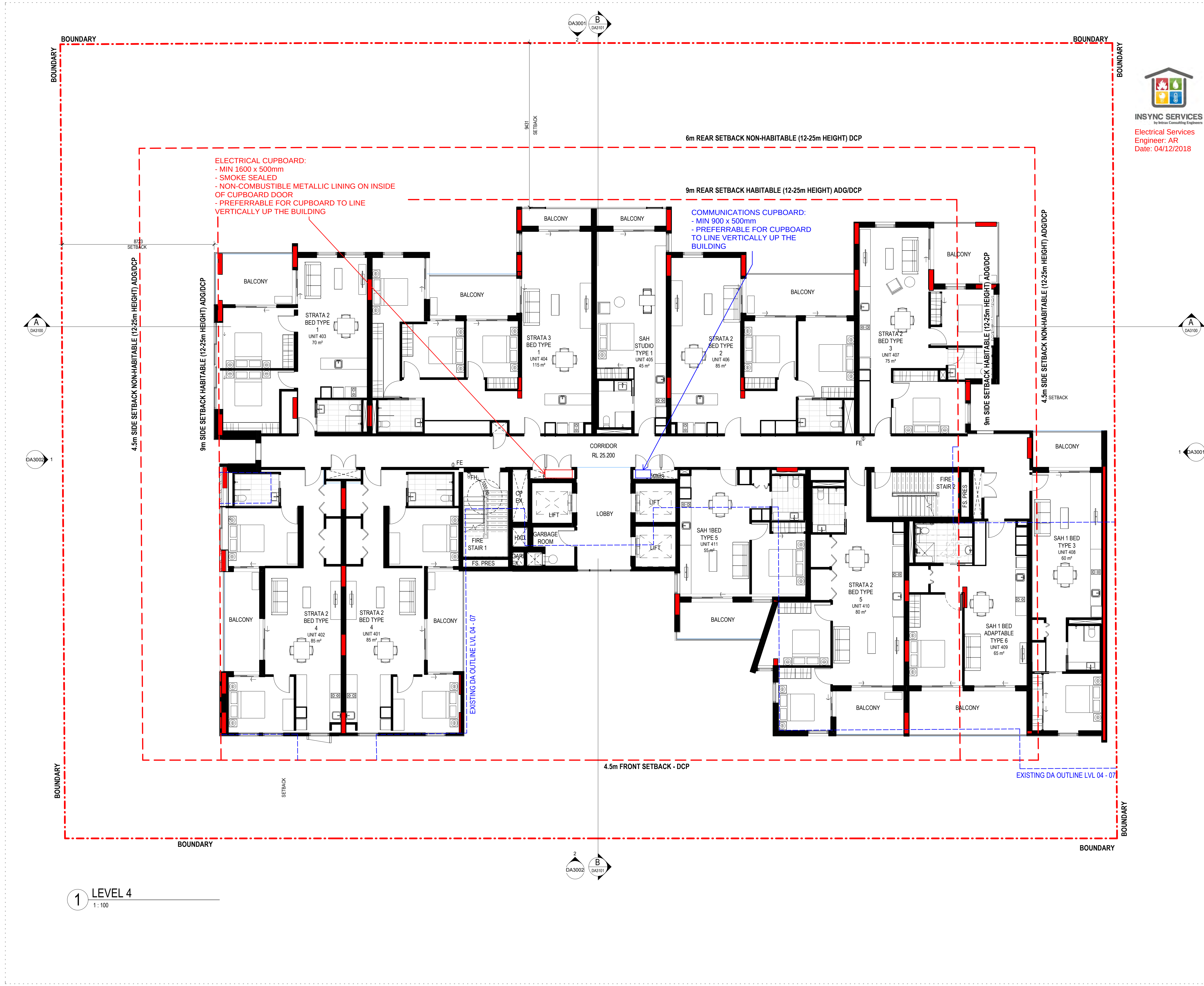
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1 LEVEL 2
1:100



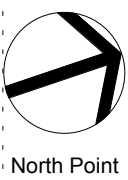
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A	ISSUE FOR COORDINATION	14/08/2018
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E	ISSUE FOR INFORMATION	28/11/2018



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ANGLICARE - LIVERPOOL

Drawing Title

LEVEL 4 GA PLAN

Scale 1:100

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E	ISSUE FOR INFORMATION	28/11/2018

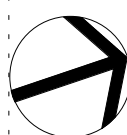


INSYNC SERVICES
by Intrax Consulting Engineers

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Date: 04/12/2018

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nom architect M. Sheldon 3990
Project Title

ANGLICARE - LIVERPOOL

Drawing Title

LEVEL 5 GA PLAN

Scale 1 : 100

Drawing Created (date) 14/08/2018

Drawing Created (by) MF

Plotted and checked by LMC

Verified MB

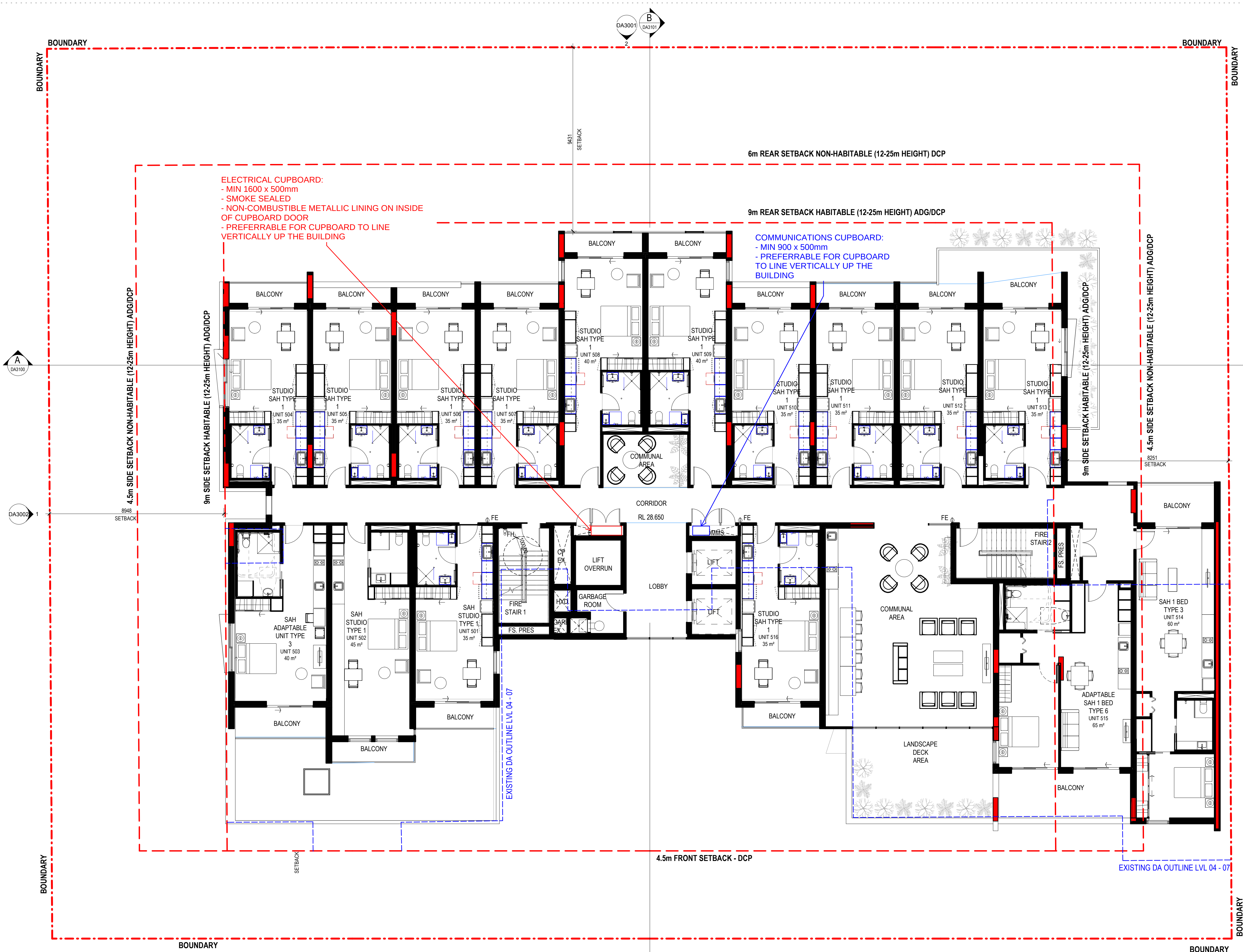
Approved LR

Project No Drawing No Issue

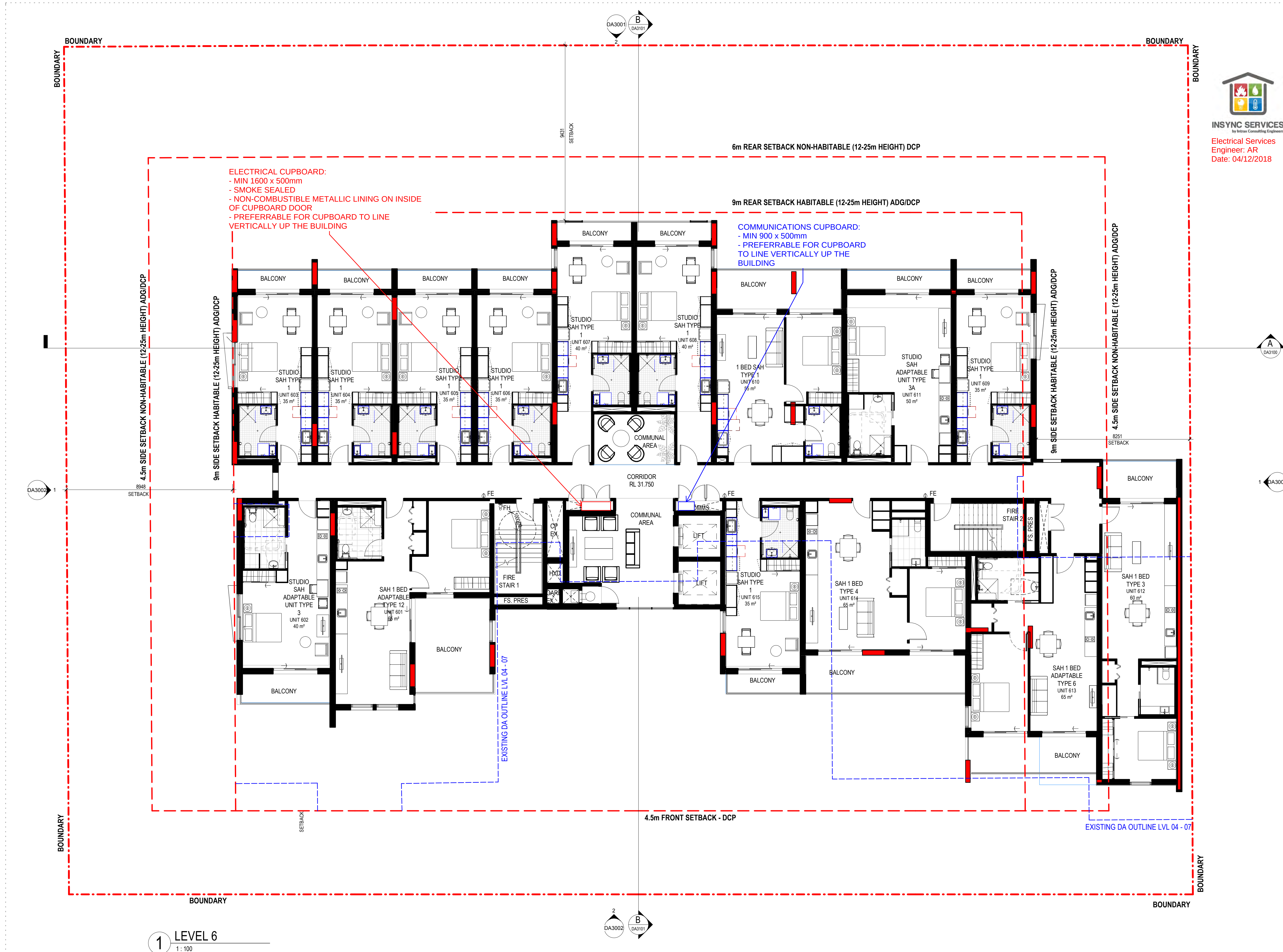
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1 LEVEL 5
1 : 100

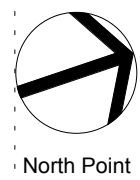


Issue	Description	Date
A	ISSUE FOR COORDINATION	14/08/2018
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C	ISSUE FOR INFORMATION	19/10/2018
D	ISSUE FOR INFORMATION	08/11/2018
E	ISSUE FOR INFORMATION	28/11/2018



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Engineer: AR
Date: 04/12/2018

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architecture interior design urban design landscape
nom architect M. Sheldon 3990
Project Title

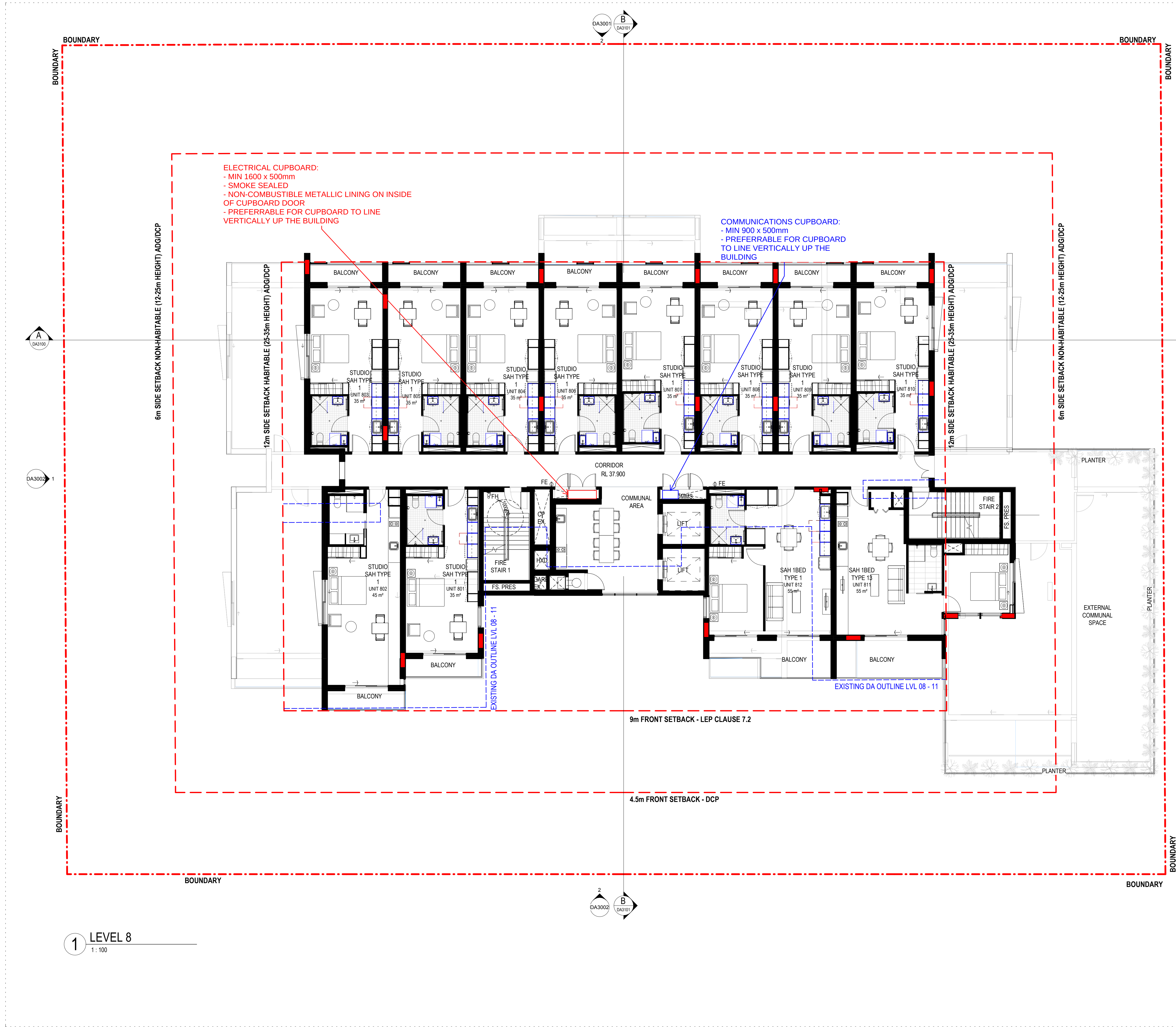
ANGLICARE - LIVERPOOL

Drawing Title
LEVEL 6-7 GA PLAN
Scale
1 : 100
Drawing Created (date)
14/08/2018
Drawing Created (by)
MF
Plotted and checked by
LMC
Verified
MB
Approved
LR
Project No
Drawing No
Issue

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INSYNC SERVICES
by Intrax Consulting Engineers

Electrical Services
Engineer: AR
Date: 04/12/2018

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Fax: (02) 9262 3422

Amendments		
Issue	Description	Date
A	ISSUE FOR COORDINATION	14/08/2018
B	ISSUE FOR INFORMATION	03/09/2018
C	ISSUE FOR INFORMATION	19/10/2018
D	ISSUE FOR INFORMATION	08/11/2018
E	ISSUE FOR INFORMATION	28/11/2018

North Point

DA SUBMISSION

Services Engineers

INSYNC SERVICES
Suite 6.02, Level 6, 89 York Street
Sydney NSW 2000

Structural Engineer

NORTHROP
Level 11, 345 George Street
Sydney NSW 2000

Fire Engineer

OLSSON FIRE

Traffic Engineer

PTC
Suite 102, 506 Miller Street
Cammeray NSW 2062

Waste Consultant

ELEPHANTS FOOT
Suite 29, Level 8, 820 Adelaide Street
Brisbane QLD 4000

BCA/DDA Consultant

BLACKETT MAGUIRE + GOLDSMITH
PO Box 167, Broadway
NSW 2007

Client

Enter Project Client Name here

GROUP GSA

Group GSA Pty Ltd ABN 76 002 113 779
Level 7, 80 William St East Sydney NSW
Australia 2011
www.groupgsa.com
T +612 9361 4144 F +612 9332 3458
architecture interior design urban design landscape
nom architect M. Sheldon 3990
Project Title

ANGLICARE - LIVERPOOL

Drawing Title

LEVEL 8 GA PLAN

Scale

1 : 100

Drawing Created (date)

14/08/2018

Drawing Created (by)

MF

Plotted and checked by

LMC

Verified

MB

Approved

LR

Project No

180350

Drawing No

DA2008

Issue

E

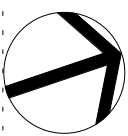
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Do not scale drawings. Use figured Dimensions.

28/11/2018 10:47:27 AM

Tel: (02) 9262 3400
Fax: (02) 9262 3421

INSYNC SERVICES
by Intrax Consulting Engineers

COMMUNICATIONS CUPBOARD:
- MIN 900 x 500mm
- PREFERRABLE FOR CUPBOARD
TO LINE VERTICALLY UP THE
BUILDING



DA SUBMISSION

INSYNC SERVICES
Suite 6.02, Level 6, 89 York Street
Sydney NSW 2000

NORTHROP
Level 11, 345 George Street
Sydney NSW 2000

OLSSON FIRE

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Brisbane QLD 4000

BLACKETT MAGUIRE + GOLDSMITH
PO Box 167, Broadway
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Level 7, 80 William St East Sydney NSW
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architecture interior design urban design landscape
nom architect M. Sheldon 3990
Project Title

ANGLICARE - LIVERPOOL

Drawing Title

LEVEL 9-11 GA PLAN

Scale 1 : 100

Drawing Created (date) 14/08/2018

Drawing Created (by) MF

Plotted and checked by _____ Designer _____

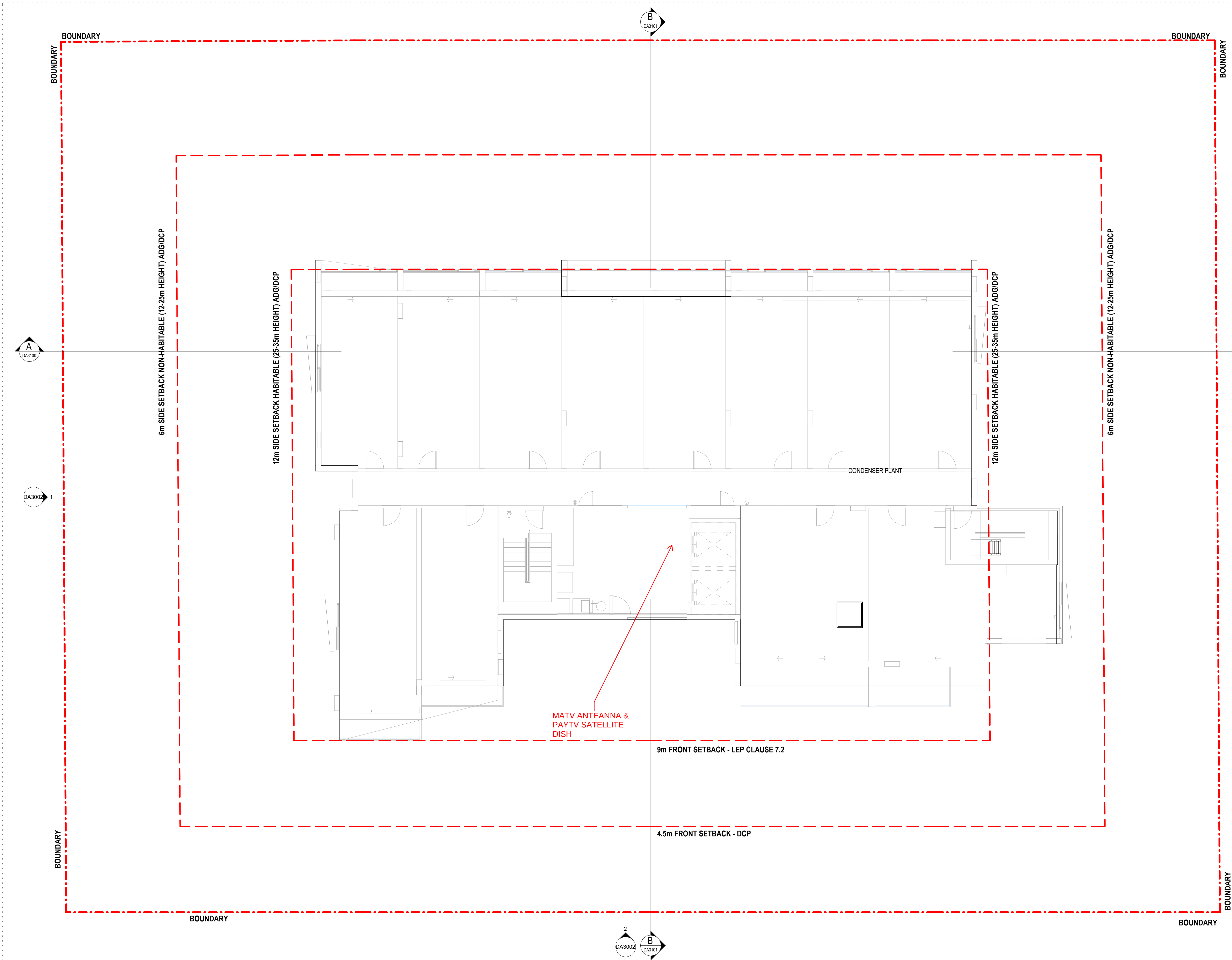
Verified MB

Approved	LR
----------	----

Project No	Drawing No	Issue
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180350 DA2009 E

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1 ROOF PLAN
1:100

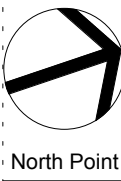


INSYNC SERVICES
by Insync Consulting Engineers
Electrical Services
Engineer: AR
Date: 04/12/2018

Suite 6.02,
Level 6,
89 York Street
Sydney NSW 2000

Tel: (02) 9262 3400
Fax: (02) 9262 3422

Amendments		
Issue	Description	Date
A	ISSUE FOR COORDINATION	14/08/2018
B	ISSUE FOR INFORMATION	03/09/2018
C	ISSUE FOR INFORMATION	19/10/2018
D	ISSUE FOR INFORMATION	08/11/2018
E	ISSUE FOR INFORMATION	28/11/2018



DA SUBMISSION

Services Engineers

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Traffic Engineer

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BCA/DDA Consultant

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NSW 2007

Client

Enter Project Client Name here



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Australia 2011
www.groupgsa.com

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architecture interior design urban design landscape
nom architect M. Sheldon 3990
Project Title

ANGLICARE - LIVERPOOL

Drawing Title

ROOF PLAN

Scale 1:100

Drawing Created (date) 06/07/18

Drawing Created (by) MF

Plotted and checked by LMC

Verified MB

Approved LR

Project No Drawing No Issue

180350 DA2010 E

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GROUND
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Suite 6.02, Level 6
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SYDNEY NSW 2000
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Fax (02) 9262 3422
A.C.N.: 150 234 870
A.B.N.: 24 917 388 129

bsi.

ISO
9001:2015
Quality
Management

Services Consultant:

INSYNC SERVICES
PTY LTD

B2
RL:

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Project:
**SOCIAL AND AFFORDABLE HOUSING FUND
STAGE 2
LIVERPOOL**

Drawing Title:
**ELECTRICAL SCHEMATIC
DIAGRAM**

Dwg No:
E-LIV-01

Scale:
(A3) N.T.S.
Date: 25/06/18

Job No:
20180062

ORIGINAL SIZE: A3

FILE NAME & PATH: Z:\Synergy\Projects\2018\20180079 Anglicore - Liverpool\Drawings\Current Drawings\E-LIV-01 - E-LIV-05.dwg PLOTTED BY: 'Alexr' PLOT DATE & TIME: 04 Dec, 2018 - 12:21pm

RF
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GROUND
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B1
RL:

Services Consultant:



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PTY LTD

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Fax (02) 9262 3422
A.C.N.: 150 234 870
A.B.N.: 24 917 388 129



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Project:
**SOCIAL AND AFFORDABLE HOUSING FUND
STAGE 2
LIVERPOOL**

Drawing Title:
**COMMUNICATIONS SCHEMATIC
DIAGRAM**

Dwg No:
E-LIV-02

Scale:
(A3) N.T.S.
Date: 25/06/18

Job No:
20180062

FILE NAME & PATH: Z:\Synergy\Projects\2018\20180079 Anglicore - Liverpool\Drawings\Current Drawings\E-LIV-01 - E-LIV-05.dwg

PLOTTED BY: 'Alexr'

PLOT DATE & TIME: 04 Dec, 2018 - 12:22pm

ORIGINAL SIZE: A3

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GROUND
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Services Consultant:



INSYNC SERVICES
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Project:
**SOCIAL AND AFFORDABLE HOUSING FUND
STAGE 2
LIVERPOOL**

Drawing Title:
**SECURITY SCHEMATIC
DIAGRAM**

Dwg No:
E-LIV-03

Scale:
(A3) N.T.S.
Date: 25/06/18

Job No:
20180062



Services Consultant:



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Project:
**SOCIAL AND AFFORDABLE HOUSING FUND
STAGE 2
LIVERPOOL**

Drawing Title:
**MATV SCHEMATIC
DIAGRAM**

Dwg No: E-LIV-04	Scale: (A3) N.T.S. Date: 25/06/18	Job No: 20180062
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GROUND
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Services Consultant:

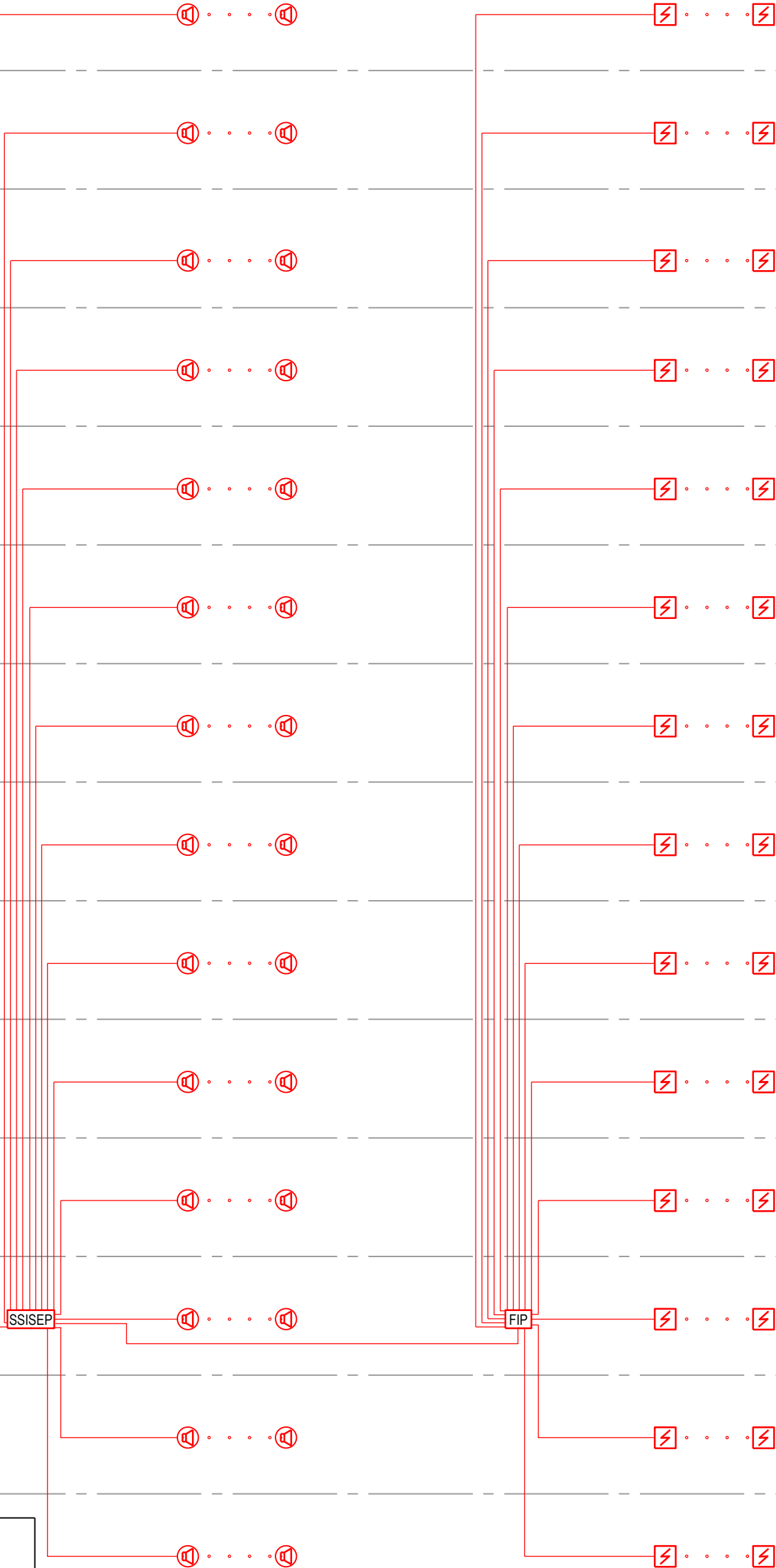


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Project:
**SOCIAL AND AFFORDABLE HOUSING FUND
STAGE 2
LIVERPOOL**

Drawing Title:
**DRY FIRE SCHEMATIC
DIAGRAM**

Dwg No:
E-LIV-05

Scale:
(A3) N.T.S.
Date: 25/06/18

Job No:
20180062

ORIGINAL SIZE: A3