



APPLICATION ON NOTIFICATION – CROWN DEVELOPMENT

Applicant:	Department of Planning, Transport and Infrastructure
Development Number:	455/V019/20
Nature of Development:	Demolition of several existing buildings and construction of a new 36 bed residential aged care facility, car parking and associated civil works.
Type of development:	Crown Development
Zone / Policy Area:	District Centre Zone, Strathalbyn Centre Policy Area: Precinct 5 (Angas River and Soldiers Memorial Garden) and 8 (High Street South)
Subject Land:	14 Alfred Place, Strathalbyn
Contact Officer:	Kym Pryde
Phone Number:	08 7109 7851
Start Date:	26 March 2020
Close Date:	20 April 2020
<p>During the notification period, hard copies of the application documentation can be viewed at the Department of Planning, Transport and Infrastructure, Level 5, 50 Flinders Street, Adelaide during normal business hours. Application documentation may also be viewed during normal business hours at the local Council office (if identified on the public notice).</p>	

Written representations must be received by the close date (indicated above) and can either be posted, hand-delivered, faxed or emailed to the State Commission Assessment Panel (SCAP). A representation form is provided as part of this pdf document.

Any representations received after the close date will not be considered.

Postal Address:

The Secretary
 State Commission Assessment Panel
 GPO Box 1815
 ADELAIDE SA 5001

Street Address:

Development Division
 Department of Planning, Transport and Infrastructure
 Level 5, 50 Flinders Street
 ADELAIDE

Email Address: scapreps@sa.gov.au



DEVELOPMENT ACT 1993

SECTION 49 – STATE AGENCY DEVELOPMENT

NOTICE OF APPLICATION FOR CONSENT TO DEVELOPMENT

Notice is hereby given that an application has been made by **Department of Planning, Transport and Infrastructure** (C/- Wiltshire & Swain) for the extension of the Strathalbyn and District Health Services Facility Upgrade at Strathalbyn. The development will comprise demolition of several existing buildings and construction of a new 36 bed residential aged care facility, car parking and associated civil works. **Development Number:455/V019/20.**

The subject land is situated at 14 Alfred Place, Strathalbyn (being a10, DP 35653: CT 5101/301; a1-2, DP 15935: CT 5272/455 & CT 5437/416; a194, FP 161757: CT 5702/913; a195, FP 161758 :CT 5818/333; a196, FP 161759: CT 5812/148). The land is currently used as an age care facility. Allotment 2 is vacant.

The development site is located within the District Centre Zone, Strathalbyn Centre Policy Area: Precinct 5 (Angas River and Soldiers Memorial Garden) and 8 (High Street South) of the Alexandrina Council Development Plan (Consolidated 27 September 2018).

The application may be examined during normal office hours at the office of the State Commission Assessment Panel (SCAP), Level 5, 50 Flinders Street and at the office of Alexandrina Council, 11 Cadel Street, Goolwa and 1 Colman Terrace, Strathalbyn. Application documentation may also be viewed on the SCAP website https://www.saplanningportal.sa.gov.au/public_notices.

Any person or body who desires to do so may make representations concerning the application by notice in writing delivered to the Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide SA 5001 **NOT LATER THAN Monday 20 April 2020.** Submissions may also be emailed to: scapreps@sa.gov.au

Each person or body making a representation should state the reason for the representation and whether that person or body wishes to be given the opportunity to appear before the SCAP to further explain the representation.

Submissions may be made available for public inspection.

Should you wish to discuss the application and the public notification procedure please contact Kym Pryde – Project Coordinator on 08 7109 7851 or kym.pryde2@sa.gov.au.

Jessie Surace
SECRETARY
STATE COMMISSION ASSESSMENT PANEL



DEVELOPMENT ACT 1993

SECTION 49 – STATE AGENCY DEVELOPMENT

NOTICE OF APPLICATION FOR CONSENT TO DEVELOPMENT

Notice is hereby given that an application has been made by **Department of Planning, Transport and Infrastructure (C/- Wiltshire & Swain)** for the extension of the Strathalbyn and District Health Services Facility Upgrade at Strathalbyn. The development will comprise demolition of several existing buildings and construction of a new 36 bed residential aged care facility, car parking and associated civil works. **Development Number: 455/V019/20.**

The subject land is situated at 14 Alfred Place, Strathalbyn (being a10, DP 35653: CT 5101/301; a1-2, DP 15935: CT 5272/455 & CT 5437/416; a194, FP 161757: CT 5702/913; a195, FP 161758 :CT 5818/333; a196, FP 161759: CT 5812/148). The land is currently used as an age care facility. Allotment 2 is vacant.

The development site is located within the District Centre Zone, Strathalbyn Centre Policy Area: Precinct 5 (Angas River and Soldiers Memorial Garden) and 8 (High Street South) of the Alexandrina Council Development Plan (Consolidated 27 September 2018).

The application may be examined during normal office hours at the office of the State Commission Assessment Panel (SCAP), Level 5, 50 Flinders Street and at the office of Alexandrina Council, 11 Cadel Street, Goolwa and 1 Colman Terrace, Strathalbyn. Application documentation may also be viewed on the SCAP website https://www.saplanningportal.sa.gov.au/public_notices.

Any person or body who desires to do so may make representations concerning the application by notice in writing delivered to the Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide SA 5001 **NOT LATER THAN Monday 20 April 2020**. Submissions may also be emailed to: scapreps@sa.gov.au

Each person or body making a representation should state the reason for the representation and whether that person or body wishes to be given the opportunity to appear before the SCAP to further explain the representation.

Submissions may be made available for public inspection.

Should you wish to discuss the application and the public notification procedure please contact Kym Pryde – Project Coordinator on 08 7109 7851 or kym.pryde2@sa.gov.au.

Jessie Surace

SECRETARY

STATE COMMISSION ASSESSMENT PANEL

DEVELOPMENT ACT 1993
S49 – CROWN DEVELOPMENT
REPRESENTATION ON APPLICATION

Applicant:	Department of Planning, Transport and Infrastructure
Development Number:	455/V019/20
Nature of Development:	Demolition of several existing buildings and construction of a new 36 bed residential aged care facility, car parking and associated civil works.
Zone / Policy Area:	District Centre Zone, Strathalbyn Centre Policy Area: Precinct 5 (Angas River and Soldiers Memorial Garden) and 8 (High Street South)
Subject Land:	14 Alfred Place, Strathalbyn
Contact Officer:	Kym Pryde
Phone Number:	08 7109 7851
Close Date:	20 April 2020

My name: _____

My phone number: _____

PRIMARY METHOD(S) OF CONTACT: Email address: _____

Postal address: _____

_____ Postcode _____

You may be contacted via your nominated PRIMARY METHOD(S) OF CONTACT if you indicate below that you wish to be heard by the State Commission Assessment Panel in support of your submission.

- My interests are:
- owner of local property
 - occupier of local property
 - a representative of a company/other organisation affected by the proposal
 - a private citizen

The address of the property affected isPostcode.....

The specific aspects of the application to which I make comment on are:

.....

.....

.....

.....

.....

.....

.....

.....

.....

- I wish to be heard in support of my submission
- do not wish to be heard in support of my submission
- (Please tick one)

- by appearing personally
- being represented by the following person :
- (Cross out whichever does not apply)

Date: Signature:

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide, SA 5001 or scapreps@sa.gov.au

SECTION 49 & 49A – CROWN DEVELOPMENT DEVELOPMENT APPLICATION FORM

PLEASE USE BLOCK LETTERS

FOR OFFICE USE

COUNCIL: ALEXANDRIA
 APPLICANT: DEPT OF PLANNING, TRANSPORT AND INFRASTRUCTURE
 ADDRESS: PO 967 ADELAIDE 5001 SA
 CROWN AGENCY: HEALTH AND WELLBEING

DEVELOPMENT No: _____
 PREVIOUS DEVELOPMENT No: _____
 DATE RECEIVED: / /

CONTACT PERSON FOR FURTHER INFORMATION

Name: ANDREW SWAIN
 Telephone: 0437322705 [work] _____ [Ah]
 Fax: _____ [work] _____ [Ah]
 Email: a.swain@wiltshireswain.com.au

<input type="checkbox"/> Complying <input type="checkbox"/> Merit <input type="checkbox"/> Public Notification <input type="checkbox"/> Referrals	Decision: _____ Type: _____ Finalised: / /
--	--

NOTE TO APPLICANTS:

(1) All sections of this form must be completed. The site of the development must be accurately identified and the nature of the proposal adequately described. If the expected development cost of this Section 49 or Section 49A application exceeds \$100,000 (excl. fit-out) or the development involves the division of land (with the creation of additional allotments) it will be subject to those fees as outlined in Item 1 of Schedule 6 of the *Development Regulations 2008*. Proposals over \$4 million (excl. fit-out) will be subject to an advertising fee. (2) Three copies of the application should also be provided.

	Decision required	Fees	Receipt No	Date
Planning:	_____	_____	_____	_____
Land Division:	_____	_____	_____	_____
Additional:	_____	_____	_____	_____
Minister's Approval	_____	_____	_____	_____

EXISTING USE: HOSPITAL AND AGED CARE - RETAIL (OP SHOP)

DESCRIPTION OF PROPOSED DEVELOPMENT: DEMOLITION OF BUILDINGS. CONSTRUCTION OF 36 BED RESIDENTIAL AGED CARE FACILITY. CARPARK AND CIVIL WORKS

LOCATION OF PROPOSED DEVELOPMENT: _____

House No: 14 Lot No: _____ Street: ALFRED PLACE Town/Suburb: STRATHALBYN SA.
 Section No [full/part] SEE OVER. Hundred: _____ Volume: _____ Folio: _____
 Section No [full/part] _____ Hundred: _____ Volume: _____ Folio: _____

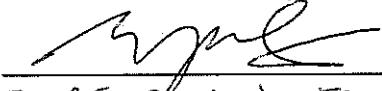
LAND DIVISION: NA

Site Area [m²] _____ Reserve Area [m²] _____ No of existing allotments _____
 Number of additional allotments [excluding road and reserve]: _____ Lease: YES NO

DEVELOPMENT COST [do not include any fit-out costs]: \$ 12.1m GST INCLUSIVE.

POWERLINE SETBACKS: Pursuant to Schedule 5 (2a)(1) of the *Development Regulations 2008*, if this application is for a building it will be forwarded to the Office of the Technical Regulator for comment unless the applicant provides a declaration to confirm that the building meets the required setback distances from existing powerlines. The declaration form and further information on electricity infrastructure and clearance distances can be downloaded from sa.gov.au.

I acknowledge that copies of this application and supporting documentation may be provided to interested persons in accordance with the *Development Act 1993* and meet the requirements for lodgement under s.49 of the *Development Act 1993*.

SIGNATURE:  A. SWAIN OF
WILTSHIRE SWAIN FOR AND ON BEHALF
OF THE APPLICANT.

Dated: 22/01/2020

Certificate of Title

The site features several titles including:

- CT Volume 5101 Folio 301.
- CT Volume 5272 Folio 455.
- CT Volume 5437 Folio 416.
- CT Volume 5702 Folio 913.
- CT Volume 5812 Folio 148.
- CT Volume 5818 Folio 333

DEVELOPMENT REGULATIONS 2008
Form of Declaration (Schedule 5 clause 2A)



Government
of South Australia

To: SCAP

From: WILTSHIRE SWAIN PTY LTD.

Date of Application: / /

Location of Proposed Development: STRATHAUBYN HEALTH SERVICES.

House No: 1A Lot No: _____ Street: ALFRED PLACE

Town/Suburb: STRATHAUBYN SA.

Section No (full/part): _____ Hundred: _____

Volume: _____ Folio: _____

} SEE OVER.

Nature of Proposed Development:

DEMOLITION OF BUILDINGS. CONSTRUCTION OF NEW 36 BED
RESIDENTIAL AGED CARE FACILITY.
CAR PARKS AND CIVIL WORKS.

REMOVAL OF OVER HEAD POWER LINE SUPPLY TO
ALFRED PLACE. (OFFER PENDING SAPN).

I ANDREW SWAIN being the applicant/ a person acting
on behalf of the applicant (delete the inapplicable statement) for the development
described above declare that the proposed development will involve the construction
of a building which would, if constructed in accordance with the plans submitted, not
be contrary to the regulations prescribed for the purposes of section 86 of the
Electricity Act 1996. I make this declaration under clause 2A(1) of Schedule 5 of the
Development Regulations 2008.

Signed:

Date: 22/01/2020



Note 1

This declaration is only relevant to those development applications seeking authorisation for a form of development that involves the construction of a building (there is a definition of 'building' contained in section 4(1) of the Development Act 1993), other than where the development is limited to –

- a) an internal alteration of a building; or
- b) an alteration to the walls of a building but not so as to alter the shape of the building.

Note 2

The requirements of section 86 of the Electricity Act 1996 do not apply in relation to:

- a) an aerial line and a fence, sign or notice that is less than 2.0 m in height and is not designed for a person to stand on; or
- b) a service line installed specifically to supply electricity to the building or structure by the operator of the transmission or distribution network from which the electricity is being supplied.

Note 3

Section 86 of the Electricity Act 1996 refers to the erection of buildings in proximity to powerlines. The regulations under this Act prescribe minimum safe clearance distances that must be complied with.

Note 4

The majority of applications will not have any powerline issues, as normal residential setbacks often cause the building to comply with the prescribed powerline clearance distances. Buildings/renovations located far away from powerlines, for example towards the back of properties, will usually also comply.

Particular care needs to be taken where high voltage powerlines exist; or where the development:

- is on a major road;
- commercial/industrial in nature; or
- built to the property boundary.

Note 5

An information brochure: 'Building Safely Near Powerlines' has been prepared by the Technical Regulator to assist applicants and other interested persons.

This brochure is available from council and the Office of the Technical Regulator. The brochure and other relevant information can also be found at sa.gov.au/energy/powerlinesafety

Note 6

In cases where applicants have obtained a written approval from the Technical Regulator to build the development specified above in its current form within the prescribed clearance distances, the applicant is able to sign the form.

Certificate of Title

The site features several titles including:

- CT Volume 5101 Folio 301.
- CT Volume 5272 Folio 455.
- CT Volume 5437 Folio 416.
- CT Volume 5702 Folio 913.
- CT Volume 5812 Folio 148.
- CT Volume 5818 Folio 333

STRATHALBYN & DISTRICT HEALTH
SERVICES FACILITIES UPGRADE -
RESIDENTIAL AGED CARE FACILITY
(RACF)
DEVELOPMENT APPLICATION

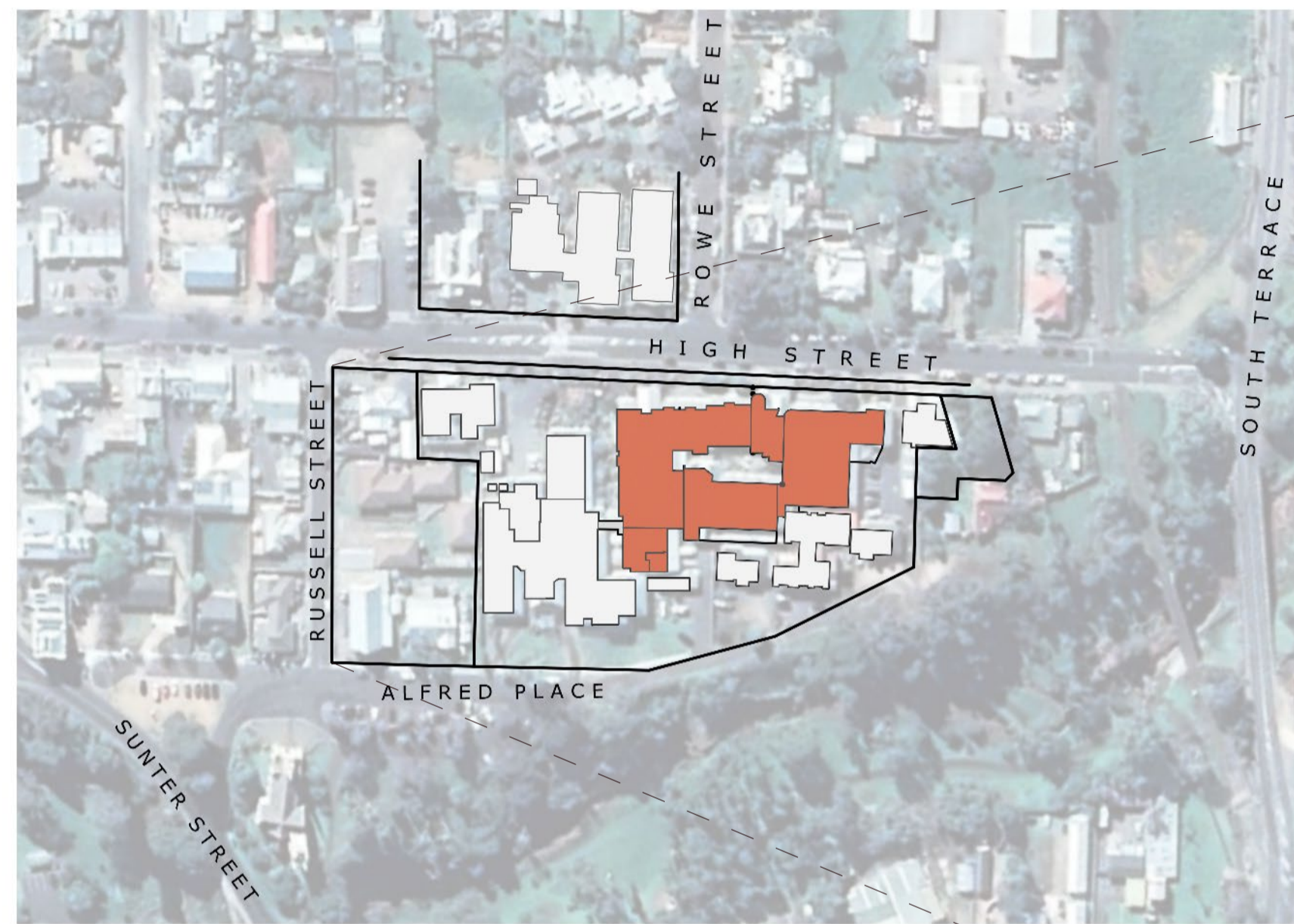




Contents

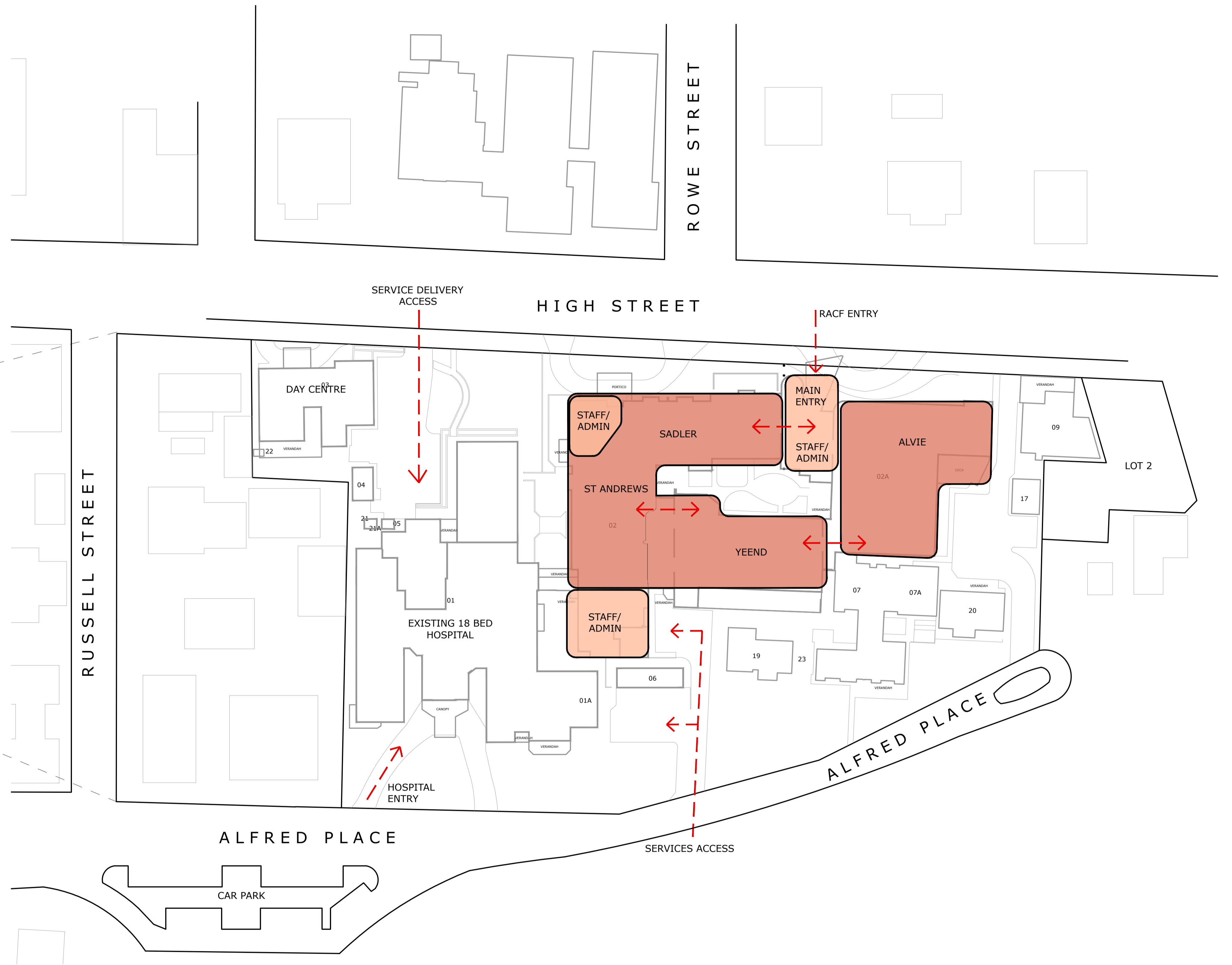
locality plan & function plan - existing	3
locality plan & function plan - proposed	4
massing model	5
demolition plan	6
proposed concept plan	7
proposed concept civil + landscape plan	8
roof plan	9
elevations	10
proposed sections and street elevation	11
proposed exterior images	12
3D model images + sun diagram	13
3D model images + sun diagram	14
proposed interior images	15
proposed interior images	16





LOCATION PLAN

1:2000 @ A1



EXISTING RAC FACILITY: FUNCTIONAL LAYOUT

1:500 @ A1

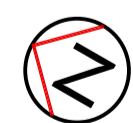
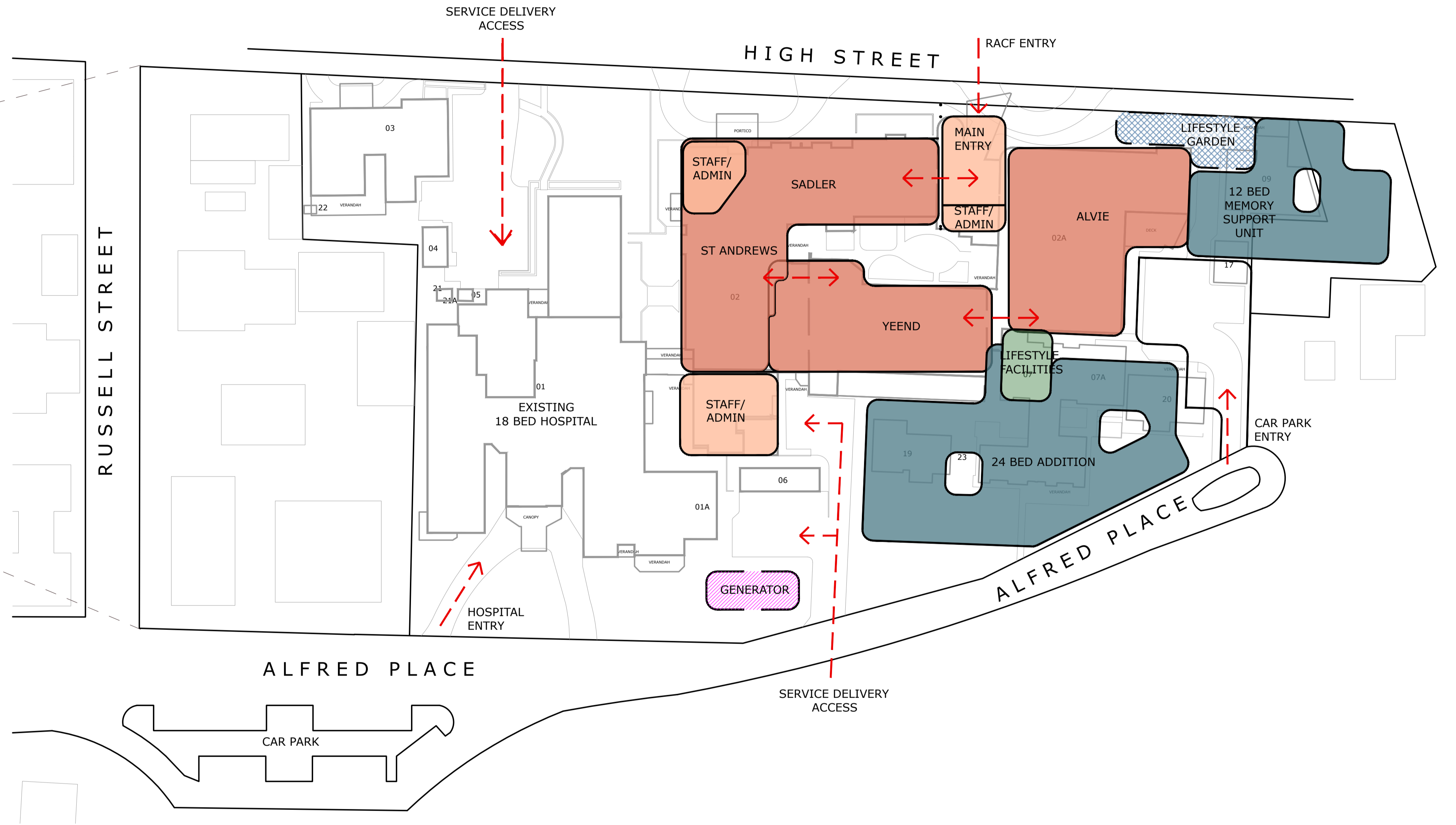
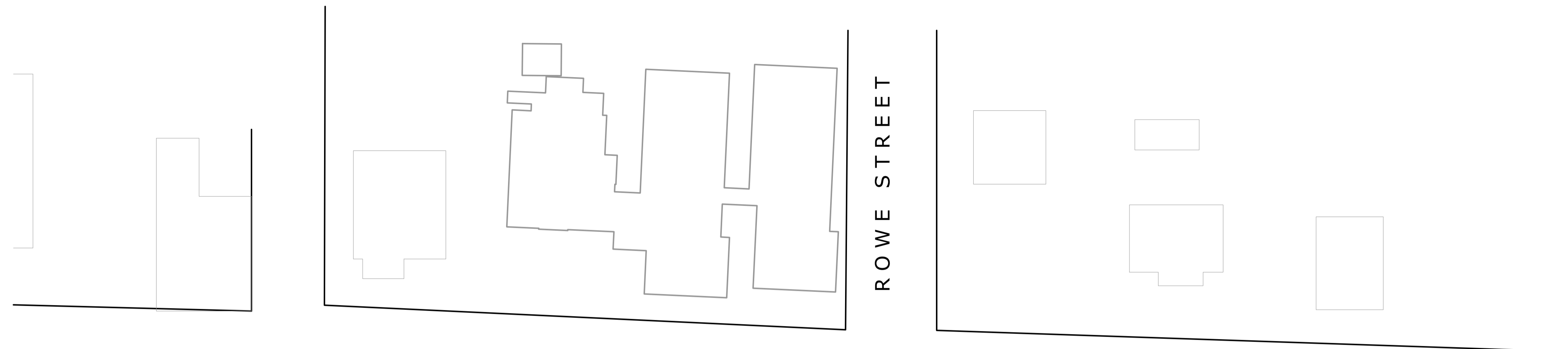
locality plan & function plan - existing





LOCATION PLAN

1:2000 @ A1



PROPOSED RAC FACILITY: FUNCTIONAL LAYOUT

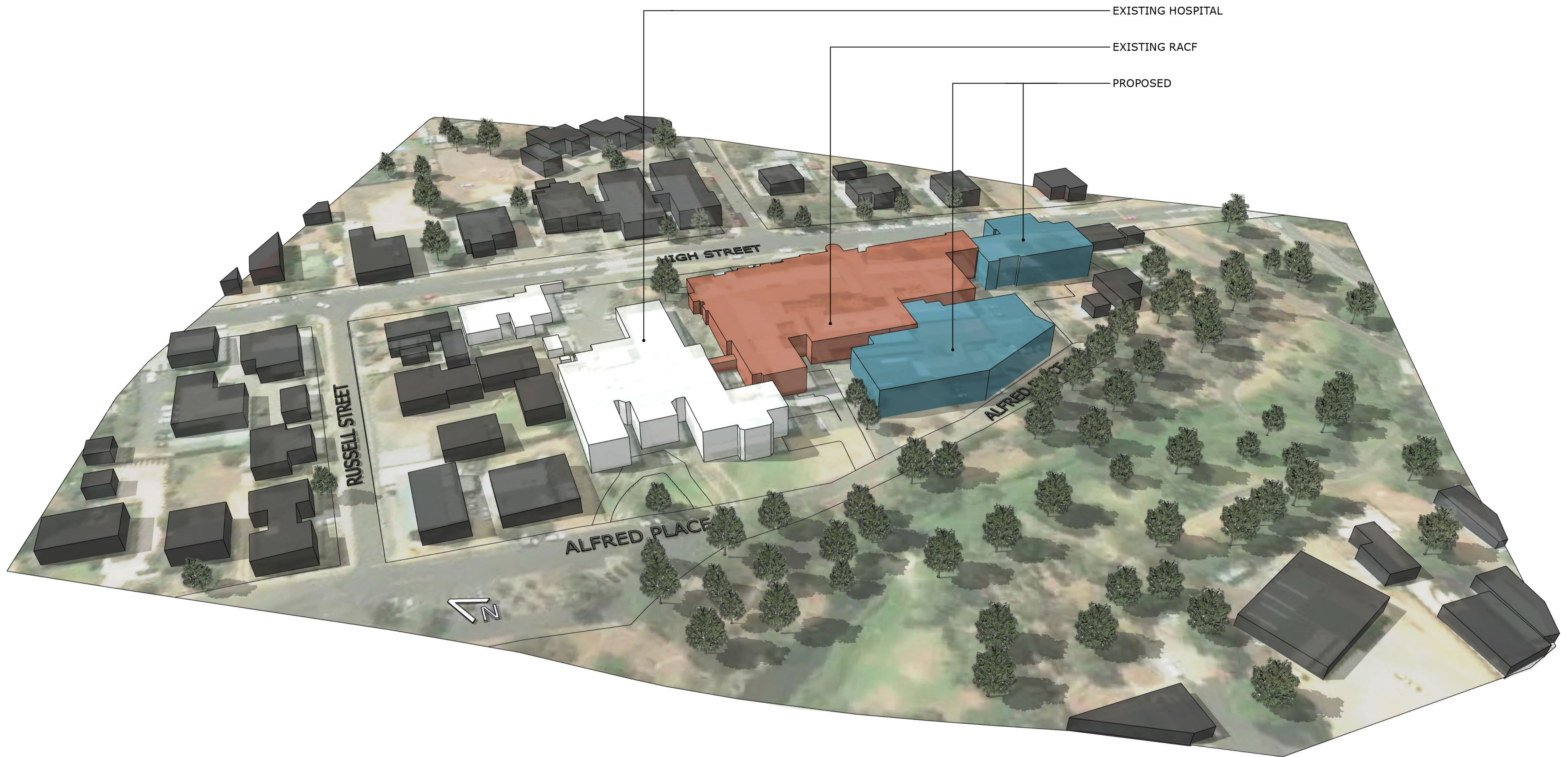
1:500 @ A1

locality plan & function
plan - proposed

Strathalbyn & District Health Services Facility Upgrade -
Residential Aged Care Facility (RACF)
development application / sheet 4 of 16 / 24.01.2020



wiltshire + swain architects



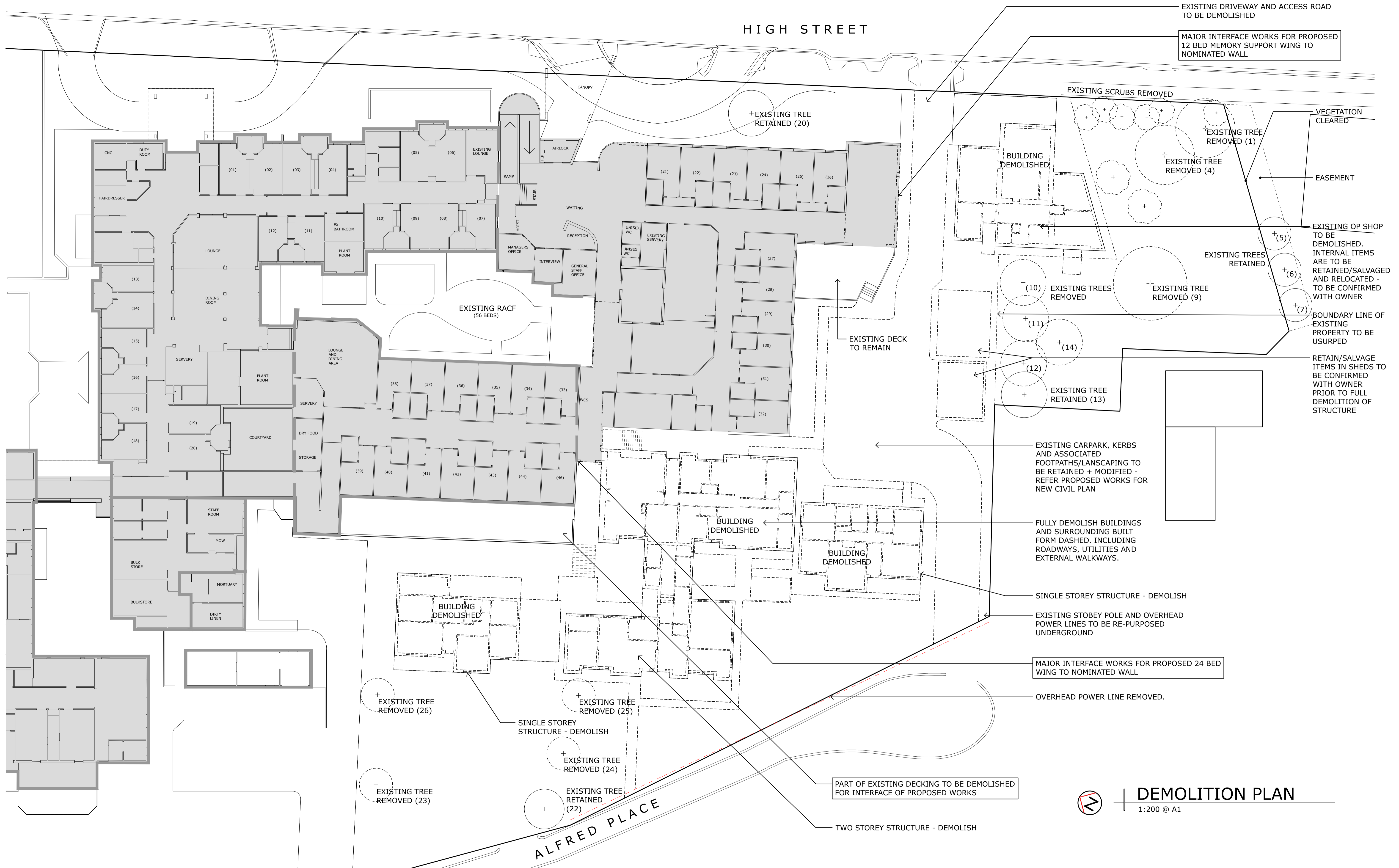
SITE MASSING MODEL

massing model

Strathalbyn & District Health Services Facility Upgrade -
Residential Aged Care Facility (RACF)
development application / sheet 5 of 16 / 24.01.2020

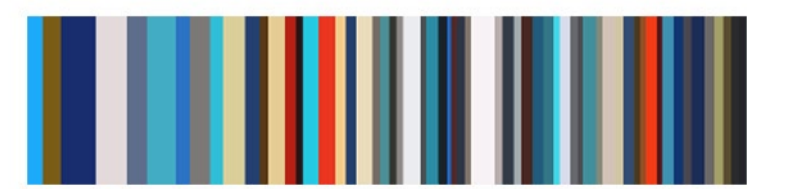


wiltshire + swain architects



demolition plan

Strathalbyn & District Health Services Facility Upgrade -
 Residential Aged Care Facility (RACF)
 development application / sheet 6 of 16 / 24.01.2020



wiltshire + swain architects



1:200 @ A1

proposed concept plan

Strathalbyn & District Health Services Facility Upgrade - Residential Aged Care Facility (RACF)
development application / sheet 7 of 16 / 24.01.2020

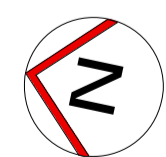
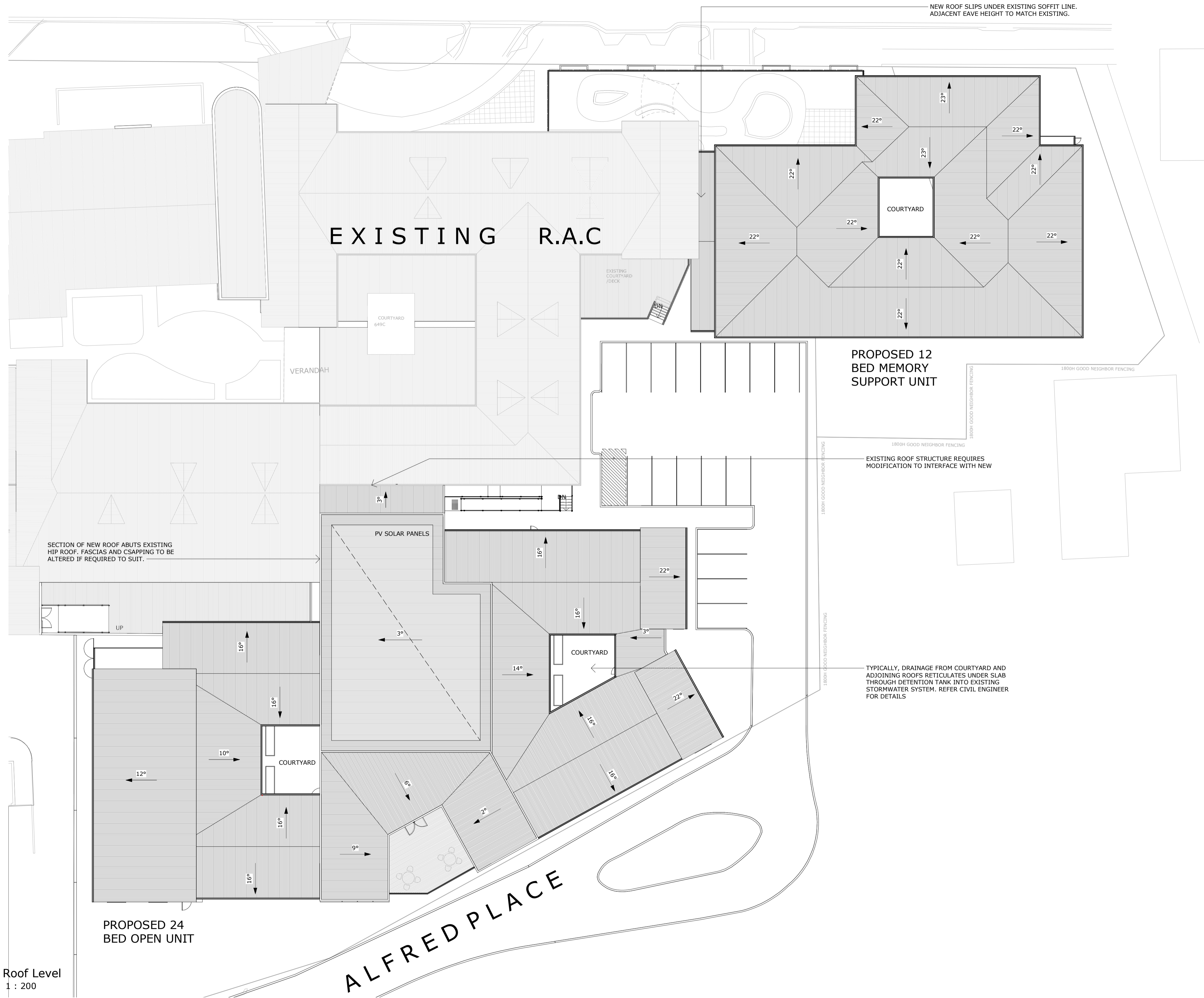




proposed concept civil + landscape plan

Strathalbyn & District Health Services Facility Upgrade -
Residential Aged Care Facility (RACF)
development application / sheet 8 of 16 / 24.01.2020

HIGH STREET



Roof Level
1 : 200

roof plan

Strathalbyn & District Health Services Facility Upgrade -
Residential Aged Care Facility (RACF)
development application / sheet 9 of 16 / 24.01.2020



wiltshire + swain architects



South Elevation
1 : 200

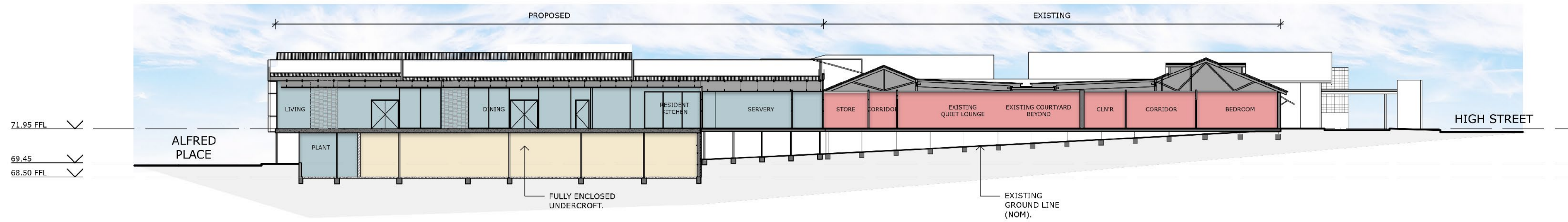


West Elevation
1 : 200

MATERIAL LEGEND	
1A	MASONRY, FACE FINISH
1B	MASONRY, PAINT FINISH
2	RENDERED AAC PANEL
3	VERTICAL PANEL L/W CLADDING
4	LIGHTWEIGHT SCREENING (ENCLOSED)
5	FEATURE MASONRY
6	CORRUGATED SHEET METAL
7	TIMBER SLAT FENCING
8	GLAZING



East Elevation
1 : 200



SECTION A
1:200 @ A1



SECTION B
1:200 @ A1



KEY PLAN NTS

SECTIONS



HIGH STREET ELEVATION DIAGRAM



proposed sections and street elevation

Strathalbyn & District Health Services Facility Upgrade - Residential Aged Care Facility (RACF)
development application / sheet 11 of 16 / 24.01.2020

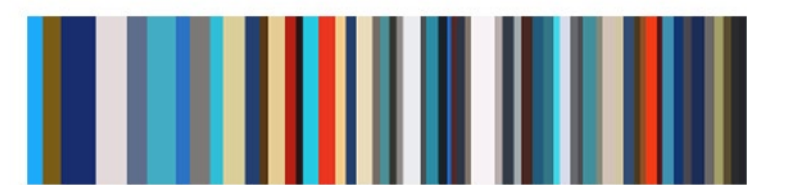




ARTISTS IMPRESSION
High Street

proposed exterior images

Strathalbyn & District Health Services Facility Upgrade -
Residential Aged Care Facility (RACF)
development application / sheet 12 of 16 / 24.01.2020



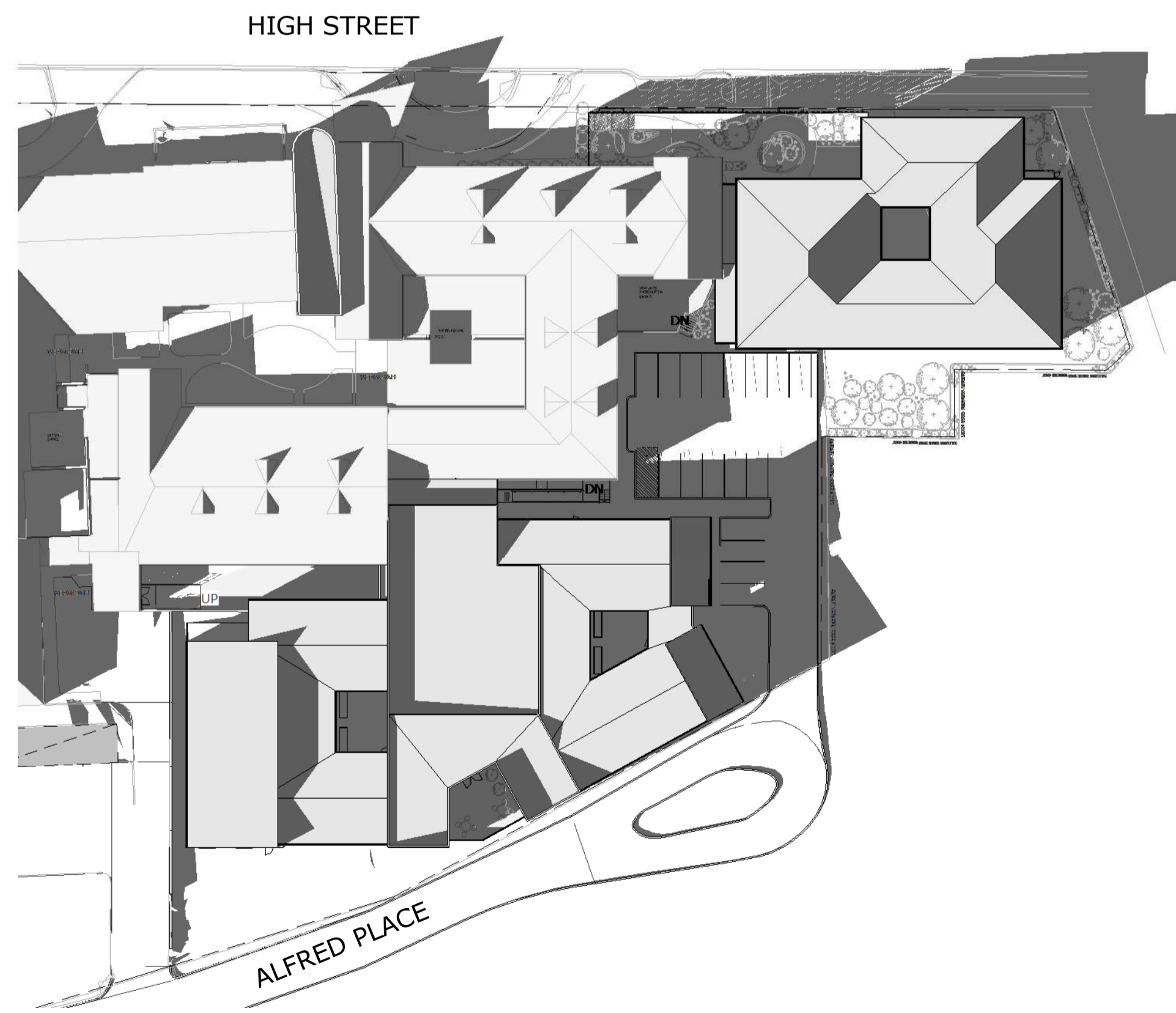
wiltshire + swain architects



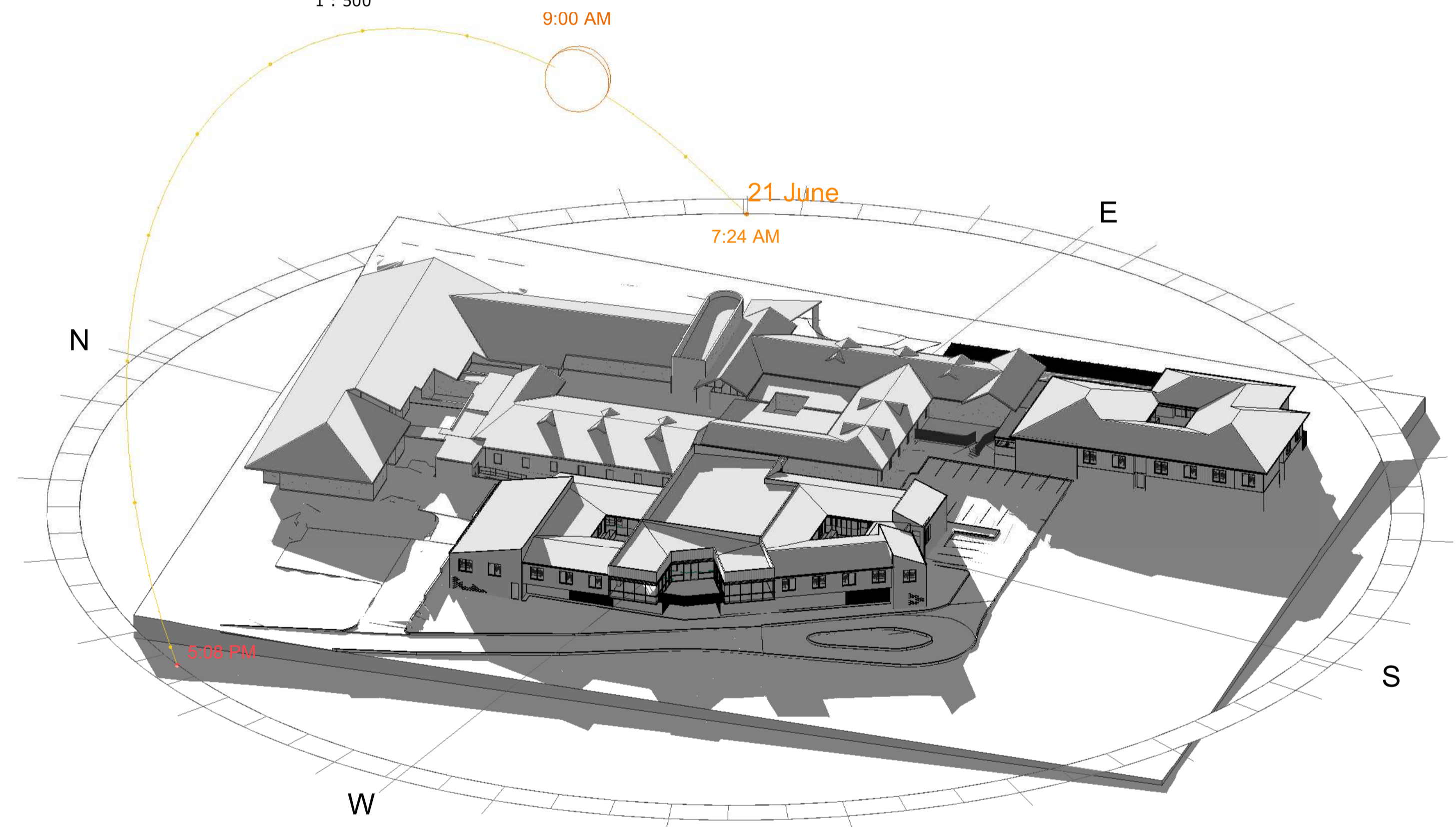
SUN DIAGRAM (21 JUNE, 9 AM)
1 : 500



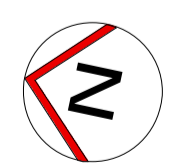
SUN DIAGRAM (21 JUNE, 12 PM)
1 : 500



SUN DIAGRAM (21 JUNE, 3 PM)
1 : 500

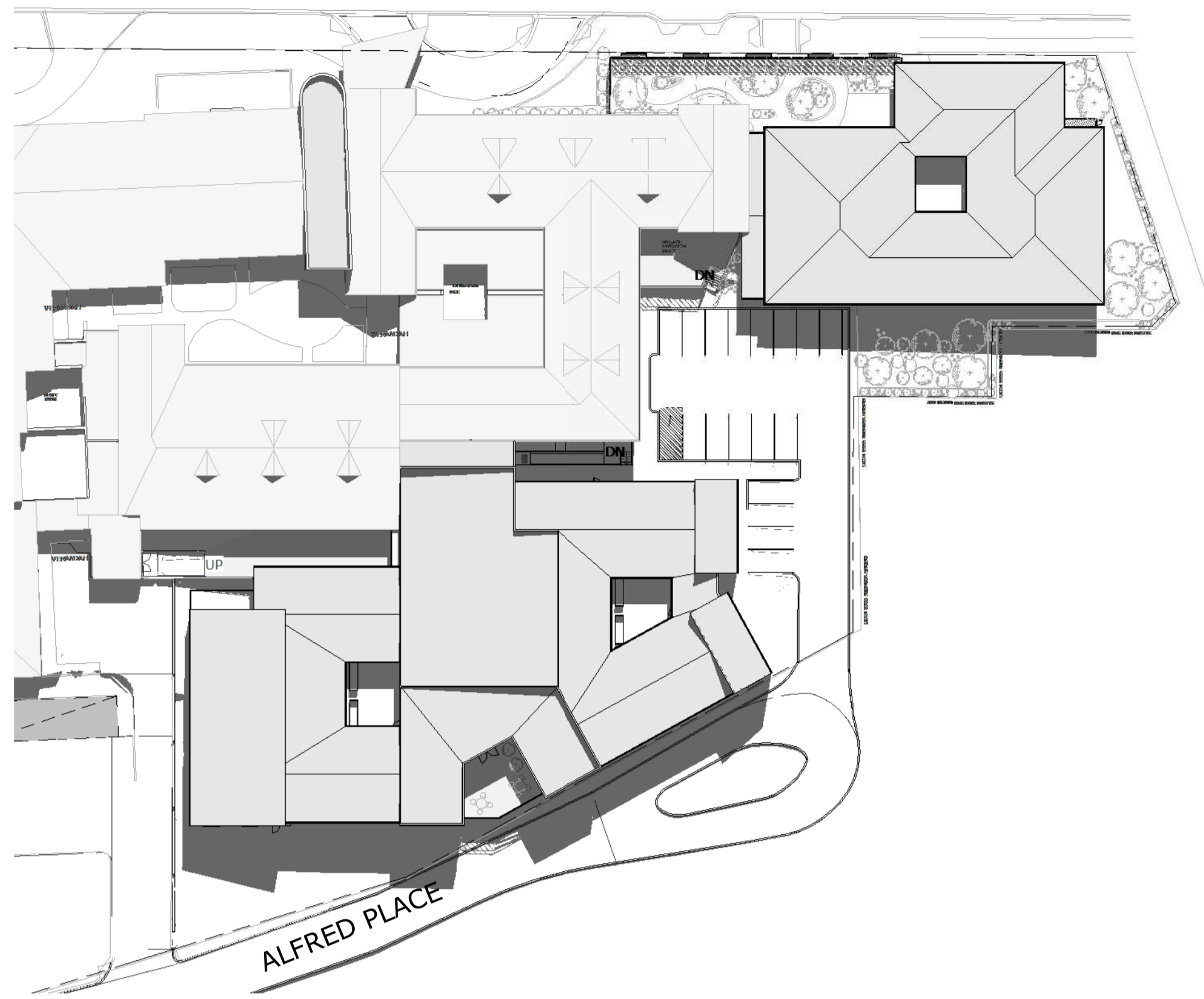


3D VIEW SUNPATH 21 JUNE

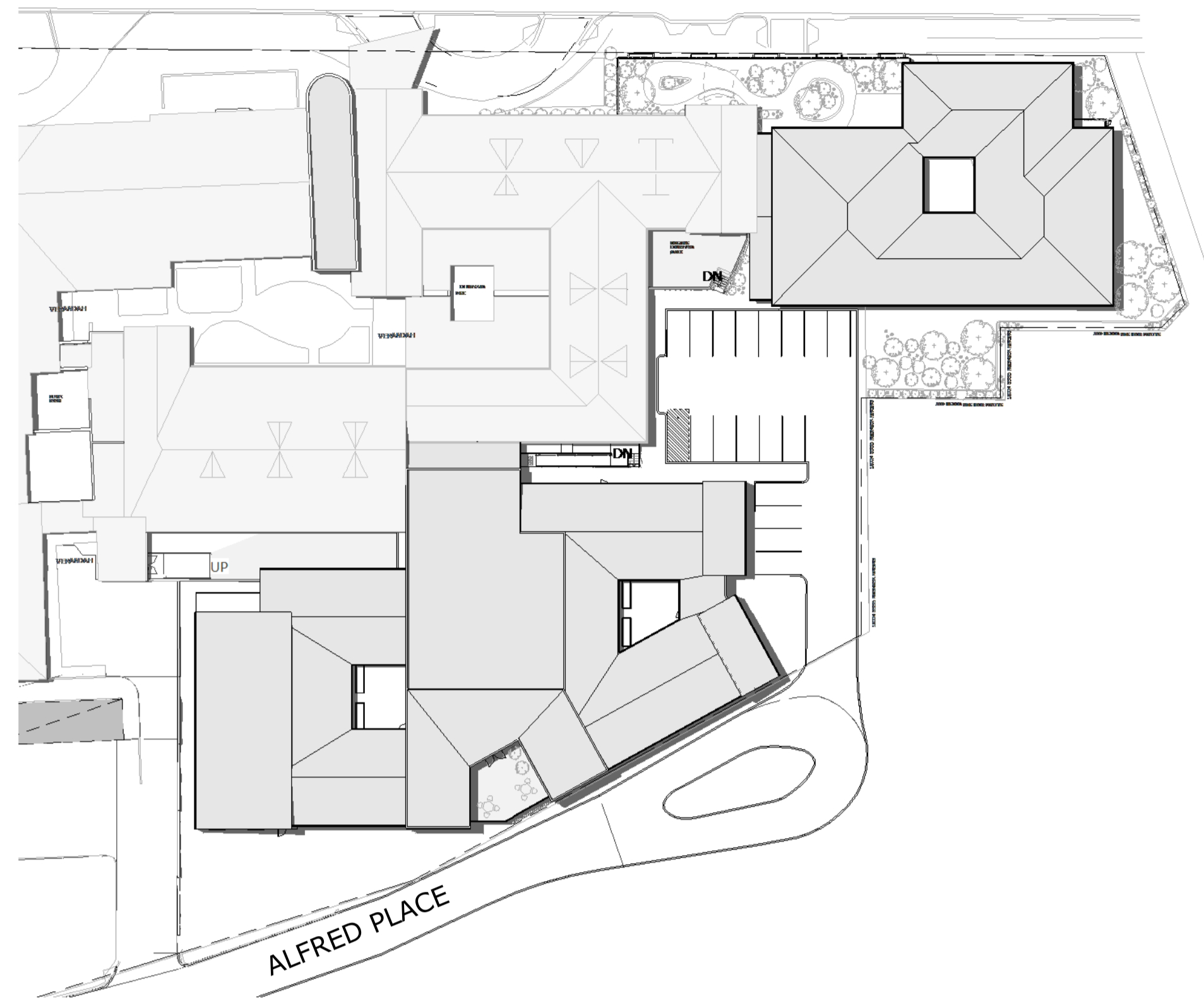


3D model images + sun diagram

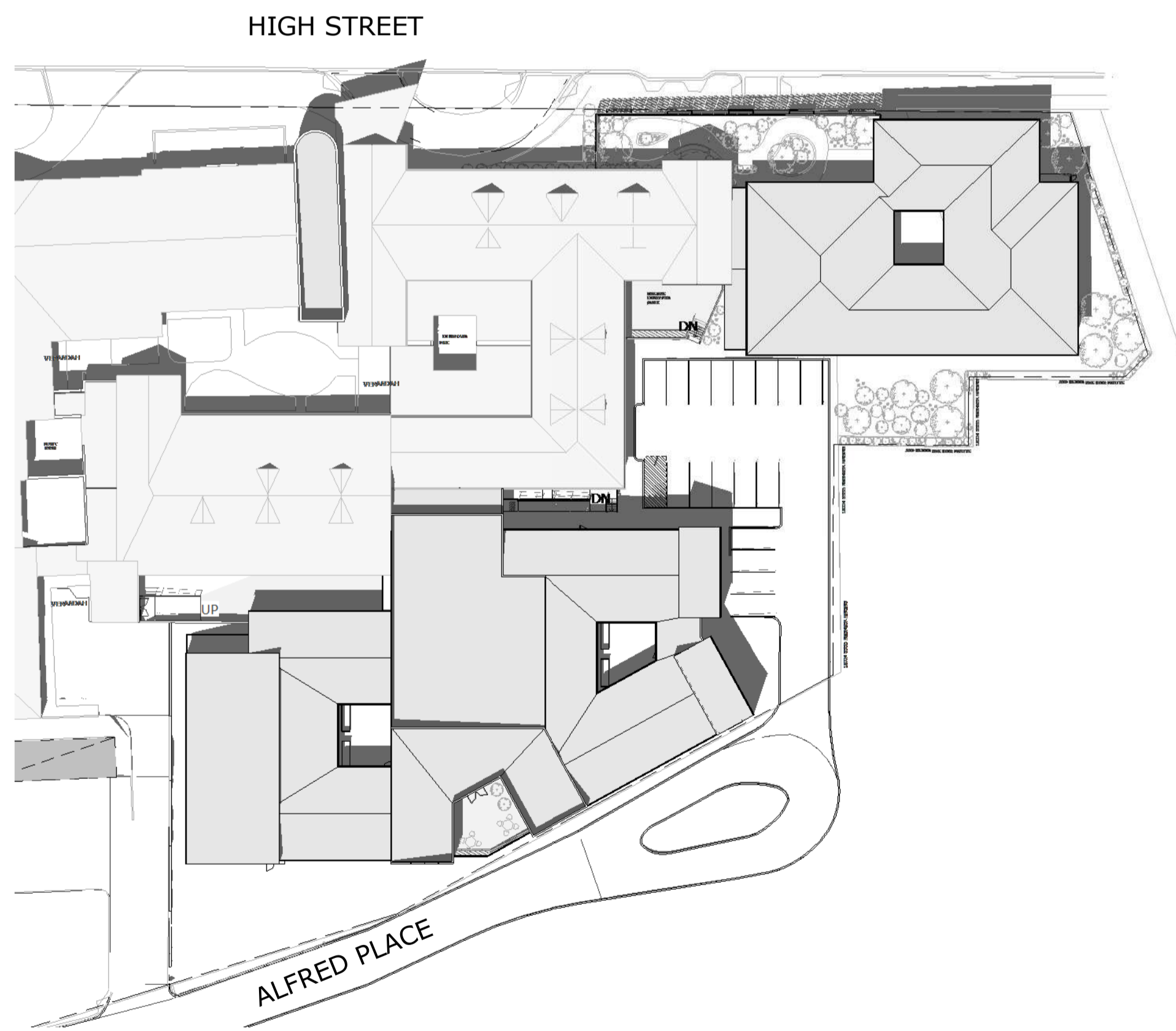




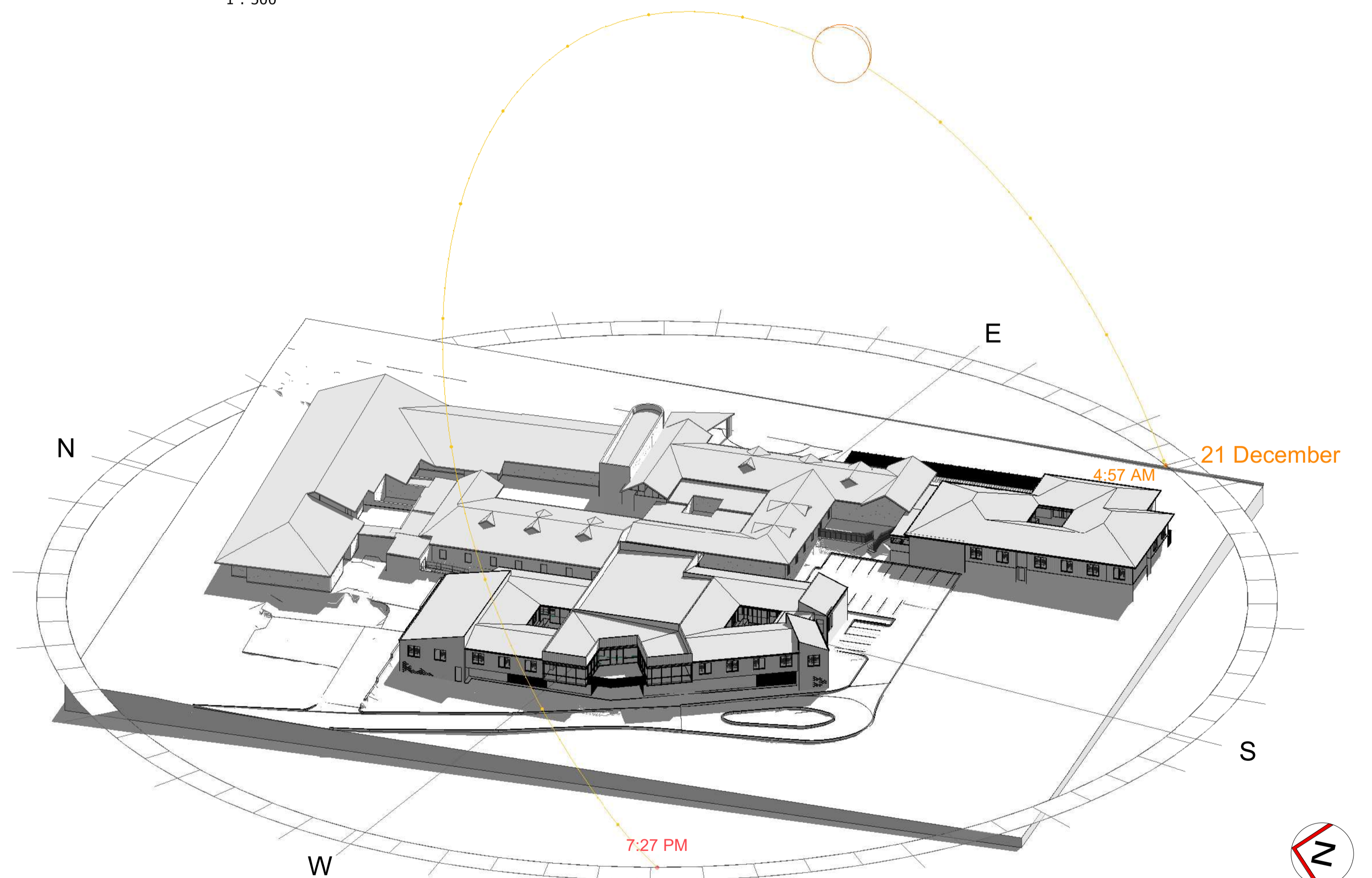
SUN DIAGRAM (21 DEC, 9 AM)
1 : 500



SUN DIAGRAM (21 DEC, 12 PM)
1 : 500



SUN DIAGRAM (21 DEC, 3 PM)
1 : 500



3D VIEW SUNPATH 21 DECEMBER

3D model images + sun diagram





ARTISTS IMPRESSION
living and dining

proposed interior images

Strathalbyn & District Health Services Facility Upgrade -
Residential Aged Care Facility (RACF)
development application / sheet 15 of 16 / 24.01.2020



wiltshire + swain architects



ARTISTS IMPRESSION
living and dining

proposed interior images

Strathalbyn & District Health Services Facility Upgrade -
Residential Aged Care Facility (RACF)
development application / sheet 16 of 16 / 24.01.2020



wiltshire + swain architects

wiltshire swain Pty Ltd
28 Crowther Street Adelaide SA 5000
PO Box 1092 Unley SA 5061

t 08 7324 2812

architects@wiltshireswain.com.au
wiltshireswain.com.au

wiltshire + swain
architecture | interior | health facility design

memo

18041/Memo 005 SCAP DRAFT.docx
Date: 22nd January 2020

Project: Strathalbyn & District Health Services Facility Upgrade

To:
The Manager: State Commission Assessment Panel (SCAP)
Cc:
Sam Felki, SA Health, Infrastructure
Maria Hoorenman, BHFLHN
Ben Wildy, Dept of Planning, Transport and Infrastructure (DPTI)
Kylie Rosenzweig, Lucid Consulting Australia (LCA)
Neil Pearson, Combes Pearson Reynolds (CPR)
Even Fung, Chris Sale Consulting (CSC)
From:
Andrew Swain

Pages: 14 pages including cover page

Development Application DESIGN STATEMENT.

A. PROJECT BACKGROUND AND OBJECTIVES

The 36-Bed Residential Aged Care Facility (RACF) Facility Expansion Project – An Overview

Since being elected in March 2018, the SA Government has been exploring how contemporary and personalised aged care services can be delivered in Strathalbyn, to support the local community to age well.

As a part of the 2018-19 State Budget, the Minister for Health and Wellbeing (the Hon Stephen Wade MLC) announced that funding would be committed to support construction of a new 24-bed expansion to the existing Strathalbyn RACF (utilising the 24 bed licences formerly held at the Kalimna Hostel site). In July 2018, the Federal Minister for Health, the Hon Greg Hunt MP, announced a Commonwealth commitment of an additional funding to enable the Strathalbyn RACF to be extended by an additional 12 aged care beds. When combined, this \$11.4m State and Commonwealth investment in Strathalbyn RACF is intended to deliver:

- A new 24-Bed 'Open' Ward
- A new 12-Bed dedicated 'Memory Support Unit'
- Upgraded engineering services serving the new RACF wards
- New car parking and landscaping for the expansion areas

The Project Team

To support design and delivery of the project, a multi-disciplinary project team was established comprising representatives from:

- Barossa Hills & Fleurieu Local Health Network (BHFLHN),
- Department for Health & Wellbeing's (DHW) Infrastructure Unit,
- Department for Planning, Transport and Infrastructure's (DPTI) Building Projects Unit

Within the project team, a number of professional service contractors were engaged to support planning and design development, this includes:

- wiltshire + swain
- Combe Pearson Reynolds
- Lucid Consulting Australia
- Chris Sale Consulting
- SONUS
- InfraPlan

Co-Designing Aged Care in Strathalbyn

In March 2019, Minister Wade and the Member for Heysen, Josh Teague MP, announced that the Global Centre for Modern Ageing (GCMA) in partnership with The Australian Centre for Social Innovation (TACSI) had been appointed to engage the Strathalbyn community and clinicians to partake in a 'co-design' process, informing the future design of a new aged care precinct in Strathalbyn that will better meet the needs of the community now and into the future.

Throughout this consultation and co-design process, over 180 aged care residents, health professionals and members contributed in a series of workshops, interviews and a community forum to define a series of Design Principles that will guide the planning of the new aged care precinct and services in Strathalbyn. The findings of the consultation were publically released in the Co-designing Aged Care in Strathalbyn Outcomes Report (GCMA & TACSI, May 2019).

The Strathalbyn RACF Expansion Project Team has sought to incorporate the Design Principles identified throughout the Co-Design process into the Concept Plan where practical and within the funding limitations.

B. EXISTING SERVICES AND FACILITIES

Strathalbyn and District Health Service (S&DHS) provides acute hospital and aged care services, ranging from in-hospital care for adults and children by local general practitioners to specialist surgical, outpatients and aged care beds.

The following are services provided by Strathalbyn and District Health Service from the Alfred Place campus:

Accident and emergency

- Services are provided 24 hours a day, seven days per week.

Hospital services

- General medical and surgical care includes:
- Aged residential care
- Day therapy centres
- Delivered meals (Meals on Wheels)
- Geriatric medicine
- Gynaecology
- Inpatient
- Outpatient
- Same day stays
- Surgery-general
- Urology

Residential Aged Care (RAC)

- Strathalbyn and District Health Service offers residential aged care facilities with a 56-bed facility.

Other services

- Strathalbyn Opportunity Shop
- SA Ambulance Services
- Country Health Regional Offices (Administrative)

Project details

The project scope as described in the DHW brief is the delivery of a contemporary residential aged care environment as a result of the closure of the 24 bed Kalimna Hostel on High St, Strathalbyn.

The planned facility is located on 14 Alfred Place STRATHALBYN SA 5255 (refer Strategic Asset Management Information System SAMIS plan 299.01).

Context and Planning

Certificate of Title

The site features several titles including:

- CT Volume 5101 Folio 301.
- CT Volume 5272 Folio 455.
- CT Volume 5437 Folio 416.
- CT Volume 5702 Folio 913.
- CT Volume 5812 Folio 148.
- CT Volume 5818 Folio 333

Easements

- CT Volume 5437 Folio 416. Easement Marked "A"

Land Services SA register search as listed above. Refer Appendix 1.

Development Plan context.

- Zone: District Centre Refer Figure 1
- Policy Area: Strathalbyn Centre Policy Area 4
- Precinct: No. 8 High Street South 8. Figure 2
- Heritage status: Nil, Refer Heritage.
- Aboriginal heritage: Nil. Refer Aboriginal Heritage.

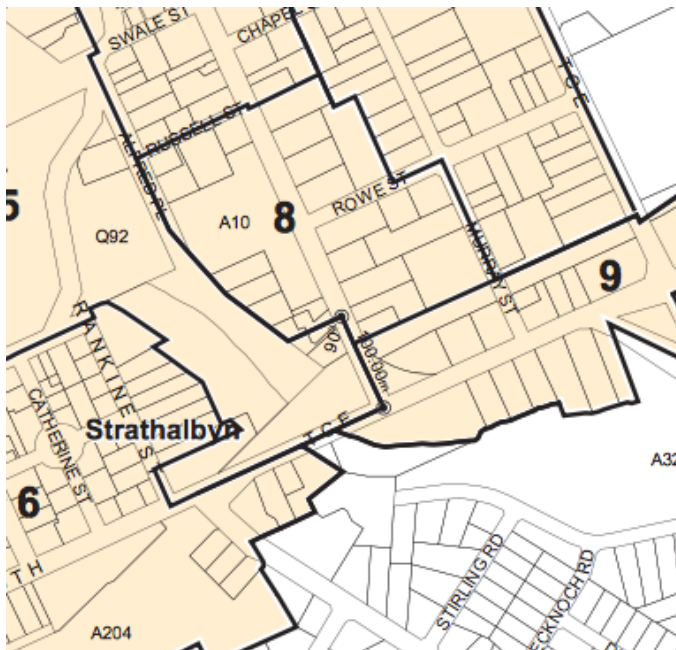


Fig. 1 Extract of DP's precinct Map Alex/32. A10 marks the Hospital site

Precinct 8 High Street South

The desired character is for a health and well-being precinct for residents of the Strathalbyn District, especially, community and professional services including hospital, doctors and other health professionals, consulting rooms, related government and community health offices as well as associated community facilities and small scale retail. Supported accommodation in the form of independent living units, and nursing home, as well as short-term tourist and visitor accommodation are also appropriate. Amalgamation of sites to accommodate housing for older people is appropriate where it is complementary to and compatible with adjoining development. New business enterprises of a complementary nature are appropriate in the precinct.

It is expected that buildings on land fronting the Angas River will be designed and developed to 'open up' and 'look out' onto the river valley. Path connections to the Angas Linear Park trail network will be provided to facilitate cycling and walking to the area as well as connect developments and landscaped spaces. Existing mature trees will become an integral part of development and landscape spaces.

On-site vehicle parking areas need to be designed to provide longer term parking with interconnection and shared use between adjacent car park areas. On-street parking provides for short-term vehicle parking for visitors. The footpaths would be improved to facilitate ease of pedestrian movement and the streetscape environment enhanced to improve the amenity and character of the area.

Advertising and other signage would be low in scale and designed and sited to complement the buildings to which they relate.

Fig. 2 Extract of DP's precinct statement

Bushfire

The Development Plan, Bushfire Protection Area Map indicates that the hospital site is in an area excluded from bushfire planning provisions.

The proposed development will be designed to achieve specific bushfire protective features to AS 3959 BAL 12.5. (Low)

Existing Buildings

The Hospital and RAC is predominantly made up of various buildings, which have been adapted, linked and modified over time. The major buildings have been built to serve as healthcare or nursing home accommodation, however several buildings on Alfred Place are former residential buildings. It is understood that the most recent construction has been the 2002 High Street RAC extension.

Currently the site has a change in level of 10m from north to south. The linked building has a series of ramps and linked corridors. There are no lifts. Building 02A has a hoist lift, within the entry foyer.

The current building stock, features and proposal are summarized in the following schedule.

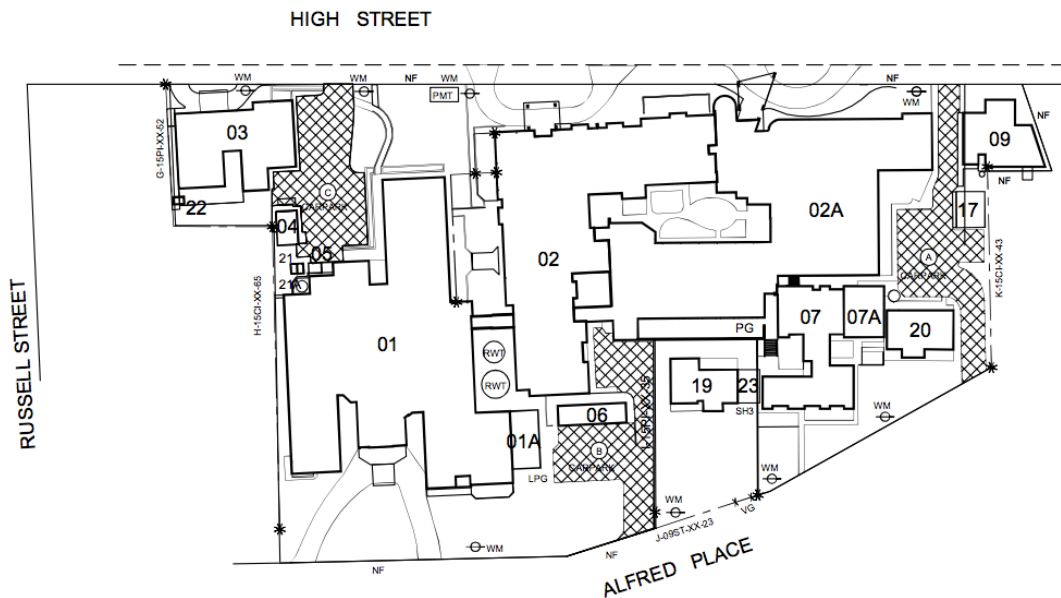


Fig. 3 Site plan SAMIS Building Numbers.

Building Number	Functions	Hazardous materials	Features	Commentary	Proposal
01	Hospital		18 beds, theatre, support services		No works schedule
02	Residential Aged Care		St Andrew's and Sadler rooms		No works schedule
02A	Residential Aged Care		Yeend and Alvie rooms		No works schedule
03	Aged Care Day Centre		Meeting and community centre	Reg Sisson Day Centre	No works schedule
04	Emergency Power/Switch building and Plant	Noted in register	Essential Power Supply		Refer Engineering services
05	Store/Laundry		Store laundry facilities		No works schedule
06	Maintenance Workshop				No works schedule
07	BHFLHN offices	Noted in register	Two storey office accommodations	18 Alfred Place	Demolition
07A	BHFLHN offices		Single storey office accommodations	18 Alfred Place	Demolition
09	Opportunity (Op) Shop	Noted in register	Single storey retail	High Street	Demolition
10	Vacant		Former Kalimna Hostel	Former residential units	No works schedule
10A	Vacant		Former Kalimna Hostel	Former admin	No works schedule
17	Shed		Op Shop storage		Demolition
19	SAAS	Noted in register	SAAS accommodation	Residential house	Demolition
20	Stores	Noted in register	Records store	Residential house	Demolition
21	Shed		Infectious waste storage		No works schedule
21A	Shed		Chemical storage		No works schedule
22	Shed				No works schedule
23	Carport			Linked to Bld 19	Demolition

Current Traffic Management

The site is located between Alfred Place and High Street, Strathalbyn.

Vehicular access to the site is available off both streets.

Pedestrian access primarily to the Hospital (Bld 01) is via the Emergency entry off Alfred Place. Access to the RACF (Bld 02A) is via a dedicated canopied entry on High Street

High Street has a pedestrian crossing and appropriate on street car parking.

Adjacent Features, On street

Alfred Place has a number of off street parks, as does High Street.

Public Carpark: There is an on-street public car park located along Alfred Place that is utilised by staff and visitors to the hospital. It is noted that while used by the hospital, this remains for public use and can be occupied by other uses such as the nearby St Andrews church.

On-Street: These spaces are along Alfred Place, Russell Street, High Street and partially Rowe Street and may be used by visitors to the site.

Car Parking, Off street

The site has existing on-grade parking over two locations accessed from perimeter external roadways.

Of this total car parking capacity, Alfred Place has a number of unsealed carparks associated with the residential building and offices.

Pick up zones. Several facilities are available including one off of Alfred Place for access to the emergency department, and three off of High Street for access to the aged care facility.

Current Site - Landscape

The current RAC site has no significant nor outstanding landscape features, other than the site of 49 High St. This southern allotment, 49 High Street, is heavily planted with cottage and native planting.

An arborist has prepared a report and confirmed that none of the vegetation is protected under the Development Act 1993 and the Native Vegetation Act 1991 or other legislation which may restrict the development of the property. Refer Appendix 3.

Current Site - Structure

Significant refurbishment works are not proposed for the existing buildings on the site. As such structural investigations and assessments of existing buildings on the site have not been undertaken and are not required as part of this project.

Current Site – Stormwater

Existing stormwater from the site is currently collected and is generally piped to either Alfred Place and to the Angas River on the far/south-west side of Alfred Place.

Preliminary site investigative work has identified a series of 150 and 225 mm dia existing pipes across Alfred Place, discharging into Angas River. No Gross pollutant traps (GPT) are currently provided.



Figure 4 Site stormwater plan, Alfred Place and Angus River discharge.

Heritage

None of the current buildings nor site is listed with any heritage legislation non statutory requirements. The northern end of the High St precinct is has a strong heritage character, and whilst the hospital is outside these boundaries.

Aboriginal Heritage

The Register of Aboriginal Site and Object has been review through the Dept. of Premier and cabinet to establish any known linkages covered under the Aboriginal Heritage Act 1998. The department has confirmed that the site has no entries on the Register. Refer Appendix 3.

C. THE PROPOSAL

C.1 Design Approach

Master Planning

In parallel with the development of the RACF concept plan, a Twenty Year Vision for Strathalbyn RACF was developed to identify opportunities, risk and future demands facing the Aged care services.

The future planning has been compartmentalized into 5 stages spanning across a 20-year time frame. Stage 1 is the proposed project which is the focus of this report.

These 5 stages are considered future works to the Stage 1 Proposed Works and are as follows:

- Stage 1 – Proposed Works (Underway)
- Stage 2a – Upper Level (1-3 Years)
- Stage 2b – Lower [Undercroft] Level (1-3 Years)
- Stage 3 – Refurbishment Part A (3 – 15 Years)
- Stage 4 – Refurbishment Part B (3 – 15 Years)
- Stage 5 – Refurbishment Part C (3 – 15 Years)
- Stage 6 – 12 Bed Addition (15 – 20 Years +)

Site Demolition

The proposal features several relocations off the Hospital site, into other accommodation. Services included are:

- Strathablyn Opportunity Shop
- SA Ambulance Services (SAAS)
- SA Health Regional Offices (Administrative)

As such the following building will be demolished, to clear the site:

- Building 9 (Opportunity Shop)
- Building 19 (SAAS)
- Building 7, 7A (SA Health Regional Offices)
- Building 20 (Records Stores)

Concept Design

Proposed site and floor plans are attached in Appendix 4.

Design Principals

The proposed 36 Bed RACF incorporates a range of design principles formed in community consultation. The design objective is to achieve these design principles and maintain the most current aged care institutional efficiencies.

After various community consultations, together with The Australian Centre for Social Innovation (TACSI), Global Centre for Modern Ageing (GCMA) and Life Lab key findings were evaluated, and 6 consolidated design principles were formed.

- For the facility to feel like a home, not an institution
- Provide opportunity for social interactions
- Facilitate meaning and purpose to residents
- Offer choice and control to residents
- Value people over process
- To support residents, family members and carers to transition through the stages of aged care.

The design's objective is to incorporate the 6 principles highlighted above within the 36 bed extension and achieve an area allocation of 60m² per resident, including bedroom, communal areas, activity and support services.

Site Planning

The proposed RACF development to the southern portion of the site consolidates and reinforces the RAC's functions which will provide both operation and functional efficiencies.

The building stock proposed for demolition is either not fit for purpose or nearing its serviceable life. The proposal continues the separate frontages to the Hospital services off Alfred Place and the residential facilities on High Street.

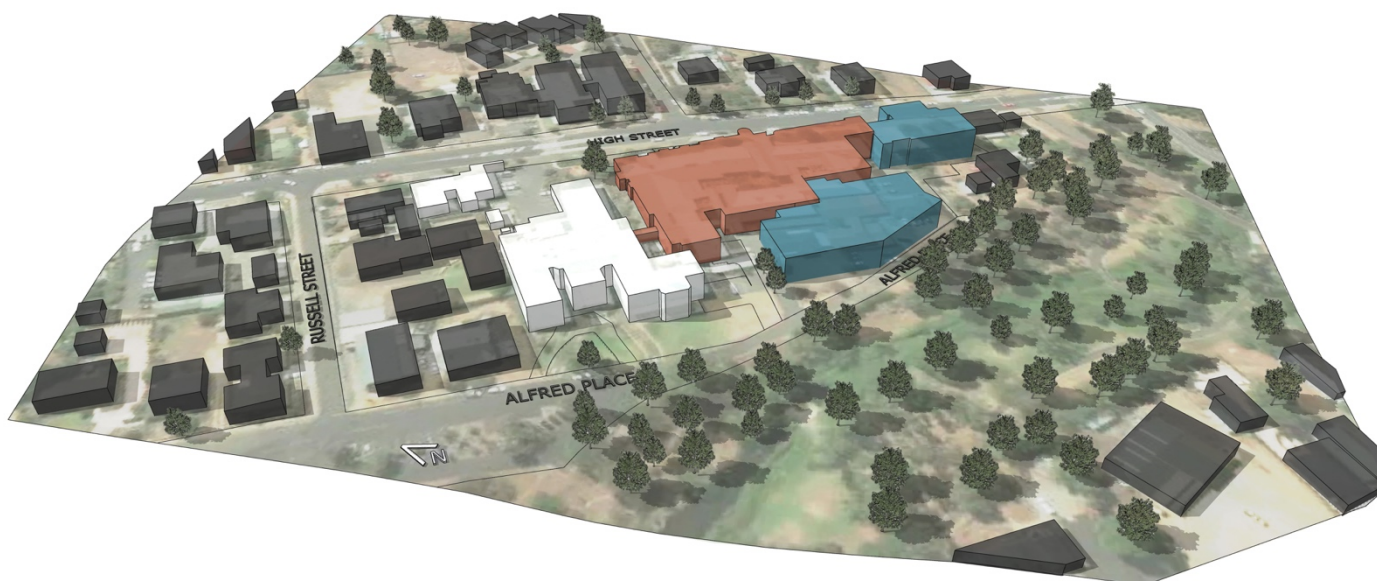


Figure 5. Site massing, Western view

The development of the RACF to the southern portion allows the hospital frontage opportunity to extend and expand on the NW corner of the site, without compromise.

Titles

A. Registered proprietor: Hills Area Health Advisory Council (HAHAC)

The site's ownership by the HAHAC features several titles including:

- CT Volume 5101 Folio 301.
- CT Volume 5272 Folio 455.
- CT Volume 5702 Folio 913.
- CT Volume 5812 Folio 148.
- CT Volume 5818 Folio 333

Easements

Nil

B. Registered proprietor: Minister of Health and Wellbeing

The site's ownership by the Minister features one title including:

- CT Volume 5437 Folio 416.

Easements

CT Volume 5437 Folio 416. Easement Marked "A"

Our approach

With differing proprietors across the site the intent is that a lease and/or MOU be prepared between the parties to address the differing ownership issues and the new buildings construction across the differing titles. With this in place an 'Alternative Solution' can be prepared addressing this issues and avoiding any fire compartmentation requirements under the BCA.

The proposed siting and set out of the new building respects the existing easements, and will maintain clear and unrestricted access, as outlined under the title.

Land Services SA register search as listed above. Refer Appendix 1.

C.2 Architectural Solution

Functional Relationships

The functional planning of the new RACF allows an efficient services model, which supports the current 56 and proposed new 36 beds.

The resident management plan will compromise for the following:

12 bed Memory Support Unit. (Dementia focus) with dedicated lounge and dining areas. Direct access to secure landscape courtyards.

24 bed Open with two separate lounge dining facilities to serve 12 residents each. Access to balconies and internal courtyards.

The resident bedroom's planning and circulation has been specifically configured in a format which features a 'single loaded' corridor, avoiding the impersonal and institutionalised of a traditional 'double loaded' corridor. Refer Figures 6, 7.

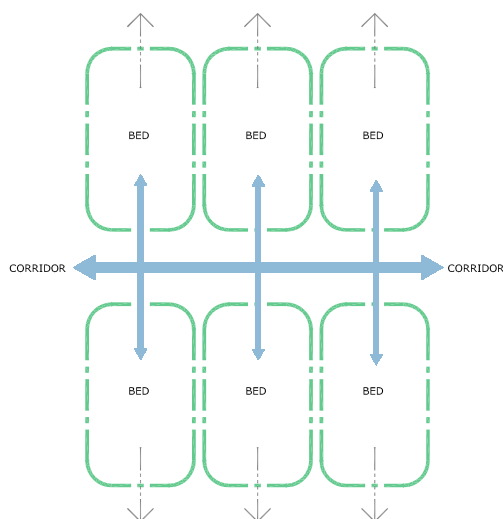


Figure 6 Institutional existing approach

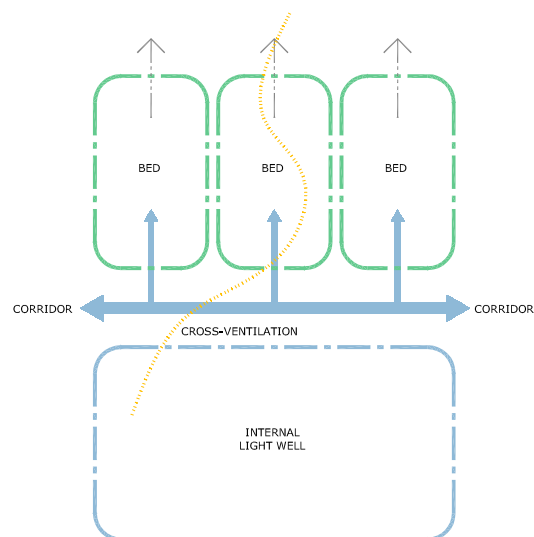


Figure 7 Proposed contemporary approach

Hotel services

The support services including food, linen and laundry facilities will be delivery from the sites current facilities located at the northern end of the campus.

New RACF will accommodated servery kitchen, sub store and facilities to accommodate the new 12 and 24 bed units.

Architectural Form and Materials Selection

Two buildings make up the total 36 Bed RACF. A 12 bed Memory Support Unit (MSU) to reside along High Street and a 24 Bed Open Unit constructed to the Angus River side of the property along Alfred Place.

The Memory support wing responds to the existing building which it adjoins and the contextual relationship it has along High Street.

At its immediate junction to the existing wing, the MSU aims to sit beneath the gutter line of the existing gable roof from. Growing further south, the building form is designed to assimilate with its contextual surrounds whilst maintain a presence on High Street, reinforcing a strong urban context.

To the rear of the site, the 24 bed RACF is bounded by the tall gumtrees along Angus River and takes advantage of the elevated location of the resident lounges and distant views into the tree tops.

The Albert Place frontage faces toward the river side and is strategically broken into a series proportioned and articulated forms. The single pitch roof forms, make reference to local heritage building forms present in the Strathablyn township. Figure 8, 9.

Elevations have been configured in a manner that reflects internal function of the building, are well modulated and articulated with appropriate levels of fenestration, that assist in reducing apparent scale and length of the building



Figure 8. Local building form, Alfred Place, Strathablyn.



Figure 9. Strong vernacular building forms, corner of Grey and Sunter St, Strathablyn.

Resident safety and functional connection require that the two building extensions are connected at the same floor levels to the existing RACF beds. As the site level falls to the south, this results in the 24 bed unit creating a future lower level for further site development opportunities. Refer **Master planning** Stage 2b. The building forms reflect this essential brief requirement, for the RACF.

A palette of materials and finishes are proposed, based upon the nature of the building and surround site. Proposed exterior finishes include:

- Face finished and painted brick masonry.
- Render Autoclaved Aerated Concrete (AAC) cladding, Painted.
- Fibre cement sheet panels with vertical rebate, Painted.
- Sheet metal cladding, Prefinished colorbond.
- Corrugated metal roof sheet, Prefinished colorbond
- Aluminium window suites., Prefinished powdercoat.

Material selections have been chosen to consider:

- The expression of the building's elemental form.
- Cost and constructability.
- The adjoining buildings materials and form.
- Maintenance requirements.

Acoustic Engineering

The proposal will provide appropriate acoustic controls for both indoor and outdoor environments.

The scope of acoustic engineering will be developed in accordance with the Client standards and the following guidelines and standards:

- Environmental Protection Authority (EPA) Guidelines
- AS/NZS 2107, Acoustic-Recommended design sound levels and reverberation times for building interiors,

In the design development phase, specific acoustic review and design features will target:

Air Conditioning Noise: Mechanical plant and equipment will be assessed and recommendations made to achieve acoustic standards as relevant to the arrangement.

Acoustic Separation: Options for acoustic separation will be developed in conjunction with the design team to achieve acoustic standards as relevant to the arrangement.

Reverberation Control: Options for surface finishes will be developed in conjunction with the design team to achieve acoustic standards as relevant to the arrangement.

Landscaping

The proposal incorporates new external features including but not limited to;

- Internal landscaped courtyards directly accessible to new RACs
- Resident lifestyle garden associated with the MSU
- External boundary landscape including trees and planter beds.

The proposed central courtyards for the proposed 24 bed open wing and proposed 12 bed MSU, provides an important light well, to the building, as well as paved outdoor space, suitable for informal carer and family gatherings.

The MSU 'lifestyle garden' will feature specific design elements and features to support the resident cohort. The current Alive wing 12 bed MSU will also have access the is garden space.

The external elements of the new RACF will be landscaped in a limited format, offering either turfed areas or 'soft' mulched garden bed.

The existing landscape features on the SE corner of the site will be retained and enhanced where suitable.

Plant selections should have regard to the following:

- Comprise of species suited to the local soils and microclimates
- Comprise of hardy, low maintenance species
- Consider seasonal differences and variety
- Include plants with distinctive form, foliage and colour, specifically where this contributes towards points of identity and an overall sense of place
- Select species for their ultimate height and growth habits

- Do not select species that are vulnerable to being damaged from foot traffic in high-traffic areas such as adjacent path edges and access points.
- Do not select species that are likely to cause trip or slip hazards with fruit, berrys, cones, and nuts.

An automated watering system will be provided to all common landscaped elements.

External Lighting

The proposal incorporates new external security lighting to the building perimeter and southern carpark areas.

The light design approach will be such that the light will be restricted for security and wayfinding purposes only and will be designed in accordance with AS 4282 Control of the obtrusive effects of outdoor lighting.

Ecologically Sustainable Development (ESD)

The design team will adopt a measured “best practice” approach for the development of ESD principles for the project. Statutory ESD requirements, as required under the building codes, acts and regulations, will be met.

DPTI and DHW have clearly defined objectives which will serve as a guide for ESD initiatives within this project, together with innovative strategies to be developed by the Design team.

The Project brief has not set any measureable targets, but have identified that we shall achieve a IGRAT 5 star (12 point) rating for the new RACF.

Greenstar and NABERS rating tools will not be adopted for this project.

Design approach

The design team will actively seek to provide sustainable strategies to:

- Conserve Resources.
- Provide Healthy environments and user amenities.
- Provide Natural environments.
- Respect Social, Cultural and Heritage environments.

Key ESD principals to be considered in the design phase include:

- Take overall life cycle approach to all elements and phases of the project.
- Design for flexibility and reuse.
- Minimize onsite waste during the construction process.
- Minimize resource consumption during both the construction and ongoing use of the building upon its completion.
- Reduce the environmental impact on the immediate location and wider environment.
- Use best practice passive design measures that balance the requirement for optimal working environments with minimal energy.
- Material transport costs, recycle-ability and ability of reuse when selecting materials and building systems.
- Investigate ways of using the ESD initiatives to create a wellness environment.
- Incorporate materials embodied energy levels.

Traffic Management

The proposal envisages no significant changes to the current traffic management and car parking arrangements.

The following table is an assessment of new demand due to cater for the new RACF beds and the lost and effect of the southern car. Demand is based upon the Development Plan, Figure 10

Alexandrina Council
Table Section
Table Alex/2 - Off Street Vehicle Parking Requirements

Form of Development	Number of Required Car Parking Spaces	
	Minimum number of required vehicle parking spaces	Maximum number of vehicle parking spaces
Non-residential development, except for tourist accommodation, where it is located within Strathalbyn Centre Policy Area 4	3 spaces per 100 square metres of gross leasable floor area	5 spaces per 100 square metres of gross leasable floor area
Nursing Home	1 space for every 4 beds	

Figure 10 DP Off Street Parking Requirements.

Car park assessment summary

Traffic	Current	Lost	Required
Car parking: New demand for new 36 RAC beds	NA	NA	4 spaces per 1 bed. 36 new beds ÷ 4 = 9 new spaces.
Car parking: Lost	8 Southern car park.	8	Replacement: 8 spaces
Car parking total			17 spaces

Traffic Engineers, InfraPlan, have conducted an audit and prepared a report on the proposals. Refer Appendix 5.

Stormwater (SW)

Significant earthworks are likely to be required given the significant variation in existing ground levels over the site.

Stormwater will be picked up from base of downpipes and overflow pits and will discharge to a combination of new and existing pipes.

Stormwater will be discharge to the Alfred Place water table and dedicated stormwater under Alfred Place to the Angas River in three locations.

Post development SW discharge will not exceed the existing discharge capacity.

A gross pollutant trap (GPT) will not be provided from the new and modified car park areas.

Civil and Structural Engineers, Combe Pearson Reynolds, have prepared a Storm Water Management Plan. (SWMP) Refer Appendix 6.

Appendices (Bound separately)

Appendix 1, Certificates of Title (CT)

- CT Volume 5101 Folio 301.
- CT Volume 5272 Folio 455.
- CT Volume 5437 Folio 416.
- CT Volume 5702 Folio 913.
- CT Volume 5812 Folio 148.
- CT Volume 5818 Folio 333

Appendix 2, *Tree Assessment and Management Recommendation* prepared by Adelaide Arb Consultants dated 10/12/2019.

Appendix 3, *Register of Aboriginal Site and Object* prepared by the Dept. of Premier and Cabinet dated 6/12/2019.

Appendix 4, *Development Application* drawing set dated 22/01/2020.

Appendix 5, *Traffic Design Report* prepared by the InfraPlan dated 29/11/2019.

Appendix 6, *Stormwater Management Plan* prepared by the Combe Pearson Reynolds dated 11/11/2019.

Strathalbyn Hospital

High Street - Strathalbyn

Tree Assessment and Management Recommendations



Prepared for Andrew Swain

Wiltshire + Swain

Compiled by Cassandra Kerr and Shane Selway

Adelaide Arb Consultants

Executive Summary

Data collection and assessment of various trees within the areas surrounding Strathalbyn Hospital, adjacent to the south western boundary of the Strathalbyn Opportunity Shop and within the garden areas surrounding 49 High Street, along with the front of the Hospital on High Street, and trees along the frontage of 16 and 18 Alfred Place indicates that 26 trees assets exist within these areas.

The majority of the population assessed does not display sustainable health and/or structural attributes and provide low levels of character and amenity value within the local environment.

Of the 26 trees identified, 16 (62%) are recommended to be removed while a further four trees are recommended to be subjected to pruning management of various types. The remaining trees should be suitable to retain in situ. All pruning conducted must conform to the guidelines specified within Australian Standard AS4373-2007 *Pruning of amenity trees*.

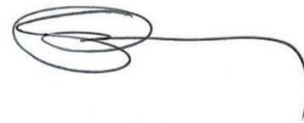
Ten of the trees within the population are deemed to be suitable for retention during development activities; however, it is acknowledged that some trees will potentially require removal in conjunction with the development. All trees being retained are recommended to be protected using the guidelines discussing Tree Protection Zone Management within this report which conform to Australian Standard AS4970-2009 *Protection of trees on development sites*.

Thank you for the opportunity to provide you with this advice. Should you require any further assistance or clarification, please do not hesitate to call or email me.

Yours sincerely,



Cassandra Kerr
Consulting Arboriculturist
Bachelor of Biotechnology
Arborist Trainee (Aus. License - Tier 2)
Certified QTRA tree risk assessor (Lic # 5719)



SHANE SELWAY
Senior Consulting Arboriculturist
Graduate Certificate of Arboriculture
Diploma of Arboriculture
International Society of Arboriculture –
Certified Arborist AU-0270A

Table of Contents

Table of Contents	3
Brief and Methodology	4
Observations / Discussions	8
Tree Data Overview	9
Management Requirements	22
Tree Protection Zone – Overall Plan	28
Conclusion	30

Brief and Methodology

Adelaide Arb Consultants were commissioned by Andrew Swain of Wiltshire + Swain to conduct a Pre-Development Survey and assessment of trees surrounding Strathalbyn Hospital, adjacent to the south western boundary of the Strathalbyn Opportunity Shop and within the garden areas surrounding 49 High Street, along with the front of the Hospital on High Street, and trees along the frontage of 16 and 18 Alfred Place. The client provided a plan showing the areas which would be developed and sought information relating to tree sustainability, management requirements, and retention capability during the redevelopment of the hospital.

The aim of such assessments in this case were intended to gain an understanding of the tree population within these areas including health, structure and condition, and vegetation controls implemented under South Australian Legislation including the *Development Act 1993* and *Native Vegetation Act 1991*. Additionally, tree protection designs and methods that will enable development proposal designs to achieve in unison with appropriate tree protection and sustainability was a primary aim of the assessment and reporting process.

The data collected indicates that there are **26 tree assets within the areas noted for assessment**. In addition to this, many small shrubs were noted within the areas surrounding the Strathalbyn Opportunity Shop and within the garden areas surrounding 49 High Street. These shrubs were omitted from the assessment.

The trees identified vary significantly in age, condition, and sustainability within the environment. Twelve of the twenty-six trees are recommended for removal due to conflicting with development given the preliminary plan received. A further four trees are recommended for removal due to a short Useful Life Expectancy. Eight trees have attributes making them suitable for retention, and a further two should be considered for retention if they are not in conflict with development. Many of the trees suitable for retention are fruit trees, which can be maintained as part of a small orchard.

A limited explanation of development activities was expressed within the brief for tree assessment purposes and therefore it is presumed that all trees within the assessment area will be subjected to potential damaging activities during development. Tree protection measures outlined within Australian Standard AS4970-2009 *Protection of trees on developments sites* will therefore be implemented in cases where such potential exists to ensure trees which are currently sustainable and designated for retention remain in their current condition.

Strathalbyn Hospital High Street

Tree Assessment and Management Recommendations
10th December 2019



The data collection process occurred on 12th November 2019 using the Tree Plotter data collection platform. This platform enabled the collection of visual tree assessment data, as well as precise GIS location data.

The assessment and collection of Data included the following criteria:

All Trees – Conducted by Cassandra Kerr (Adelaide Arb Consultants)

The collection of data occurred throughout the specified areas and included most trees irrespective of trunk diameter or overall tree size. Many small shrubs were noted during the site assessment. These shrubs may be removed if desired or retained without management. Trees collected were assessed against the following criteria.

- Asset ID
- Location including GIS Reference

The coordinate system for asset locations will be expressed as Eastings and Northings in Map Grid of Australia 1994 (MGA 94 – Zone 54).

- Tree Genus, Species, & Common Name
- Digital Photography
- Tree Age

Tree age will range between young and senescent with the following criteria considered.

Young – newly planted, unestablished trees.

Immature – established trees within the first 20% of the trees ULE.

Mature – established trees that have developed their full crown potential. These trees may range between 20-70% of their ULE.

Over-Mature – established trees that have developed their full crown potential and have started health and structural decline. These trees may range between 70 and 95% of their ULE.

Senescent – Trees nearing the end of their ULE and generally past 95% of this parameter.

- Trunk Circumference (measured at one metre above natural ground level)
- Legislative Control Status

The management of many trees within the Adelaide Metropolitan Area is controlled under the Development Act 1993. As this site is not within the Adelaide Metropolitan Area, the trees in this assessment are not controlled by the Development Act 1993. However, trees in this locale have the potential to be controlled under the Native Vegetation Act 1991. Native vegetation means a plant or plants of a species indigenous to South Australia but does not include dead plants (with exceptions) or a plant intentionally sown unless the plant was sown in accordance to the Native Vegetation Act 1991, if planted in accordance with Native Vegetation Council requirements for development approval, or in compliance with other regulatory acts.

- Diameter at Breast Height (DBH)

The nominal trunk diameter at 1.4 metres above ground level determined from the circumference of the trunk divided by pi. This measurement is utilised to calculate the Tree Protection Zone radius.

- Tree Protection Zone (TPZ) Radius

A specified area above and below ground and at a specified distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development.

- Diameter at Root Buttress (DRB)

The nominal trunk diameter measured immediately above the trunk and root buttress determined from the circumference of the trunk divided by pi. This measurement is utilised to calculate the Structural Root Zone radius.

- Structural Root Zone (SRZ)

The area around the base of the tree required for the tree's stability in the ground. The woody root growth and soil cohesion in this area are necessary to hold the tree upright. The SRZ is minimally circular with the trunk at its centre and is expressed by its radius in metres.

This zone considers a tree's structural stability only, not the root zone required for a tree's vigour and long-term viability, which will usually be a much larger area.

- Height

- Average Crown Width

- Tree Health

A visual assessment of the tree's health is determined by considering the foliage density and colour, the presence of any pests or disease and the proportion of deadwood within areas of the crown. The situation of deadwood within the crown is also considered, i.e. terminal deadwood is likely a better indication of health decline opposed to internal deadwood where natural crown shading leading to poor photosynthetic success may be the cause of such decline and is therefore not a health concern.

- Structural Integrity

A visual assessment of the primary and secondary structure will enable the calculation of the trees ULE, potential for failure and risk score. Consideration to specific structural flaws will be given such as but not limited to poor/unstable root buttressing, trunk defects and included bark unions.

- Useful Life Expectancy

- Retention Value

The trees overall condition and Useful Life Expectancy is considered to determine the current contribution provided by the tree and whether its retention will complement the local environment considering development activities may occur within its vicinity.

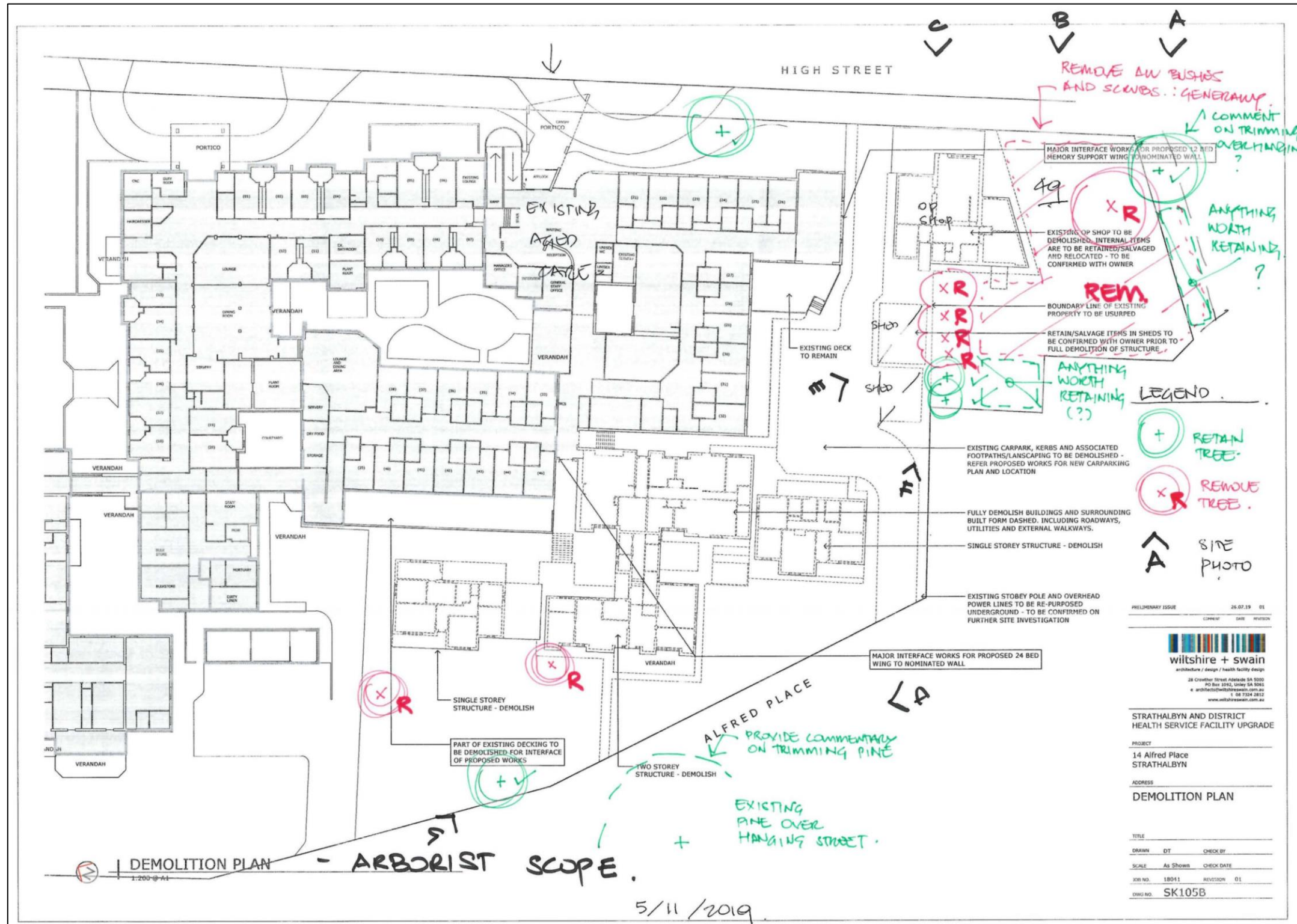
- Additional comments relevant to the individual assessment
- Detailed management recommendations



- Neapmap image of the area to be developed. Image taken by Neapmap on 23rd April 2019.

Observations / Discussions

The development location surrounds Strathalbyn Hospital, adjacent to south western boundary of the Strathalbyn Opportunity Shop and within the garden areas surrounding 49 High Street, along with the front of the Hospital on High Street, and trees along the frontage of 16 and 18 Alfred Place.



Tree Data Overview

Tree No.: 1 **Botanical Name:** *Eucalyptus leucoxylon*
Common Name: South Australian Blue Gum
Crown Size (HxS): 8m x 10m
Health: Poor **Structure:** Fair
Age: Semi Mature **ULE:** 1-5 years
Form: Irregular **Retention Value:** Low
DBH (cm): 52 **TPZ (m):** 6.27 radius from centre of stem
DRB (m): 0.57 **SRZ (m):** 2.62 radius from centre stem
Circ @ 1m: 289cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

The tree is in decline and has minimal live tissue, delaminating bark, terminal deadwood, reduced foliage, substantial pests, and epicormic growth throughout. There is unstable deadwood throughout the crown. The tree has three co-dominant stems.



Recommended Management:

While the development proposal sought to retain and protect this tree, this tree shows attributes resulting in a short Useful Life Expectancy and is therefore recommended for removal.

Tree No.: 2 **Botanical Name:** *Eucalyptus torwood*
Common Name: Torwood
Crown Size (HxS): 8m x 5m
Health: Fair **Structure:** Fair
Age: Semi Mature **ULE:** 5-10 years
Form: Stem Bias **Retention Value:** Moderate
DBH (cm): 22 **TPZ (m):** 2.64 radius from centre of stem
DRB (m): 0.24 **SRZ (m):** 1.82 radius from centre stem
Circ @ 1m: 68cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

There is a fence approximately five metres to the south and two metres to the east. A canker noted at the base of the trunk. There are dead branches and epicormic growth throughout the lower crown. The upper crown is in good condition.



Recommended Management:

This tree is in conflict with development and is therefore recommended for removal.

Tree No.: 3 **Botanical Name: Cupressus sempervirens**

Common Name: Italian Cypress
Crown Size (HxS): 1m x 1m
Health: Fair **Structure:** Fair
Age: Young **ULE:** 10-20 years
Form: Stem Bias **Retention Value:** Moderate
DBH (cm): 2 **TPZ (m):** 2.00 radius from centre of stem
DRB (m): 0.02 **SRZ (m):** 1.50 radius from centre stem
Circ @ 1m: 6cm



Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

None noted.

Recommended Management:

This tree is in conflict with development and is therefore recommended for removal.

Tree No.: 4 **Botanical Name: Eucalyptus leucoxylon**

Common Name: South Australian Blue Gum
Crown Size (HxS): 15m x 14m
Health: Fair **Structure:** Fair
Age: Semi Mature **ULE:** 10-20 years
Form: Typical **Retention Value:** High
DBH (cm): 82 **TPZ (m):** 9.84 radius from centre of stem
DRB (m): 0.90 **SRZ (m):** 3.17 radius from centre stem
Circ @ 1m: 259cm



Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

Foliage was slightly reduced with signs of minor pest damage. No root flare was noted. The trunk splits into three stems with Included Bark Unions. Branches were elongated with poor taper.

Recommended Management:

This tree is in conflict with development and is therefore recommended for removal.

Tree No.: 5 **Botanical Name: *Eucalyptus spathulata***

Common Name: Swamp Mallet

Crown Size (HxS): 8m x 12m

Health: Fair **Structure:** Fair

Age: Semi Mature **ULE:** 10-20 years

Form: Stem Bias **Retention Value:** Moderate

DBH (cm): 22 **TPZ (m):** 2.64 radius from centre of stem

DRB (m): 0.24 **SRZ (m):** 1.82 radius from centre stem

Circ @ 1m: 70cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

The tree has a co-dominant stem and the branches are elongated with poor taper.

Recommended Management:

This tree is adjacent to proposed development. This tree can be retained if it is not in conflict with development. Further consultation may be required.



Tree No.: 6 **Botanical Name: *Eucalyptus spathulata***

Common Name: Swamp Mallet

Crown Size (HxS): 8m x 12m

Health: Fair **Structure:** Fair

Age: Semi Mature **ULE:** 5-10 years

Form: Typical **Retention Value:** Moderate

DBH (cm): 36 **TPZ (m):** 4.28 radius from centre of stem

DRB (m): 0.39 **SRZ (m):** 2.23 radius from centre stem

Circ @ 1m: 206cm

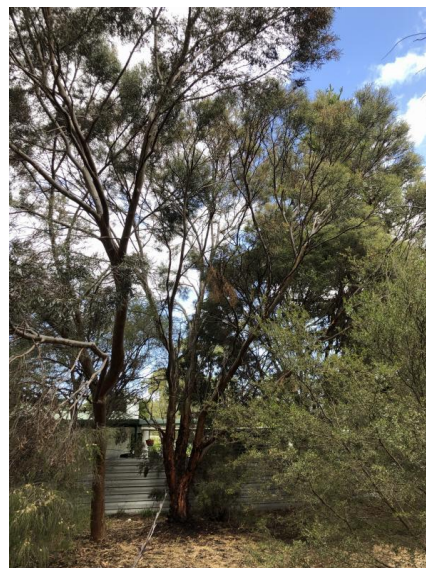
Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

There is reduced, chlorotic foliage. There is a substantial proportion of cankerous wounding with kino exudate throughout the lower primary structure. The tree has a co-dominant stem and the branches are elongated with poor taper.

Recommended Management:

This tree shows attributes resulting in a short Useful Life Expectancy and is therefore recommended for removal.



Strathalbyn Hospital High Street

Tree Assessment and Management Recommendations
10th December 2019

Tree No.: 7 **Botanical Name:** *Eucalyptus leucoxylon*

Common Name: South Australian Blue Gum

Crown Size (HxS): 7m x 9m

Health: Fair **Structure:** Fair

Age: Semi Mature **ULE:** 5-10 years

Form: Irregular **Retention Value:** Moderate

DBH (cm): 38 **TPZ (m):** 4.53 radius from centre of stem

DRB (m): 0.41 **SRZ (m):** 2.29 radius from centre stem

Circ @ 1m: 233cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

The crown has reduced foliage density. The lower foliage is heavily impacted by insect damage. The lower to mid crown contains epicormic growth throughout and terminal deadwood. The tree is of poor form with multiple stems and branches growing from ground level. The lower canopy is full of deadwood.

Recommended Management:

This tree shows attributes resulting in a short Useful Life Expectancy and is therefore recommended for removal.



Tree No.: 8 **Botanical Name:** *Callistemon viminalis*

Common Name: Weeping Bottle Brush

Crown Size (HxS): 4m x 5m

Health: Fair **Structure:** Poor

Age: Semi Mature **ULE:** 1-5 years

Form: Irregular **Retention Value:** Low

DBH (cm): 11 **TPZ (m):** 2.00 radius from centre of stem

DRB (m): 0.12 **SRZ (m):** 1.50 radius from centre stem

Circ @ 1m: 36cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

The crown has reduced foliage density. The union at the base of the tree has failed.

Recommended Management:

This tree is in conflict with development and is therefore recommended for removal.



Strathalbyn Hospital High Street

Tree Assessment and Management Recommendations
10th December 2019

Tree No.: 9 **Botanical Name:** *Schinus areira*

Common Name: Peppercorn

Crown Size (HxS): 8m x 9m

Health: Fair **Structure:** Poor

Age: Semi Mature **ULE:** 5-10 years

Form: Irregular **Retention Value:** Low

DBH (cm): 37 **TPZ (m):** 4.43 radius from centre of stem

DRB (m): 0.41 **SRZ (m):** 2.27 radius from centre stem

Circ @ 1m: 170cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

The tree is located adjacent to a building covering approximately one quarter of the root zone. The crown has slightly chlorotic foliage and reduced foliage density. The stem has a co-dominant union at ground level with an open Included Bark Union.

Recommended Management:

This tree is in conflict with development and is therefore recommended for removal.



Tree No.: 10 **Botanical Name:** *Eucalyptus spathulata*

Common Name: Swamp Mallet

Crown Size (HxS): 10m x 12m

Health: Fair **Structure:** Poor

Age: Semi Mature **ULE:** 5-10 years

Form: Typical **Retention Value:** Low

DBH (cm): 50 **TPZ (m):** 6.00 radius from centre of stem

DRB (m): 0.55 **SRZ (m):** 2.57 radius from centre stem

Circ @ 1m: 157cm

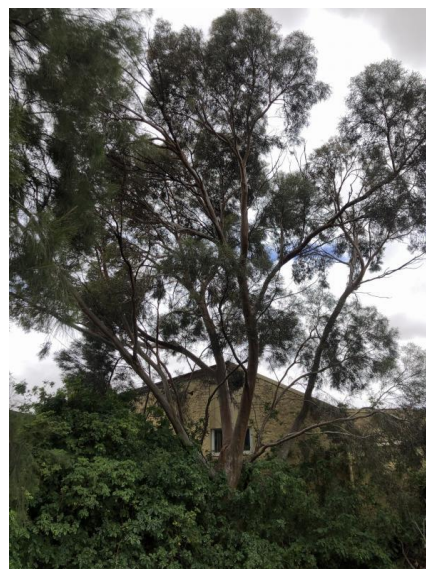
Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

The crown has slightly chlorotic foliage and reduced foliage density. There is a large Included Bark Union in the lower trunk. The branches are elongated with poor taper.

Recommended Management:

This tree is in conflict with development and is therefore recommended for removal.



Strathalbyn Hospital High Street

Tree Assessment and Management Recommendations
10th December 2019

Tree No.: 11 **Botanical Name:** *Casuarina glauca*

Common Name: Grey She-oak

Crown Size (HxS): 12m x 10m

Health: Good **Structure:** Fair

Age: Semi Mature **ULE:** 10-20 years

Form: Typical **Retention Value:** High

DBH (cm): 34 **TPZ (m):** 4.08 radius from centre of stem

DRB (m): 0.37 **SRZ (m):** 2.19 radius from centre stem

Circ @ 1m: 114cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

Co-dominant stem at six metres above ground level.

Recommended Management:

This tree is in conflict with development and is therefore recommended for removal.



Tree No.: 12 **Botanical Name:** *Casuarina glauca*

Common Name: Grey She-oak

Crown Size (HxS): 8m x 7m

Health: Poor **Structure:** Poor

Age: Semi Mature **ULE:** Surpassed

Form: Irregular **Retention Value:** None

DBH (cm): 34 **TPZ (m):** 4.08 radius from centre of stem

DRB (m): 0.37 **SRZ (m):** 2.19 radius from centre stem

Circ @ 1m: 106cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

This tree has minimal live foliage. There is terminal deadwood and epicormic growth throughout. The bark is delaminating. The trunk contains multiple co-dominant stems with Included Bark Unions.

Recommended Management:

This tree shows attributes resulting in a short Useful Life Expectancy and is therefore recommended for removal.



Tree No.: 13 **Botanical Name:** *Casuarina glauca*

Common Name: Grey She-oak

Crown Size (HxS): 9m x 8m

Health: Fair **Structure:** Fair

Age: Semi Mature **ULE:** 10-20 years

Form: Unbalanced **Retention Value:** High

DBH (cm): 32 **TPZ (m):** 3.84 radius from centre of stem

DRB (m): 0.35 **SRZ (m):** 2.13 radius from centre stem

Circ @ 1m: 100cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

This tree has slightly reduced foliage. There is one mature epicormic shoot growing in the middle of an Included Bark Union.

Recommended Management:

This tree is suitable for retention.



Tree No.: 14 **Botanical Name:** *Eucalyptus sp.*

Common Name: Gum

Crown Size (HxS): 7m x 8m

Health: Dead **Structure:** Poor

Age: Dead **ULE:** Surpassed

Form: Typical **Retention Value:** None

DBH (cm): 23 **TPZ (m):** 2.76 radius from centre of stem

DRB (m): 0.25 **SRZ (m):** 1.86 radius from centre stem

Circ @ 1m: 72cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

This tree is dead and fungal fruiting bodies are noted at the base of the trunk.

Recommended Management:

This tree is in conflict with development and is therefore recommended for removal.



Strathalbyn Hospital High Street

Tree Assessment and Management Recommendations
10th December 2019

Tree No.: 15 **Botanical Name:** *Acacia sp.*

Common Name: Wattle

Crown Size (HxS): 2m x 5m

Health: Fair **Structure:** Failed

Age: Semi Mature **ULE:** 1-5 years

Form: Irregular **Retention Value:** Low

DBH (cm): 14 **TPZ (m):** 2.00 radius from centre of stem

DRB (m): 0.15 **SRZ (m):** 1.51 radius from centre stem

Circ @ 1m: 45cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

This tree has a failed union at the base of the tree. Its amenity is low.

Recommended Management:

This tree is in conflict with development and is therefore recommended for removal.



Tree No.: 16 **Botanical Name:** *Prunus domestica*

Common Name: Common Plum

Crown Size (HxS): 2m x 3m

Health: Good **Structure:** Fair

Age: Semi Mature **ULE:** 10-20 years

Form: Typical **Retention Value:** Moderate

DBH (cm): 7 **TPZ (m):** 2.00 radius from centre of stem

DRB (m): 0.08 **SRZ (m):** 1.50 radius from centre stem

Circ @ 1m: 24cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

The trunk has a co-dominant union.

Recommended Management:

This tree is adjacent to proposed development. This tree can be retained if it is not in conflict with development. Further consultation may be required.



Strathalbyn Hospital High Street

Tree Assessment and Management Recommendations
10th December 2019

Tree No.: 17 **Botanical Name:** *Fraxinus griffithii*

Common Name: Evergreen Ash

Crown Size (HxS): 2m x 1m

Health: Fair **Structure:** Fair

Age: Semi Mature **ULE:** 5-10 years

Form: Typical **Retention Value:** Low

DBH (cm): 6 **TPZ (m):** 2.00 radius from centre of stem

DRB (m): 0.07 **SRZ (m):** 1.50 radius from centre stem

Circ @ 1m: 21cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

None noted.

Recommended Management:

This tree is suitable for retention.



Tree No.: 18 **Botanical Name:** *Prunus persica*

Common Name: Peach/Nectarine

Crown Size (HxS): 2m x 2m

Health: Good **Structure:** Fair

Age: Semi Mature **ULE:** 10-20 years

Form: Typical **Retention Value:** Moderate

DBH (cm): 4 **TPZ (m):** 2.00 radius from centre of stem

DRB (m): 0.04 **SRZ (m):** 1.50 radius from centre stem

Circ @ 1m: 14cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

None noted.

Recommended Management:

There is potential to retain this tree as part of a small orchard.



Strathalbyn Hospital High Street

Tree Assessment and Management Recommendations
10th December 2019

Tree No.: 19 **Botanical Name:** *Punica granatum*

Common Name: Pomegranite

Crown Size (HxS): 2m x 2m

Health: Good **Structure:** Fair

Age: Semi Mature **ULE:** 10-20 years

Form: Typical **Retention Value:** Moderate

DBH (cm): 3 **TPZ (m):** 2.00 radius from centre of stem

DRB (m): 0.03 **SRZ (m):** 1.50 radius from centre stem

Circ @ 1m: 11cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

None noted.

Recommended Management:

There is potential to retain this tree as part of a small orchard.



Tree No.: 20 **Botanical Name:** *Eucalyptus leucoxylon subsp. megalocarpa*

Common Name: Large-fruited S.A. Blue Gum

Crown Size (HxS): 10m x 9m

Health: Fair **Structure:** Fair

Age: Mature **ULE:** 10-20 years

Form: Typical **Retention Value:** High

DBH (cm): 46 **TPZ (m):** 5.52 radius from centre of stem

DRB (m): 0.51 **SRZ (m):** 2.49 radius from centre stem

Circ @ 1m: 145cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

The tree's root zone predominantly consists of sealed surfaces. There is a large amount of epicormic growth at the base of the trunk with some pest damage to the foliage. There are multiple co-dominant branch unions leaking sap.

Recommended Management:

This tree is recommended for retention; however, maintenance pruning is recommended.



Strathalbyn Hospital High Street

Tree Assessment and Management Recommendations
10th December 2019

Tree No.: 21 **Botanical Name:** *Pinus halepensis*

Common Name: Aleppo Pine

Crown Size (HxS): 16m x 22m

Health: Fair **Structure:** Fair

Age: Mature **ULE:** 10-20 years

Form: Typical **Retention Value:** Moderate

DBH (cm): 114 **TPZ (m):** 13.68 radius from centre of stem

DRB (m): 1.25 **SRZ (m):** 3.64 radius from centre stem

Circ @ 1m: 358cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

The trunk has a co-dominant union.

Recommended Management:

This tree is recommended for retention; however, crown lifting may be required to ensure unimpeded vehicle access. Conduct Crown Lifting by removing/reducing branches over the road with a maximum branch diameter of 10cm to a height of 4.5 metres over the road carriageway.



Tree No.: 22 **Botanical Name:** *Citharexylum spinosum*

Common Name: Fiddlewood

Crown Size (HxS): 8m x 7m

Health: Fair **Structure:** Fair

Age: Mature **ULE:** 10-20 years

Form: Irregular **Retention Value:** Moderate

DBH (cm): 69 **TPZ (m):** 8.28 radius from centre of stem

DRB (m): 0.76 **SRZ (m):** 2.95 radius from centre stem

Circ @ 1m: 217cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

There is epicormic growth throughout the lower crown. The trunk has a co-dominant union.

Recommended Management:

This tree is suitable for retention; however, maintenance pruning is recommended.



Tree No.: 23 **Botanical Name:** *Prunus cerasifera* 'Nigra'

Common Name: Purple Cherry Plum

Crown Size (HxS): 7m x 6m

Health: Fair **Structure:** Fair

Age: Semi Mature **ULE:** 5-10 years

Form: Irregular **Retention Value:** Low

DBH (cm): 23 **TPZ (m):** 2.76 radius from centre of stem

DRB (m): 0.25 **SRZ (m):** 1.86 radius from centre stem

Circ @ 1m: 73cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

The tree has terminal deadwood throughout the crown. Decay was found in the lower trunk. The trunk contained an Included Bark Union.

Recommended Management:

This tree shows attributes resulting in a short Useful Life Expectancy and is therefore recommended for removal.



Tree No.: 24 **Botanical Name:** *Malus* sp.

Common Name: Apple

Crown Size (HxS): 4m x 4m

Health: Fair **Structure:** Fair

Age: Semi Mature **ULE:** 5-10 years

Form: Irregular **Retention Value:** Low

DBH (cm): 30 **TPZ (m):** 3.60 radius from centre of stem

DRB (m): 0.33 **SRZ (m):** 2.08 radius from centre stem

Circ @ 1m: 97cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

Stem diameter has been estimated due to inaccessibility to the trunk.

Recommended Management:

This tree is adjacent to proposed development. this tree can be retained if it is not in conflict with development. Further consultation may be required. If retained, maintenance pruning is recommended.



Strathalbyn Hospital High Street

Tree Assessment and Management Recommendations
10th December 2019

Tree No.: 25 **Botanical Name:** *Banksia marginata*

Common Name: Silver Banksia

Crown Size (HxS): 5m x 5m

Health: Fair **Structure:** Fair

Age: Semi Mature **ULE:** 10-20 years

Form: Irregular **Retention Value:** Moderate

DBH (cm): 22 **TPZ (m):** 2.64 radius from centre of stem

DRB (m): 0.24 **SRZ (m):** 1.82 radius from centre stem

Circ @ 1m: 71cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

The trunk has a co-dominant union.

Recommended Management:

This tree is in conflict with development and is therefore recommended for removal.



Tree No.: 26 **Botanical Name:** *Punica granatum*

Common Name: Pomegranate

Crown Size (HxS): 5m x 4m

Health: Fair **Structure:** Fair

Age: Semi Mature **ULE:** 5-10 years

Form: Irregular **Retention Value:** Moderate

DBH (cm): 40 **TPZ (m):** 4.80 radius from centre of stem

DRB (m): 0.44 **SRZ (m):** 2.34 radius from centre stem

Circ @ 1m: 127cm

Regulatory Status: The tree is not controlled under South Australian Legislation including the *Development Act 1993* and the *Native Vegetation Act 1991*.

Observations and Comments:

The tree contains epicormic growth throughout.

Recommended Management:

This tree is in conflict with development and is therefore recommended for removal.



Management Requirements

The overall population requires various management types however all trees intended to be retained will require Tree Protection Zone maintenance should development or construction activities occur within their vicinity. These tree protection ideals will also be required to be implemented for the duration of the project construction. The various management types include:

Tree Protection Zone Maintenance: Protection of above and below ground tree parts are paramount to sustainable tree retention. The following management guidelines for Tree Protection Zones are generated from Australian Standard AS4970-2009 *Protection of trees on development sites* and provide generic information which should be implemented in all areas where trees are required or desired to be retained in a sustainable condition however development activities will be conducted within the vicinity of the root development area.

Tree Protection Zone establishment

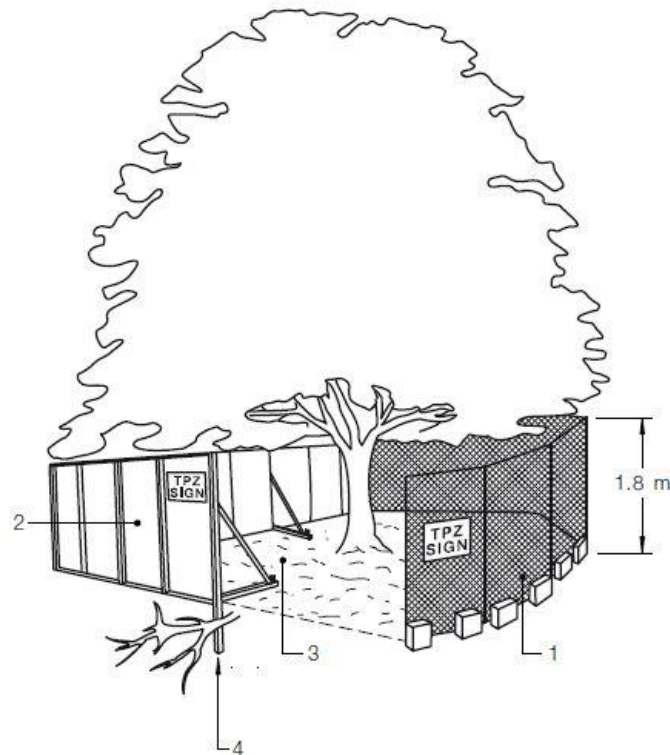
- Define and outline the Tree protection Zones around each tree within the development areas. The Tree Protection Zone radius is to be equivalent to that expressed within the Root Protection Zones of the Tree Observations. **Note:** Tree Protection Zones consider both crown and root protection.
- Determine and mark all areas of acceptable encroachment within the development area to allow for Tree Protection Zone alterations to be considered and implemented.
- Construct a tree protective fence at the perimeter of Tree Protection Zones. Perimeter fencing such as the cyclone tennis court fencing at the western boundary of the Next Generation Gym may be retained to form part of the tree protection fence also. Where perimeter fencing is to be removed, temporary fencing will be required to maintain the restricted area of the Tree Protection Zone. Movement of the tree protection zone fencing is not permitted without authorisation from the project arborist.
- Tree protection fencing must be constructed and in place before any machinery or materials are brought to site and before the commencement of any works including demolition and clearance. Once erected, this fencing must not be moved or altered without the approval of the project arborist. An example of a suitable temporary fencing type is pictured right. The fencing can be removed at the practical completion of the project.



- Fencing materials must comply with the guidelines of Australian Standard AS4687-2007 *Temporary fencing and hoardings*. Fence panels should be fitted with shade cloth to reduce the transport of dusts and particulate matter. This will also reduce the potential for undesirable liquids to be inadvertently projected into the Tree Protection Zone.
- All visible faces of the Tree Protection Zones to the construction area must be signed with appropriate Tree Protection Zone signage. A copy of such is attached at the completion of this report and may be duplicated as required without permission. No alterations to the Tree Protection Zone sign however are permissible without written consent from the author.



- The following is an extract from Australian Standard AS4970-2009 *Protection of trees on development sites* demonstrating tree protection fencing however, should any part of the tree protection fence construction become problematic, immediate consultation with the project arborist is recommended.



LEGEND:

- 1 Chain wire mesh panels with shade cloth (if required) attached, held in place with concrete feet.
- 2 Alternative plywood or wooden paling fence panels. This fencing material also prevents building materials or soil entering the TPZ.
- 3 Mulch installation across surface of TPZ (at the discretion of the project arborist). No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.
- 4 Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots.

FIGURE 3 PROTECTIVE FENCING

Above: Australian Standard AS4970-2009 Protection of trees on development sites, p16.

Other Tree Protection Measures

- Remove all weeds within the Tree Protection Zone (by hand or use of appropriate herbicide such as glyphosate-based chemicals) and cover the entire available area with composted mulch, 50-100 millimetres in depth.
- Soil moisture levels should be monitored on a regular basis by the project arborist and a temporary irrigation system may be required throughout the confines of Tree Protection Zones.

The following activities are not permissible within the Tree Protection Zone: -

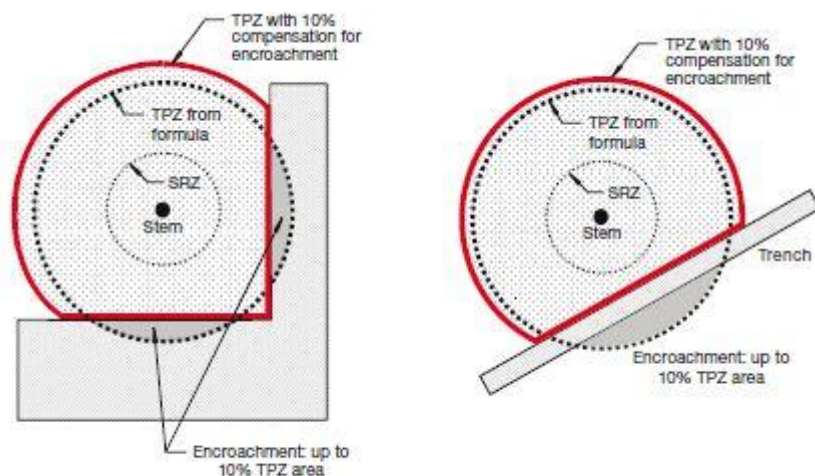
1. Machine excavation including trenching
2. Storage of materials
3. Preparation of chemicals including cement products
4. Parking of vehicles and plant
5. Refuelling
6. Dumping of waste
7. Washing and cleaning of equipment
8. Placement/storage of fill
9. Lighting of fires
10. Soil level alterations
11. Temporary or permanent installation of utilities and signs
12. Physical damage to the tree including attaching anything to the tree.

Development Design and Construction Considerations

- Development activities should be kept as far as practicable outside of Tree Protection Zones. It is acknowledged; however, this is not always achievable and that some encroachment within Tree Protection Zones will occur for a variety of reasons. Australian Standard AS4970-2009 *Protection of trees on development sites* provides scope for such encroachments to occur without the need for extensive tree management and protection requirements to be implemented. Encroachment parameters are described in two categories, Minor Encroachment and Major Encroachments. These are defined and should be managed as follows:

Minor Encroachment

Encroachment that occurs within however at the periphery of the Tree Protection Zone and encompasses 10% or less of the overall area within the Tree protection Zone. Encroachments made in such cases should not require diagnostic works to demonstrate tree sustainability however all encroachments made are required to be offset by the allowance of additional areas attached to the undisturbed Tree Protection Zone extend and be equivalent in size to the total encroachment size. An example of such encroachment is shown within the diagram below.



Right: Extract from Australian Standard AS4970-2009 *Protection of trees on development sites* illustrating minor encroachments and offset root zones.

NOTE: Less than 10% TPZ area and outside SRZ. Any loss of TPZ compensated for elsewhere.

Major Encroachments

Encroachments consuming greater than 10% of the peripheral area of a Tree protection Zone. In instances where Major Encroachment is required, the project arborist must be engaged to demonstrate tree sustainability using diagnostic techniques to analyse root density proportions and distribution including the loss of any roots as a result of development activities, tree stability, tree age, vigour and size, tree species tolerance to development activities, soil characteristics, and other factors. As was the case regarding Minor Encroachments, the area consumed within the Tree Protection Zone must be offset in the same way as that expressed above.

- Pavement surfacing that traverse within any Tree Protection Zone must be constructed above the existing soil gradient without alteration and should incorporate the use of pervious materials. Gravel pathways and decking are also acceptable.

Development Compliance

- Certification of Tree Protection Compliance as per AS4970-2009 is required to be undertaken by a suitably qualified AQF Level 5 Arboriculturist as per the following Developmental Timeline extract.

INDICATIVE STAGES IN DEVELOPMENT AND THE TREE MANAGEMENT PROCESS

Stage in development	Tree management process	
	Matters for consideration	Actions and certification
Planning (Sections 2 and 3)		
Site acquisition	Legal constraints	
Detail surveys	Council plans and policies Planning instruments and controls Heritage Threatened species	Existing trees accurately plotted on survey plan
Preliminary tree assessment	Hazard/risks Tree retention value	Evaluate trees suitable for retention and mark on plan Provide preliminary arboricultural report and indicative TPZs to guide development layout
Preliminary development design	Condition of trees Proximity to buildings Location of services Roads Level changes Building operations space Long-term management	Planning selection of trees for retention Design review by proponent Design modifications to minimize impact to trees

Stage in development	Tree management process	
	Matters for consideration	Actions and certification
Development submission	Identify trees for retention through comprehensive arboricultural impact assessment of proposed construction. Determine tree protection measures Landscape design	Provide arboricultural impact assessment including tree protection plan (drawing) and specification
Development approval	Development controls Conditions of consent	Review consent conditions relating to trees
Pre-construction (Sections 4 and 5)		
Initial site preparation	State based OHS requirements for tree work Approved retention/removal Refer to AS 4373 for the requirements on the pruning of amenity trees Specifications for tree protection measures	Compliance with conditions of consent Tree removal/tree retention/transplanting Tree pruning Certification of tree removal and pruning Establish/delineate TPZ Install protective measures Certification of tree protection measures
Construction (Sections 4 and 5)		
Site establishment	Temporary infrastructure Demolition, bulk earthworks, hydrology	Locate temporary infrastructure to minimize impact on retained trees Maintain protective measures Certification of tree protection measures
Construction work	Liaison with site manager, compliance Deviation from approved plan	Maintain or amend protective measures Supervision and monitoring
Implement hard and soft landscape works	Installation of irrigation services Control of compaction work Installation of pavement and retaining walls	Remove selected protective measures as necessary Remedial tree works Supervision and monitoring
Practical completion	Tree vigour and structure	Remove all remaining tree protection measures Certification of tree protection
Post construction (Section 5)		
Defects liability/maintenance period	Tree vigour and structure	Maintenance and monitoring Final remedial tree works Final certification of tree condition

NOTES:

- 1 Owing to variations in planning legislation this table is a general indication of the process only.
- 2 Certification of tree protection and condition should be carried out by the project arborist.

Tree Protection Zone – Overall Plan

The following aerial plans illustrate Tree Protection Zone projections for each tree to enable appropriate tree protection during development activities. Tree Protection Zones are designated by the red dashed circles.



Maintenance Pruning: this pruning type includes the removal of unstable deadwood (usually limited to deadwood with a diameter greater than 30 millimetres). Hollow and stable deadwood should be retained for habitat potential and in some cases, unstable deadwood may also be reduced in length to stabilise the structure without the need to completely remove habitat.

Maintenance Pruning also includes epicormic branch management which involves the selective thinning of epicormic branches within the specified area of a tree crown. Thinning of epicormic branches should not exceed 30% of the epicormic branch density unless specified and branches which are poorly attached should be targeted for removal. This form of maintenance pruning should only be conducted where specified within the detailed pruning recommendations.

Maintenance Pruning may also involve crown thinning and includes the selective removal of branches without altering the overall shape and size of the tree. This pruning is only to be conducted within the specified areas of the crown listed within the specific tree's recommendations and this pruning should not involve 'Lion's Tailing' but be evenly distributed within the specified area of the tree crown.

Reduction Pruning: involves the removal of terminal branches back to internal branches. This pruning is only to be conducted within the specified area of the crown listed for each tree and the final cut location is usually intended to be within the outer third of a lateral branches' extension. The lateral branch to which the final cut is made should be at least one third of the diameter of the parent branch. Reduction pruning is not lopping or topping.

Complete Removal (with or without replacement plantings): Some trees within the assessment area display poor health and/or structure and have short Useful Life Expectancies. These trees are recommended to be removed. The other trees recommended for removal are either stable in their current condition or have a short Useful Life Expectancy; however, are in conflict with the development proposal and there are not likely to be any alternative development options available to achieve tree retention in this case.

Crown Lifting: this pruning involves the selective removal of low lateral branches to provide under crown clearance. The location of branches and proportion of crown density to be removed during crown lifting is to be specifically designated within the pruning recommendations and no additional branch removal is acceptable under these pruning ideals.

Conclusion

In conclusion, the majority of population assessed are in conflict with the proposed development. Of the 26 trees identified, 16 (62%) are recommended to be removed, while a further four trees are recommended to be subjected to pruning management of various types. The remaining trees should be suitable to retain in situ. All pruning conducted must conform to the guidelines specified within Australian Standard AS4373-2007 *Pruning of amenity trees*.

Ten of the trees within the population are deemed to be suitable for retention during development activities; however, it is acknowledged that some trees will potentially require removal in conjunction with the development. All trees being retained are to be protected using the guidelines discussing Tree Protection Zone Management within this report which conform to Australian Standard AS4970-2009 *Protection of trees on development sites*.

The majority of the trees adjacent to the Strathalbyn Opportunity Shop were recommended for removal due to conflicting with development given the preliminary plan received (Trees 2 to 4, 6 to 12, and Trees 14 and 15). While the development proposal sought to retain and protect Tree 1, this tree shows attributes resulting in a short Useful Life Expectancy and is therefore recommended for removal. One tree, Tree 5, is adjacent to the proposed development and can be retained if it is not in conflict with development.

Of the trees in the garden area to the north of 49 High Street, Trees 16, 18, and 19 are fruit trees and can be retained as part of a small orchard. Tree 13 and 17 also demonstrated characteristics making them suitable for retention. It should be noted that at the time of assessment, the boundaries were not clearly marked. Therefore, some trees may fall inside the boundary that were not assessed, and some trees assessed may not be in the boundary.

One tree was assessed along the frontage of the Strathalbyn Hospital on High Street with the aims of retaining the tree. This tree (Tree 20) is suitable for retention; however, requires maintenance pruning.

A further six trees were assessed along the frontage of, and across the road from, 16 and 18 Alfred Place. Two were not identified on the preliminary plan. Of these two trees, one was recommended for removal due to a shortened Useful Life Expectancy (Tree 23) and one was recommended for retention (Tree 24) if it is not in conflict with development. Trees 25 and 26 were recommended for removal due to conflicting with development given the preliminary plan received. Tree 22 is suitable for retention, as outlined in the preliminary plan; however, will require maintenance pruning. One tree across the road (Tree 21) is outside the area of proposed development; however, was assessed for vehicle clearance during development. Crown lifting as described within AS4373-2007 *Pruning of amenity trees* is recommended.

B458571
File No. DPC19/1844
HIT1581



Government of South Australia

Department of the Premier
and Cabinet

6 December 2019

Andrew Swain
Director
Wiltshire + Swain
PO Box 1092
UNLEY SA 5061

Aboriginal Affairs &
Reconciliation
GPO Box 320
Adelaide SA 5001
DX 452
Tel 08 8226 8900
Fax 08 8226 8999

Dear Andrew

Thank you for your correspondence (email) dated 11 November 2019, regarding the planned extension of the existing residential aged care facility at the Strathalbyn Hospital. The search was based on the provided certificate of title details:

- CT 5101/301
- CT 5272/455
- CT 5437/416
- CT 5702/913
- CT 5812/148
- CT 5818/333

I advise that the central archive, which includes the Register of Aboriginal Sites and Objects (the Register), administered by Aboriginal Affairs and Reconciliation (AAR), has no entries for Aboriginal sites within the project area.

The applicant is advised that sites or objects may exist in the proposed development area, even though the Register does not identify them. All Aboriginal sites and objects are protected under the *Aboriginal Heritage Act 1988* (the Act), whether they are listed in the central archive or not. Land within 200 metres of a watercourse (for example the River Murray and its overflow areas) in particular, may contain Aboriginal sites and objects.

Pursuant to the Act, it is an offence to damage, disturb or interfere with any Aboriginal site, object or remains (registered or not) without the authority of the Minister for Aboriginal Affairs and Reconciliation (the Minister). If the planned activity is likely to damage, disturb or interfere with a site, object or remains, authorisation of the activity must be first obtained from the Minister under Section 23 of the Act. Section 20 of the Act requires that any Aboriginal sites, objects or remains, discovered on the land, need to be reported to the Minister. Penalties apply for failure to comply with the Act.

It should be noted that this Aboriginal heritage advice has not addressed any relevant obligations pursuant to the Native Title Act 1993.

Please be aware in this area there are various Aboriginal groups/organisations/traditional owners that may have an interest, these may include:

ORIGINAL SOUTHERN SOUTH AUSTRALIAN TRIBES INDIGENOUS CORPORATION

Chairperson: Mark Koolmatrie
Email: tribalownerssouthern@gmail.com
Mobile: 0459371515
Postal Address: 13 Gillian Close, NOARLUNGA DOWNS, SA 5168

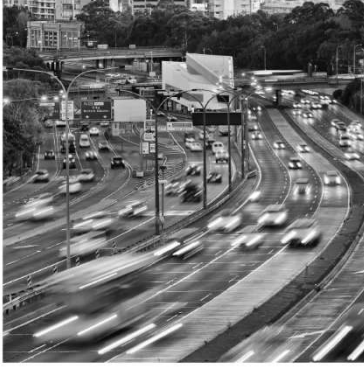
If you require further information, please contact the Aboriginal Heritage Team on telephone (08) 8226 8900 or send to our generic email address dpc-aar.heritagesites1@sa.gov.au

Yours sincerely

A handwritten signature in black ink, appearing to read 'Alex Nuijten', written in a cursive style.

Alex Nuijten
For
Perry Langeberg
SENIOR INFORMATION OFFICER (HERITAGE)
ABORIGINAL AFFAIRS & RECONCILIATION

infraPlan



Traffic Design Report Strathalbyn & District Health Services Facility

November 2019

©InfraPlan (Aust) Pty Ltd 2019

The information contained in this document produced by InfraPlan (Aust) Pty Ltd is solely for the use of the Client for the purposes for which it has been prepared and InfraPlan (Aust) Pty Ltd undertakes no duty or accepts any responsibility to any third party who may rely on this document.

All rights reserved. No sections or elements of this document may be removed from this document, reproduced, electronically stored or transmitted in any form without the written permission of InfraPlan (Aust) Pty Ltd.

Because of the statistical nature of this report, care should be taken in interpreting the data presented throughout. Although every effort has been made to ensure the accuracy of the information included in this report, InfraPlan (Aust) Pty Ltd and its contractors make no representations, either express or implied, that the information is accurate or fit for any purpose and expressly disclaims all liability for loss or damage arising from reliance upon the information in this report.

Project Name	
Traffic Design Report - Strathalbyn & District Health Services Facility	
Client contact details	Andrew Swain Director wiltshire + swain 28 Crowther Street, ADELAIDE SA 5000 p: 08 7324 2812 a.swain@wiltshireswain.com.au
Consultant contact details	Erik Stopp Senior Transport Engineer - InfraPlan (Aust) Pty Ltd Level 3, 66 Wyatt Street ADELAIDE SA 5000 p: 08 8227 0372 erik@infraplan.com.au

Document Control					
Name:	IP19.007 Strathalbyn & District Health Services Facility				
Version	Notes	Author	Date	Reviewer	Date
0	DRAFT	ES	05.03.19	GB	06.03.2019
1	Revision	GB	27.09.19	GG	27.09.19
2	Revision	CH	23.10.19	GB	23.10.19
3	Revised concept drawings	CH	31.10.2019	GB	31.10.2019
4	Minor revision	CH	29.11.2019	GB	29.11.2019

Table of Contents

1. Executive Summary	3
2. Existing Site	4
2.1 Planning Context	4
2.2 Local Road Network	5
2.3 Sustainable Transport	5
2.4 Existing Car Parking	6
2.5 Servicing	8
3. Future Site	9
3.1 Car Parking Assessment	9
3.2 Trip Generation	12
3.3 Servicing	12
4. Summary	12

1. Executive Summary

InfraPlan has been engaged by Wiltshire + Swain to participate in design development for the traffic aspects of a proposed extension to the Strathalbyn & District Health Services Facility. This extension is set to include the following components that relate to this report:

- 36 additional beds consisting of 24 Residential Aged Care and 12 Memory Support Unit,
- New 17 space car park with one space reserved for people with a disability, and
- Demolition of existing buildings and removal of associated car parking areas.

Key findings of this study are listed below and explored further in the report:

1. The proposed facility will remove 32 existing off-street parking spaces and provide a new car park of 17 spaces.
2. A parking survey found that the peak parking demand for the precinct was 103 vehicles.
3. The future scenario will provide 152 parking spaces in the precinct, resulting in an excess of 49 parking spaces during the peak demand period.
4. While not required by the relevant standard and guideline, six secure bicycle parking spaces and one visitor parking space is recommended to be provided.
5. The proposal will result in a net increase of 23 daily vehicle trips and a net decrease of 4 peak hour vehicle trips. As such, this minor addition of traffic will not unduly impact the local road network.
6. The existing service facility will be utilised.

As part of this study, we have reviewed:

- Alexandrina Council Development Plan consolidated 27 September 2018
- Concept Site Plans:
 - SK104 Existing Plan
 - SK105B Demolition Plan
 - SK106B Lower Level Plan
 - SK107B Upper Level Plan
- RTA Guide to Trip Generating Developments
- DPTI's Trip Generation Rates for Assessment of Development Proposals
- Cycling Aspects of Austroads Guidelines

2. Existing Site

As seen in Figure 1, the site is currently an amalgamation of the following health services; the hospital, aged care facility, SA health and SA Ambulance offices. Primarily the aged care facility faces High Street with access via a number of pick-up and drop-off areas. The emergency department of the hospital faces Alfred Place, and this is where visitors and staff primarily access the facility. There is also a car park accessible from High Street.

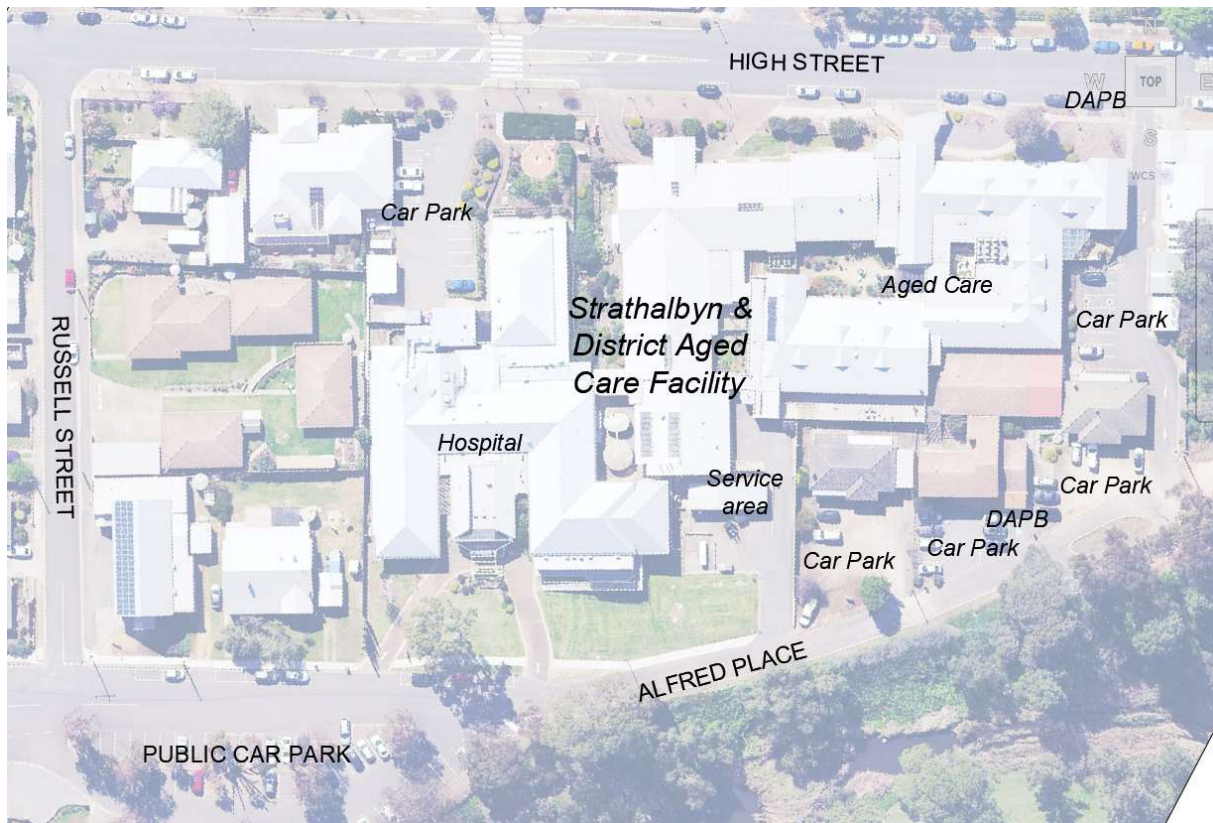


Figure 1: Site plan of study area

In terms of site operation, it should be noted that the staff shift change occurs at 7am and 3pm, with staff generally arriving in advance of the start of the shift start time.

2.1 Planning Context

Under the Alexandrina Council Development Plan, the site is within the District Centre Zone – Alex/32 & Policy 4, Precinct 8 - High Street South. The primary transport related matters arising from this classification include:

- On-site car parking to provide for longer term parking with on-street parking to provide for short-term vehicle parking,
- Footpaths would be improved to facilitate ease of pedestrian movement, and
- Path connections to the Angas Linear Park trail will be provided to facilitate walking and cycling.

2.2 Local Road Network

There is no explicit classification of the surrounding roads of High Street, Russell Street or Alfred Place. The Development Plan does identify South Terrace as a secondary arterial road and as such it is important to consider any impacts that may arise at this intersection.

There are no crashes reported on the surrounding roadways.

There is a wombat crossing present on High Street where the speed limit is specified as 40km/h in accordance with DPTI's Code of Technical Requirements. The remainder of the local road network is 50km/h.

A traffic survey was undertaken of key points along the local road network on Friday the 15th of February 2019 which can be seen in Figure 2. The observed movements fall within typical traffic management parameters and with no crashes reported, the road network is assumed to adequately cater for existing traffic demands.

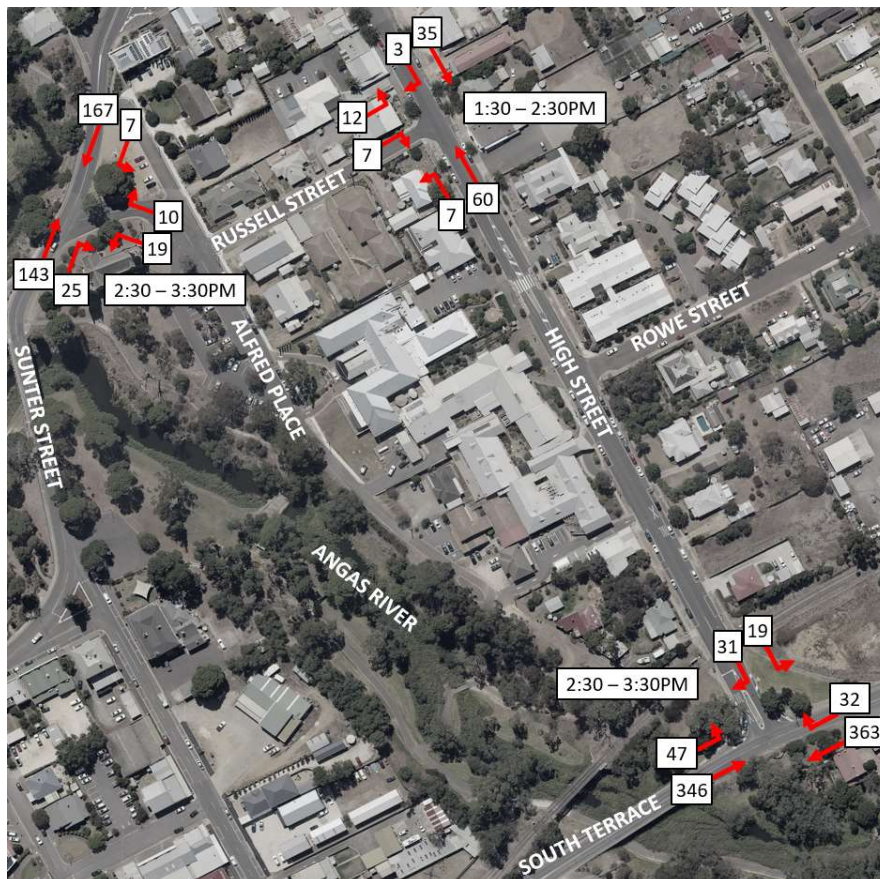


Figure 2: Traffic data collected Friday 15th February 2019

2.3 Sustainable Transport

Given the regional locality, there are limited alternative transport options other than the personal car. There is:

- Public transport: an Adelaide Metro bus service (via Mount Barker), a 2-hour journey from Adelaide, and

- **Cycling and walking:** For staff or visitors living in close proximity and noting that the Angas River is earmarked as a future linear trail.

2.4 Existing Car Parking

Visitors and employees of the site have a number of parking options available as illustrated in Figure 3. There are no time limits posted for any on-street car parking spaces. An on-site survey was undertaken over a 4-hour period between 10:00AM and 2:00PM on Friday the 15th of February, 2019 which represents a typical day of use. For the purpose of analysis, the surrounding parking areas were classified as below and illustrated on Figure 3.

- **Hospital parking to be removed:** Consisting of 30 to 32 informal and formal parking spaces. The informal parking areas are not delineated and the number of vehicles they can accommodate has been estimated as follows:
 - **Informal parking:**
 - Records Store: 8 spaces
 - SAAS accommodation (16 Alfred Pl): 5 to 7 spaces, including a car port.
 - **Formalised parking:**
 - East of Yeend and Alvie Rooms; 8 delineated parking spaces
 - CHSALHN offices: 9 delineated parking spaces including one Designated Accessible Parking Bay (DAPB).

It should be noted that a number of these car parks are substandard (too narrow) being line marked at less than 2m wide.

- **Hospital Carpark:** 24 bays
- **Dropoff / Pickup Zones:** 14 spaces
There are a number of other onsite accessways surveyed. One off of Alfred Place for access to the emergency department, and three off of High Street for access to the aged care facility. These are intended for short term servicing or pickup and drop-off.
- **Public Carpark:** 43 spaces
There is an off-street public car park located along Alfred Place that is utilised by staff and visitors to the hospital. It is noted that while used for the hospital, this remains for public use and can be occupied by other uses such as the nearby St Andrews church.
- **On-Street parking:** 54 spaces with one Designated Accessible Parking Bay
These spaces are along Alfred Place, Russell Street, High Street and partially Rowe Street and may be used by visitors to the site. It is noted that there may be the potential for additional on-street spaces, but these were not counted due to the narrowness of the roadway and, as such, this total should be considered as a conservative estimate.

In total, there are approximately 167 existing parking spaces in the vicinity, including 2 designated accessible parking bays.

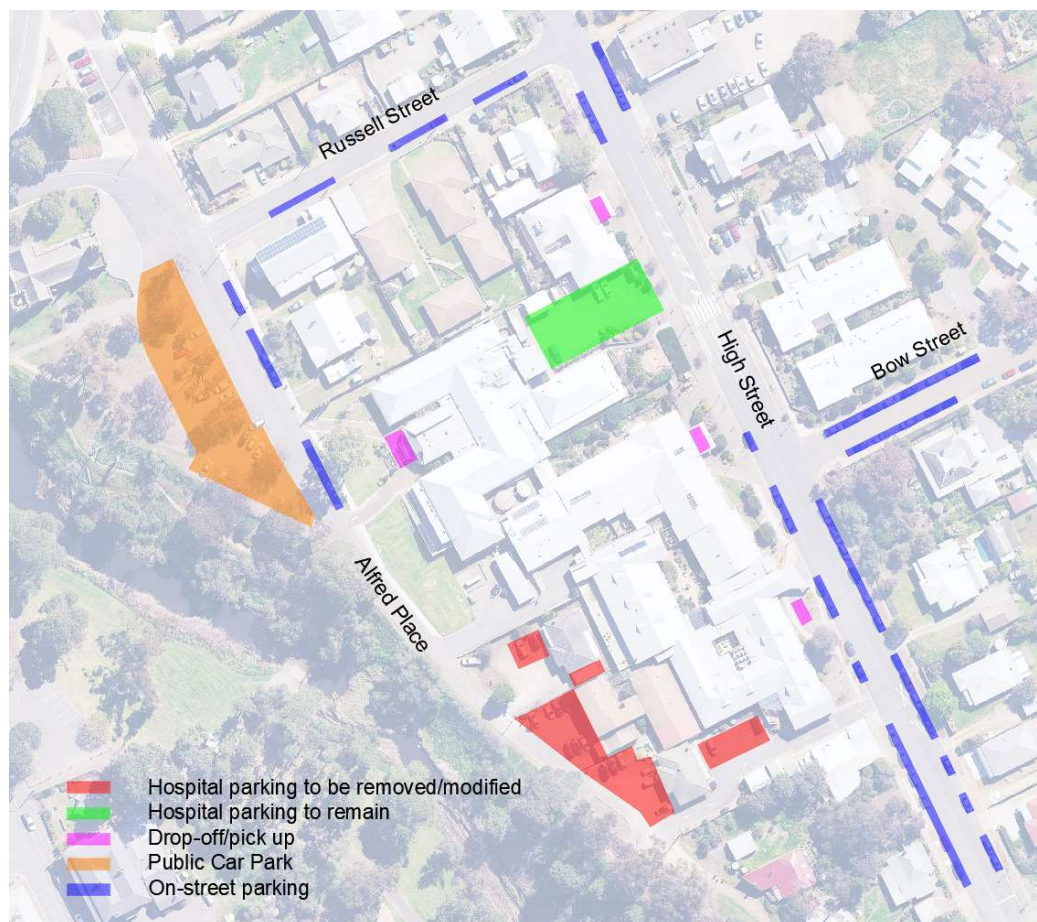


Figure 3: Parking areas around the precinct

Based on the survey data, Graph 1 and Graph 2 illustrate the following key information:

- Occupancy – the number of car parks occupied divided by the capacity of area, and
- Duration of stay – the length that an individual vehicle remains parked in an area.

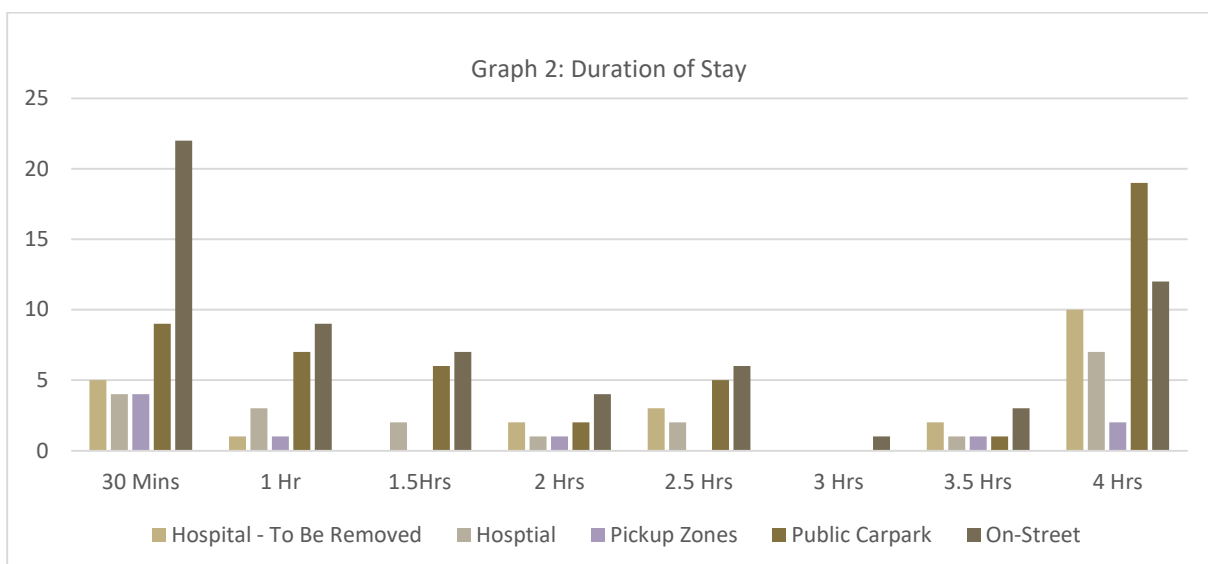
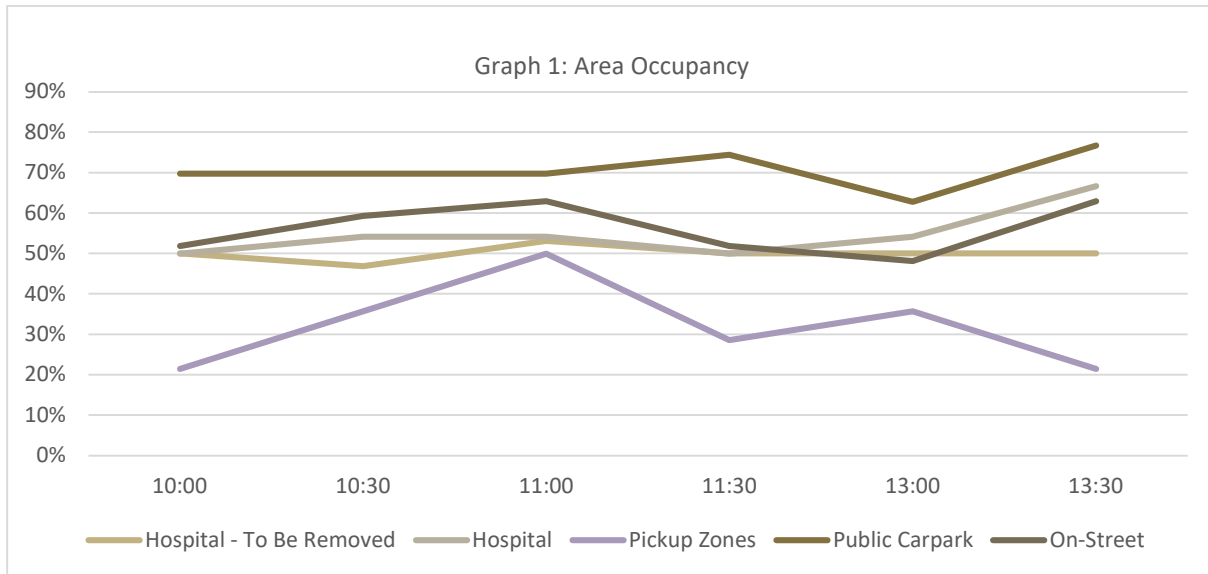
During the survey period:

- No car park area reached full capacity,
- The public car park reached the highest occupancy (77%), between 1.30 – 2.00 pm, and
- The peak parking demand for the whole precinct was 102 vehicles at 1.30 pm
- The peak parking demand in the car parks that are to be removed was 17, occurring at 11.30 am, with 13 to 15 spaces vacant.

In terms of duration, we note that:

- on-street spaces had a high proportion (34%) of vehicles parked for approximately 30 minutes, with only 19% staying for 4+ hours; and
- Off-street areas had a high proportion of vehicles parked for more than 4 hours: Hospital (35%); Hospital – To be Removed (43%); and Public Carpark (38%).

There are no bicycle parking facilities provided for the existing facility.



2.5 Servicing

The primary servicing points for the site are from High Street and Alfred Place:

- From High Street: delivery of goods such as oxygen that is stored off of this car park, and
- Alfred Place: servicing waste, stores and other requirements (approximately 5 times per week)

The kitchen, store and waste areas will remain as existing and so have not been assessed as part of this report.

3. Future Site

The extended facility will be a multi-story building that will include an additional 36 beds. Three existing buildings (SAAS accommodation, the CHSALHN offices and the records store), will be demolished to allow for the new works.

3.1 Car Parking Assessment

The car parking assessment determines the future parking demand and the number of parking spaces to be provided, including the use of on-street parking bordering the facility.

3.1.1 Parking Demand

To calculate the parking demand for the future Strathalbyn & Districts Health Facility, the current demand for the precinct is considered, taking into account the additional parking demand of the new 36 bed facility, as well as the reduction in demand associated with the demolition of the buildings containing the SAAS accommodation (16 Alfred Pl), the CHSALHN offices and the records store.

Current Precinct Parking Demand

The survey recorded a peak parking demand for the precinct of 102 vehicles occurring at 1.30 pm.

Reduction in demand associated with removal of SAAS/CHSALHN offices

As part of the facilities upgrade the SAAS accommodation, CHSALHN offices and records store are to be removed. As such the parking demand associated with these buildings will also be removed. The survey recorded the peak number of vehicles parked adjacent to these buildings as eight.

Additional Parking Demand of new facility

The Alexandrina Council Development Plan Table Alex/2 – Off-Street Parking Requirements provides a parking demand rate for a Nursing Home – 1 space for every 4 beds. With 36 additional beds, this equates to an additional demand for 9 parking spaces.

Summary of future parking demand

The parking demand for the whole precinct is summarised in the table below.

Table 1: Parking demand for Strathalbyn & Districts Health Facilities Upgrade – precinct wide

Surveyed peak parking demand for whole of precinct	Remove SAAS/ CHSALHN parking demand	Add parking demand for additional 36 bed facility	Total parking demand
102	-8	+9	103

3.1.2 Parking Provision

The precinct, including the on-street parking on the roads bordering the precinct and the Alfred Place off-street car park, currently provides 167 spaces. The proposal will remove some existing parking areas and will also be providing a new car park.

Parking spaces removed

The facilities upgrade will remove the parking areas as follows:

- 30 to 32 spaces removed, consisting of:
 - 8 informal spaces located outside of the Records Store;
 - 5 to 7 informal spaces, including a car port, at 16 Alfred PI (SAAS accommodation);
 - 8 formalised parking spaces to the east of the Yeend and Alvie Rooms;
 - 9 formalised parking spaces, including one Designated Accessible Parking Bay (DAPB) outside of the CHSALHN offices.

New car park

A new carpark with 17 spaces including one DAPB will be provided, with an access located on Alfred Place.

Summary of future parking provision

A summary of the parking provision calculation is provided in the following table.

Table 2: Parking provision for the Strathalbyn & Districts Health Facilities Upgrade – precinct wide

Current precinct parking provision	Remove SAAS, CHSALHN, Records Store and car park east of Yeend and Alvie	Add new car park	Future parking provision
167 (including 2 DAPB)	-32 (including 1 DAPB)	+17 (including 1 DAPB)	152 (including 2 DAPB)

The DAPB number will remain unchanged at two. The Building Code of Australia specifies 1-2% of on-site car parking spaces should be allocated for use by people with a disability. This equates to a requirement of between 1 and 2 spaces. The provision of one DAPB located on-site meets the Building Code of Australia requirements

Taking into account the changes to the car parking layout, the total parking provision will be 152 spaces. This number of spaces will accommodate the anticipated peak parking demand of 103 vehicles.

3.1.3 Bicycle Parking

In respect to bicycle parking the Development Plan does not specify a rate and as such it is not explicitly required. However, it is best practice to provide bicycle parking and end of trip facilities to cater for cyclists.

Bicycle parking is generally divided into two categories:

- Secure (employee) parking – Typically indoor or caged parking with access restricted to only those who ride a bicycle. The secure nature of this parking provides piece of mind and security for those who ride. This is often accompanied by end of trip facilities such as showers and lockers to assist those who opt to use this mode of transport.
- Public (visitor) parking – Typically outdoor in a visible area and possibly in the public realm. This is intended for short term use which are typically visitors to the site who want to secure the bicycle to a fixed object.

The Cycling Aspects of Austroads Guidelines provide guidance on bicycle parking for Nursing Homes and recommended that one secure employee space is provided for every 7 beds and one visitor space for every 60 beds.

For the proposal, this equates to six secure bicycle spaces and one visitor space.

3.2 Trip Generation

Similar to the parking demand calculations, the removal of buildings and hence trips associated with these must first be calculated to allow for the impacts to the local road network to be appropriately quantified. The existing buildings to be removed have been estimated at 700sqm in total of office space. The RTA's *Guide to Traffic Generating Developments* provides trip generation rates for offices with a health focus (which typically has a lower density than most offices) and has subsequently been used to calculate existing trips that will be removed. Modifying the standard rate for a health office equates to 7 trips per 100sqm and 1.4 peak hour trips per 100sqm.

This equates to 49 daily trips and 10 peak hour trips that are associated with the offices that will be removed.

In calculating the trips associated with the proposal, DPTI's *Trip Generation Rates for Assessment of Development Proposals* has been utilised that provides a rate of trips for Housing for Aged & Disabled Persons of 2 daily trips per unit, 0.16 peak hour trips per unit. With 36 beds provided in the facility, this equates to 72 daily trips and 6 peak hour trips

This equates to a net increase of 23 daily trips and net decrease of 4 peak hour trips on the local road network. Given the lower peak hour trips and only minor increase in daily trips, the proposed development is not anticipated to unduly impact on the surrounding road network.

3.3 Servicing

The proposal is to retain the existing service access from Alfred Place. Improvements to the operation of the current facilities will cater for the additional service demands of the new development. No increase in service vehicle size or frequency is expected.

4. Summary

On the basis of the findings described in this report, the proposal is satisfactory from a traffic and parking perspective. Refer to the Executive Summary for key points.



**COMBE
PEARSON
REYNOLDS**
CONSULTING ENGINEERS

Storm Water Management Plan



Prepared For:
Wiltshire + Swain

Site:
Strathalbyn and District Health
Service Facility Upgrade
14 Alfred Place, Strathalbyn

Job No: 180302

Dated: Monday, 11 November 2019

Prepared By:
Costa Morias

Combe Pearson Reynolds

P PO Box 2832
Kent Town SA 5071

A L1, 174 Fullarton Road
Dulwich SA 5065

T +61 8 8332 1344





PROPOSED UPGRADE, STRATHALBYN AND DISTRICT HEALTH SERVICE FACILITY STRATHALBYN, SA, 5255

STORMWATER MANAGEMENT PLAN

INTRODUCTION

The following outlines the proposed plan to manage the disposal of stormwater from the post development site of the upgraded health service facility at Strathalbyn.

The stormwater concept has been based upon the architectural plans prepared by Wiltshire + Swain Architects.

The existing portion of the site to be redeveloped consists of 5 residential type construction buildings and an existing carpark.

The proposed works includes the following:

- New 24 bed building with undercroft;
- New 12 bed building, and;
- New/reconfigured carpark.



Figure 1 – Proposed Site Plan (Source: Wiltshire + Swain Architects)



This Stormwater Management Plan addresses the following issues:

- general stormwater management
- stormwater detention and disposal off site in accordance with council requirements.

This plan has been prepared in accordance with design advice provided from the City of Alexandrina engineers outlining the detention and treatment requirements for the post development site.

This document is to be read in conjunction with:

- Architectural drawings SK106B and SK107B.
- 180302-CSK01-SWMP dated 11/11/2019; and
- Stormwater Calculations Pages SW1-SW6

GENERAL STORMWATER MANAGEMENT

The new works will be designed for the following stormwater criteria:

- Post development discharge from each existing discharge point is not to exceed the existing discharge capacity.

It is proposed that stormwater from the proposed site upgrades will discharge from 4 locations. Refer Appendix A for discharge locations and catchment plan.

FINISHED FLOOR LEVEL REQUIREMENTS

The proposed building is to have a finished floor level of 71.95 m AHD. The proposed finished floor level matches the finished floor level of the existing aged care residential home on site.

This height provides a minimum 150mm freeboard above the kerb and water table on High Street. It is significantly higher than the kerb and water table on Alfred Place.

Overland flow paths will be managed as the proposed floor level will be a minimum of 150mm higher than adjacent street kerb level. The pavement is to grade levels away from the building.

The above measures have been addressed in order to maintain an appropriate freeboard level higher than surrounding formed ground surfaces to enable overload flows from 1:100 ARI storm events to exit the site in an appropriate manner.



STORMWATER - DETENTION

Stormwater detention calculations have been completed in accordance with the stormwater requirements outlined within the “General Stormwater Management” section of this report. Refer appendix B of this report.

As a result, it is proposed to provide the following stormwater detention:

- Catchment 1
 - No additional stormwater from the proposed works is to be discharge from this catchment. No detention is required.
- Catchment 2
 - The approximate 258sqm of paved area within catchment 2 is to discharge directly to the existing 150mm RCP underneath Alfred Place. The 24 bed building roof area within catchment 2 is to be restricted to 355sqm to allow the roof stormwater to discharge to the outlet without exceeding the existing capacity of the 150mm RCP pipe. No detention is required for this catchment.
- Catchment 3
 - The remaining roof area of the 24 bed building, approximately 1305 sqm, is to discharge to an existing 150mm RCP pipe underneath Alfred Place. In order to restrict the discharge to the capacity of the 150mm RCP pipe, 15.5kL of detention is to be provided via an 18kL above ground detention tank. An orifice will be placed on the outlet of the tank to restrict flows to a maximum of 15L/s.
- Catchment 4
 - A large portion of the existing site discharges through this catchment. The existing outlet is a 225mm diameter PVC pipe laid at a minimum 1% grade. The existing pipe capacity is approximately 70L/s. The existing catchment has been calculated at 67L/s. 50% of the new 12 bed building roof area will be discharged through the outlet of catchment 4. In order to restrict the flows from the new 12 bed building roof area to not exceed the existing pipe capacity, 6.45kL of detention will be provided via an 8kL above ground tank. An orifice will be placed on the outlet to restrict flows to a maximum of 3L/s.
- Catchment 5
 - The remaining 50% of roof area of the 12 bed building will discharge directly to the High Street kerb and water table. No detention is required for this catchment.



The above features will ensure that the council requirements in regards to stormwater discharge will be met.

STORMWATER – WATER QUALITY

It was advised by council that no gross pollutant trap would be required for the reconfigured carpark due to the small scale of the carpark and the highly vegetated bank in which the stormwater discharges.

It was advised that the vegetated bank would be sufficient to treat the stormwater to a quality fit for discharge into the Angus River.

ISSUES DURING CONSTRUCTION

The management of stormwater during construction will be under constant monitoring by the appointed construction manager and by CPR on behalf of the developer.

The construction manager will be employed to maintain control measures on site and to minimise run-off from the site which may contain fine earth particles and any deleterious material that washes off site will be cleaned up by the contractor.

Prepared by

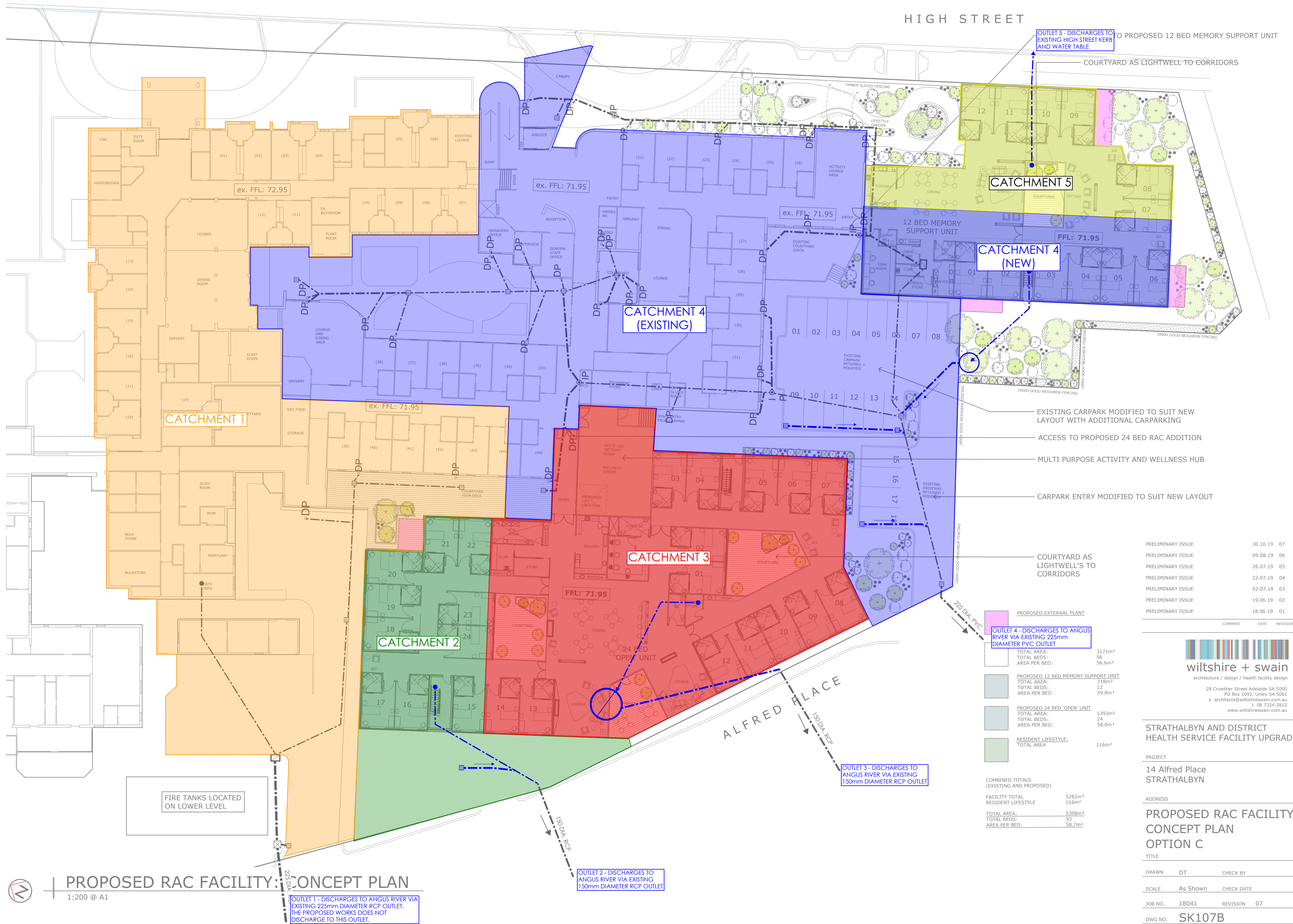
A handwritten signature in black ink, appearing to read 'Costa Morias', is positioned above the printed name.

Costa Morias
COMBE PEARSON REYNOLDS PTY LTD
costam@cprengineers.com.au

Encl.
Appendix A – Catchment Plan
Appendix B - Stormwater Calculations SW1-SW6
Appendix B – 180302-CSK01-Stormwater Management Plan



APPENDIX A: Catchment Plan



HIGH STREET

OUTLET 5 - DISCHARGES TO EXISTING HIGH STREET KERB AND WATER TABLE TO PROPOSED 12 BED MEMORY SUPPORT UNIT

COURTYARD AS LIGHTWELL TO CORRIDORS

CATCHMENT 5

CATCHMENT 4 (NEW)

CATCHMENT 4 (EXISTING)

CATCHMENT 1

CATCHMENT 3

CATCHMENT 2

- EXISTING CARPARK MODIFIED TO SUIT NEW LAYOUT WITH ADDITIONAL CARPARKING
- ACCESS TO PROPOSED 24 BED RAC ADDITION
- MULTI PURPOSE ACTIVITY AND WELLNESS HUB
- CARPARK ENTRY MODIFIED TO SUIT NEW LAYOUT

COURTYARD AS LIGHTWELL'S TO CORRIDORS

PROPOSED EXTERNAL PLANT	
OUTLET 4 - DISCHARGES TO ANGUS RIVER VIA EXISTING 225mm DIAMETER PVC OUTLET	
TOTAL AREA:	3171m ²
TOTAL BEDS:	56
AREA PER BED:	56.6m ²
PROPOSED 12 BED MEMORY SUPPORT UNIT	
TOTAL AREA:	718m ²
TOTAL BEDS:	12
AREA PER BED:	59.8m ²
PROPOSED 24 BED 'OPEN' UNIT	
TOTAL AREA:	1393m ²
TOTAL BEDS:	24
AREA PER BED:	58.0m ²
RESIDENT LIFESTYLE:	
TOTAL AREA:	116m ²

COMBINED TOTALS (EXISTING AND PROPOSED)	
FACILITY TOTAL	5282m ²
RESIDENT LIFESTYLE	116m ²
TOTAL AREA:	5398m ²
TOTAL BEDS:	92
AREA PER BED:	58.7m ²

PRELIMINARY ISSUE	DATE	REVISION
PRELIMINARY ISSUE	30.10.19	07
PRELIMINARY ISSUE	09.08.19	06
PRELIMINARY ISSUE	26.07.19	05
PRELIMINARY ISSUE	22.07.19	04
PRELIMINARY ISSUE	02.07.19	03
PRELIMINARY ISSUE	19.06.19	02
PRELIMINARY ISSUE	18.06.19	01

wiltshire + swain
 architecture / design / health facility design
 28 Crowther Street Adelaide SA 5000
 PO Box 1092, Unley SA 5061
 e architects@wiltshireswain.com.au t. 08 7234 2812
 www.wiltshireswain.com.au

STRATHALBYN AND DISTRICT HEALTH SERVICE FACILITY UPGRADE

PROJECT
 14 Alfred Place
 STRATHALBYN

ADDRESS
PROPOSED RAC FACILITY CONCEPT PLAN OPTION C
 TITLE

DRAWN	DT	CHECK BY
SCALE	As Shown	CHECK DATE
JOB NO.	18041	REVISION 07
DWG NO.	SK107B	

PROPOSED RAC FACILITY: CONCEPT PLAN
 1:200 @ A1

OUTLET 1 - DISCHARGES TO ANGUS RIVER VIA EXISTING 225mm DIAMETER RCP OUTLET. THE PROPOSED WORKS DOES NOT DISCHARGE TO THIS OUTLET.

OUTLET 2 - DISCHARGES TO ANGUS RIVER VIA EXISTING 150mm DIAMETER RCP OUTLET

OUTLET 3 - DISCHARGES TO ANGUS RIVER VIA EXISTING 150mm DIAMETER RCP OUTLET

OUTLET 4 - DISCHARGES TO ANGUS RIVER VIA EXISTING 225mm DIAMETER PVC OUTLET

FIRE TANKS LOCATED ON LOWER LEVEL





APPENDIX B: Stormwater Calculations – SW1-SW6



Combe Pearson Reynolds Pty Ltd
 PO Box 2832, KENT TOWN SA 5071
 174 Fullarton Road, DULWICH SA 5065
 Ph: (08) 8332 1344 Fax: (08) 8332 1044

Job No: 180302
Page: SW1
Date : 11/11/19
Design: CM

STRATHALBYN AND DISTRICT HEALTH SERVICES
 POST-DEVELOPMENT - CATCHMENT 1 - I IN 20 YEAR ARI EVENT

Roof Area 1855 m²
Roof Pitch 5 degrees
Run-Off Coefficient 1

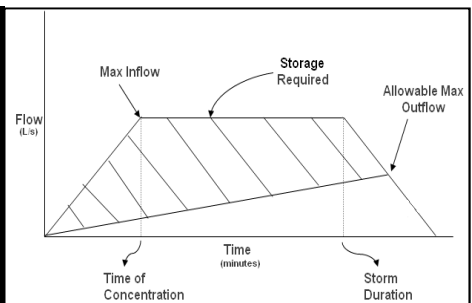
Pervious Area 0
Run-Off Coefficient 0.4

Pavement Area 893
Run-Off Coefficient 0.9

Storm Design Recurrence Interval 20 years
Time of Concentration 10.0 minutes
Max Allowable Outflow 98.000 L/s

Based on (AR&R 1987)

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m ³)	Max Storage (m ³)
5	121	92.50	27.75	-16.35
10	89	68.04	40.82	-17.98
15	72	55.04	49.54	-23.96
20	62	47.40	56.87	-31.33
25	54	41.28	61.92	-40.98
30	48.7	37.23	67.01	-50.59
35	44.3	33.86	71.12	-61.18
40	40.7	31.11	74.67	-72.33
50	35.3	26.98	80.95	-95.45
55	32.8	25.07	82.74	-108.36
60	30.3	23.16	83.39	-122.41
65	27.8	21.25	82.88	-137.62
70	25.3	19.34	81.23	-153.97
75	22.8	17.43	78.43	-171.47
80	20.3	15.52	74.49	-190.11
85	17.8	13.61	69.40	-209.90
90	15.3	11.70	63.16	-230.84



Minimum Tank Size	-16.35 m³
--------------------------	-----------------------------

Outlet Orifice Design	
Approximate head above outlet	1 m water
Max allowable outflow	0.098 m ³ /s
Discharge Velocity	4.43 m/s
Approx Pipe area	22124.658 mm ²
Approx Pipe Diameter	167.84 mm



**COMBE
PEARSON
REYNOLDS**
CONSULTING ENGINEERS

Combe Pearson Reynolds Pty Ltd
PO Box 2832, KENT TOWN SA 5071
174 Fullarton Road, DULWICH SA 5065
Ph: (08) 8332 1344 Fax: (08) 8332 1044

Job No: 180302
Page: SW2
Date : 11/11/19
Design: CM

STRATHALBYN AND DISTRICT HEALTH SERVICES

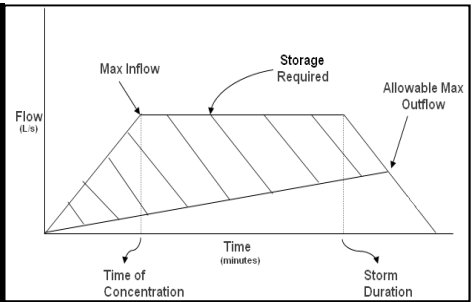
POST-DEVELOPMENT - CATCHMENT 2 - PAVING AREA - 1 IN 20 YEAR ARI EVENT

Roof Area	m ²	Pervious Area	0
Roof Pitch	5 degrees	Run-Off Coefficient	0.4
Run-Off Coefficient	1	Pavement Area	258
		Run-Off Coefficient	0.9

Storm Design Recurrence Interval 20 years
Time of Concentration 10.0 minutes
Max Allowable Outflow 5.760 L/s

Based on (AR&R 1987)

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m ³)	Max Storage (m ³)
5	121	7.83	2.35	-0.24
10	89	5.76	3.46	0.00
15	72	4.66	4.19	-0.13
20	62	4.01	4.82	-0.37
25	54	3.50	5.24	-0.81
30	48.7	3.15	5.67	-1.24
35	44.3	2.87	6.02	-1.76
40	40.7	2.63	6.32	-2.32
50	35.3	2.28	6.85	-3.51
55	32.8	2.12	7.01	-4.23
60	30.3	1.96	7.06	-5.04
65	27.8	1.80	7.02	-5.94
70	25.3	1.64	6.88	-6.95
75	22.8	1.48	6.64	-8.05
80	20.3	1.31	6.31	-9.25
85	17.8	1.15	5.88	-10.54
90	15.3	0.99	5.35	-11.93



Minimum Tank Size	0.00 m³
--------------------------	---------------------------

Outlet Orifice Design	
Approximate head above outlet	1 m water
Max allowable outflow	0.005760278 m ³ /s
Discharge Velocity	4.43 m/s
Approx Pipe area	1300.451 mm ²
Approx Pipe Diameter	40.69 mm



**COMBE
PEARSON
REYNOLDS**
CONSULTING ENGINEERS

Combe Pearson Reynolds Pty Ltd
PO Box 2832, KENT TOWN SA 5071
174 Fullarton Road, DULWICH SA 5065
Ph: (08) 8332 1344 Fax: (08) 8332 1044

Job No: 180302
Page: SW3
Date : 11/11/19
Design: CM

STRATHALBYN AND DISTRICT HEALTH SERVICES

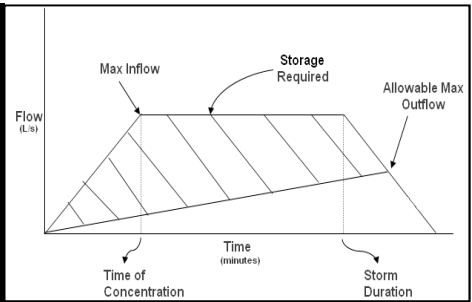
POST-DEVELOPMENT - CATCHMENT 2 - ROOF AREA - 1 IN 20 YEAR ARI EVENT

Roof Area	355 m²	Pervious Area	0
Roof Pitch	5 degrees	Run-Off Coefficient	0.4
Run-Off Coefficient	1	Pavement Area	0
		Run-Off Coefficient	0.9

Storm Design Recurrence Interval 20 years
Time of Concentration 10.0 minutes
Max Allowable Outflow 9.240 L/s

Based on (AR&R 1987)

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m ³)	Max Storage (m ³)
5	121	12.54	3.76	-0.40
10	89	9.22	5.53	-0.01
15	72	7.46	6.71	-0.22
20	62	6.42	7.71	-0.61
25	54	5.60	8.39	-1.31
30	48.7	5.05	9.08	-2.01
35	44.3	4.59	9.64	-2.83
40	40.7	4.22	10.12	-3.74
50	35.3	3.66	10.97	-5.66
55	32.8	3.40	11.21	-6.80
60	30.3	3.14	11.30	-8.10
65	27.8	2.88	11.23	-9.56
70	25.3	2.62	11.01	-11.17
75	22.8	2.36	10.63	-12.93
80	20.3	2.10	10.10	-14.85
85	17.8	1.84	9.41	-16.93
90	15.3	1.59	8.56	-19.16



Minimum Tank Size	-0.01 m³
--------------------------	----------------------------

Outlet Orifice Design	
Approximate head above outlet	1 m water
Max allowable outflow	0.009239722 m ³ /s
Discharge Velocity	4.43 m/s
Approx Pipe area	2085.977 mm ²
Approx Pipe Diameter	51.54 mm



**COMBE
PEARSON
REYNOLDS**
CONSULTING ENGINEERS

Combe Pearson Reynolds Pty Ltd
PO Box 2832, KENT TOWN SA 5071
174 Fullarton Road, DULWICH SA 5065
Ph: (08) 8332 1344 Fax: (08) 8332 1044

Job No: 180302
Page: SW4
Date : 11/11/19
Design: CM

STRATHALBYN AND DISTRICT HEALTH SERVICES
POST-DEVELOPMENT - CATCHMENT 3 - I IN 20 YEAR ARI EVENT

Roof Area 1305 m²
Roof Pitch 5 degrees
Run-Off Coefficient 1

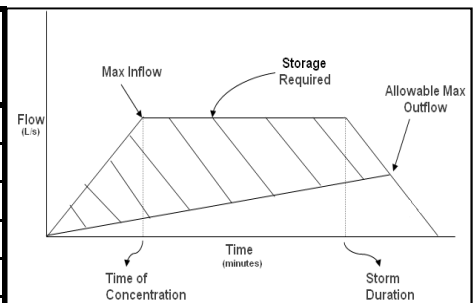
Pervious Area 0
Run-Off Coefficient 0.4

Pavement Area 0
Run-Off Coefficient 0.9

Storm Design Recurrence Interval 20 years
Time of Concentration 10.0 minutes
Max Allowable Outflow 15.000 L/s

Based on (AR&R 1987)

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m ³)	Max Storage (m ³)
5	121	46.08	13.82	7.07
10	89	33.89	20.34	11.34
15	72	27.42	24.68	13.43
20	62	23.61	28.33	14.83
25	54	20.57	30.85	15.10
30	48.7	18.55	33.38	15.38
35	44.3	16.87	35.43	15.18
40	40.7	15.50	37.20	14.70
50	35.3	13.44	40.33	13.33
55	32.8	12.49	41.22	11.97
60	30.3	11.54	41.54	10.04
65	27.8	10.59	41.29	7.54
70	25.3	9.64	40.47	4.47
75	22.8	8.68	39.07	0.82
80	20.3	7.73	37.11	-3.39
85	17.8	6.78	34.57	-8.18
90	15.3	5.83	31.46	-13.54



Minimum Tank Size	15.38 m³
--------------------------	----------------------------

Outlet Orifice Design	
Approximate head above outlet	1 m water
Max allowable outflow	0.015 m ³ /s
Discharge Velocity	4.43 m/s
Approx Pipe area 3386.427 mm ²	
Approx Pipe Diameter 65.66 mm	



**COMBE
PEARSON
REYNOLDS**
CONSULTING ENGINEERS

Combe Pearson Reynolds Pty Ltd
PO Box 2832, KENT TOWN SA 5071
174 Fullarton Road, DULWICH SA 5065
Ph: (08) 8332 1344 Fax: (08) 8332 1044

Job No: 180302
Page: SW5
Date : 11/11/19
Design: CM

STRATHALBYN AND DISTRICT HEALTH SERVICES

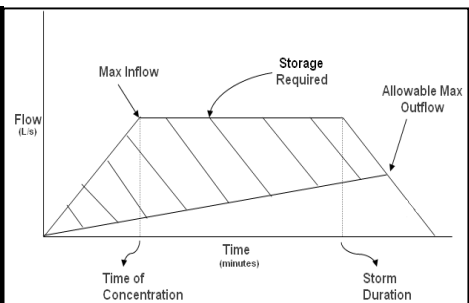
POST-DEVELOPMENT - CATCHMENT 4 (EXISTING) - 1 IN 20 YEAR ARI EVENT

Roof Area	1528 m²	Pervious Area	0
Roof Pitch	5 degrees	Run-Off Coefficient	0.4
Run-Off Coefficient	1	Pavement Area	1222
		Run-Off Coefficient	0.9

Storm Design Recurrence Interval 20 years
Time of Concentration 10.0 minutes
Max Allowable Outflow 67.000 L/s

Based on (AR&R 1987)

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m ³)	Max Storage (m ³)
5	121	90.92	27.28	-2.87
10	89	66.87	40.12	-0.08
15	72	54.10	48.69	-1.56
20	62	46.59	55.90	-4.40
25	54	40.58	60.86	-9.49
30	48.7	36.59	65.87	-14.53
35	44.3	33.29	69.90	-20.55
40	40.7	30.58	73.40	-27.10
50	35.3	26.52	79.57	-41.03
55	32.8	24.65	81.33	-49.32
60	30.3	22.77	81.96	-58.74
65	27.8	20.89	81.47	-69.28
70	25.3	19.01	79.84	-80.96
75	22.8	17.13	77.09	-93.76
80	20.3	15.25	73.22	-107.68
85	17.8	13.37	68.21	-122.74
90	15.3	11.50	62.08	-138.92



Minimum Tank Size	-0.08 m³
--------------------------	----------------------------

Outlet Orifice Design	
Approximate head above outlet	1 m water
Max allowable outflow	0.067 m ³ /s
Discharge Velocity	4.43 m/s
Approx Pipe area	15126.042 mm ²
Approx Pipe Diameter	138.78 mm



Combe Pearson Reynolds Pty Ltd
PO Box 2832, KENT TOWN SA 5071
174 Fullarton Road, DULWICH SA 5065
Ph: (08) 8332 1344 Fax: (08) 8332 1044

Job No: 180302
Page: SW6
Date : 11/11/19
Design: CM

STRATHALBYN AND DISTRICT HEALTH SERVICES

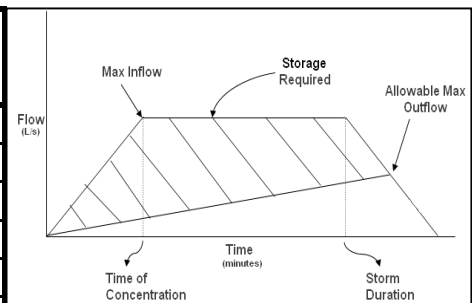
POST-DEVELOPMENT - CATCHMENT 4 - ADDITIONAL ROOF AREA - 1 IN 20 YEAR ARI EVENT

Roof Area	383 m²	Pervious Area	0
Roof Pitch	5 degrees	Run-Off Coefficient	0.4
Run-Off Coefficient	1	Pavement Area	0
		Run-Off Coefficient	0.9

Storm Design Recurrence Interval 20 years
Time of Concentration 10.0 minutes
Max Allowable Outflow 3.000 L/s

Based on (AR&R 1987)

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m ³)	Max Storage (m ³)
5	121	13.55	4.06	2.71
10	89	9.96	5.98	4.18
15	72	8.06	7.25	5.00
20	62	6.94	8.33	5.63
25	54	6.05	9.07	5.92
30	48.7	5.45	9.81	6.21
35	44.3	4.96	10.41	6.36
40	40.7	4.56	10.93	6.43
50	35.3	3.95	11.85	6.45
55	32.8	3.67	12.12	6.27
60	30.3	3.39	12.21	5.91
65	27.8	3.11	12.14	5.39
70	25.3	2.83	11.90	4.70
75	22.8	2.55	11.49	3.84
80	20.3	2.27	10.91	2.81
85	17.8	1.99	10.16	1.61
90	15.3	1.71	9.25	0.25



Minimum Tank Size	6.45 m³
--------------------------	---------------------------

Outlet Orifice Design	
Approximate head above outlet	1 m water
Max allowable outflow	0.003 m ³ /s
Discharge Velocity	4.43 m/s
Approx Pipe area	677.285 mm ²
Approx Pipe Diameter	29.37 mm



**APPENDIX C:
- 180302-CSK01-Stormwater Management Plan**



Image for marketing purposes only.

POWERED BY EXCELLENCE

DIESEL GENERATOR 500 kVA

GENERATOR

MINING | INDUSTRIAL | UTILITIES | ELECTRICAL CONTRACTORS | MANUFACTURING | QUARRIES | CONSTRUCTION | EXPLORATION | MILITARY | SHIPPING | EVENTS

Generator Designation	CG-0500
Fleet Range	897-883

Dimensions

Length	4940 mm
Width	1680 mm
Height	2817 mm
Weight Wet	8122 kg
Weight Dry	6640 kg
CSC Plated	No
Configuration	Canopy

Power Ratings

Engine	C15
Prime 50Hz	500 kVA
Prime 50Hz @ 0.8 pf	400 kW
Prime 60 Hz	500 kVA
Prime 60Hz @ 0.8 pf	400 kW
Max Load @ 0.8 pf/415 V	695 A

Fuel Consumption 50 Hz**

100% Load	112.5 L/hr
75% Load	84.1 L/hr
50% Load	59.1 L/hr

Fuel Reserve 50 Hz**

Tank Size	1840 L
100% Load	16.4 hr
75% Load	21.9 hr
50% Load	31.1 hr

Other

Sound Level	82.8 dB(A) @ Standby Load @ 1 m
Maximum Operating Temperature	50°C
Cooling Chamber Fan Type	Direct Drive
Parallel Controller	Inteli-Gen
Utility Configured	Yes
Telemetry	Yes

Notes

** Refer to engineering for 60Hz fuel performance

** Fuel data provided as per:

- includes 1 hr in 12 @ 110% Load)
- at prime rating
- ASC- Cat Application Support Centre
- dB(A) Ratings @ 100 % Load @ 50 Hz (± 2 dB(A) expected)

**ONE NETWORK.
ONE CALL 1800 800 441**
energypower.com.au

The information in this document may change without notice.
CG-0500-V1-0616

**Energy Power
Systems**

