

ELECTRICAL SERVICES SCHEMATIC DESIGN REPORT

ROTTNEST ISLAND STAFF ACCOMMODATION
ENCON
PLACE DEVELOPMENT

REVISION REGISTER

Rev	Date	Revision Details	Signatures		
			Prepared	Reviewed	Approved
A	22.07.22	For Comment	FWA	MH	MH
B	27.07.22	Final Issue	FWA	MH	MH

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1 INTRODUCTION

1.1 General

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1.2 Purpose

The purpose of this Report is to outline the schematic design of the electrical services infrastructure to the proposed Rottnest Island Staff Accommodation development.

1.3 Scope of Report

The scope of this Electrical Services Condition Report includes the following:

- Proposed new Electrical Services

1.4 Information Source

The information in this report is from the following sources:

- Meetings with Place Development and Encon.
- Design drawings provided by Encon.

1.5 Exclusions

All information in this report is reliant on desktop study and information provided to Focus Consulting WA.

All information provided to Focus Consulting WA is assumed to be true and correct.

2 BUILDING CLASSIFICATION AND CONDITIONS

2.1 Proposed Development

The Stage 1 development is understood to comprise 50 beds across 17 units including laundry, kitchen and lounge.

The Stage 2 development is understood to comprise an additional 46 beds across 18 units.

2.2 Maximum Demand

The proposed maximum demand load of the development has been assessed as follows:

Stage 1 – 260 kVA (360 Amps)

Stages 1 and 2 – 350kVA (485 Amps)

The above loads are based upon the recommendations of AS3000 Appendix C Table C1 for domestic premises.

3 PROPOSED ELECTRICAL INFRASTRUCTURE

3.1 Proposed Substation

Focus Consulting WA understand that the Rottneest Island Authority (RIA) will provide a new substation to service the development.

RIA to confirm exact substation location, proposed installation date, any specific site preparation requirements and customer connection point.

3.2 Proposed Site Main Switchboard

A new free standing Site Main Switchboard (SMSB) will be located on the customer's lot, inside the lease boundary line.

The SMSB will be metal clad (aluminium) on a concrete plinth with lockable door, and will contain the following; -

- Service protective device
- RIA metering equipment
- Changeover switch for connection of the standby diesel generator
- Customer main switches for protection of submain cabling

The SMSB will be a custom construction, with indicative dimensions 1400mm wide x 500mm deep x 2000mm high.

3.3 Proposed Main Distribution Boards

Two main distribution boards (MDBs) will be located on the site, for protection of external lighting circuits, and submain cabling to individual unit buildings.

The MDBs will be metal clad (aluminium) on a concrete plinth with lockable doors, and will contain the following; -

- Main switch
- Metering equipment
- Final circuit protective devices for protection of submain cabling and external lighting circuits

The MDBs will be custom construction, with indicative dimensions 1600mm wide x 400mm deep x 2000mm high.

3.4 Generator

A standby diesel generator will be provided to the site, to power Stage 1 in the interim during construction of the RIA substation.

The maximum estimated demand of Stage 1 inclusive of laundry, kitchen and lounge is 260kVA. Allowing for 85% site diversity of electrical equipment usage, a 200-220kVA generating set will be required.

Note that an allowance of 100 Amps three phase has been included for communal facilities (laundry, kitchen and lounge). This will be further assessed on provision of information pertaining to the modular buildings by Eco Structures.

The generating set will be housed within a sound-attenuated acoustic enclosure measuring approximately 3500mm long x 1300mm wide x 2100mm high.

The generating set requires a clear level compacted area near the SMSB, with access for refuelling. In order to limit refuelling, consideration is recommended to be given to provision of an external fuel tank adjacent to the generator, allowing for storage of additional fuel and extended run-time.

3.5 External Socket Outlets

External power supply will be provided to the proposed sewer pump panel, and to the proposed WIFI tower.

4 PROPOSED COMMUNICATIONS INFRASTRUCTURE

4.1 Communications Tower

The site-wide communications, including WIFI tower, incoming communications connection from Rottneest Island Authority, and site-wide communications distribution, is outside the scope of this report.

Power supply will be provided to the WIFI tower as required.

Technical Alliance have requested the following servicing provisions. Client to confirm whether these items are to be included within the scope of the external site services contract; -

- *A communications enclosure free standing adjacent to the WIFI tower*
- *Fibre optic and copper cabling from the site main communications room to the communications enclosure*
- *Fibre optic and copper cabling from the communications enclosure to the WIFI tower*
- *2x32mm spare conduits from the communications enclosure to the WIFI tower*

Focus Consulting WA recommend that Technical Alliance provide additional requirements for spatial, servicing, dimensions and the like for the proposed communications room, in order that this can be provided as an integral part of the modular buildings.

5 LIGHTING

5.1 Building Lighting

Internal and external lighting to modular buildings will be provided by the modular building Contractor and is outside the scope of this report.

5.2 Emergency Lighting

Emergency lighting to modular buildings (where required by the NCC) will be provided by the modular building Contractor and is outside the scope of this report.

5.3 Landscape Lighting

Landscape lighting will be provided to the main central pathway through the site, via low level bollard luminaires, approximately 1000mm high.

The bollards will be spaced to provide lighting levels to category PP4 from AS/NZS 1158.3.1 Table 2.2, representing a medium level of pedestrian/cycle activity, and a low level of crime.

TABLE 2.2

LIGHTING SUBCATEGORIES FOR PEDESTRIAN AND CYCLIST PATHS

1	2	3	4	5
Type of pathway		Selection criteria ^{a,b,c}		Applicable lighting subcategory
General description	Basic operating characteristics	Pedestrian/ cycle activity	Fear of crime	
Pedestrian or cycle orientated pathway, e.g. footpaths, including those along local roads ^d and arterial roads ^e , walkways, lanes, park paths, cyclist paths	Pedestrian and or cycle traffic only	N/A	High	PP1 ^c
		High	Medium	PP2 ^c
		Medium	Medium	PP3
		Medium	Low	PP4
		Low	Low	PP5

5.4 Lighting Controls

External lighting will be controlled via PE cell and time clock at the respective distribution board. This will enable automatic switching on of external lighting at dusk, and automatic switching off at either dawn or a preset time.

6 ESTIMATED ORDER OF COST

6.1 Rottnest Island Staff Accommodation

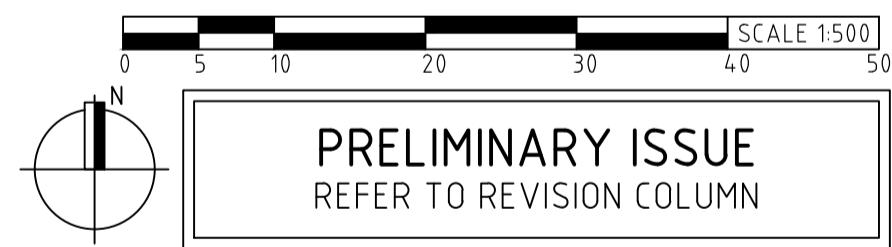
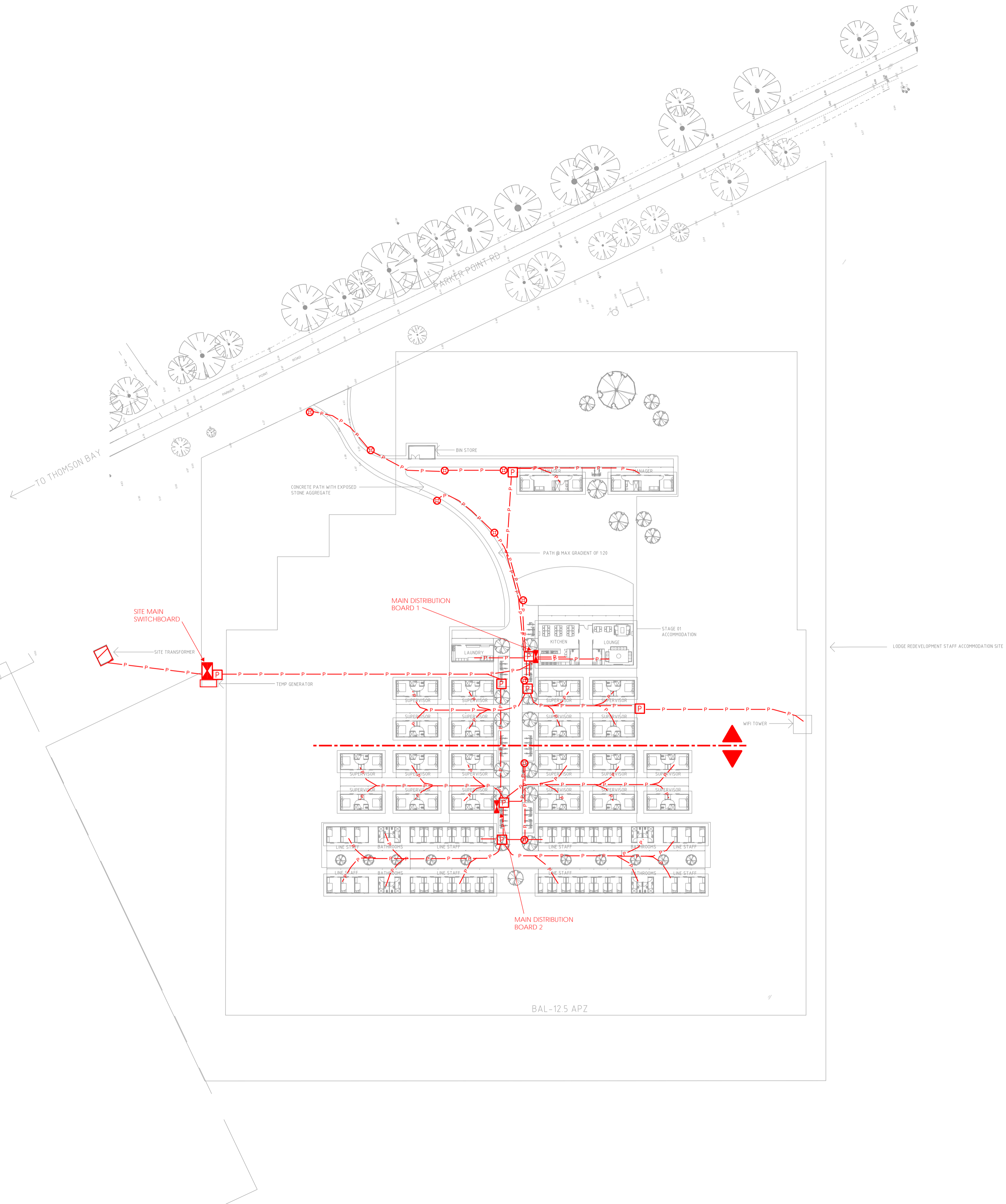
Electrical Services		
Item:	Description	Cost
1	RIA power headworks cost	TBC by RIA
2	RIA communications headworks cost	N/A – WIFI tower and servicing cost to be confirmed by TA
3	Site Main Switchboard	\$35,000
4	Main Distribution Board 1	\$40,000
5	Main Distribution Board 2	\$40,000
6	Diesel generator	\$55,000
7	External services (conduits, cable pits, trenching)	\$80,000
8	Cabling to modular buildings	\$80,000
9	Landscape lighting	\$35,000
Total		\$365,000

6.2 Exclusions

The estimated costs listed above exclude: -

- GST.
- Margins.
- Cost associated with freight and logistics, accommodation etc for Rottnest Island.
- Fitout of modular buildings.
- Communications services (conduit, communications enclosure, communications cabling)
- Extra low voltage services (television, fire detection, security, CCTV).
- Escalation.
- Builders works.
- Active IT or AV equipment.
- Generator re-fuelling.
- Extended fuel tank for diesel generator. Estimated cost (excluding delivery) for a 10,000 ltr tank is \$30,000 + GST.

APPENDIX A – ELECTRICAL SERVICES INFRASTRUCTURE SKETCH



PRELIMINARY ISSUE REFER TO REVISION COLUMN			
A	XX.XX.22	PRELIMINARY ISSUE	XX
REV	DATE	DESCRIPTION	CHECK



WADJEMUP LODGE REDEVELOPMENT
 ROTTNEST ISLAND
 ELECTRICAL SERVICES
 PROPOSED SITE SERVICES LAYOUT

DRAWN	MR	DESIGNED	FOCUS WA	DRAWING No.
CHECKED	MH	SCALE	1:500 @ A1	E.02 A
APPROVED	MH	DATE	JUL Y 2022	
FOCUS CONSULTING WA PROJ No.			2223-006	PLOT DATE
				26/07/2022