ATTACHMENT 1 – Application Documents



VALERIE

193

Valerie ANGAS

LIVING

LIVING

DPC Application - 4 april 2022

Celebrating a significant South Australian

The building takes its name from Valerie Travers who successfully conducted the corporate apparel business she started in 1966, on this site from 1982 until her passing in 2013. Under her leadership the business became Australia's second largest manufacturing embroiderer, and it continues to thrive under the stewardship of her former business partner.

Valerie was a hardworking and driven businesswoman with a soft spot for animals, reportedly keeping 130 tame birds and 10 kangaroos at her property in the nearby Adelaide Hills. Her favorite pet was her sulphur-crested cockatoo, Dickie, who accompanied her to work daily, recognizing everyone and often shouting at the machine operators.

Valerie detested disorganization, but saw no place for computers in her office, and could gauge the progress of any job through the system with a quick look. She prided herself on keeping her first customer, often taking design work home during the week, and regularly working from 7am Friday through to 7am Saturday.

Valerie's philosophy was simple, she had no time for wishing and hoping so she just got on with it.

Within these former rag trade factory walls an exciting new mixed-use building will soon emerge, aptly named Valerie Living. Targeting an 8-star energy rating, Valerie Living will showcase a varied collection of carefully crafted city homes, all with stunning views to the Adelaide Hills, plenty of room to move and, as Valerie would have surely demanded, pet friendly building by-laws.



Valerie Travers 1938 - 2013

MASTERPLAN TOWN + COUNTRY PLANNERS

tecon

Resonate

CIRQA

STRUCTURAL SYSTEMS consulting engineers

ame R.M. ENVIRONMENTAL CONSULTING

BESTEC

ANDREW & ASSOCIATES SURVEYORS & DEVELOPMENT CONSULTANTS

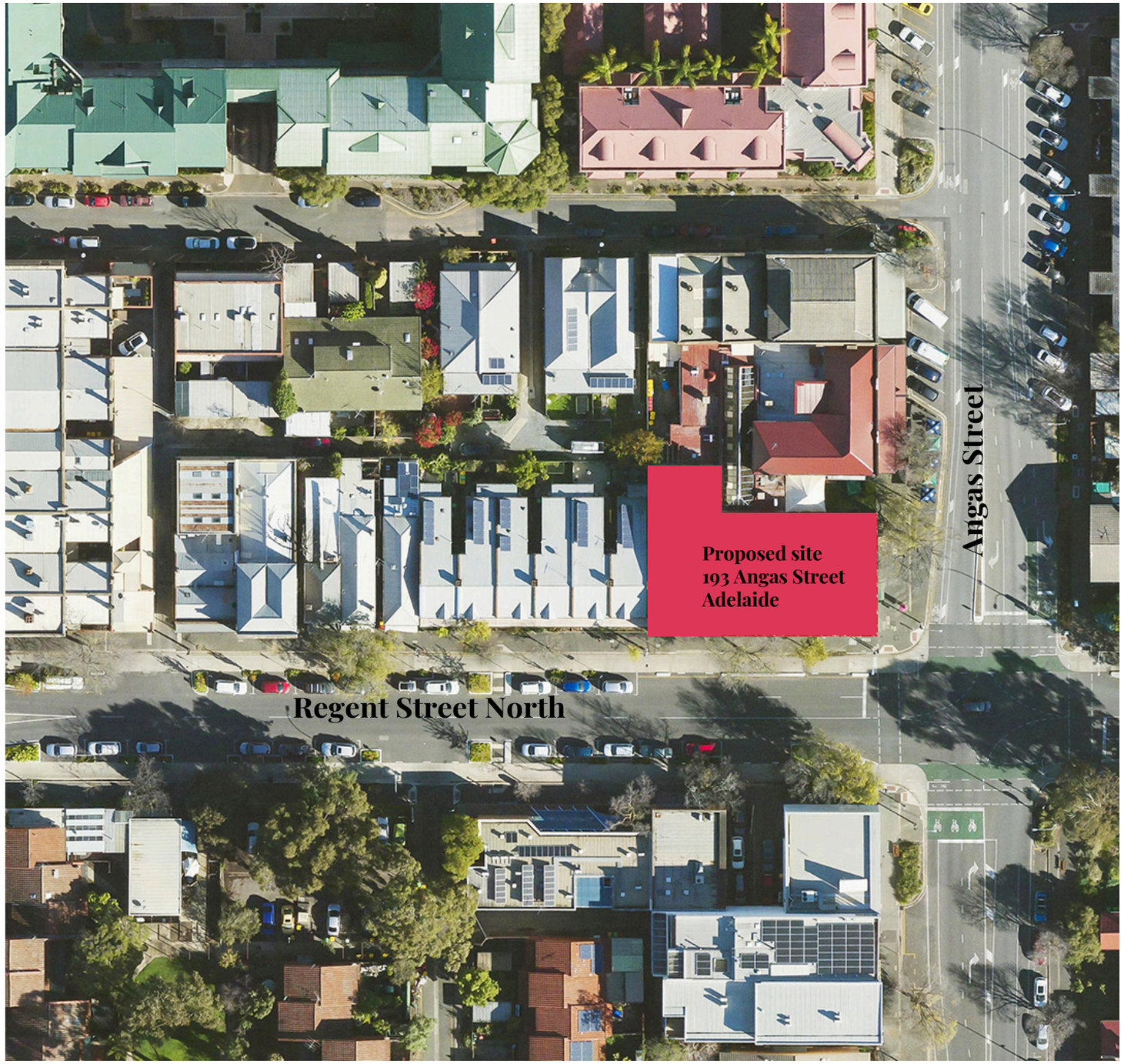
consultant team

forme projex + Locus Architecture

background

DPC.001 v1.0@ 23 november 2021

193 Valerie ANGAS LIVING



forme projex + Locus Architecture

site plan

Scale NTS DPC.002 v1.0@ 23 november 2021 north

193 Valerie ANGAS LIVING



forme projex + Locus Architecture

looking south / west

DPC.003 v2.1 @ 4 april 2022

193 Valerie ANGAS LIVING



looking north / west

DPC.004 v1.0@ 23 november 2021

forme projex + Locus Architecture

193 Valerie ANGAS LIVING

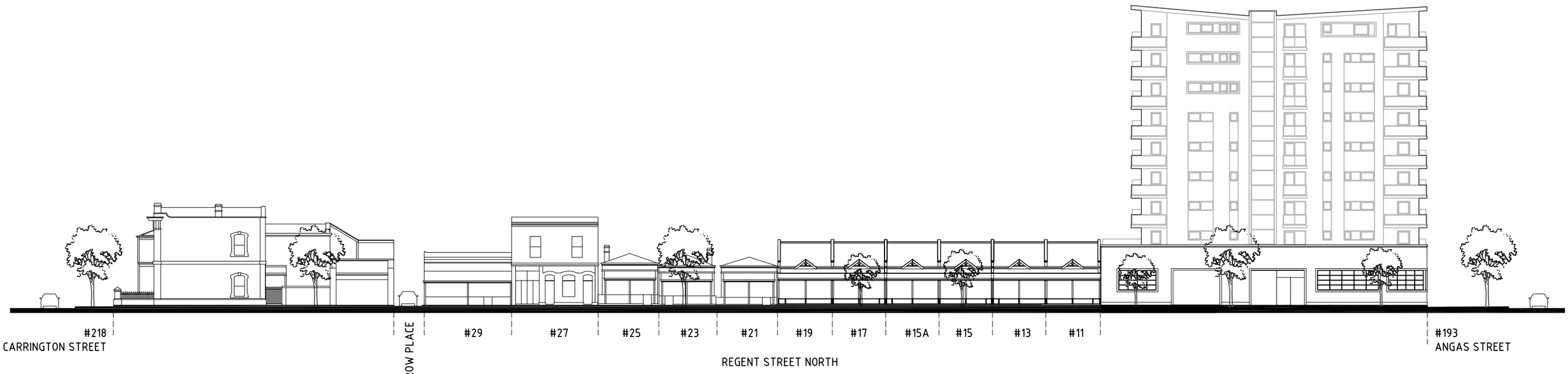


forme projex + Locus Architecture

locality plan

Scale 1 : 250 DPC.005 v1.0@ 23 november 2021

193 Valerie ANGAS LIVING



LOOKING WEST

0 10m 50m

forme projex + Locus Architecture

streetscape

Scale 1 : nts DPC.005a v1.0@ 21 feb 2022

193 Valerie ANGAS LIVING

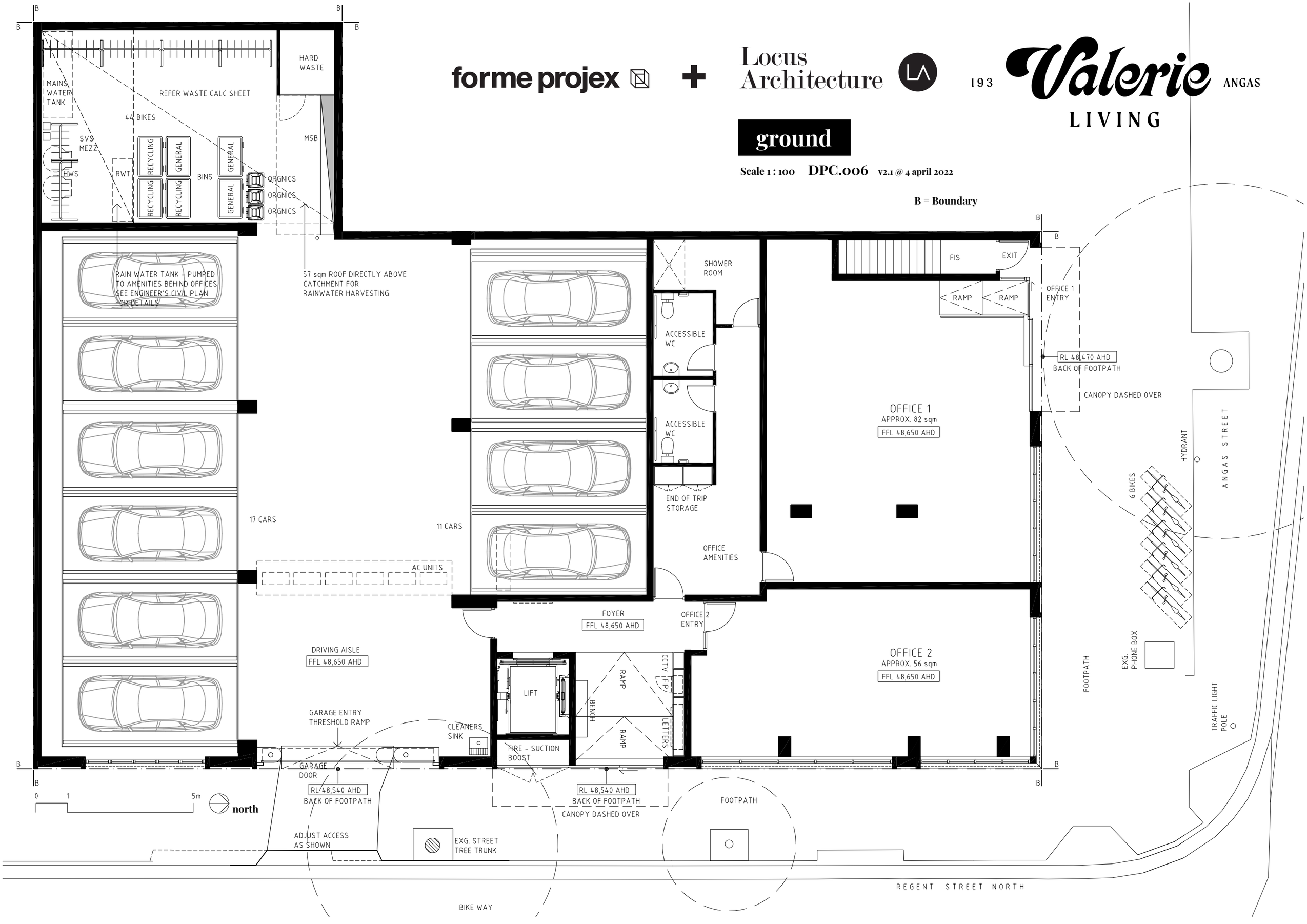
forme projex + Locus Architecture

193 Valerie LIVING ANGAS

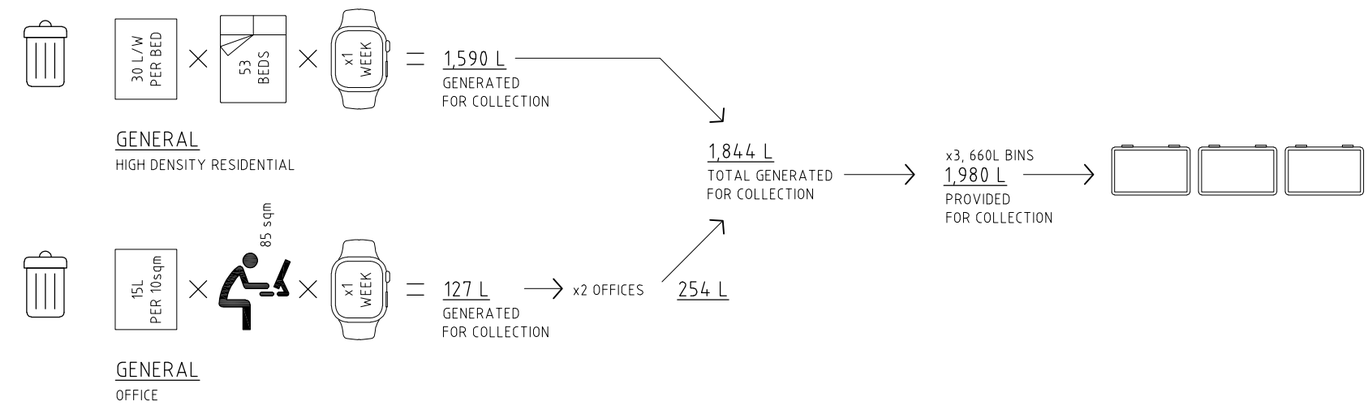
ground

Scale 1 : 100 **DPC.006** v2.1 @ 4 april 2022

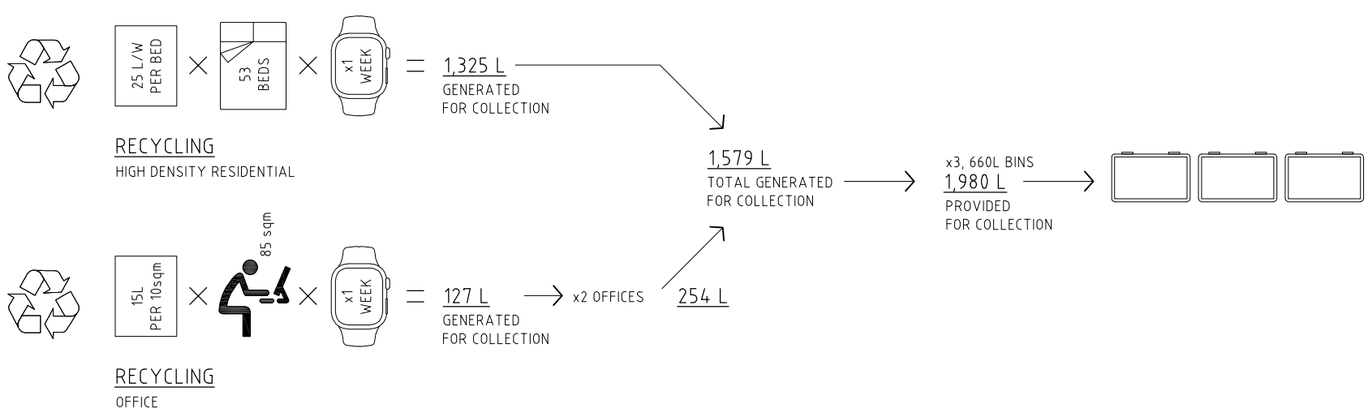
B = Boundary



GENERAL WASTE



RECYCLING



ORGANICS



NO REQUIREMENT FOR OFFICE

PREPARED IN ACCORDANCE WITH:
South Australian Better Practice Guide
Waste Management in Residential or Mixed Use Developments

forme projex + Locus Architecture

waste

NTS DPC.006A v2.0 @ 21 feb 2022

193 Valerie LIVING ANGAS



B = Boundary

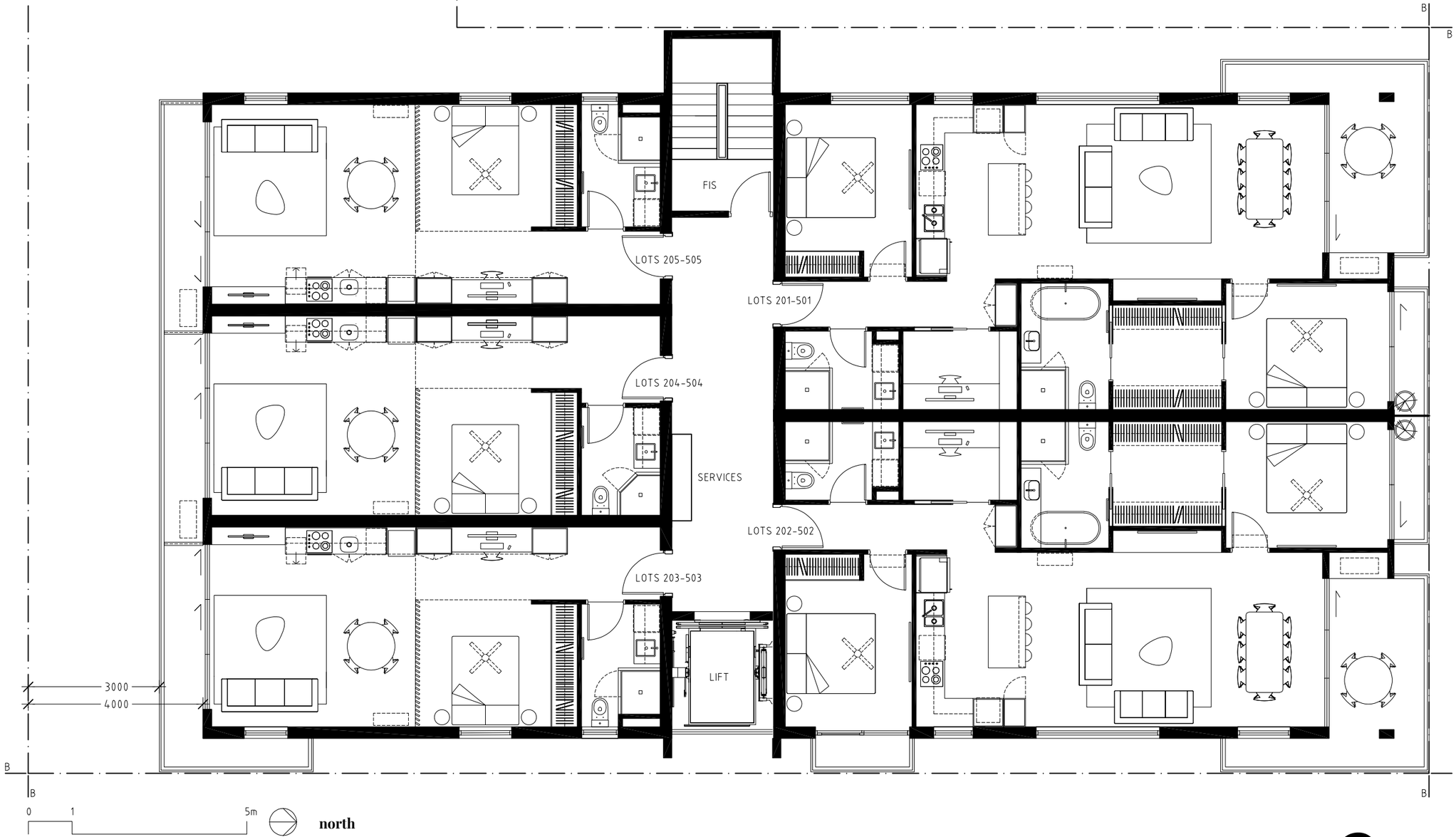
level - 01

Scale 1 : 100 **DPC.007** v2.1 @ 4 april 2022

forme projex + Locus Architecture

193 Valerie ANGAS LIVING

B = **Boundary**



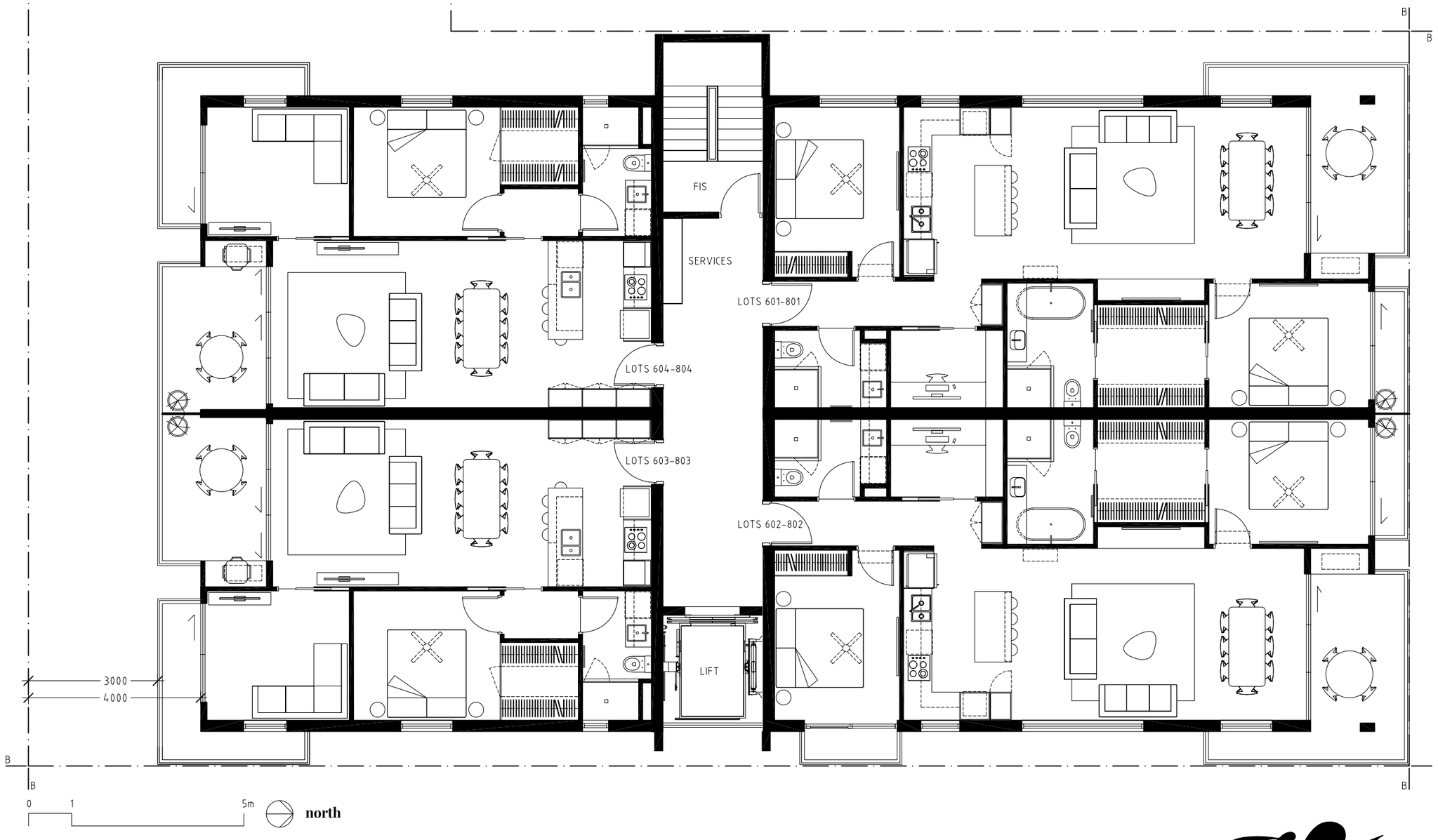
forme projex + Locus Architecture

levels - 2-5

Scale 1 : 100 **DPC.008** v2.1 @ 4 april 2022

193 Valerie ANGAS LIVING

B = **Boundary**



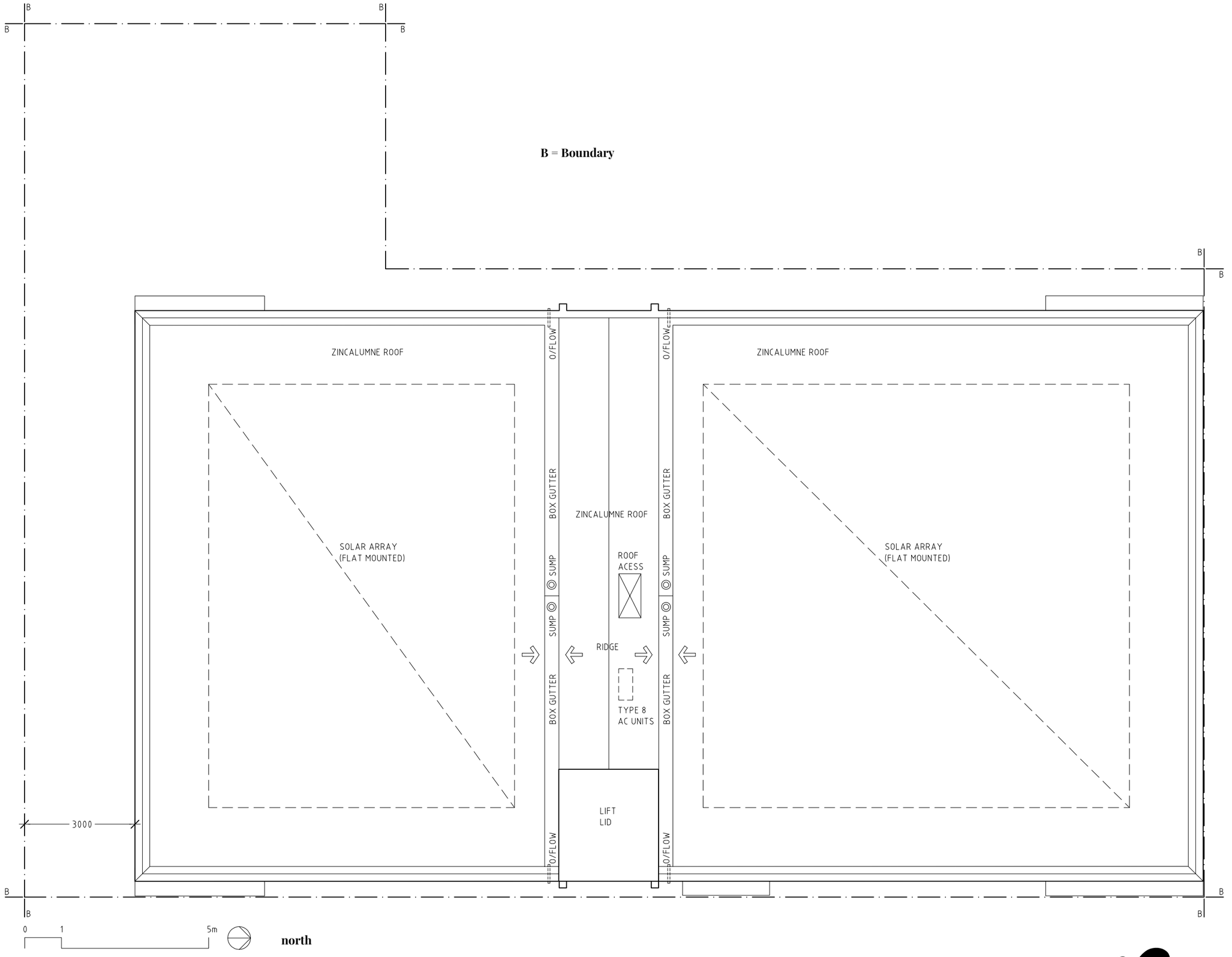
forme projex + Locus Architecture

levels - 6-8

Scale 1 : 100 DPC.009 v2.1 @ 4 april 2022

193 Valerie ANGAS LIVING

B = **Boundary**

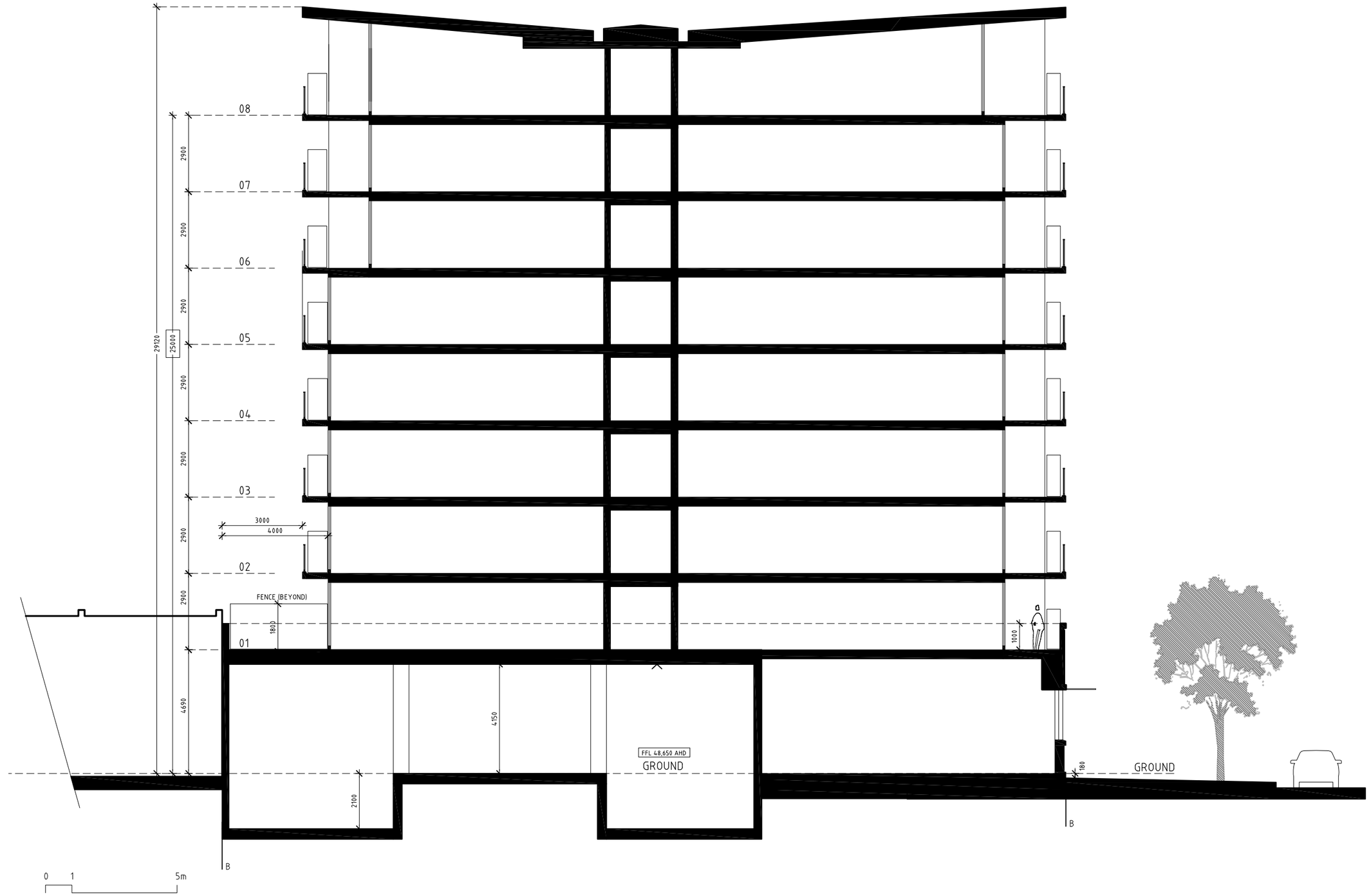


forme projex + Locus Architecture

roof

Scale 1 : 100 **DPC.010** v1.0@ 23 november 2021

193 Valerie ANGAS LIVING



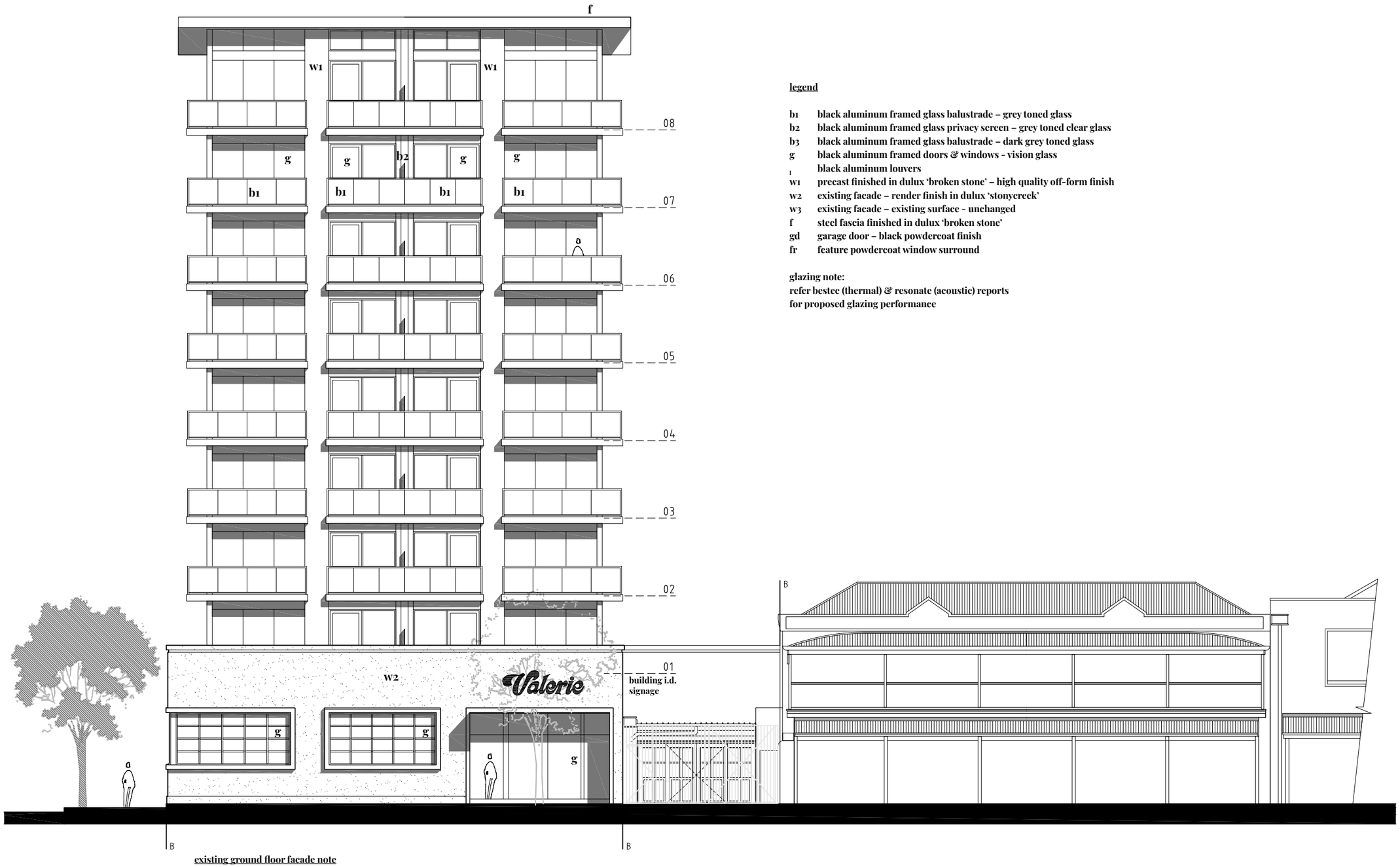
B = Boundary

forme projex + Locus Architecture

section

Scale 1 : 150 DPC.011 v2.0@ 21 feb 2022

193 Valerie ANGAS LIVING



legend

b1	black aluminum framed glass balustrade – grey toned glass
b2	black aluminum framed glass privacy screen – grey toned clear glass
b3	black aluminum framed glass balustrade – dark grey toned glass
g	black aluminum framed doors & windows - vision glass
l	black aluminum louvers
w1	precast finished in dulux 'broken stone' – high quality off-form finish
w2	existing facade – render finish in dulux 'stonycreek'
w3	existing facade – existing surface - unchanged
f	steel fascia finished in dulux 'broken stone'
gd	garage door – black powdercoat finish
fr	feature powdercoat window surround

glazing note:
refer bestec (thermal) & resonate (acoustic) reports
for proposed glazing performance

existing ground floor facade note

> retain existing masonry wall, detailing & fenestration where possible.
> recreate any window surround details to match existing by suitable means.
> make aluminium window frames to closely resemble form of existing windows.
> make good & unify entire wall with dulux render system 'coventry' finish or similar.

0 1 5m

B = Boundary

forme projex + Locus Architecture

north

Scale 1 : 150 DPC.012 v2.1 @ 4 april 2022

193 Valerie ANGAS LIVING

legend

b1	black aluminum framed glass balustrade – grey toned glass
b2	black aluminum framed glass privacy screen – grey toned clear glass
b3	black aluminum framed glass balustrade – dark grey toned glass
g	black aluminum framed doors & windows - vision glass
l	black aluminum louvers
w1	precast finished in dulux 'broken stone' – high quality off-form finish
w2	existing facade – render finish in dulux 'stonycreek'
w3	existing facade – existing surface - unchanged
f	steel fascia finished in dulux 'broken stone'
gd	garage door – black powdercoat finish
fr	feature powdercoat window surround

glazing note:
refer bestec (thermal) & resonate (acoustic) reports
for proposed glazing performance



B = Boundary

existing ground floor facade note

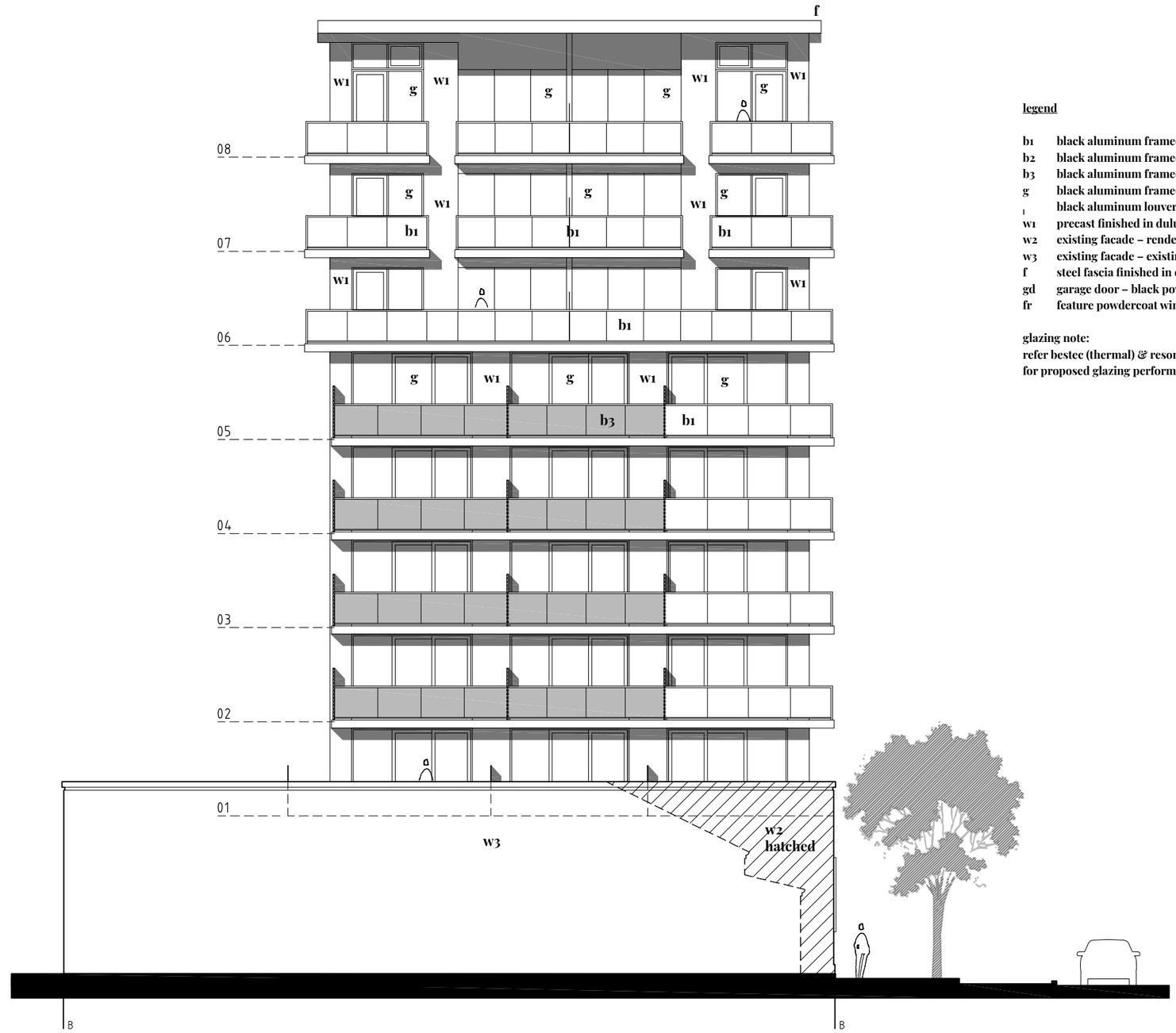
> retain existing masonry wall, detailing & fenestration where possible.
> recreate any window surround details to match existing by suitable means.
> make aluminium window frames to closely resemble form of existing windows.
> make good & unify entire wall with dulux render system 'coventry' finish or similar.

forme projex + Locus Architecture

east

Scale 1 : 150 DPC.013 v2.1 @ 4 april 2022

193 Valerie ANGAS LIVING



B = Boundary

legend

b1	black aluminum framed glass balustrade – grey toned glass
b2	black aluminum framed glass privacy screen – grey toned clear glass
b3	black aluminum framed glass balustrade – dark grey toned glass
g	black aluminum framed doors & windows - vision glass
l	black aluminum louvers
w1	precast finished in dulux 'broken stone' – high quality off-form finish
w2	existing facade – render finish in dulux 'stonycreek'
w3	existing facade – existing surface - unchanged
f	steel fascia finished in dulux 'broken stone'
gd	garage door – black powdercoat finish
fr	feature powdercoat window surround

glazing note:
refer bestec (thermal) & resonate (acoustic) reports
for proposed glazing performance

forme projex + Locus Architecture

south

Scale 1 : 150 DPC.014 v2.0@ 21 feb 2022

193 Valerie ANGAS LIVING



B = Boundary

legend

b1	black aluminum framed glass balustrade – grey toned glass
b2	black aluminum framed glass privacy screen – grey toned clear glass
b3	black aluminum framed glass balustrade – dark grey toned glass
g	black aluminum framed doors & windows - vision glass
l	black aluminum louvers
w1	precast finished in dulux 'broken stone' – high quality off-form finish
w2	existing facade – render finish in dulux 'stonycreek'
w3	existing facade – existing surface - unchanged
f	steel fascia finished in dulux 'broken stone'
gd	garage door – black powdercoat finish
fr	feature powdercoat window surround

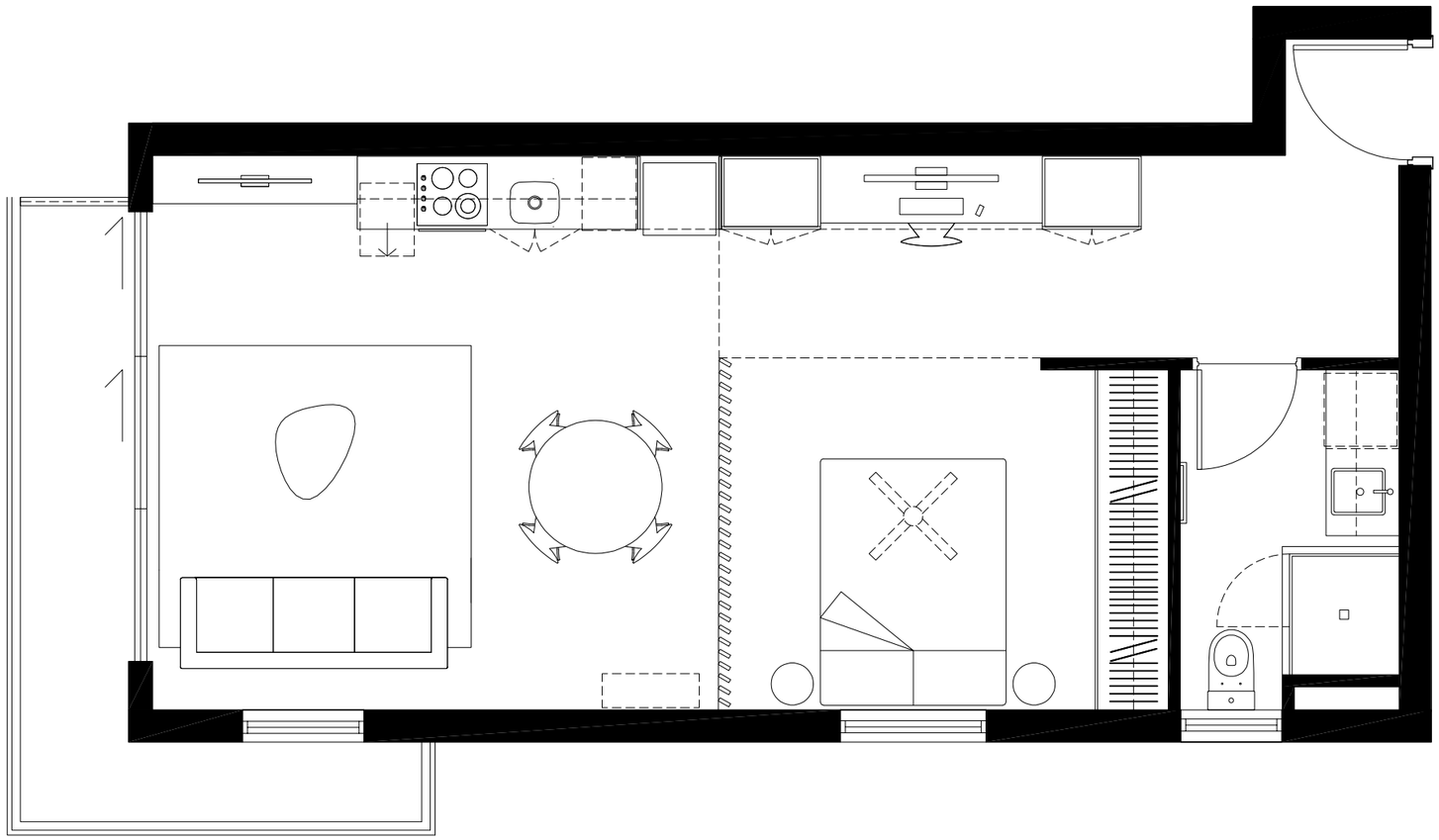
glazing note:
refer bestec (thermal) & resonate (acoustic) reports
for proposed glazing performance

forme projex + Locus Architecture

west

Scale 1 : 150 DPC.015 v2.1 @ 4 april 2022

193 Valerie ANGAS LIVING



north







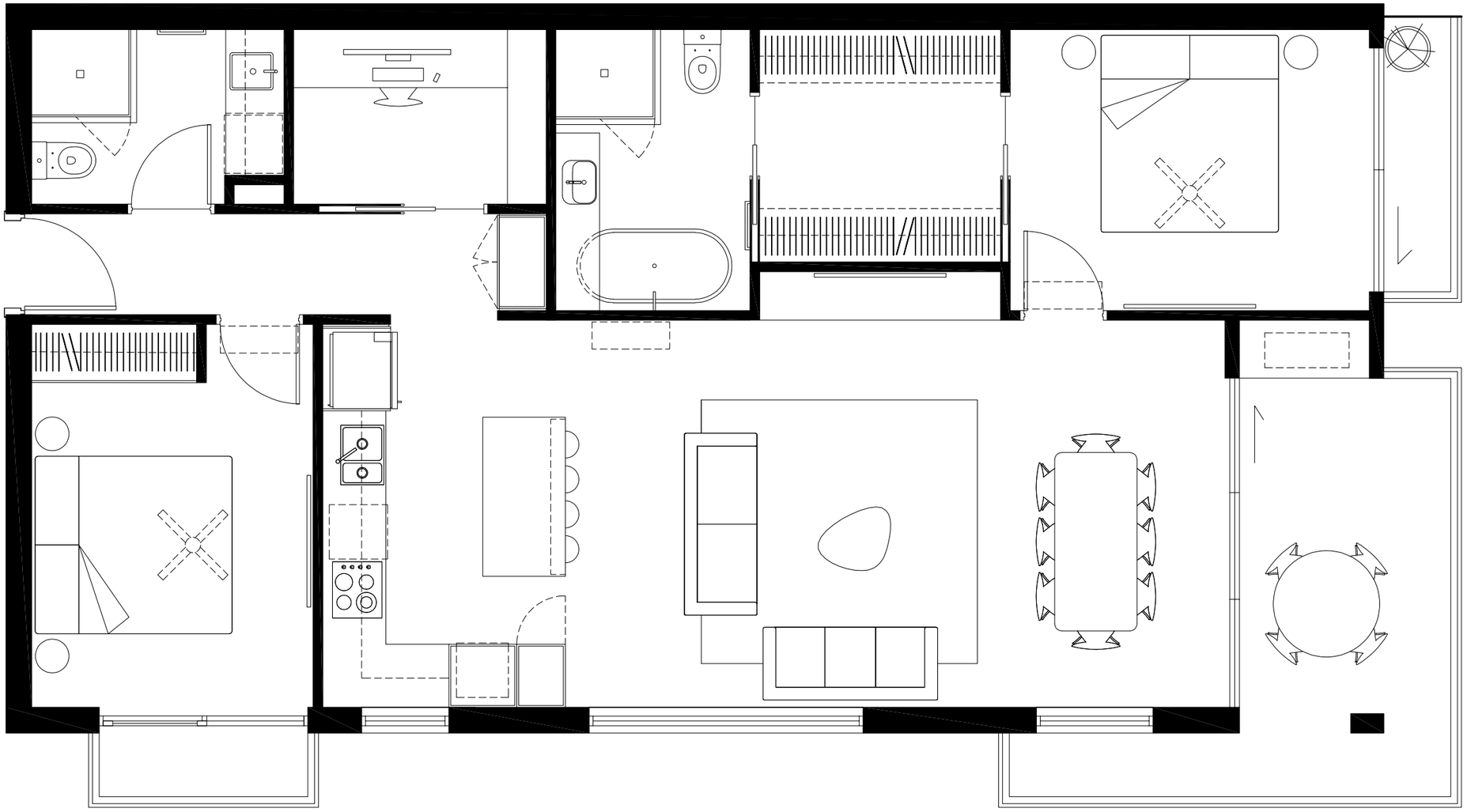


forme projex + Locus Architecture

type 3

Scale 1 : 50 **DPC.016** v1.0@ 23 november 2021

193 Valerie ANGAS LIVING









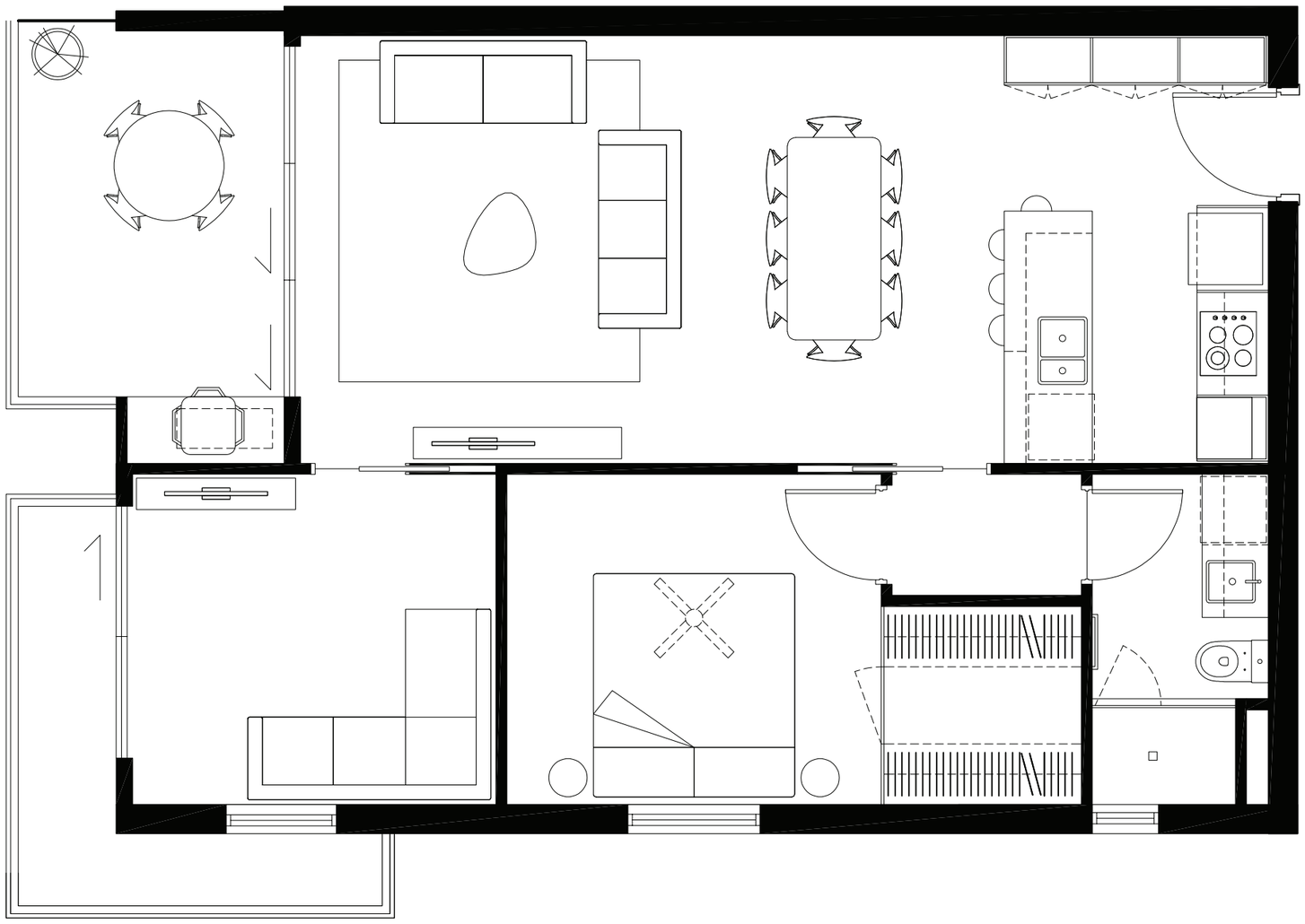


forme projex + Locus Architecture

type 2 (type 1 - mirrored)

Scale 1 : 50 **DPC.017** v2.0 @ 21 feb 2022

193 Valerie ANGAS LIVING









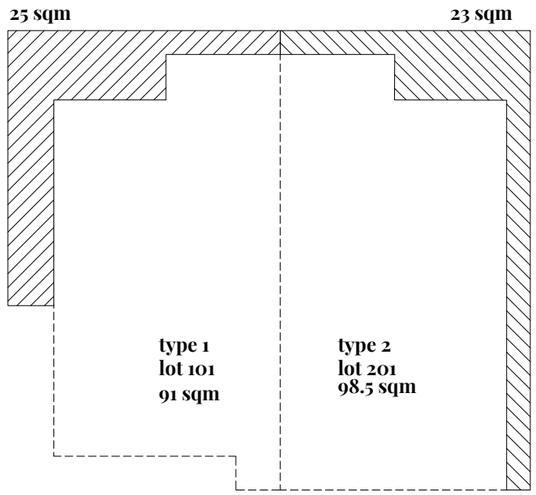


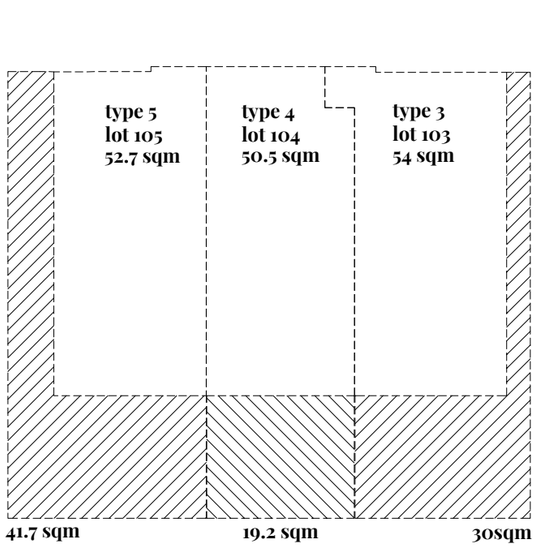
forme projex + Locus Architecture

type 6 (type 7 - mirrored)

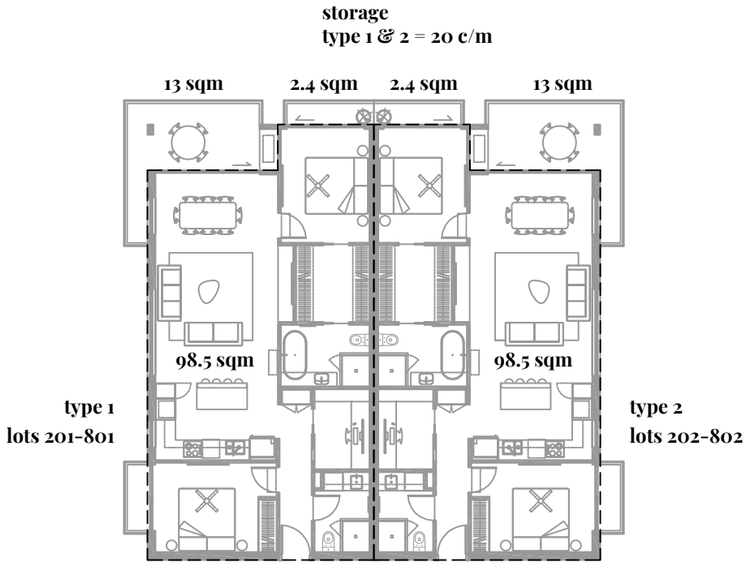
Scale 1 : 50 DPC.018 v2.0 @ 21 feb 2022

193 Valerie ANGAS LIVING





level 1
(court yards)



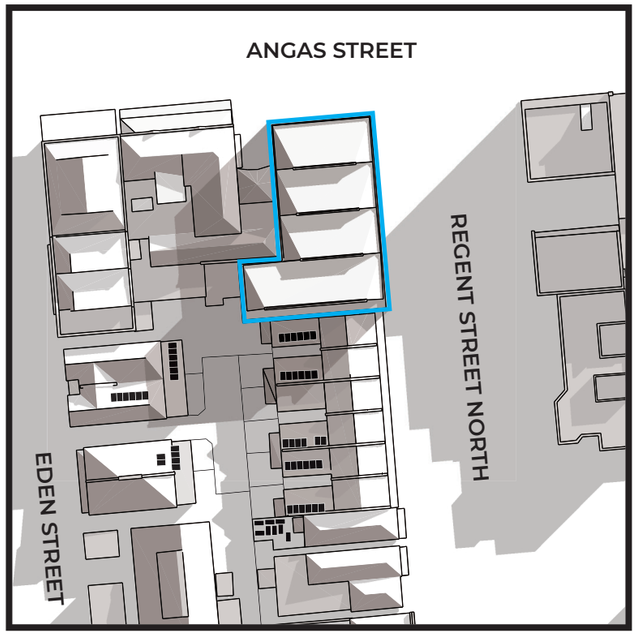


forme projex + Locus Architecture

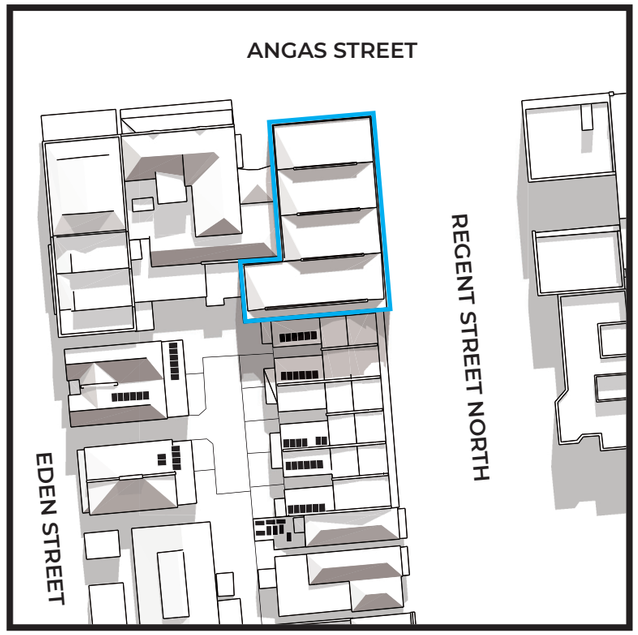
areas

Scale 1 : 200 **DPC.019** v2.1 @ 4 april 2022

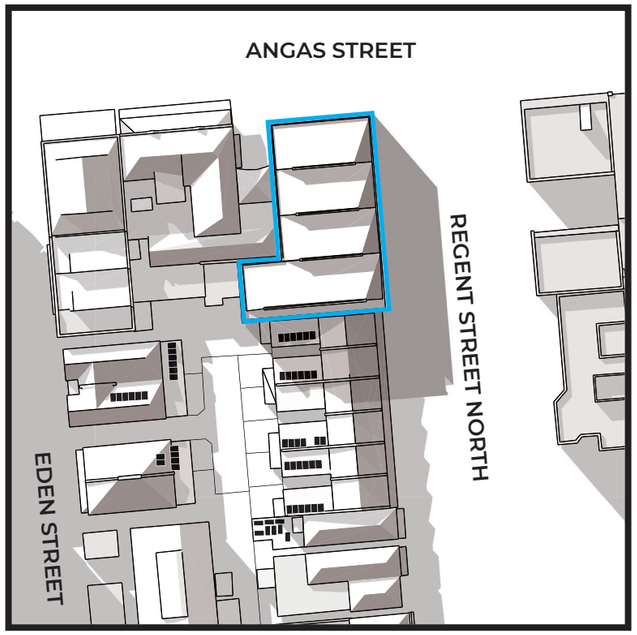
193 Valerie ANGAS LIVING



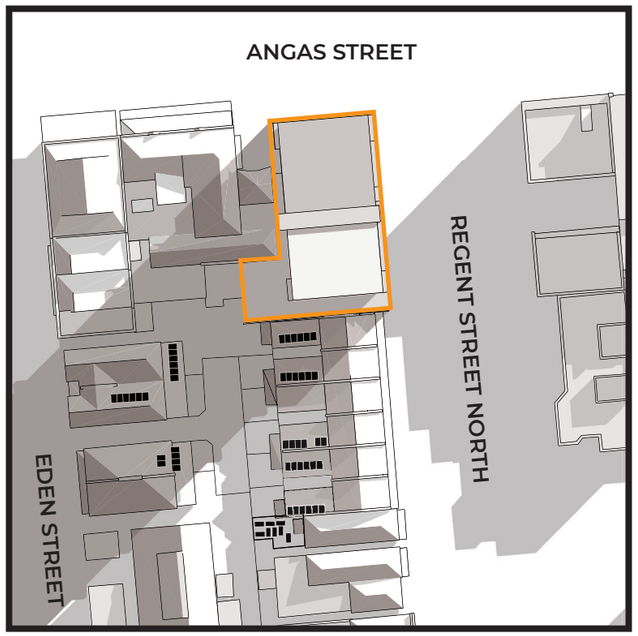
Current shadowing: 9.00am



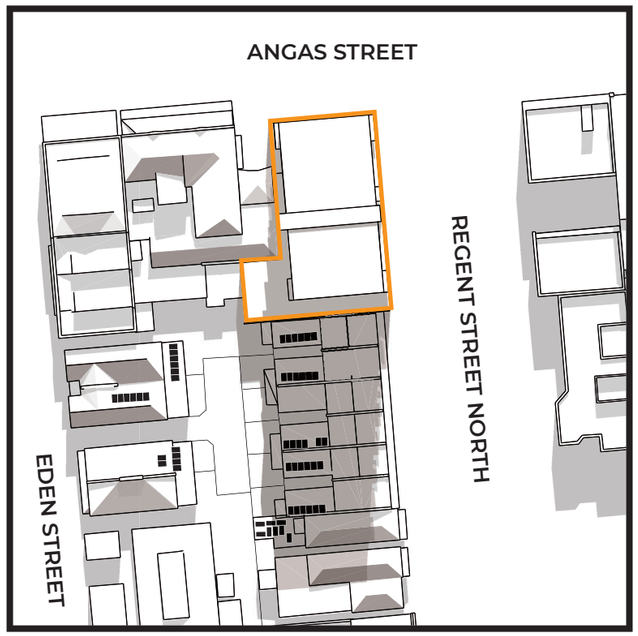
Current shadowing: 12.00pm



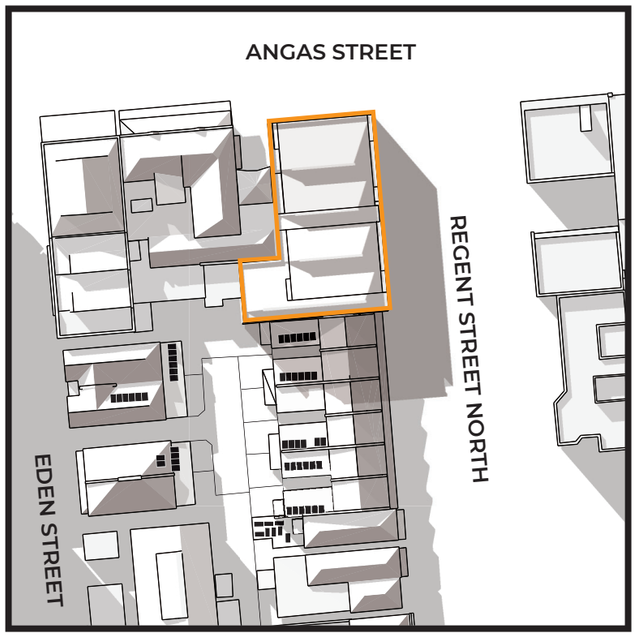
Current shadowing: 3.00pm



Proposed shadowing: 9.00am



Proposed shadowing: 12.00pm



Proposed shadowing: 3.00pm

SOLAR PANELS

SHADOW DIAGRAMS
21 JUNE - WINTER

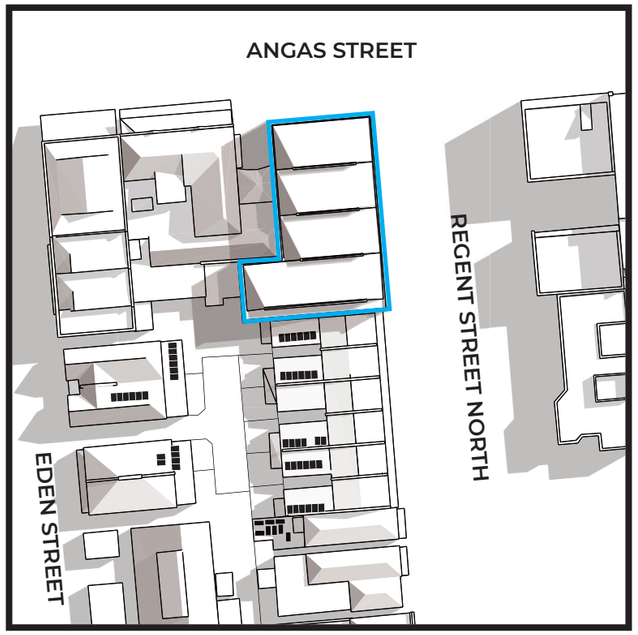
193 ANGAS STREET
ADELAIDE

FORME PROJEX

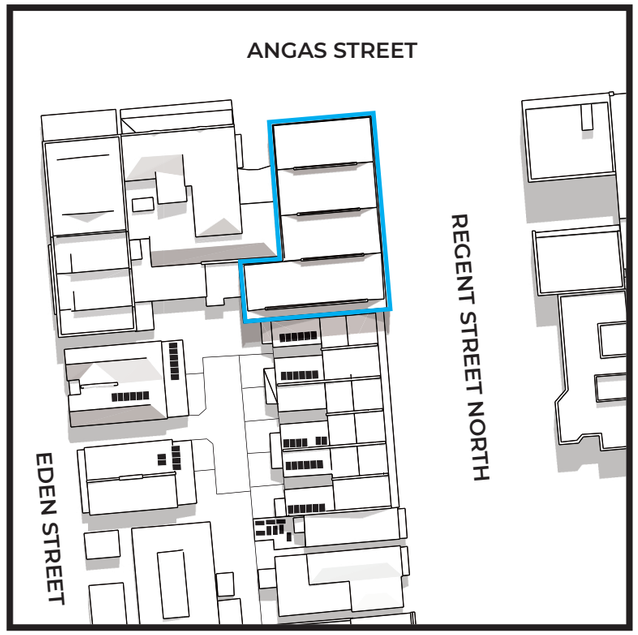
1:1000 @ A3
0 20

MASTERPLAN.COM.AU
© FEB 2022 · HM · 52404 · S1-3C

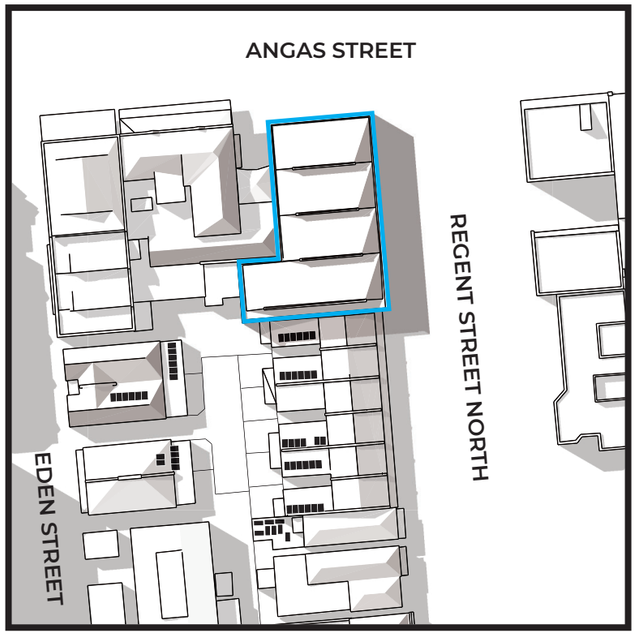
MASTERPLAN
TOWN + COUNTRY PLANNERS SINCE 1977



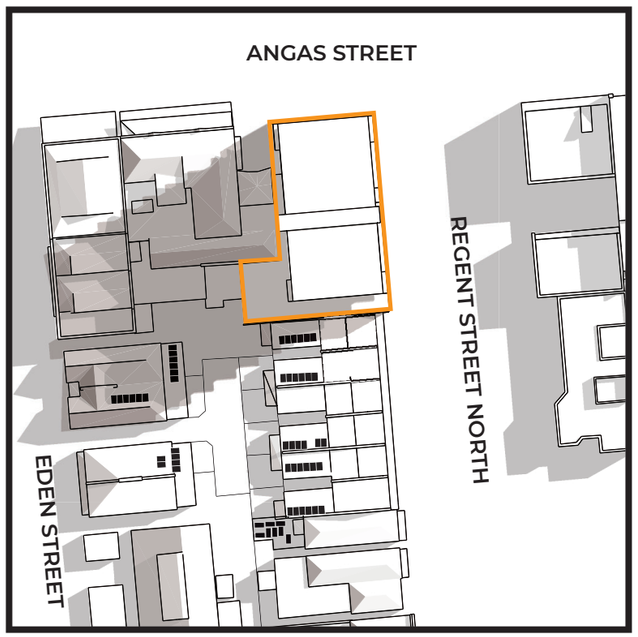
Current shadowing: 9.00am



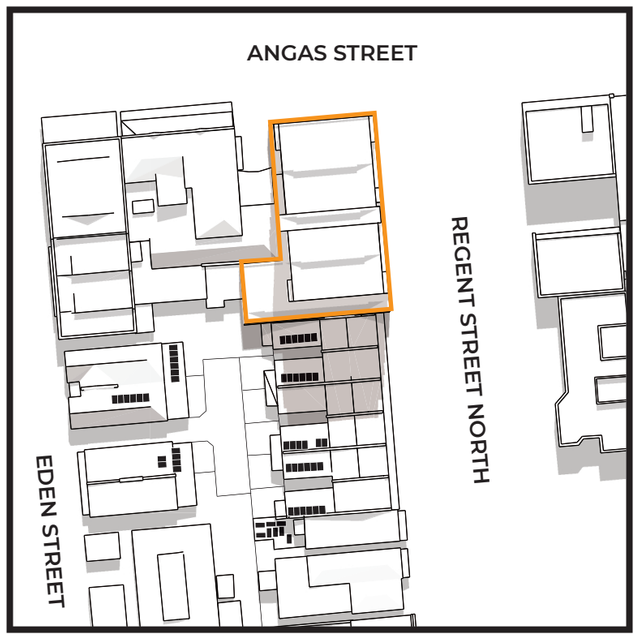
Current shadowing: 12.00pm



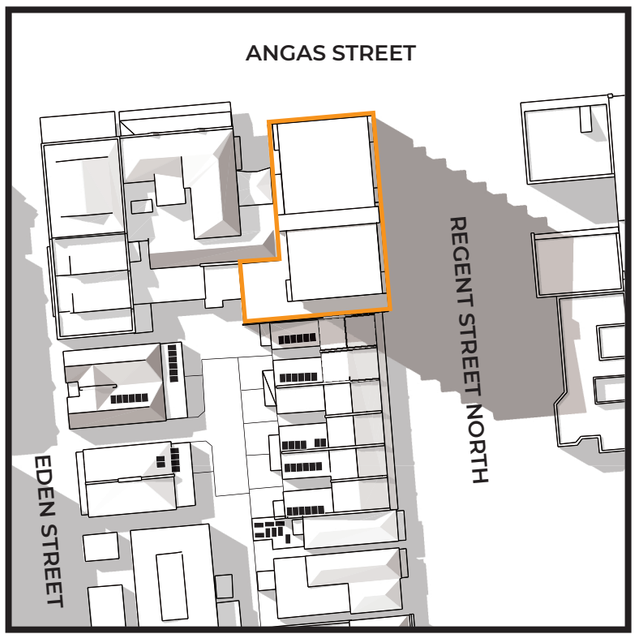
Current shadowing: 3.00pm



Proposed shadowing: 9.00am



Proposed shadowing: 12.00pm



Proposed shadowing: 3.00pm

SOLAR PANEL

SHADOW DIAGRAMS
23 SEPTEMBER - SPRING

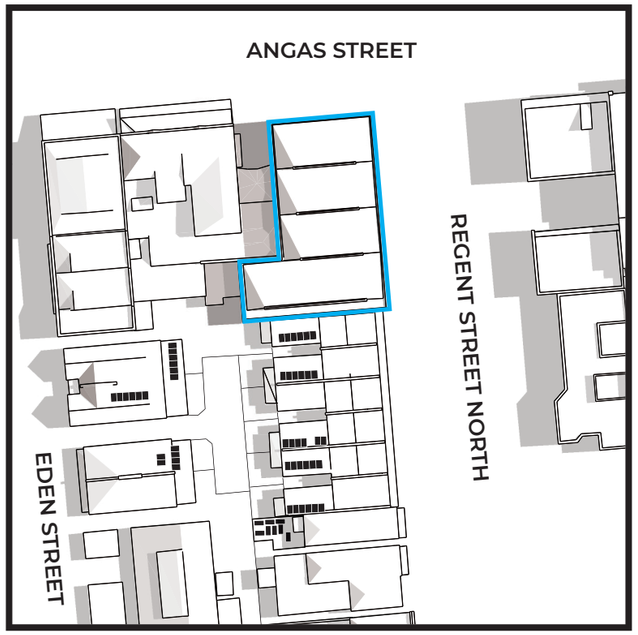
193 ANGAS STREET
ADELAIDE

FORME PROJEX

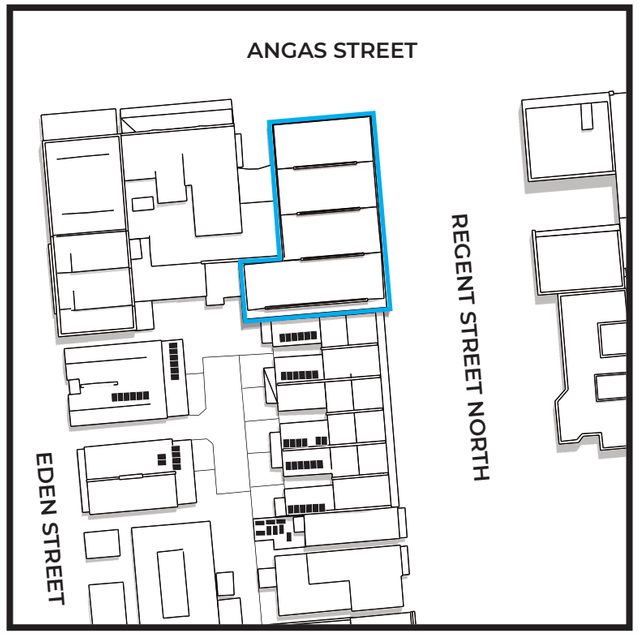
1:1000 @ A3
0 20

MASTERPLAN.COM.AU
© FEB 2022 · HM · 52404 · S2-3C

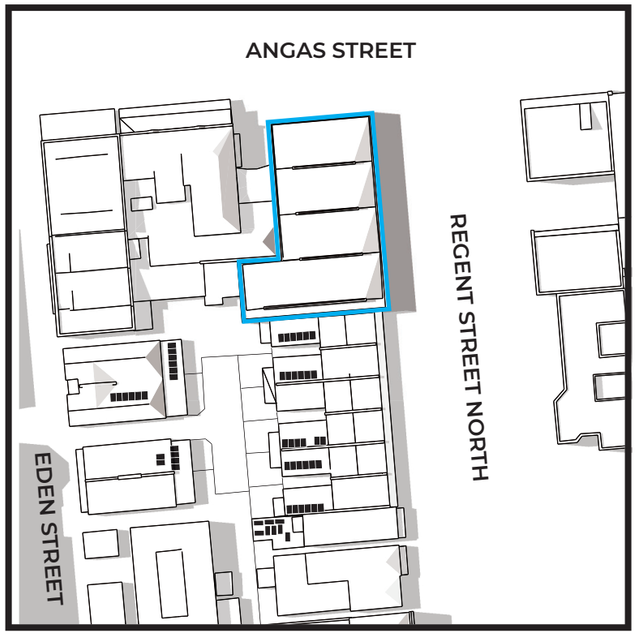
MASTERPLAN
TOWN + COUNTRY PLANNERS SINCE 1977



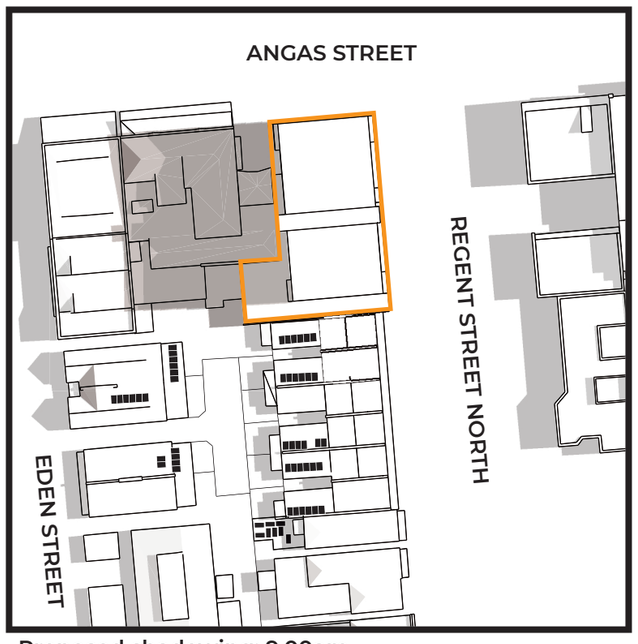
Current shadowing: 9.00am



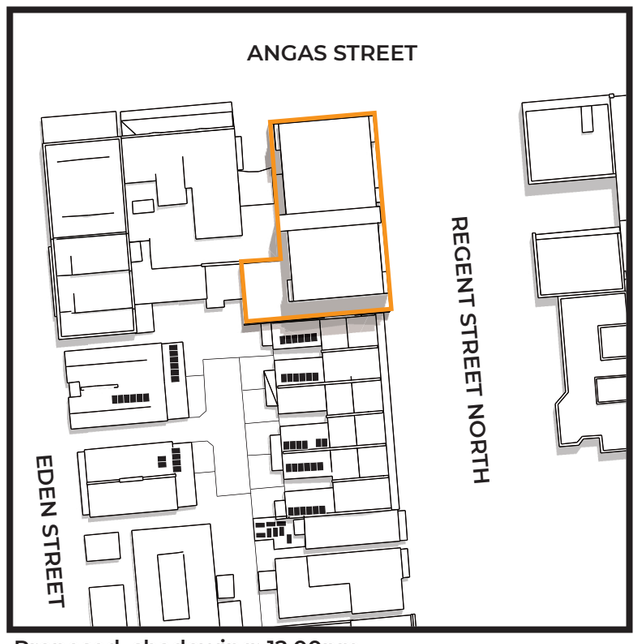
Current shadowing: 12.00pm



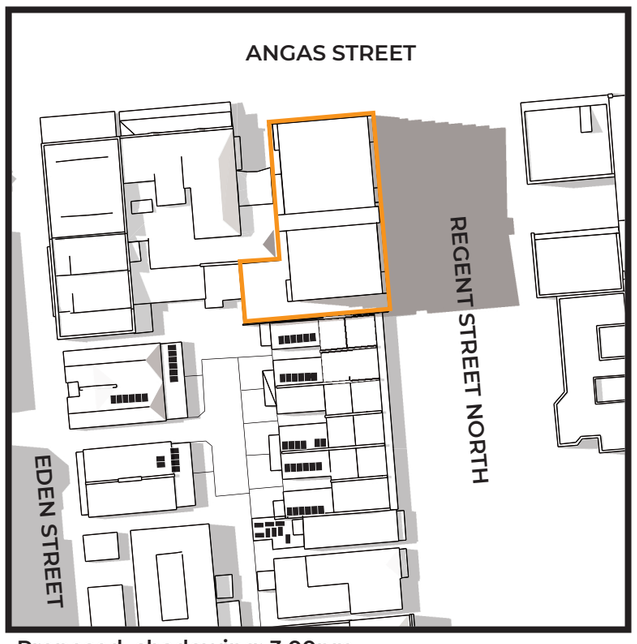
Current shadowing: 3.00pm



Proposed shadowing: 9.00am



Proposed shadowing: 12.00pm



Proposed shadowing: 3.00pm

SOLAR PANEL

SHADOW DIAGRAMS
22 DECEMBER - SUMMER

193 ANGAS STREET
ADELAIDE

FORME PROJEX

1:1000 @ A3
0 20

MASTERPLAN.COM.AU

© FEB 2022 · HM · 52404 · S3-3C

MASTERPLAN
TOWN + COUNTRY PLANNERS SINCE 1977

SYMBOL & LINETYPE LEGEND

- PSM
- WATER
- TREE TRUNK
- TREE CANOPY
- STOBIE WITH LIGHT
- INV 0·10 PIPE
- OUTLET
- TELSTRA
- SIGN POST
- INVERT
- GAS
- ETSA
- INV 0·30 PIPE
- LIGHT POLE
- TRAFFIC LIGHT
- STEEL POLE
- HYDRANT
- WATER METER
- SEWER
- TIMBER POST
- BOLLARD
- FLOOR LEVEL
- TBM
- SHADE SAIL ANCHOR
- TOP OF CAPPING
- KERB
- GUTTER
- EDGE OF BITUMEN
- SOLID LINE
- EDGE OF CONCRETE
- TELSTRA JB
- GRATING
- ETSA JB
- SUMP
- PHONE BOX
- GUARD RAIL
- E&WS JB
- BENCH SEAT
- SPOON DRAIN
- GATE
- FENCE
- BUILDING
- DOORWAY
- VERANDAH
- O/H WIRES
- WALL
- WOODEN BEAM
- WATER PIPE
- ETSA CONDUIT



ANDREW & ASSOCIATES
SURVEYORS & DEVELOPMENT CONSULTANTS
311 Angas Street Adelaide SA 5000 Telephone: 8232 1954
34 Victoria Street Victor Harbor SA 5211

PROJECT 193 ANGAS STREET ADELAIDE
CLIENT FORME PROJEX
DRAWING TITLE DETAIL & LEVEL PLAN

NOTES

REVISIONS

HORIZONTAL DATUM: MGA 2020 ZONE 54
MGA SCALED COORDINATES BASED FROM PSM 6628/27650
VERTICAL DATUM: PSM 6628/27650
RL 48·354m AHD

SCALE 1:100 ON A1 SHEET METRES
0 1 2 4 6 8 10

DRAWN	SCALE	DATE
SMS/RVD	AS SHOWN	25-08-21
COMP.FILE	FIELD	CHECKED
193 ANGAS ST-see	RVD	RVD

DRAWING NUMBER 221302-2A
ISSUE

Product	Register Search (CT 5490/356)
Date/Time	01/09/2021 05:39PM
Customer Reference	52404
Order ID	20210901010793

REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Certificate of Title - Volume 5490 Folio 356

Parent Title(s)	CT 4155/617				
Creating Dealing(s)	CONVERTED TITLE				
Title Issued	12/01/1998	**Edition**	6	**Edition Issued**	16/12/2019

Estate Type

FEE SIMPLE

Registered Proprietor

FALSTAFF PTY. LTD. (ACN: 007 919 100)
OF 193 ANGAS STREET ADELAIDE SA 5000

Description of Land

ALLOTMENT 10 FILED PLAN 9067
IN THE AREA NAMED ADELAIDE
HUNDRED OF ADELAIDE

Easements

NIL

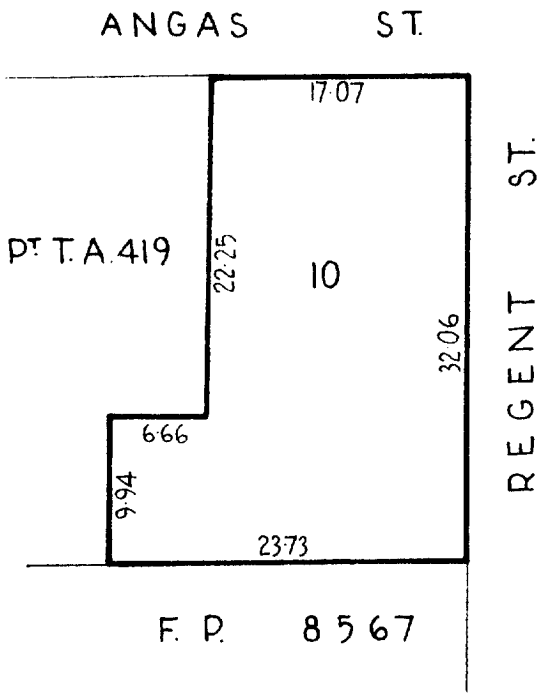
Schedule of Dealings

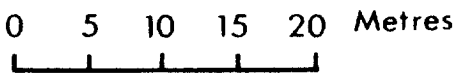
Dealing Number	Description
13220993	MORTGAGE TO PERPETUAL CORPORATE TRUST LTD. (ACN: 000 341 533)
13341309	CAVEAT BY COMMISSIONER OF STATE TAXATION

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

Copyright: www.landservices.com.au/copyright | Privacy: www.landservices.com.au/privacy | Terms of Use: www.landservices.com.au/sailis-terms-of-use





Copyright: www.landservices.com.au/copyright | Privacy: www.landservices.com.au/privacy | Terms of Use: www.landservices.com.au/sailis-terms-of-use

PLANNING REPORT

Valerie

A Multi-Storey Mixed Use Residential Flat Building

At: **193 Angas Street, Adelaide**

For: **FORME PROJEX**

Prepared by
MasterPlan SA Pty Ltd
ABN 30 007 755 277, ISO 9001:2015 Certified
33 Carrington Street, Adelaide SA 5000
Telephone: 8193 5600, masterplan.com.au

December 2021

CONTENTS

EXECUTIVE SUMMARY **1**

1.0 INTRODUCTION **2**

2.0 BACKGROUND **3**

3.0 SITE OF THE DEVELOPMENT **3**

4.0 LOCALITY **5**

5.0 PROPOSED DEVELOPMENT **5**

5.1 Built Form 7

5.1.1 Building Height 7

5.1.2 Building Setbacks 7

5.1.3 Encroachments 7

5.1.4 Building Appearance 7

5.2 Building Configuration and Layout 8

5.3 Residential Apartment Types 9

5.3 Office Use 10

5.4 Materials and Finishes 10

5.5 Transport and Parking 11

5.5.1 Vehicle Access 11

5.5.2 Vehicle and Bicycle Parking 11

5.6 Services 11

6.0 PROCEDURAL MATTERS **12**

6.1 Planning and Design Code Summary 12

6.2 Relevant Authority 14

6.3 Assessment Pathway 14

6.4 Statutory Referrals 14
6.5 Public Notification 15
7.0 ASSESSMENT 15
7.1 Land Use 16
7.2 Built Form 17
7.2.1 Building Height 17
7.2.2 Contextual Design Response 20
7.2.3 Ground Level Interface 22
7.2.4 Adaptability of the Ground Floor 22
7.2.5 Materials and Finishes 23
7.3 Apartment Design and Configuration 23
7.3.1 Housing Choice 24
7.3.2 Internal Configuration and Floor Area 24
7.3.3 Private Open Space Provision 26
7.3.4 Storage Provision 28
7.4 Heritage Interface 30
7.5 Amenity Impacts 31
7.5.1 Noise Impacts (external) 31
7.5.2 Noise Impacts (internal) 32
7.5.3 Overlooking 34
7.5.4 Overshadowing 35
7.6 Transport and Parking 36
7.6.1 Vehicle Access 36
7.6.2 Parking 37
7.6.3 Bicycle Parking Facilities 38

7.7 Sustainability Initiatives 39

7.8 Site Contamination 39

7.9 Encroachments and Public Realm Works 41

8.0 CONCLUSION 42

EXECUTIVE SUMMARY

MasterPlan (SA) Pty Ltd have been engaged by Forme Projex to assist with the preparation of a development application for the construction of a multi-storey mixed use residential flat building comprising of ground level office and thirty-six upper-level apartments within a nine-storey building.

In the preparation of this report, we have had consideration for the particularities of the subject land and locality and the information contained in the documentation accompanying the lodgement of the application in forming our professional opinion on this matter.

We have concluded that the proposal sufficiently accords with the relevant provisions of the Planning and Design Code and warrants planning consent from the City of Adelaide (the Council) for the reasons set out herein.

1.0 INTRODUCTION

This report has been prepared in collaboration with the applicant and the project team identified in **Table 1 – Project Team** below and contains a description of the subject land, the locality and the proposed development, as well as our assessment of the proposed development against the relevant provisions of the Planning and Design Code.

Table 1: Project Team

PROJECT TEAM	
Applicant	Forme Projex
Planner	Masterplan SA Pty Ltd
Contact Person	Greg Vincent
List of Other Contributors	
- Architects / Designer	Locus Architecture
- Traffic Engineer	Cirqa
- Acoustic Engineer	Resonate
- Services Engineer	Bestec
- Building Surveyor	Tecon
- Environmental Consultant	AM Environmental

This report provides a description of the subject site and locality, a description of the proposed development and an assessment of the proposal against the relevant provisions of the Planning and Design Code, Version 2021.16 dated 4 November 2021 (the P&D Code), in accordance with the requirements of the *Planning, Development and Infrastructure Act 2016 (*PDI Act) and the *Planning, Development and Infrastructure Regulations 2017* (PDI Regulations).

This planning report has been informed by and should be read in conjunction with the following documentation:

- the Certificate of Title;
- Architectural Plan Set prepared by Locus Architecture;
- Services Summary Report prepared by BESTEC;
- Traffic and Parking Assessment prepared by CIRQA;
- Site and Locality Context Plan prepared by MasterPlan;
- Acoustic Report prepared by Resonate;
- Building Surveyors Statement by TECON; and
- Preliminary Site Assessment Report prepared by AME.

2.0 BACKGROUND

Forme Projex are an award winning inner metropolitan property Developer / Builder, with a focus on medium to high density residential development. Forme Projex are well regarded in the delivery of medium scale urban renewal projects within the City of Adelaide having completed three (3) buildings on Hurtle Square, two (2) other residential flat building under construction and a sixth building approved within the Hurtle Square Precinct.

These developments include:

- Stage 1 Hurtle and Co at 20 Mocatta Place.
- Stage 2 Hurtle and Co at 36 Hurtle Square.
- Stage 3 Hurtle and Co at 143 Halifax Street.
- Stage 4 Hurtle and Co at 26 Hurtle Square.
- Stage 5 Hurtle and Co at 77 Hurtle Square.
- Stage 6 Hurtle and Co at 62-66 Hurtle Square.

The development of 193 Angas Street is intended to provide a mixture of residential offerings including affordable apartment options.

The project is to be known as "*Valerie*". This title has been selected to pay homage to the longstanding use of the subject land by the well-known embroidery business "*Valerie Travers*", in a building that provides a notable positive contribution to the character of the local area.

Valerie Travers (1938 – 2013), established her embroidery business in 1966 and it continues to operate from the subject site today.

The development seeks to retain as much as is practical of the existing built form on the land to create the podium level of the development. This element will be refurbished with the intent that the outcome reflects the existing building proportions, fenestration and detailing. The project branding takes reference from the iconic signage on the existing building's street elevations. Internal wall art within the building lobby will explain this historic context and the buildings connection to its past.

3.0 SITE OF THE DEVELOPMENT

The subject site is identified in **Image 1** below, and **Table 2** provides a summary description, being the whole of the land.



Image 1: Subject Land

Table 2: Project Site

PROJECT SITE		
Address	193 Angas Street Adelaide	
Local Government Area	City Of Adelaide	
Certificates Of Title Or Land Parcels	Ct5490/356 Allotment 10 in File Plan 9067 Hundred Of Adelaide	
Encumbrances	Nil	
Easements	Nil	
Site Dimensions and Area	Area: Regent Street North Frontage: Angas Street Frontage:	614 square metres 31.8 metres 17.1 metres
Existing Use / Built Form	Single Storey Light Industry	

The land is of an irregular geometric shape and currently contains a single storey building of an industrial/warehouse appearance. As discussed, this building has historically been used in association with an embroidery business, "*Valerie Travers*". The existing building envelops the site in its entirety and is constructed up to all site boundaries.

4.0 LOCALITY

The character of the locality is characterised by a mixture of residential, commercial and food and beverage uses. There is a broad range of residential dwelling types within the immediate locality, including single and double-fronted character homes, heritage row houses, newer two-storey terrace homes, and apartment buildings.

Commercial uses within the locality generally comprise of one to three-storey buildings. Largely these uses are constrained to the south-western quadrant of the locality on the opposite side of Regent Street North. Food and beverage uses abut the site to the west and comprise of a Hotel and a Cafe business.

Regent Street North and Angas Street are two-way local roads under the care and control of the Council. Angas Street is a main traffic corridor through the city on an east-west alignment. A wide road reserve with footpaths, landscaped verges, bicycle lanes and carparking is present along both sides of the road. Regent Street North is on a north-south aligned local road, which also presents a wide road reserve. A recent streetscape upgrade saw the installation of dedicated bicycle lanes and landscaping along both road verges.

A number of State and Local heritage places are present within the immediate locality.

Items of State heritage significance include the Elder Mews workers cottages north-east of the site on Angas Street, the Manitoba Housing Complex to the south-east on Regent Street North, Albert Terrace House on Carrington Street, and the Seven Stars Hotel located in the immediately adjoining allotment to the west of the subject land.

Local heritage places are also evident in proximity including a series of semi-detached houses on Eden Street and a series of row houses to the immediate south of the subject site on Regent Street North. A number of other individual Local heritage places including a former shop, and houses are also located along the western alignment of Regent Street North.

5.0 PROPOSED DEVELOPMENT

The proposed development is summarised in **Table 3** below and with a more detailed description of the proposed works outlined in the following sections.

Table 3: Proposed Development Summary

PROPOSED DEVELOPMENT SUMMARY	
Summary Description	Construction of a multi-storey mixed use residential flat building comprising of ground level office and thirty-six (36) upper level dwellings within a nine (9) storey building, together with on-site car parking.
Development Elements	Change of Use of the Ground Floor of the existing building to Office Construction of a nine (9) storey Residential Flat Building

The development application seeks Planning Consent for a multi-storey residential flat building of nine (9) storeys in height. The proposal is represented in the accompanying plans and diagrams prepared by Locus Architecture, identified in **Table 4 – Drawing Schedule**.

Table 4: Drawing Schedule

NO.	SHEET TITLE	REVISION	STATUS	DATE
-	Cover	1.0	Planning Consent	23/11/2021
DPC.001	Background	1.0	Planning Consent	23/11/2021
DPC.002	Site plan	1.0	Planning Consent	23/11/2021
DPC.003	Perspective (south/west)	1.0	Planning Consent	23/11/2021
DPC.004	Perspective (north/west)	1.0	Planning Consent	23/11/2021
DPC.005	Locality plan	1.0	Planning Consent	23/11/2021
DPC.006	Ground	1.0	Planning Consent	23/11/2021
DPC.007	Level 1	1.0	Planning Consent	23/11/2021
DPC.008	Level 2 - 5	1.0	Planning Consent	23/11/2021
DPC.008a	Level 6 - 7	1.0	Planning Consent	23/11/2021
DPC.009	Level 8	1.0	Planning Consent	23/11/2021
DPC.010	Roof plan	1.0	Planning Consent	23/11/2021
DPC.011	Section plan	1.0	Planning Consent	23/11/2021
DPC.012	North elevation	1.0	Planning Consent	23/11/2021
DPC.013	East elevation	1.0	Planning Consent	23/11/2021
DPC.014	South elevation	1.0	Planning Consent	23/11/2021
DPC.015	West elevation	1.0	Planning Consent	23/11/2021
DPC.016	Typical type 3 (studio)	1.0	Planning Consent	23/11/2021
DPC.017	Typical type 2 (two-bedroom)	1.0	Planning Consent	23/11/2021
DPC.018	Typical type 6 (two-bedroom)	1.0	Planning Consent	23/11/2021
DPC.019	Floor areas	1.0	Planning Consent	23/11/2021

5.1 Built Form

5.1.1 Building Height

The proposed building to be developed is to comprise a total of nine (9) storeys, with a maximum height of 29.12 metres from ground level to the top of the building parapet.

5.1.2 Building Setbacks

The building is proposed to retain and utilise the notable existing building as the ground floor podium. The existing building footprint is constructed up to the full extent of the allotment boundaries, with the side walls located abutting the adjoining land.

At the upper level the building will be recessed from the ground floor building footprint and setback from allotment boundaries to various extents. Generally, across all upper building levels the following setbacks will be achieved from each respective boundary:

- North (Angas Street) – 1.0 metres.
- East (Regent Street) – 0.8 metres.
- South – 4.0 metres.
- West – 1.5 metres.

The building line is setback from all boundaries at the upper level. This ensures that the projecting balconies remain within the boundaries of the subject land and do not encroach above the street or adjoining land at any interface.

5.1.3 Encroachments

Two (2) small canopies are proposed above the pedestrian entry points on the Angas Street frontage and the Regent Street North frontage. These will provide weather and wind divergence protection to both the pedestrian access points. The encroaching canopies above are proposed to project 1.2 metres forward of the building line and will span a length of 5.2 metres above the entries.

We note that the location of the pedestrian entry point on Angas Street nominally aligns with two (2) existing entry points on this frontage, which also exhibit encroaching canopies above.

5.1.4 Building Appearance

At ground level, the building is oriented towards Angas Street and Regent Street North, presenting on its northern and eastern elevation façades fenestration and pedestrian and vehicle entry points. The ground level will utilise the existing building form of the Valerie Travers building as the podium level for the building. A darkened colour palette will be selected for the ground level podium to further distinguish this element from the upper level of the building.

In order to accommodate the construction of the upper-level apartment building above, certain design alterations will be required for the ground level building to ensure its structural stability. This will include repositioned openings and fenestration. In order to maintain the character of the original building, altered fenestration and openings will adopt the characteristic design elements of the original building with black aluminium rectangular framed factory-style windows with similar proportions and reveals as the original building.

The upper building levels will be recessed within the allotment from the podium level. The apartments on each building level will remain within the allotment boundaries, albeit with varied façade articulation at the upper levels. The upper building levels will be further articulated with regular and varied fenestration and protruding and recessed building design elements on both horizontal and vertical planes.

The penthouse level of the building to present as a distinct element from the lower building floors with the architectural expressions exhibited in both the eastern and western elevations of the upper level with a projecting cantilevered roof form being the dominant element. This has been further enhanced with the incorporation of increased ceiling heights and large floor to ceiling windows for the penthouse level on the northern and southern façades. Overall, the design has sought to create a building presentation with three clear and distinct components comprising of a podium, middle and upper level.

5.2 Building Configuration and Layout

The ground floor will accommodate a variety of different elements associated with a commercial office tenancy and the residential apartment use at the upper level. Wholistically the ground floor will accommodate the following elements:

- a commercial office tenancy with associated working spaces, meeting rooms, administration areas, kitchen and bathrooms;
- internal car parking area with 28 carparks utilising stackers;
- combined waste and bicycle storage area with 44 bicycle parks;
- an entry foyer with a lift core to the upper residential levels;
- a cleaner's bathroom and storage closet (at first floor);
- a services storage room; and
- a fire isolated stairwell.

The primary ground floor pedestrian entry for the upper-level apartments will be located on the Regent Street North frontage. This will provide entry to a foyer area which will accommodate the lift core, services, and apartment letter boxes.

Another pedestrian entry point will be provided along the Angas Street frontage. This will provide entry to both the office and the apartment fire stair exit, albeit through separate doors.

Vehicle access will be provided via a roller door and crossover on the Regent Street North frontage. There is an existing roller door access point on the building in a similar location, however the opening will be widened slightly and shifted to the north in order to allow for adequate internal space for parking and vehicle movement.

At the upper levels a centrally located foyer will provide access to a single lift shaft and stairwell, which will provide access to each upper building level. Levels 1 – 7 will accommodate four (4) to five (5) apartments on the floorplate, consisting of a mix of studio, one-bedroom and two-bedroom apartments. Level 8, the penthouse level, will have a different layout with two (2) two-bedroom and one (1) three-bedroom penthouse apartments. The quantitative details of each of apartment typologies across the building levels are described in greater detail in **Table 5** below.

5.3 Residential Apartment Types

As described above there are a total of 36 apartments proposed which will comprise of a mixture of studio, one-bedroom, two-bedroom and three-bedroom apartments. There are five (5) different apartment typologies proposed across the building, with different floor plan layouts responding to their respective positioning within the building. It is noted that the floor plan layout for these different apartment typologies also varies depending on which particular level the apartment is located.

Table 5 below outlines the proposed apartment typologies and key quantitative figures.

Table 5: Apartment Configurations

APARTMENT NO.	BEDROOMS	NO.	TOTAL FLOOR AREA	TOTAL BALCONY SPACE	TYPICAL STORAGE
Level 1					
101	1	1	99.00 m2	36.20 m2	22.10 m3
102	2	1	99.00 m2	25.00 m2	22.10 m3
103	1	1	54.00 m2	30.00 m2	11.55 m3
104	1	1	50.50 m2	19.20 m2	11.55 m3
105	1	1	52.70 m2	41.70 m2	11.55 m3
Levels 2 – 5					
201 - 501	2	4	99.00 m2	14.70 m2	22.10 m3
202 - 502	2	4	99.00 m2	14.31 m2	22.10 m3
203 - 503	1	4	54.00 m2	7.2 m2	11.55 m3
204 - 504	1	4	50.50 m2	4.9 m2	11.55 m3
205 - 505	1	4	52.70 m2	5.1 m2	11.55 m3

APARTMENT NO.	BEDROOMS	NO.	TOTAL FLOOR AREA	TOTAL BALCONY SPACE	TYPICAL STORAGE
Levels 6 - 7					
601 - 701	2	2	99.00 m2	12.51 m2	22.10 m3
602 - 702	2	2	99.00 m2	13.98 m2	22.10 m3
603 - 703	2	2	72.30 m2	14.75 m2	23.50 m3
604 - 704	2	2	72.30 m2	14.25 m2	23.50 m3
Levels 8					
801	3	1	193.00 m2	31.98 m2	44.50 m3
802	2	1	72.30 m2	13.74 m2	23.50 m3
803	2	1	72.30 m2	13.74 m2	23.50 m3

5.3 Office Use

The office use will be accommodated within the northern portion of the ground floor and will utilise a 201.40 square metre portion of the building. This will comprise of an open plan office area and foyer with internal partitioning to provide two (2) separate offices, two (2) meeting rooms, two (2) bathrooms and a kitchen. The specific tenant for this space is yet to be confirmed. No on-site vehicle parking is proposed to be dedicated to this use.

5.4 Materials and Finishes

The building will utilise the existing building materiality and typical design elements in the fenestration and openings at the ground floor, which comprises of a brick construction, with a new rendered finish.

The upper levels will primarily utilise precast concrete panel materials finished in a cream Keim Lasur paint. The specific building materiality is depicted on the building elevation plans and will comprise of the following:

- black aluminium framed glass (grey toned) balustrade to the upper level balconies;
- black aluminium framed glass (grey toned) privacy screen between balconies and to western edge of south facing balconies on Levels 2 – 7;
- black aluminium framed doors & windows (grey toned);
- precast concrete to upper level walls finished in a light Keim Lasur broken stone colour over a high quality off-form finish; and,
- ground floor garage door with black powdercoat finish.

5.5 Transport and Parking

5.5.1 Vehicle Access

Vehicle access will be obtained via an adjusted crossover on Regent Street North which requires alteration to facilitate the two way movement of vehicles. The new crossover will be in a similar position however will be widened approximately 2.0 metres to the north. The crossover will provide access to a secure automated roller door with a width of 5.5 metres.

The new crossover will be located approximately 1.0 metre from an established street tree located on the Regent Street North frontage. The proponent does not wish for the tree to be removed and will undertake all necessary precautions during construction to ensure the health of the street tree is protected.

A second existing crossover located on Regent Street North in proximity to the intersection with Angas Street will be closed. The decommissioned crossover will be returned to kerb and gutter formwork to the Council's satisfaction.

5.5.2 Vehicle and Bicycle Parking

On-site vehicle parking is to be provided within the southern portion of the ground floor of the building. An automated car stacking system (the Klaus TrendVario 4300 or similar) will be used to maximise the number of vehicle parking spaces accommodated on-site. A total of 28 car parking spaces are incorporated within the ground level car park.

A dedicated area for bicycle storage is to be provided at ground level, providing secure parking for a total of 44 bicycles. The bicycle storage area is accessible from within the ground level car park, which can be accessed via the apartment lobby entrance from Angas Street or the via the roller door access on Regent Street North. An additional allowance for eight (8) bicycle parking spaces has been identified within the public realm on Angas Street (subject to the acceptance of the City of Adelaide).

Cyclist access will also be accommodated via the parking area access or alternatively through the foyer access on Regent Street North.

5.6 Services

A dedicated waste storage area for residents and the ground level office tenancy is to be provided within the storage room adjacent the ground level car park, cohabiting this space with the bicycle storage. This area is conveniently located with internal access from the car park area which in turn is accessible from the apartment lobby. Waste will be collected by Council's kerbside waste collection service. Bins will be wheeled from the waste storage area to a convenient kerbside location for weekly collection.

The following waste volumes have been provided for based on the anticipated waste capacity generated by the proposed 57 bedrooms.

Table 6: Refuse waste generation and storage capacity

Waste type	Residential Demand	Office demand	Volume demand	Volume Supply
General Waste	30 litres per bed / week	15 litres per 10m^2 / week	1,975.5 litres per week	3 x 660 litre bins + 1 x 240 litre bin = 2,220 litres
Recycling Waste	25 litres per bed / week	15 litres per 10 m^2 / week	1,687.5 litres per week	3 x 660 litre bins = 1,980 litres
Organics Waste	10 litres per bed / week	2.5 litres per 10 m^2 / week	613 litres per week	3 x 240 litre bins = 720 litres

A dedicated hard waste storage area is also being accommodated within the waste storage room.

Bin cleansing will be undertaken by a mobile contractor in a mobile self-contained cleansing unit who will be contracted by the Community Corporation / building owner with the costs being accommodated in the Community Corporation quarterly fees.

The full range of mechanical, electrical, hydraulic, and fire protection services to be provided to and throughout the proposed development, as is outlined in the accompanying Services Report prepared by Bestec. A transformer is not required as sufficient power is available from network in this area to serve a building of this size.

Services will be located in various positions at ground level. A Fire Hydrant Suction Booster will be located adjacent within the office entry alcove on Angas Street. The mains switch board, mains water tank, centralised gas hot water service and pump will be located in the bicycle storage area. Additional space for some of these services within this room will be achieved through the use of a mezzanine level. A Fire Indicator Panel (FIP) will be located within the apartment lobby area.

Airconditioning compressor units are located discretely throughout the building. Level 1 apartments will utilise space within their courtyards, Level 2 – 8 apartments will largely utilise a balcony cavity space cohabited with a barbeque. A gantry within the carparking area will accommodate six (6) units, two (2) of which will service the office with the other four (4) being associated with the south-eastern apartments on Levels 2 – 5. The unit for the three-bedroom penthouse apartment will be located on the roof.

6.0 PROCEDURAL MATTERS

6.1 Planning and Design Code Summary

The Planning and Design Code identifies and applies policies for the assessment of development relative to each zone.

For each zone, polices and rules are identified and applied to classes of development within the zone, including by the application of policies within subzones and overlays that apply only in the area affected by the subzone/overlay, together with the relevant general development policies.

Table 7 below, provides a summary of the applicable zone, sub zone, overlays and general development policy sections that have been identified as applying to the subject land.

Table 7: Planning And Design Code Summary

PLANNING AND DESIGN CODE SUMMARY	
Version and Date	2021.16 Dated 4 November 2021
Zone	Capital City Zone
Sub Zone	N/A
Overlays	Airport Building Heights (Regulated) (All structures over 140 metres AHD) Affordable Housing Building Near Airfields Design Heritage Adjacency Hazards (Flooding - Evidence Required) Noise and Air Emissions Prescribed Wells Area Regulated and Significant Tree
General Sections	

The zones, subzones, overlays and general development policies that apply may contain sections headed 'Procedural matters', including the requirement to notify certain applications for planning consent, and referrals to prescribed bodies.

Table 8 below, provide a summary of the procedural matters associated with the identified assessment pathway.

Table 8: Procedural Matters Table

PROCEDURAL MATTERS SUMMARY	
Relevant Authority	City of Adelaide Council Assessment Panel
Assessment Pathway	Office: Deemed to Satisfy Residential Flat Building: Performance Assessed
Statutory Referrals	The Minister administering the Heritage Places Act 1993 Environment Protection Authority
Public Notification	Yes

6.2 Relevant Authority

The subject land is located with the City of Adelaide Council Area.

The City of Adelaide has appointed a Council assessment panel as a relevant authority.

As the proposed development is to be undertaken within the City of Adelaide Council Area then the City of Adelaide Council Assessment Panel is considered to be the relevant authority in accordance with Section 93 (1)(a) of the PDI Act unless the Council's Assessment Manager is identified during the course of the assessment as being able to act as the relevant authority.

6.3 Assessment Pathway

The development herein seeks Planning Consent for the construction of a mixed use building that will comprise of two (2) distinct land uses, these being a residential flat building and an office. Theses uses are defined within Part 7 of the P&D Code as follows:

- **Residential flat building** - *Means a single building in which there are 2 or more dwellings.*
- **Office** - *Means any building used for administration or the practice of a profession, but does not include a consulting room or premises where materials are stored for sale or manufacture.*

Based on the land use components described above, the following assessment pathways are relevant:

- Office – Deemed to Satisfy.
- Residential Flat Building – Performance Assessed.

Overall, the development should be processed as a Code Assessed - Performance Assessed development.

6.4 Statutory Referrals

We have reviewed the various Overlays applicable to the site, Part 9 of the P&D Code, and Schedule 9 of the PDI Regulations to determine whether any referral or concurrence from any relevant agency is applicable to the assessment of this application. The following referrals are considered applicable to the development:

- Development that may materially affect the context of a State Heritage Place – Referral to the Minister responsible for the administration of the *Heritage Places Act 1993*.
- Change in the use of land to a more sensitive use on land at which site contamination exists or may exist – Referral to the Environment Protection Authority.

Given the proposed developments location adjacent to a State Heritage Place (Seven Stars Hotel) we anticipate that a referral to the State Heritage Unit will be undertaken as part of the assessment. A preliminary engagement meeting has been undertaken with the Principle Conservation Architect of the State Heritage Unit. No substantive concerns with the preliminary design concept were raised at this meeting.

Advice has been sought from AM Environmental in respect to site contamination. A site history assessment and vapour and soil testing has been conducted. The site history information indicated that the site has been occupied by potentially contaminating activities; however, preliminary soil and soil vapour analysis did not indicate the presence of contamination at the locations assessed. Further, it is noted that the site will be fully capped and there will be no contact with subsurface soils or groundwater once developed. Nevertheless, due to the site history and the proposed establishment of a more sensitive use, we anticipate that a referral to the Environment Protection Authority will be undertaken as part of the assessment.

No other statutory referral requirements are considered to apply.

6.5 Public Notification

Table 5 Procedural Matters within the Capital City Zone sets out the forms of development that are excluded from public notification, subject to certain exceptions. An office and a residential flat building are both listed as exempt from public notification, except where the development does not satisfy the maximum building height provisions (DPF 4.1) of the Zone. The development exceeds the maximum building height and as such is subject to public notification.

7.0 ASSESSMENT

It is our position that the key planning considerations for attention in the assessment of this application are as follows:

- Land Use;
- Built Form;
- Apartment Design and Configuration;
- Heritage Interface;
- Amenity Impacts;
- Transport and Parking;
- Sustainability Initiatives;
- Site Contamination; and
- Encroachments and Public Realm Works.

7.1 Land Use

The following provisions of the P&D Code are considered relevant to this issue:

Capital City Zone

DO 1 **A zone that is the economic and cultural focus of the state supporting a range of residential, employment, community, educational, innovation, recreational, tourism and entertainment facilities generating opportunities for population and employment growth.**

DO 2 **High intensity and large- scale development with high street walls reinforcing the distinctive grid pattern layout of the city with active non-residential ground level uses to positively contribute to public safety, inclusivity and vibrancy. Design quality of buildings and public spaces is a priority in this zone.**

PO 1.1 **A vibrant mix of residential, retail, community, commercial and professional services, civic and cultural, health, educational, recreational, tourism and entertainment facilities.**

DPF 1.1 **The following types of development, or combinations thereof, are envisaged:**

(c) Dwelling

(i) Office

(l) Residential Flat Building

...

PO 1.2 **Changes in the use of land between similar businesses encourages the efficient reuse of commercial premises and supports continued local access to a range of services compatible to the locality.**

Desired Outcome (DO) 1 and 2 of the Capital City Zone encourage development which reinforces the role of the City of Adelaide as the economic and cultural focus of the State, with "*high intensity*" development supporting a range of residential and employment generating land uses, in "*large- scale*" buildings with "*active non-residential ground level use*".

The proposed development is wholly consistent with this fundamental policy intent of the Zone, delivering a nine (9) storey apartment building providing a meaningful contribution to inner-city living opportunities with 36 new apartments and an activated ground level accommodating a non-residential office use, supporting potential employment growth in the CBD.

As outlined in PO 1.1 and DPF 1.1 of the Capital City Zone, a "*dwelling*"', "*office*" and "*residential flat building*" are envisaged land uses within the Zone, all of which are proposed in this particular case. It is noted that PO 1.2 of the Zone encourages the "*efficient reuse of commercial premises*", in this respect the retention and adaption of the existing Valerie Travers building is supported by the Zone policy.

7.2 Built Form

Given the height, prominence and location of the proposed building it is expected that built form and design will be of a primary importance to the assessment of this development. We have reviewed the relevant policies of the P&D Code in respect to this issue and considered that the key built form elements to be addressed are as follows:

- Building height;
- Contextual design response;
- Ground level building interface; and
- Adaptability of ground level tenancy.

These matters are discussed in the subheadings below.

7.2.1 Building Height

The following provisions of the P&D Code are considered relevant to this issue:

Local Variation

TNV **Maximum Building Height (Metres) (Maximum building height is 22m)**

PO 4.1 **Building height is consistent with the form expressed in any relevant Maximum Building Height (Levels) Technical and Numeric Variation and Maximum Building Height (Metres) Technical and Numeric Variation or otherwise positively responds to the local context and achieves the desired outcomes of the Zone.**

DPF 4.1 **Development does not exceed the following building heights:**

Maximum building height is 22m

PO 4.2 **Development exceeding the building height specified in the Maximum Building Height (Levels) Technical and Numeric Variation layer and the Maximum Building Height (Metres) Technical and Numeric Variation layer is generally not contemplated unless:**

(a) **the development provides for the retention, conservation and reuse of a building that:**

(i) **is a State or local heritage place and the heritage values of the place will be maintained**

(ii) **provides a notable positive contribution to the character of the local area** [Emphasis my own]

or

(b) **the building incorporates measures that provide for a substantial additional gain in sustainability, and it demonstrates at least four of the following are met:**

(i) **the development provides an orderly transition up to an existing taller building or prescribed maximum height in an adjacent Zone or building height area on the Maximum Building Height (Levels) Technical and Numeric Variation layer and Maximum Building Height (Metres) Technical and Numeric Variation layer**

(ii) **incorporates high quality open space that is universally accessible and directly connected to, and well-integrated with, public realm areas of the street**

(iii) **Incorporates high quality, safe and secure, universally accessible pedestrian linkages that connect through the development site to the surrounding pedestrian network**

(iv) **provides higher amenity through provision of private open space in excess of minimum requirements by 25 percent for at least 50 percent of dwellings**

(v) **no on site car parking is provided**

(vi) **at least 75% of the ground floor street fronts of the building are active frontages**

(vii) **the building has frontage to a public road that abuts the Adelaide Park Lands;**

(viii) **where the development includes housing, at least 15% of the dwellings are affordable housing**

(ix) **the impact on adjacent properties is no greater than a building of the maximum height on the Maximum Building Height (Levels) Technical and Numeric Variation layer and Maximum Building Height (Metres) Technical and Numeric Variation layer in relation to sunlight access and overlooking.**

Overlays - Affordable Housing

PO 3.2 **To support the provision of affordable housing, building heights may be increased above the maximum specified in a zone.**

DPF 3.2 **Where a building incorporates dwellings above ground level and includes at least 15% affordable housing, the maximum building height specified in any relevant zone policy can be increased by 1 building level in the:**

... and up to 30% in any other zone, except where:

(a) **the development is located within the Character Area Overlay or Historic Area Overlay or**

(b) **other height incentives already apply to the development.**

As stated above, the building height is guided by the by the Local Technical Numerical Variation (TNV). The TNV applies a maximum building height of 22 metres to the site. The proposed building has a height of 29 metres, resulting in an exceedance of the TNV requirement by 7.0 metres.

The provisions of the Capital City Zone contemplate exceedances of the maximum building height in certain circumstances as outlined in PO 4.2. The proposed development satisfies a number of the circumstances outlined which may afford a building height exceedance, as discussed below.

Of principal importance here, the proposed building utilises and retains the existing Valerie Travers building as the ground floor podium. Not only will the development retain the built form but will reflect the historical use of the site through the incorporation of the building name in signage into the development's identity and brand. This building and the historic use is a longstanding and notable building in the locality, and although not a Heritage listed item, can be considered an important component of the contextual built form and historic fabric of the local area. It is considered that the existing built form makes a notable positive contribution to character of the area, built to the street alignment and defining the south western corner of the Angas Street and Regent Street North intersection. In this respect, the retention, reuse and association of the development with this building and historic use satisfies PO 4.2 (a).

We note that in accordance with the PO 4.2 policy, this feature of the development alone would warrant a building height exceedance, nonetheless the development also satisfies a number of the other design criteria stated in PO 4.2 (b), outlined as follows:

- **PO 4.2 (b)(i)** - the building provides an orderly transition to the prescribed building height in adjacent TNV layers. The TNV layer that applies to adjacent land on the northern side of Angas Street dictates a maximum building height of 53 metres, more than double the prescribed building height applicable to the subject land.
- In this local policy context there is a clear upwards transition in building height contemplated from south to north, progressively increasing from a low building height to the south of the site (≤11 metres) to a dramatically higher contemplated building height to the northern side of Angas Street (53 metres).
- The proposed building height of 29.12 metres provides an effective and practical transition in the scale of envisaged development in the locality between these two differing prescribed building heights.
- **PO 4.2 (b)(vi)** – an appropriate proportion of the buildings ground floor street frontage is activated. We are of the view that the activation of the ground floor is determined based on function and materiality. PO 4.2 (b)(vi) seeks that 75 percent is activated.
- The ground level of the proposed building will accommodate a commercial use in the northern portion of the ground floor footprint. This non-residential use will be visually presented to both the Angas and Regent Street North street frontages through the provision of large windows on both elevations and the use of large, glazed pedestrian entry on Angas Street.

- When considering the primary street frontage (Angas Street) in isolation, we note that 100 percent of this frontage is activated. In respect to the Regent Street North frontage, we are of the view that 46 percent of the frontage would be deemed activated.

- The combination frontage calculates at 65 percent activation. Due to the geometry of the subject land and the position as a corner allotment, it is difficult to satisfy a 75 percent activated frontage requirement along both frontages. Nevertheless, given that the primary street frontage is 100 percent activated, and the ground floor reinforces an activated corner to the intersection of Angas Street and Regent Street North, that the intent of PO 4.2 (b)(vi) is satisfied.

- **PO 4.2 (b)(viii)** – the development significantly exceeds the intent to provide 15 percent of affordable housing from a cost perspective. Whilst not purported to be for the provision of affordable housing, the development contains 15 studio apartments that will likely satisfy the affordable price criteria set by the SA Housing Authority (≤$419,750) at the point of sale. This represents 41 percent of the 36 apartments to be provided.

- **PO 4.2 (b)(ix)** – As is expanded upon in the proceeding sections of this assessment, the proposed 7.0 metre building height exceedance does not result in any impacts on adjoining properties that are unreasonable or would not be apparent for a development of 22 metres in height.

Furthermore, we note that in accordance with the provisions of the Affordable Housing Overlay, over height exceedance incentives are provided for developments which include at least 15 per cent affordable housing, allowing in circumstances such at this a 30 percent height exceedance. Noting the provision of 41 percent studio apartments that would be for sale below the current Affordable Housing Price Index, the application of this incentive would allow for a building height exceedance of 6.6 metres, consistent with what is proposed.

7.2.2 Contextual Design Response

The following provisions of the P&D Code are considered relevant to this issue:

Capital City Zone

PO 3.1 A contextual design response that manages differences in scale and building proportions to maintain a cohesive streetscape and frame city streets.

PO 3.2 Buildings:

(a) are designed to reinforce the prevailing datum heights and parapet levels of the street through design elements that provide a clear distinction between levels above and below the prevailing datum line;

(b) where located in an existing low-rise context, are designed to include a podium/street wall height and upper level setback that:

(i) relates to the scale and context of adjoining built form;

(ii) provides a human scale at street level;

(iii) creates a well-defined and continuity of frontage;

(iv) gives emphasis and definition to street corners to clearly define the street grid; and

(v) contributes to the interest, vitality and security of the pedestrian environment.

PO 3.3 Building façades are strongly modelled, incorporate a vertical composition which reflects the proportions of existing frontages, and ensure that architectural detailing is consistent around corners and along minor streets and laneways.

Overlay – Design

DO 1 Development positively contributes to the liveability, durability and sustainability of the built environment through high-quality design.

PO 1.1 Medium to high rise buildings and state significant development demonstrate high quality design.

General Development Policies – Design

DO 1 Development is:

(a) contextual - by considering, recognising and carefully responding to its natural surroundings or built environment and positively contributes to the character of the immediate area

...

In accordance with the above provisions, it is considered that the proposed building provides a high-quality architectural design that appropriately responds to its local context in order to manage the difference in scale between the proposed building and the adjacent built form.

On both the Angas Street and Regent Street North frontage, the proposed nine (9) storey building will form the tallest building in the immediate locality and a built form element which projects above the prevailing datum line.

PO 3.2 of the Capital City Zone provides policy guidance on how taller building forms can appropriately respond to a low-rise context. The proposed built form is consistent with this policy, in that the design achieves a clear distinction between the podium level, which follows the prevailing datum line, and the recessed upper levels which project above the prevailing parapet levels.

By utilising the existing building on the land as the podium, the development provides continuity with the existing streetscape context and maintains the prevailing street wall heights and form. The existing building is suitable for retention for this purpose as it continues to provide a human scale at street level, a well-defined and continuity of frontage, and definition of the street corner. Furthermore, the proposed re-use and adaption of the building will improve the vitality, and visual interest at the ground level, whilst also contributing to safety along both street frontages through increased opportunities for passive surveillance.

The overall building form is considered to achieve a high standard of design. The upper-level design exhibits a façade with vertical and horizontal articulated elements, varied external wall setbacks (all within the allotment boundaries) and associated depth perception through shading. The upper-level design is also enhanced by horizontal groves within the façade that emphasise the window treatments and results in further visual scale reduction of the building. The upper-level building form is culminated in a visually distinct projecting cantilevered roof form.

In respect to the above, the proposed development is considered to demonstrate high quality design whilst also recognising and carefully responding to the local built environment context and positively contributing to the character of the immediate area.

7.2.3 Ground Level Interface

The following provisions of the P&D Code are considered relevant to this issue:

Capital City Zone

PO 2.2 Development:

(a) contributes to the activation of the public realm by presenting an attractive human scaled pedestrian-oriented frontage at ground level that adds interest and vibrancy;

(b) maintains a sense of openness to the sky for pedestrians and allow sunlight access to the public realm;

(c) provides a clear sense of address to each building.

As previously discussed, the ground floor street frontage is appropriately activated based on its proposed function, materiality, and interface with the streetscape. The ground floor commercial use will visually interface with both street frontages through large windows on both elevations and glazed pedestrian entries.

Angas Street forms the primary street address for the development, and this is reflected in its form and functionality. The pedestrian access points for the ground floor tenancy will be located on this frontage, provided via a large, glazed entry point in the north-western corner with a canopy and exhibiting the building signage above. This primary elevation will also exhibit large windows along the entirety of the remaining area of the façade. The Regent Street North frontage is articulated through fenestration, including a return window at the corner, and the glazed pedestrian entry to the apartment lobby.

7.2.4 Adaptability of the Ground Floor

The following provisions of the P&D Code are considered relevant to this issue:

Capital City Zone

PO 3.13 Buildings are adaptable and flexible to accommodate a range of land uses.

DPF 3.13 The ground floor of buildings has a minimum floor to ceiling height of 3.5m.

The existing building to be retained to form the ground floor podium has a wall height of some 5.7 metres, providing a ceiling height internally in excess of the minimum requirement of 3.5 metres. Furthermore, the internal floor area of the commercial tenancy is approximately 201 square metres, providing for a range of potential functions and use. In this respect, the proposed ground floor is considered to provide an adaptable and flexible built form.

7.2.5 Materials and Finishes

The following provisions of the P&D Code are considered relevant to this issue:

General Development Policies – Design in Urban Areas

PO 12.5 External materials and finishes are durable and age well to minimise ongoing maintenance requirements.

DPF 12.5 Buildings utilise a combination of the following external materials and finishes:

(a) masonry

(b) natural stone

(c) pre-finished materials that minimise staining, discolouring or deterioration.

The building proposed will present with high quality modern façade treatments to provide an articulated design to all frontages, particularly the two street frontages given their visual prominence within the public realm.

The ground level frontage of the building will present a durable and articulated façade with masonry walling with a rendered finish in Dulux "stonycreek" (grey), with black powder coated aluminium window frames and doors with grey tint vision glass windows.

The external facades of the upper-level dwellings will be pigmented precast in a light Keim Lasur "*Broken Stone*" colour. The balconies of each dwelling will comprise of black powder coated aluminium framed balustrades with grey tint glass infill.

The choice of durable materials and muted colour palette suitably accords with the above provisions and will ensure a quality design outcome will be achieved for this building as it ages with minimal staining, discolouring or deterioration.

7.3 Apartment Design and Configuration

The internal layout and design of the proposed apartments is critical to the functionality and amenity of future residents of the development. We have reviewed the relevant policies of the P&D Code in respect to this issue and considered that the key elements to be addressed are as follows:

- housing choice;
- internal configuration and floor area;

- private open space provision; and
- storage provision.

These matters are discussed under the subheadings below.

7.3.1 Housing Choice

The following provisions of the P&D Code are considered relevant to this issue:

General Development Policies – Design in Urban Areas

PO 29.1 Buildings containing in excess of 10 dwellings provide a variety of dwelling sizes and a range in the number of bedrooms per dwelling to contribute to housing diversity.

DPF 29.1 Buildings containing in excess of 10 dwellings provide at least one of each of the following:

(a) studio (where there is no separate bedroom)

(b) 1 bedroom dwelling / apartment with a floor area of at least 50m2

(c) 2 bedroom dwelling / apartment with a floor area of at least 65m2

(d) 3+ bedroom dwelling / apartment with a floor area of at least 80m2, and any dwelling over 3 bedrooms provides an additional 15m2 for every additional bedroom.

The proposed development provides a variety of housing options which respond to the differing social, cultural and economic needs of a broad spectrum of the community. The development provides a mixture of 15 studio apartments, one (1) one-bedroom apartment, 19 two-bedroom apartments, and one (1) three-bedroom apartment. The range of housing types provided meets the widely different tenures and cost needs of future residents.

7.3.2 Internal Configuration and Floor Area

The following provisions of the P&D Code are considered relevant to this issue:

General Development Policies – Design in Urban Areas

PO 4.1 Buildings are sited, oriented and designed to maximise natural sunlight access and ventilation to main activity areas, habitable rooms, common areas and open spaces.

PO 28.1 Residential accommodation within multi-level buildings have habitable rooms, windows and balconies designed and positioned to be separated from those of other dwellings and accommodation to provide visual and acoustic privacy and allow for natural ventilation and the infiltration of daylight into interior and outdoor spaces.

DPF 28.1 Habitable rooms and balconies of independent dwellings and accommodation are separated by at least 6m from one another where there is a direct line of sight between them and 3m or more from a side or rear property boundary.

PO 30.1 **The size of lifts, lobbies and corridors is sufficient to accommodate movement of bicycles, strollers, mobility aids and visitor waiting areas.**

DPF 30.1 **Common corridor or circulation areas:**

(a) **have a minimum ceiling height of 2.7m**

(b) **provide access to no more than 8 dwellings**

(c) **incorporate a wider section at apartment entries where the corridors exceed 12m in length from a core.**

PO 31.1 **Dwellings are of a suitable size to accommodate a layout that is well organised and provides a high standard of amenity for occupants.**

DPF 31.1 **Dwellings have a minimum internal floor area in accordance with the following table:**

Number of bedrooms	Minimum internal floor area
Studio	35m^2
1 bedroom	50m^2
2 bedroom	65m^2
3+ bedrooms	80m^2 and any dwelling over 3 bedrooms provides an additional 15m^2 for every additional bedroom

The design and configuration of each apartment and each floor level footprint has been selected to provide amenity, outlook and privacy for the future residents. The apartment configuration ensures that, of the 57 proposed bedrooms across the development, almost all (52) achieve direct sunlight access, outlook and ventilation through an external window. There are five (5) studio apartments which rely on borrowed light from the balcony windows through the living room. These bedrooms will still achieve appropriate levels of sunlight and ventilation through the provision of large operable glass doors and a visually permeable slatted screen partitioning between the bedroom and the living room.

None of the proposed apartments will have visual privacy issues with any of the other apartment within the development. Each dwelling will be provided with a balcony that is directly accessed from an open plan living and kitchen area. Privacy between the balconies is achieved through the provision of privacy screening on the western edge of the balconies. It is noted that there may be some potential overlook from the south facing balconies on Level 2 above the courtyard space of south facing apartments on Level 1. The Level 1 apartments have a larger private open area which extends further south than the balconies on the levels above. Whilst some overlook may be possible, we note that this would only be within the southernmost portion of the private open space area and would only occur if residents at the upper level made a concerted effort to peer over their balustrade. Accordingly, the impact is considered acceptable in this instance.

The common lobby areas on each building level are suitably designed to provide easy to navigate circulations between the lift core and/or stairwell and the apartments. The lobby and lift are spacious enough to accommodate the movement of mobility aids, strollers or bicycles, noting however that most bicycle storage will occur on the ground floor.

The apartment configurations will provide a high standard of amenity to residents through the provision of large internal footprints. The internal footprints sizes of each apartment type are well in excess of the minimum internal floor area requirements specified in DPF 31.1 above, noting the following:

- studio apartment - approximately 52.7 square metres;
- one-bedroom apartment – approximately 99.0 square metres;
- two-bedroom apartment - approximately 99.0 square metres; and
- three-bedroom apartment – approximate average of 193.0 square metres.

7.3.3 Private Open Space Provision

The following provisions of the P&D Code are considered relevant to this issue:

General Development Policies – Design in Urban Areas

PO 21.1 Dwellings are provided with suitable sized areas of usable private open space to meet the needs of occupants.

DPF 21.1 Private open space is provided in accordance with Design in Urban Areas Table 1 - Private Open Space.

PO 21.2 Private open space is positioned to provide convenient access from internal living areas.

DPF 21.2 Private open space is directly accessible from a habitable room.

PO 28.3 Balconies are of sufficient size and depth to accommodate outdoor seating and promote indoor / outdoor living.

DPF 28.3 Balconies open directly from a habitable room and incorporate a minimum dimension of 2m.

Each dwelling in the proposed mixed-use building will be provided with a balcony for private open space that is able to be accessed directly from a living area. The balcony areas for each dwelling contain a portion of balcony space with a varied minimum dimension based on the dwelling type as outlined in Table 1 – Private Open Space within the Design in Urban Areas General Development Policies. The private open space requirements and minimum dimensions for each dwelling type are demonstrated below:

- studio – 4.0 square metres / minimum dimension 1.8 metres;
- one-bedroom – 8.0 square metres / minimum dimension 2.1 metres;
- two-bedroom – 11 square metres / minimum dimension 2.4 metres; and
- three-bedroom – 15 square metres / minimum dimension 2.6 metres.

The areas of private open space to be provided for each dwelling contained within the building are outlined in **Table 9** below.

Table 9: Private Open Space Areas

Apartment No.	Apartment Type	Total Balcony Space	Private Open Space (POS)	P&D Code Requirement
Level 1				
101	One-bedroom	36.20 m^2	8.4 m^2	8.0 m^2
102	Two-bedroom	25.00 m^2	8.4 m^2	11.0 m^2
103	Studio	30.00 m^2	22.0 m^2	4.0 m^2
104	Studio	19.20 m^2	20.0 m^2	4.0 m^2
105	Studio	41.70 m^2	24.0 m^2	4.0 m^2
Levels 2 - 5				
201 - 501	Two-bedroom	14.70 m^2	8.4 m^2	11.0 m^2
202 - 502	Two-bedroom	14.31 m^2	8.4 m^2	11.0 m^2
203 - 503	Studio	7.2 m^2	-	4.0 m^2
204 - 504	Studio	4.9 m^2	-	4.0 m^2
205 - 505	Studio	5.1 m^2	-	4.0 m^2
Levels 6 - 7				
601 - 701	Two-bedroom	12.51 m^2	8.75 m^2	11.0 m^2
602 - 702	Two-bedroom	13.98 m^2	8.75 m^2	11.0 m^2
603 - 703	Two-bedroom	14.75 m^2	8.75 m^2	11.0 m^2
604 - 704	Two-bedroom	14.25 m^2	8.75 m^2	11.0 m^2
Levels 8				
801	Three-bedroom	31.98 m^2	19.5 m^2	15.0 m^2
802	Two-bedroom	13.74 m^2	8.75 m^2	11.0 m^2
803	Two-bedroom	13.74 m^2	8.75 m^2	11.0 m^2
TOTAL		**484.92 m^2**	**257 m^2**	**380 m^2**

** Total determined by multiplying the balcony and private open space areas by the total number of Apartment Types on each level*

It is noted that a number of the dwellings do not satisfy the minimum Private Open Space (POS) requirements of the P&D Code as depicted above based only on the exclusion of the portion of the balcony area not meeting the minimum dimension. Nevertheless, we remain of the view that the proposed provision of outdoor balcony space for each apartment typology is appropriate and satisfies the intent of PO 21.1 above, which is to provide suitable sized areas of usable POS to meet the needs of occupants. We form this view based on the following reasons:

- It is noted that under the Adelaide (City) Development Plan, which was the relevant planning instrument up until June 2021, no minimum private open space requirement applied to studio apartments. It is understood that this was to encourage the provision of affordable housing opportunities within the City, something that this development seeks to achieve.

- It is noted that a significant amount of balcony space is provided that is excluded from the calculation of POS due to having a dimension less than the relevant minimum. This is despite this space making a positive contribution to the outdoor living space of the proposed dwellings. Whilst not strictly meeting the quantitative dimension requirements a great deal of this space is fit for purpose and able to be used appropriately for POS in conjunction with the larger dimensioned areas provided.

- The balcony space for each of the proposed dwelling types has been designed and configured to be able to be utilised in conjunction with internal living area space through the provision of larger operable sliding glass doors. As such, given the broad opening and floor to ceiling window, the link between indoors and outdoors is seamless. With this configuration, there is an opportunity for the indoor living space to function as an extension of the balcony private open space area being provided with a generous amount of natural light and ventilation. Given the balcony is able to effectively expand by integrating with the internal living space, the effective private open space area is much larger than just the balcony. This will be especially utilised during warmer months of the year, when weather conditions will permit keeping the balcony doors open. During winter months and in poor weather conditions the balcony/outdoor spaces are unlikely to be highly utilised in any case.

We therefore form the view that, in the context of the scale and nature of the proposed development, the proposed outdoor balcony configuration and size can appropriately meet the private open space needs of the occupants and is acceptable despite the quantitative shortfall with the relevant provisions of the P&D Code.

7.3.4 Storage Provision

The following provisions of the P&D Code are considered relevant to this issue:

General Development Policies – Design in Urban Areas

PO 28.4 Dwellings are provided with sufficient space for storage to meet likely occupant needs.

DPF 28.4 Dwellings (not including student accommodation or serviced apartments) are provided with storage at the following rates with at least 50% or more of the storage volume to be provided within the dwelling:

(a) studio: not less than 6m3

(b) 1 bedroom dwelling / apartment: not less than 8m3

(c) 2 bedroom dwelling / apartment: not less than 10m3

(d) 3+ bedroom dwelling / apartment: not less than 12m3.

The proposed development incorporates built in storage to each of the dwellings which exceeds the minimum rates for storage expressed DPF 28.4 above. The proposed storage area provided for each apartment type is depicted in **Table 10** below.

Table 10: Dwelling Storage Areas

Apartment no.	Apartment Type	Typical Storage Space	P&D CODE Requirement
Level 1			
101	One-bedroom	22.10 m^3	8 m^2
102	Two-bedroom	22.10 m^3	10 m^3
103	Studio	11.55 m^3	6 m^3
104	Studio	11.55 m^3	6 m^3
105	Studio	11.55 m^3	6 m^3
Levels 2 - 5			
201 - 501	Two-bedroom	22.10 m^3	10 m^3
202 - 502	Two-bedroom	22.10 m^3	10 m^3
203 - 503	Studio	11.55 m^3	6 m^3
204 - 504	Studio	11.55 m^3	6 m^3
205 - 505	Studio	11.55 m^3	6 m^3
Levels 6 - 7			
601 - 701	Two-bedroom	22.10 m^3	10 m^3
602 - 702	Two-bedroom	22.10 m^3	10 m^3
603 - 703	Two-bedroom	23.50 m^3	10 m^3
604 - 704	Two-bedroom	23.50 m^3	10 m^3

Apartment no.	Apartment Type	Typical Storage Space	P&D CODE Requirement
Levels 8			
801	Three-bedroom	44.50 m^3	12 m^2
802	Two-bedroom	23.50 m^3	10 m^3
803	Two-bedroom	23.50 m^3	10 m^3
TOTAL		**340.04 m^3**	**146 m^3**

** Total determined by multiplying the total storage areas by the total number of Apartment Types on each level*

Whilst all of the storage is contained within the dwelling, it provides sufficient and adequate storage space for the reasonable requirements of the occupant's belongings without need for separate and segregated storage facilities in the basement or other communal areas.

The applicant is an experienced developer of medium rise and high-rise residential apartments within the inner-metropolitan area. Based on the applicant's previous experience delivering similar built products, storage within the dwelling is typically the preferred option by residents in apartment style living arrangements.

7.4 Heritage Interface

The following provisions of the P&D Code are considered relevant to this issue:

Overlays – Heritage Adjacency

DO 1 Development adjacent to State and Local Heritage Places maintains the heritage and cultural values of those Places.

PO 1.1 Development adjacent to a State or Local Heritage Place does not dominate, encroach on or unduly impact on the setting of the Place.

The proposed development is not considered to negatively impact the context or setting of any adjacent or nearby heritage items. Due to the retention and reuse of the existing building as the podium level for the development, the ground level-built form interface with the Local Heritage cottages to the south and the Seven Stars Hotel to the west will not be changed as a result of the proposed development. Furthermore, early engagement with the State Heritage Unit was undertaken and no substantive issues were raised in respect to the interface with the Seven Stars Hotel.

It is noted that the proposed development will form a significantly taller element when considered against the adjacent heritage buildings. Nevertheless, as discussed within Section 7.2, the proposal delivers a high-quality architectural outcome which is not considered to dominate the locality. It is also relevant to take into context the building height policy applicable to the land and the locality, which envisaged buildings of 22 metres in height on the subject land, increasing to 53 metres on the northern side of Angas Street. Given this policy context, it is reasonable to conclude that the P&D Code envisages interfaces such as the proposed with heritage places within the locality.

7.5 Amenity Impacts

The provisions of the P&D Code seek to ensure that amenity is protected for both existing and new development, which should have consideration for its local context and the nature of adjoining uses to ensure that the prevailing levels of amenity enjoyed in the locality are protected.

General Development Policies – Interface between Land Uses

DO 1 Development is located and designed to mitigate adverse effects on or from neighbouring and proximate land uses.

PO 1.2 Development adjacent to a site containing a sensitive receiver (or lawfully approved sensitive receiver) or zone primarily intended to accommodate sensitive receivers is designed to minimise adverse impacts.

Of key importance in respect to amenity impacts are the following four (4) matters:

- noise impacts from the development on adjacent uses;
- noise impacts on residents internal of the development from adjacent uses;
- overlooking issues; and
- overshadowing issues.

These matters are addressed under the following four (4) subheadings.

7.5.1 Noise Impacts (external)

The following provisions of the P&D Code are considered relevant to this issue:

General Development Policies – Interface between Land Uses

PO 2.1 Non-residential development does not unreasonably impact the amenity of sensitive receivers (or lawfully approved sensitive receivers) or an adjacent zone primarily for sensitive receivers through its hours of operation having regard to:

(a) the nature of the development

(b) measures to mitigate off-site impacts

(c) the extent to which the development is desired in the zone

(d) measures that might be taken in an adjacent zone primarily for sensitive receivers that mitigate adverse impacts without unreasonably compromising the intended use of that land.

DPF 2.1 Development operating within the following hours:

... Office 7am to 9pm Monday to Friday
8am to 5pm Saturday ...

PO 4.1 Development that emits noise (other than music) does not unreasonably impact the amenity of sensitive receivers (or lawfully approved sensitive receivers).

DPF 4.1 Noise that affects sensitive receivers achieves the relevant Environment Protection (Noise) Policy criteria.

PO 4.2 **Areas for the on-site manoeuvring of service and delivery vehicles, plant and equipment, outdoor work spaces (and the like) are designed and sited to not unreasonably impact the amenity of adjacent sensitive receivers (or lawfully approved sensitive receivers) and zones primarily intended to accommodate sensitive receivers due to noise and vibration by adopting techniques including:**

- **(a) locating openings of buildings and associated services away from the interface with the adjacent sensitive receivers and zones primarily intended to accommodate sensitive receivers**
- **(b) when sited outdoors, locating such areas as far as practicable from adjacent sensitive receivers and zones primarily intended to accommodate sensitive receivers**
- **(c) housing plant and equipment within an enclosed structure or acoustic enclosure**
- **(d) providing a suitable acoustic barrier between the plant and / or equipment and the adjacent sensitive receiver boundary or zone.**

In respect to the office component, it is not anticipated that this use will produce amenity impacts which would impinge upon the locality. It is noted that the change of use of this building to an office would be treated as a deemed-to-satisfy development as a standalone application. The use will likely have more restrained impacts than the prevailing industrial use of the site. Furthermore, the hours of operation will be suitably constrained to within the hours provided under DPF 2.1 above.

Noise from vehicles utilising the proposed parking area (both office and apartment related) is also not considered to result in noise impacts that would be unreasonable or unexpected within the locality. It is noted that the car parking area will utilise an existing crossover, albeit slightly altered, to provide access. As such the proposed does not introduce vehicle movements to this location.

Although some noise associated with residents in the upper level apartments, it is not considered that this would ever reach levels that would be considered unreasonable. Occasional noise from residents utilising outdoor balcony and courtyard space will occur, however at the upper levels of the apartment building will be significantly separated from adjoining sensitive uses. Noise from balconies and outdoor areas at the lower level apartments may be heard at adjoining sensitive uses, however, would be consistent with the nature of noise already present within the locality. Furthermore, given the envisaged nature of the development, this is a contemplated and accepted planning outcome.

Air-conditioning compression units have been strategically distributed throughout the building so as to minimise potential noise impacts associated with clustering this plant. The balcony alcove which will accommodate the majority of air conditioning plant has been designed so as to encase the unit within a predominately walled cavity, which will ameliorate noise generated by these units on external receptors to a significant degree.

7.5.2 Noise Impacts (internal)

The following provisions of the P&D Code are considered relevant to this issue:

Overlays – Noise and Air Emissions Overlays

DO 1 **Community health and amenity is protected from adverse impacts of noise and air emissions.**

PO 1.1 **Sensitive receivers adjoining high noise and/or air pollution sources are designed and sited to shield sensitive receivers from the emission source using measures such as:**

- **(a)** **placing buildings containing non-sensitive receivers (such as retail and commercial) between the emission source and sensitive receivers**
- **(b)** **within individual buildings, placing rooms more sensitive to air quality and noise impacts (such as living rooms and bedrooms) further away from the emission source**
- **(c)** **providing appropriate separation or erecting noise attenuation barriers, provided the requirements for safety, urban design and access can be met**
- **(d)** **the use of building design elements such as podiums and jutting, deep or enclosed balconies (including with solid balustrades).**

DPF 1.1 **Sensitive receivers satisfy all of the following:**

- **(a)** **do not adjoin a:**
  - **(i)** **Designated Road: Type A**
  - **(ii)** **Designated Road Corridor: Type B**
  - **(iii)** **Designated Road: Type R**
  - **(iv)** **Train Corridor**
  - **(v)** **Tram Corridor**
- **(b)** **adjoining development incorporating music includes noise attenuation measures to achieve a noise level in any bedroom exposed to music noise (L10) less than:**
  - **(i)** **8 dB above the level of background noise (L90,15 min) in any octave band of the sound spectrum; and**
  - **(ii)** **5 dB(A) above the level of background noise (LA90,15 min) for the overall (sum of all octave bands) A-weighted levels.**

PO 1.2 **Development incorporating a sensitive receiver adjoining high air pollution sources use building design elements such as varying building heights, widths, articulation, setbacks and shapes to increase wind turbulence and the dispersion of air pollutants.**

DPF 1.2 **Sensitive receivers do not adjoin any of the following:**

- **(a)** **Designated Road: Type A**
- **(b)** **Designated Road: Type B**
- **(c)** **Designated Road: Type R**
- **(d)** **Train Corridor**
- **(e)** **Tram Corridor.**

PO 1.3 **Development incorporating a sensitive receiver adjoining high noise and/or air pollution sources locates private open space (including ground level courtyards and balconies), common open space and outdoor play areas within educational establishments and pre-schools away from the emission source.**

DPF 1.3 **Open space associated with a sensitive receiver is not adjoining any of the following:**

- **(a)** **Designated Road: Type A**
- **(b)** **Designated Road: Type B**
- **(c)** **Designated Road: Type R**
- **(d)** **Train Corridor**
- **(e)** **Tram Corridor**
- **(f)** **Development incorporating music.**

An Acoustic Design Report has been prepared by Resonate and accompanies the application. This report undertakes an acoustic assessment in accordance with Ministerial Building Standard (MBS 010) for the proposed apartment building to determine the acoustic criterial and external construction requirements for the development.

The acoustic requirements documented in the report include the above provisions of the P&D Code and those in MBS 010. The report undertakes an external noise intrusion assessment for the apartments and office. The assessment demonstrates compliance with MBS 010 and makes various recommendations for mitigation treatments to attenuate noise intrusion from the Seven Stars Hotel. The applicant has adopted these recommendations, and exceeded them through the provision of "*Hush*" laminated glass and double glazing.

7.5.3 Overlooking

The following provisions of the P&D Code are considered relevant to this issue:

General Development Policies – Design in Urban Areas

PO 16.1 Development mitigates direct overlooking of habitable rooms and private open spaces of adjacent residential uses in neighbourhood-type zones through measures such as:

(a) appropriate site layout and building orientation

(b) off-setting the location of balconies and windows of habitable rooms or areas with those of other buildings so that views are oblique rather than direct to avoid direct line of sight

(c) building setbacks from boundaries (including building boundary to boundary where appropriate) that interrupt views or that provide a spatial separation between balconies or windows of habitable rooms

(d) screening devices that are integrated into the building design and have minimal negative effect on residents' or neighbours' amenity.

The development is positioned in relation to adjoining development so as to have limited potential for overlooking into sensitive areas (private open space and habitable rooms) on adjacent and nearby land. Some views may be available into some of the rear yards of the row dwellings to the south, however these will be tangential and at a reasonable distance from the development. Privacy screens on the western edge of south facing balconies on Levels 2 – 7 will assist it mitigating any direct line of site into adjacent rear yards.

Furthermore, in order to address potential overlooking the upper-level balconies on the southern side have been significantly setback within the allotment some 4.0 metres to further ameliorate any such impacts.

7.5.4 Overshadowing

The following provisions of the P&D Code are considered relevant to this issue:

General Development Policies – Interface between Land Uses

PO 3.1 Overshadowing of habitable room windows of adjacent residential land uses in:

a. a neighbourhood-type zone is minimised to maintain access to direct winter sunlight

b. other zones is managed to enable access to direct winter sunlight.

PO 3.2 Overshadowing of the primary area of private open space or communal open space of adjacent residential land uses in:

a. a neighbourhood type zone is minimised to maintain access to direct winter sunlight

b. other zones is managed to enable access to direct winter sunlight.

PO 3.3 Development does not unduly reduce the generating capacity of adjacent rooftop solar energy facilities taking into account:

(a) the form of development contemplated in the zone

(b) the orientation of the solar energy facilities

(c) the extent to which the solar energy facilities are already overshadowed.

It is expected that overshadowing from the development will not be unreasonable. During summer month the proposed building will likely cast shadow over the Seven Stars and adjacent commercial development during the morning period, however that will cease during the afternoon. No shadow during summer months is expected for the adjoining residential uses to the south.

During winter months some shadow will be cast across adjacent residential uses to the south in the morning period. However, it is likely the private open space areas will receive direct sunlight from the middle of the day and will have no shadow by the mid to late afternoon. It is noted that the existing building on the subject land already casts shadow on the immediately adjacent land to a degree during morning hours. Given the retention of this item, this prevailing condition will not be altered by the development.

It should also be recognised that buildings heights between a minimum of 11.5 metres and a maximum 22 metres is envisaged for this site by the relevant Zone policy. A degree of overshadowing is therefore inherent for the redevelopment of the subject land. We do not consider that the minor building height exceedance proposed, would result in any overshadowing impacts that would not be apparent in this context with a building that met the quantitative building height limit.

In any case, we anticipate that at least three hours of direct sunlight to private open space areas in adjoining residential uses will be able to be achieved where it is presently available.

7.6 Transport and Parking

The Transport, Access and Parking provisions within the General Development Policies section of the P&D Code provide policy guidance in respect to traffic and parking related matters. The key matters for consideration in this regard are as follows:

- access and impact on the road network;
- parking supply and design; and
- bicycle parking supply and facilities.

These matters are addressed under the following four (4) subheadings.

7.6.1 Vehicle Access

The following provisions of the P&D Code are considered relevant to this issue:

General Development Policies – Transport, Access and Parking

DO 1 **A comprehensive, integrated and connected transport system that is safe, sustainable, efficient, convenient and accessible to all users.**

PO 1.3 **Industrial, commercial and service vehicle movements, loading areas and designated parking spaces are separated from passenger vehicle car parking areas to ensure efficient and safe movement and minimise potential conflict.**

PO 1.4 **Development is sited and designed so that loading, unloading and turning of all traffic avoids interrupting the operation of and queuing on public roads and pedestrian paths.**

PO 3.3 **Access points are sited and designed to accommodate the type and volume of traffic likely to be generated by the development or land use.**

PO 3.5 **Access points are located so as not to interfere with street trees, existing street furniture (including directional signs, lighting, seating and weather shelters) or infrastructure services to maintain the appearance of the streetscape, preserve local amenity and minimise disruption to utility infrastructure assets.**

DPF 3.5 **Vehicle access to designated car parking spaces satisfy (a) or (b):**

(a) **is provided via a lawfully existing or authorised access point or an access point for which consent has been granted as part of an application for the division of land**

(b) **where newly proposed, is set back:**

(i) **0.5m or more from any street furniture, street pole, infrastructure services pit, or other stormwater or utility infrastructure unless consent is provided from the asset owner**
(ii) **2m or more from the base of the trunk of a street tree unless consent is provided from the tree owner for a lesser distance**
(iii) **6m or more from the tangent point of an intersection of 2 or more roads**
(iv) **outside of the marked lines or infrastructure dedicating a pedestrian crossing.**

PO 3.8 Driveways, access points, access tracks and parking areas are designed and constructed to allow adequate movement and manoeuvrability having regard to the types of vehicles that are reasonably anticipated.

A Traffic and Parking Report has been prepared by Cirqa and accompanies the application. This report conducts a detailed assessment of the proposed access arrangements and the associated traffic impact on the adjacent road network.

The development will utilise an existing access point, albeit in a slightly revised position to the north. This arrangement has been determined to be appropriate to service the nature and frequency of traffic into the parking area. The proposed revised crossover will achieve appropriate separation from an adjacent street tree of 1.0 metre. Although this is below the desired 2.0 metre separation, we note that this is not presently achieved with the existing position of the crossover. The applicant will undertake all necessary precautions to ensure the ongoing heath of the tree is maintained.

No service vehicles or waste vehicles will be required to enter the site. All waste collection is proposed to occur on-street. Bins will be stored within the buildings internal bin storage area and wheeled out to Regent Street North for weekly collection via Council kerbside collection services.

7.6.2 Parking

The following provisions of the P&D Code are considered relevant to this issue:

General Development Policies – Transport, Access and Parking

PO 5.1 Sufficient on-site vehicle parking and specifically marked accessible car parking places are provided to meet the needs of the development or land use having regard to factors that may support a reduced on-site rate such as:

- **(a) availability of on-street car parking**
- **(b) shared use of other parking areas**
- **(c) in relation to a mixed-use development, where the hours of operation of commercial activities complement the residential use of the site, the provision of vehicle parking may be shared**
- **(d) the adaptive reuse of a State or Local Heritage Place.**

DPF 5.1 Development provides a number of car parking spaces on-site at a rate no less than the amount calculated using one of the following, whichever is relevant:

- **(a) Transport, Access and Parking Table 1 - General Off-Street Car Parking Requirements**
- **(b) Transport, Access and Parking Table 2 - Off-Street Vehicle Parking Requirements in Designated Areas**
- **(c) if located in an area where a lawfully established carparking fund operates, the number of spaces calculated under (a) or (b) less the number of spaces offset by contribution to the fund.**

The Traffic and Parking Report prepared by Cirqa also considers the parking design and supply proposed for this development. It is noted that the P&D Code sets no minimum or maximum parking requirement for development within the Capital City Zone. The proposal therefore exceeds the requirements of the P&D Code through the provision of 28 parking spaces.

The assessment also indicates that the intent of the AS/NZS 2890.1:2004 will generally be met in that the car park design provides appropriate manoeuvrability into and out of the spaces, with an aisle width that is greater than the minimum required. Turn path diagrams have been provided with this report which demonstrate the that adequate manoeuvrability within the parking area will be achieved.

7.6.3 Bicycle Parking Facilities

The following provisions of the P&D Code are considered relevant to this issue:

General Development Policies – Transport, Access and Parking

PO 9.1 The provision of adequately sized on-site bicycle parking facilities encourages cycling as an active transport mode.

DPF 9.1 Areas and / or fixtures are provided for the parking and storage of bicycles at a rate not less than the amount calculated using Transport, Access and Parking Table 3 - Off Street Bicycle Parking Requirements.

PO 9.3 Non-residential development incorporates end-of-journey facilities for employees such as showers, changing facilities and secure lockers, and signage indicating the location of the facilities to encourage cycling as a mode of journey-to-work transport.

The P&D Code identifies that the site is located within a Designated Area and that, accordingly, the following bicycle parking provision rates apply:

- residential - one (1) space per apartment less than 150 square metres, two (2) spaces per apartment greater than 150 square metres and one (1) visitor parking space per ten apartments; and
- office – one (1) staff space per 200 square metres of gross floor area and two (2) spaces plus one (1) space per 1,000 square metres gross floor area for visitors.

This equates to a total requirement of 45 bicycle parking spaces, comprising of 38 resident spaces, four (4) resident visitor spaces, one (1) staff space, and two (2) office visitor spaces. The proposal provides a total of 44 spaces within the internal bicycle parking area. This is considered a minor and acceptable shortfall given that many residents in larger apartments will likely choose to store any bicycles within the apartments and that provision has been made for the establishment of eight (8) public bicycle parking spaces on the Angas Street frontage.

End of trip facilities including storage spaces and a large bathroom with a shower and space for changing has been provided within the office tenancy. This will assist in encouraging cycling as an alternative transport method for employees of the business.

7.7 Sustainability Initiatives

The following provisions of the P&D Code are considered relevant to this issue:

General Development Policies – Design in Urban Areas

PO 4.1 Buildings are sited, oriented and designed to maximise natural sunlight access and ventilation to main activity areas, habitable rooms, common areas and open spaces.

PO 4.2 Buildings are sited and designed to maximise passive environmental performance and minimise energy consumption and reliance on mechanical systems, such as heating and cooling.

PO 4.3 Buildings incorporate climate responsive techniques and features such as building and window orientation, use of eaves, verandahs and shading structures, water harvesting, at ground landscaping, green walls, green roofs and photovoltaic cells.

The building will achieve energy efficiencies largely through the utilisation of passive environmental design techniques. Thermal massing will be achieved through the use of high quality and durable materials, including brickwork at the podium levels and pre-cast concrete panels at the upper levels.

Windows will also be low-e coated and double glazed to improve thermal performance. Solar reducing glass will be provided to east and west facing windows to reduce heat and glare during summer months and promote heat retention during winter months. Natural temperature control through cross-ventilation will be provided through the use of large operable windows and doors at the upper levels.

Bestec in their accompanying advice have undertaken a preliminary Part J assessment against the National Construction Code in respect to energy efficiency. It is anticipated that the development will achieve an average 8.1 star rating, well in excess of the minimum requirement for an average 6 star rating. As such, the proposal represents an exemplary example in respect to energy efficiency.

Solar panels are proposed to be located on the roof. This will provide a sustainable energy source to power the common user demands within the development. Additionally, lighting in communal areas will be equipped with movement sensors for energy saving purposes and will utilised low-energy LED lighting.

7.8 Site Contamination

The following provisions of the P&D Code are considered relevant to this issue:

General Development Policies – Site Contamination

PO 1.1 Ensure land is suitable for use when land use changes to a more sensitive use.

DPF 1.1 Development satisfies (a), (b), (c) or (d):

(a) does not involve a change in the use of land

(b) involves a change in the use of land that does not constitute a change to a more sensitive use

(c) involves a change in the use of land to a more sensitive use on land at which site contamination is unlikely to exist (as demonstrated in a site contamination declaration form)

(d) involves a change in the use of land to a more sensitive use on land at which site contamination exists, or may exist (as demonstrated in a site contamination declaration form), and satisfies both of the following:

(i) a site contamination audit report has been prepared under Part 10A of the Environment Protection Act 1993 in relation to the land within the previous 5 years which states that-

A. site contamination does not exist (or no longer exists) at the land or

B. the land is suitable for the proposed use or range of uses (without the need for any further remediation) or

C. where remediation is, or remains, necessary for the proposed use (or range of uses), remediation work has been carried out or will be carried out (and the applicant has provided a written undertaking that the remediation works will be implemented in association with the development) and

(ii) no other class 1 activity or class 2 activity has taken place at the land since the preparation of the site contamination audit report (as demonstrated in a site contamination declaration form).

A Preliminary Environmental Site History And Screening Level Soil And Vapour Assessment has been conducted by AM Environmental Consulting. A Site Contamination Declaration Form has also been prepared by the Author which states that site contamination may exist below the surface, however:

> *"preliminary screening soil vapour assessment which did not indicate a material issue as well as the nature of the end development in that the residential component would not be at ground level."*
>
> *"It is important to consider that the final development would have comprised works which include soil and groundwater assessment, removal of soils and ground level carparking and office space with no access to subsurface soils once developed."*

In the post development scenario, it should be noted that the site will be fully capped with an engineered concrete slab over a waterproof membrane barrier and compacted rubble base. Lift and car stacker pits will be constructed using a waterproofing additive in the concrete, with an underlying waterproof membrane, and water-stop barriers to the structural engineer's specification. The ground floor will primarily comprise car parking and services with approx. 25 per cent of the site occupied by office use. Residential land use will be confined to Levels 1 – 8 with Level 1 commencing approx. 4.9 metres above the ground level.

There would be no domestic food production at the site. There would be no contact with subsurface soils once developed. Groundwater will not be abstracted for use. In this context, it is considered that the risk posed by soil contamination is negligible and appropriately mitigated by the development of the site itself.

The author has concluded that the land can readily accommodate the proposed use noting that the risk of contamination is precluding the proposed use is low and that any site contamination encountered during demolition and construction can be readily managed.

7.9 Encroachments and Public Realm Works

The following provisions of the P&D Code are considered relevant to this issue:

Capital City Zone

PO 10.1 Development in the public realm where it:

(a) does not present a safety risk to pedestrians or other users of the public road

(b) does not interrupt pedestrian movement

(c) does not interfere with existing infrastructure or services on the street

(d) positively contributes to the vibrancy of the area

(e) is consistent with the outcomes of the zone

The development seeks to undertake works within and works that will encroach into the public realm. The encroachments include two entry canopies, one located above the Angas Street pedestrian entry and one above the Regent Street North pedestrian entry. Both of these will project 1.2 metres from the face of the building and will span a distance of 5.0 – 5.5 metres. The canopies will be positioned at a height of 3.5 metres above the footpath level.

Consideration has been given to the *City of Adelaide Encroachment Policy (2019)*. The policy seeks that Entrance Porticos encroachments meet all the following criteria (where relevant):

- be provided above the main entrance of the building;
- provide pedestrian comfort by providing shelter from sun and rain;
- is setback a minimum of 600 millimetres from the kerb edge or 1.0 metre from a street tree, traffic signal, light pole or street furniture element (or greater for traffic requirements);
- have a minimum vertical clearance between the top of the footpath and lowest underside of the verandah or pergola of 3.0 metres or 5.0 metres above the level of a vehicular carriageway;
- avoid narrowing the width of the footpath to less than 1.8 metres (or greater in a high pedestrian area);
- be of a size and scale appropriate to the building's proportions and width of the street; and
- have a maximum height up to the ceiling of the first floor.

The proposed canopy structures comply with the above requirements and create a welcoming and user-friendly environment, ensuring pedestrian comfort and protection and the primary entrances to the development.

The development also proposes to establish bicycle parking within the public footpath on Angas Street accommodating eight (8) bicycles. The proposed positioning of the bicycle parks will not inhibit pedestrian movement along the Angas Street footpath. A 3.0 metre footpath width will be maintained, providing adequate space for all users to manoeuvre without constraint.

8.0 CONCLUSION

We conclude that the proposed mixed use residential flat building complies with the relevant Capital City Zone, Overlays, and General Development Policies of the Planning and Design Code, Version 2021.16 dated 4 November 2021. In particular, the proposed development will:

- the development seeks to establishes an envisaged and encouraged use for this Zone;
- the development will deliver a high-quality architectural outcome which will offer significant uplift to the locality;
- the proposed building height exceedance is accepted by the P&D Code given the design contribution, reuse and retention of a building of characteristic value, and provision of a high-quality affordable housing form;
- the development will cater for a variety of demographic and provides a good mix of housing types for the different social, cultural and economic needs of the community;
- despite some quantitative shortfalls in the provision of POS, it is considered that the balcony design and indoor/outdoor space configuration appropriately meets the needs of the occupants;
- the development will not negatively impact on the context, setting or interpretation of adjacent heritage places;
- both internal and external noise impacts will be appropriately mitigated and managed and will not result in unreasonable amenity disruption;
- overshadowing and overlooking impacts are minimal, due to the design response and the positioning of the development in relation to adjoining sensitive uses;
- the access arrangements and parking areas have been appropriately designed to sufficiently meet the needs of the development and will not negatively affect the surrounding road network;

- there is no risk of contact with contaminated soil, vapour or ground water in the post-development scenario; and

- encroachments and public realm works have been appropriately designed to accord with the relevant policy and to provide a positive contribution to the public realm.

Accordingly, the proposed development meeting the land use, design and functional expectations of the Planning and Design Code. We therefore conclude that the proposed development is not seriously at variance with the provisions of the Planning and Design Code and warrants Planning Consent by the City of Adelaide.



Nick Wilson MPIA
B/A in Planning

20 December 2021

MASTERPLAN
TOWN + COUNTRY PLANNERS SINCE 1977

22 April 2022

City of Adelaide
25 Pirie Street
ADELAIDE SA 5000

Attention: Dylan Grieve

Dear Dylan

Re: Application ID: 21041709
Response to Council Request for Information

I refer to your correspondence dated 24 March 2022 following our meeting on the 23 March 2022 at which we discussed a number of additional matters the Council was seeking further clarification on, in respect to the application currently being assessed.

We understand that a few of those matters have subsequently been accepted without need for further response.

I confirm that you have however, requested responses to the following discussion points:

- Waste advice details to be clarified.
- Existing façade example/details to support proposed façade treatment.
- Commercial component end of trip facilities and waste access to be indicated on plan.
- Proponent to meet with Council's Traffic Engineer; once arrangements are confirmed, public notification will commence (I have passed on your details for arrangement of a site meeting).
- Exploration of WSUD/MUSIC initiatives.

Please find **below** and **attached** our response to the above items provided on behalf of the applicant.

Waste advice details to be clarified

The applicant has sought further clarification from Council's Waste and Cleansing department on the proposed method of waste storage and collection detailed in the application documents. Please refer to email response **attached** from Michael Diratani, Team Leader, Waste & Cleansing, confirming the details of waste collection in our previous response and that the design of the proposed development can accommodate Council Waste Collection.

Existing façade example/details to support proposed façade treatment

We note the State Heritage and Council's heritage advisor's comments request that the applicant:

> *"[c]onsider removing the paint from the brickwork and express the (presumably) red brick and fine grain detail rather than the ubiquitous render paint as currently proposed.*
>
> *Retain / reinforce the rendered frame around the window and door openings. This is a design feature from the modernist period which is the design reference for the building. There's a bit of rebuilding going on to both facades but it would be really good to emphasise these elements in the design."*

The applicant has considered these options.

Firstly, it is important to note that the subject building is neither a State nor a Local Heritage Listed Place.

The applicant could, in accordance with the Planning and Design Code demolish the whole of the building without the need for approval under the *Planning Development and Infrastructures Act 2016*.

The applicant has chosen to retain the base building having regard to the prominence, character, and scale of the building together with its cultural significance associated with the Valerie Travers use of the building.

As identified in the comments by Council's heritage advisor above, the rendered and expressed masonry frame around the window and door reveals is a recognisable design refence to the period of the building.

The applicant seeks to maintain the concealed brickwork behind a rendered finish to address existing blemishes in the wall fabric and to provide for a consistency of finish, after required changes to the openings in the external walls are completed. The key design features including the scale, wall height parapet, expressed masonry window and door reveals are all intended to be retained or replicated in the final façade treatment.

The industrial small-framed windows are also considered a characteristic which contributes to the presence of the building on this corner. It is intended to replicate the appearance of the traditional window presentation with a modern and contemporary interpretation that meets current Building Rules Consent (BRC) compliance.

The architect has provided the following statement in respect to the design philosophy behind the façade and window elements in the new build.

> *Windows:*
>
> - *The new windows are designed and proportioned to reproduce the general proportions and rhythm of the old steel frames.*
> - *Modern Aluminium frames allow for modern ESD friendly, high performance glazing units to be fitted.*

- *Modern Aluminium frames allow better thermal break to the building fabric than steel frames, again best practice approach for a modern ESD considered building.*
- *Again, best practice waterproofing options available for all sides, head and sill of modern aluminium frames over steel.*

Facades:

- *The retention is not intended to be a pastiche of the past with regard to architectural expression, be that exposing any underlying brick work or any other archaeological discoveries.*
- *The retention of the facades is primarily a way of paying homage to its long term custodian, namely Valerie Travers and her long term iconic Adelaide business.*
- *Valerie is to be memorialised, subtlety, by the simple gesture of retaining part of the spirit of her long tenure of this iconic corner site – namely a fragment of the existing building, its facades.*
- *The proposed uniform appearance (smooth render) allows the proposal two key considerations:*
- *Firstly, it closely resembles the current smooth yet thickly applied wall paint, instantly recognisable as the Valerie shop walls.*
- *Secondly, it allows for the considered economic and timely repairs to sections of badly dilapidated sections of wall, as render affords a uniform homogenous finish. For the same reasons, it allows additional openings to be created in a sensitive manner to allow for the internal functions of the proposal. It affords these activities in a way that is not mutually exclusive to the first point.*
- *Finally, the rendered finish allows for the window corbel (and other corbel details present) to be repaired and / or recreated around any new openings, further enhancing the retention of the facades and its key initiative, that of memorialising Valerie.*

Commercial component end of trip facilities and waste access to be indicated on plan

The applicant has reviewed the internal layout of the ground floor office and its connection with the car parking area, waste storage and bicycle parking areas following Council's comments.

The Ground Floor Plan has been amended to:

- Include details of the office tenancy amenities including toilets and shower facilities with lockers for end of trip storage.
- Direct access from the rear of the office tenancies through the lift foyer to the parking area for cars and bicycles as well as providing an internal pathway to the common refuse storage area.
- Six (6) additional bicycle spaces have been provided with the parking area adjacent the lift core for use by the office tenancies.

Please refer to the **attached** updated Ground Floor Plan DPC.006 V2.1, dated 04 April 2022.

Proponent to meet with Council's Traffic Engineer

Following further information received from Council's Acting Principal Civil Engineer, we are advised that *"there are no remaining traffic/parking matters for the purposes of issuing planning consent"*.

This has been confirmed in writing via email to our client, Traffic Engineer Mr Ben Wilson of CIRQA. Please refer to the email **attached**.

Exploration of WSUD/MUSIC initiatives

Opportunities for roof water collection and reuse have been explored, and 57 square meters of roof catchment over the bicycle and refuse storage area has been identified as an opportunity to collect roof water which can be stored in a 3,000 litre rainwater tank and directed for reuse into the flushing of the office tenancy toilets.

Please refer to the **attached** updated Civil Plan prepared by Structural Systems, Drawing. SW01 Issue 1 dated 04 April 2022. The Civil Plan also addresses Council's preference for a single stormwater connection to the Council drain system.

A Hydrological Analysis, **attached**, was prepared by Structural Systems dated 04 April 2022, and assesses the stormwater against water sensitive SA initiatives, including harvesting of stormwater, controlling peak discharge, increasing drought resilience and improving stormwater runoff water quality.

The analysis identifies that the proposed development satisfies three (3) out of four (4) objectives. The failure to significantly improve water quality is in our opinion, not fatal to the merit of the application noting that:

- The existing property has a 100 percent site coverage and water collected is roof water only (i.e., does not capture contaminants).
- There is no surface water collected which would otherwise collect pollutants from ground surfaces.
- The proposed development maintains a 100 percent site coverage and therefore maintains only roof water collection. The new roof will result in some improvement to water quality and a portion of the roof as identified above, will be collected, stored and reused in the office amenities.

Accordingly, we submit there is no requirement for a MUSIC initiatives which are typically targeted towards lower density urban development, infill development or Greenfield development where such initiatives can deliver significant benefits in the redevelopment of existing buildings.

Design Development

Following receipt of consumer and market feedback on a recently completed project by the applicant, the floor plans for two bedroom dwellings fronting Angas Street, have been revised and are reflected in the **attached** updated set of Architectural Plans prepared by LOCUS Architecture, identified in **Table 1**.

Table 1: Drawing Schedule

NO.	SHEET TITLE	VERSION	STATUS	DATE
-	Cover	1.0	Planning Consent	22/09/2021
DPC.001	Background	1.0	Planning Consent	23/11/2021
DPC.002	Site plan	1.0	Planning Consent	23/11/2021
DPC.003	Perspective (south/west)	2.1	Planning Consent	04/04/2022
DPC.004	Perspective (north/west)	1.0	Planning Consent	23/11/2021
DPC.005	Locality Plan	1.0	Planning Consent	23/11/2021
DPC.005a	Streetscape	2.0	Planning Consent	21/02/2022
DPC.006	Ground	2.1	Planning Consent	04/04/2022
DPC.006A	Waste	2.0	Planning Consent	21/02/2022
DPC.007	Level 1	2.1	Planning Consent	04/04/2022
DPC.008	Level 2 - 5	2.1	Planning Consent	04/04/2022
DPC.009	Level 6 - 8	2.1	Planning Consent	04/04/2022
DPC.010	Roof Plan	1.0	Planning Consent	23/11/2021
DPC.011	Section Plan	2.0	Planning Consent	21/02/2022
DPC.012	North elevation	2.1	Planning Consent	04/04/2022
DPC.013	East elevation	2.1	Planning Consent	04/04/2022
DPC.014	South elevation	2.0	Planning Consent	21/02/2022
DPC.015	West elevation	2.1	Planning Consent	04/04/2022
DPC.016	Type 3 - Typical studio	1.0	Planning Consent	22/11/2021
DPC.017	Type 2 - Typical 2 bed	2.0	Planning Consent	21/02/2022
DPC.018	Type 6 – Typical 1 bed	2.0	Planning Consent	21/02/2022
DPC.019	Floor areas	2.1	Planning Consent	04/02/2022

Primarily, the amendments relate to the balcony design for all north facing apartments. The balcony space along the centre of the building has been decreased in its area, providing a larger internal footprint at this location. To balance this, the return balconies on either end of the northern façade have been increased in area. This is considered a preferable outcome for residents that provides greater separation of key private outdoor areas between the different apartments.

Furthermore, in response to market conditions and demand, the upper level three bedroom penthouse has been replaced by two (2) two-bedroom apartments. This results in one (1) additional apartment, which equates to a total of 37 apartments in the overall scheme.

Please contact me if you require any clarification of the above response and **enclosed** items.

Yours sincerely



Greg Vincent
MasterPlan SA Pty Ltd

enc: Email Response from Mr Michael Diratani.
Email Confirmation Response to Mr Ben Wilson.
Amended Plan Set, Prepared by LOCUS Architecture.
Civil Plan prepared by Structural Systems, Drawing. SW01 Issue 1 dated 04 April 2022.
Hydrological Analysis prepared by Structural Systems dated 04 April 2022.

cc: Forme Projex, Att: Andrew Hudson.

From: Michel Diratani <M.Diratani@cityofadelaide.com.au>
Sent: Monday, 28 March 2022 3:33 PM
To: Andrew Hudson <andrew@formeprojex.com.au>; Vitor Martins <V.Martins@cityofadelaide.com.au>
Cc: Greg Vincent <GregV@masterplan.com.au>; Nick Wilson <nickw@masterplan.com.au>; Dylan Grieve <D.Grieve@cityofadelaide.com.au>; Sean Howie <S.Howie@cityofadelaide.com.au>
Subject: RE: Valerie / 193 Angas Street, Adelaide / Waste Management

Hi Andrew,

Hope all is well and you had a wonderful weekend.

I can confirm based upon the initial meeting and the information provided this site can access a Council Waste Collection.

Regarding the parking restrictions this isn't something I look after, however believe the development team/traffic team can confirm.

Thanks,

Michel Diratani
Team Leader, Waste & Cleansing
Waste & Cleansing
London Road Depot
Adelaide, South Australia, 5000
M. +61422195956
F. +61882037575
E. M.Diratani@cityofadelaide.com.au



CITY OF ADELAIDE
www.cityofadelaide.com.au

Think before you print!

The contents of this e-mail are confidential and may be subject to privilege and copyright. This e-mail is intended for the named recipient only and if you have received this e-mail in error please notify the City Of Adelaide immediately on +61(8) 8203 7203. The views expressed in this e-mail are, unless otherwise stated, those of the author and do not reflect the views, policy or position of the City of Adelaide and the City of Adelaide accepts no responsibility for any such opinions, advice or information.

Hi Sean,

Dylan Grieve has passed on your details to me. We have been working on the Valerie Apartments development application by Forme Projex on Angas Street (and Regent Street North). The client has advised there are still some queries being raised in respect to the access arrangements and has requested I organise a time for us to meet on-site to discuss further. Are you able to advise a time that would suit you to catch up?

My availabilities as follows:

- Tuesday 5th April between 11am and 2:30pm;
- Thursday 7th April after 11:30 am; and
- Friday 8th before 12noon.

Dylan - you are welcome to attend as if you like (I believe the client and architect will join as well).

Thanks in advance,

Ben Wilson | Director

Planning and Design of Networks to Move People

T: (08) 7078 1801 | M: 0412 835 711 | E: ben@cirqa.com.au | 150 Halifax Street, Adelaide SA 5000 | PO Box 144, Glenside SA 5065 | ABN: 12 681 029 983

This email and any files transmitted with it are confidential and intended solely for the use of the individual(s) or entity to whom they are addressed. If you have received this email in error, please notify the sender and delete this e-mail from your system. If you are not the intended recipient, you should not disseminate, distribute or copy this e-mail or any files transmitted with it. CIRQA Pty Ltd takes no responsibility for any viruses that may be contained in this email or any files transmitted with it.

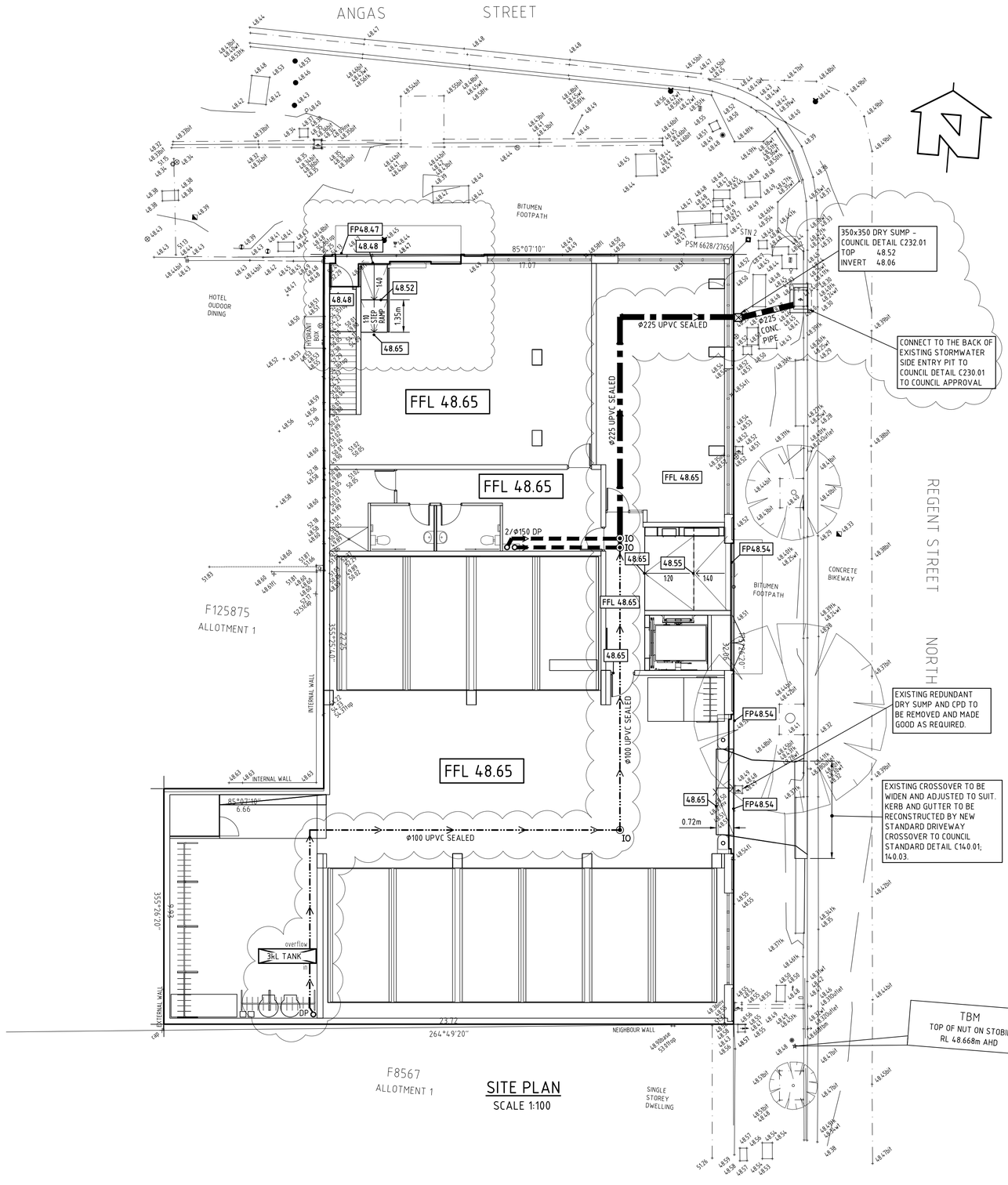
NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL ASSOCIATED DRAWINGS/SPECIFICATIONS AND ANY DISCREPANCIES TO BE DIRECTED TO THE DESIGNER FOR CLARIFICATION.
2. ALL WORK EXTERNAL TO SITE BOUNDARY TO BE CARRIED OUT TO COUNCIL REQUIREMENTS.
3. USE FLEXIBLE CONNECTION FOR STORMWATER PIPES.
4. THIS IS NOT A CADASTRAL PLAN AND SHOULD NOT BE USED IN DETERMINING PRECISE DIMENSIONS WITH RESPECT TO BOUNDARIES.
5. ALL U.P.V.C. PIPES LESS THAN 200mm BELOW THE SURFACE ON THE DRIVEWAY TO BE ENCASED IN 100mm CONCRETE.
6. PIPES LESS THAN 300mm IN DEPTH (FROM TOP OF PIPE) MUST HAVE CONCRETE COVER.
7. BUILDERS/ CONTRACTORS TO CHECK FOR ANY UNDERGROUND SERVICES PRIOR TO CONSTRUCTION.
8. STORMWATER TANK TO BE PLUMBED TO LAUNDRY \ WC - REFER TO ARCHITECTURAL DRAWINGS, OWNER, BUILDER, DEVELOPER FOR DETAILS.
9. IT IS THE RESPONSIBILITY OF THE OWNER/BUILDER TO ENSURE THAT FINISHED LEVELS AS PROPOSED BY ENGINEER BE ADEQUATE AS TO GET DESIRED FALL TO SEWERAGE INVERT. OWNER/BUILDER/PLUMBING CONSULTANT/PLUMBER MUST CHECK EXISTING SEWERAGE CONNECTION POINT INVERT TO ENSURE THAT PROPOSED FINISHED LEVELS ARE ADEQUATE PRIOR TO COMMENCEMENT OF ANY WORK.

LEGEND:

ø100 UPVC SEALED	UNDER GROUND SEALED SYSTEM ø100 UPVC PIPE
ø150 UPVC	STORMWATER ALIGNMENT ø150 UPVC MIN. FALL 1%
ø225 UPVC	STORMWATER ALIGNMENT ø225 UPVC MIN. FALL 0.5%
ø225 CONC. PIPE	STORMWATER ALIGNMENT ø225 RRJ CONCRETE PIPE CLASS 2 MINIMUM. MIN. SLOPE 1:200 TYPICAL UNO.
× 51.83	EXISTING LEVEL
DP	DOWNPIPE
48.45	DESIGN GROUND LEVEL / PAVING LEVEL
FP48.45	FOOTPATH FINISH LEVEL TO MATCH EXISTING
48.50	DESIGN CONTOUR/HIGH POINT/GRADE CHANGE
IO	INSPECTION OPENING/ FLUSH POINT WITH SEALED SCREW CAP AND COVER
	SUMP
	JUNCTION BOX

3kL TANK — INDICATES 3000L RAINWATER TANK TO CAPTURE 100% OF LOWER SERVICES AREA ROOF STORMWATER RUNOFF. 3000L USABLE STORAGE CELL PLUMBED TO TWO (2) OFFICE TOILETS FOR FLUSHING. STORMWATER OVERFLOW TO BE DIRECTED TO STORMWATER SYSTEM OUTLET POINT VIA SEALED SYSTEM.



SITE PLAN
SCALE 1:100

EXCAVATION WARNING
NO EXCAVATION SHALL COMMENCE UNTIL THE CONTRACTOR CONFIRMS THE I.L. OF ALL DRAINS/COMMON SERVICE TRENCH, OTHER UNDERGROUND SERVICES AND CONFIRMS IN WRITTING WITH THE ENGINEERING SUPERVISOR.

SERVICES WARNING
BEWARE OF UNDERGROUND SERVICES THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITIONS SHOULD BE PROVEN ON SITE.

COPYRIGHT ©
THESE DRAWINGS ARE COPYRIGHT AND REMAIN THE EXCLUSIVE PROPERTY OF STRUCTURAL SYSTEMS PTY LTD.
ALL PARTS RESERVED. REPRODUCTION OF THE WHOLE OR PART OF THESE DRAWINGS WITHOUT WRITTEN PERMISSION IS PROHIBITED.

NOTES
1. ENGINEER'S DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATIONS AND GENERAL CONDITIONS OF THE CONTRACT, THE ASSOCIATED ARCHITECTURAL DRAWINGS, THE ENGINEER'S SOIL AND FOOTING CONSTRUCTION REPORT AND ANY OTHER DRAWINGS RELATING TO THIS PROJECT.
2. ALL DIMENSIONS, LEVELS AND SETTING OUT SHALL BE VERIFIED WITH THE ARCHITECTURAL DRAWINGS AND CHECKED ON SITE PRIOR TO COMMENCING FABRICATION AND/ OR CONSTRUCTION.
3. THE ENGINEER'S DRAWINGS MUST NOT BE SCALED.
4. ALL DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED.
5. ADDITIONS AND SUBSTITUTIONS SHALL ONLY BE MADE WITH THE ENGINEER'S PRIOR KNOWLEDGE AND APPROVAL.
6. IT IS THE RESPONSIBILITY OF THE INDIVIDUAL TO ENSURE THAT THEY ARE USING THE CURRENT VERSION OF THIS DRAWING. STRUCTURAL SYSTEMS PTY LTD ACCEPTS NO LIABILITY FOR ISSUES ARISING FROM THE USE OF SUPERSEDED DRAWINGS.

PLANNING APPROVAL

ISSUE NO.	DESCRIPTIONS	DATE	BY
P.A.1	RWT ADDED. SW DISCHARGE VIA UG PIPE TO SEP ARCH DRAWING RECEIVED: 30/03/22	04/04/22	NN
P.A.0	ISSUED FOR PLANNING APPROVAL ARCH DRAWING RECEIVED: 15/02/22 LEVEL RECEIVED: 09/02/22	17/02/22	NN

PROJECT
9-STOREY MIXED USE BUILDING

ADDRESS
193 ANGAS STREET, ADELAIDE

DRAWING TITLE
SITE PLAN

CLIENT
FORME PROJEX

STRUCTURAL SYSTEMS consulting engineers
108 Wright Street, Adelaide SA 5000 Tel: (08) 8231 6000
Fax: (08) 8231 3444 Email: civil@structuralsyytemssa.com.au ABN 21 366 115 939

DRAWN	NN	DESIGNED	NN
CHECKED		DATE REVISED	04/04/22
SCALE	1:100 UNO	PAPER SIZE	A1
ALL DIMENSIONS IN mm - DO NOT SCALE		DATE ISSUED	17/02/22
		PLOT SCALE	1:100

JOB No.	DRAWING No.	STAGE	ISSUE
DT 220301	SW01	PA	1

STAGE ABBREVIATION- P=PRELIMINARY; DS-ENGINEERING DESIGN STAGE; PA-FOR PLANNING APPROVAL; T=TENDER; BA-BUILDING APPROVAL; C=FOR CONSTRUCTION

STRUCTURAL SYSTEMS
consulting engineers

Date Issued	Monday, 4 April 2022
Job No	DT 220301
Site	193 ANGAS STREET, ADELAIDE
Client	FORME PROJEX
Proposed	9-STOREY MIXED USE BUILDING

HYDROLOGICAL ANALYSIS

Structural Systems Pty Ltd
ABN 21 366 115 939
108 Wright Street, Adelaide SA 5000
08 8470 5300

civil@structuralsystemssa.com.au
www.structuralsystemsengineers.com.au

Stormwater Calculations

Report for

Project Details

Project Name	193 Angas St		
User Email			
Web files link			
Site Area (m2)	608	Project ID	341
Planning number	DT220301		
Development type	Mixed use development		
Existing site details	Commercial (including car parks)		
Street address	193 Angas St, Adelaide SA 5000, Australia		

Results

VOLUME	FLOW	QUALITY	EFFICIENCY
Objective: Harvest or infiltrate stormwater	Objective: Control peak discharge flows	Objective: Improve stormwater runoff water quality	Objective: Increase drought resilience
Target: No more than a 10% increase in runoff volume	Target less than or equal to zero. If greater than zero this is the additional Site Storage Requirement (SSR) volume required	Target: Achieve a score of 100 or more	Target: Achieve greater than 25% potable water use reduction
VOLUME RESULT	FLOW RESULT	QUALITY RESULT	EFFICIENCY RESULT
3.4 % change in annual average volume	**0.0** m^3 of additional site storage required	**16** Pollution reduction score (out of 100)	**25.1** % water saving

VOLUME PASSES **FLOW PASSES** **EFFICIENCY PASSES**

QUALITY FAILS

The existing site is fully roof building, 100% impervious. The proposed development has the same impervious area.
Therefore, there is no change in water runoff volume, quality or peak flow.
With the proposed rainwater tank, there is marginally improvement in all the criteria above.
The storm water quality not worst off Post Development.

Design Criteria

The development must be designed and constructed in accordance with the following:

Stormwater management measures selected are

This includes all impervious areas in the site connected to Council or Stormwater Authority drains. This excludes pervious areas like pervious paving, garden, gravel and lawn areas)

•Raintank Volume = 3000 litres connected to 57m2 of roof, additional detention tank volume included = 0 litres
•551.0m2 of Roof NOT connected to tank called 'Main Roof' draining to m2 of None

0.01m3 Additional Site Storage Requirement (SSR) (in addition to the combined rainwater / detention tanks)

Conditions of approval

Rainwater Tanks

Total rainwater retention tank volume (L)	3000
Area of roof connected to rainwater tank (plumbed to household) (m^2)	57.0
Total rainwater detention tank volume (L)	0.00
Rainwater tanks connected to	Toilet
Other rainwater tank end uses (L/day)	Irrigated Garden Area (m^2)
Additional* Site Storage (m^3)	*Site storage added adjacent to the legal point of discharge for peak flow detention or volume infiltration
Recycled water source	
Water tank reliability %	79.0
Rainwater tank overflow %	23.0

Water Efficiency Specifications

Basin WELS star rating	> 4 Star WELS rating
Toilet WELS rating	> 4 Star WELS rating
Bath WELS star rating	Medium Sized Contemporary Bath
Washing Machine WELS star rating	> 3 Star WELS rating
Kitchen Taps WELS rating	> 4 Star WELS rating
Urinal WELS rating	Not Applicable
Shower WELS star rating	3 Star WELS (> 7.5 but <= 9.0) (minimum requirement)
Dishwasher WELS star rating	> 3 Star WELS rating

© 2019 InSite Water

Project Design Specifications

Building Spaces

•Office - BCA Class 5 of 138m2 with an average occupancy of 4.4 people

Estimated Total Building Occupancy	4.4

Stormwater Quality Calculations

Rainwater Tank Runoff reduction (%)	77.0
Rainwater Tank(s) Total Nitrogen (TN) reduction	97.5
Total Impervious Area (m^2)	57.0, 551.0
Total Nitrogen (TN) % reduction (g/yr)	7.2
Water Quality Score (%)	16
Rainwater Used (kL)	20.9
Total demand (L/day)	72.60
Roof Runoff (kL)	27.4
Rainwater Tank Overflow (kL)	6.3

Peak Flow Storage Requirement Calculations

FLOW reduction strategy	Volume retention and/or Infiltration
Catchment strategy used	On Site Retention (OSR) of volume to pre-development levels - Regime-in-balanc

Site Storage Calculations

Base case (pre-development) fraction impervious (ratio)	0.90
Base case runoff coefficient	0.800
Post development detention requirement (Site Storage Requirement)	10% AEP (~1 in 10 ARI) - default residential
Post development fraction impervious (ratio)	1.00
Post development runoff coefficient	0.900
Pre-development FLOW volume (m^3)	8.1
Post-development FLOW volume (m^3)	9.1

© 2019 InSite Water

FLOW Volume storage required for 'yield minimum' (m^3)	
FLOW volume storage required for 'regime in balance' (m^3)	1.0
On Site Retention (m^3)	1
Permissible Site Discharge (PSD) (L/sec)	
Critical Storm Duration - the Catchment time of concentration - Tc(catchment) in minutes	30
Rainfall Depth (mm) for Critical Storm Duration - Tc (Catchment)	16.57
Rainfall intensity - i at Tc(catchment) (mm/h)	33.1
Site time of Concentration (min) - Tc(site)	10.0
Rainfall Depth (mm) for tc(site) - (IFD at Site Time of Concentration)	10.3
Rainfall intensity - i at tc(site) (mm/h)	61.80

Detention Calculator - Site Storage Requirement (SSR) - Uses rational method (Boyd's Equation)

Please note that this section is not applicable if Volume retention and/or Infiltration strategy is used

Storm Duration (mins)	Rainfall Depth (mm)	Peak Post Development flow (L/s)	Runoff Volume (m^3)	Stored Volume (m^3)
5				
10				
15				
30				
60				
120				

About In-Site Water

This report is generated by user inputs from the toolkit at In-Site Water. In-Site water is an online Integrated Water Management tool designed for use on smaller sites (less than 2 hectares) in Australia that need quick and accurate stormwater engineering answers. In-Site water is simple to use but provides robust stormwater design and engineering answers.

For enquiries, contact Water Sensitive SA www.watersensitivesa.com

Disclaimer

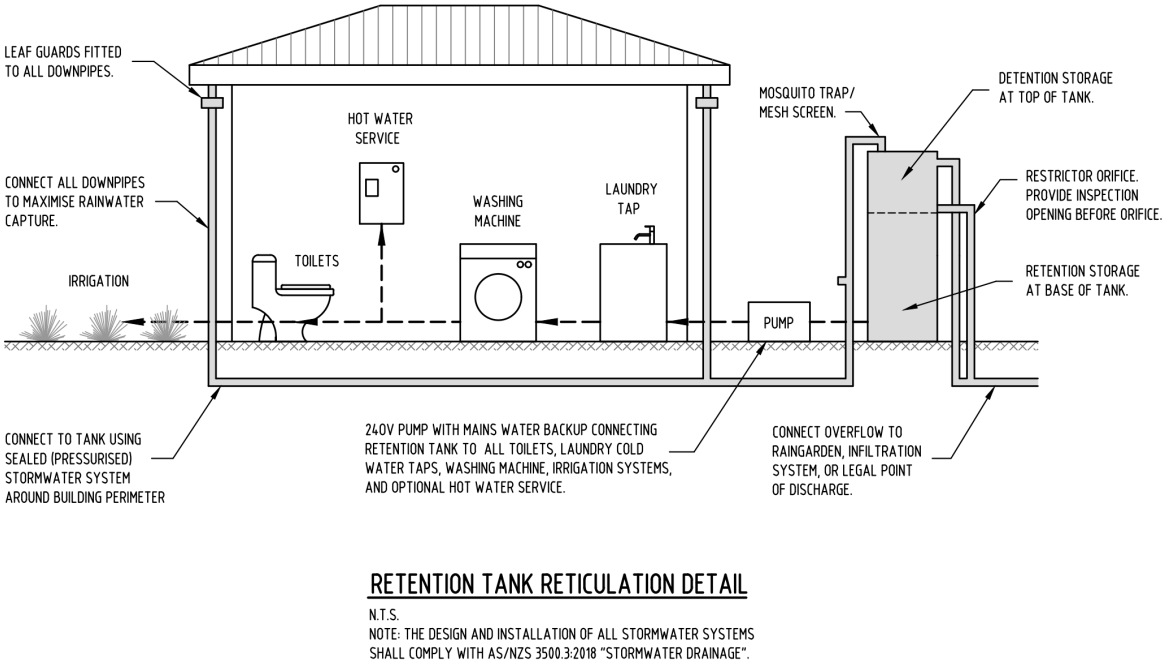
This guide is of a general nature only. Advice from a suitably qualified professional should be sought for your particular circumstances. Depending on each unique situation, there may be occasions where compliance is not achieved. The following dot points are outside the scope of this report, however it is critical that all designers consider the following:

- *Manage expectations and risks around occasional surface water and ponding.*
- *Ensure that uncontrolled stormwater does not flow over property boundaries or otherwise cause a nuisance.*
- *Plan for major flood pathways – locate away from, adapt (raise floors above predicted flood levels) and defend buildings against potential major flooding.*
- *Plan to reduce annual average damages and safety risks.*
- *Take into account local conditions such as slope, topography and soils (type, reactivity, permeability, water table level, salinity, dispersiveness, acid sulphate soils, etc.).*
- *Ensure that soil moisture and building clearance is considered in areas of reactive clays or where varying soil moisture levels could damage buildings, infrastructure or other constructions.*
- *For steeper sites, ensure the design includes geotechnical considerations such as slope stability with varying soil saturation levels.*
- *Compliance with other Australian Standards, laws, guidelines, regulations and Council requirements.*

InSite Water, Water Sensitive SA and Organica Engineering takes no responsibility for the selective application or interpretation by third parties of the information that constitutes the document. This document and its associated materials have been produced in good faith with all information contained deemed to be correct at time of production. Organica Engineering Pty Ltd, the authors, reviewers and contributors take no responsibility, legally or financially, for any loss/damage to property/persons/projects resulting directly/indirectly from the document in whole or part, its associated materials, or the interpretation thereof. Organica Engineering makes no claim as to the accuracy or authenticity of the content of this document, and does not accept liability for loss or damages incurred as a result of reliance placed upon it.

© 2019 InSite Water

Example details for this project (if applicable). Please see the *InSite Guide* for more details:



Above: Rear side service roof treatment

© 2019 InSite Water



VALERIE LIVING
193 ANGAS STREET, ADELAIDE

TRAFFIC AND PARKING REPORT

CIRQA™

DISCLAIMER

The information and data contained within this document are the property of CIRQA Pty Ltd and copyright. This document and the information contained therein is for the use of the authorised Client noted below. The document may not be used, copied, reproduced or modified in whole or in part for any purpose other than for which it was supplied by CIRQA Pty Ltd. CIRQA Pty Ltd accepts no responsibility or liability to any other party who may use or rely upon this document or the information contained therein.

DOCUMENT CONTROL

Report title:	Valerie Living (Apartments), 193 Angas Street, Adelaide Traffic and Parking Report
Project number:	21422
Client:	Forme Projex
Client contact:	Andrew Hudson

Version	Date	Details/status	Prepared by	Approved by
V1.0	12 Oct 21	For submission	BNW	BNW
V1.1	16 Dec 21	Updated plan	BNW	BNW
V1.2	20 Dec 21	Minor update	BNW	BNW

CIRQA Pty Ltd
ABN 12 681 029 983
PO Box 144, Glenside SA 5065
150 Halifax Street, Adelaide SA 5000
(08) 7078 1801
www.cirqa.com.au

1. INTRODUCTION

CIRQA has been engaged to provide design and assessment advice for the proposed development of a new mixed-use development at 193 Angas Street, Adelaide. Specifically, CIRQA has provided advice in respect to traffic and parking aspects of the proposed development.

This report provides a review of the subject site, the proposed development, its access and parking provisions and the associated traffic impact on the adjacent road network. The traffic and parking assessments have been based upon plans prepared by Locus Architecture (DPC.006 to DPC.009 dated 23 November 2021).

2. BACKGROUND

2.1 SUBJECT SITE

The subject site is located at 193 Angas Street, Adelaide. As identified in Figure 1, the site is bound by Angas Street to the north, Regent Street North to the east, the Seven Stars Hotel to the west and residential properties to the south. The Planning and Design Code identifies that the site is located within the Capital City Zone.

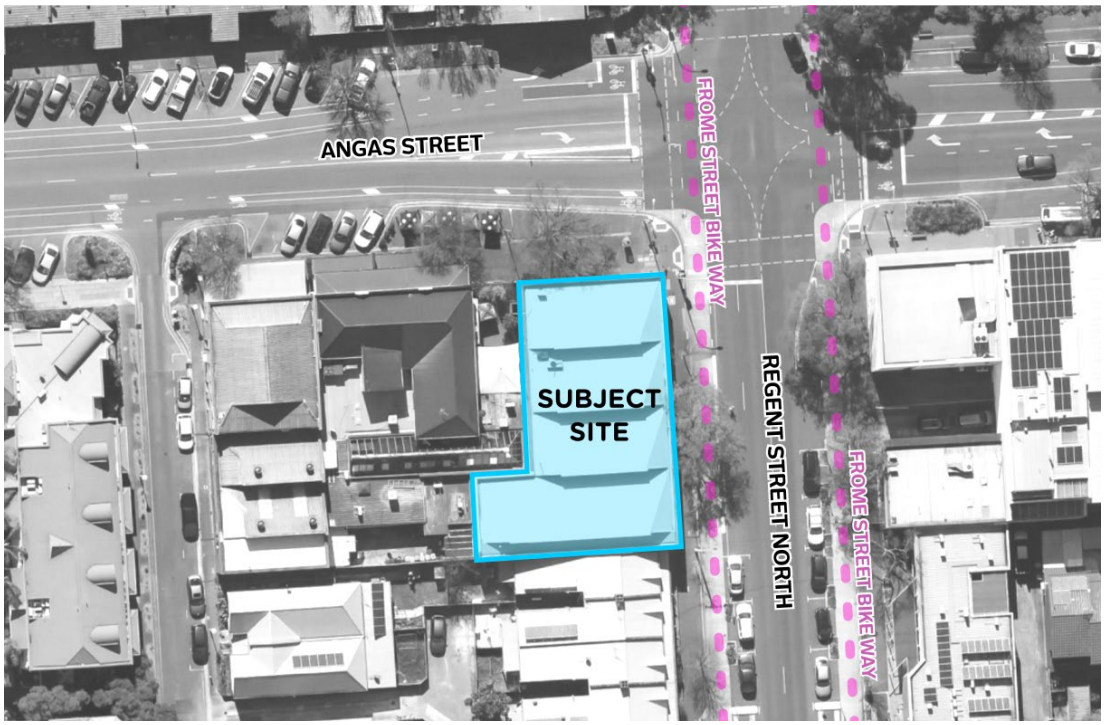


Figure 1 - Location of the subject site and adjacent road network

The site currently accommodates a commercial use (Valerie Travers corporate uniforms and apparel). Pedestrian access to the existing building is provided via the allotments' frontages to Angas Street and Regent Street North. Vehicle access is accommodated via two access points on Regent Street North (the current access points are utilised by commercial vehicles which have been observed reversing into the site and, at times, partially restricting the adjacent Bike Way).

2.2 ADJACENT ROAD NETWORK

2.2.1 ACTIVE TRANSPORT

The subject site has a high level of connectivity to the adjacent pedestrian (footpath) network. Footpaths are provided immediately adjacent the site's frontages on both Angas Street and Regent Street North. Formal pedestrian crossing facilities are provided at the adjacent signalised intersection of these streets.

The site also has a high level of connectivity to cycling facilities with the site immediately adjacent the Frome Street Bike Way which is located along Regent Street North. Bicycle lanes are also provided on Angas Street. These facilities connect to the broader cycling network.

2.2.2 PUBLIC TRANSPORT

Regular bus services operate on both Wakefield Street and Pulteney Street (both approximately 200 m from the site) and Hutt Street (approximately 350 m from the site). These three streets are utilised by numerous bus routes providing direct connections to the inner CBD, Rundle Mall (via Grenfell Street), various metropolitan areas to the north-east, north, south-east, south and south-west of the site and the Adelaide Hills.

Public transport services are also provided via the Glenelg-to-Entertainment Centre tram service operating along King William Street. The nearest stops are located less than 10 minutes' walk from the subject site and provide frequent services in both directions.

2.2.3 ROAD NETWORK

All roads in the vicinity of the subject site are under the care and control of the City of Adelaide. The general urban speed limit of 50 km/h applies on the surrounding roads.

Angas Street is a defined by the City of Adelaide as a 'City Street'. The section of Angas Street adjacent the site generally comprises a single traffic lane and bicycle lane in each direction, albeit additional turn lanes are provided on approach to its intersection with Regent Street North and Frome Street. Angled

parking (with various timed and paid restrictions) is also provided on both sides of Angas Street in the vicinity of the site.

Regent Street North is designated by the City of Adelaide as a 'Small Street'. The carriageway comprises a single traffic lane and parallel parking lane in each direction. Additionally, the separated Frome Bikeway is provided in both directions (between the footpaths and parking lanes).

3. PROPOSED DEVELOPMENT

3.1 LAND USE AND YIELD

The proposed development comprises the retention and reuse of the existing building on the subject site and the construction of a new multi-storey mixed-use building accommodating 36 dwellings (16 one-bedroom, 19 two-bedroom and 1 three-bedroom dwellings) and a 165 m² office tenancy.

3.2 ACCESS AND PARKING DESIGN

The development will be serviced by a ground level car park with a total of 28 (car) parking spaces which will be assigned to the residents. A total of 44 bicycle parking spaces will also be provided on the ground floor. Additional allowance for eight bicycle spaces within the public realm (subject to acceptance by the City of Adelaide) has also been identified.

Access to the site will be accommodated via a roller door on Regent Street North. This will be located in a similar position to the site's existing southern access point, albeit will be shifted slightly north. The access will be located and aligned to achieve 1.0 m separation from an adjacent street tree as sought by the Planning and Design Code. The existing northern access point will be closed (which represents a safety improvement compared to the existing situation, particularly given its use by reversing commercial vehicles across the Bike Way and its proximity to the adjacent signalised intersection).

Cyclist access will also be accommodated via the parking area access. Pedestrian access for the office (and a fire exit stair from the apartments) will be provided via Angas Street and the apartments' foyer will be accessed via Regent Street North. Pedestrian access will also be possible via a stairwell access on Regent Street North as well as the parking area access.

All of the car parking spaces will be provided on the ground floor within two automated mechanical car stacking systems. The parking will be accessed via a wide central aisle. The car stacking system will be installed in accordance with the manufacturer's specifications. The parking spaces and stacker system will also generally meet the requirements of the relevant Australian Standard (AS/NZS 2890.1:2004) in that:

- spaces will at least 2.4 m wide and 5.4 m long;
- an aisle width well in excess of 5.8 m will be provided behind the spaces; and
- a clearance of at least 0.3 m to vehicle turn paths will be provided to all objects greater than 0.15 m in height.

The car clearance envelope requirements of AS/NZS 2890.1:2004 will generally be met, however columns will be located behind the 'flare' of the envelope. The intent of the Standard (to ensure appropriate manoeuvrability into and out of spaces) will however be met given the width of the aisle is greater than that required by AS/NZS 2890.1:2004. Furthermore, users of the parking spaces will be residents and hence will be familiar with column locations and the associated turning movements required to enter/exit the spaces.

Indicative turn paths for ingress and egress movements to and from parking spaces within parking area have been prepared to demonstrate that adequate manoeuvrability will be maintained (refer Appendix A). The turn path assessment indicates that ingress movements can be undertaken in a three-point turn and that egress movements can be achieved either via a single-point or three-point turn before driving forwards out. Such manoeuvres are permitted by the Australian Standard (AS/NZS 2890.1:2004) and the Planning and Design Code for ingress and egress movements undertaken by residents.

Refuse collection is proposed to occur on-street. Bins will be stored within the building (the bin store is located adjacent the bicycle parking area) and wheeled out to Regent Street North for weekly collection by a Council's collection service.

4. PARKING ASSESSMENT

4.1 CAR PARKING

4.1.1 OFF-STREET PARKING PROVISION

As stated above, the subject site is located within the Capital City Zone. The Planning and Design Code states that there is no minimum nor maximum parking requirement for development within this zone (where outside the Primary Pedestrian Area as the subject site is). The proposal therefore effectively meets the requirements of the Planning and Design Code (in that there is no restriction of the number of spaces applicable).

The level of parking to be provided (28 spaces) is considered an appropriate level for the proposed dwellings. No designated parking will be provided for the office tenancy nor is any required by the Planning and Design Code (noting the location of the proposal and accessibility by various transport modes as well as paid

public parking availability in the broader vicinity of the site). Accordingly, it is considered that the proposal aligns with Performance Objective 5.1 above.

4.2 BICYCLE PARKING

The Planning and Design identifies that the site is located within a Designated Area and that, accordingly, the following bicycle parking provision rates apply:

- residential - one space per apartment less than 150 m², two spaces per apartment greater than 150 m² and one visitor parking space per ten apartments;
- office – one staff space per 200 m² of gross floor area and 2 spaces plus 1 space per 1,000 m² gross floor area for visitors.

On the basis of the above, there is a requirement for 37 resident spaces, 3 resident visitor spaces, 1 staff space and 2 office visitor spaces associated with the development (a total of 43 bicycles spaces). The proposed provision of 44 bicycle parking spaces within the site will therefore meet (and exceed) the above requirements.

5. TRAFFIC ASSESSMENT

The RTA "*Guide to Traffic Generating Developments*" (the RTA Guide), and its subsequent updates, identify traffic generation rates of 0.19 am and 0.15 pm peak hour vehicle trips per dwelling for high density residential dwellings (as is the subject proposal). For offices, the Guide identifies rates of 1.6 am and 1.2 pm peak hour trips per 100 m² floor area.

On the basis of the above rates the development would generate in the order of 10 am and 8 pm peak hour vehicle trips. Such volumes are extremely low and would minimal impact on the adjacent footpath, Bike Way and roads. Furthermore, this does not include consideration of the traffic generation associated with the existing use and the actual increase in movements on the adjacent road network will be lower (if not reduced). The assessment is also conservative given the distribution of office related trips would be to other parking areas (or lower given the focus on access by other transport modes).

Additionally, as noted above, the proposal will remove the requirement for commercial vehicles to reverse across the Bike Way and footpath for access to/from the site. This is a positive impact of the proposal as is the removal of the existing access point closest to the signalised intersection of Regent Street North and Angas Street.

In respect to access to the mechanical parking, the proposed stacking system would default to provision of a vacant parking space for entering drivers. It is understood that the proposed system presents a maximum waiting time of 60 seconds for entering drivers. Given the very low number of movements associated with drivers accessing the site's proposed car park, there would be minimal queuing associated with the stacking facility and, importantly, little impact on adjacent the adjacent footpath, Bike Way and road (noting the drivers can enter and exit in a forward direction). The only delay for entering vehicles would be associated with the time for the roller door to open and this would be momentary (noting that it could be engaged on approach to the site). Given the very low number of vehicle movements associated with the site (and that this is similar to existing conditions), it is considered that this would have minimal impact on adjacent road and path users.

6. SUMMARY

The proposed development comprises demolition of the existing building on the subject site and construction of 36 residential dwellings and a small commercial tenancy in a multi-storey building. The site is well serviced by active (walking and cycling) facilities and public transport services which will minimise reliance on private motor vehicles.

The development will be serviced by 28 car parking spaces which will be assigned to the apartments. The proposed level of parking is considered appropriate. In addition, 44 bicycle parking spaces are proposed to be provided on-site (with an additional 8 spaces proposed within the adjacent Angas Street verge). The on-site bicycle parking provisions will meet the requirements of the Planning and Design Code. There is also additional opportunity for storage of bicycles within the larger apartments as well as the opportunity within the verge for bicycle parking.

Access to the vehicle parking area is proposed via the site's Regent Street North frontage (effectively replacing an existing access point albeit slightly shifted with the other existing access to be closed). Car parking will be accommodated in a mechanical car stacking system. The layout will adequately accommodate movements associated with the parking spaces and also allow vehicles to be driven into and out of the site in a forward direction.

The additional traffic volumes associated with the development will be very low and readily accommodated the adjacent road network. While vehicle movements will be required across the Bike Way and footpath, this already occurs at the site's two existing access points. Noting that one access point will be closed and there will no longer be a requirement for commercial vehicles to reverse across the Bike

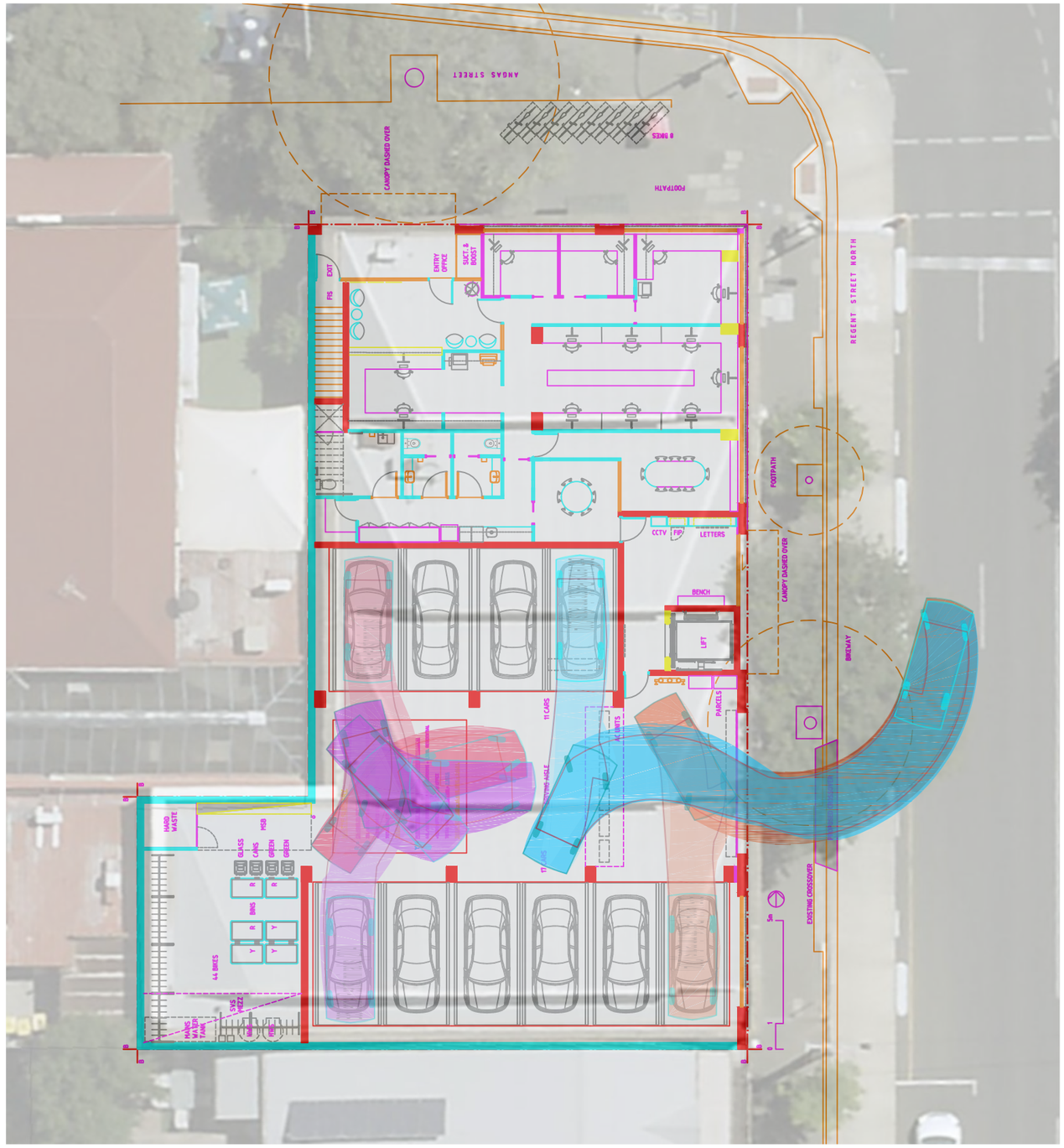
Way and footpath (and store across them), the proposal is considered to provide a positive outcome in respect to these adjacent facilities.

APPENDIX A

INDICATIVE TURN PATHS



INGRESS PATHS (B85 VEHICLE)



EGRESS PATHS (B85 VEHICLE)

CIRQA™

ABN: 12 681 029 983 | PO Box 144, Glenside SA 5065 | E: info@cirqa.com.au

This drawing is a concept plan only and subject to the provision of detailed survey information (by others) and the preparation of detailed design. The drawing is not suitable for construction purposes. The information and data identified within this drawing are the property of CIRQA Pty Ltd and copyright. This drawing and the information contained therein is for the use of the authorised Client noted below. The drawing may not be used, copied, reproduced or modified in whole or in part for any purpose other than for which it was supplied by CIRQA Pty Ltd. CIRQA Pty Ltd accepts no responsibility or liability to any other party who may use or rely upon this drawing or the information contained therein.

DRAWING AMENDMENTS

VER	DATE	DESCRIPTION	DWN	CHK
A	12/10/2021		BNW	BNW
B	15/12/2021		BNW	BNW

C21422_01D.DWG 15/12/2021 12:15 PM

N
1:200
@ A3

VALERIE LIVING

193 ANGAS STREET, ADELAIDE

INDICATIVE TURN PATHS FOR KEY SPACES

PROJECT # 21422 SHEET # 01_SH01

Valerie Apartments, 193 Angas Street

Acoustic Design Report

A210739RP1 Revision B

Thursday, 16 December 2021

Resonate

Document Information

Project	Valerie Apartments, 193 Angas Street
Client	Forme Projex
Report title	Acoustic Design Report
Project Number	A210739

Revision Table

Report revision	Date	Description	Author	Reviewer
0	12 October 2021	First issue	Aidan Leith	Deb James
A	16 December 2021	Update to floor layout and glazing	Aidan Leith	Deb James
B	16 December 2021	Spelling corrections	Aidan Leith	Deb James

Glossary

'A' Weighted	A spectrum adaption that is applied to measured noise levels to represent human hearing. A-weighted levels are used as human hearing does not respond equally at all frequencies.
Acoustic centre	means the centre of the existing or future envisaged transport corridor line sound source—*From MBS 010.*
Australian Noise Exposure Forecast (ANEF) contour band area	means an area identified as such on the Aircraft Noise Exposure Overlay in the Planning and Design Code, where buildings are exposed to higher levels of external airborne sound from aircraft, and need attenuation to achieve acceptable indoor sound levels—*From MBS 010.*
Aircraft Noise Reduction (ANR)	means the difference in dB(A) between an identified representative maximum aircraft noise level and the *required* internal sound criteria. ANR values are mapped on a reference layer under 'Building Code' in SAPPA—*From MBS 010.*
Building envelope	means those parts of a building's fabric that separate an internal *habitable room* from the exterior of the building. Reference to *building envelope* includes parts of a building envelope—*From MBS 010.*
dB	Decibel—a unit of measurement used to express sound level. It is based on a logarithmic scale which means a sound that is 3 dB higher has twice as much energy. We typically perceive a 10 dB increase in sound as a doubling of loudness.
dB(A)	'A' Weighted sound level in dB.
Designated sound source	means sound arising from: (a) a Type A, Type B or Type R road, identified as such on a Planning Reference Layer titled 'Designated Roads Polygon' in the Planning and Design Code; (b) a rail corridor that is a train line or a tram line; or (c) activities that may occur in a mixed land use area. —*From MBS 010.*
Exposed facade	means the elevation or external wall of a building facing the main designated sound source—*From MBS 010.*
External glass door	means an external door with greater than 40% of the area of the door being glass—*From MBS 010.*
Facade sound reduction	means the reduction in external to internal sound level provided by the exposed facade—*From MBS 010.*
Floor area	means, in relation to a room, the area of the room measured within the finished surfaces of the walls, and includes the area occupied by any cupboard or other built-in furniture, fixture or fitting—*From MBS 010.*
$L_{eq,night}$	means the averaged equivalent sound energy level in decibels (dBA) at night time, which is taken to be between the hours of 10.00pm -7.00am local time—*From MBS 010.*
L_{max}	means the maximum sound level—*From MBS 010.*
Mixed land use areas	means areas within a noise attenuation area where residential buildings require attenuation due to external airborne sound that may arise from non-residential uses permitted in these areas, where the sound is non-directional and not specific to a particular location—*From MBS 010.*

Noise attenuation area	means an area identified as such on the Noise and Air Emission Overlay to the Planning and Design Code, where buildings may be exposed to higher levels of external airborne sound and need attenuation to achieve acceptable indoor sound levels—*From MBS 010.*
R_W	Weighted Sound Reduction Index—means a measure of the sound attenuation performance of a building element, measured in controlled conditions in a laboratory—*From MBS 010.*
R_W+C_{tr}	means a weighted sound reduction index with spectrum adaptation placing greater emphasis on low frequency performance—*From MBS 010.*
Separation distance	means the shortest distance (to the nearest metre), from an existing or future designated sound source to the nearest point of the building envelope bounding a habitable room that is exposed to the designated sound source—*From MBS 010.*
Sound Exposure Category (SEC)	means the degree to which a habitable room within a building is likely to be affected by external sound received by the building envelope—*From MBS 010.*
Sound source level	means a prescribed sound level for a designated sound source to be used inproposing a Performance Solution—*From MBS 010.*
Spectral adjustment levels	means a prescribed sound level adjustment to be made to the designated sound source level for the purpose of calculating the facade sound reduction across the building envelope—*From MBS 010.*
Train line	means a railway identified as a designated sound source in a Noise and Air Emissions Overlay to the Planning and Design Code—*From MBS 010.*
Tram line	means a tramway identified as a designated sound source in a Noise and Air Emissions Overlay to the Planning and Design Code—*From MBS 010.*
Transport corridor	means an area of land identified in the Noise and Air Emissions Overlay to Planning and Design Code for an existing or future train or tram line or an existing or future Type A, Type B or Type R road—*From MBS 010.*
Type A road	means a metropolitan road identified as such in a Planning Reference layer to the Planning and Design Code—*From MBS 010.*
Type B road	means a metropolitan road identified as such in a Planning Reference layer to the Planning and Design Code—*From MBS 010.*
Type R road	means a rural road identified as such in a Planning Reference layer to the Planning and Design Code—*From MBS 010.*

Table of Contents

1 Introduction 2
2 Proposed development 3
3 Planning & Design Code 4
4 Existing environment 6
4.1 Procedure 6
4.2 Instrumentation 6
4.3 Results 6
5 Ministerial Building Standard MBS 010 7
5.1 Sound exposure category 7
5.2 Sound insulation ratings 7
5.3 Sound transmission through building envelope 8
5.4 Construction requirements 8
5.4.1 External walls 8
5.4.2 Windows & external doors 9
5.4.3 Ventilation 10
5.5 General construction requirements—All SECs 11
5.5.1 Non-habitable rooms adjoining habitable rooms 11
5.5.2 Penetrations 11
5.5.3 Sheeting materials 11
6 Conclusion 12

1 Introduction

This report outlines an acoustic assessment undertaken in accordance with the Ministerial Building Standard (MBS 010) for the proposed apartment building (Valerie Apartments) development at 193 Angas Street, Adelaide. It details the acoustic criteria and recommends external construction requirements for this proposed development.

The acoustic requirements are based on:

- South Australian Planning and Design Code
- Ministerial Building Standard (MBS 010) *Construction requirements for the control of external sound*.

2 Proposed development

The proposed development is located at 193 Angas Street, Adelaide. The location of the site with respect to existing buildings and roads is shown in Figure 1.

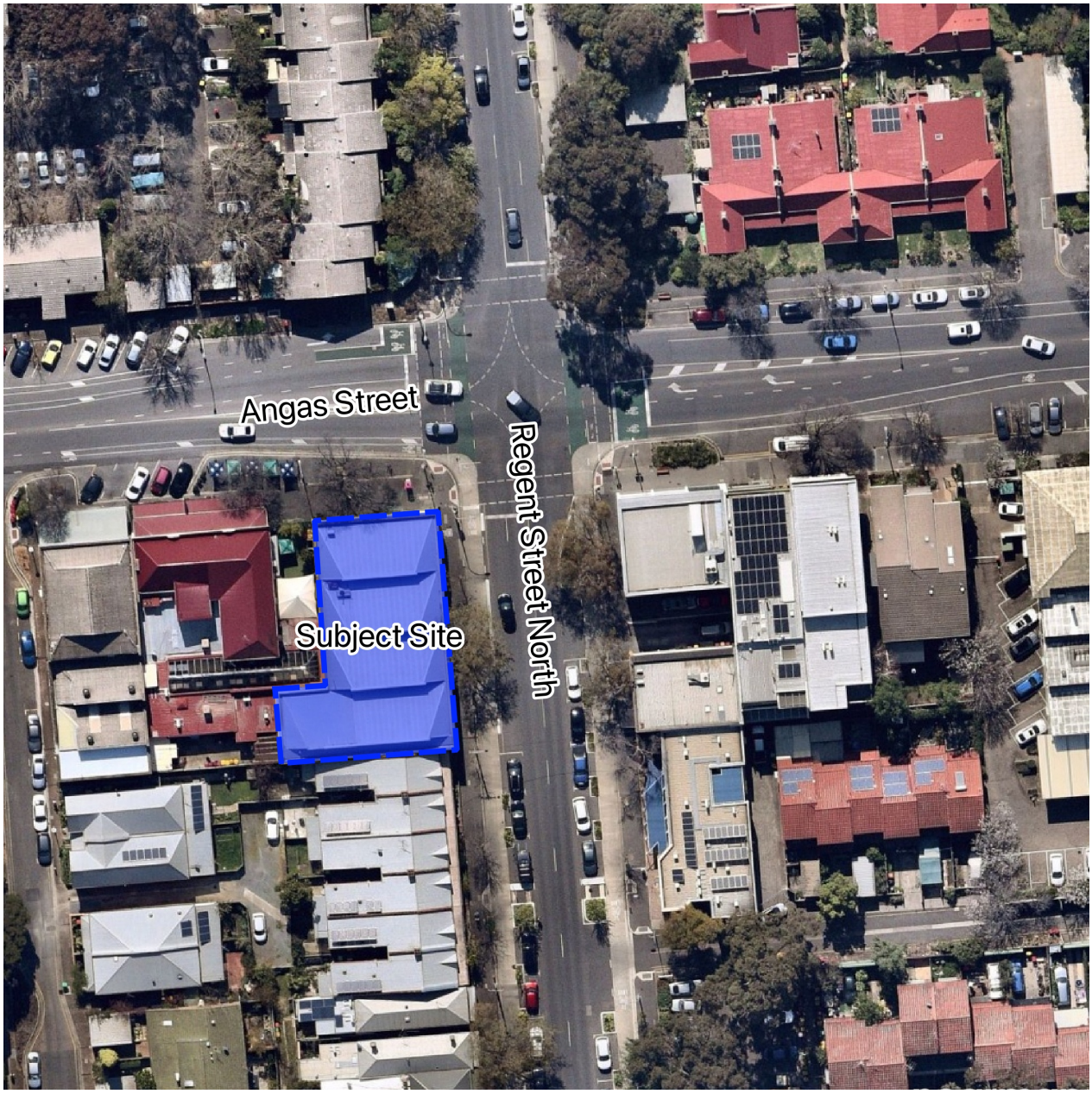


Figure 1 Proposed site location with respect to existing buildings and roads

The proposed development is mixed use, with parking and commercial uses on the ground floor and residences on the first to eighth floors.

3 Planning & Design Code

Overlays that apply to the subject site are outlined in Table 1.

Table 1 Relevant overlay

Relevant overlay
Noise and Air Emissions Overlay

The relevant Assessment Provisions for the Noise and Air Emissions Overlay are outlined in Table 2.

Table 2 Relevant Assessment Provisions—Noise and Air Emissions Overlay

Assessment Provisions	
Desired Outcome	
DO1	Community health and amenity is protected from adverse impacts of noise and air emissions.
Performance Outcomes	**Deemed-to-Satisfy Criteria / Designated Performance Feature**
PO 1.1 Sensitive receivers adjoining high noise and/or air pollution sources are designed and sited to shield sensitive receivers from the emission source using measures such as: (a) placing buildings containing non-sensitive receivers (such as retail and commercial) between the emission source and sensitive receivers (b) within individual buildings, placing rooms more sensitive to air quality and noise impacts (such as living rooms and bedrooms) further away from the emission source (c) providing appropriate separation or erecting noise attenuation barriers, provided the requirements for safety, urban design and access can be met (d) the use of building design elements such as podiums and jutting, deep or enclosed balconies (including with solid balustrades).	DTS/DPF 1.1 Sensitive receivers satisfy all of the following: (a) do not adjoin a: (i) Designated Road: Type A (ii) Designated Road Corridor: Type B (iii) Designated Road: Type R (iv) Train Corridor (v) Tram Corridor (b) adjoining development incorporating music includes noise attenuation measures to achieve a noise level in any bedroom exposed to music noise (L10) less than: (i) 8 dB above the level of background noise (L90,15 min) in any octave band of the sound spectrum; and (ii) 5 dB(A) above the level of background noise (LA90,15 min) for the overall (sum of all octave bands) A-weighted levels.
PO 1.2 Development incorporating a sensitive receiver adjoining high air pollution sources use building design elements such as varying building heights, widths, articulation, setbacks and shapes to increase wind turbulence and the dispersion of air pollutants.	Sensitive receivers do not adjoin any of the following: (a) Designated Road: Type A (b) Designated Road Corridor: Type B (c) Designated Road: Type R (d) Train Corridor (e) Tram Corridor
PO 1.3	Open space associated with a sensitive receiver is not adjoining any of the following:

Assessment Provisions	
Development incorporating a sensitive receiver adjoining high noise and/or air pollution sources locates private open space (including ground level courtyards and balconies), common open space and outdoor play areas within educational establishments and pre-schools away from the emission source.	(a) Designated Road: Type A (b) Designated Road Corridor: Type B (c) Designated Road: Type R (d) Train Corridor (e) Tram Corridor (f) adjoining development incorporating music

Layers from the Planning and Design Code that apply to the subject site are outlined in Table 3.

Table 3 Relevant layers

Relevant Layers	Relevant information
ANEF	Not Applicable
ANR	Not Applicable
Noise Attenuation Area	Located within a Noise Attenuation Area
Designated Road	Not Applicable
Rail corridor	Not Applicable
Mixed land use areas	The subject site is exposed to external airborne sound arising from non-residential land uses permitted in the area. The site is located within a Capital City Zone, where a mix of commercial and residential land uses are envisaged.

Application of the Ministerial Building Standard MBS 010 *Construction requirements for the control of external sound* will satisfy the Desired Outcome for the Aircraft Noise Exposure Overlay and the Noise and Emissions Overlay.

4 Existing environment

4.1 Procedure

Noise measurements were undertaken in accordance with the following:

- The logger was installed on the northwest corner of the rooftop of the existing Valerie Travers building. This is to measure noise levels from the adjacent Seven Stars Hotel.
- The axis of maximum sensitivity of the microphone of the sound level meter was directed towards the noise source.
- A wind shield was used during all measurements.
- Weather data was collected from the Bureau of Meteorology for the duration of the measurements. Measurement periods with rainfall or wind speeds that mat have affected the results were excluded.
- Noise measurements were undertaken in 15-minute periods.

4.2 Instrumentation

All sound level measurement instrumentation used for the purposes of this assessment are classified as either a Class 1 or Class 2 measurement device, as described in Australian Standard (AS) IEC 61672.1—2004. Acoustic calibration was conducted before and after the logging period and no significant calibration drift was observed. Each sound level meter unit holds current calibration certification by an independent NATA certified laboratory.

4.3 Results

Ambient noise levels were measured by Resonate between 24 September – 1 October 2021 on the rooftop of the existing Valerie Travers building. The measured day and night time noise levels summarised in Table 4. The logging results are included in Appendix A.

Table 4 Noise monitoring results summary

Type/SN	Date period	Average measured noise level over the Day period, dB(A)			Average measured noise level over the Night period, dB(A)		
		$L_{eq,15hour}$	$L_{90,15min}$	$L_{max,15min}$	$L_{eq,9hour}$	$L_{90,15min}$	$L_{max,15min}$
Rion NL-52 (820995)	24/09/2021 – 01/10/21	61	54	75	54	46	67

We note that night time noise generated from the Seven Stars Hotel beer garden is likely to be at its highest level from 10pm to 12am on Fridays and Saturdays. The highest measured night time noise levels within a 15 minute period for Friday and Saturday night is presented in Table 5.

Table 5 Highest measured night time noise levels from Seven Stars Hotel

Date and time	Highest measured noise level, dB(A)		
	$L_{eq,15hour}$	$L_{90,15min}$	$L_{max,15min}$
Saturday 25 September 10.17pm	66	60	83

5 Ministerial Building Standard MBS 010

5.1 Sound exposure category

MBS 010 specifies minimum acoustic requirements for building façade elements based on a 'sound exposure category' (SEC). The SEC is based on a site's location in a mixed use area, proximity to designated road and rail, and location within an Australian Noise Exposure Forecast (ANEF).

The building is in a *mixed land use area*, and will be exposed to external airborne sound arising from a variety of activities in area, mainly from the adjacent Seven Stars Hotel. The sound exposure category for the entirety of the building envelope is to be taken as SEC 1. The building is not exposed to external airborne sound from Type A, B or R roads, rail or aircraft under the assessment of MBS 010.

5.2 Sound insulation ratings

The appropriate sound insulation ratings for SEC 1 are outlined in Table 6.

Table 6 Minimum acoustic requirements for habitable rooms for SEC 1

Building element	Location	Acoustic rating
External walls	All habitable rooms	$R_W + C_{tr}$ 40
Windows & external glass doors	All habitable rooms	Refer to Table 7
Mechanical ventilation systems	All habitable rooms	R_W 25

The sound insulation ratings for windows and external glass doors are outlined in Table 7 based on the area of the window/glass door divided by floor area of the room.

Table 7 Minimum acoustic requirements for windows and external glass doors ($R_W + C_{tr}$)

Room	Area of window and external glass doors as a percentage of the floor area of the room	Designated sound exposure category				
		1	2	3	4	5
Bedroom and attached non-habitable rooms	Not more than 20%	25	28	30	32	PS
	More than 20% but not more than 40%	28	30	32	34	PS
	More than 40% but not more than 60%	30	32	34	35	PS
	More than 60% but not more than 80%	32	34	35	PS	PS
	More than 80%	34	35	PS	PS	PS
Habitable rooms (other than bedrooms and enclosed kitchens) and attached non-habitable rooms	Not more than 20%	22	25	28	30	PS
	More than 20% but not more than 40%	25	28	30	32	PS
	More than 40% but not more than 60%	28	30	32	34	PS
	More than 60% but not more than 80%	30	32	34	35	PS
	More than 80%	32	34	35	PS	PS

(1) PS—windows and external glass doors are to be considered as part of a Performance Solution.

5.3 Sound transmission through building envelope

Compliance with MBS 010 to avoid the transmission of airborne sound through the building envelope is verified when the level of attenuation provided by the building envelope and its ventilation system is sufficient to provide internal sound levels not exceeding the internal sound criteria values stated in Table 8.

Table 8 Internal sound criteria for sound intrusion from road, rail and mixed land uses

Type of room	Sound source	Internal sound criteria	
		Building design target averaged over the total number of rooms in the building	Maximum allowable for individual rooms in the building
Bedrooms	Road, rail and mixed land use	30 dB(A) $L_{eq,night}$	35 dB(A) $L_{eq,night}$
Other habitable rooms	Road, rail and mixed land use	35 dB(A) $L_{eq,day}$	40 dB(A) $L_{eq,day}$

5.4 Construction requirements

5.4.1 External walls

The proposed wall construction and predicted sound attenuation for the proposed wall type is shown below in Table 9. We note that the proposed wall construction is significantly greater than the acoustic rating required under MBS 010.

Table 9 Proposed external wall construction

Wall type	Proposed wall construction	$R_W + C_{tr}$
Precast concrete	• Minimum 175 mm precast concrete • 14 mm airgap • 76 mm steel studs • 75 mm, 11kg/m^3 glasswool insulation OR 75 mm, 14 kg/m^3 polyester insulation • 1 x 13 mm standard plasterboard internal lining	60

5.4.2 Windows & external doors

The window and external door constructions should be as detailed in Table 10 or acoustically equivalent, referencing the required ratings are as shown in Appendix B. All windows and doors are to be in an aluminium or timber frame, employing fixed or operable sash.

Table 10 Acceptable forms of window and door construction

$R_W + C_{tr}$ rating	Window and door construction
25	Hinged or awning type opening with: • 3 mm thick monolithic or laminated glass OR • 3 mm glass / 6 mm airgap / 3 mm glass Sliding or double hung type opening with: • 6 mm thick monolithic or laminated glass OR • 6 mm glass / 12 mm airgap / 6 mm glass
28	Hinged, awning, sliding or double hung type opening with: • 6 mm thick monolithic or laminated glass OR • 6 mm glass / 12 mm airgap / 6 mm glass
30	Hinged or awning type opening with: • 6 mm thick monolithic or laminated glass OR • 6 mm glass / 12 mm airgap / 6 mm glass Sliding or double hung type opening with: • 10 mm thick monolithic or laminated glass OR • 10 mm glass / 12 mm airgap / 6 mm glass
32	Hinged or awning type opening with: • 10 mm thick monolithic or laminated glass OR • 10 mm glass / 12 mm airgap / 6 mm glass Sliding or double hung type opening with: • 10.5 mm VLam Hush acoustic glass OR • 6.5 mm VLam Hush acoustic glass / 12 mm airgap / 6 mm glass
34	Hinged or awning type opening with: • 10.5 mm VLam Hush acoustic glass OR • 6.5 mm VLam Hush acoustic glass / 12 mm airgap / 6 mm glass Sliding or double hung type opening with: • 12.5 mm VLam Hush acoustic glass OR • 10.5 mm VLam Hush acoustic glass / 12 mm airgap / 6 mm glass

Glass in external doors must be set and sealed in an airtight non-hardening sealant or a soft elastomer gasket or glazing tape.

All openable windows and doors are to have the following or acoustically equivalent seals:

- windows awning style with rubber compression seals around the perimeter such as Schlegel Q-Lon T-Slot seals, or sliding with seals as indicated for the sliding doors
- sliding doors are to have:
  - Schlegel Q-Lon T-Slot seals on the lock and mullion
  - Schlegel Fin-Seal on the rails

- hinged doors are to have:
  - high quality rubber contact seals for the head and the jambs acoustically equivalent to Kilargo IS1212/1515 or Raven RP120/150
  - dropdown seal at the bottom acoustically equivalent to Kilgaro IS8090si or Raven RP38.

An airtight seal must be achieved around the window and/or door perimeter with a foam, rubber, silicone, or fibrous with vinyl fin interleaf seal. Note that brush type seals are not adequate and will not be compliant.

Alternatively, the window and/or door manufacturer can verify that the door will achieve the required $R_W + C_{tr}$ / R_W rating.

The proposed glass specification for the development is outlined in Table 11 with comments relating to the acoustic performance.

Table 11 Proposed glass specification

Location	Description	Comments
All	• North: Energytech Grey Low-E IGU or equivalent • East & West: Soltech Grey Low-E IGU or equivalent • South: Energytech Clear Low-E IGU or equivalent	The double glazing constructions as outlined in Table 10, and as indicated in the markup in Appendix B are to be adopted to ensure compliance with MBS 010.
Upgraded glazing for windows to the west facing the Seven Stars Hotel	West: Soltech Grey Low-E + VLam Hush IGU or equivalent	The highest rating for the windows facing west is $R_W + C_{tr}$ 28, this is sufficient to control noise from the Seven Stars hotel and in accordance with MBS 010. From Table 10 any double glazing with VLam Hush glass will achieve at least $R_W + C_{tr}$ 32 depending on the glass thickness and opening type. As such, a better acoustic performance than required is achieved by upgrading the glass as indicated.

5.4.3 Ventilation

SEC 1

Systems that are not allowed for SEC 1 include:

- Window or wall mounted reverse cycle air conditioning systems
- Unattenuated direct path from the exposed facade into the habitable space.

5.5 General construction requirements—All SECs

These general requirements apply for all SECs and should be read in conjunction with the relevant construction requirements outlined above.

5.5.1 Non-habitable rooms adjoining habitable rooms

Non-habitable rooms that adjoin a habitable room, and are bounded by a part of the building facade that is exposed to a designated sound source, must either be:

- completely separated from the habitable room with walls having an R_W of at least 40 and any doors therein having an R_W of not less than 30, or
- must be treated as a habitable room.

Non-habitable rooms include walk-in wardrobes, ensuites and enclosed kitchens. Where these spaces are part of an open plan arrangement with adjoining habitable rooms, such as a bedrooms or living/dining areas they need to be treated as a habitable room.

5.5.2 Penetrations

Where any services, such as air conditioning units, ventilation device or ductwork, pass through a building element with an acoustic rating, the penetration must not diminish the acoustic rating of the wall.

Where pipes, ducts, or conduits or the like, pass through a building element with an acoustic rating, the penetration must be caulked or filled with mortar.

5.5.3 Sheeting materials

Sheeting materials, such as plasterboard and the like, must:

- be installed so that if two layers are required, the second layer must be fastened over the first layer so that the joints do not coincide with those of the first layer, and
- have all joints between sheets or between sheets and any adjoining construction, taped and filled solid.

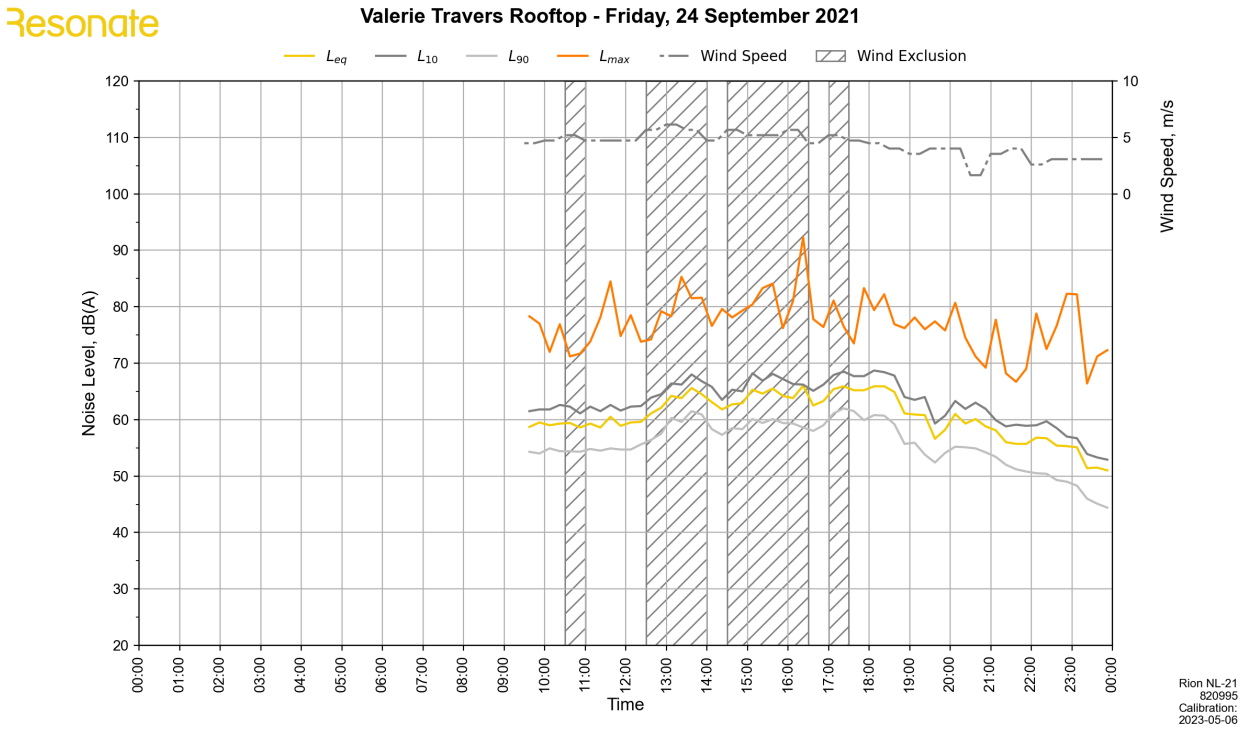
6 Conclusion

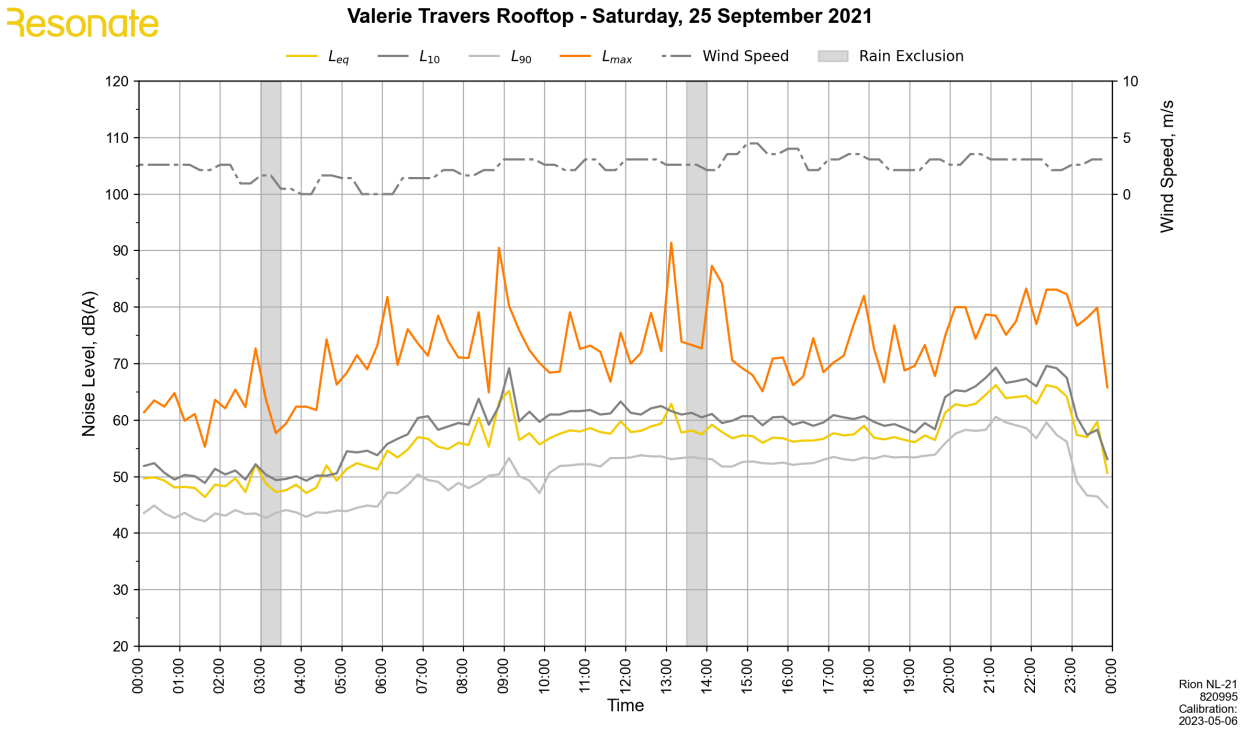
An external noise intrusion assessment has been undertaken for the proposed mixed use development at 193 Angas Street, Adelaide. The assessment has considered the relevant noise intrusion requirements of the Planning and Design Code, Ministerial Building Standard MBS 010 *Construction requirements for the control of external sound*, and has additionally considered specific noise emissions from the adjacent Seven Stars Hotel.

This assessment has demonstrated the following:

- The Noise and Air Emissions Overlay is applicable to the subject site.
- The site is in a 'Noise Attenuation Area' in a mixed land use area.
- Compliance with the Ministerial Building Standard MBS 010 *Construction requirements for the control of external sound* will satisfy the Desired Outcome for the Noise and Emissions Overlay.
- Facade noise mitigation treatments detailed in this report are suitable to attenuate noise intrusion from the Seven Stars Hotel and general noise in the area in accordance with MBS 010 *Construction Requirements for the Control of External Sound*.

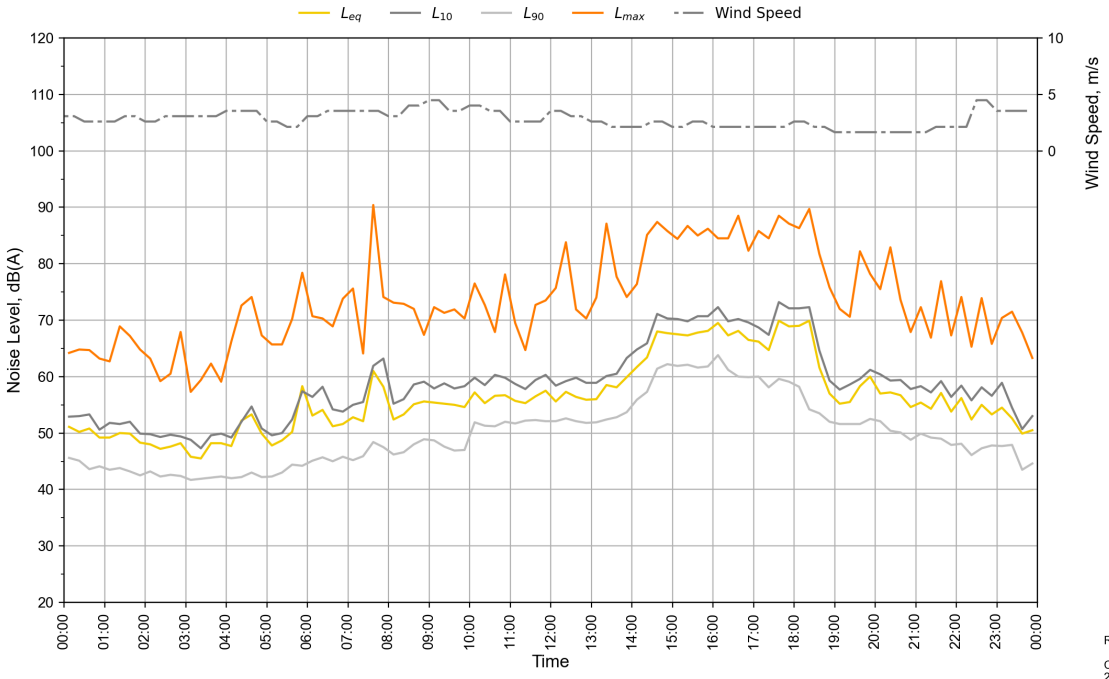
Appendix A – Noise monitoring results


Resonate
Valerie Travers Rooftop - Friday, 24 September 2021
L_{eq} L_{10} L_{90} L_{max} Wind Speed Wind Exclusion
Noise Level, dB(A)
Wind Speed, m/s
Time
Rion NL-21
820995
Calibration:
2023-05-06


Resonate
Valerie Travers Rooftop - Saturday, 25 September 2021
L_{eq} L_{10} L_{90} L_{max} Wind Speed Rain Exclusion
Noise Level, dB(A)
Wind Speed, m/s
Time
Rion NL-21
820995
Calibration:
2023-05-06

Resonate

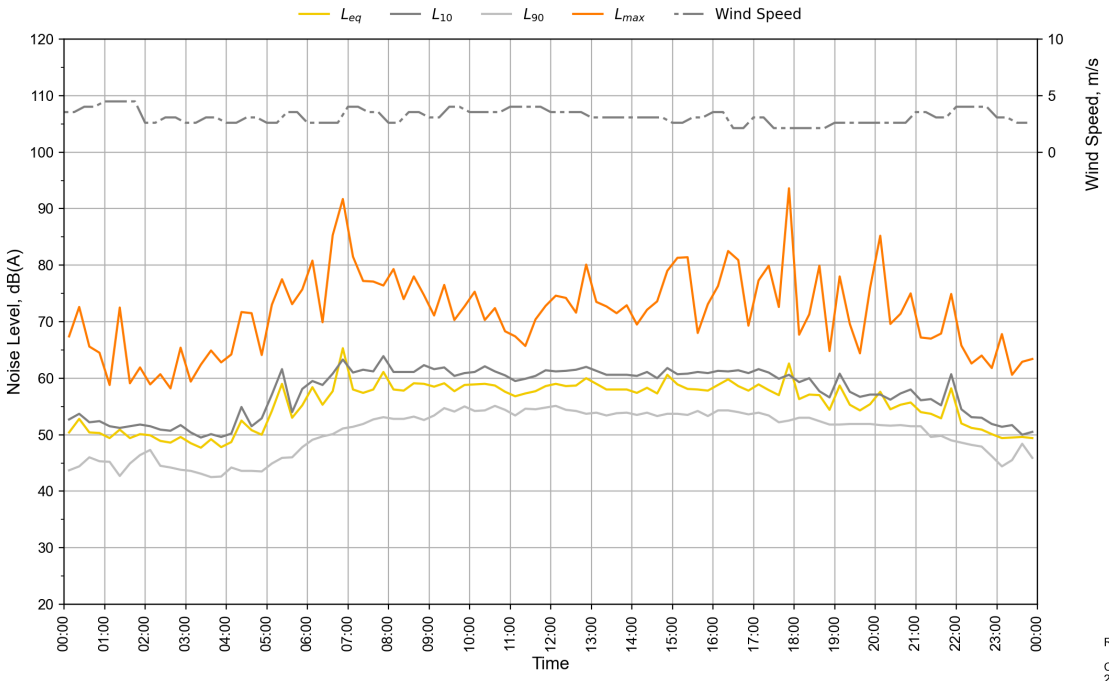
Valerie Travers Rooftop - Sunday, 26 September 2021



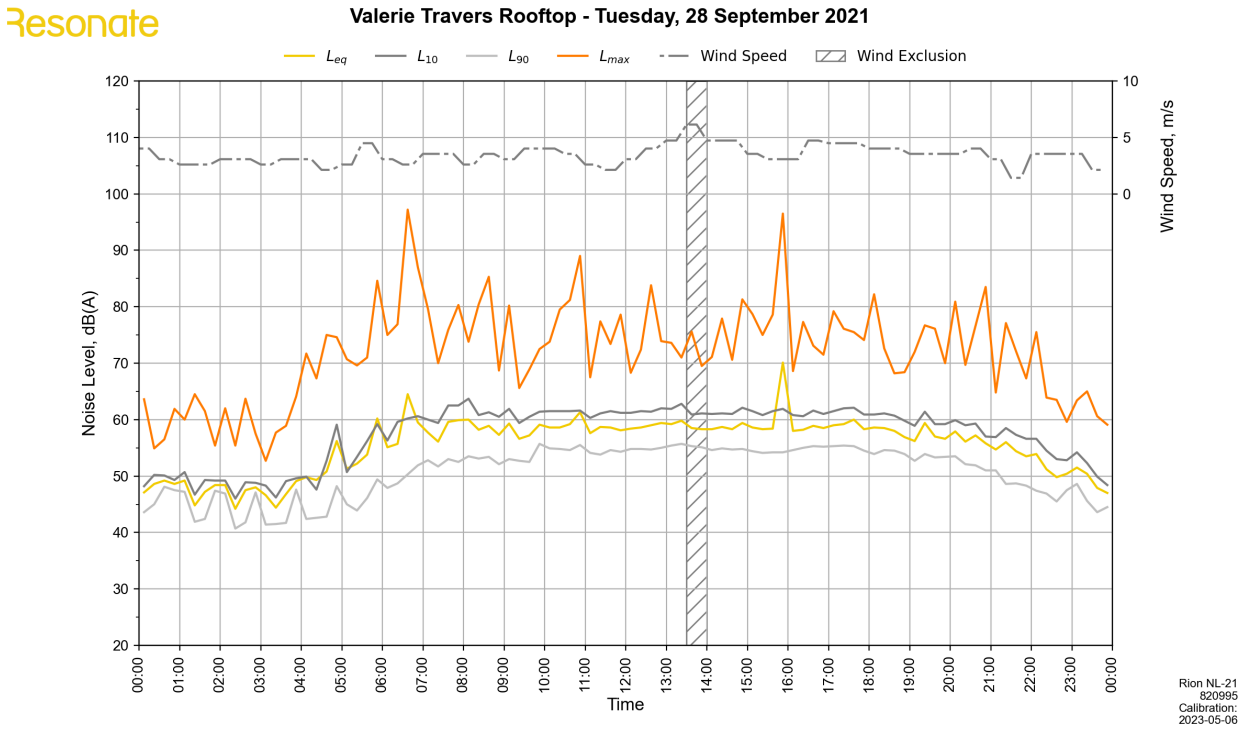
Rion NL-21
820995
Calibration:
2023-05-06

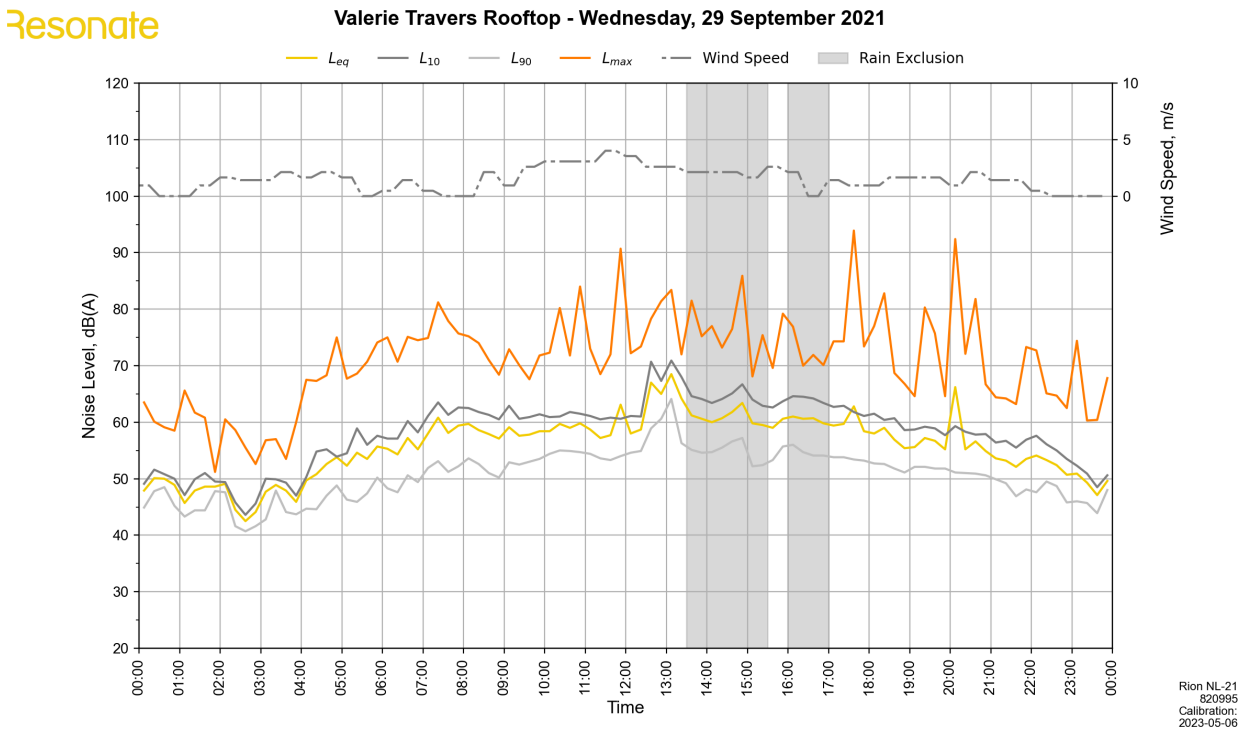
Resonate

Valerie Travers Rooftop - Monday, 27 September 2021



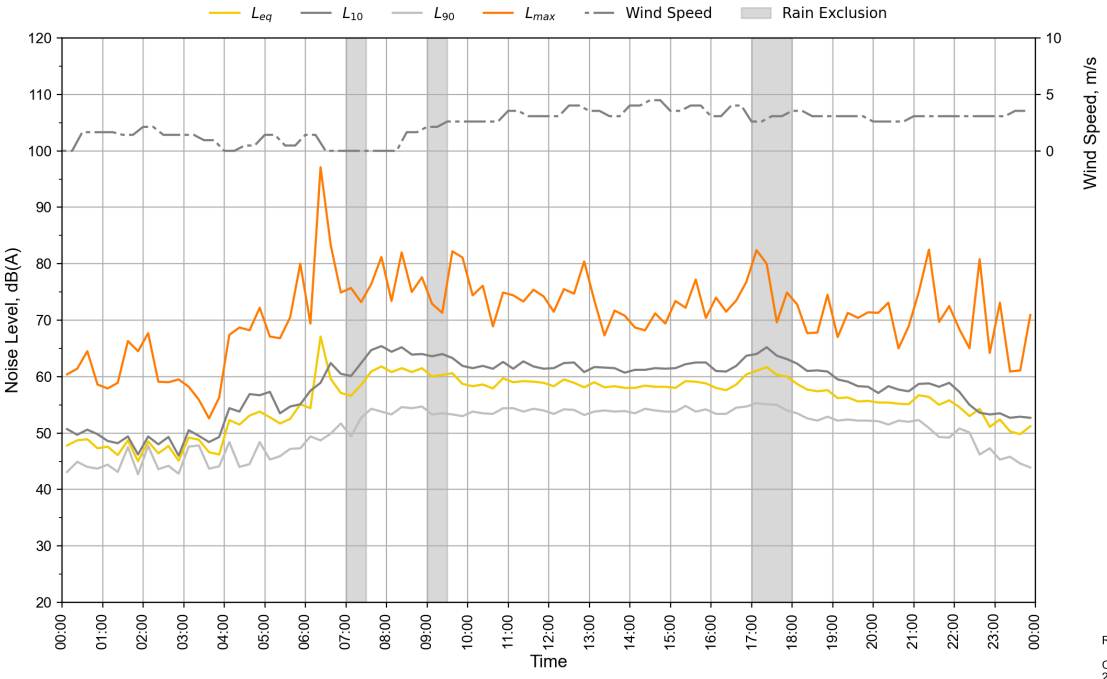
Rion NL-21
820995
Calibration:
2023-05-06


Resonate
Valerie Travers Rooftop - Tuesday, 28 September 2021
L_{eq} L_{10} L_{90} L_{max} Wind Speed Wind Exclusion
Noise Level, dB(A)
Wind Speed, m/s
Time
Rion NL-21
820995
Calibration:
2023-05-06


Resonate
Valerie Travers Rooftop - Wednesday, 29 September 2021
L_{eq} L_{10} L_{90} L_{max} Wind Speed Rain Exclusion
Noise Level, dB(A)
Wind Speed, m/s
Time
Rion NL-21
820995
Calibration:
2023-05-06

Resonate

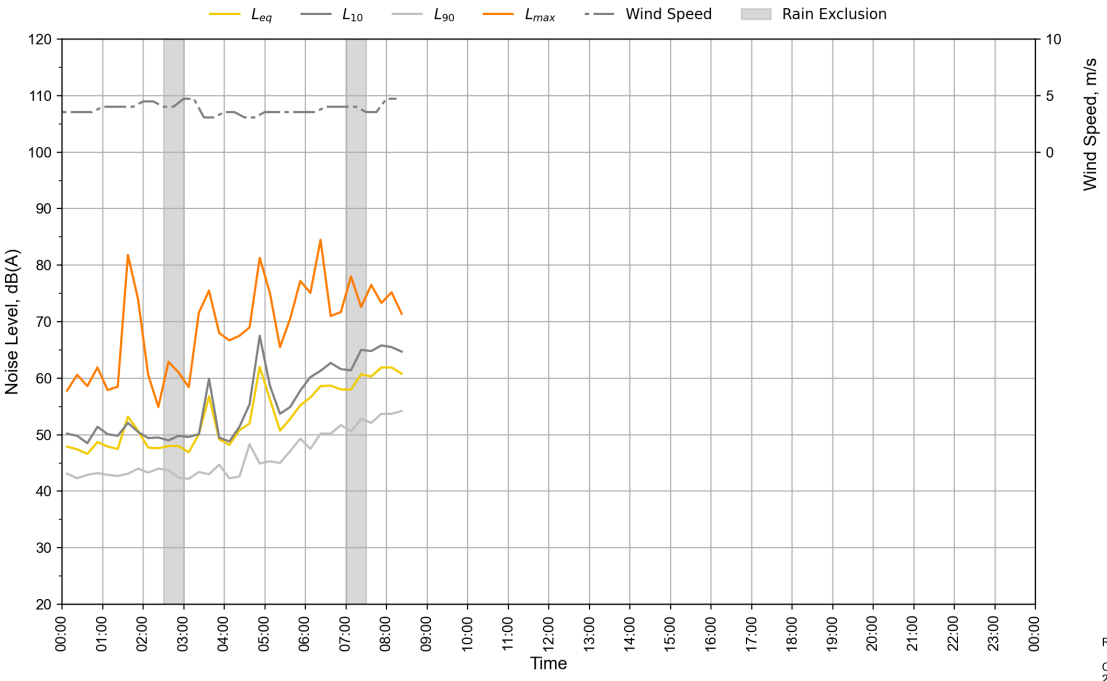
Valerie Travers Rooftop - Thursday, 30 September 2021



Rion NL-21
820995
Calibration:
2023-05-06

Resonate

Valerie Travers Rooftop - Friday, 1 October 2021



Rion NL-21
820995
Calibration:
2023-05-06

Appendix B – Sound exposure category markups

RESONATE REVIEW
15 December 2021

Resonate

These facades will affected by noise from the Seven Stars Hotel. We recommend that the glazing along these facades have a minimum $R_w + C_{tr}$ 28 rating (6mm thick glass).

We do note that the markup still shows the minimum required ratings in line with MBS 010.

Acoustic: MBS010 Legend

- SEC 1 / R_w+C_{tr} 40 External Wall
- SEC 2 / R_w+C_{tr} 45 External Wall
- SEC 3 / R_w+C_{tr} 50 External Wall
- SEC 4 / R_w+C_{tr} 50 External Wall
- R_w+C_{tr} 35 Ceiling & Roof
- R_w+C_{tr} 40 Ceiling & Roof
- R_w+C_{tr} 45 Ceiling & Roof
- (xx) Glazing R_w+C_{tr} XX

B = Boundary

ROOF VENTS
1.8 m HIGH FENCE
1.8 m HIGH FENCE
1.8 m HIGH FENCE
3000
4000
FIS
LOT 105
LOT 104
LOT 101
LOT 102
LOT 103
SERVICES
LIFT
CLEANER
28
25
30
0 1 5m
north

forme projex + Locus Architecture

level - 01

Scale 1 : 100 DPC.007 v1.0@ 23 november 2021

193 Valerie ANGAS LIVING

RESONATE REVIEW
15 December 2021

Resonate

These facades will affected by noise from the Seven Stars Hotel. We recommend that the glazing along these facades have a minimum $R_w + C_{tr}$ 28 rating (6mm thick glass).

We do note that the markup still shows the minimum required ratings in line with MBS 010.

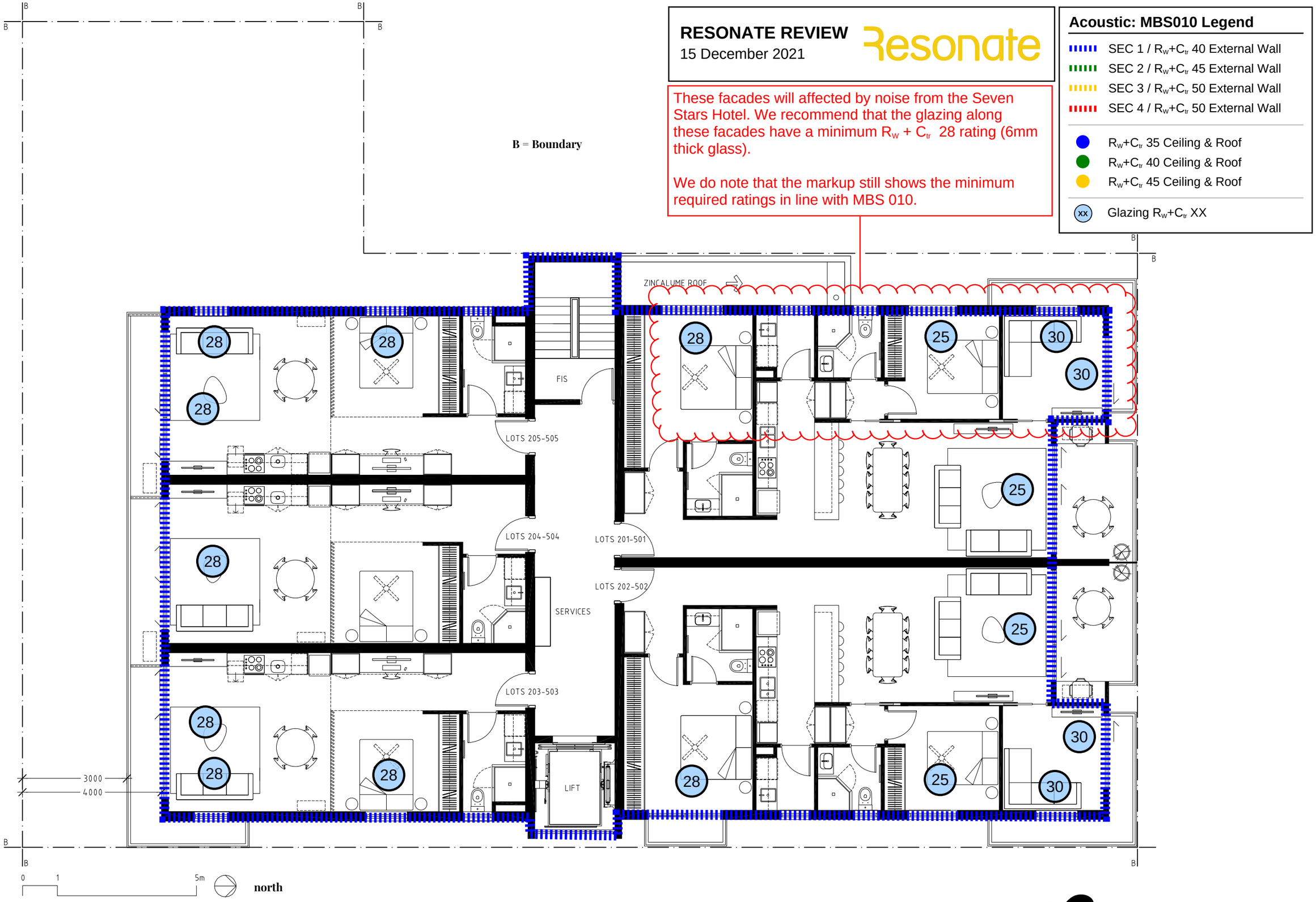
Acoustic: MBS010 Legend

- SEC 1 / R_w+C_{tr} 40 External Wall
- SEC 2 / R_w+C_{tr} 45 External Wall
- SEC 3 / R_w+C_{tr} 50 External Wall
- SEC 4 / R_w+C_{tr} 50 External Wall

- R_w+C_{tr} 35 Ceiling & Roof
- R_w+C_{tr} 40 Ceiling & Roof
- R_w+C_{tr} 45 Ceiling & Roof

- (XX) Glazing R_w+C_{tr} XX

B = Boundary



forme projex + Locus Architecture

levels - 2-5

Scale 1 : 100 DPC.008 v1.0@ 23 november 2021

193 Valerie ANGAS LIVING

RESONATE REVIEW
15 December 2021

Resonate

These facades will affected by noise from the Seven Stars Hotel. We recommend that the glazing along these facades have a minimum $R_w + C_{tr}$ 28 rating (6mm thick glass).

We do note that the markup still shows the minimum required ratings in line with MBS 010.

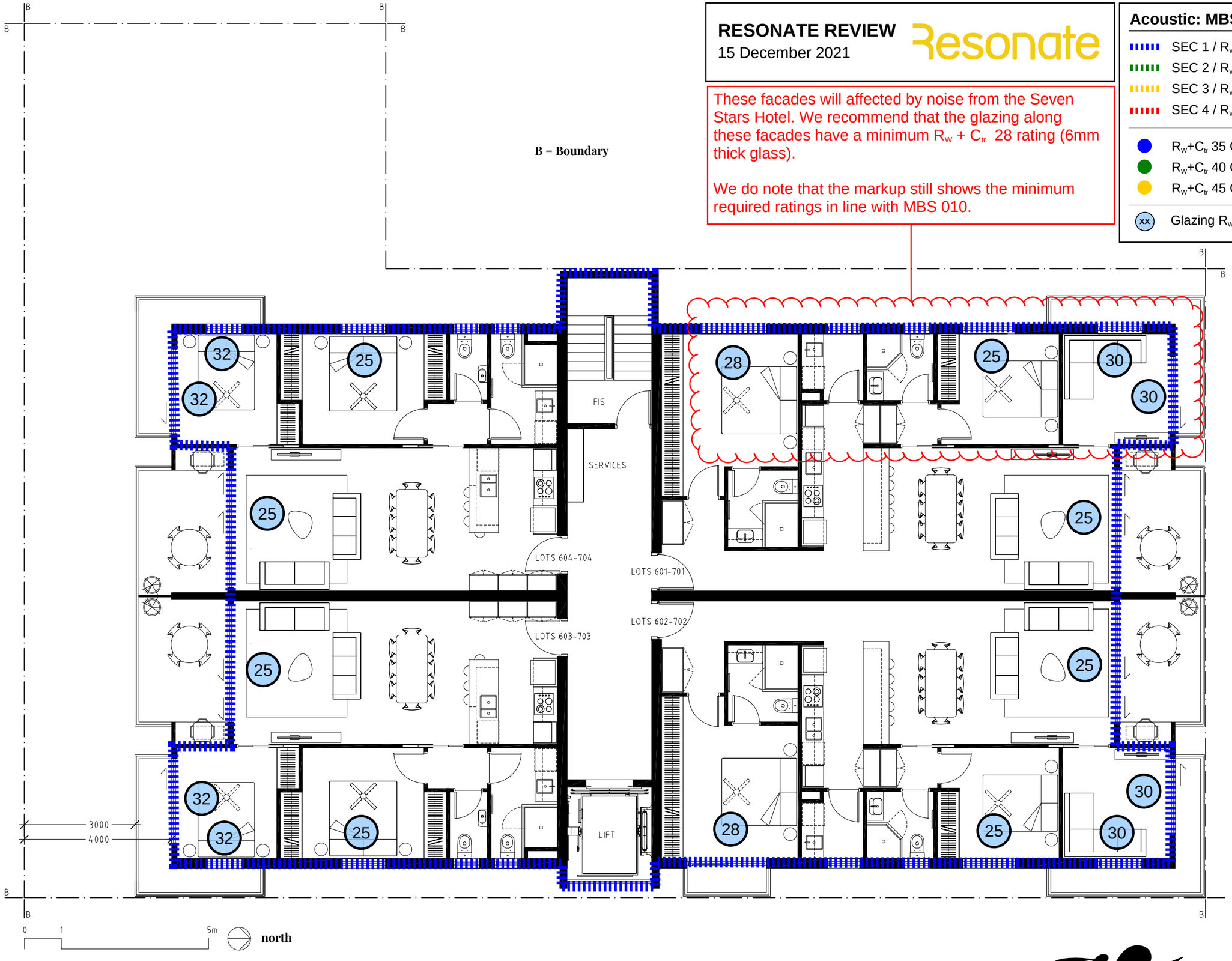
Acoustic: MBS010 Legend

- SEC 1 / R_w+C_{tr} 40 External Wall
- SEC 2 / R_w+C_{tr} 45 External Wall
- SEC 3 / R_w+C_{tr} 50 External Wall
- SEC 4 / R_w+C_{tr} 50 External Wall

- R_w+C_{tr} 35 Ceiling & Roof
- R_w+C_{tr} 40 Ceiling & Roof
- R_w+C_{tr} 45 Ceiling & Roof

- (xx) Glazing R_w+C_{tr} XX

B = Boundary



forme projex + Locus Architecture

levels - 6&7

Scale 1 : 100 DPC.008A v1.0@ 23 november 2021

193 Valerie ANGAS LIVING

RESONATE REVIEW
15 December 2021

Resonate

Acoustic: MBS010 Legend

- SEC 1 / R_w+C_{tr} 40 External Wall
- SEC 2 / R_w+C_{tr} 45 External Wall
- SEC 3 / R_w+C_{tr} 50 External Wall
- SEC 4 / R_w+C_{tr} 50 External Wall

- R_w+C_{tr} 35 Ceiling & Roof
- R_w+C_{tr} 40 Ceiling & Roof
- R_w+C_{tr} 45 Ceiling & Roof

- (xx) Glazing R_w+C_{tr} XX

B = Boundary



forme projex + Locus Architecture

level 8

Scale 1 : 100 DPC.009 v1.0@ 23 november 2021

193 Valerie ANGAS LIVING

Our Ref: Q210808

28 September, 2021

tecon AUSTRALIA

SOUTH AUSTRALIA
NORTHERN TERRITORY
WESTERN AUSTRALIA

HEAD OFFICE
5/126 Carrington Street
Adelaide, SA 5000
T 08 8228 1600
E admin@teconaust.com.au

Forme Projex
c/- Locus Architecture
4 Tapley Street
Adelaide SA 5000

Attention: Andrew Hudson

Dear Andrew

Project Description: Construction of a nine storey apartment building, including commercial and carpark at ground level

Project Address: 193 Angas Street, Adelaide SA 5000

As requested Tecon Australia have undertaken a preliminary review of the architectural documentation issued to date, leading to the lodgement for planning consent. We believe that the form, structure and elements of the building as currently set out, meet the relevant Performance Requirements of the National Construction Code, Volume 1.

The applicable details from the Building Code of Australia are summarised below:

Classification:

Ground Floor - Entrance Foyer – Class 2
- Commercial tenancy – Class 5
- Car and Bike Parking – Class 7a

Level 1-8 - Apartments – Class 2

Rise in Storeys:

9 Storeys (effective height <25m)

Type of Construction:

Type A

As the design documentation is developed, please contact us as required so we can work through the specific details required to obtain Building Rules Consent and good luck with your submission for planning consent.

If you have any queries in relation to the above, please contact the undersigned.

Yours sincerely
TECON AUSTRALIA PTY LTD

Troy Olds
Director

Tecon Australia Pty Ltd - ABN 43 102 014 933. The Trustee for Tecon Unit Trust - ABN 47 343 091 121.

BESTEC

ABN 43 909 272 047

Building Engineering
Services Technologies
Consulting Engineers

A. 144 Gawler Place
Adelaide SA 5000

GPO Box 818
Adelaide SA 5000

T. (08) 8232 4442
F. (08) 8232 4244

E. consulting@bestec.com.au
W. bestec.com.au

NAR:AGM
57078/1/0
17 December 2021

Locus Architecture
4 Tapley Street
ADELAIDE SA 5000

Attention: Mr J Endersbee

Dear Sir

RESIDENTIAL DEVELOPMENT - 193 ANGAS STREET, ADELAIDE
MECHANICAL SERVICES

We have undertaken a preliminary assessment of the National Construction Code (NCC 2019) Section J Energy Efficiency requirements for the above project. The proposed building comprises of residential apartments (level 1 to level 8), commercial office (ground level) and carpark (ground level).

RESIDENTIAL SECTION

We propose a deemed-to-satisfy energy analysis for the Class 2 residential component as follows:-

- House Energy Rating Verification Method for the Class 2 sole-occupancy units.

The following analysis summarises the key assumptions and input data utilized for the energy analysis and demonstrates the compliance of the proposed building and proposed services with the National Construction Code (NCC 2019) Section J Energy Efficiency requirements.

Please note this analysis includes a summary table of the preliminary FirstRate5 results.

Final certificate for FirstRate5 will be provided on request. This certificate is typically prepared at the completion of design documentation and incur consulting fees and certificate charges as applicable and if requested by the building certifier.

NATIONAL CONSTRUCTION CODE OF AUSTRALIA COMPLIANCE

The NCC 2019 deemed-to-satisfy provisions state:-

Building compliance with ‘Performance Requirement JP1’ is verified when the sole-occupancy units of a Class 2 building reduce the heating or cooling loads by:-

(i) Collectively achieving an average energy rating of not less than 6 stars; and

(ii) Individually achieving an energy rating of not less than 5 stars using house energy rating software.

The thermal calculation method used must comply with the Australian Building Codes Board (ABCB) Protocol for House Energy Rating Software. In order to determine compliance with NCC 2019 Section J, BESTEC utilises the FirstRate5 software package for rating sole-occupancy units. The software package complies with the ABCB Protocol for House Energy Rating Software.

PROPOSED DEVELOPMENT

Building Form and System Description

The proposed building comprises of Residential Apartments (BCA Class 2):-

- Level 1, 1 off 2 bedroom Apartments, 4 off 1 bedroom Apartments.
- Level 2 to 5, 2 off 2 bedroom Apartments, 3 off 1 bedroom Apartments.
- Level 6 and 7, 4 off 2 bedroom Apartments.

PROPOSED DEVELOPMENT (CONT.)

Building Form and System Description (Cont.)

- Level 8, 1 off 3 bedroom Apartment, 2 off 2 bedroom Apartments.

The ratings are only applicable to residential apartments as per National Construction Code 2019 (NCC 2016). The ground level office and carpark area are exclusive of this analysis.

The following section presents the data used in the simulation of the proposed buildings.

Location	Adelaide, South Australia.
Climate Zone	5

The following details refer to the architectural drawings dated 23 November 2021.

The overall thermal R-values and transmission coefficients for the wall, roof and ceiling systems have been calculated using elemental component resistances for the construction materials, insulation materials, air spaces and surface boundary layers.

BUILDING FABRIC

EXTERNAL WALL

The following wall construction has been modelled for all external walls:-

Construction	Thickness (mm)	R-Value (m².K/W)
Precast Concrete Wall WT1 (approximate thickness: 270mm)		
Indoor Air Film		0.12
Plasterboard	13	0.08
R2.0 Wall Insulation (within 76mm steel studs)	**70**	**2.00**
Air gap vertical (unventilated and non-reflective)	14	0.15
Precast Concrete	175	0.12
Outside Air Film		0.04
Equivalent Total R-Value		**2.51**

Construction	Thickness (mm)	R-Value (m².K/W)
CFC Clad Steel Stud Wall WT3 (approximate thickness: 180mm)		
Indoor Air Film		0.12
Plasterboard	13	0.08
***R3.0* Wall Insulation Batt (within 150mm steel studs)**	**150**	**3.00**
***Thermal Break (*between 150mm steel studs and CFC sheet)**	**8**	**0.20**
7.5mm Compressed Fibre Cement Sheet	8	0.12
Outside Air Film		0.04
Equivalent Total R-Value		**3.92**

INTERNAL WALLS

Construction	Thickness (mm)	R-Value (m².K/W)
Internal Wall WT2 : Between corridor and units (approximate thickness: 270mm)		
Indoor Air Film		0.12
Plasterboard	**13**	**0.08**
R2.0 Wall Insulation (within 76mm steel studs)	**70**	**2.00**
Air gap vertical (unventilated and non-reflective)	14	0.15

Construction	Thickness (mm)	R-Value (m².K/W)
Precast Concrete	175	0.12
Indoor Air Film		0.12
Equivalent Total R-Value		**2.59**

INTERNAL WALL (Cont.)

Construction	Thickness (mm)	R-Value (m².K/W)
Internal Partition WT10 : Wall within units (approximate thickness: 100mm)		
Indoor Air Film		0.12
Plasterboard	13	0.08
R2.0 Wall Insulation Batt (within 76mm steel studs)	**70**	**2.20**
Plasterboard	13	0.08
Indoor Air Film		0.12
Equivalent Total R-Value		**2.60**

Construction	Thickness (mm)	R-Value (m².K/W)
Neighbouring Wall WT4 : Wall between units (approximate thickness: 215mm)		
Indoor Air Film		0.12
Plasterboard	13	0.08
R2.0 Wall Insulation (within 76mm steel studs)	**70**	**2.00**
Air gap vertical (unventilated and non-reflective)	20	0.16
Fire rated plasterboard	10	0.06
Air gap vertical (unventilated and non-reflective)	20	0.16
R2.0 Wall Insulation (within 76mm steel studs)	***70***	***2.00***
Plasterboard	*13*	0.08
Indoor Air Film		0.12
Equivalent Total R-Value		***4.78***

FLOORS

Construction	Thickness (mm)	R-Value (m².K/W)
Typical Floors – Suspended Slab (above conditioned space)		
Indoor Air Film	-	0.12
Carpet/tiles	2	0.00
Concrete Slab	200	0.19
Air gap horizontal (unventilated and non-reflective)	-	0.16
R2.5 ceiling insulation batt	**90**	**2.50**
Plasterboard	13	0.06
Indoor Air Film	-	0.12
Equivalent Total R-Value		**3.15**

Construction	Thickness (mm)	R-Value (m².K/W)
1st Floors – Suspended Slab (above unconditioned space)		
Indoor Air Film	-	0.12
Carpet/tiles	2	0.00

Concrete Slab	200	0.19
Construction	**Thickness (mm)**	**R-Value (m².K/W)**
Indoor Air Film	-	0.12
Equivalent Total R-Value		**0.43**

ROOFING & CEILING

Construction	Thickness (mm)	R-Value (m².K/W)
Indoor Air Film		0.12
Plasterboard	13	0.08
R6.0 ceiling insulation batt (non-reflective)	***260***	***6.00***
Air gap horizontal (unventilated and non-reflective)	-	0.16
R1.8 roof insulation blanket (with reflective foil for roof)	**75**	**1.80**
Metal deck	-	0.00
Outside Air Film	-	0.04
Equivalent Total R-Value		***8.20***

GLAZING

To achieve NCC Section J compliance, the glazing thermal performance (inclusive of the window frame) are outlined in the following table:-

Construction	U-Value (W/m².K)	SHGC
Level 1 to level 8 (North Facade) - Double Glazed/Insulated Glass Unit, EnergyTech™ Grey or similar	**3.50**	**0.30**
Level 1 to level 8 (East and West Facade) - Double Glazed/Insulated Glass Unit, SolTech™ Grey or similar	**3.50**	**0.33**
Level 1 to level 8 (South Facade) - Double Glazed/Insulated Glass Unit, EnergyTech™ Clear or similar	**3.50**	**0.44**
Level 1 to 8 (Bedroom windows) - Double Glazed/Insulated Glass Unit, Soltech™ Grey LoE + vLam Hush or similar	**3.50**	**0.3**

All glazing below the specified U-Value and within ± 10% of the Solar Heat Gain Co-efficient is considered acceptable.

RESULTS

To achieve compliance with NCC, it is necessary for individual apartments to achieve a minimum 5 star rating. Collectively, the apartments are required to achieve an average 6 star rating.

The following table summarises the "house" energy ratings for the sole-occupancy units on level 1 to level 8 inclusive:-

Apartment Designation	Energy rating based on architectural drawings dated 23 November 2021	
	Star Rating	Energy Consumption (MJ/m².annum)
101	8.6	30.3
102	8.4	33.2
103	7.1	66.6
104	7.8	50.9
105	7.3	62.0
201 to 501	8.7	28.2
202 to 502	8.4	33.1
203 to 503	7.8	49.7
204 to 504	8.4	36.5
205 to 505	7.6	55.1
601 to 701	8.7	29.2
602 to 702	8.6	31.1
603 to 703	8.3	38.6
604 to 704	8.2	41.6
801	7.7	53.0
802	7.9	47.2
803	7.9	48.9
Average	**8.1**	**43.2**

The results show that the building will achieve a collective average energy consumption of **43.4MJ/m^2.annum** which is equivalent to an **8.1 Star** rating utilising the building fabric thermal parameters outlined above.

COMMERCIAL SECTION

CLASS 5 - Office (Ground Level)

BUILDING FABRIC

EXTERNAL WALL

The BCA Deemed-to-Satisfy requirement for wall construction minimum R-Value for wall area which is less than 80% of the area of wall-glazing construction is R1.0, or the wall area which is 80% or more of the area of wall-glazing construction is R1.4.

Based on BCA Deemed-to-Satisfy requirement, the following wall construction is proposed to comply with the BCA Deemed-to-Satisfy requirements:-

Construction	Thickness (mm)	R-Value (m².K/W)
Existing Masonry Wall		
Indoor Air Film	-	0.12
Cement: sand (1:4) Plaster	20	0.04
Brickwork	110	0.14
R1.0 Insulation	50	1.0
Air gap vertical (unventilated and non-reflective)	50	0.16
Brickwork	110	0.14
Outside Air Film	-	0.04
Total	**340**	**1.64**

INTERNAL WALLS

The following wall constructions have been modelled for the internal wall types:-

Construction	Thickness (mm)	R-Value (m².K/W)
Partition Wall WT1 : Between conditioning space and non-conditioned space		
Indoor Air Film	-	0.12
Plasterboard	20	0.08
R1.0 Wall Insulation	50	1.00
Plasterboard	20	0.08
Indoor Air Film	-	0.12
Total	**90**	**1.40**

FLOORS

The BCA Deemed-to-Satisfy requirement for floor construction (J1.6) for climate zone 5 is **R2.0.**

BCA Volume One Specification J1.6 describes the thermal performance of soil in direct contact with a floor for the purposes of calculating the Total R-Value. Table 2b details the R-value of soil as a ratio of floor area to exposed perimeter against wall thickness.

The building area is approximately 150 m^2 and has an exposed perimeter of 65.5 m, therefore the ratio of floor area to perimeter is 2.3. The R-value for the slab on ground needs to be greater than R2.0 for wall thicknesses over 300mm, floor insulation will be required.

Floor Construction	R- Value (summer heat flow inwards)
Floor slab on ground	
1. Indoor air film	0.16
2. Insulation R1.0	1.00
3. Concrete slab (200mm)	0.10
4. Soil	1.30
Total R-Value (m^2K/W)	**2.56**

GLAZING

The ABCB J1.5 Volume 1 Calculator has been used to determine the thermal performance requirements of the wall-glazing construction.

The results of this calculation show the building in the current design will be compliant with BCA 2019 J1.5 with the glazing performance detailed in the following table: -

Construction	U-Value ($W/m^2.K$)	SHGC
Existing glazing on east and north facade	5.8	0.45

SUMMARY

The above report demonstrates that the proposed design based on the stated thermal performance characteristics will comply with NCC 2019 Section J – Energy Efficiency.

We trust the above is satisfactory and we would be pleased to further advice on any aspect upon your request.

Yours faithfully
BESTEC PTY LTD

NICHOLAS ROSSHIRT
DIRECTOR

BESTEC

ABN 43 909 272 047

Building Engineering
Services Technologies
Consulting Engineers

A. 144 Gawler Place
Adelaide SA 5000

GPO Box 818
Adelaide SA 5000

T. (08) 8232 4442
F. (08) 8232 4244

E. consulting@bestec.com.au
W. bestec.com.au

MDB:SLT
57078/0/1
08 December 2021

Forme Projex
40 Gilbert Street
ADELAIDE SA 5000

Attention: Mr A Hudson

Dear Sir

RESIDENTIAL DEVELOPMENT - 193 ANGAS STREET, ADELAIDE
MECHANICAL, ELECTRICAL, HYDRAULIC AND FIRE PROTECTION SERVICES

As requested, we present the following summary of the Mechanical, Electrical, Hydraulic and Fire Protection Services proposed for the above development.

We confirm that the locations and spatial allowances for the associated plant and equipment are included in the Locus Architecture drawings dated 23 November 2021, which reflect the equipment required to suit the relevant statutory authorities' specific requirements.

MECHANICAL SERVICES

The proposed Mechanical Services will comprise the following: -

- Air conditioning incorporating high wall split type air conditioning systems to serve the apartments.
- Ducted type toilet exhaust systems to serve the amenities areas in each apartment with exhaust to external façade.
- Ducted type domestic rangehoods to serve the kitchen cooktops, with exhaust to the external façade.
- Natural ventilation to ground floor carpark utilising natural ventilation.
- Natural ventilation and light to the upper floor lift lobbies.

ELECTRICAL SERVICES

The proposed Electrical Services will comprise the following: -

- General purpose and specific power supplies to common area services, with power supply to the site from an external SAPN Transformer
- Emergency and exit lighting to common areas.
- General external, security, carpark and common area lighting.
- General purpose and specific power supplies and lighting connected to individual apartment load centres.
- Telecommunications carrier lead-in conduits to the ground floor distribution point and individual conduit pathways to each apartment.
- Intercoms from the ground floor front entrance door to each apartment.
- Provision for future electric vehicle (EV) charging points to the car stacker area.
- Electrical Metering via Embedded energy type meter arrangement so each apartment owner receives their own retail account, including for future EV car charging.

HYDRAULIC SERVICES

The proposed Hydraulic Services will comprise the following: -

- 150 mm South Australian Water Corporation sewer connection.
- 40mm diameter South Australian Water Corporation water meter located in below ground cast iron footpath box.
- Water metered to each apartment via embedded energy meter arrangement so each apartment owner receives an account based on their actual usage, to allow fair apportioning of the water costs.
- Domestic cold water storage tank and associated pressure pump set to provide adequate water pressure to all levels of the building.
- Sanitary plumbing drainage and reticulation as required to suit fixture locations.
- High quality commercial grade sanitary fixtures and tapware fittings.
- Tempering valves as required to temper domestic hot water delivered to fixtures used primarily for personal ablution purposes such as hand basins and showers.
- Central gas fired flow and return type domestic hot water system, with each apartment fitted with an embedded energy hot water meter to allow fair apportioning of the gas consumption costs to each apartment based on hot water usage.
- Stormwater drainage from roofed and balcony areas.
- Drainage provided to collect water that runs off of the western façade and prevent it running onto the adjacent properties.
- Mechanical services condensate drainage system.

FIRE PROTECTION SERVICES

The proposed Fire Protection Services will comprise the following: -

- Fire service water supply connection from the SA Water Corporation town main in Angus Street.
- South Australian Metropolitan Fire Service (SAMFS) suction and booster assembly located in the façade, in location shown on the architectural drawings at ground level, to serve the fire hydrant and fire sprinkler systems.
- Automatic fire sprinkler system throughout.
- Internal fire hydrants located in the fire stair.
- Internal fire hose reel to the ground floor carpark area.
- Fire Indicator Panel (FIP) located in the entry foyer to serve the smoke detection, occupant warning and sprinkler system alarms.
- Fire alarm transmission to SAMFS for the smoke detection and fire sprinkler systems.
- Smoke alarms to each apartment.
- Smoke detection and alarm system to common areas, lobbies and corridors.
- Portable fire extinguishers (not provided to individual apartments).

ECOLOGICALLY SUSTAINABLE DEVELOPMENT (ESD)

The building design and apartment configurations are an evolution of previous projects by Forme Projex.

Part J assessments on previous projects have achieved ratings in excess of the Building Code of Australia (BCA) minimum requirements.

A full 'First Rate' will be undertaken for this specific project at the detailed Design/Building Rules Consent submission phase.

The project will incorporate the following ESD initiatives: -

- Low energy LED lighting to all apartments. Typically, 250 watts for 2-bedroom apartments.
- 3 speed ceiling fans to assist air movement to bedrooms and living spaces.
- Recessed western facing windows for sun shading.
- Laminated glass with low-e coating to western facing windows.
- LED lighting to common areas activated by PIR movement sensors.
- Energy efficient traction drive passenger lift.
- 10kW roof mounted solar panel arrays to offset common area power consumption.
- WELS rated low flow tapware, WC's and shower heads.
- High ceilings and window heads to assist natural light penetration.
- Inverter split system air-conditioning to individual living and bedroom areas only, close coupled for efficiency.
- Generous balconies which afford good weather protection to expansive glass sliding doors.
- Naturally ventilated car and bicycle parking areas and to the waste holding area.
- Insulation to roof, ceilings, internal walls and external walls.
- Naturally ventilated roof cavities.
- Located to maximise walkable amenity including ready access to public transport and designed to minimise requirements for motorised transport usage.

We trust this is of assistance, please contact the undersigned should you require further information.

Yours faithfully
BESTEC PTY LTD

MARK BATTAMS
ASSOCIATE DIRECTOR

cc Locus Architecture - Mr J Endersbee

A.M. ENVIRONMENTAL CONSULTING

PRELIMINARY ENVIRONMENTAL SITE HISTORY AND SCREENING LEVEL SOIL AND VAPOUR ASSESSMENT

193 Angas Street, Adelaide, South Australia

Prepared For: forme projex

15 December 2021

Document reference

2071 R1

Issue and revision record

Revision	Date	Originator	Checker	Description
A	15 December 2021	AM	AM	Final report

Prepared by

A.M. Environmental Consulting Pty Ltd

Disclaimer

This report has been prepared solely for use by the party which commissioned it (the 'Client') in connection with the captioned project. It should not be used for any other purpose. No person other than the Client or any party who has expressly agreed terms of reliance with us (the 'Recipient(s)') may rely on the content, information or any views expressed in the report. We accept no duty of care, responsibility or liability to any other recipient of this document. This report is confidential and contains proprietary intellectual property.

No representation, warranty or undertaking, express or implied, is made and no responsibility or liability is accepted by us to any party other than the Client or any Recipient(s), as to the accuracy or completeness of the information contained in this report. For the avoidance of doubt this report does not in any way purport to include any legal, insurance or financial advice or opinion.

We disclaim all and any liability whether arising in tort or contract or otherwise which it might otherwise have to any party other than the Client or the Recipient(s), in respect of this report, or any information attributed to it.

We accept no responsibility for any error or omission in the report which is due to an error or omission in data, information or statements supplied to us by other parties including the client ('Data'). We have not independently verified such Data and have assumed it to be accurate, complete, reliable and current as of the date of such information.

Forecasts presented in this document were prepared using Data and the report is dependent or based on Data. Inevitably, some of the assumptions used to develop the forecasts will not be realised and unanticipated events and circumstances may occur. Consequently A.M. Environmental Consulting Pty Ltd does not guarantee or warrant the conclusions contained in the report as there are likely to be differences between the forecasts and the actual results and those differences may be material. While we consider that the information and opinions given in this report are sound all parties must rely on their own skill and judgement when making use of it.

Under no circumstances may this report or any extract or summary thereof be used in connection with any public or private securities offering, including any related memorandum or prospectus for any securities offering or stock exchange listing or announcement.

EXECUTIVE SUMMARY

A.M. Environmental Consulting Pty Ltd (AME) was commissioned by forme projex to conduct environmental site history research, shallow soil and soil vapour sampling and analysis for the site located at 198 Angas Street, Adelaide, South Australia (`the site').

The proposed development is a multi-storey residential apartment block. Existing external walls are to be preserved where possible and repurposed as the outer skin of the new structures. All other existing structures, including all internal walls and all floors, are to be demolished. Significant volumes of surface soils will be removed across the site as part of the demolition process. The site will be fully capped with an engineered concrete slab over a waterproof membrane barrier and compacted rubble base. Lift and car stacker pits will be constructed using a waterproofing additive in the concrete, with an underlying waterproof membrane, and waterstop barriers to the structural engineer's specification. The ground floor will primarily comprise car parking and services with approx. 25% of the site occupied by office use. Residential land use will be confined to levels 1 – 8 with level 1 commencing approx. 4.9m above the ground level. The buildings would be underlain with a concrete slab and base course gravel and fortecon. Service trenches would be filled with 500mm of imported clean fill (quarry supplied sands and gravels). There would be no domestic food production at the site. There would be no contact with subsurface soils once developed. Groundwater would not be abstracted for use.

The aim of the work was to assess the potential for previous or current land uses to have resulted in gross or widespread soil contamination to exist and whether there are potential contamination aspects or impacts that may present potential liabilities or constraints on future development.

The work was conducted in general accordance with the NEPC (1999), National Environment Protection (Assessment of Site Contamination) Measure, December 1999 (ASC NEPM) as amended in 2013.; Standards Australia. Guide to the investigation and sampling of sites with potentially contaminated soil – AS 4482.1-2005 and the SA EPA (October 2018). *Guidelines for the Assessment and Remediation of Site Contamination* (GAR).

The site history information indicated that the site has been occupied by potentially contaminating activities. There were no fuel tanks observed at the site or encountered during the site visit. The site owner indicated that no above or underground fuel tanks were located at the site.

However, preliminary soil and soil vapour analysis did not indicate the presence of contamination at the locations assessed.

It is important to note that the nature of the development would comprise current building demolition and removal of significant volumes of surface soils. It is recommended that more detailed soil and groundwater assessment be conducted once demolition has occurred. The nature of the development means that there is limited access to subsurface soils once further assessment is conducted and soils removed prior to vertical construction commencing.

Therefore, based on the work conducted, it is our opinion as environmental consultants, that the risk of site contamination precluding the proposed use is low and if contamination was encountered then this could be readily managed in the course of the building construction and development.

Contents

EXECUTIVE SUMMARY		II
1.0	INTRODUCTION	1
1.1	Background	1
1.2	Proposed development	1
1.3	Aim	1
1.4	Scope of work	8
2.0	REGULATORY AND ASSESSMENT FRAMEWORK	9
2.1	Site contamination	9
2.2	SA Planning Commission Practice Direction 14 Site Contamination Assessment 2021	9
2.3	Environment Protection Act, 1993	10
2.4	Assessment guidelines	10
2.4.1	National Environment Protection Measure	11
2.4.2	Guidelines Adopted	12
2.4.3	Canadian Soil Quality Guidelines (SQGs) for the Protection of Environmental Health	13
2.4.4	Ecological Soil Screening Levels (Eco-SSLs)	13
2.4.5	Environment Protection (Water Quality) Policy 2015	13
2.4.6	ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality	13
2.4.7	Other water guidelines	13
2.5	Data quality objectives	13
3.0	SITE INFORMATION	3
3.1	Site description and photographs	3
3.2	Aesthetic considerations	5
3.3	Surrounding land use	5
3.4	Surrounding Planning and Design Code Zones and Generalised Land use	6
3.5	Topographic and Elevation features	8
3.6	Regional soil, geology and hydrogeology	10
3.7	Acid sulphate soils	10
4.0	HISTORICAL RESEARCH	11
4.1	History of ownership	11
4.2	Aerial photographs	12
4.3	Lotsearch Report dated 13 September 2021 (Reference Lotsearch LS024029 EP)	13
4.4	SA EPA Section 7 Search	15
4.5	Dangerous goods search	15
4.6	Anecdotal Information	15
5.0	AREAS OF ENVIRONMENTAL INTEREST	16
6.0	SCREENING LEVEL SOIL AND SOIL VAPOUR ASSESSMENT	17
6.1	Rationale	17
6.2	Methodology	17
6.3	Chemical analysis	19
6.4	Guidelines	20
6.5	Results	20

6.5.1 Soil observations 20
6.5.2 PID results 20
6.5.3 Laboratory results 21
6.5.3.1 Soil 21
6.5.3.2 Soil Vapour 21
6.6 Quality assurance/quality control 21
6.6.1 Data validation 21
6.6.2 Duplicate analysis 22

7.0 CONCEPTUAL SITE MODEL AND ASSESSMENT OF RISK 23

7.1 Purpose 23
7.2 Context 23
7.3 Accuracy and Relevance of Information 23
7.4 Risk analysis 23

8.0 CONCLUSION 26

9.0 IMPORTANT INFORMATION 28

10.0 REFERENCES 30

11.0 APPENDIX 31

APPENDIX A: CERTIFICATE OF TITLE

APPENDIX B: LOTSEARCH REPORT

APPENDIX C: INFOTRACK REPORT

APPENDIX D: SA EPA SECTION 7

APPENDIX E: SOIL VAPOUR METHOD

APPENDIX F: BORELOGS

APPENDIX G: CERTIFIED ANALYTICAL LABORATORY CERTIFICATES

1.0 Introduction

1.1 Background

A.M. Environmental Consulting Pty Ltd (AME) was commissioned by forme projex to conduct environmental site history research, shallow soil and soil vapour sampling and analysis for the site located at 198 Angas Street, Adelaide, South Australia (`the site').

A copy of the Certificates of Title is provided in Appendix A.

The site is situated in the Adelaide City Council local government area. A map showing the site's regional context is provided in Figure 1.1 and the site and site boundary in Figure 1.2.

1.2 Proposed development

The proposed development comprises the development of a residential building on a portion of the site.

The proposed development plan is provided in Figures 1.3 to 1.6 below.

The proposed development is a multi-storey residential apartment block. Existing external walls are to be preserved where possible and repurposed as the outer skin of the new structures. All other existing structures, including all internal walls and all floors, are to be demolished. Significant volumes of surface soils will be removed across the site as part of the demolition process. The site will be fully capped with an engineered concrete slab over a waterproof membrane barrier and compacted rubble base. Lift and car stacker pits will be constructed using a waterproofing additive in the concrete, with an underlying waterproof membrane, and waterstop barriers to the structural engineer's specification. The ground floor will primarily comprise car parking and services with approx. 25% of the site occupied by office use. Residential land use will be confined to levels 1 – 8 with level 1 commencing approx. 4.9m above the ground level. The buildings would be underlain with a concrete slab and base course gravel and fortecon. Service trenches would be filled with 500mm of imported clean fill (quarry supplied sands and gravels). There would be no domestic food production at the site. There would be no contact with subsurface soils once developed. Groundwater would not be abstracted for use.

1.3 Aim

The aim was to assess the potential for gross or widespread soil and groundwater contamination to exist as a result of current or previous land uses at the site (Potentially Contaminating Activities) and whether there are potential soil contamination aspects or impacts that may present potential liabilities or constraints on the proposed future residential development.

Topographic Features

193 Angas Street, Adelaide, SA 5000



Figure 1.1: Map showing site location and regional context

Site Diagram

193 Angas Street, Adelaide, SA 5000

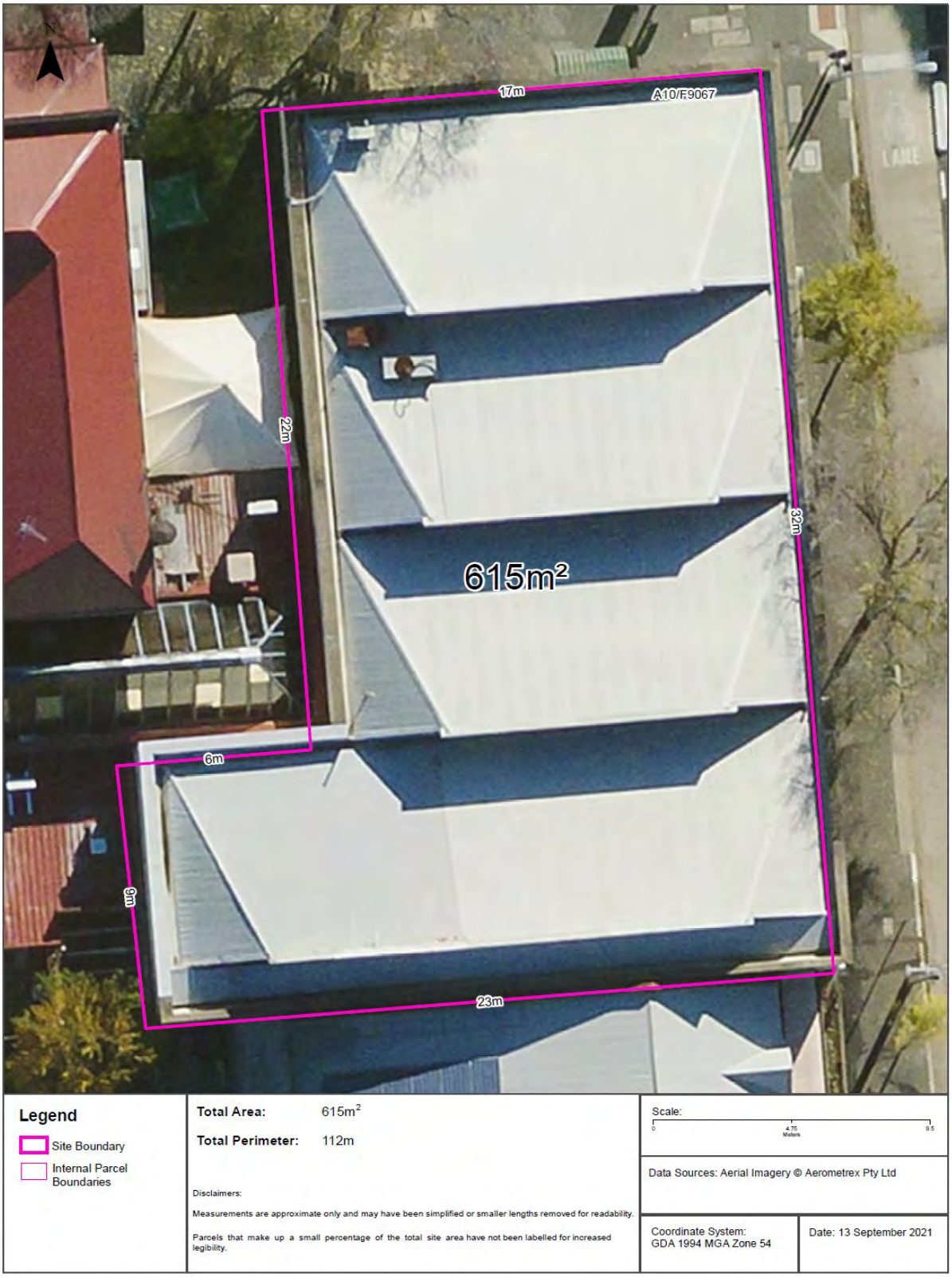


Figure 1.2: Site plan



Figure 1.3: Proposed development plan concept (provided by client)

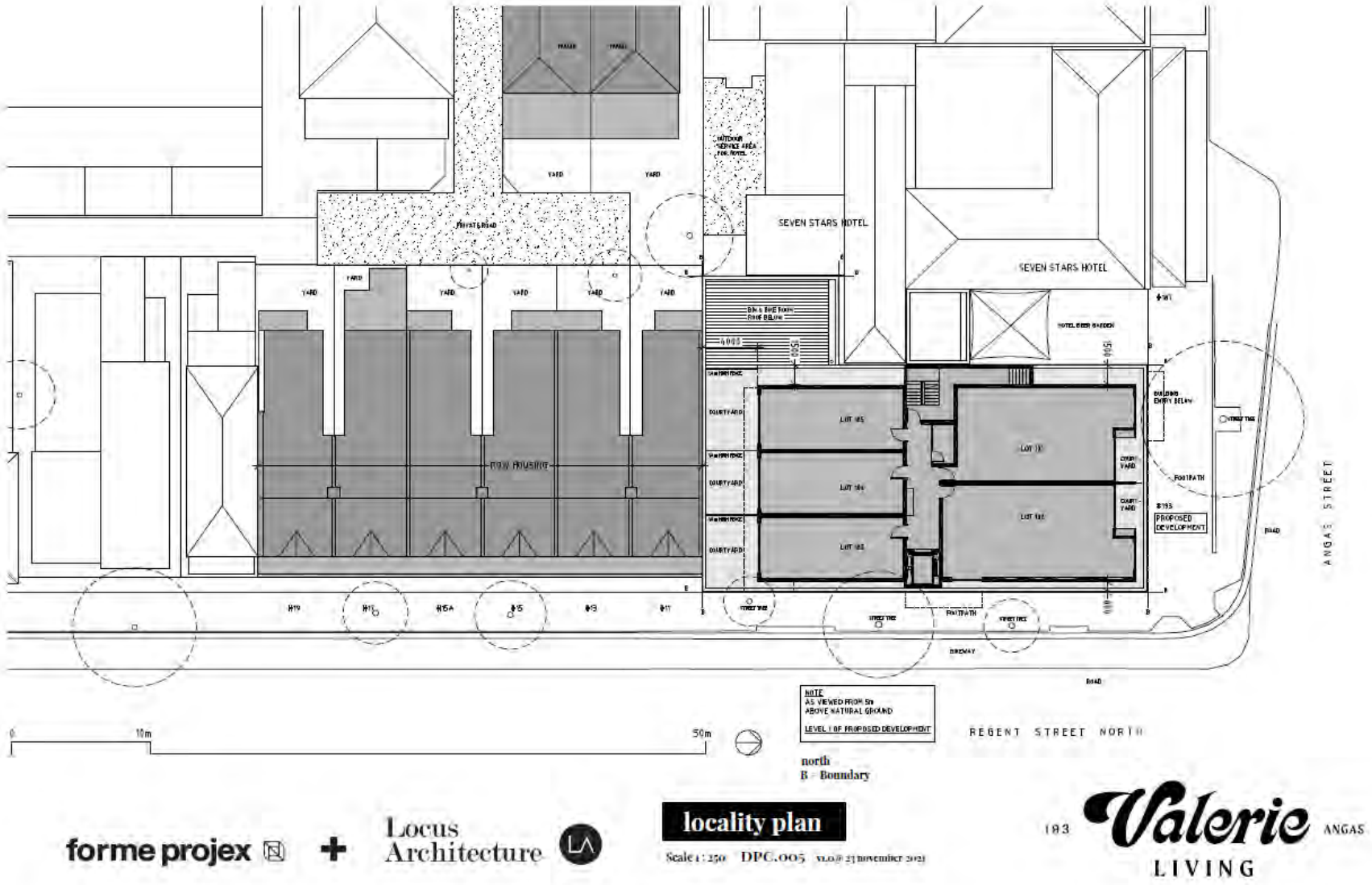


Figure 1.4: Proposed development plan concept (provided by client)

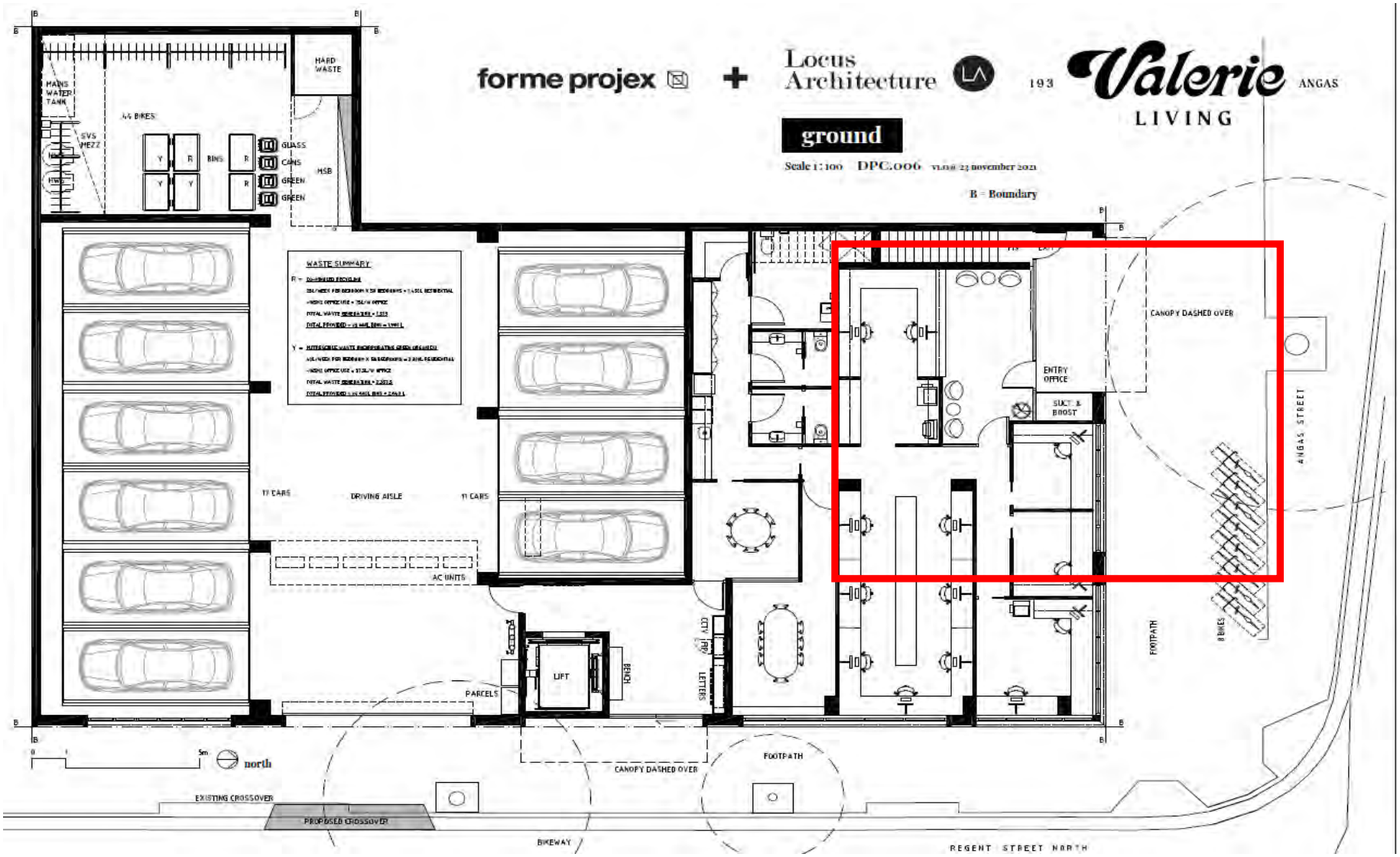


Figure 1.5: Proposed development plan concept (provided by client)



Figure 1.6: Proposed concept (provided by client)

1.4 Scope of work

The following work scope was undertaken:

- Site history assessment, which included consideration of information from the following sources:
  - Site walkover
  - Consideration of information provided by client
  - Consideration of information provided in Lotsearch Report dated 13 September 2021 (Reference LS024029 EP) which has been provided in Appendix B. Relevant sections have been referenced and extracted and placed into the body of the report and/or provided as a separate appendix.
  - SafeWork SA Dangerous Goods Licence search (to be provided when available)
  - Environment Protection Authority (EPA) Section 7 search
  - Department of Planning, Transport and Infrastructure (DPTI) Property Assist Certificate of Title search
  - Department for Environment and Water (DEW) Mapland and Nearmap historical aerial photograph search
  - DEW WaterConnect groundwater database search
  - Historical Certificate of Title search via the Department of Planning, Transport and Infrastructure South Australian Integrated Land Information System
  - Information provided by previous owners
  - SA EPA Public Register Directory – Site contamination index search
- Assessment of soils and soil vapour at the site, comprising:
  - Sample retrieval on 11 November 2021 from three (3) soil locations using a Rockmaster Drilling rig and push tubes
  - Logging of the materials encountered
  - Screening of soil samples in the field using a Photo Ionisation Detector (PID) to assess the presence of volatile organic compounds
  - Installation and retrieval of Waterloo soil vapour samplers
  - Chemical analysis of selected soil samples for key chemicals of interest
  - Implementation of a QA/QC program
  - Data interpretation and reporting.

2.0 Regulatory and Assessment Framework

2.1 Site contamination

Soil contamination has the potential to impact adversely on human health and the environment; however, in order for a significant or identifiable risk to be present, there must be an exposure pathway. The exposure pathway comprises the following:

- Source – The presence of a substance that may cause harm.
- Receptor – The presence of a receptor which might be harmed at an exposure point.
- Pathway – The existence of a means or mechanism of exposing a receptor to the source.

In the absence of a plausible exposure pathway there can be minimal risk. Therefore, the presence of 'something measurable' i.e. a concentration of a chemical does not necessarily imply that there is measurable human harm. It is necessary to have a significant source of contamination, an appropriate or effective pathway for this to be presented to a receptor, and the receptor must have a negative response to this exposure.

Hence, the nature and importance of sources, receptors and exposure routes will vary with every site, situation, intended end use and environmental setting.

It should also be noted that management measures to address any aspect of the above can reduce the significance of any risks.

2.2 SA Planning Commission Practice Direction 14 Site Contamination Assessment 2021

This instrument is certified pursuant to section 52(1) of the Planning, Development and Infrastructure Act 2016 This practice direction is issued by the State Planning Commission under sections 42 and 127 of the Planning, Development and Infrastructure Act 2016. Introduction Section 42 of the Planning, Development and Infrastructure Act 2016 allows the State Planning Commission (the "Commission") to issue practice directions for the purposes of the Act.

Generally, practice directions specify procedural requirements or steps in connection with a matter arising under the Act. In certain cases, the Act provides that a particular matter may be addressed or dealt with by a practice direction. Section 4 of the Act sets out rules that relate to a change in the use of land, which is a form of development under the Act. This practice direction is part of a scheme that provides for requirements that apply in relation to the assessment of potential site contamination when land use changes to a more sensitive use or where a land division proposes a sensitive use.

Because site contamination is linked to land use, bringing about a change in land use can cause site contamination (under section 103D(2) of the Environment Protection Act 1993 and regulation 51 of the Environment Protection Regulations 2009) even though the person who brought about the change of use may not be the original polluter. In particular, this practice direction sets out some forms and related requirements that will support various requirements under the Planning, Development and Infrastructure (General) Regulations 2017 when a relevant authority is considering an application for planning consent where the application proposes a change in land use to a more sensitive use or, in the case of land division, the

application proposes a sensitive use. This practice direction also provides specified conditions (pursuant to section 127(1)(b) of the Act) for development authorisations where remediation may be necessary before occupation or use of land the subject of the application.

2.3 Environment Protection Act, 1993

In South Australia, the assessment, management and remediation of site contamination is regulated by the *Environment Protection Act 1993* (EP Act). The EP Act defines site contamination in section 5B as follows:

> *(1) For the purposes of this Act, site contamination exists at a site if—*
>
> > *(a) chemical substances are present on or below the surface of the site in concentrations above the background concentrations (if any); and*
> >
> > *(b) the chemical substances have, at least in part, come to be present there as a result of an activity at the site or elsewhere; and*
> >
> > *(c) the presence of the chemical substances in those concentrations has resulted in—*
> >
> > > *(i) actual or potential harm to the health or safety of human beings that is not trivial, taking into account current or proposed land uses; or*
> > >
> > > *(ii) actual or potential harm to water that is not trivial; or*
> > >
> > > *(iii) other actual or potential environmental harm that is not trivial, taking into account current or proposed land uses.*
>
> *(2) For the purposes of this Act, environmental harm is caused by the presence of chemical substances—*
>
> > *(a) whether the harm is a direct or indirect result of the presence of the chemical substances; and*
> >
> > *(b) whether the harm results from the presence of the chemical substances alone or the combined effects of the presence of the chemical substances and other factors.*
>
> *(3) For the purposes of this Act, site contamination does not exist at a site if circumstances of a kind prescribed by regulation apply to the site.*

Based on the above, the first stage in determining whether site contamination exists is to assess whether chemical substances have been added to the site through an activity and whether these substances are above background concentrations. The second stage is to assess whether the chemical substances have resulted in actual or potential harm to the health or safety of human beings or the environment that is not trivial.

The professional assessment of site contamination and consequential risk to human health and the environment is guided by the *National Environment Protection (Assessment of Site Contamination) Measure* (NEPM), Australian Standards and several guidelines prepared the EPA. The NEPM operates as an environment protection policy under the EP Act.

If site contamination is determined to be present at a site, the EP Act provides mechanisms to assign responsibility for the contamination and appropriate assessment and/or remediation of the contamination.

2.4 Assessment guidelines

The scope of works and methodology adopted for the assessment were generally based on the guidance provided in the following documents:

- SA EPA publication Guidelines for the assessment and remediation of site contamination (2018, amended 2019) (the GAR).
- ANZECC/NHMR.C (1992). Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites
- NEPC (1999). National Environment Protection (Assessment of Site Contamination) Measure, December 1999 (ASC NEPM) as amended in 2013
- Standards Australia. Guide to the investigation and sampling of sites with potentially contaminated soil – AS 4482.1-2005
- Environment Protection (Water Quality) Policy 2015
- ANZECC (2000). Australian and New Zealand Guidelines for Fresh and Marine Water Quality

2.4.1 National Environment Protection Measure

The NEPM provides a nationally consistent framework for assessing the presence and significance of site contamination in soil and groundwater. The NEPM methodology is based on assessing the potential for an unacceptable risk to human health or the environment by comparing concentrations of chemical substances to conservative, generic investigation levels for various environmental settings and land use scenarios.

Investigation levels are defined in the NEPM as 'concentrations of a contaminant above which further appropriate investigation and evaluation will be required'. They are not clean up or response levels. A response level is defined as 'the concentration of a contaminant at a specific site based on a site assessment for which some form of response is required to provide an adequate margin of safety to protect public health and/or the environment'.

The NEPM health investigation levels (HILs) are based on conservative assumptions around providing protection to a young child living or playing on the site and subjected to exposure to contaminated soils. The most stringent HILs are assigned to sensitive land uses such as residential, childcare centres and primary schools. Where the land use provides for reduced access to soils, or reduced time in the setting for a child (e.g. high-density residential apartments or an industrial site), higher HILs are set in the NEPM. If an investigation level is exceeded at a site, the nature of the appropriate response is typically determined by site-specific environmental or human health risk assessment. NEPM HIL A (Residential) is conservatively used in this assessment.

NEPM ecological investigation levels (EILs) are provided for Arsenic, Copper, Chromium III, DDT, naphthalene, Nickel, Lead and Zinc in soil for the protection of terrestrial ecosystems. These are based on a species sensitivity distribution model developed for Australian conditions, and have been developed for areas of ecological significance, urban residential areas/public open space and commercial and industrial uses. The protection levels are dependent on these land use settings, with areas of ecological significance having the most protection. The NEPM aged EILs for urban residential areas/public open space are used in this assessment.

The NEPM ecological screening level (ESLs) are concentrations above which further appropriate investigation and evaluation would be required. ESLs broadly apply to coarse- and fine-grained soils and various land uses and are generally applicable to the top 2 m of soil. The NEPM ESLs (urban residential & public open space) are used in this assessment.

The NEPM also provides Health Screening Levels for Vapour Intrusion (HSLs). These are investigation levels for soil and soil vapour in the assessment of site contamination. These guidelines consider concentrations in soil and take into consideration soil types, depths of contaminant concentrations in the soil profile, the depth to

groundwater and the nature of the overlying soils. The NEPM HSL-A (Low Density Residential) and HSL-B (High Density Residential) guidelines are used in this assessment.

The NEPM management limits (residential, parkland & public open space) are used to assess the presence of petroleum hydrocarbons.

2.4.2 Guidelines Adopted

Analytical results have been compared with criteria specified in the National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) (NEPM). It is understood that residential dwellings are proposed to be constructed within the investigation area.

As such, the following investigation exposure settings are considered to be the most relevant and have been adopted for the purpose of this investigation:

- Ecological Investigation Levels (EILs) for urban residential and public open space land uses;
- Ecological Screening Levels (ESLs) for urban residential land use;
- Health Investigation Levels for high density residential land use (HIL B);
- Health Screening Levels for Vapour Intrusion for low-high density residential land use (Res A and B); and
- 'Management Limits' for petroleum hydrocarbon compounds (Management Limits) for residential, parkland and public open space.

The ecological and health screening levels were selected based on material type. As the predominant near surface soil type encountered was clay investigation exposure settings for clay soils were adopted (where applicable).

It is noted that the ESL listed in the NEPM for the compound benzo(a)pyrene is 0.7 mg/kg. However, the SA EPA recognises that this is an overly conservative level and considers it acceptable to adopt the health based level (HIL-A of 3mg/kg) as it is considered to be sufficiently protective of ecological receptors for use as a tier 1 investigation level. As such, an ESL value of 3 mg/kg has been adopted for the benzo(a)pyrene compound.

The laboratory limits of reporting in the soil investigation are acceptable to compare with relevant guidelines for the contaminants of concern. The EIL toolbox calculations are presented with the soil results tables as an attachment to this report.

Further consideration of the health investigation level for carcinogenic PAHs was conducted following a review of the site history, intrusive soil investigation and the analytical results. The HIL developed in the NEPM for Carcinogenic PAHs of 4mg/kg for high density residential land use is based on freshly spiked soil dermal absorption rates of 6%, as opposed to studies with aged PAHs 2.6% (i.e. worst-case scenario).

Historical information indicates the site has not been recently redeveloped which would suggest the importation of any fill materials occurred historically. As such, any Carcinogenic PAH impacts would be considered 'aged'. The NEPM (2013) (Schedule B7 – Appendix A2, Section 1.3.2. Dermal Absorption - Pg. 3. The Derivation of HILS for PAHs and Phenols) states that "As ageing soils decrease the bioavailability of B(a)P, the dermal absorption data from freshly spiked soils can provide a worst-case estimate of dermal absorption. The geometric mean of dermal absorption using freshly spiked soils from the above studies (including in vivo studies) is 6%, while using data for aged soils yields a geometric mean of 2.6%" (Abdel-Rahman et al. 2002).

As such, a dermal absorption rate of 2.6%, based on aged B(a)P is more appropriate in relation to the HIL for Carcinogenic PAHs associated with the site. A dermal absorption rate of 2.6% has been applied to the NEPM HIL derivation spreadsheets, resulting in a site specific HIL of 7mg/kg for Carcinogenic PAHs. It is noted that the revised HIL is akin to HIL B with minimal soil contact.

2.4.3 Canadian Soil Quality Guidelines (SQGs) for the Protection of Environmental Health

The Canadian Council of Ministers for the Environment (CCME) CCME 2010 SQG (Residential/parkland) environmental guidelines are used in this assessment in the absence of NEPM EILs.

2.4.4 Ecological Soil Screening Levels (Eco-SSLs)

The United States Environmental Protection Agency (USEPA) Eco-SSLs for plants, soil invertebrates and wildlife are used in this assessment in the absence of NEPM EILs and CCME 2010 SQGE (Residential/parkland) criteria. The most conservative guidelines from plants, soil invertebrates and wildlife criteria are adopted.

2.4.5 Environment Protection (Water Quality) Policy 2015

Environment Protection (Water Quality) Policy 2015 Water quality criteria (EPP) are provided for a suite of substances for fresh water, marine waters and drinking water. The EPP 2015 guidelines are used in this assessment.

2.4.6 ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality

The Australian National Water Quality Management Strategy presents trigger values for chemicals that may be found in fresh and marine waters. These are the concentrations of the key performance indicators measured for the ecosystem, below which there exists a low risk that adverse biological (ecological) effects will occur. They indicate a risk of impact if exceeded and should 'trigger' some action, either further ecosystem specific investigations or implementation of management/remedial actions. The ANZECC (2000) trigger values are used in this assessment, based on the EPP (2015).

2.4.7 Other water guidelines

Other adopted guidelines include;

- Australian Drinking Water Guidelines (ADWG, 2011, updated in 2017)
- National Health and Medical Research Council Drinking water health guidelines (NHMRC, 2008)
- Dutch 'C' and Intervention Levels (1999 and 2009)
- World Health Organisation Guidelines for Drinking Water Quality (WHO, 2017)

2.5 Data quality objectives

The data quality objective (DQO) process is a seven-step iterative planning approach that is used to define the type, quantity and quality of data needed to inform decisions relating to the environmental condition of a site. A summary of the process is provided in Table 2.1.

Table 2.1: Data quality objectives

Step	Requirement	Comment
1	State the problem	The client requires information to understand whether widespread or gross soil or groundwater contamination is present at the site. The assessment aims to use multiple lines of evidence to screen for gross or widespread issues which present a potential liability and require remediation. Sufficient information is required to satisfy the requirements of the planning authority.
2	Identify the decision/goal of the study	Information is required in relation to the site's history, shallow soils across the site and about the nature/status of groundwater. If soils or groundwater are demonstrated to be exceeding the adopted guidelines, then further consideration of the specific medium would be considered. The goals of the field investigation and sampling programs were to obtain screening level information on the potential for widespread or gross distribution of chemicals in soils and groundwater at the locations assessed. The adopted criteria to which the soil analytical results will be compared are: ■ NEPM HIL A/B ■ NEPM aged EILs (urban residential areas/public open space) ■ NEPM ESLs (urban residential & public open space) ■ NEPM HSL-A (Low Density Residential) and HSL-B (High Density Residential) ■ NEPM management limits (residential, parkland & public open space) ■ CCME 2010 SQG (Residential/parkland) environmental guidelines in the absence of NEPM EILs ■ USEPA Eco-SSLs for plants, soil invertebrates and wildlife in the absence of NEPM EILs and CCME 2010 criteria. The most conservative guidelines from plants, soil invertebrates and wildlife criteria will be adopted. The adopted criteria to which the groundwater analytical results will be compared are: ■ NEPM HSL A & B ■ Environment Protection (Water Quality) Policy 2015 ■ ANZECC (2000) trigger values ■ National Health and Medical Research Council Drinking water health guidelines (NHMRC, 2008) ■ Dutch 'C' and Intervention Levels (1999 and 2009) ■ World Health Organisation Guidelines for Drinking Water Quality (WHO, 2017) ■ Australian Drinking Water Guidelines (ADWG, 2011, updated in 2017) Statistical analysis would be undertaken to determine the 95% UCL to compare against soil criteria, as required.
3	Identify the information inputs	Information required to support decisions and recommendations includes details on the media e.g. fill/natural soil; field observations and measurements (e.g. PID) and chemical concentrations from soil and groundwater samples to be assessed against the adopted guidelines. The inputs required to address the study goals are also outlined in this report and include: ■ Previous site data ■ Proposed land uses and development boundaries

Step	Requirement	Comment
		■ Appropriate guideline documents for fieldwork and assessment, and the above guideline criteria for comparison against laboratory results ■ Appropriately experienced environmental staff ■ Geological data and information relevant to subsurface structures ■ Hydrogeological data ■ Soil, fill and groundwater samples ■ Laboratory analysis of the above media by NATA accredited laboratories and analytical methods for the chemicals of concern in soil and groundwater ■ Observations regarding the presence of building materials or other waste materials, including materials potentially containing ash ■ Observations of odours and discolouration of the soil, groundwater and surface water media ■ Distribution of identified onsite contamination ■ Consideration of potential transport mechanisms ■ Consideration of potential exposure pathways ■ Quality assurance and quality control (QA/QC) data.
4	Define the boundaries of the study	The fourth step involves specifying the spatial and temporal aspects of the environmental media that the data must represent to support decision(s). The matters to consider at this stage include: ■ the geographical extent of the proposed investigation, as provided in Figure 1.2. ■ temporal boundaries (obvious ongoing requirements) ■ the land use boundaries of the site to be assessed per the NEPM land use guidelines ■ the lateral and vertical intervals in which contamination distribution is encountered Conditions can change with time; however, the temporal aspects of the site will be considered in terms of consideration of previous information against information to the be obtained as part of this study. The vertical extent of the site will include surface soils, shallow fill and natural soils.
5	Develop the analytical approach	The fifth step involves defining the parameter of interest, specifying the action level, and integrating information from Steps 1-4 into a single statement that gives a logical basis for choosing between alternative actions. If the PID reading is greater than 10ppm, then further consideration of soil sampling for volatile organic compounds/organics would be conducted. During groundwater sampling, the field parameters would be measured until there is less than a 10% variation between the measurements. Acceptable limits adopted in the assessment are defined in Table 2.2.

Step	Requirement	Comment
6	Specify performance or acceptance criteria	Relevant performance and/or acceptance criteria were determined for quality assurance/quality control purposes and comparison of soil and groundwater analytical results to appropriate assessment criteria. The method to address the acceptable limits on decision errors has been based on the Data Quality Indicators (DQIs) of precision, accuracy, representativeness, comparability and completeness. The tolerable limits on decision errors for data include: Probability that 95% of data satisfied the DQIs, therefore the limit on the decision error that a conclusive statement may be incorrect is 5%. In applying statistical analysis of a data set: ■ No individual sample reports a concentration that exceeded 250% of site assessment criteria ■ A normal distribution was only used if the coefficient of variance was not greater than 1.2 ■ The standard deviation of a sample population did not exceed 50% of the site assessment criteria ■ A robust quality assurance and quality control (QA/QC) program was implemented ■ Appropriate sampling and analytical density for the purposes of the investigations and representative sampling was undertaken. The project DQIs have been established to set acceptance limits on field and laboratory data collected for this investigation. Laboratory procedure acceptance limits are set at different levels for different laboratories. Non-compliances with acceptance limits are to be documented and discussed.
7	Develop the plan for obtaining data	The seventh step involves identifying the most resource-effective sampling and analysis design for generating the data that is required to satisfy the DQOs. The collection of data was optimised by the development of an appropriate sampling and analytical strategy and included: ■ The division of work into distinct sections for consideration ■ The consideration of the most suitable sampling and assessment methods and options ■ The selection of site assessment guidelines based on the site context and the optimisation of the site redevelopment at the time of assessment.

Table 2.2 Acceptable limits

DQI	Field	Laboratory	Acceptability Limits
Completeness	■ All critical locations sampled ■ All samples collected (from grid and depth) ■ Standard Operating Procedures (SOPs) appropriate and complied with ■ Experienced sampler ■ Documentation correct	■ All critical samples analysed and all analytes analysed according to SOPs ■ Appropriate methods ■ Appropriate practical quantitation limits (PQL) ■ Sample documentation complete ■ Sample holding times complied with	As per NEPC (1999) < nominated criteria As per NEPC (1999)
Comparability	■ Sample SOPs used on each occasion ■ Experienced sampler ■ Site climatic conditions Same types of samples collected ■ Use of the same kinds of instruments	■ Same analytical methods used (including clean-up) ■ Sample PQL (justify/quantify if different) ■ Same laboratories (NATA accredited) ■ Same units	As per NEPC (1999) < nominated criteria
Representativeness	■ Appropriate media sampled according to SOP ■ All relevant media sampled ■ The analytical suite targets the contaminants of concern	All samples analysed according to SOP	
Precision	■ SOPs appropriate and complied with ■ Collection of blind and split duplicate samples	Analysis of: ■ Blind duplicate samples (1 in 10 samples) ■ Split duplicate samples (1 in 20 samples) ■ Laboratory duplicate samples ■ Laboratory prepared trip blank (1 sampling round)	RPD of 30 to 50% RPD of 30 to 50% RPD of 30 to 50% Non-detect for COC
Accuracy	■ SOPs appropriate and complied with ■ Collection of rinsate blanks ■ Field trip blanks ■ Field rinsates ■ Method blanks	Analysis of: ■ Matrix spikes acceptability ranges ■ Matrix spike duplicates ■ Surrogate spikes ■ Laboratory control samples ■ Laboratory prepared spikes	 Typically 70 to 130% RPD of <30% 70 to 130% 70 to 130% 70 to 130%

3.0 Site Information

3.1 Site description and photographs

A site visit was conducted by an AME representative on 11 November 2021.

The site is comprised of four main areas. The front of the building facing north is the display room and offices. The central portion is used for sewing and cutting and assembly. The southern third of the site is used for carparking and mezzanine storage. The south western corner of the site is used for dyes and printing.

There were no observed areas of waste disposal or stained or odorous liquids or material on the surface. Site walkover photographs are shown in Photos 3.1-3.2 below. There was a small chemical wash sink and a 20 litre collection container on a concrete bunded floor in the south western corner of the site (which is co9llected by external contractors and contains pigments and dyes in small volume). There was also an adjacent waste water interceptor and disposal pit connected to the mains next to this area.



Photo 3.1: Eastern side of site looking west



Photo 3.2: Northern side of site looking south

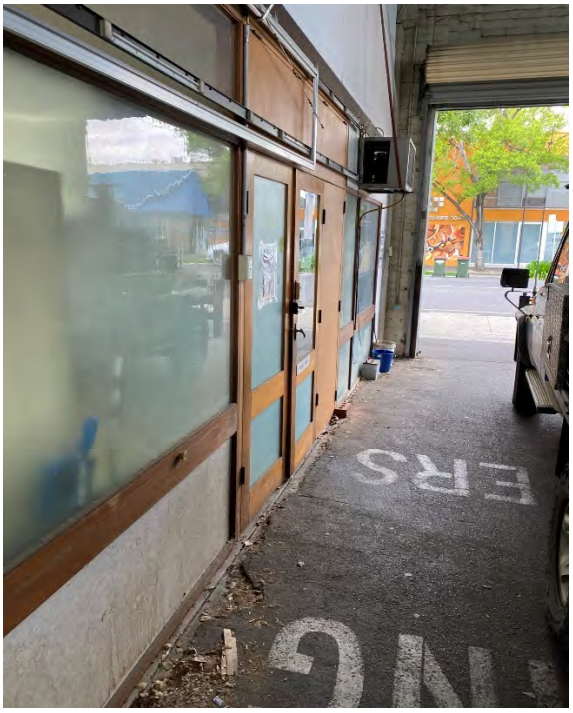


Photo 3.3: Inside rear portion of site looking east

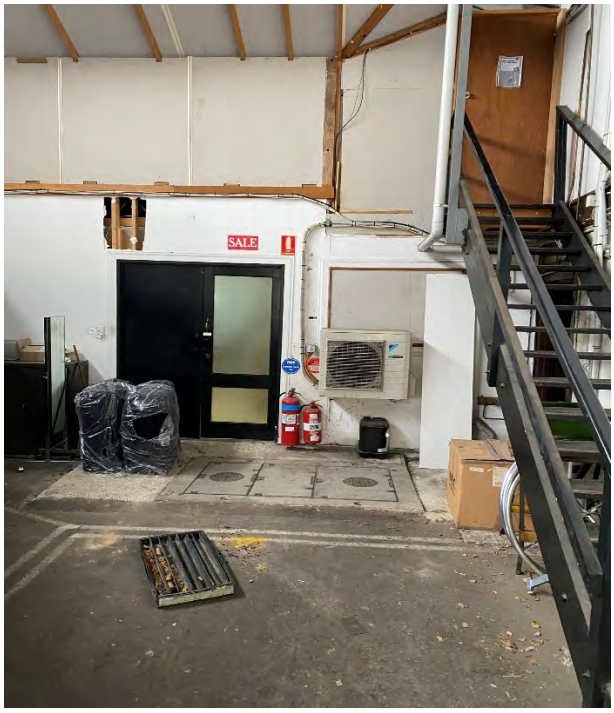


Photo 3.4: Rear portion of site

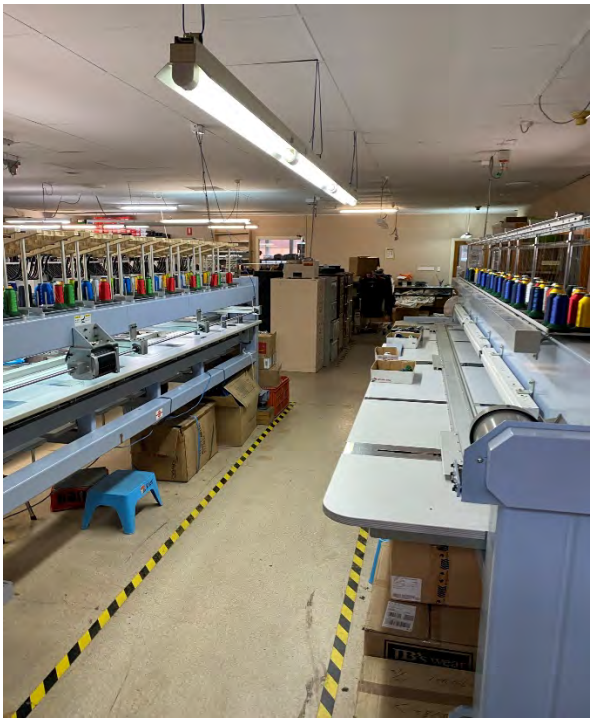


Photo 3.5 Internal cutting and sewing room



Photo 3.6: BH1 and BH2



Photo 3.7: BH3



Photo 3.8: Rear carparking on southern portion of site.

3.2 Aesthetic considerations

Aesthetic considerations relate to the presence of low-concern or non-hazardous inert foreign material (refuse) in soil or fill resulting from human activity. There are no specific numeric aesthetic guidelines; however, site assessment requires balanced consideration of the quantity, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity. The following observations were made in relation to aesthetic issues at the site:

- There were no significant odours (e.g. strong residual petroleum hydrocarbon odours)
- There was no hydrocarbon sheen on the site surface
- There were no discoloured chemical deposits or stains with chemical waste.
- There was no putrescible refuse, including material that may generate hazardous levels of methane, such as a deep-fill profile of green waste or large quantities of timber waste
- Filling was noticed in the eastern portion of the site

3.3 Surrounding land use

The surrounding land use is summarised below:

- North: Angas Street and commercial
- East: Frome Road and commercial
- South : Commercial and residential
- West: Commercial

3.4 Surrounding Planning and Design Code Zones and Generalised Land use

Surrounding Planning and design Code Zones and Generalised Land use information is provided in Appendix B.

The site is located per Figure 3.1 below. Figure 3.2 depicts generalised land use (in 2019) .

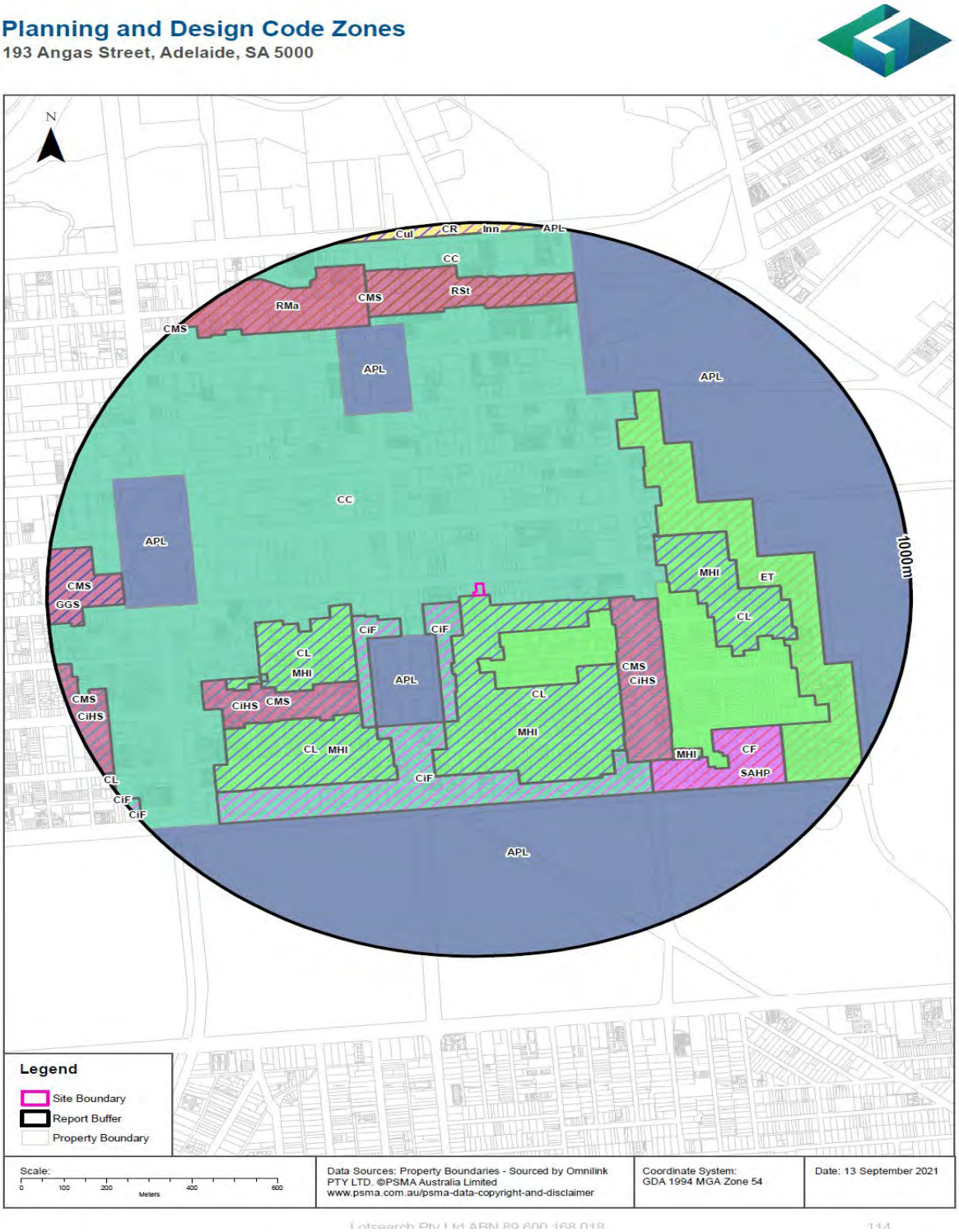


Figure 3.1: Surrounding land development zones

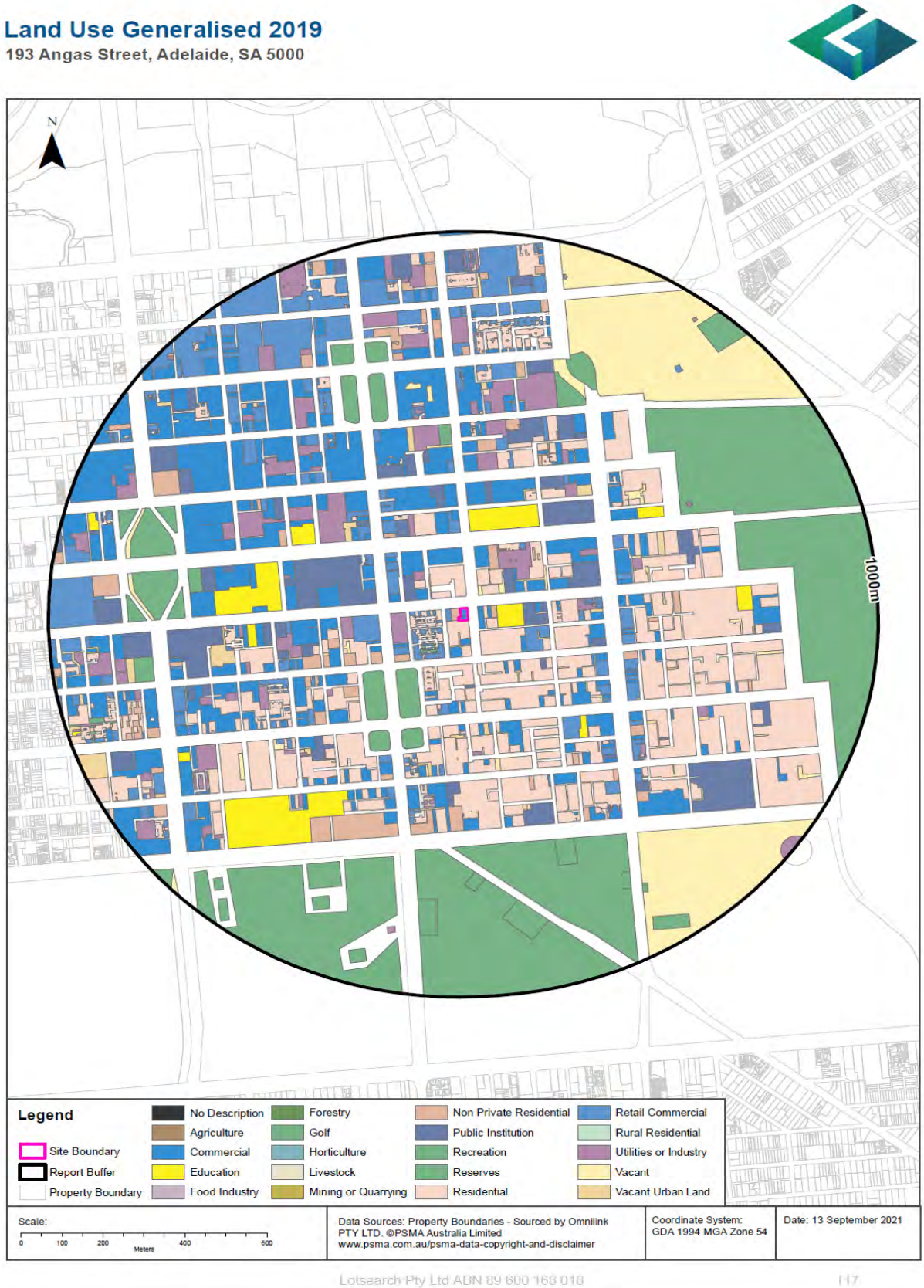


Figure 3.2: Generalised land use zones (2018)

3.5 Topographic and Elevation features

The surrounding area is generally level. Figure 3.3 and 3.4 outlines the topography and elevation and this information is included in Appendix B.

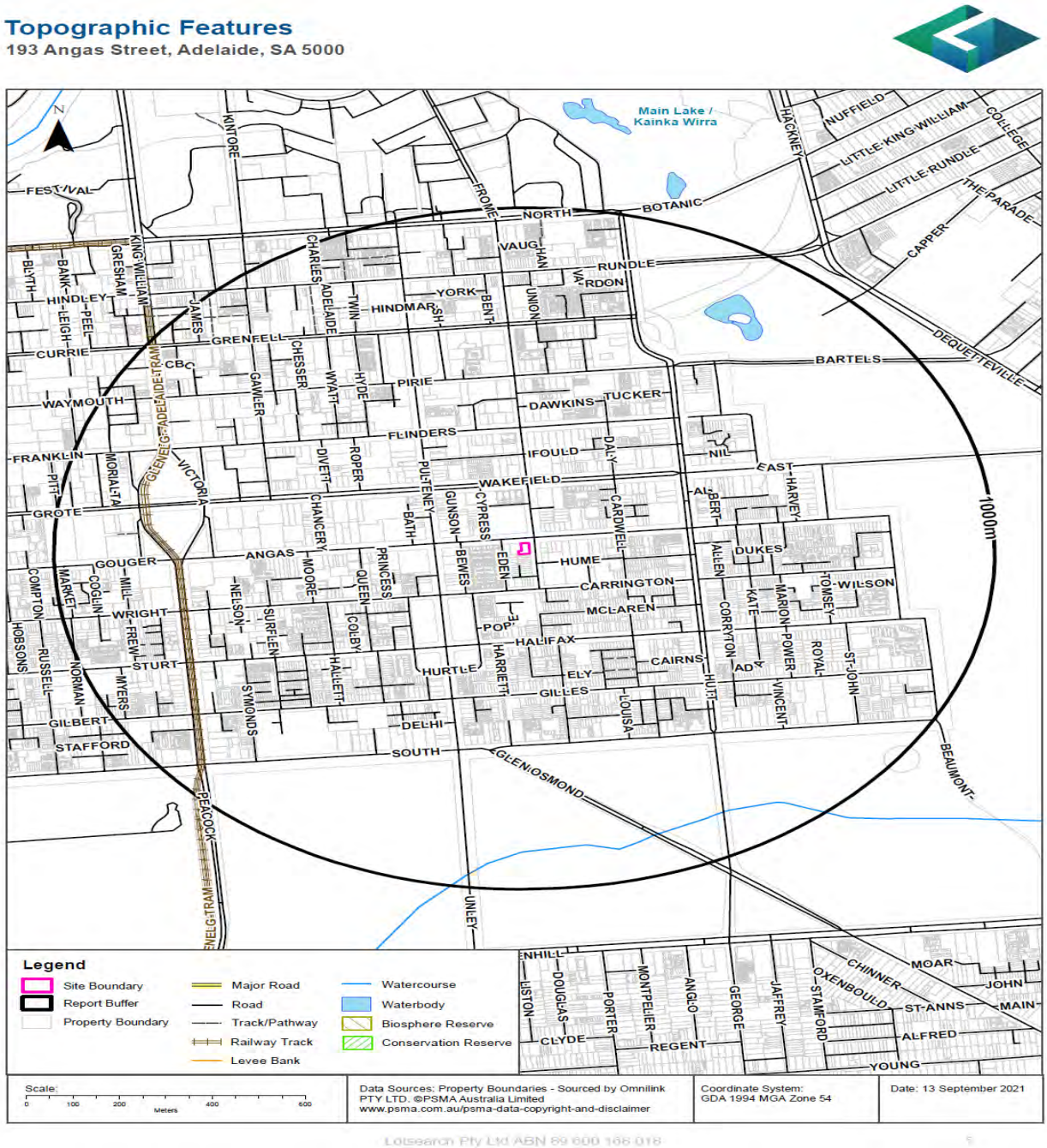


Figure 3.3: Topographic features

Elevation Contours

193 Angas Street, Adelaide, SA 5000

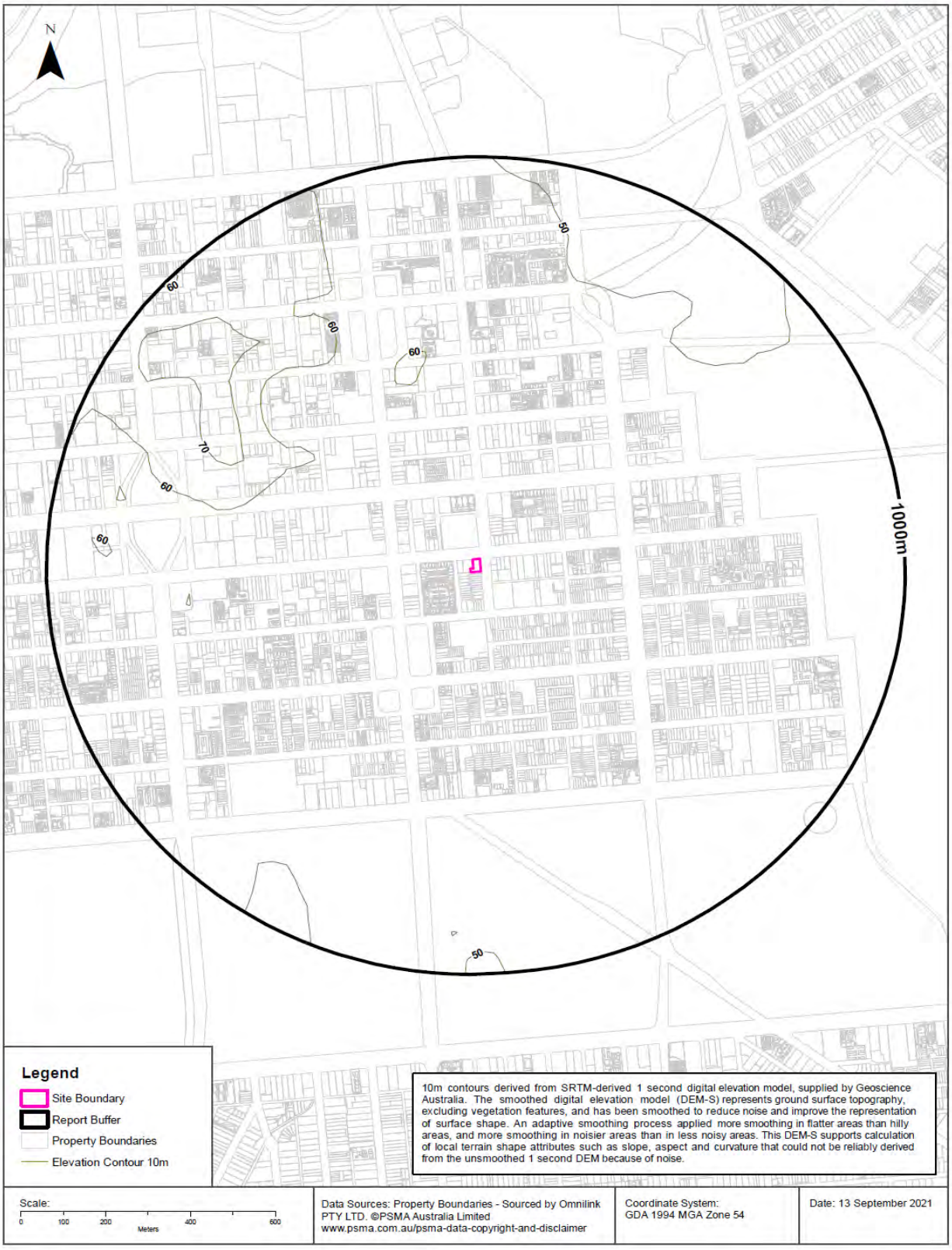


Figure 3.4: Elevation features

3.6 Regional soil, geology and hydrogeology

A summary of the regional soil, geology and hydrogeology is presented in Table 3.3 and Appendix C.

Table 3.3: Regional soil, geology and hydrogeology

Source	Detail
Geology	
Atlas of Australian Soils, ABARES	Outwash plains: hard alkaline red soils (Dr2.23 with small areas Dr2.33); small areas cracking clay soils (Ug5.15, Ug5.16, and Ug5.2), also hard alkaline yellow mottled soils (Dy3.43); minor areas (Um6.21) and (Uf6.11); various alluvial soils (unclassified) in the stream valleys. Supplementary soil information is included in Appendix B.
Hydrogeology	
Department for Environment and Water (DEW) WaterConnect Groundwater Database	A DEW groundwater database search that was conducted in September 2021 indicates that no groundwater wells within 100m of the site. Where recorded, the purposes are listed in Appendix B. The drill hole plan shown in Appendix B. The groundwater data report and plan showing the locations, drilled depths, standing water level and TDS of the groundwater wells is provided in Appendix B. Groundwater is likely to be encountered at depths of below less than 25m below ground level and comprise variable TDS ranges. The regional groundwater is expected to flow in a north to north westerly direction and there are no nearby sensitive ecological waterways nearby.

3.7 Acid sulphate soils

Acid sulphate soils as listed in Appendix A of the SA EPA Guidelines Site Contamination – Acid Sulphate Soil Materials (2007) are unlikely to be present at the site. The CSIRO Atlas of Australian Acid Sulphate Soils Atlas of Australian Acid Sulfate Soils indicates low potential for acid sulphate soils to exist. The map is included in Appendix B.

4.0 Historical Research

4.1 History of ownership

A history of ownership search was conducted through the DPTI South Australian Integrated Land Information System (SALIS) website for the certificates of title and was performed and supplied by Infotrack Pty Ltd. The full report is provided in Appendix C. The search results are summarised in Table 4.1. Comments have been provided based on consideration of aerial photographs and business directory searches which are discussed in later sections of this report.

Table 4.1 Historical certificate of title ownership search

Description: - Allotment 10 Filed Plan 9067		
Date of Acquisition and term held	**Registered Proprietor(s) & Occupations where available**	**Reference to Title at Acquisition and sale**
05.01.1878 (1878 to 1895)	Joseph Orchard (Licensed Victualler)	Vol 268 Fol 54
11.04.1895 (1895 to 1901)	Eleanor Jane Orchard (Married Woman) (& her deceased estate)	Vol 268 Fol 54 Now Vol 623 Folio 115
As regards the part numbered (2) on the attached Title Diagram		
04.07.1871 (1871 to 1895)	Joseph Orchard (Licensed Victualler)	Vol 155 Fol 156
11.04.1895 (1895 to 1901)	Eleanor Jane Orchard (Married Woman) (& her deceased estate)	Vol 155 Fol 156 Now Vol 623 Folio 115
As regards the part numbered (3) on the attached Title Diagram		
26.01.1870 (1870 to 1895)	Joseph Orchard (Licensed Victualler)	Vol 140 Fol 137
11.04.1895 (1895 to 1901)	Eleanor Jane Orchard (Married Woman) (& her deceased estate)	Vol 140 Fol 137 Now Vol 623 Folio 115
12.03.1901 (1901 to 1901)	Joseph Orchard (Gentleman) (& his deceased estate)	Vol 623 Folio 115 Now Vol 681 Fol 23
06.09.1901 (1901 to 1905)	William Walter Warren (Brewer) William Peck (Out of Business)	Vol 681 Fol 23
21.02.1905 (1905 to 1906)	William Walter Warren (Brewer) William Peck (Out of Business) James Samuel Wells (Publican)	Vol 681 Fol 23 Now Vol 751 Fol 65
24.07.1906 (1906 to 1911)	William Walter Warren (Brewer) Alexander McGregor (Out of Business) James Samuel Wells (Publican) – Now deceased	Vol 751 Fol 65
12.06.1911 (1911 to 1920)	Mesach Fricker (Hotelkeeper)	Vol 751 Fol 65
22.04.1920 (1920 to 1923)	Samuel Robert Price (Hotelkeeper) (& his deceased estate)	Vol 751 Fol 65
02.08.1923 (1923 to 1962)	David Callel David (Hotelkeeper, now Land Agent) (& his deceased estate)	Vol 751 Fol 65 Then Vol 1725 Fol 10 Vol 1904 Fol 182 Now Vol 2056 Fol 16
13.04.1962 (1962 to 1964)	Harry David (Traveller) Anthony David (Carpenter) James Corry Mellor (Carpenter) (Trustees re the Estate of David Callel David)	Vol 2056 Fol 16
18.11.1964 1964 to 1975)	David John David (Medical Student) Anthony David (Retired) James Corry Mellor (Solicitor) (Trustees re the Estate of David Callel David)	Vol 2056 Fol 16
15.09.1975 (1975 to 1979)	Henrietta Adelaide Dorothy David (Widow) (For her life while a widow) Barbara Minnie Rees (Married Woman) (For her life expectant on the life estate) David John David (Medical Practitioner) Michael David (Barrister)	Vol 2056 Fol 16 Now Vol 4149 Fol 771

	(Remainder Expectant)	
03.09.1979 (1979 to 1982)	K.G.P. Nominees Proprietary Ltd	Vol 4149 Fol 771 Now Vol 4157 Fol 617
22.11.1982 (1982 to date)	# Falstaff Pty Ltd	Vol 4157 Fol 617
# Denotes current registered proprietor Easements: - NIL Leases: - Numerous leases and sub leases and under leases were found from 01.05.1879 to 18.10.1979 that have since expired or have been surrendered – not investigated. From 18.10.1979 to date - NIL		

4.2 Aerial photographs

The aerial photograph data is presented in Appendix B and observations are presented in Table 4.2 below.

Table 4.2 Historical aerial photograph review

Year	Notes
1935	The aerial photograph is presented in black and white and is of poor resolution. **Site:** The site appears to be occupied by several buildings on the northern two thirds and another building on the southern boundary portion. **Surrounding area:** The site is on the south western corner of a road intersection and the balance of the land is densely developed.
1949	The aerial photograph is presented in black and white and is of clear resolution. **Site:** The site appears to be similar to previous photograph. **Surrounding area:** The site surrounds appear similar to previous photograph.
1959	The aerial photograph is presented in black and white and is of clear resolution. **Site:** The site is now occupied boundary to boundary by buildings and four 'saw tooth' roofs are evident. **Surrounding area:** The site surrounds appear similar to previous photograph.
1969	The aerial photograph is presented in black and white and is of clear resolution. **Site:** The site is similar to previous photograph. **Surrounding area:** The site surrounds appear similar to previous photograph with the exception of land to the north where several buildings have been demolished and the land appears to be being used for parking or car storage.
1979	The aerial photograph is presented in colour and is of clear resolution. **Site:** The site is similar to previous photograph. **Surrounding area:** The site surrounds appear similar to previous photograph.
1989	The aerial photograph is presented in colour and is of clear resolution. **Site:** The site is similar to previous photograph. **Surrounding area:** The site surrounds appear similar to previous photograph with exception that the land to the north is being occupied by more buildings.
1999	The aerial photograph is presented in colour and is of clear resolution.

Year	Notes
	Site: The site is similar to previous photograph. **Surrounding area:** The site surrounds appear similar to previous photograph.
2006	The aerial photograph is presented in colour and is of clear resolution. **Site:** The site is similar to previous photograph. **Surrounding area:** The site surrounds appear similar to previous photograph with exception that the land to the north is being occupied by more buildings.
2011	The aerial photograph is presented in colour and is of clear resolution. **Site:** The site is similar to previous photograph. **Surrounding area:** The site surrounds appear similar to previous photograph with exception that the land to the north is being occupied by more buildings.
2016	The aerial photograph is presented in colour and is of clear resolution. **Site:** The site is similar to previous photograph. **Surrounding area:** The site surrounds appear similar to previous photograph with exception that the land to the north is being occupied by more buildings.
2021	The aerial photograph is presented in colour and is of clear resolution. **Site:** The site is similar to previous photograph. **Surrounding area:** The site surrounds appear similar to previous photograph with exception that the land to the north is being occupied by more buildings.

4.3 Lotsearch Report dated 13 September 2021 (Reference Lotsearch LS024029 EP)

Lotsearch provided the above reference report which is included in Appendix B and presented in Table 4.3.

Table 4.3 Summary of Lot Search Report

Lotsearch Report Reference	Summary	Activity of Interest	Relevance to site
EPA Contaminated Land	The site is not listed or within or near EPA Assessment areas and there are no authorisations or applications relevant to the site.	There are no activities of interest listed at the site or nearby.	Not material
EPA Site Contamination Index			
EPA Public Register EPA Environment Protection and Clean Up Orders			
EPA Public Register EPA Authorisations and Applications			
EPA Authorisations and Applications			
EPA Assessment Areas			
PFAS Investigation and Management Programs	The site is not located within a PFAS Investigation or Management Programs or is	There are no activities of interest listed at	Not material

Lotsearch Report Reference	Summary	Activity of Interest	Relevance to site
	located at or near an Australian Defence force site.	the site or nearby.	
Defence Sites Defence 3 Year Regional Contamination Investigation Program	The site is not located within a Defence management plan area or is located at or near an Australian Defence force site.	There are no activities of interest listed at the site or nearby.	Not material
Waste Management and Liquid Fuel Facilities	The site is not listed as having a Waste Management or Liquid fuel facility.	There are no activities of interest listed at the site or nearby.	Not material
Historical Business Directories	The site has been listed as a Brass Founders (1955, 1965), Manufacturing Engineers (1955), Electrician and Electrical Contractors and Electrical Manufacturers (1973), Courier Service (1984) and Embroidery Mfrs. &/or Specialists (1984 and 1991).	There are no activities of interest listed at the site or nearby.	Not material
Business Directory Records 1910-1991 – Premise or Road Intersection Matches	The site has not been referenced with respect to a potentially contaminating land use or dry cleaners, motor garage or service station with exception of a motor garage over 50m to the north listed as Motor Garages &/or Engineers &/or Service Stations (1965).	There are no activities of interest listed at the site or nearby which might be considered a material issue.	Proposed assessment at the site post demolition would include groundwater and if any potential impact, then this could be assessed.
Business Directory Records 1910-1991 – Road or Area Matches			
Dry Cleaners, Motor Garages & Service Stations 1930-1991 – Premise or Road Intersection Matches			
Dry Cleaners, Motor Garages & Service Stations 1930-1991 – Road or Area Matches			
Mines and Mineral Deposits	The site is not subject to any current for former mining tenements or operations.	There are no activities of interest listed at the site or nearby.	Not material
Heritage	There were no indications from the heritage search of potentially contaminating activities.	There are no activities of interest listed at the site or nearby.	Not material
Commonwealth Heritage List			
National Heritage List			
State Heritage Areas			
Aboriginal Land			
Natural Hazards	The site is located within a potential bushfire zone.	There are no activities of interest listed at the site or nearby.	Not material
Bushfire Protection Areas			
Bushfires and Prescribed Burns History			

Lotsearch Report Reference	Summary	Activity of Interest	Relevance to site
Ecological Constraints	There were no ecological constraints noted.	There are no activities of interest listed at the site or nearby.	Not material
Groundwater Dependent Ecosystems Atlas	There were no ecological constraints noted.	There are no activities of interest listed at the site or nearby.	Not material

4.4 SA EPA Section 7 Search

A Section 7 search was made under the Land and Business (Sales and Conveyancing) Act 1994. The information indicates that no current environmental Performance Agreements, Environment Protection Orders or Clean-up Orders are registered on the site. This is included in Appendix C.

4.5 Dangerous goods search

Safework SA indicated that they no longer perform this search and that a FOI application is required to be placed with the Department if Treasury and Infrastructure. There was no visual or anecdotal information to indicate the presence of underground fuel storage tanks observed.

4.6 Anecdotal Information

The current land owner indicated that minor dye and printing works were conducted at the site however in his time at the site (20 years) he is not aware of any large scale use or volumes of chemicals being used in their processes.

5.0 Areas of Environmental Interest

Based on this environmental site history research, the chemicals presented in Table 5.1 are indicative of the potential historical and current land uses and also includes reference (based on Historical Directory searches of nearby land uses with the potential to result in soil, groundwater or soil vapour contamination. The chemicals listed are based on AS 4482.1-2005 Appendix J 'Chemical Contaminants Listed by Industry Type',' and the Environment Protection Regulations 2009 (EP Regs) Schedule 3 and Part 1—Potentially contaminating activities (regulation 50) and SA Planning Commission Practice Direction 14 Site Contamination Assessment 2021 Schedule 1 in relation to Class 1, 2 and 3 activities.

An assessment/judgement has been made with reference to the likelihood of being present on the site (based on cross referencing the site history information) as well as likely materiality.

Table 5.1 Summary of potential areas and chemicals of interest

Activity of interest	Chemicals of environmental interest	Medium of interest	Likelihood	Preliminary assessment of material risk
Onsite				
Previous land use per Table 4.3.	Broad Suite	Soil, groundwater and soil vapour.	Medium	Medium
Off-site				
Motor Garage to north	Hydrocarbons and solvents	Groundwater	Medium	Low

These chemicals of environmental interest are not a prescriptive list for any further exploratory intrusive assessment that may be conducted, nor a statement of the presence of these chemicals, but rather a list to be given consideration. In addition, screening level testing may be conducted for analytes which are considered to represent the generally accepted basic suite of chemicals, which may then give rise to the need for more detailed or varied analysis.

6.0 Screening Level Soil and Soil Vapour Assessment

6.1 Rationale

Selected soil and soil vapour samples were obtained from accessible locations within the proposed building footprint envelope as a screening level assessment. It is important to recognise that the whole site could not be assessed because of current operations at the site. This information was sought in order to see if there were any immediate higher level risk indicators i.e. elevated soil vapour concentrations of volatile chemicals which might indicate a broader issue at the site. The rationale was based on the assessment of the areas of environmental interest to assess for the presence of indicators of potential soil contamination and/or residual chemicals. This information would be compared to the site history research and preliminary assessment risk in order to assess the likelihood of potential site contamination impacts being present or not.

A limited assessment of soil vapour at the site was conducted. The soil vapour testing focused on Volatile Organic Compound (VOC) concentrations, as these are chemicals considered to be of a higher risk that could potentially impact the future site use, if present. The rationale for the soil vapour sampling was to provide screening level confirmation that there were not significantly elevated or gross or widespread VOC concentrations at the site.

6.2 Methodology

Sample retrieval was conducted by an AME representative on 11 November 2021 from three (3) soil boreholes using a Rockmaster drilling rig and push tubes. One deeper location was drilled adjacent to the in ground waste water separator in order to assess for potential leakages.

A limited assessment of soil vapour at the site was conducted. The soil vapour testing focused on Volatile Organic Compound (VOC) concentrations, as these are chemicals considered to be of a higher risk that could potentially impact the future site use, if present.

Following push tube drilling to a depth of 1m, two (2) soil sampling locations ('BH1' and 'BH5') were converted into soil vapour sampling points using Waterloo samplers. The soil vapour sampling locations are shown in Figure 6.1. Soil borelogs are included in Appendix F together with the soil vapour sampler configuration detailed sampling methodology in Appendix E.

Soil vapour samples ('VS1' and 'VS2') were retrieved by AME on 19 November 2021 and were analysed by Eurofins MGT for Volatile Organic Compounds (VOCs).

Samples were freighted directly to the NATA accredited laboratory. A chain of custody document was completed listing sample numbers, date of collection and analyses required and was signed by each person transferring and accepting custody.

The analytical methods used are described in the analytical laboratory certificate provided in Appendix T.

These sampling locations are approximately shown in Figure 6.1.

The detailed soil assessment methodology that was followed, including key elements of the quality assurance (QA) program, is presented in Table 6.1.

Table 6.1: Soil assessment methodology

Activity	Details
Field procedures	Field procedures were undertaken in general accordance with the NEPM (2013) and AS4482.1-2005.
Soil sampling	Representative soil samples were generally collected from the top of each soil horizon using Nitrile gloves. Samples were retrieved by an experienced AME representative.
Rinsate sample	A Rinsate sample was retrieved following equipment cleaning on each day of sampling with demineralised water and phosphate free detergent Decon90 and both were tested by Eurofins MGT for heavy metals.
Duplicate sampling	Field duplicate soil samples were collected to provide a check on sample variability, laboratory performance and accuracy. An intra-laboratory duplicate sample was retrieved and analysed at the primary laboratory and an inter-laboratory duplicate sample was retrieved and analysed at the secondary laboratory.
Trip blank	Trip blank samples accompanied the soil samples in the esky to the laboratory and was tested for BTEX.
Laboratories used and NATA accreditation	Eurofins MGT (primary laboratory) and Envirolab (secondary laboratory for QC purposes) are NATA accredited for the analyses undertaken. The laboratory analysis and chain of custody documentation and certified analytical certificates are included in Appendix G.
Sample preservation and storage	Samples were placed in laboratory supplied containers and stored in chilled eskies. Samples were then freighted to the NATA accredited laboratories of Eurofins MGT and Envirolab.
Sample labelling	A unique sample number was generally used to label and clearly identify each sample.
Sample tracking	Chain of custody documentation was used for the transport of all samples to the laboratory and is included in Appendix G. The chain of custody documentation was completed listing sample numbers, date of collection and analyses required. This was signed by each person transferring and accepting custody.
Soil PID screening	All soil samples were screened in the field for the presence of volatile organic compounds using a PID, which was calibrated using isobutylene gas prior to use. The PID meter calibration certificate is presented in Appendix G.
EILs	NEPM EIL values were not calculated by testing a representative soil sample for clay content, pH, Fe, TOC and CEC. The results are retained on file for comparison with future assessment works.

The sampling location plan is provided in Figure 6.1 below.



Figure 6.1: Sample retrieval location plan

6.3 Chemical analysis

The sample list and associated analytical testing is presented in the chain of custody documentation included in Appendix E. Select soil samples were tested for a Broad SA EPA Waste Screens and selected individual anlaytes.

The soil vapour samples were analysed for VOC's.

The analytical methods used are described on copies of the analytical laboratory certificates provided in Appendix G.

6.4 Guidelines

The guidelines used for the assessment of the analytical results are presented in Table 6.2.

Table 6.2: Applicable soil assessment guidelines

Criteria	Applicability
NEPM Health investigation levels (HILs)	
NEPM HIL A/B	Concentrations of a contaminant above which further evaluation would be required. HILs are generic to all soil types and generally apply to the top 3m of soil.
NEPM Ecological investigation levels (EILs)	
NEPM EIL (urban residential areas & public open space) – Aged in high traffic area	Concentrations of contaminants above which further appropriate investigation and evaluation would be required. EILs depend on specific soil physicochemical properties and land use scenarios and generally apply to the top 2m of soil. A contaminant incorporated in soil for at least two years is considered to be aged for the purpose of EIL derivation.
NEPM Petroleum hydrocarbon management limits	
NEPM management limits (residential, parkland & public open space) – fine	Limited to petroleum hydrocarbon compounds. They are maximum values that should remain in a site following evaluation of human health and ecological risks and risks to groundwater resources and apply to all soil depths based on site-specific considerations. These limits are to consider the formation of light non-aqueous phase liquids, fire and explosion risks and damage to buried infrastructure.
Ecological screening levels (ESLs) for petroleum hydrocarbons	
NEPM ESLs (urban residential & public open space) – fine	Concentrations above which further appropriate investigation and evaluation would be required. ESLs broadly apply to coarse- and fine-grained soils and various land uses. They are generally applicable to the top 2 m of soil. Note that the Benzo(a)pyrene NEPM ESL guidelines have been replaced by the updated CCME guidelines which are used in this assessment.
Health screening levels (HSLs) for petroleum hydrocarbons	
HSL A & B for Clay	Concentrations above which further appropriate investigation and evaluation would be required. HSLs depend on physicochemical properties of soil, as these affect hydrocarbon vapour movement in soil, and the characteristics of building structures. HSLs apply to different soil types, land uses and depths below surface to >4 m and have a range of limitations.

The NEPM Interim soil vapour Health Investigation Levels (HILs) for Volatile Organic Chlorinated Compounds (Residential A and B) guidelines are used in the assessment of the analytical results.

6.5 Results

6.5.1 Soil observations

The soils generally comprised shallow fill underlain by natural sandy clays. There were no visual or olfactory indicators of gross or widespread potential contamination that were noted. Soil bore logs are include in Appendix F.

6.5.2 PID results

A PID was calibrated with isobutylene to broadly detect VOCs. The PID results from the soil samples retrieved were each measured at 0 ppm. This indicates that the likelihood of volatile gases being present in the soil at the site is low.

6.5.3 Laboratory results

6.5.3.1 Soil

The laboratory results for each of the soil samples analysed for the chemicals of interest were below the adopted criteria. The analysis results are detailed in the certified laboratory certificates are provided in Appendix G. The concentrations reported did not exceed NEPM Setting A, B or EIL guideline concentrations (where EIL's provided/calculated).

6.5.3.2 Soil Vapour

The soil vapour results were all less than reporting limit with the exception of a concentration of m.p-Xylene (13 ug/m^3) and o-Xylene (4.5 ug/m^3) which are not considered material and may be a consequence of interference from the car exhausts using the area of assessment.

6.6 Quality assurance/quality control

6.6.1 Data validation

A summary of the quality assurance/quality control (QA/QC) activities undertaken to ensure integrity of the soil data collected is provided in Table 6.3.

A trip blank was analysed for BTEX and Rinsate for heavy metals by MGT Eurofins Pty Ltd.

Table 6.3 Data validation

QA/QC requirement	Acceptable?	Comments
Samples collected in accordance with standard operating procedures, incorporating appropriate sections of AS 4482.1 – 2005 and AS 4482.2-1999 for sampling of non-volatile components.	Yes	None
Samples delivered to laboratory with correct preservative.	Yes	None
Samples delivered to laboratory within sample holding times.	Yes	None
All analyses NATA accredited.	Yes	None
Required number of sample duplicates analysed.	Yes	None
Sample duplicates reported RPDs within limits set by AS4482.1.	Yes	RPDs are discussed in Section 6.6.2.
Laboratory limits of reporting (LOR)	Yes	The LORs are presented in the laboratory certificates of analysis. All LORs are suitable for the purposes of this investigation.
Trip blank	Yes	Trip blank accompanied the soil samples in the esky to the laboratory and was tested for BTEX. The results were reported as below LOR.
Rinsate	Yes	Rinsate samples was tested by Eurofins MGT for heavy metals. The results were reported as below LOR or below criteria.

6.6.2 Duplicate analysis

Field duplicate (blind replicate) soil samples were collected to provide a check on sample variability and laboratory performance and accuracy.

Validation and interpretation of the quality control data was undertaken by calculating the relative percentage differences (RPDs) for the primary sample and duplicate sample concentrations. The RPD value for an analyte was calculated using the formula:

RPD (%) = 100((x1 – x2)/x) where x1, x2 = duplicate results and x = mean of duplicate results.

According to AS4482.1-2005, typical RPD values for soils range from ±30 to ±50%; an RPD within the range of -50% to 50% is considered to show acceptable agreement and, conversely, data is considered to have poor agreement where an RPD is outside this range unless there are mitigating circumstances described.

Table 6.4 Soil intra-laboratory and inter-laboratory QC samples

Primary Sample					
BH1/1	Dup 1	-	Metals	Comparable.	Yes
BH2/1	-	Dup 2	Metals,	Comparable	Yes

7.0 Conceptual Site Model and Assessment of Risk

7.1 Purpose

The development of a Conceptual Site Model (CSM) is an essential part of all site assessments and provides the framework for identifying if and how a site may have become contaminated and how potential receptors may be exposed to contamination, either in the present or the future. The complexity of the CSM corresponds to the scale and complexity of the known or potential contamination impacts.

The CSM identifies complete and potential pathways between the known or potential contamination source(s) and receptor(s). Where the pathway between a source and a receptor is incomplete, the exposure to chemical substances via that pathway cannot occur, however the potential for that pathway to be completed (for example, by abstraction of groundwater or a change in land use) should also be considered in the assessment.

The CSM in Table 7.3 was developed based on an understanding of the site setting and the soil and groundwater assessment described in this report.

7.2 Context

The site setting, geology and hydrogeology, historical use and chemicals of environmental interest are outlined in earlier sections of this report.

7.3 Accuracy and Relevance of Information

The ASC NEPM outlines that consideration of the accuracy, relevance and whether data gaps are present or material to the assessment. Limited information was available with respect to a detailed understanding of historical offsite land uses. However, sufficient information is considered to have been obtained in relation to the site land use and low likelihood of potentially contaminating activities being present at the site. The data obtained and supplied by others is considered to be accurate, independent and suitable for the purpose of this assessment.

7.4 Risk analysis

The CSM in Table 7.3 ranks the residual environmental and human health risks posed by the site for the proposed use using the risk matrix in Figure 7.1 and Tables 7.1-7.2.

This risk assessment takes into account that the literal consideration of risk as an abstract term based on what may or may not be present also needs to be expressed in commercial terms. Commercial terms relate to the potential expenditure and time that a proponent may need to reach a final development and/or the costs of associated assessment and management measures. It is noted that when considering risk, a lower risk is not necessarily insignificant, but rather the issue whilst present is either manageable or materially would not impede/preclude the development, although there may still be items to consider and close out. Although this may entail time and expense, it is not considered material to the viability the project as a percentage of the overall development costs.

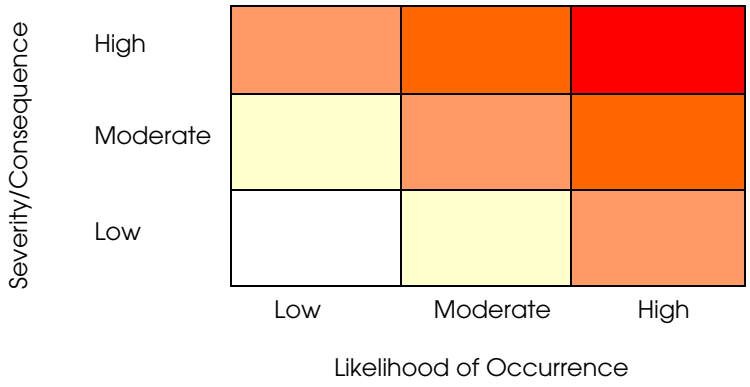


Figure 7.1 CSM residual risk matrix

Table 7.1 Severity/consequence definitions

Severity/consequence	Definition
Low	Negligible environmental and human health impacts, negligible threat to groundwater and negligible resultant soil vapour from known previous/current/adjacent land uses following site development which would reduce exposure pathways without significant management or remediation.
Moderate	If present, the nature of site contamination under some exposure scenarios could present an environmental or human health risk, threaten groundwater or result in soil vapour. Site development would reduce exposure pathways without significant management or remediation.
High	If site contamination is present, its nature is expected to present a significant environmental human health risk, threaten groundwater and/or result in soil vapour.

Table 7.2 CSM residual risk rating

Risk	Definition
Low	The concentrations reported do not exceed the adopted guidelines and the proposed site development is such that there would be no access to subsurface soils once developed and groundwater would not be abstracted for use, thereby the proposed development is conceptually of a negligible risk and no further work is considered warranted.
Low-Moderate	Individual and isolated concentrations of some chemicals exceed guideline concentrations, however when considered in conjunction with the exposure scenarios and the nature of the proposed development, there is no evidence to warrant more detailed assessment, remediation or mitigation.
Moderate	There are domain(s) at the site where individual concentration(s) and statistically averaged concentrations exceed the adopted guidelines and require either minor remedial measures or documented mitigation/management measures. For example, the risk profile within open space, garden or landscaped areas may be marginally higher than below sealed areas where there is no access to subsurface soils once developed. In this instance, supplementary assessment works may include vertical and horizontal delineation, offsite disposal/capping of some soils and associated qualitative human and/or environmental health risk assessment. Information may need to be documented with the Certificate(s) of Title.
Moderate-High	The adopted guidelines have been exceeded and more extensive remediation/mitigation is required. Demonstration of the acceptability of risk would require quantitative, human and/or environmental risk assessment. Information may need to be documented with the Certificate(s) of Title.
High	Concentrations of chemicals of interest are widespread and significantly exceed the adopted guideline concentrations. The risk profile is such that either the site is precluded from use or requires extensive and detailed remediation and environmental risk assessment. Information may need to be documented with the Certificate(s) of Title.

Table 7.3: Conceptual Site Model for proposed re-development (refer to Figure 6.1 and Tables 6.1-6.2 for risk analysis matrix used)[1]

Transport/exposure mechanism	Potential receptor(s)	Unmitigated exposure pathway completeness	Unmitigated likelihood of occurrence	Unmitigated consequence severity	Unmitigated risk for undefined generic residential land use	Management measure(s) based on this assessment	Mitigated/residual likelihood of occurrence	Mitigated/residual consequence severity	Residual risk for proposed land use
Soil contamination									
Access to soils	Construction workers Residents Visitors Maintenance workers accessing service pits/manholes and/or landscaping.	To be confirmed by supplementary sampling and analysis of soils, groundwater and soil vapour (if required) post demolition.	Medium	Medium	Medium	Supplementary assessment post demolition.	Low	Low	Low
Surficial runoff	Recreational users of local surface water Flora and fauna Biota supporting ecological processes	Stormwater runoff would be managed as part of council requirements.	Low	Low	Low	Adhere to appropriate EMP which includes management of dust, stormwater runoff and tracking out onto road.	Low	Low	Low
Vapour	Construction workers Residents Maintenance workers accessing service pits/manholes Future visitors	To be confirmed by supplementary sampling and analysis of soils, groundwater and soil vapour (if required) post demolition.	Low	Low	Low	Supplementary assessment post demolition.	Low	Low	Low
Use by plants	Flora and fauna	Not applicable for the nature of the proposed development.	Low	Low	Low	Not required.	Low	Low	Low
Groundwater contamination									
Extraction and use of groundwater at the site for potable and/or recreational use	Residents Visitors Landscaping workers	Incomplete exposure pathway as any groundwater use would be assessed for its suitability.	Low	Low	Low	No abstraction.	Low	Low	Low
Extraction and use of groundwater off-site for potable and/or recreational use	Existing or potential domestic users of downgradient groundwater	Likely incomplete exposure pathway as any groundwater use would be assessed for its suitability.	Low	Low	Low	Not required.	Low	Low	Low
Vapour	Construction workers Residents Maintenance workers accessing service pits/manholes Future visitors	To be confirmed by supplementary sampling and analysis of soils, groundwater and soil vapour (if required) post demolition.	Low	Low	Low	Supplementary assessment post demolition.	Low	Low	Low
Use by plants	Flora and fauna	Unlikely, groundwater beyond reach of shallow rooted plants and no abstraction for use.	Low	Low	Low	Not required.	Low	Low	Low

[1] CSM based on proposed future land use

8.0 Conclusion

A.M. Environmental Consulting Pty Ltd (AME) was commissioned by forme projex to conduct environmental site history research, shallow soil and soil vapour sampling and analysis for the site located at 198 Angas Street, Adelaide, South Australia (`the site').

The proposed development is a multi-storey residential apartment block. Existing external walls are to be preserved where possible and repurposed as the outer skin of the new structures. All other existing structures, including all internal walls and all floors, are to be demolished. Significant volumes of surface soils will be removed across the site as part of the demolition process. The site will be fully capped with an engineered concrete slab over a waterproof membrane barrier and compacted rubble base. Lift and car stacker pits will be constructed using a waterproofing additive in the concrete, with an underlying waterproof membrane, and waterstop barriers to the structural engineer's specification. The ground floor will primarily comprise car parking and services with approx. 25% of the site occupied by office use. Residential land use will be confined to levels 1 – 8 with level 1 commencing approx. 4.9m above the ground level. The buildings would be underlain with a concrete slab and base course gravel and fortecon. Service trenches would be filled with 500mm of imported clean fill (quarry supplied sands and gravels). There would be no domestic food production at the site. There would be no contact with subsurface soils once developed. Groundwater would not be abstracted for use.

The aim of the work was to assess the potential for previous or current land uses to have resulted in gross or widespread soil contamination to exist and whether there are potential contamination aspects or impacts that may present potential liabilities or constraints on future development.

The work was conducted in general accordance with the NEPC (1999), National Environment Protection (Assessment of Site Contamination) Measure, December 1999 (ASC NEPM) as amended in 2013.; Standards Australia. Guide to the investigation and sampling of sites with potentially contaminated soil – AS 4482.1-2005 and the SA EPA (October 2018). *Guidelines for the Assessment and Remediation of Site Contamination* (GAR).

The site history information indicated that the site has been occupied by potentially contaminating activities. There were no fuel tanks observed at the site or encountered during the site visit. The site owner indicated that no above or underground fuel tanks were located at the site.

However, preliminary soil and soil vapour analysis did not indicate the presence of contamination at the locations assessed.

It is important to note that the nature of the development would comprise current building demolition and removal of significant volumes of surface soils. It is recommended that more detailed soil and groundwater assessment be conducted once demolition has occurred. The nature of the development means that there is no access to subsurface soils once developed.

Therefore, based on the work conducted, it is our opinion as environmental consultants, that the risk of site contamination precluding the proposed use is low and if contamination was encountered then this could be readily managed in the course of the building construction and development.

If soils are imported to the site, then it is recommended that these soils meet SA EPA Waste Fill Guidelines. It is recommended that if groundwater were to be considered for use that appropriate assessment should be conducted in order to demonstrate suitability for its intended use. If there are any soils which are observed to be different to natural soils, appear to be associated with or stained or odorous encountered during development works then it is recommended that you contact AME to discuss.

9.0 Important Information

AME has prepared this report based on generally accepted practices and standards in operation at the time that it was prepared. No other warranty is made as to the professional advice included in this report. All parties should satisfy themselves that the scope of work conducted and reported herein meets their specific needs before relying on this document.

AME believes that its opinions have been developed according to the professional standard of care for the environmental consulting profession at the date of this document. That standard of care may change as new methods and practices of exploration, testing, analysis and remediation develop in the future, which may produce different results.

Environmental conditions are created by natural processes and human activity, and as such may change over time e.g. groundwater levels may rise or fall, contamination may migrate and fill may be added to the site. This report therefore presents a point in time assessment of the site, and as such can only be valid for the time at which the investigation was undertaken.

Any investigation such as that contained in this report can examine only a fraction of the subsurface conditions at the site. There remains a risk that pockets of contamination or other hazards may not be identified as investigations are necessarily based on sampling at localised points. Certain indicators or evidence of hazardous substances or conditions may have been outside the portion of the subsurface investigated or monitored, and thus may not have been identified or their full significance appreciated. As such, the identified environmental conditions reported are only valid at the points of direct sampling and any derived or interpolated conditions may differ from these targeted locations and cannot be assumed to be indicative of the remainder of the site.

The methodology adopted and the sources of information used are outlined in this report. AME has limited its investigation to the scope agreed for this contract and it is possible that additional sampling and analysis could produce different results and/or opinions. AME has made no independent verification of this information beyond the agreed scope of works and assumes no responsibility for any inaccuracies or omissions.

This assessment assumes that the proposed development meets requirements as outlined in the Building Code of Australia and Australian Standards. If these recommendations are not met, there is potential for the exposure and therefore risk to building users to be higher than that presented in this assessment.

The soil descriptions contained in this report have not been prepared for engineering design purposes and the reinstatement of any sampling locations were not conducted in accordance with any supervised filling or geotechnical standard. The term suitable has been used in the context of a request from the planning authority and means that the concentrations reported did not exceed the guideline concentrations adopted for the proposed land use/exposure pathway.

This report does not include the assessment or consideration of hazardous building materials, including asbestos. Such materials should be assessed and managed by a qualified and licensed assessor/contractor. It also does not include assessment of airborne pollution, microbiology, or mould.

In general, the available scientific information pertaining to contamination is insufficient to provide a thorough understanding of all of the potential toxic properties of chemicals to which humans may be exposed. The majority of the toxicological knowledge of chemicals comes from experiments with laboratory animals, where there may be interspecies differences in chemical absorption, metabolism, excretion and toxic response. There may also be uncertainties concerning the relevance of animal studies using exposure routes that differ from human exposure routes. In addition, the frequent necessity to extrapolate results of short-term or sub chronic animal studies to humans exposed over a lifetime has inherent uncertainty. Therefore, in order to conduct an environmental assessment, it is necessary to take into account these inherent uncertainties and extrapolate information from the data that is available, considered current and endorsed as acceptable for the assessment of risks to human health. There is therefore inherent uncertainty in the process, and to compensate for uncertainty, conservative assumptions are often made that result in an overestimation rather than an underestimation of risk.

All advice, opinions or recommendations contained in this document should be read and relied upon only in the context of the document as a whole. This report does not purport to give legal advice as this can only be given by qualified legal practitioners. This document does not represent a Site Contamination Audit Report.

10.0 References

- ANZECC/NHMR.C (1992). Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites
- Department for Environment and Water. Groundwater Database website. Available at: https://www.waterconnect.sa.gov.au
- Department of Planning, Transport and Infrastructure. Property Assist website. Available at: http://maps.sa.gov.au/plb/
- *Environment Protection Act 1993*
- *Environment Protection Regulations 2009*
- NEPM (1999) (as amended 2013) National Environment Protection (Assessment of Site Contamination) Measure. National Environment Protection Council, Australia
- NHMRC (2011 updated 2017). Australian Drinking Water Guidelines 6, Version 3.4 Updated October 2017, National Water Quality Management Strategy, National Health and Medical Research Council and Natural Resource Management Ministerial Council, Commonwealth of Australia.
- SA EPA Public Register Directory – Site contamination index. Available: http://www.epa.sa.gov.au/data_and_publications/site_contamination_index/search-the-contamination-register
- Standards Australia. Guide to the investigation and sampling of sites with potentially contaminated soil – AS 4482.1-2005.
- EPA publication Guidelines for the assessment and remediation of site contamination (2018, amended 2019) (the GAR).

11.0 Appendix

Appendix A: Certificate of title

LAND SERVICES SA

Product	Register Search (CT 5490/356)
Date/Time	23/03/2021 05:33PM
Customer Reference	
Order ID	20210323011263

REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

REGISTRAR - GENERAL SOUTH AUSTRALIA

Certificate of Title - Volume 5490 Folio 356

Parent Title(s)	CT 4155/617				
Creating Dealing(s)	CONVERTED TITLE				
Title Issued	12/01/1998	**Edition**	6	**Edition Issued**	16/12/2019

Estate Type

FEE SIMPLE

Registered Proprietor

FALSTAFF PTY. LTD. (ACN: 007 919 100)
OF 193 ANGAS STREET ADELAIDE SA 5000

Description of Land

ALLOTMENT 10 FILED PLAN 9067
IN THE AREA NAMED ADELAIDE
HUNDRED OF ADELAIDE

Easements

NIL

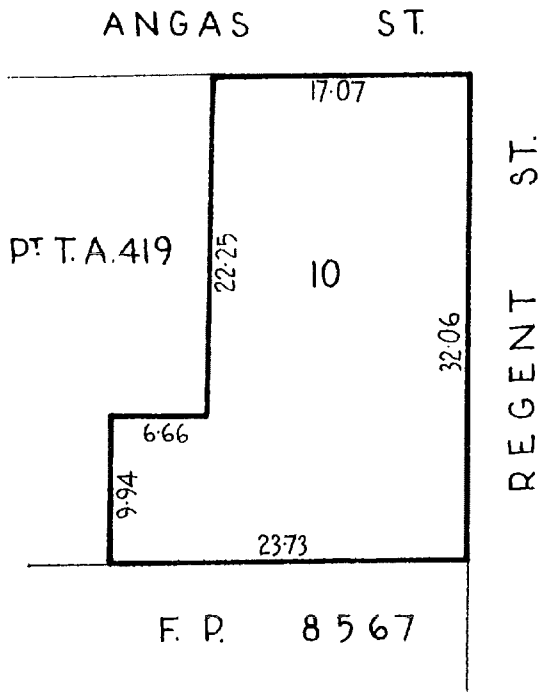
Schedule of Dealings

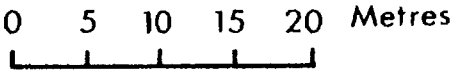
Dealing Number	Description
13220993	MORTGAGE TO PERPETUAL CORPORATE TRUST LTD. (ACN: 000 341 533)
13341309	CAVEAT BY COMMISSIONER OF STATE TAXATION

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

Copyright: www.landservices.com.au/copyright | Privacy: www.landservices.com.au/privacy | Terms of Use: www.landservices.com.au/sailis-terms-of-use





Copyright: www.landservices.com.au/copyright | Privacy: www.landservices.com.au/privacy | Terms of Use: www.landservices.com.au/sailis-terms-of-use

Appendix B: Lotsearch Report



Address: 193 Angas Street, Adelaide, SA 5000

Date: 13 Sep 2021 16:55:02

Reference: LS024029 EP

Disclaimer:
The purpose of this report is to provide an overview of some of the site history, environmental risk and planning information available, affecting an individual address or geographical area in which the property is located. It is not a substitute for an on-site inspection or review of other available reports and records. It is not intended to be, and should not be taken to be, a rating or assessment of the desirability or market value of the property or its features.
You should obtain independent advice before you make any decision based on the information within the report.
The detailed terms applicable to use of this report are set out at the end of this report.

Dataset Listing

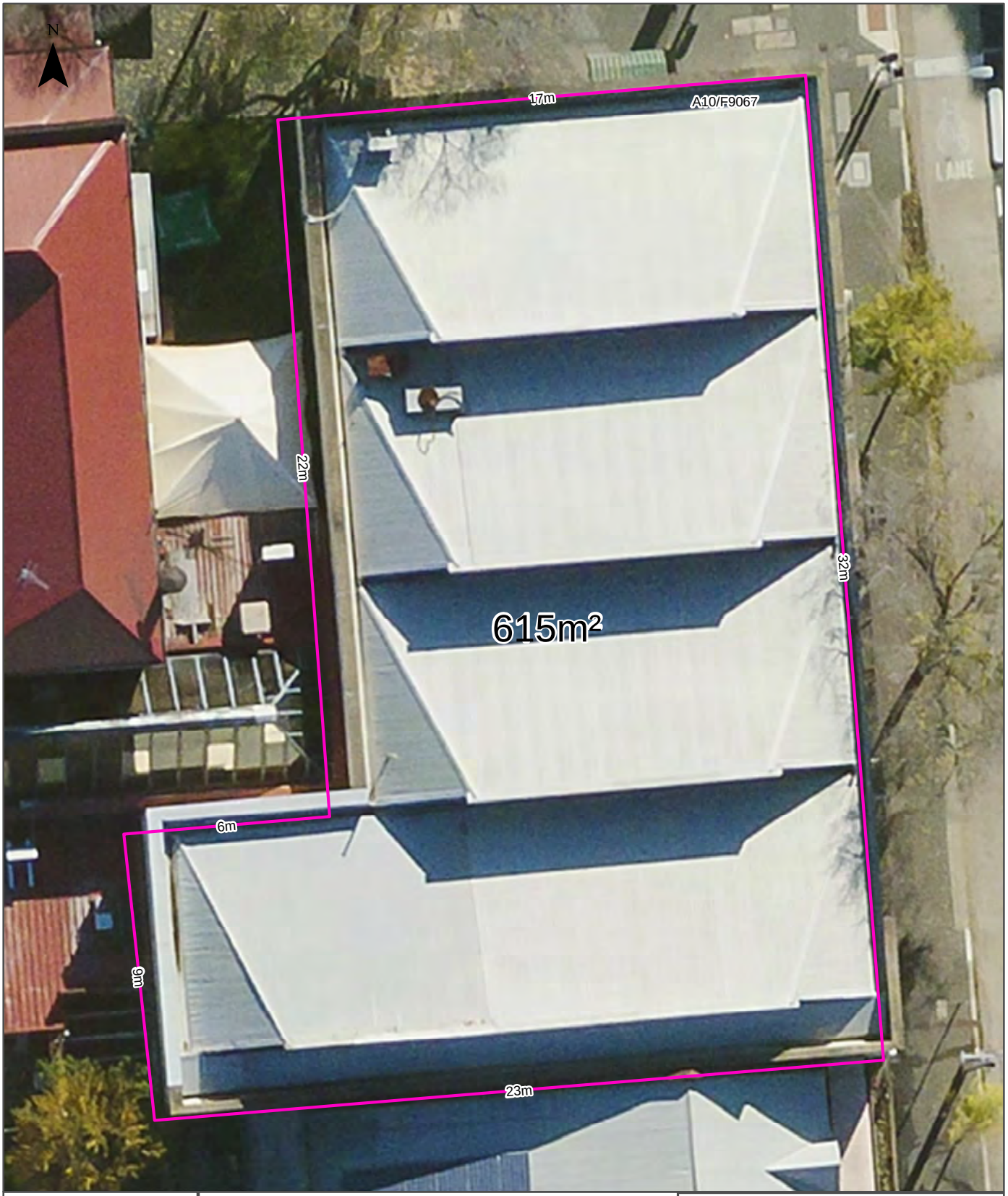
Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	PSMA Australia Limited	01/08/2021	01/08/2021	Quarterly	-	-	-	-
EPA Site Contamination Index	EPA South Australia	16/08/2021	16/08/2021	Monthly	1000	0	0	119
EPA Environmental Protection Orders	EPA South Australia	16/08/2021	16/08/2021	Monthly	1000	0	0	3
EPA Environmental Authorisations	EPA South Australia	16/08/2021	16/08/2021	Monthly	1000	0	0	24
EPA Assessment Areas	EPA South Australia	21/06/2021	21/06/2021	Quarterly	1000	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	02/08/2021	02/08/2021	Monthly	2000	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	02/08/2021	02/08/2021	Monthly	2000	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	06/09/2021	06/09/2021	Monthly	2000	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	19/08/2021	19/08/2021	Quarterly	2000	0	0	0
National Waste Management Facilities Database	Geoscience Australia	12/05/2021	07/03/2017	Annually	1000	0	0	0
EPA Collection Depots	EPA South Australia	06/09/2021	06/09/2021	Quarterly	1000	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	15/02/2021	15/03/2012	Annually	1000	0	0	2
Historical Business Directories (Premise & Intersection Matches)	Hardie Grant, Sands & McDougall			Not required	50	10	108	108
Historical Business Directories (Road & Area Matches)	Hardie Grant, Sands & McDougall			Not required	50	-	124	124
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant, Sands & McDougall			Not required	250	0	2	27
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant, Sands & McDougall			Not required	250	-	8	16
Mines and Mineral Deposits	Department for Energy and Mining	29/07/2021	29/07/2021	Quarterly	1000	0	0	0
Groundwater Aquifers	Department for Environment and Water	29/03/2021	01/01/2008	Annually	1000	1	1	1
Drillholes	Department for Environment and Water	16/07/2021	02/07/2021	Quarterly	2000	0	0	1325
Surface Geology 1:100,000	Department for Energy and Mining	12/07/2018	01/07/2018	As required	1000	1	1	3
Geological Linear Structures 1:100,000	Department for Energy and Mining	12/07/2018	01/07/2018	As required	1000	0	0	0
Atlas of Australian Soils	ABARES	19/05/2017	17/02/2011	As required	1000	1	1	1
Soil Types	Department for Environment and Water	12/07/2018	01/07/2009	As required	1000	1	1	1
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	1	1	1
Acid Sulfate Soil Potential	Department for Environment and Water	30/03/2021	03/06/2016	Annually	1000	1	1	1

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Soil Salinity - Watertable Induced	Department for Environment and Water	19/03/2021	01/07/2009	Annually	1000	1	1	1
Soil Salinity - Non-watertable	Department for Environment and Water	19/03/2021	01/07/2009	Annually	1000	1	1	1
Soil Salinity - Non-watertable (magnesia patches)	Department for Environment and Water	19/03/2021	01/07/2009	Annually	1000	1	1	1
Planning and Design Code - Zones	Department of Planning, Transport and Infrastructure	02/08/2021	01/07/2021	Monthly	1000	2	2	17
Planning and Design Code - Subzones	Department of Planning, Transport and Infrastructure	02/08/2021	19/03/2021	Monthly	1000	0	2	20
Land Use Generalised 2019	Department of Planning, Transport and Infrastructure	20/08/2020	12/08/2020	Annually	1000	3	9	11
Commonwealth Heritage List	Australian Government Department of Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	500	0	0	0
National Heritage List	Australian Government Department of Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	500	0	1	1
State Heritage Areas	Department for Environment and Water	30/03/2021	10/11/2004	Annually	500	0	0	0
SA Heritage Places	Department for Environment and Water	29/07/2021	13/01/2021	Quarterly	500	1	22	273
Aboriginal Land	Department for Energy and Mining	30/03/2021	08/04/2018	Annually	500	0	0	0
Bushfire Protection Areas	Department of Planning, Transport and Infrastructure	04/09/2018	20/02/2018	Annually	1000	0	0	0
Bushfires and Prescribed Burns History	Department for Environment and Water	29/03/2021	03/02/2021	Annually	1000	0	0	0
Groundwater Dependent Ecosystems Atlas	Bureau of Meteorology	14/08/2017	15/05/2017	Annually	1000	0	0	2
Ramsar Wetland Areas	Department for Environment and Water	01/03/2021	18/02/2020	Annually	1000	0	0	0

Site Diagram

193 Angas Street, Adelaide, SA 5000



Legend

- Site Boundary
- Internal Parcel Boundaries

Total Area: 615m^2

Total Perimeter: 112m

Scale: 0 — 4.75 Meters — 9.5

Data Sources: Aerial Imagery © Aerometrex Pty Ltd

Disclaimers:

Measurements are approximate only and may have been simplified or smaller lengths removed for readability.

Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.

Coordinate System: GDA 1994 MGA Zone 54

Date: 13 September 2021

Topographic Features

193 Angas Street, Adelaide, SA 5000



Legend

- Site Boundary
- Report Buffer
- Property Boundary
- Major Road
- Road
- Track/Pathway
- Railway Track
- Levee Bank
- Watercourse
- Waterbody
- Biosphere Reserve
- Conservation Reserve

Scale: 0 100 200 400 600 Meters

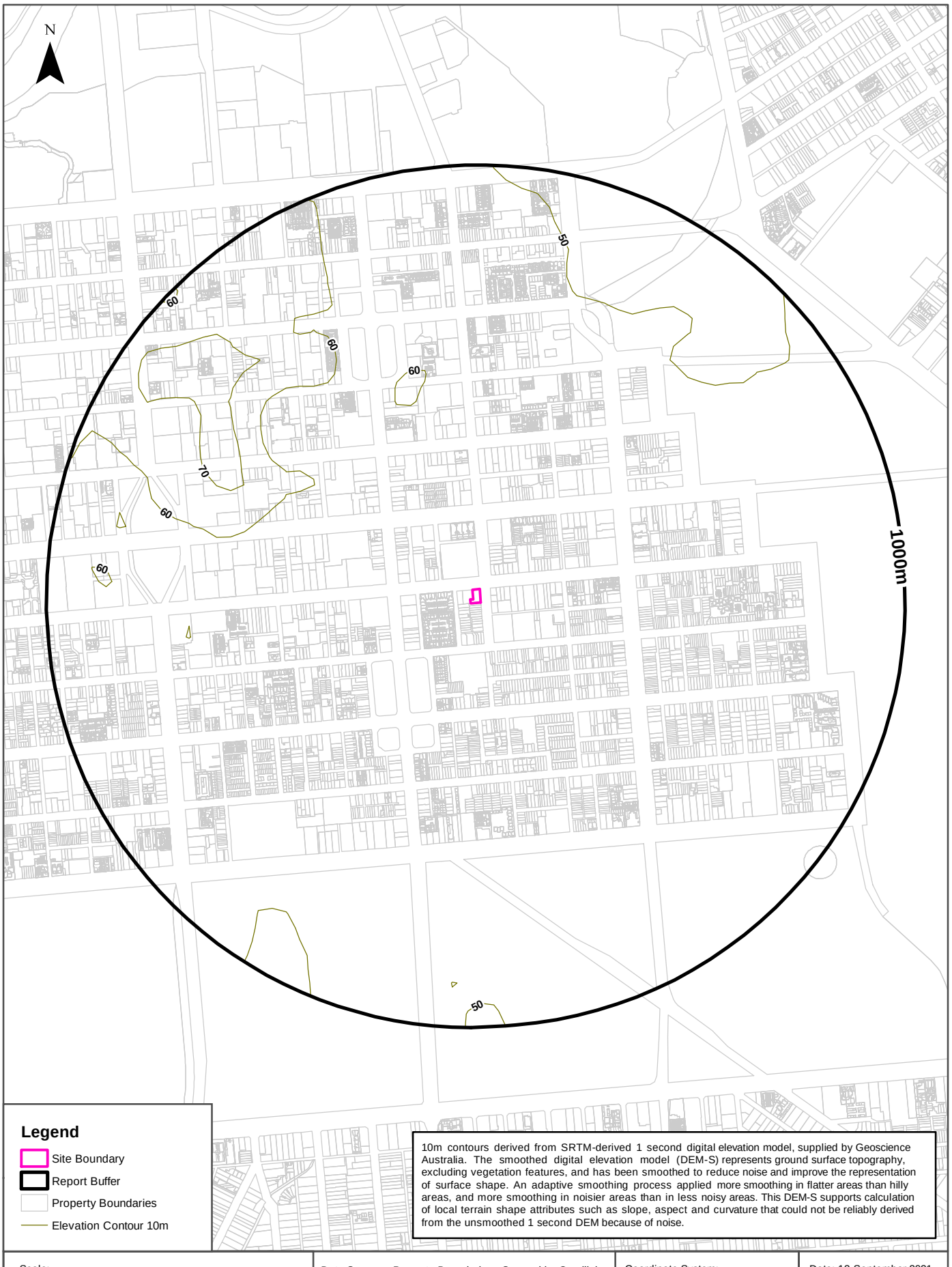
Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited
www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System: GDA 1994 MGA Zone 54

Date: 13 September 2021

Elevation Contours

193 Angas Street, Adelaide, SA 5000



Legend

- Site Boundary
- Report Buffer
- Property Boundaries
- Elevation Contour 10m

10m contours derived from SRTM-derived 1 second digital elevation model, supplied by Geoscience Australia. The smoothed digital elevation model (DEM-S) represents ground surface topography, excluding vegetation features, and has been smoothed to reduce noise and improve the representation of surface shape. An adaptive smoothing process applied more smoothing in flatter areas than hilly areas, and more smoothing in noisier areas than in less noisy areas. This DEM-S supports calculation of local terrain shape attributes such as slope, aspect and curvature that could not be reliably derived from the unsmoothed 1 second DEM because of noise.

Scale:
0 100 200 400 600
Meters

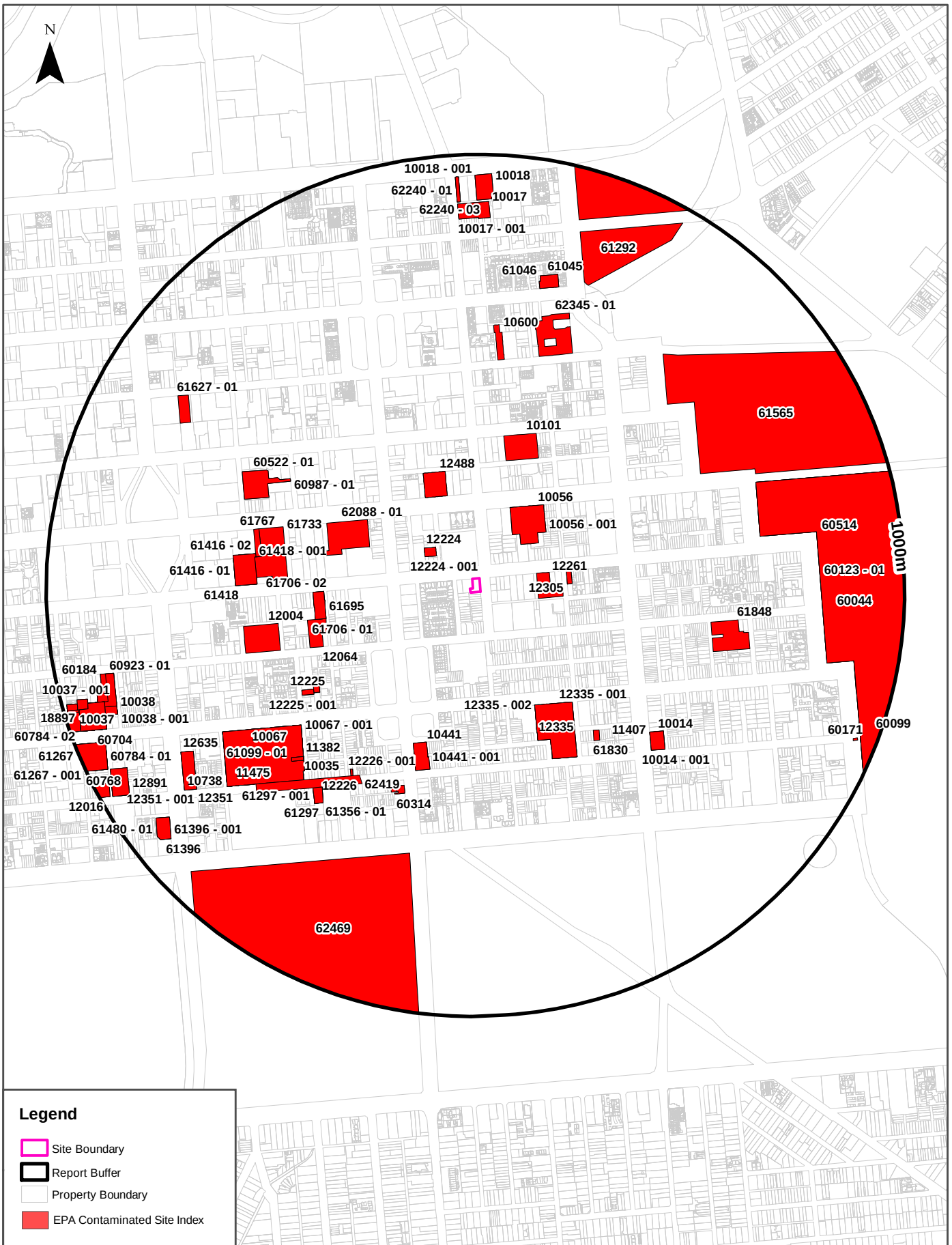
Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited
www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System:
GDA 1994 MGA Zone 54

Date: 13 September 2021

EPA Site Contamination Index

193 Angas Street, Adelaide, SA 5000



Legend

- Site Boundary
- Report Buffer
- Property Boundary
- EPA Contaminated Site Index

Scale: 0 100 200 400 600 Meters

Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited
www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System:
GDA 1994 MGA Zone 54

Date: 13 September 2021

EPA Contaminated Land

193 Angas Street, Adelaide, SA 5000

EPA Site Contamination Index

Sites on the EPA Contamination Index within the dataset buffer:

Notification No	Type	Address	Activity	Status	LocConf	Dist	Dir
12224	Pre 1 July 2009 Audit Notification	Cypress Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	101m	North West
12224 - 001	Pre 1 July 2009 Audit Report	Cypress Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	101m	North West
10056	Pre 1 July 2009 Audit Notification	229 Wakefield Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	125m	North East
10056 - 001	Pre 1 July 2009 Audit Report	229 Wakefield Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	125m	North East
12261	SAHC	241-249 Angas Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	135m	East
12488	Pre 1 July 2009 Audit Notification	166 Wakefield Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	205m	North
12488	Pre 1 July 2009 Audit Termination	166 Wakefield Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	205m	North
12305	Pre 1 July 2009 Audit Notification	A50, FP 24422, Hundred of Adelaide 263-265 Angas Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	205m	East
12305	Pre 1 July 2009 Audit Termination	A50, FP 24422, Hundred of Adelaide 263-265 Angas Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	205m	East
62088 - 01	S83A Notification	97 Wakefield Street ADELAIDE SA 5000	Fire stations; Fire training areas	Current EPA List	Premise Match	254m	West
10101	109 Notification	227-247 Flinders Street ADELAIDE SA 5000	Motor vehicle repair or maintenance; Service stations	Current EPA List	Premise Match	284m	North
12335	Pre 1 July 2009 Audit Notification	215-237 Halifax Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	296m	South East
12335 - 001	Pre 1 July 2009 Audit Report	215-237 Halifax Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	296m	South East
12335 - 002	Pre 1 July 2009 Audit Report	215-237 Halifax Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	296m	South East
61695	Audit Notification	87-93 Angas Street ADELAIDE SA 5000	Dry cleaning; Fill or soil importation; Motor vehicle repair or maintenance; Plastics manufacture works	Current EPA List	Premise Match	343m	West
61706 - 01	S83A Notification	87-93 Angas Street ADELAIDE SA 5000	Dry cleaning; Fill or soil importation; Motor vehicle repair or maintenance; Plastics manufacture works	Current EPA List	Premise Match	343m	West
61706 - 02	S83A Notification	87-93 Angas Street ADELAIDE SA 5000	Dry cleaning; Fill or soil importation; Motor vehicle repair or maintenance	Current EPA List	Premise Match	343m	West
12064	SAHC	Carrington & Queen Streets ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	346m	West
10441	Pre 1 July 2009 Audit Notification	422 Pulteney Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	367m	South
10441 - 001	Pre 1 July 2009 Audit Report	422 Pulteney Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	367m	South
12304	Pre 1 July 2009 Audit Notification	A116, DP 57613, Hundred of Adelaide 15-19 Colby Place ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	416m	South West
12304	Pre 1 July 2009 Audit Termination	A116, DP 57613, Hundred of Adelaide 15-19 Colby Place ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	416m	South West
61830	SAHC	11 Cairns Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	421m	South East

Notification No	Type	Address	Activity	Status	LocConf	Dist	Dir
61733	109 Notification	53 Wakefield Street ADELAIDE SA 5000	Fill or soil importation	Current EPA List	Premise Match	430m	West
12225	Pre 1 July 2009 Audit Notification	26-28 St Helena Place ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	434m	South West
12225 - 001	Pre 1 July 2009 Audit Report	26-28 St Helena Place ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	434m	South West
12004	SAHC	Area bounded by Seymour & Penney Places and Carrington & Moore Streets ADELAIDE SA 5000	Liquid organic chemical substances-storage	Current EPA List	Premise Match	460m	West
60413 - 01	S83A Notification	151-153 Gilles Street ADELAIDE SA 5000	Motor vehicle repair or maintenance	Current EPA List	Premise Match	478m	South
60314	Audit Notification	445-449A Pulteney Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	481m	South
60314 - 001	Audit Report	445-449A Pulteney Street ADELAIDE SA 5000	Fill or soil importation; Listed Substances (storage); Motor vehicle repair or maintenance	Current EPA List	Premise Match	481m	South
60522 - 01	S83A Notification	172-190 Gawler Place ADELAIDE SA 5000	Transport depots or loading sites	Current EPA List	Premise Match	486m	North West
60987 - 01	S83A Notification	172-190 Gawler Place ADELAIDE SA 5000	Transport depots or loading sites	Current EPA List	Premise Match	486m	North West
61767	109 Notification	47-49 Wakefield Street ADELAIDE SA 5000	Listed Substances (storage); Motor vehicle repair or maintenance	Current EPA List	Premise Match	497m	West
12226	Pre 1 July 2009 Audit Notification	124 Gilles Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	501m	South West
12226 - 001	Pre 1 July 2009 Audit Report	124 Gilles Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	501m	South West
61416 - 01	S83A Notification	34 Angas Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	503m	West
61416 - 02	S83A Notification	34 Angas Street ADELAIDE SA 5000	Fill or soil importation	Current EPA List	Premise Match	503m	West
61418	Audit Notification	34 Angas Street ADELAIDE SA 5000	Fill or soil importation; Listed Substances (storage); Metal processing, smelting, refining or metallurgical works; Motor vehicle manufacture	Current EPA List	Premise Match	503m	West
61418 - 001	Audit Report	34 Angas Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	503m	West
62419	S83 Notification	Gilles Street Roadway (in vicinity of Dumfries Place and Hallett Street ADELAIDE SA 5000	Electrical transformer or capacitor works	Current EPA List	Premise Match	504m	South West
61099 - 01	S83A Notification	Halifax Street and adjacent allotments ADELAIDE SA 5000	Works depots	Current EPA List	Premise Match	507m	South West
11475	109 Notification	ACC Depot Halifax Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	507m	South West
10738	SAHC	Halifx, Gilles, Symonds, Hallet Streets ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	507m	South West
10067	Pre 1 July 2009 Audit Notification	ACC Depot Halifax Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	507m	South West
10067 - 001	Pre 1 July 2009 Audit Report	ACC Depot Halifax Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	507m	South West
10600	SAHC	Pirie Street & Moger Lane ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	517m	North
11407	109 Notification	228-236 Hutt Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	518m	South East
10014	Pre 1 July 2009 Audit Notification	232-240 Hutt Street & 326 Gilles Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	518m	South East
10014 - 001	Pre 1 July 2009 Audit Report	232-240 Hutt Street & 326 Gilles Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	518m	South East
62345 - 01	S83A Notification	52-60 East Terrace ADELAIDE BC SA 5000	Electrical substations	Current EPA List	Premise Match	542m	North
10035	Pre 1 July 2009 Audit Notification	21 & 21A Hallett Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	546m	South West
10035 - 001	Pre 1 July 2009 Audit Report	21 & 21A Hallett Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	546m	South West
10035 - 002	Pre 1 July 2009 Audit Report	21 & 21A Hallett Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	546m	South West

Notification No	Type	Address	Activity	Status	LocConf	Dist	Dir
11382	Pre 1 July 2009 Audit Notification	21, 21a, 23 & 25 Hallett Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	546m	South West
11382 - 001	Pre 1 July 2009 Audit Report	21, 21a, 23 & 25 Hallett Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	546m	South West
61848	SAHC	Various allotments bounded by Carrington, Marion and Tomsey Streets ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	548m	East
11381	Pre 1 July 2009 Audit Notification	23 & 25 Hallett Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	552m	South West
11381 - 001	Pre 1 July 2009 Audit Report	23 & 25 Hallett Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	552m	South West
11381 - 002	Pre 1 July 2009 Audit Report	23 & 25 Hallett Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	552m	South West
61565	109 Notification	Corner Wakefield Street and East Terrace ADELAIDE SA 5000	Fill or soil importation	Current EPA List	Premise Match	576m	North East
61250	109 Notification	95 - 97 Gilles Street ADELAIDE SA 5000	Fill or soil importation	Current EPA List	Premise Match	577m	South West
61297	Audit Notification	95-97 Gilles Street ADELAIDE SA 5000	Fill or soil importation	Current EPA List	Premise Match	577m	South West
61297 - 001	Audit Report	95-97 Gilles Street ADELAIDE SA 5000	Fill or soil importation	Current EPA List	Premise Match	577m	South West
61356 - 01	S83A Notification	95-97 Gilles Street ADELAIDE SA 5000	Fill or soil importation	Current EPA List	Premise Match	577m	South West
62469	109 Notification	Lot 6020 South Terrace ADELAIDE SA 5000	Fill or soil importation	Current EPA List	Premise Match	631m	South West
60514	Audit Notification	Section 6016 Fullarton Road ADELAIDE SA 5000	Fill or soil importation	Current EPA List	Premise Match	669m	East
60514	Audit Termination	Section 6016 Fullarton Road ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	669m	East
60044	S83 Notification	0 East Terrace ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	669m	East
60123 - 01	S83A Notification	East Parklands Cnr Gilles Street & East Terrace ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	669m	East
61045	109 Notification	Various properties Garden East Precinct Charlick Circuit ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	698m	North
61046	SAHC	Various properties - Garden East Precinct Charlick Circuit ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	698m	North
61292	109 Notification	Lot 117 Rundle Road ADELAIDE SA 5000	Landfill sites	Current EPA List	Premise Match	737m	North East
12351	Pre 1 July 2009 Audit Notification	400 King William Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	753m	South West
12351 - 001	Pre 1 July 2009 Audit Report	400 King William Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	753m	South West
12635	109 Notification	400 King William Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	753m	South West
61627 - 01	S83A Notification	Lots 1 & 748 North Terrace, Lot 100 King William Road, Lot 3 Station Road and 25 Pirie Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	760m	North West
10017	Pre 1 July 2009 Audit Notification	9-19 Vaughan Place ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	849m	North
10017 - 001	Pre 1 July 2009 Audit Report	9-19 Vaughan Place ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	849m	North
60184	Audit Notification	Sturt Street Carpark Sturt Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	863m	West
60184	Audit Termination	Sturt Street Carpark Sturt Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	863m	West
60923 - 01	S83A Notification	35-37 Wright Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	863m	West
10038	Pre 1 July 2009 Audit Notification	Sturt Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	876m	West
10038 - 001	Pre 1 July 2009 Audit Report	Sturt Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	876m	West
61396	Audit Notification	411-427 King William Street ADELAIDE SA 5000	Fill or soil importation; Motor vehicle repair or maintenance; Service stations	Current EPA List	Premise Match	886m	South West
61396 - 001	Audit Report	411-427 King William Street ADELAIDE SA 5000	Fill or soil importation; Motor vehicle repair or maintenance; Service stations	Current EPA List	Premise Match	886m	South West

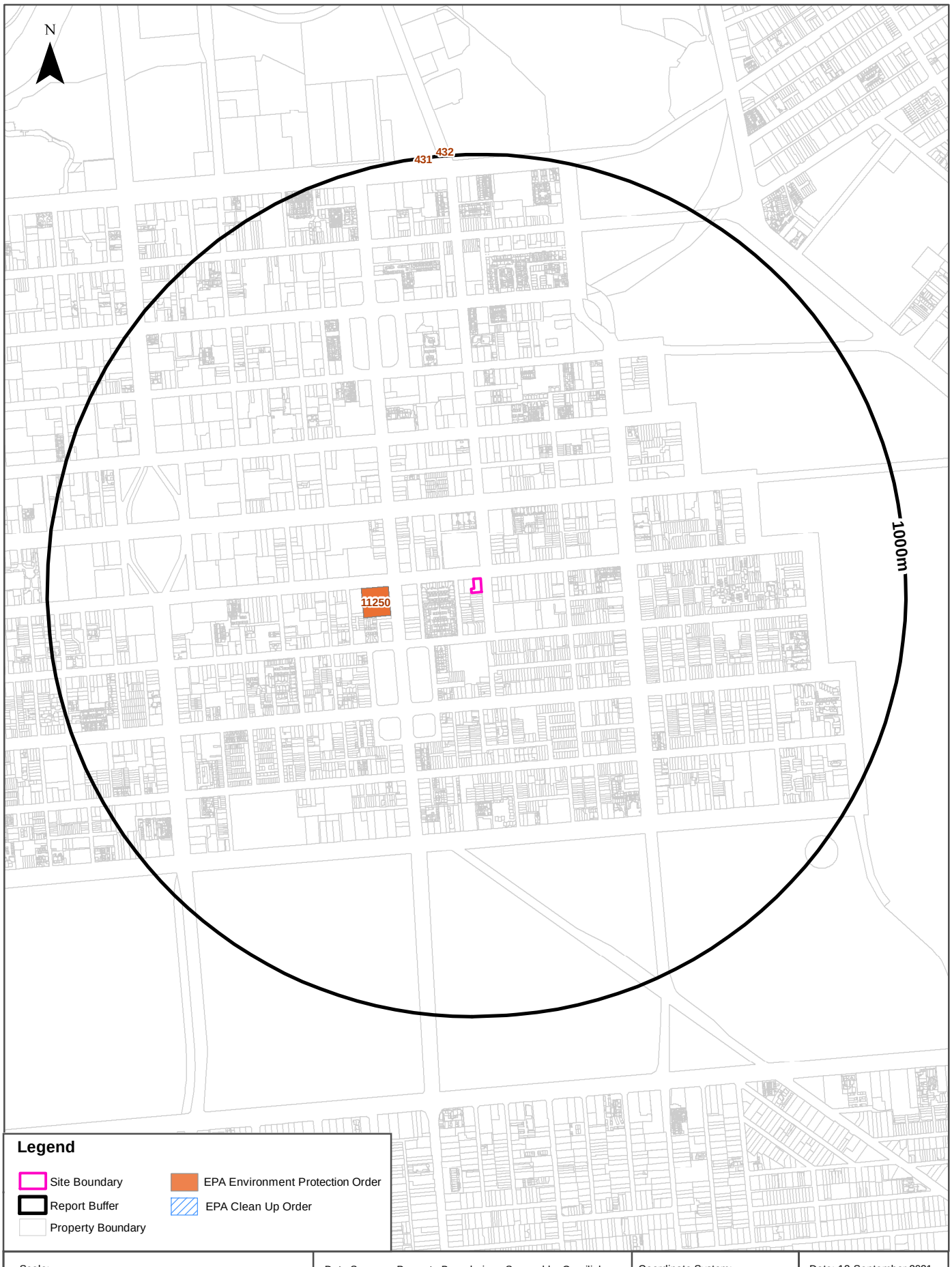
Notification No	Type	Address	Activity	Status	LocConf	Dist	Dir
61480 - 01	S83A Notification	411-427 King William Street ADELAIDE SA 5000	Fill or soil importation; Motor vehicle repair or maintenance; Service stations	Current EPA List	Premise Match	886m	South West
62240 - 01	S83A Notification	274 North Terrace ADELAIDE SA 5000	Listed Substances (storage)	Current EPA List	Premise Match	889m	North
62240 - 02	S83A Notification	274 North Terrace ADELAIDE SA 5000	Listed Substances (storage)	Current EPA List	Premise Match	889m	North
62240 - 03	S83A Notification	274 North Terrace ADELAIDE SA 5000	Listed Substances (storage); Motor vehicle repair or maintenance	Current EPA List	Premise Match	889m	North
10018	Pre 1 July 2009 Audit Notification	281-286 North Terrace ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	892m	North
10018 - 001	Pre 1 July 2009 Audit Report	281-286 North Terrace ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	892m	North
60194	Audit Notification	Sturt Street Carpark Sturt Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	901m	West
60194	Audit Termination	Sturt Street Carpark Sturt Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	901m	West
60256	Audit Notification	Sturt Street Carpark Sturt Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	901m	West
60256	Audit Termination	Sturt Street Carpark Sturt Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	901m	West
60704	Audit Notification	Sturt Street (Former Sturt St Carpark) ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	901m	West
60704 - 001	Audit Report	Sturt Street (Former Sturt St Carpark) ADELAIDE SA 5000	Fill or soil importation; Motor vehicle repair or maintenance; Works depots	Current EPA List	Premise Match	901m	West
18897	Pre 1 July 2009 Audit Notification	Sturt Street Carpark Sturt Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	901m	West
18897	Pre 1 July 2009 Audit Termination	Sturt Street Carpark Sturt Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	901m	West
12891	Pre 1 July 2009 Audit Notification	30 & 40 Gilbert Street and 10,12,14,16 & 18 Myers Lane ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	909m	South West
12891 - 001	Pre 1 July 2009 Audit Report	30 & 40 Gilbert Street and 10,12,14,16 & 18 Myers Lane ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	909m	South West
17375	109 Notification	30-40 Gilbert Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	926m	South West
60768	Audit Notification	43-69 Sturt Street ADELAIDE SA 5000	Electrical or electronics component manufacture; Spray painting	Current EPA List	Premise Match	930m	South West
60768	Audit Termination	43-69 Sturt Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	930m	South West
60784 - 01	S83A Notification	43-69 Sturt Street ADELAIDE SA 5000	Electrical or electronics component manufacture; Spray painting	Current EPA List	Premise Match	930m	South West
60784 - 02	S83A Notification	43-69 Sturt Street ADELAIDE SA 5000	Electrical or electronics component manufacture; Spray painting	Current EPA List	Premise Match	930m	South West
61267	Audit Notification	43-69 Sturt Street ADELAIDE SA 5000	Electrical or electronics component manufacture; Electrical transformer or capacitor works; Foundry; Listed Substances (storage); Metal coating, finishing or spray painting; Motor vehicle repair or maintenance; Spray painting	Current EPA List	Premise Match	930m	South West
61267 - 001	Audit Report	43-69 Sturt Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	930m	South West
10037	Pre 1 July 2009 Audit Notification	19 Stamford Court ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	938m	West
10037 - 001	Pre 1 July 2009 Audit Report	19 Stamford Court ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	938m	West
60171	S83 Notification	ETSA Utilities Underground Powerline - Whitemore Sq to Magill ADELAIDE SA 5000	Electrical transformer or capacitor works	Current EPA List	Premise Match	944m	East

Notification No	Type	Address	Activity	Status	LocConf	Dist	Dir
60099	Audit Notification	Fullarton Road ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	954m	South East
60099	Audit Termination	Fullarton Road ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	954m	South East
10039	Pre 1 July 2009 Audit Notification	24 Norman Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	964m	West
10039 - 001	Pre 1 July 2009 Audit Report	24 Norman Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	964m	West
12016	Pre 1 July 2009 Audit Notification	42-60 Gilbert Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	964m	South West
12016 - 001	Pre 1 July 2009 Audit Report	42-60 Gilbert Street ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	964m	South West
12017	SAHC	Corner Sturt and Norman Streets ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	965m	West
18095	109 Notification	Corner Sturt and Norman Streets ADELAIDE SA 5000	Not recorded	Current EPA List	Premise Match	965m	West

Site Contamination Index Data Source: EPA South Australia

EPA Environment Protection and Clean Up Orders

193 Angas Street, Adelaide, SA 5000



EPA Public Register

193 Angas Street, Adelaide, SA 5000

EPA Environment Protection and Clean Up Orders

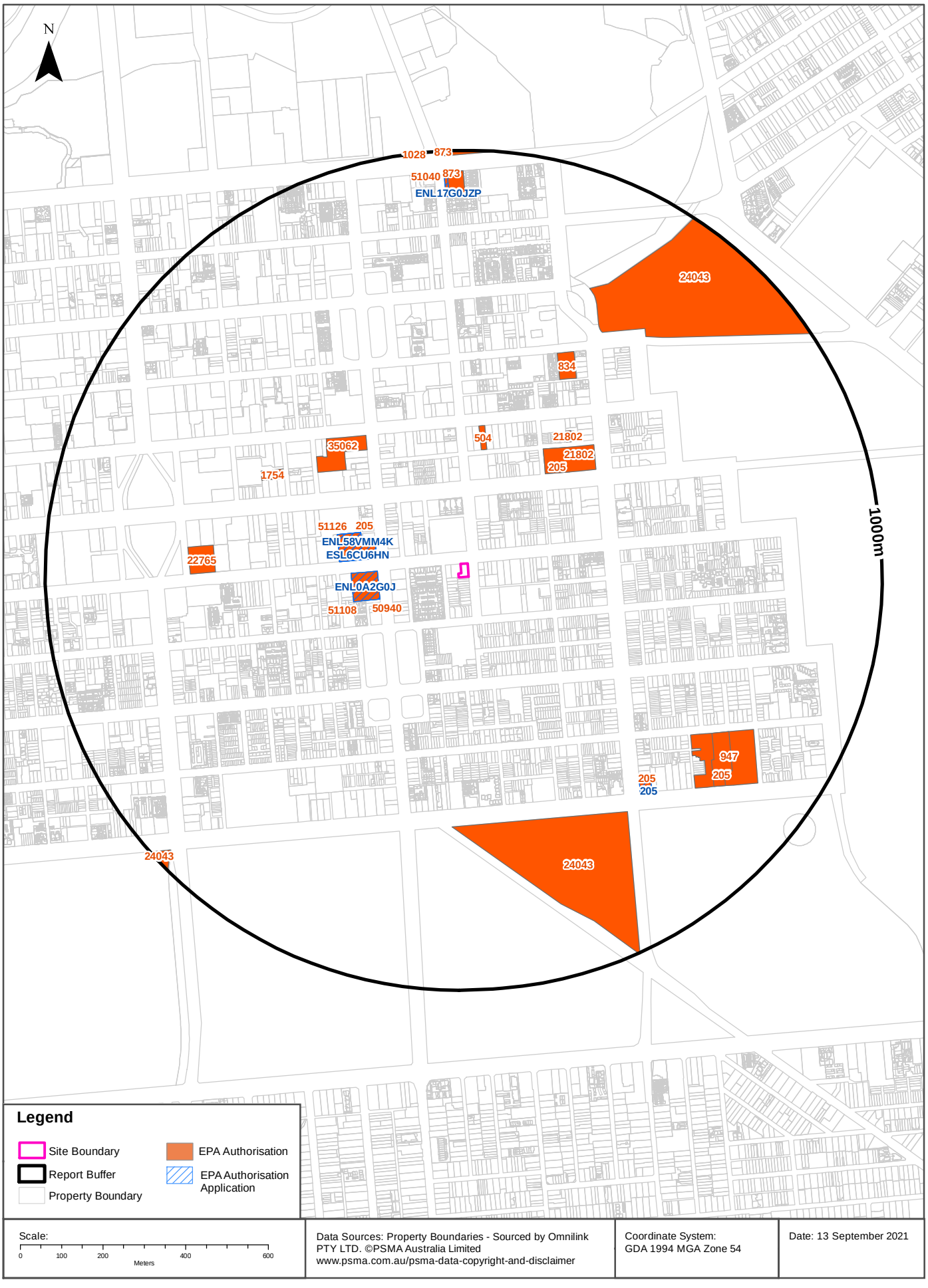
EPA Environment Protection and Clean Up Orders, within the dataset buffer:

Record No.	Record Type	Record Status	Entity	Site Address	Activity	EPA Register Status	LocConf	Dist	Dir
11250	ENVIRONMENT PROTECTION ORDER	ISSUED		Angas Street, Adelaide SA 5000	Discharged wastewater from the pre-washing of motor vehicles outside of the area which drains to the existing wash bay.	Current EPA Register	Premise Match	195 m	West
431	ENVIRONMENT PROTECTION ORDER	COMPLIED	THE UNIVERSITY OF ADELAIDE	North Terrace, Adelaide SA 5000	Caused environmental nuisance in the form of noise.	Current EPA Register	Premise Match	998 m	North
432	ENVIRONMENT PROTECTION ORDER	COMPLIED	The University of Adelaide, Adelaide University Union	North Terrace, Adelaide SA 5000	Caused environmental nuisance in the form of noise.	Current EPA Register	Premise Match	998 m	North

Authorisations Data Source: EPA South Australia

EPA Authorisations and Applications

193 Angas Street, Adelaide, SA 5000



EPA Public Register

193 Angas Street, Adelaide, SA 5000

EPA Authorisations and Applications

EPA Authorisations and Authorisation Applications within the dataset buffer:

Record No.	Record Type	Record Status	Entity	Site Address	Activity	EPA Register Status	LocConf	Dist	Dir
51108	LICENCE	Issued	ON THE RUN PTY LTD	281-301 Pulteney Street, ADELAIDE SA 5000	Petrol stations	Current EPA Register	Premise Match	195m	West
ENL0A2G0J	LICENCE APPLICATION	Authorisation Updated	SHAHIN ENTERPRISES PTY. LTD.	281-301 Pulteney Street, ADELAIDE SA 5000	Petrol stations	Current EPA Register	Premise Match	195m	West
50940	LICENCE	Transferred	SHAHIN ENTERPRISES PTY. LTD.	281-301 Pulteney Street, ADELAIDE SA 5000	Petrol stations	Current EPA Register	Premise Match	195m	West
ENL58VMM4K	LICENCE APPLICATION	Authorisation Updated	CALVARY HEALTH CARE ADELAIDE LIMITED	120 Angas Street, Adelaide SA 5000	Activity producing listed waste	Current EPA Register	Premise Match	202m	West
205	LICENCE	Issued	CLINPATH LABORATORIES PTY. LTD.	110-132 Angas Street, Adelaide SA 5000	Activity producing listed waste	Current EPA Register	Premise Match	202m	West
51126	LICENCE	Issued	CALVARY HEALTH CARE ADELAIDE LIMITED	120 Angas Street, Adelaide SA 5000	Activity producing listed waste	Current EPA Register	Premise Match	202m	West
ESL6CU6HN	LICENCE APPLICATION	Authorisation Updated	CLINPATH LABORATORIES PTY. LTD.	110-132 Angas Street, Adelaide SA 5000	Activity producing listed waste	Current EPA Register	Premise Match	202m	West
504	LICENCE	Cancelled	WELLVALUE HEALTHCARE PTY LTD	217-219 Flinders Street, ADELAIDE SA	Activities producing listed wastes	Current EPA Register	Premise Match	277m	North
21802	LICENCE	Cancelled	CALVARY HEALTH CARE ADELAIDE LIMITED	264-300 Wakefield Street, ADELAIDE SA 5000	Activities producing listed wastes	Current EPA Register	Premise Match	287m	North East
205	LICENCE	Issued	CLINPATH LABORATORIES PTY. LTD.	270 Wakefield Street, ADELAIDE, 5001, SA	Activities producing listed wastes	Current EPA Register	Premise Match	287m	North East
35062	LICENCE	Issued	TELSTRA CORPORATION LIMITED, SILCAR PTY LTD	115 Flinders Street, ADELAIDE SA 5000	Fuel burning not coal or wood	Current EPA Register	Premise Match	357m	North West
1754	LICENCE	Issued	MINISTER FOR JUSTICE	21 Divett Place, ADELAIDE SA 5000	Activities producing listed wastes	Current EPA Register	Premise Match	474m	North West
834	LICENCE	Surrendered	AUSTRALIAN RED CROSS BLOOD SERVICE	299-309 Pirie Street, ADELAIDE SA 5000	Activities producing listed wastes	Current EPA Register	Premise Match	497m	North East
22765	LICENCE	Issued	SOUTH AUSTRALIAN WATER CORPORATION	242-260 Victoria Square, ADELAIDE SA 5000	Activities producing listed wastes	Current EPA Register	Premise Match	588m	West
24043	EXEMPTION	Cancelled	CORPORATION OF THE CITY OF ADELAIDE		Chemical Dosing of Treated Wastewater	Current EPA Register	Premise Match	600m	South West
205	LICENCE	Issued	CLINPATH LABORATORIES PTY. LTD.	321-324 South Terrace, ADELAIDE SA 5000	Activities producing listed wastes	Current EPA Register	Premise Match	635m	South East
205	LICENCE APPLICATION	Proceed To Authorisation	Clinpath Laboratories Pty Ltd	321-324 South Terrace, Adelaide SA 5000	Activities producing listed wastes	Current EPA Register	Premise Match	635m	South East
947	LICENCE	Issued	ST ANDREW'S HOSPITAL INCORPORATED	341-355 South Terrace, ADELAIDE SA 5000	Activities producing listed wastes	Current EPA Register	Premise Match	659m	South East
205	LICENCE	Issued	CLINPATH LABORATORIES PTY. LTD.	389 Gilles Street, ADELAIDE SA 5000	Activities producing listed wastes	Current EPA Register	Premise Match	700m	South East

Record No.	Record Type	Record Status	Entity	Site Address	Activity	EPA Register Status	LocConf	Dist	Dir
51040	LICENCE	Issued	MURPHY HOLDINGS S.A. PTY. LIMITED	274 North Terrace, ADELAIDE SA 5000	Petrol stations	Current EPA Register	Premise Match	889m	North
ENL17G0JZP	LICENCE APPLICATION	Authorisation Updated	MURPHY HOLDINGS S.A. PTY. LIMITED	274 North Terrace, ADELAIDE SA 5000	Petrol stations	Current EPA Register	Premise Match	889m	North
873	LICENCE	Surrendered	ROYAL ADELAIDE HOSPITAL	Adelaide Campus, North Terrace, ADELAIDE SA 5000	Activities producing listed wastes,Fuel burning not coal or wood	Current EPA Register	Premise Match	890m	North
1028	LICENCE	Issued	UNIVERSITY OF SOUTH AUSTRALIA	City East Campus, North Terrace, ADELAIDE SA 5000	Activities producing listed wastes	Current EPA Register	Premise Match	998m	North West
31182	LICENCE	Issued	ADELAIDE CITY COUNCIL	Various Locations Within The Corporation of The City of Adelaide Boundaries, SA	Dredging - for each day on which dredging occurs during the licence period	Current EPA Register	Suburb Match	-	-

Authorisations Data Source: EPA South Australia

EPA Assessment Areas

193 Angas Street, Adelaide, SA 5000

EPA Assessment Areas

EPA Assessment Areas within the dataset buffer:

Map Id	Supplied Ref	Area Name	Map Link	Status	Location Confidence	Distance	Direction
N/A	No records in buffer						

Assessment Areas Data Source: EPA South Australia

PFAS Investigation and Management Programs

193 Angas Street, Adelaide, SA 5000

Defence PFAS Investigation and Management Program Investigation Sites

Sites being investigated by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Location Confidence	Distance	Direction
N/A	No records in buffer				

Defence PFAS Investigation and Management Program Data Source: Department of Defence, Australian Government

Defence PFAS Investigation and Management Program Management Sites

Sites being managed by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Location Confidence	Distance	Direction
N/A	No records in buffer				

Defence PFAS Investigation and Management Program Data Source: Department of Defence, Australian Government

Airservices Australia National PFAS Management Program

Sites being investigated or managed by Airservices Australia for PFAS contamination within the dataset buffer:

Map ID	Site Name	Impacts	Location Confidence	Distance	Direction
N/A	No records in buffer				

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites

193 Angas Street, Adelaide, SA 5000

Defence 3 Year Regional Contamination Investigation Program

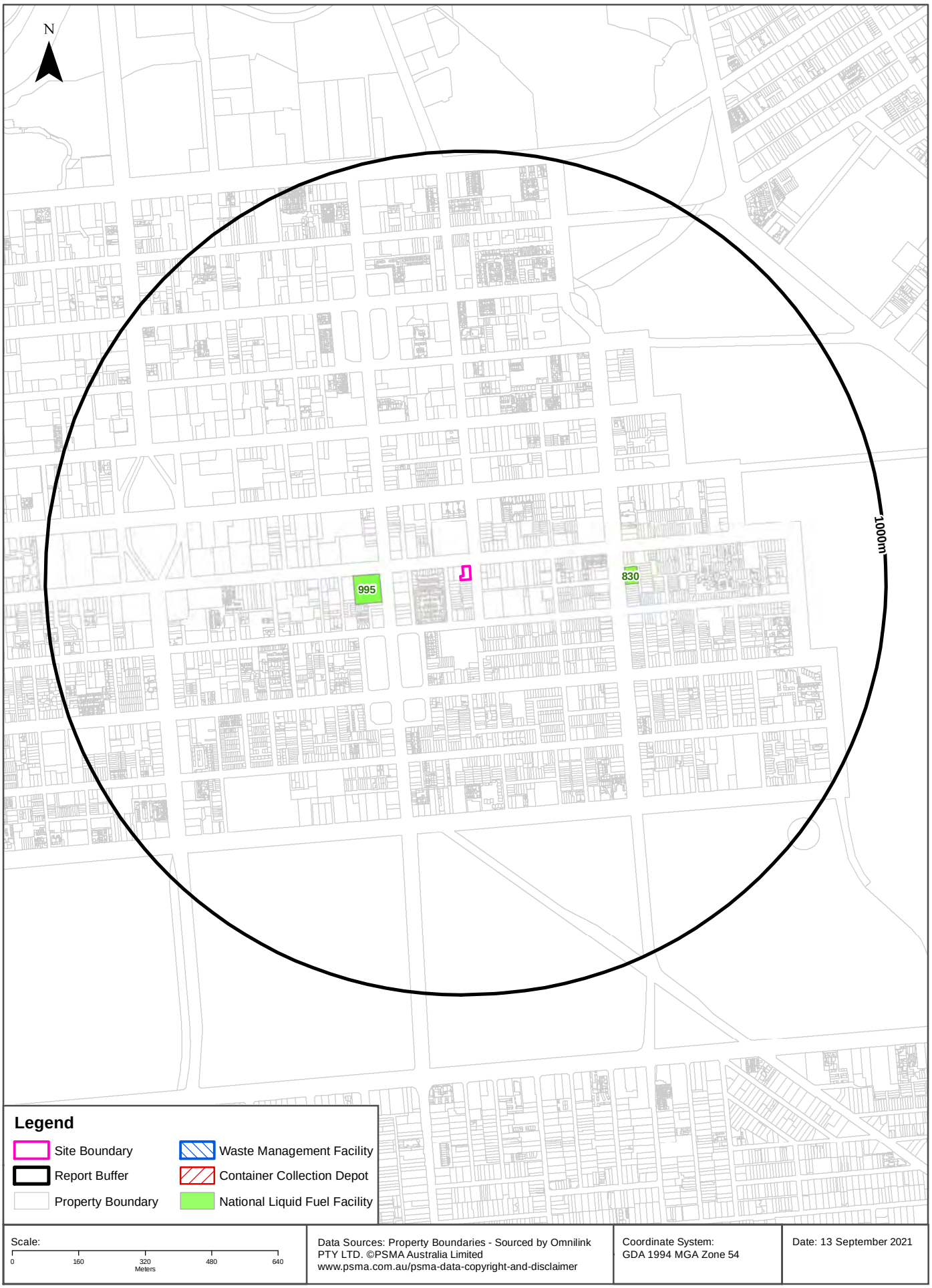
Sites which have been assessed as part of the Defence 3 Year Regional Contamination Investigation Program within the dataset buffer:

Property ID	Base Name	Address	Known Contamination	Loc Conf	Dist	Dir
N/A	No records in buffer					

Defence 3 Year Regional Contamination Investigation Program, Data Custodian: Department of Defence, Australian Government

Waste Management & Liquid Fuel Facilities

193 Angas Street, Adelaide, SA 5000



Waste Management and Liquid Fuel Facilities

193 Angas Street, Adelaide, SA 5000

National Waste Management Site Database

Sites on the National Waste Management Site Database within the dataset buffer:

Site Id	Owner	Name	Address	Suburb	Class	Revised Date	Location Confidence	Distance	Direction
N/A	No records in buffer								

Waste Management Facilities Data Source: Australian Government Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

EPA Approved Container Collection Depots

EPA approved container collection depots within the dataset buffer:

MapId	Name	Address	Suburb	Loc Conf	Distance	Direction
N/A	No records in buffer					

Collection Depot Data Source: EPA South Australia

National Liquid Fuel Facilities

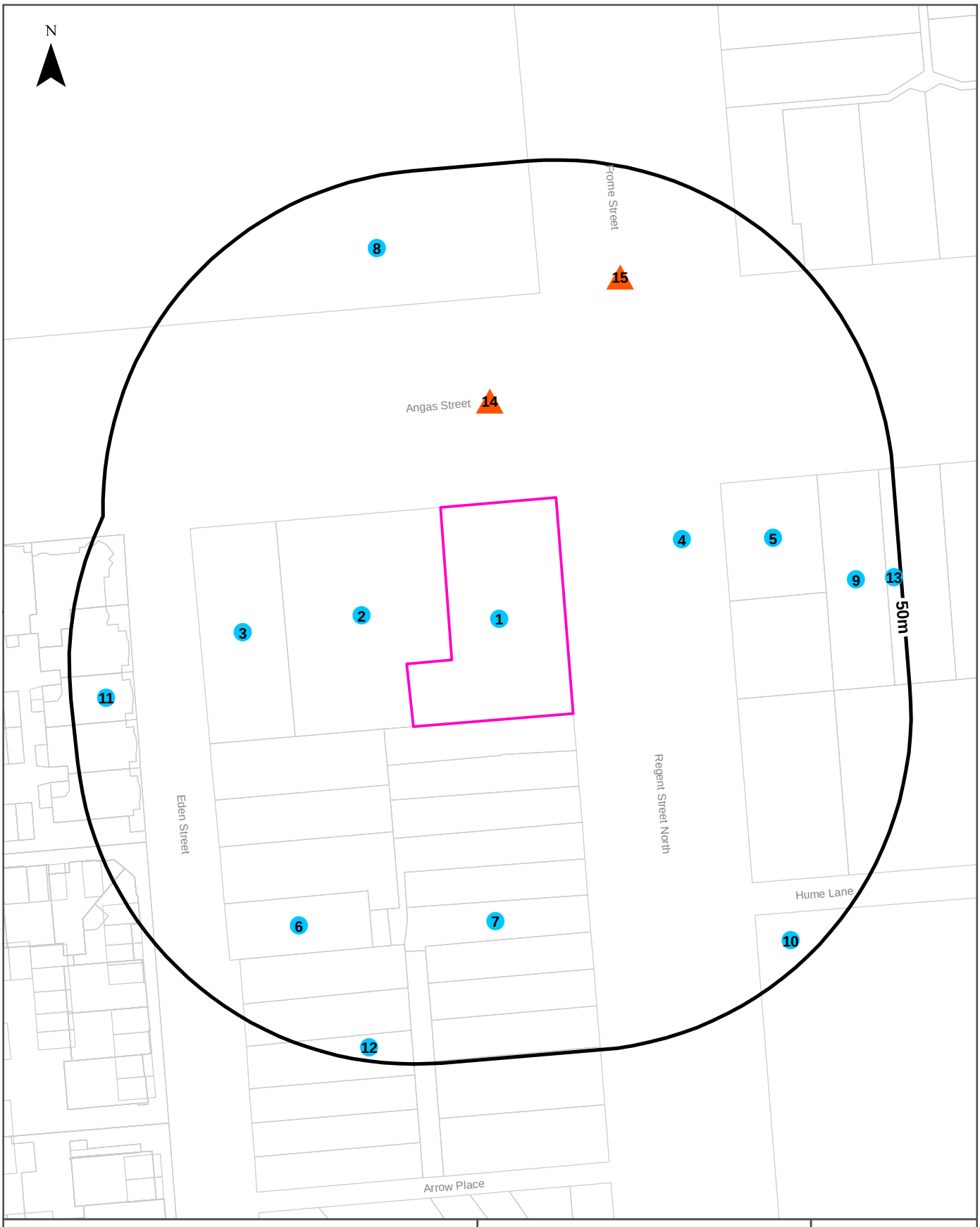
National Liquid Fuel Facilties within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist (m)	Dir
995	Peregrine Corporation	Mobil On The Run Adelaide	139 Angus Street	Adelaide	Petrol Station	Operational		13/07/2012	Premise Match	195m	West
830	Caltex	Caltex Adelaide	144 Hutt Street	Adelaide	Petrol Station	Operational		25/07/2011	Premise Match	369m	East

National Liquid Fuel Facilities Data Source: Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Historical Business Directories

193 Angas Street, Adelaide, SA 5000



Legend

- Site Boundary
- Buffer 50m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- Business directory records mapped to a road corridor
- Business directory records mapped to a general area

Scale: 0 10 20 30 40 Meters

Coordinate System: GDA 1994 MGA Zone 54

Date: 13 September 2021

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018
Sands & McDougall's Directory - Digitised by State Library Victoria
Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited 2021
www.psma.com.au/psma-data-copyright-and-disclaimer

Historical Business Directories

193 Angas Street, Adelaide, SA 5000

Business Directory Records 1910-1991
Premise or Road Intersection Matches

Universal Business Directory and Sands & McDougall Directory records, from years 1991, 1984, 1973, 1965, 1955, 1950, 1940, 1930, 1920 & 1910, mapped to a premise or road intersection within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection (m)	Direction
1	Embroidery Mfrs &/or Specialists	Valerie Travers Pty Ltd, 193 Angas St, Adelaide 5000	19910	1991	Premise Match	0m	On-site
	Clothing Mfrs &/or W/salers - Industrial &/or Protective	Valerie Travers Pty. Ltd., 193 Angas St., Adelaide. 5000.	40741	1991	Premise Match	0m	On-site
	Courier Services	A-Car Courier Service, 193 Angas St,	6278	1984	Premise Match	0m	On-site
	Courier Services	Speedie Messenger Service 193 Angas St	6282	1984	Premise Match	0m	On-site
	Embroidery Mfrs. &/or Specialists	Valerie Travers Pty. Ltd.. 193 Angas St..	10339	1984	Premise Match	0m	On-site
	ELECTRICAL MANUFACTURERS	Thorn Electrical Industries (Aust) P/L 193 Angas st Adelaide	9906	1973	Premise Match	0m	On-site
	ELECTRICIAN & ELECTRICAL CONTRACTORS	Thorn Electrical Industries (Aust) Pty Ltd 193 Angas st Adelaide	11094	1973	Premise Match	0m	On-site
	BRASSFOUNDERS	S A Brass Engineering Co Ltd 193 Angas st Adel	42471	1965	Premise Match	0m	On-site
	ENGINEERS (Manufacturing)	S.A., BRASS ENGINEERING CO. LTD., 193 Angas Street, Adelaide.	33075	1955	Premise Match	0m	On-site
	BRASSFOUNDERS	SA Brass Engineering Co Ltd 193 Angas st Adel	4141	1955	Premise Match	0m	On-site
2	Hotels - Licensed	Seven Stars Hotel, 187 Angas St.,	15237	1984	Premise Match	0m	West
	HOTELS	Hotel Seven Stars 187 Angas st Adelaide	33820	1973	Premise Match	0m	West
	HOTELS	Seven Stars 191 Angas st Adelaide	41101	1965	Premise Match	0m	West
	HOTELS	Seven Stars 191 Angas st Adelaide	14171	1955	Premise Match	0m	West
	HOTEL–LICENSED	Seven Stars Hotel., 191 Angas St.	10328	1950	Premise Match	0m	West
	HOTELS	Seven Stars-Adeline A. Lynch, 187-191 Angas st	2982	1940	Premise Match	0m	West
	HOTELS	Seven Stars-H. H. Blackwell, 187-191 Angas st	20514	1930	Premise Match	0m	West
	Hotels and Public Houses	Seven Stars; Fricker, Meshach, 209 Angas st	10140	1920	Premise Match	0m	West
3	Supermarkets	4 Square Supermarket, 181 Angas St,	23935	1984	Premise Match	17m	West
	WHITE ANT & PEST EXTERMINATORS	Houghton & Byrne (SA) Ltd 181 Angas st Adelaide	16933	1973	Premise Match	17m	West
	WHITE ANT & PEST EXTERMINATORS	Houghton & Byrne (SA) Ltd 181 Angas st Adelaide	19666	1965	Premise Match	17m	West
	WHITE ANT & PEST EXTERMINATORS	Houghton & Byrne (SA) Ltd 181 Angas st Adelaide	10902	1955	Premise Match	17m	West
	INSECTICIDE MANUFACTURERS & DISTRIBUTOR	Houghton & Byrne (S.A.) Ltd., 181 Angos St	10671	1950	Premise Match	17m	West
	Enamellers	Kutcher, W, 201 Angas st	7252	1920	Premise Match	17m	West

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection (m)	Direction
3	Motor and Cycle Makers, Importers and Agents	Kutcher, W, 201 Angas st	13086	1920	Premise Match	17m	West
4	Butchers	Smith C H & Sons 203 Angas st Adelaide	12450	1955	Premise Match	18m	North East
	BUTCHERS-RETAIL	Smith, C. H., 203 Angas St.	2892	1950	Premise Match	18m	North East
	BUTCHERS	Smith C. H. 203 Angas st	15160	1940	Premise Match	18m	North East
	BUTCHERS	Smith C. H, 203 Angas st	11275	1930	Premise Match	18m	North East
	Butchers	Jackson, W, 221 Angas-st	3289	1920	Premise Match	18m	North East
	Butchers	Jackson, W, 221 Angas st	3060	1910	Premise Match	18m	North East
5	Trade Unions	Australian Workers Union, 207 Angas St, Adelaide 5000	35305	1991	Premise Match	24m	East
	Associations, Societies &/Or Boards	Australian Workers Union 207 Angas St	1076	1984	Premise Match	24m	East
	Trade Unions	Australian Workers Union, 207 Angas St,	25227	1984	Premise Match	24m	East
	ACCOUNTANTS	Lapthorne J A 207 Angas st Adelaide	14171	1973	Premise Match	24m	East
	FINANCIERS	Reinehr Industrial Lease & Finance Pty Ltd 207-209 Angas st Adelaide	14708	1973	Premise Match	24m	East
	ENGINEERS (Electrical)	Westinghouse-McKenzie-Holland P/L 207 Angas st Adelaide	12076	1973	Premise Match	24m	East
	ENGINEERS (ELECTRONIC)	Westinghouse-McKenzie-Holland P/L 207 Angas st Aedlaide	12102	1973	Premise Match	24m	East
	SURVEYORS	Crisp Kavanagh & Partners Quantity Surveyors 207-209 Angas st Adelaide	56438	1965	Premise Match	24m	East
	ARCHITECTS	Vogt B J 207 Angas st Adelaide	30393	1965	Premise Match	24m	East
	SURVEYORS	Crisp & Wolferstan 205 Angas st Adelaide	1506	1955	Premise Match	24m	East
	GALVANIZED IRON AND SHEET METAL WORKERS	Bernard, M, 233 Angas st	8083	1920	Premise Match	24m	East
6	Tailors and Clothiers	Ross, Arthur, 20 Eden st	15366	1910	Premise Match	25m	South West
7	Carters and Carriers	Retallack, A. E, 19 Regent st	4133	1920	Premise Match	27m	South
8	MIXED BUSINESSES	Barris N K 194 Angas st Adelaide	9297	1973	Premise Match	30m	North
	PLASTERERS	Burgess E W Patternmaker Ltd 178-188 Angas st Adelaide	30702	1973	Premise Match	30m	North
	MOTOR ENGINEERS & REPAIRERS	Burgess H W (Pattern Maker) Pty Ltd 180 Angas st Adelaide	12579	1973	Premise Match	30m	North
	MOTOR ENGINEERS & REPAIRERS	Reliable Engine Service Pty Ltd 176 Angas st Adelaide	13293	1973	Premise Match	30m	North
	MIXED BUSINESSES	Barria N K 194 Angas st Adelaide	51190	1965	Premise Match	30m	North
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Burgess H W 178-188 Angas st Adelaide	56955	1965	Premise Match	30m	North
	PLASTERERS	Burgess H W Patternmaker Ltd 178-188 Angas st Adelaide	38585	1965	Premise Match	30m	North
	PATTERN MAKERS	BURGESS, H. W.180-186 Angas Street, Adelaide.	27668	1965	Premise Match	30m	North
	FINANCIERS	H W B Investments Ltd 180-188 Angas st Adel	11504	1965	Premise Match	30m	North
	WHEEL ALIGNMENT SPECIALISTS	Light Wheel Alignment Specialists Ltd 174 Angas st Adelaide	19620	1965	Premise Match	30m	North
	FURNITURE MANUFACTURERS & FURNISHERS	Watt W H 174 Angas st Adelaide	21424	1965	Premise Match	30m	North
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Burgess H W 180-188 Angas st Adelaide	19437	1955	Premise Match	30m	North

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection (m)	Direction
8	GALVANIZED IRON & SHEET METAL ENGINEERS & WORKERS	Evans A J 200 Angas st Adelaide	1742	1955	Premise Match	30m	North
	FINANCIERS	H W B Investments Ltd 180-188 Angas st Adel	39329	1955	Premise Match	30m	North
	MIXED BUSINESSES	Hocking J 194 Angas st Adelaide	17431	1955	Premise Match	30m	North
	UPHOLSTERERS	Huxley A R 174 Angas st Adelaide	6173	1955	Premise Match	30m	North
	PATTERN MAKERS	Burgess, H. W., 180-186 Angas St.	15366	1950	Premise Match	30m	North
	PATTERN MAKERS	Burgess, H.W., 180-186 Angas St.	15363	1950	Premise Match	30m	North
	FRUITERERS & GREENGROCERS	Semmens, F., 179 Angas St.	7984	1950	Premise Match	30m	North
	MILK VENDORS-WHOLESALE	Southern Milk Supply., 174 Angas St.; 65 Parade, Norwood	12320	1950	Premise Match	30m	North
	NEWSAGENTS-GENERAL	Williamson. A. H., 176 Angas St.	14754	1950	Premise Match	30m	North
	Storekeepers (General)	Angrove Mrs M E, 194 Angas st	12927	1940	Premise Match	30m	North
	TURNERS (Wood)	Burgess, H. W., 180a Angas st	15854	1940	Premise Match	30m	North
	Boardinghouse, Lodginghouse, And Apartment Keepers	Matthews, Mrs. E, 178 Angas st	11378	1940	Premise Match	30m	North
	Printers And Allied Trades	O.J.D. Printing House, 174 Angas st	9762	1940	Premise Match	30m	North
	BOOKSELLERS, STATIONERS, AND NEWSAGENTS	Williamson, Mrs. J., 176 Angas street	12091	1940	Premise Match	30m	North
	CABINET MAKERS, FRENCH POLISHERS, AND FURNITURE MANUFACTURERS	Amos & Son, 174 Angas st	11525	1930	Premise Match	30m	North
	Steel Casement And Window Frame Makers	Amos & Son, 174 Angas st	7375	1930	Premise Match	30m	North
	Storekeepers (General)	Piercy, R. & S. 194 Angas st	9647	1930	Premise Match	30m	North
	MATTRESS - MAKERS (Wire, etc.)	Rick, G. & Son, 180 Angas st	23536	1930	Premise Match	30m	North
	CONFECTIONERS (Retail), AND COOL DRINKS	Williamson, Mrs J, 176 Angas st	14597	1930	Premise Match	30m	North
	Fishmongers and Poulterers	Stagg, ,Mrs L, 120 Angas st	7835	1920	Premise Match	30m	North
	Confectioners (Retail)	Stagg, Mrs L, 120 Angas st	5016	1920	Premise Match	30m	North
	Pictureframe Makers	Perrow, Jno, 120 Angas st	12393	1910	Premise Match	30m	North
9	Real Estate Agents	Colman, C. & Co., 211 Angas St.,	21616	1984	Premise Match	39m	East
	CLOTHING MANUFACTURERS	Westley Bruce 211 Angas st Adelaide	35898	1965	Premise Match	39m	East
10	Hairdressers - Gents	Caris, B., 226 Carrington St.	13516	1984	Premise Match	40m	South East
	GROCERS & GENERAL STOREKEEPERS	Beilby S O 224 Carrington st Adelaide	4411	1955	Premise Match	40m	South East
	Storekeepers (General)	Merten, A. H, 224 Carrington st	9451	1930	Premise Match	40m	South East
11	GREENGROCERS & FRUITERERS	Semmens A 179 Angas st Adelaide	3391	1955	Premise Match	41m	West
	Boardinghouse, Lodginghouse, And Apartment Keepers	McIntyre, Miss J. E., 165 Angas street	11389	1940	Premise Match	41m	West
	Boardinghouse, Lodginghouse, And Apartment Keepers	O'Brien, B. C., 167 Angas st	11417	1940	Premise Match	41m	West

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection (m)	Direction
11	Mixed Businesses	Semmens, A., 179 Angas st	6031	1940	Premise Match	41m	West
	Boardinghouse, Lodginghouse, And Apartment Keepers	Talbot, A., 175 Angas st	11479	1940	Premise Match	41m	West
	Storekeepers (General)	James, Mrs M. E, 179 Angas st	8951	1930	Premise Match	41m	West
	Pastry Cooks and Caterers	Collins, Wm, 175 Angas st	13866	1920	Premise Match	41m	West
	Dressmakers and Milliners	Haussen, Mrs H, 177 Angas st	6776	1920	Premise Match	41m	West
	Storekeepers (General)	Semmens, A. E, 199 Angas-st	16727	1920	Premise Match	41m	West
	Dressmakers and Milliners	Webb, Mrs A. A, 169 Angas st	7003	1920	Premise Match	41m	West
	Storekeepers (General)	Wilkins, F. J, 199 Angas st	15092	1910	Premise Match	41m	West
12	UPHOLSTERERS	Collins J R 26 Eden st Adelaide	6108	1955	Premise Match	45m	South
13	Buildings	Angas House, 213 Angas St.,	3044	1984	Premise Match	48m	East
	Real Estate Agents	Bath, Ian T. & Co., 213 Angas St.,	21574	1984	Premise Match	48m	East
	Cleaners - General	Regent Domestics 213 Angas St .	5130	1984	Premise Match	48m	East
	PLASTIC GOODS MANUFACTURERS AND SUPPLIERS	Agmer P/L 215 Angas st Adelaide	31692	1973	Premise Match	48m	East
	PUBLISHERS	Angas Publishing Co Ltd 213-215 Angas st Adelaide	34644	1973	Premise Match	48m	East
	CLEANERS	Operation Kleenahome 213 Angas st Adelaide	40349	1973	Premise Match	48m	East
	ASSOCIATIONS	Royal Australian Nursing Fedtn (Sth Aust Branch) 213 Angas st Adelaide	17976	1973	Premise Match	48m	East
	PUBLISHERS	Angas Publishing Co Ltd 213-215 Angas st Adelaide	49748	1965	Premise Match	48m	East
	MERCHANTS, IMPORTERS & WAREHOUSEMEN	Dresser Pty Ltd S I E 213-215 Angas st Adel	48060	1965	Premise Match	48m	East
	FROCK SHOPS	Duchess Frocks Ltd 213-215 Angas st Adelaide	17537	1965	Premise Match	48m	East
	Agents, Manufacturers' Agents & Indent Agents	Jason Agency 213-215 Angas st Adelaide	26205	1965	Premise Match	48m	East
	Agents, Manufacturers' Agents & Indent Agents	R M Supply 213-215 Angas st Adelaide	27334	1965	Premise Match	48m	East
	Basketmakers and Wickerworkers	Wilson, E., 213 Angas st	9847	1940	Premise Match	48m	East

Business Directory Content reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018 and Sands & McDougall's Directory of South Australia

Business Directory Records 1910-1991 Road or Area Matches

Universal Business Directory and Sands & McDougall Directory records, from years 1991, 1984, 1973, 1965, 1955, 1950, 1940, 1930, 1920 & 1910, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area (m)
14	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Yorke Motors Angas st Adelaide	9981	1965	Road Match	13m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area (m)
14	Cab and Omnibus Proprietors	Burns, Geo, 362 Angas st	3379	1910	Road Match	13m
15	INSTRUMENT MAKERS & REPAIRERS	Bota Equipment Ltd 22 Tavistock st Adelaide	34485	1973	Road Match	18m
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Auto Conversions Ltd 63 Ackland st Adelaide	55838	1965	Road Match	18m
	STEEL & MACHINE TOOLS & GAUGES	Benbow Tool & Gauge Co 63 Ackland st Adel	55244	1965	Road Match	18m
	INSTRUMENT MAKERS & REPAIRERS	Booth Equipment Ltd 22 Tavistock st Adelaide	42069	1965	Road Match	18m
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Car Park Frome st Adelaide	57807	1965	Road Match	18m
	BATTERY SPECIALISTS	Erg Batteries (SA) Limited 61 Ackland st Adelaide	36429	1965	Road Match	18m
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Golden Fleece Service Station Ackland st Adel	184	1965	Road Match	18m
	Electricians & Electric Light Contractors	Grenfell Electric 23 Ackland st Adelaide	53271	1965	Road Match	18m
	TAXIS, PRIVATE BUSES AND OTHER HIRE SERVICES	St Georges Taxi Services Ltd Frome st Adel	1893	1965	Road Match	18m
	Agents, Manufacturers' Agents & Indent Agents	Vivian E M & Co 69 Ackland st Adelaide	28320	1965	Road Match	18m
	GREENGROCERS & FRUITERERS	Woolworths Fruit & Vegetable Store Frome st Adelaide	26654	1965	Road Match	18m
	STEEL & MACHINE TOOLS & GAUGES	Benbow Tool & Gauge Co 63 Ackland st Adel	639	1955	Road Match	18m
	INSTRUMENT MAKERS & REPAIRERS	Both Equipment Ltd 22 Tavistock st Adelaide	14308	1955	Road Match	18m
	ENGINEERS (Mechanical & General)	Central Engineering Co 63 Ackland st Adelaide	33897	1955	Road Match	18m
	ENGINEERS (Manufacturing)	CENTRAL ENGINEERING COMPANY LTD. 63 Ackland Street Adelaide.	33064	1955	Road Match	18m
	BATTERY SPECIALISTS	Century Batteries (SA) Ltd 13-15 Ackland st Adelaide	38810	1955	Road Match	18m
	HAIRDRESSERS & TOBACCONISTS	Cutler J C 8 Frome st Davenport	11401	1955	Road Match	18m
	ENGINEERS (Electrical)	DUNLITE ELECTRICAL CO. LIMITED., Tavistock Street Adelaide	32379	1955	Road Match	18m
	MOTOR BODY BUILDERS	Jewell H 17 Ackland st Adelaide	18852	1955	Road Match	18m
	Plumbers	Levick J J & Son 15 Ackland st Adelaide	35746	1955	Road Match	18m
	INSTRUMENT MAKERS & REPAIRERS	Oke G L 24 Tavistock st Adelaide	14589	1955	Road Match	18m
	Manufacturers (General)	Rich's Manufacturing Co 26 Tavistock st Adel	15831	1955	Road Match	18m
	BAKERS, CAKE SHOPS & CATERERS	Roxy bakery 69 Ackland st Adelaide	38073	1955	Road Match	18m
	SHOP FITTERS	Stokes F & Co 61 Ackland st Adelaide	40040	1955	Road Match	18m
	MOTORS & ACCESSORIES	Victoria Car Serv (SA) Pty Ltd 55 Ackland st Adelaide	24107	1955	Road Match	18m
	ENGINEERS (Electrical)	Walsh J L 22 Tavistock st Adelaide	33041	1955	Road Match	18m
	ELECTRICAL APPLIANCE & EQUIPMENT MANUFACTURERS	Boinlite Electrical Co. Ltd., 22 Tavistock St.	6240	1950	Road Match	18m
	CLOTH CUTTING MACHINES	Both, E. T. & D. J. R., 24 Tavistock St.	4178	1950	Road Match	18m
	ELECTRICAL APPLIANCE & EQUIPMENT MANUFACTURERS	Both, E. T. & D. J. R., 24 Tavistock St.	6238	1950	Road Match	18m
	ELECTRO-MEDICAL APPARATUS MANUFAC-TURERS	Both, E. T. & D. J. R., 24 Tavistock St.	6603	1950	Road Match	18m
	CINEMATOORAPH EQUIPMENT & MACHINES	Central Engineering Co., 63 Ackland St.	4170	1950	Road Match	18m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area (m)
15	ELECTRICAL APPLIANCES & SUPPLIES-RETAIL	Dunlite Electrical Co. Ltd., 22 Tavistock St.	6283	1950	Road Match	18m
	ELECTRICAL ENGINEERS	Dunlite Electrical Co. Ltd., 22 Tavistock St.	6546	1950	Road Match	18m
	HOME LIGHTING PLANTS	Dunlite Electrical Co. Ltd., 22 Tavistock St.	9947	1950	Road Match	18m
	HOME LIGHTING PLANTS	Dunlite Electrical Co. Ltd., 22 Tavistock St.	9950	1950	Road Match	18m
	ELECTRICAL ENGINEERS	Dunlite Electrical Co. Ltd., 22 Tavistock' St.	6518	1950	Road Match	18m
	ELECTRICAL ENGINEERS	Dunlite Manufacturing Co. Ltd., 22a Tavistock St.	6547	1950	Road Match	18m
	GENERATOR MANUFACTURERS	Dunlite Manufacturing Co. Ltd., 22a Tavistock St.	8382	1950	Road Match	18m
	AIR CLEANERS	E.B. Manufacturing Co. Ltd., Tavistock St.	304	1950	Road Match	18m
	BELT (MODEL) MANUFACTURERS	Howard, W. 5., & Co., 28 Tavistock St.	1373	1950	Road Match	18m
	HANDBAG MANUFACTURERS	Howard, W. S., & Co., 28 Tavistock St.	9649	1950	Road Match	18m
	MOTOR BODY REPAIRS	Jewell, H., 17 Ackland St.	13501	1950	Road Match	18m
	EARTH MOVING CONTRACTORS	Keane, V. P., 23 Ackland St.	6146	1950	Road Match	18m
	MOTOR PAINTERS	Land Motors., 71 Acklond St.	14266	1950	Road Match	18m
	PLUMBERS	Levick, J. J., & Son., 15 Ackland St.	15858	1950	Road Match	18m
	ENAMELLERS	Miller G. J., 13 Ackland St.	6661	1950	Road Match	18m
	TOBACCONISTS	O'Flaherty, G. M., 43 Ackland St.	18292	1950	Road Match	18m
	CLOTHING MANUFACTURES AND GENERAL IMPORTERS	Rich's Manufacturing Co., 26 Tavistock St.	4227	1950	Road Match	18m
	BILLIARD TABLE ACCESSORIES	Schmidt, W., 11 Ackland St.	1391	1950	Road Match	18m
	WOODWORKERS & TURNERS	Schmidt, W., 11 Acklond St.	19254	1950	Road Match	18m
	IMPORTERS	Slee, H. C., 28 Acklond St.	10639	1950	Road Match	18m
	TAXI SERVICES	St. George's Taxi Service, Ltd., 11a Ackland St.	17933	1950	Road Match	18m
	EXPORTERS	Stee, H. C., 28 Ackland St.	7148	1950	Road Match	18m
	SHOP OFFICE FITTERS	Stokes, F & Co., 61 Ackland St.	17284	1950	Road Match	18m
	SHOWCASE SPECIALISTS	Stokes, F & Co., 61 Ackland St.	17303	1950	Road Match	18m
	ELECTRICAL APPLIANCE & EQUIPMENT MANUFACTURERS	Unlite Electrical Co. Ltd., 22 Tavistock St.	6231	1950	Road Match	18m
	ELECTRICAL ENGINEERS	Walsh, J. L., 22 Tavistock St.	6531	1950	Road Match	18m
	ELECTRICAL ENGINEERS	Walsh, J. L., 22 Tavistock St.	6584	1950	Road Match	18m
	ENGINEERS-GENERAL, MECHANICAL & MANUFACTURING	Walsh, J. L., 22 Tavistock St.	6896	1950	Road Match	18m
	GRAIN, SEED & PRODUCE MERCHANTS	Waymouth Grain Store., 178 Ackland St.	8595	1950	Road Match	18m
	MOTOR TRAILER BUILDERS	well, H., Ackland St.	14390	1950	Road Match	18m
	BLACKSMITHS AND FARRIERS	Brown & Son, Ackland st	10300	1940	Road Match	18m
	CABINET MAKERS, FRENCH POLISHERS (Proprietors only)	Catt, L. M., 22 Ackland st.	15606	1940	Road Match	18m
	Motor Engineers, Garages And Service Stations	Chrysler Service Motors, Ackland street	6772	1940	Road Match	18m
	Motor Engineers, Garages And Service Stations	Colley, W. B., 23 Ackland st	6757	1940	Road Match	18m

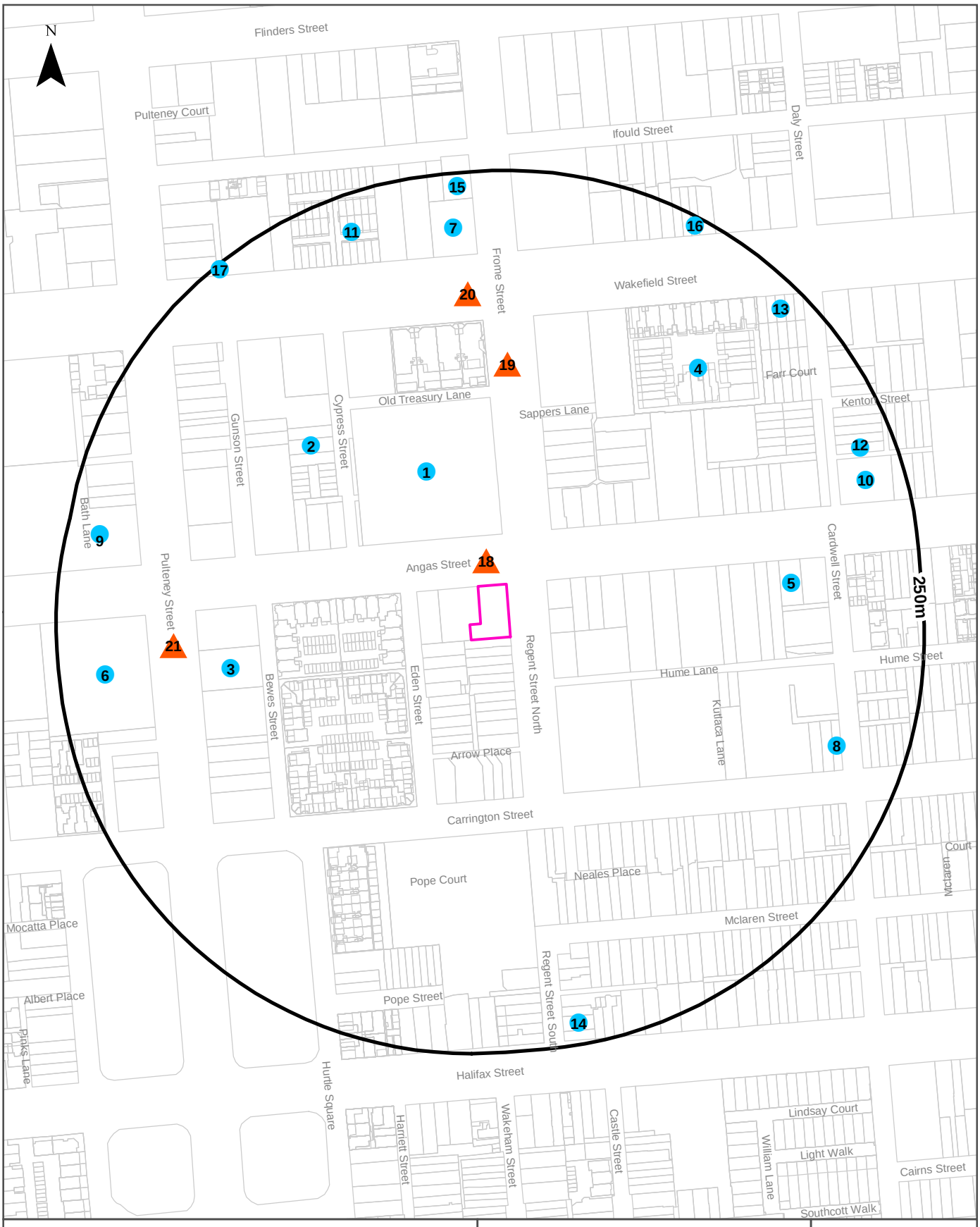
Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area (m)
15	Motor Engineers, Garages And Service Stations	Gamblings Country Service Station, Ackland st	6834	1940	Road Match	18m
	Produce Merchants	HALL, LTD., BENJAMIN. 67-69 Ackland Street	10132	1940	Road Match	18m
	LIVERY STABLES (not Hotelkeepers)	Hill, E , Tavistock st	3850	1940	Road Match	18m
	FIREWOOD MERCHANTS	Howard, F. G., Robert st	21802	1940	Road Match	18m
	TYRE (Rubber) MANUFACTURERS, IMPORTERS, REPAIRERS, AND VULCANIZERS	Jackson's Tyre Srvce, 85 Ackland st	15908	1940	Road Match	18m
	Motor Body Builders	Jewell. H., 13 Ackland st	6669	1940	Road Match	18m
	MANUFACTURERS	Keightley, Miss M., off Tavistock st	4065	1940	Road Match	18m
	PLUMBERS AND GASFITTERS	Levick, J. J., & Son, 15 Ackland st	9589	1940	Road Match	18m
	ENAMELLERS	MILLER, G. J, 13 Ackland Street, Adelaide	20511	1940	Road Match	18m
	COACH AND MOTOR PAINTERS AND TRIMMERS	Nicholls, G. D. & Son, 63 Ackland st	18006	1940	Road Match	18m
	TYRE (Rubber) MANUFACTURERS, IMPORTERS, REPAIRERS, AND VULCANIZERS	Olympic Tyre Distributors Pty.Ltd., Ackland st	15920	1940	Road Match	18m
	TURNERS (Wood)	Schmidt, W, 11 Ackland st	15861	1940	Road Match	18m
	CONTRACTORS	Stokes, F , 61 Ackland st	18546	1940	Road Match	18m
	Shop Fitters	Stokes, F., 61 Ackland st	11233	1940	Road Match	18m
	ELECTROPLATERS	Stokes. F., 61 Ackland st	20502	1940	Road Match	18m
	ELECTRICAL ENGINEERS, ELECTRICIANS, AND ELECTRIC LIGHT CONTRACTORS.	Worthington, W. R., 22 Tavistock st	20488	1940	Road Match	18m
	ELECTRICAL ENGINEERS, ELECTRICIANS, AND ELECTRIC LIGHT CONTRACTORS	Adelaide General Electrical Co, 28-30 Tavistock st, off North ter east	16970	1930	Road Match	18m
	STOREKEEPERS	Black. Mrs. L., 43 Ackland st	7480	1930	Road Match	18m
	PRINTERS AND PUBLISHERS	Bower, J. D., 22 Tavistock st	4831	1930	Road Match	18m
	Blacksmiths And Farriers	Brown & Son, Ackland st	4009	1930	Road Match	18m
	Blacksmiths And Farriers	Brown, A. W, Ackland st	4010	1930	Road Match	18m
	COACH AND MOTOR PAINTERS AND TRIMMERS	Bush & Co., 19 Ackland st	14041	1930	Road Match	18m
	MANUFACTURERS' AGENTS	Evans, T, 28-30 Tavistock street, off North ter east	21515	1930	Road Match	18m
	Horse And Carriage Bazaars	Fewster, W, & Co, Ackland st	19986	1930	Road Match	18m
	LIVERY STABLES (not Hotelkeepers)	Fewster, W, & Co, Ackland st	21384	1930	Road Match	18m
	MOTOR AND ACCESSORY AGENTS, CYCLE MAKERS AND IMPORTERS	Frome House Garage, 16 Tavistock st	612	1930	Road Match	18m
	PETROL STORAGE SYSTEMS AND SERVICE STATIONS	Gamblings Country Service Station, Ackland st	3816	1930	Road Match	18m
	MANUFACTURERS' AGENTS	Melbourne Mnfctrng Co., 24-26 Tavistock st, off North ter E.	21570	1930	Road Match	18m
	GALVANIZED IRON AND SHEET METAL WORKERS	Metalmen Ltd., Ackland st	18180	1930	Road Match	18m
	ELECTRICAL ENGINEERS, ELECTRICIANS, AND ELECTRIC LIGHT CONTRACTORS	Nilsen, O. J, 63 Ackland st	17032	1930	Road Match	18m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area (m)
15	Radio Apparatus And Dealers	P. & B. Battery Co. Ltd. 29-31 Ackland st	5450	1930	Road Match	18m
	IRONMONGERS	Saunders & Gibbs, 47 Ackland st	20880	1930	Road Match	18m
	TURNERS (Wood)	Schmidt, W, 11 Ackland st	12228	1930	Road Match	18m
	CONTRACTORS	Stokes, F, 61 Ackland st	15001	1930	Road Match	18m
	SHOP FITTERS	Stokes. F., 61 Ackland st	7024	1930	Road Match	18m
	CABINET MAKERS, FRENCH POLISHERS, AND FURNITURE MANUFACTURERS	Taylor, J, 22 Ackland st	11877	1930	Road Match	18m
	Storekeepers (General)	Black, Hy, 19 Ackland st	15545	1920	Road Match	18m
	Upholsterers	Butler, E. J, off Tavistock st	18819	1920	Road Match	18m
	Confectioners (Manufacturing)	CASEY, M. J, Tavistock Street, off North Terrace, Adelaide	4705	1920	Road Match	18m
	Hotels and Public Houses	East Adelaide; Bell, Michl J, Robert st	9788	1920	Road Match	18m
	Boardinghouse-keepers	Mather, Mrs C, 3 Tavistock-st	1237	1920	Road Match	18m
	Motor and Cycle Makers, Importers and Agents	Motor Repair Co, 11 Ackland st	13126	1920	Road Match	18m
	Motor and Cycle Makers, Importers and Agents	Motor Repair Co, 7 Ackland st	13124	1920	Road Match	18m
	Motor and Cycle Makers, Importers and Agents	Motor Repair Co, 9 Ackland st	13125	1920	Road Match	18m
	Contractors	Rogers & Brewster, 13 Ackland st	5402	1920	Road Match	18m
	Boardinghouse-keepers	Rowett, Mrs E, 5 Tavistock-st	1319	1920	Road Match	18m
	Boardinghouse-keepers	Shannon, Mrs, 2 Tavistock-st, Off North ter east	1329	1920	Road Match	18m
	Bootmakers	Beatty, Wm, 29 Ackland st	1410	1910	Road Match	18m
	Firewood Merchants	Conroy, W. E, Ackland st	7154	1910	Road Match	18m
	Hotels and Public Houses	East Adelaide ; Murray, Mrs M. J, Robert st	8835	1910	Road Match	18m
	Firewood Merchants	Kelley, Jas, jun, Robert st	7203	1910	Road Match	18m
	Firewood Merchants	Kelley, Jno, sen, Robert st	7204	1910	Road Match	18m
	Boardinghouse-keepers	Mather, Mrs C, 3 Tavistock st	1037	1910	Road Match	18m
	Contractors	Rodgers, Geo, Ackland st	5112	1910	Road Match	18m
	Locksmiths and Bellhangers	Scheps, G, Robert st	9834	1910	Road Match	18m
	Boardinghouse-keepers	Trezise Mrs S., 2 Tavistock st	1173	1910	Road Match	18m
	Storekeepers (General)	Wilson, Fredk, 19 Ackland st	15118	1910	Road Match	18m

Business Directory Content reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018 and Sands & McDougall's Directory of South Australia

Dry Cleaners, Motor Garages & Service Stations

193 Angas Street, Adelaide, SA 5000



Legend

- Site Boundary
- Buffer 250m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- Business directory records mapped to a road corridor
- Business directory records mapped to a general area

Scale: 0 40 80 120 160 Meters

Coordinate System: GDA 1994 MGA Zone 54

Date: 13 September 2021

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018
Sands & McDougall's Directory - Digitised by State Library Victoria
Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited 2021
www.psma.com.au/psma-data-copyright-and-disclaimer

Historical Business Directories

193 Angas Street, Adelaide, SA 5000

Dry Cleaners, Motor Garages & Service Stations 1930-1991 Premise or Road Intersection Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories and Sands & McDougall's Directories, from years 1991, 1984, 1973, 1965, 1955, 1950, 1940 & 1930, mapped to a premise or road intersection, within the dataset buffer.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection (m)	Direction
1	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Burgess H W 178-188 Angas st Adelaide	56955	1965	Premise Match	30m	North West
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Burgess H W 180-188 Angas st Adelaide	19437	1955	Premise Match	30m	North West
2	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Fletcher & Sons Garage 19 Cypress st Adelaide	20	1965	Premise Match	119m	North West
3	Motor Garages &/or Engineers &/or Service Stations	Ampol Service Station - Adelaide, 288 Pulteney St,	18175	1984	Premise Match	128m	West
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Ampol Service Station 46-60 Hanson st Adel	55785	1965	Premise Match	128m	West
4	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Dalgety & Co Ltd 229-247 Wakefield st Adel	19887	1955	Premise Match	129m	North East
	MOTOR GARAGES, ENGINEERS & SERVICE STATIONS	Dalgety & Co. Ltd., 229-241 Wakefield St.	13860	1950	Premise Match	129m	North East
	MOTOR GARAGES, ENGINEERS & SERVICE STATIONS	Dalgety & Co. Ltd., 229-241 Wakefield St.	13959	1950	Premise Match	129m	North East
5	Motor Garages & Service Stations	Yeates Mechanical Service, 249 Angas St, Adelaide, 5000	27960	1991	Premise Match	165m	East
6	Motor Garages & Service Stations	Esso Adelaide Servicentre, 139 Angas St, Adelaide, 5000	27656	1991	Premise Match	195m	West
	Motor Garages &/or Engineers &/or Service Stations	Esso Servicentre - Adelaide, 139 Angas St.,	18326	1984	Premise Match	195m	West
	Dry Cleaners, Dyers & Laundries	Glenelg Dry Cleaners 55a Hanson st Adelaide	49053	1965	Premise Match	195m	West
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	National Parking Station 129 Angas st Adelaide	4737	1965	Premise Match	195m	West
7	MOTOR GARAGES & SERVICE STATIONS	Amoco Australia P/L 194 Wakefield st Adelaide	13383	1973	Premise Match	200m	North
8	Dry Cleaners, Dyers & Laundries	Barker Bros 278 Carrington st Adelaide	28626	1955	Premise Match	200m	East
9	Motor Garages & Service Stations	Mitsubishi Motors Australia Ltd York Motors Mitsubishi, 271 Pulteney St, Adelaide, 5000	27752	1991	Premise Match	202m	West
10	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	West C J 266 Angas st Adelaide	23025	1955	Premise Match	208m	East
11	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Motor Traders (SA) Ltd 162-178 Wakefield st Adelaide	4416	1965	Premise Match	210m	North
12	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Solomou J 30 Cardwell st Adelaide	22215	1955	Premise Match	214m	North East

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection (m)	Direction
13	Motor Garages & Service Stations	McLeod Tyres, 249 Wakefield St, Adelaide, 5000	27739	1991	Premise Match	228m	North East
14	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	McLeahy R E 188 Halifax st Adelaide	4293	1965	Premise Match	232m	South
15	Motor Garages & Service Stations	Enzos Auto Service Pty Ltd, 187 Frome St, Adelaide, 5000	27655	1991	Premise Match	234m	North
	Motor Garages & Service Stations	Enzos Auto Service Pty Ltd, 187 Frome St, Adelaide, 5000	27447	1991	Premise Match	234m	North
16	Dry Cleaners, Dyers & Laundries	Acres Dry Cleaners 242 Wakefield st Adelaide	48863	1965	Premise Match	238m	North East
	Dry Cleaners, Dyers & Laundries	Tip-Top Dry Cleaners 242 Wakefield st Adel	50101	1965	Premise Match	238m	North East
17	Dry Cleaners, Dyers & Laundries	Gooey F 230 Pulteney st Adelaide	49865	1965	Premise Match	243m	North West
	Dry Cleaners, Dyers & Laundries	Gooey F 230 Pulteney st Adelaide	29321	1955	Premise Match	243m	North West

Business Directory Content reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018 and Sands & McDougall's Directory of South Australia

Historical Business Directories

193 Angas Street, Adelaide, SA 5000

Dry Cleaners, Motor Garages & Service Stations 1930-1991 Road or Area Matches

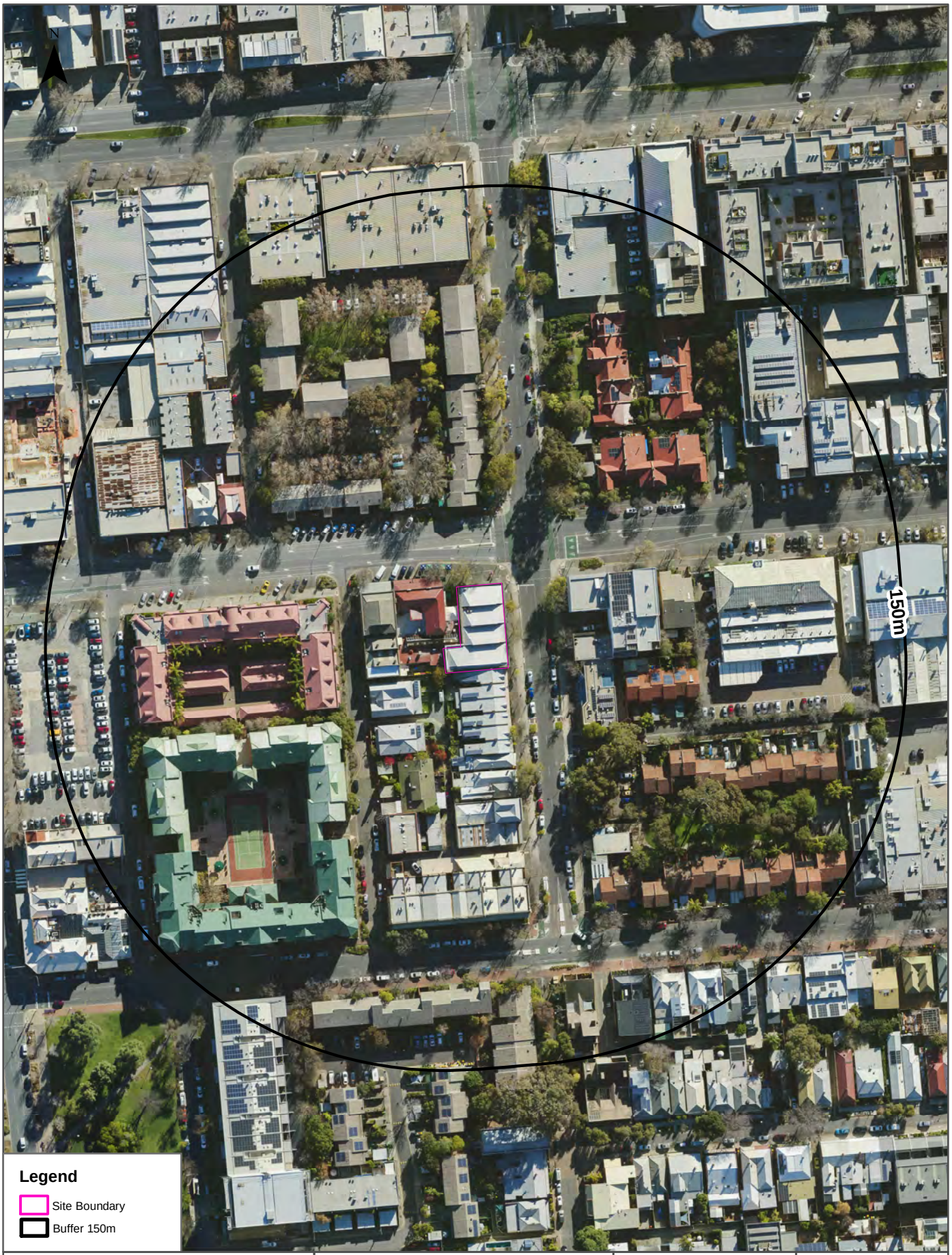
Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories and Sands & McDougall's Directories, from years 1991, 1984, 1973, 1965, 1955, 1950, 1940 & 1930, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area (m)
18	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Yorke Motors Angas st Adelaide	9981	1965	Road Match	13m
19	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Auto Conversions Ltd 63 Ackland st Adelaide	55838	1965	Road Match	18m
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Car Park Frome st Adelaide	57807	1965	Road Match	18m
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Golden Fleece Service Station Ackland st Adel	184	1965	Road Match	18m
	Motor Engineers, Garages And Service Stations	Chrysler Service Motors, Ackland street	6772	1940	Road Match	18m
	Motor Engineers, Garages And Service Stations	Colley, W. B., 23 Ackland st	6757	1940	Road Match	18m
	Motor Engineers, Garages And Service Stations	Gamblings Country Service Station, Ackland st	6834	1940	Road Match	18m
	PETROL STORAGE SYSTEMS AND SERVICE STATIONS	Gamblings Country Service Station, Ackland st	3816	1930	Road Match	18m
20	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	SA Government Garage Wakefield st Adelaide	6844	1965	Road Match	173m
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	United Motors Garage Wakefield st Adelaide	8896	1965	Road Match	173m
	Motor Engineers, Garages And Service Stations	Draffen, S. B., 60 Wakefield st	6794	1940	Road Match	173m
21	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	S.A. AUTOMOBILE CHAMBER OF COMMERCE INC. 34-36 Hanson Street, Adelaide.	6842	1965	Road Match	178m
	Dry Cleaners, Dyers & Laundries	GLENELG DRY CLEANING & DYEING WORKS LIMITED, Hanson Street	28741	1955	Road Match	178m
	MOTOR GARAGES, ENGINEERS & SERVICE STATIONS	Lear Motors., 200 Hanson St., Adelaide	14036	1950	Road Match	178m
	Motor Engineers, Garages And Service Stations	Lear Motors, 200 Hanson st	6934	1940	Road Match	178m
	PETROL STORAGE SYSTEMS AND SERVICE STATIONS	Lear Motors, 202 Hanson st	3835	1930	Road Match	178m

Business Directory Content reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018 and Sands & McDougall's Directory of South Australia

Aerial Imagery 2021

193 Angas Street, Adelaide, SA 5000



Scale: 0 20 40 60 80 Meters	Data Sources: Aerial Imagery © Aerometrex Pty Ltd	Coordinate System: GDA 1994 MGA Zone 54	Date: 13 September 2021

Aerial Imagery 2016

193 Angas Street, Adelaide, SA 5000



Data Sources: Aerial Imagery © Aerometrex Pty Ltd

Coordinate System:
GDA 1994 MGA Zone 54

Date: 13 September 2021

Aerial Imagery 2011

193 Angas Street, Adelaide, SA 5000



Scale: 0 20 40 60 80 Meters	Data Sources: Aerial Imagery © Aerometrex Pty Ltd	Coordinate System: GDA 1994 MGA Zone 54	Date: 13 September 2021

Aerial Imagery 2006

193 Angas Street, Adelaide, SA 5000



Scale: 0 20 40 60 80 Meters	Data Sources: Aerial Imagery © Aerometrex Pty Ltd	Coordinate System: GDA 1994 MGA Zone 54	Date: 13 September 2021

Aerial Imagery 1999

193 Angas Street, Adelaide, SA 5000



Aerial Imagery 1989

193 Angas Street, Adelaide, SA 5000



Scale:
0 20 40 60 80
Meters

Data Sources Aerial Imagery: © South Australia Department for Environment & Water

Coordinate System: GDA 1994 MGA Zone 54

Date: 09 September 2021

Aerial Imagery 1979

193 Angas Street, Adelaide, SA 5000



Scale:
0 20 40 60 80
Meters

Data Sources Aerial Imagery: © South Australia Department for Environment & Water

Coordinate System: GDA 1994 MGA Zone 54

Date: 09 September 2021

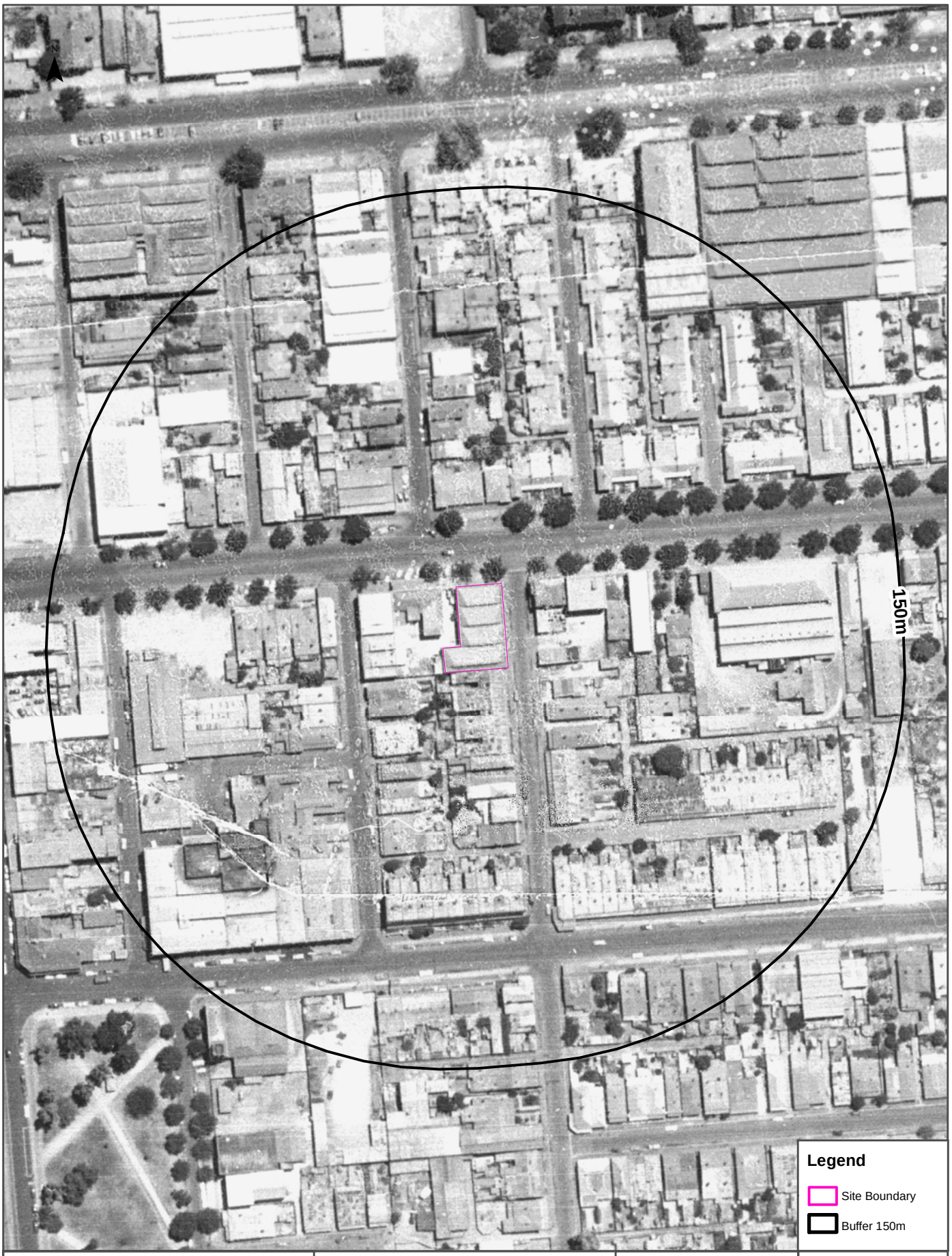
Aerial Imagery 1969

193 Angas Street, Adelaide, SA 5000



Aerial Imagery 1959

193 Angas Street, Adelaide, SA 5000



Scale:
0 20 40 60 80
Meters

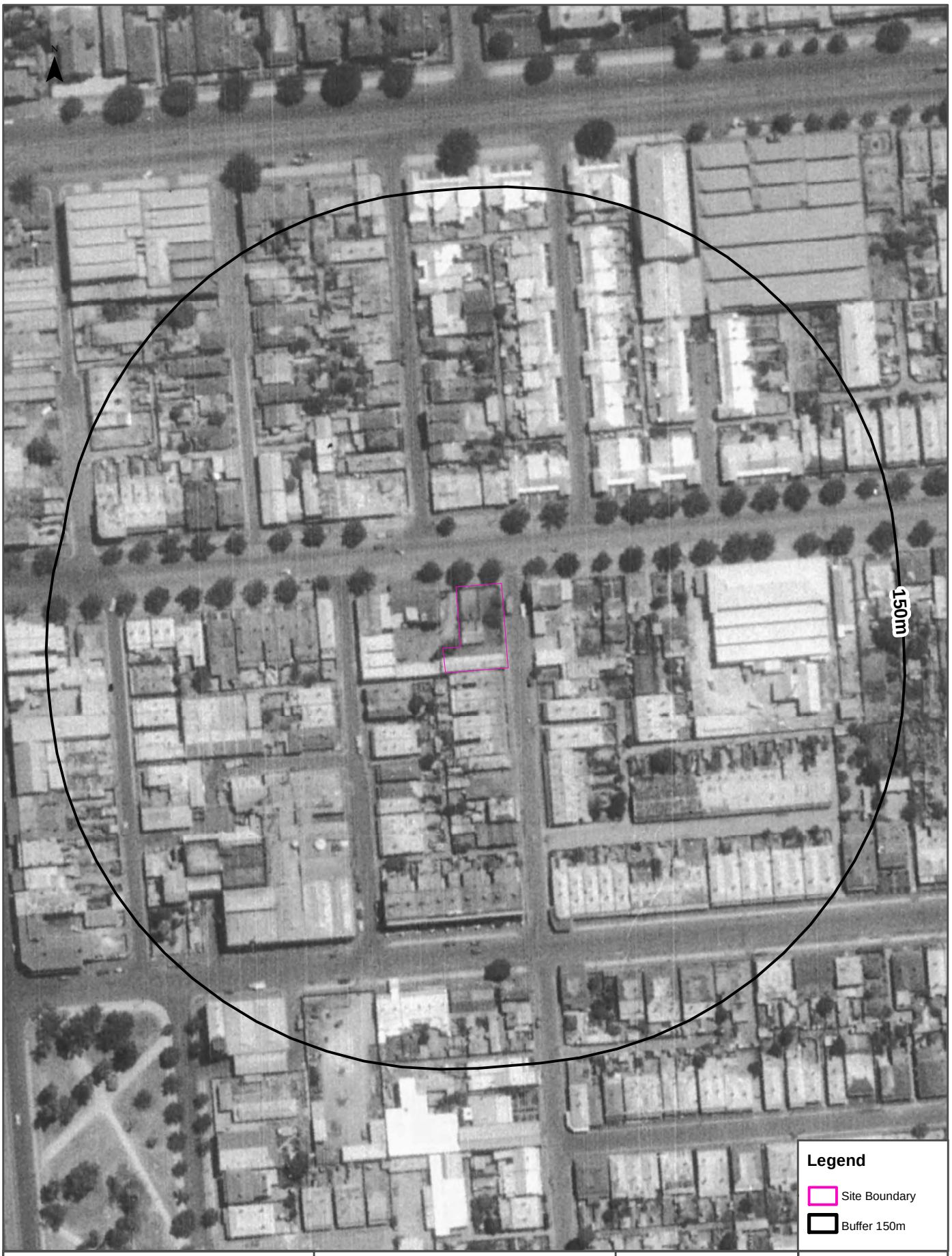
Data Sources Aerial Imagery: © South Australia Department for Environment & Water

Coordinate System: GDA 1994 MGA Zone 54

Date: 09 September 2021

Aerial Imagery 1949

193 Angas Street, Adelaide, SA 5000



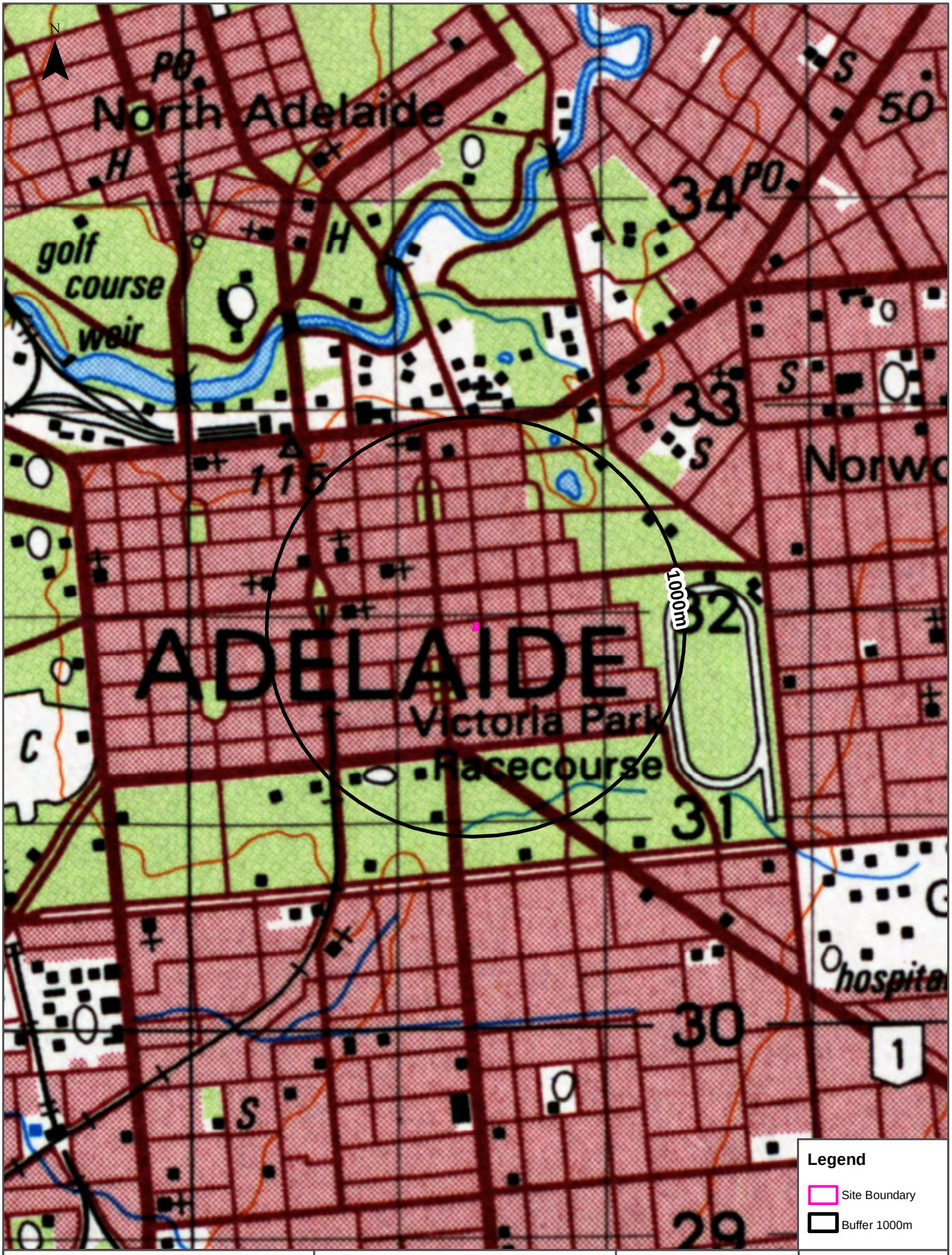
Aerial Imagery 1935

193 Angas Street, Adelaide, SA 5000



Historical Map 1982

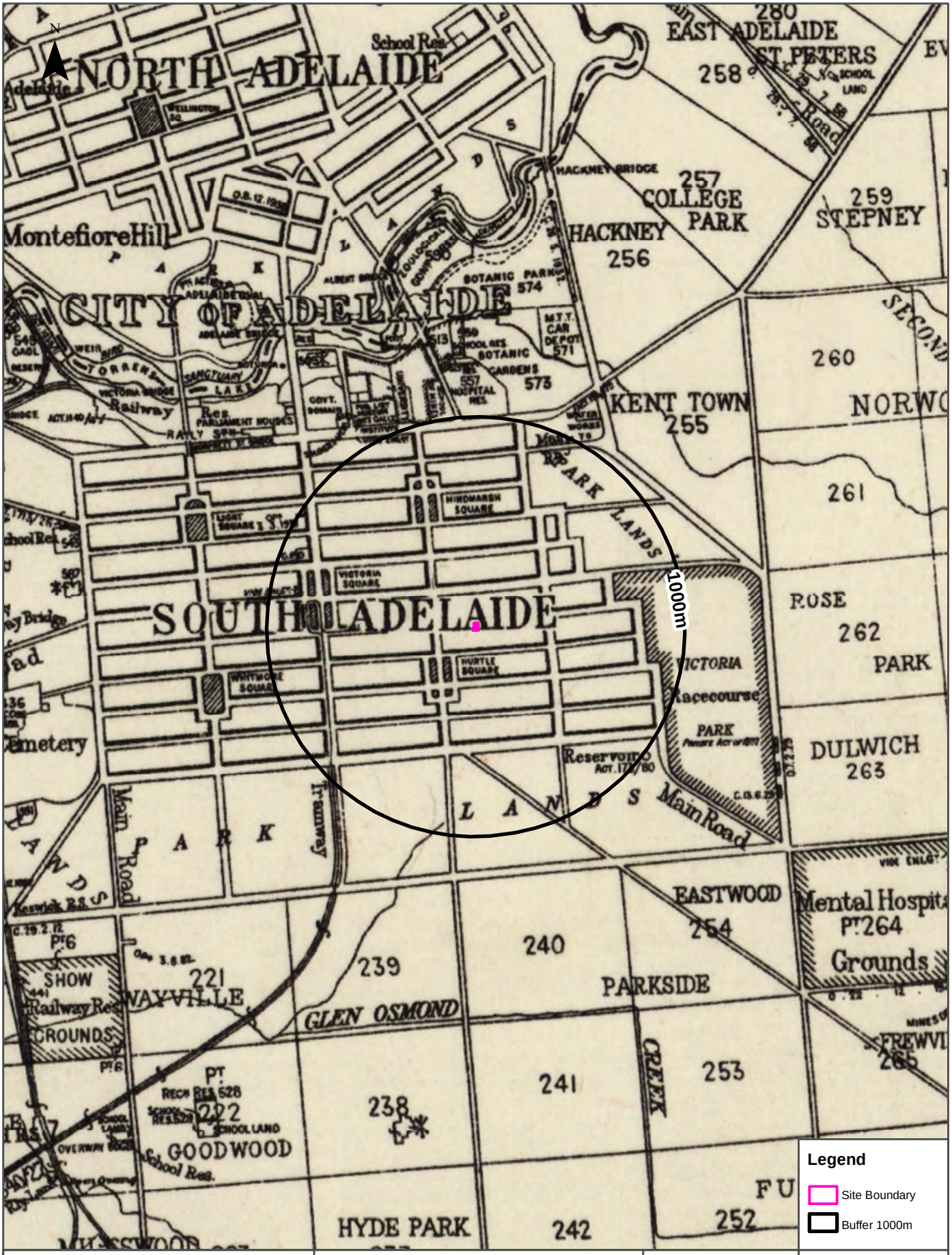
193 Angas Street, Adelaide, SA 5000



Scale: 0 200 400 800 Metres	Data Sources: NATMAP 1:100,000 Topographic Maps Geoscience Australia	Coordinate System: GDA 1994 MGA Zone 54	Date: 11 September 2021

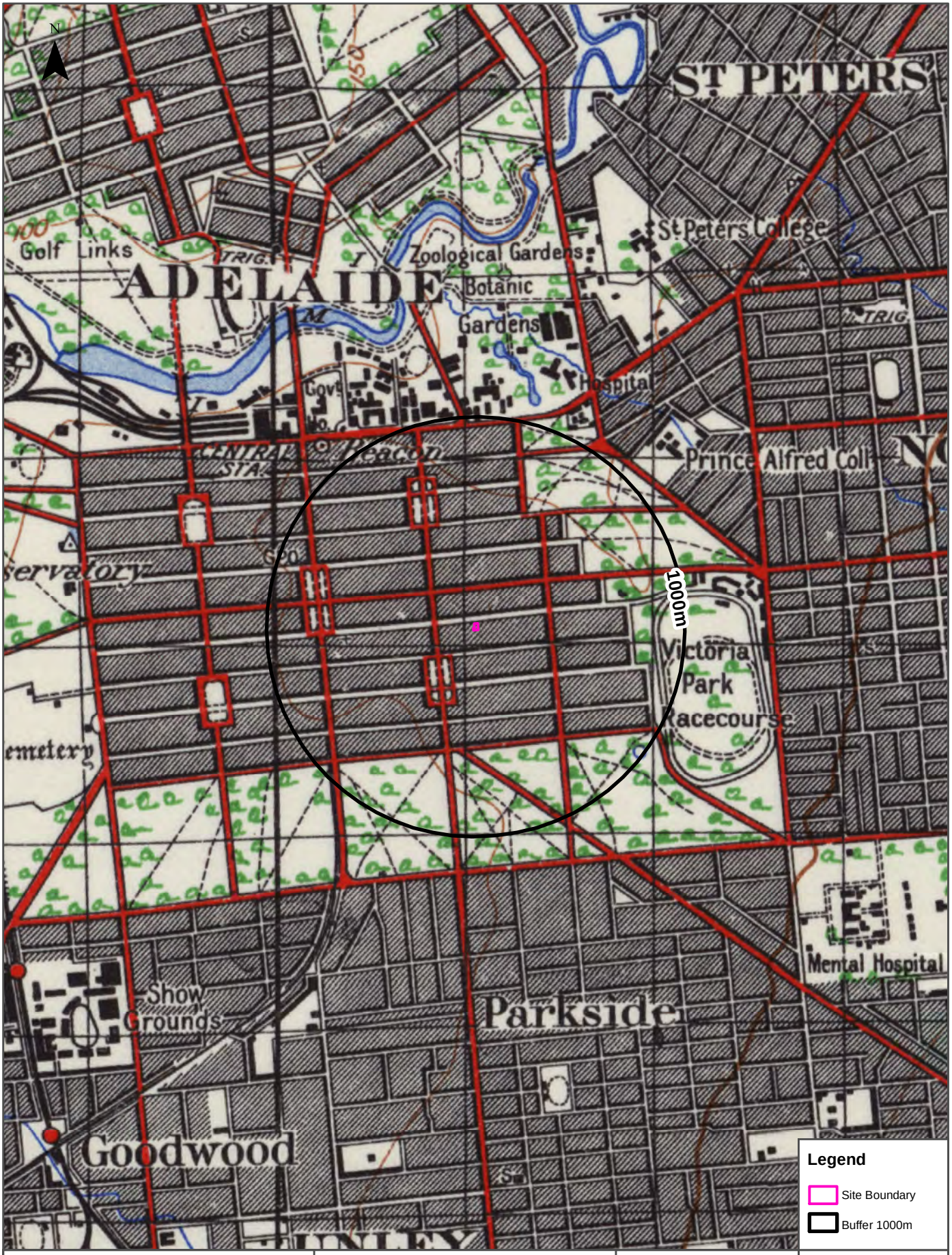
Historical Map 1959

193 Angas Street, Adelaide, SA 5000



Historical Map c.1937

193 Angas Street, Adelaide, SA 5000



Scale:
0 200 400 800
Metres

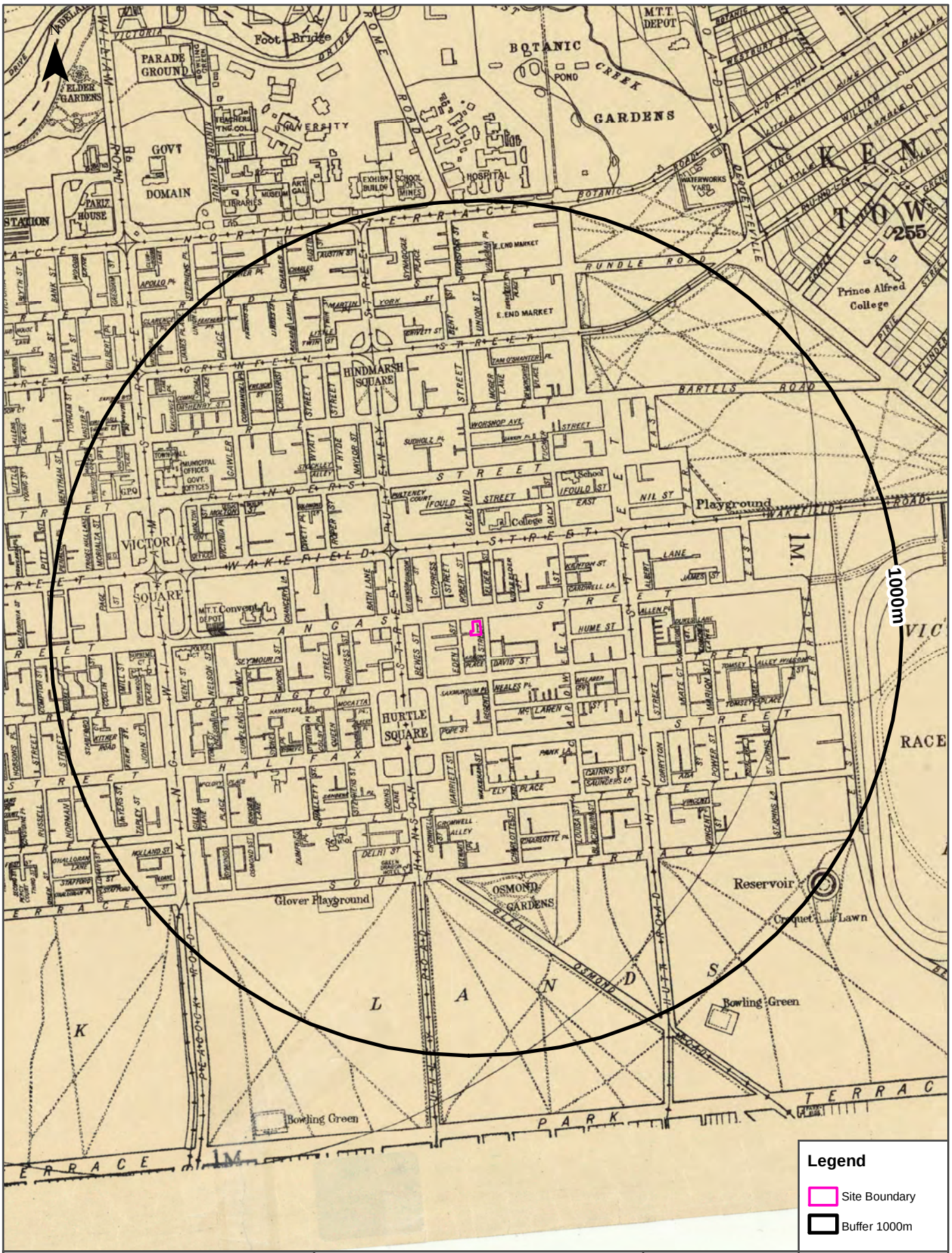
Data Sources: Australia 1:63,360
Prepared by Commonwealth Section Imperial General Staff

Coordinate System:
GDA 1994 MGA Zone 54

Date: 11 September 2021

Historical Map 1927

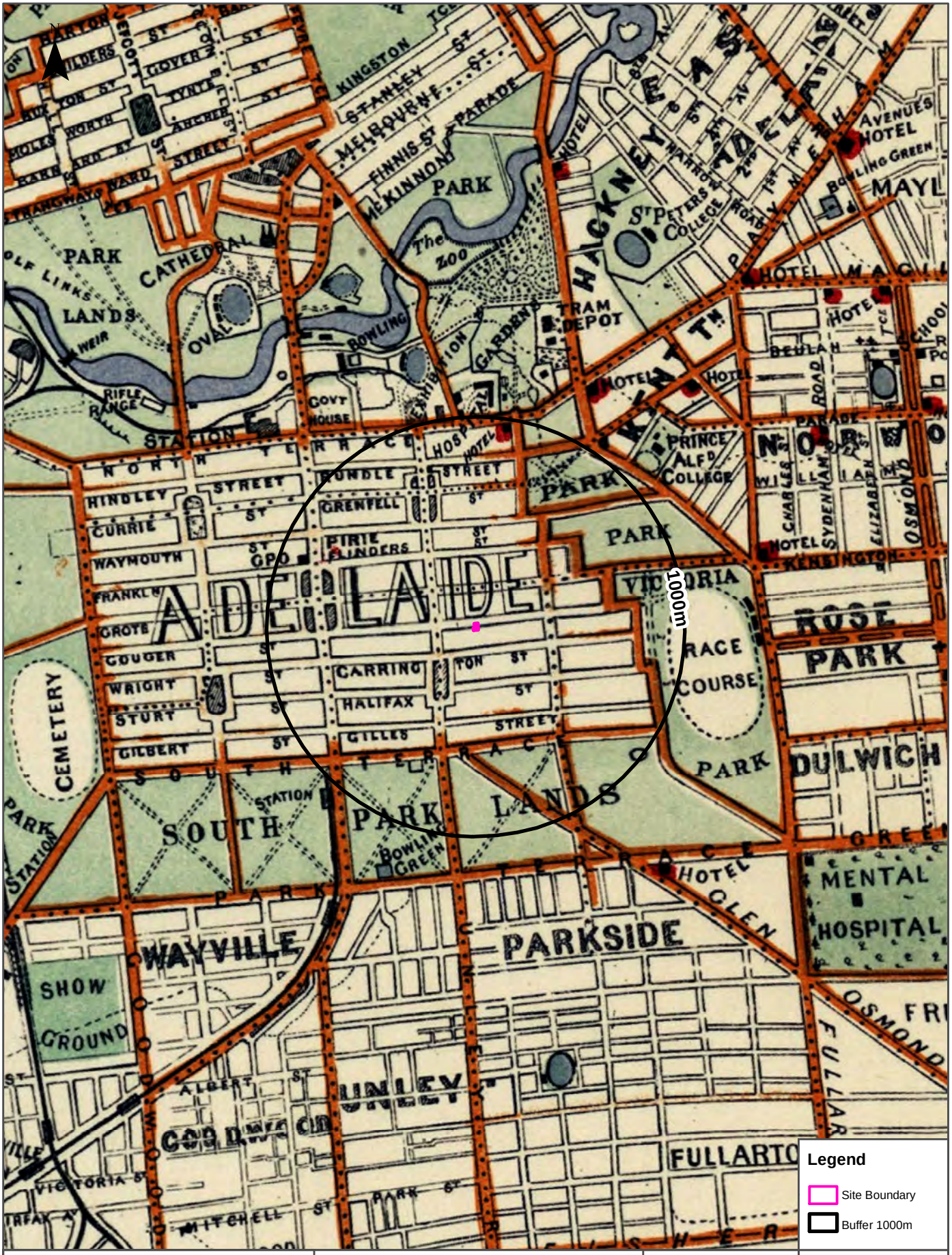
193 Angas Street, Adelaide, SA 5000



Scale: 0 100 200 400 Metres	Data Sources: Map of Adelaide and Suburbs Shewing Streets and Allotments Compiled under the direction of Theo. E. Day, Surveyor General	Coordinate System: GDA 1994 MGA Zone 54	Date: 11 September 2021

Historical Map 1926

193 Angas Street, Adelaide, SA 5000



Legend

- Site Boundary
- Buffer 1000m

Scale: 0 200 400 800 Metres

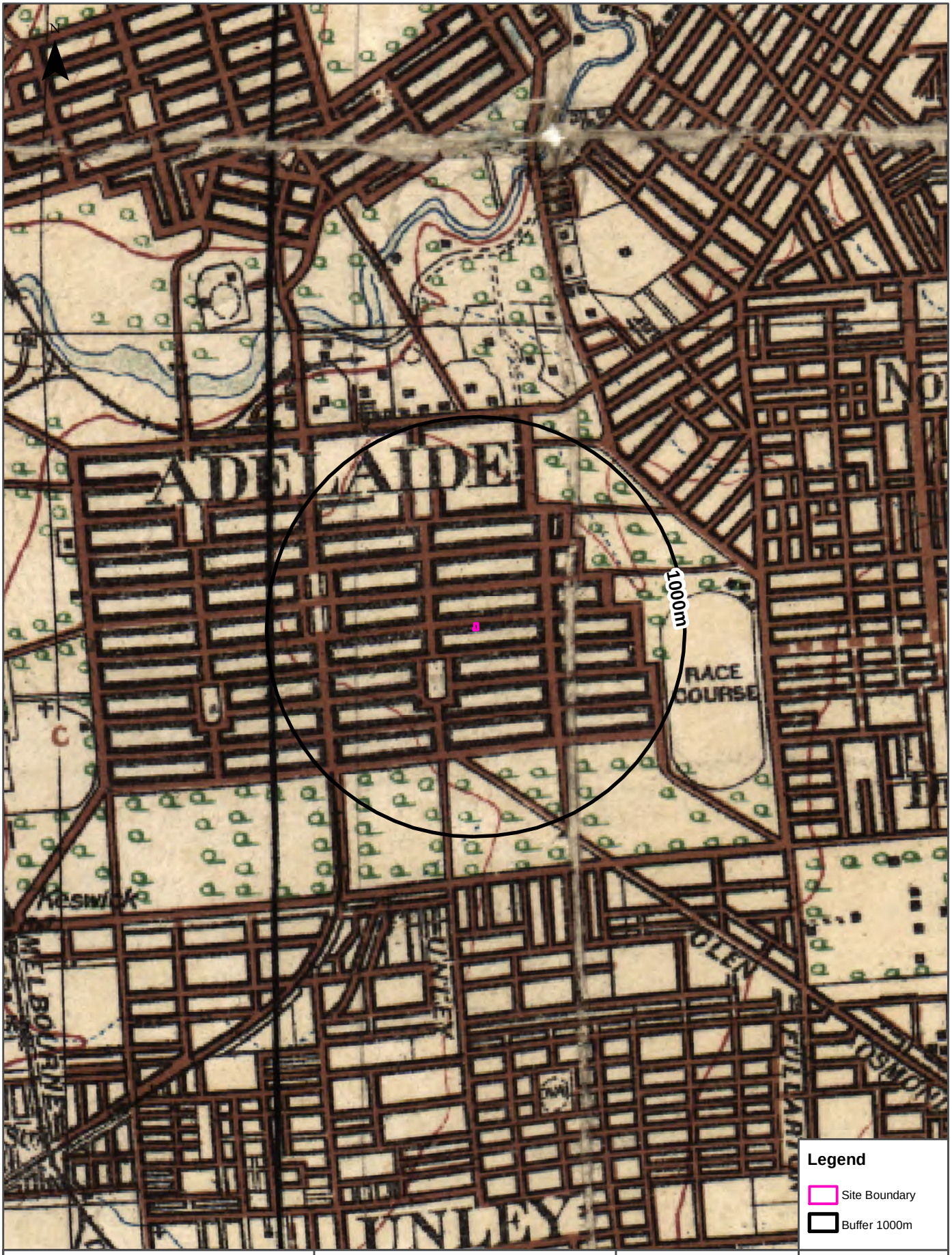
Data Sources: Sheet No 4 - Henley
Topographic Maps of South Australia
Compiled from Reconnaissance Surveys by W.H. Edmunds

Coordinate System:
GDA 1994 MGA Zone 54

Date: 11 September 2021

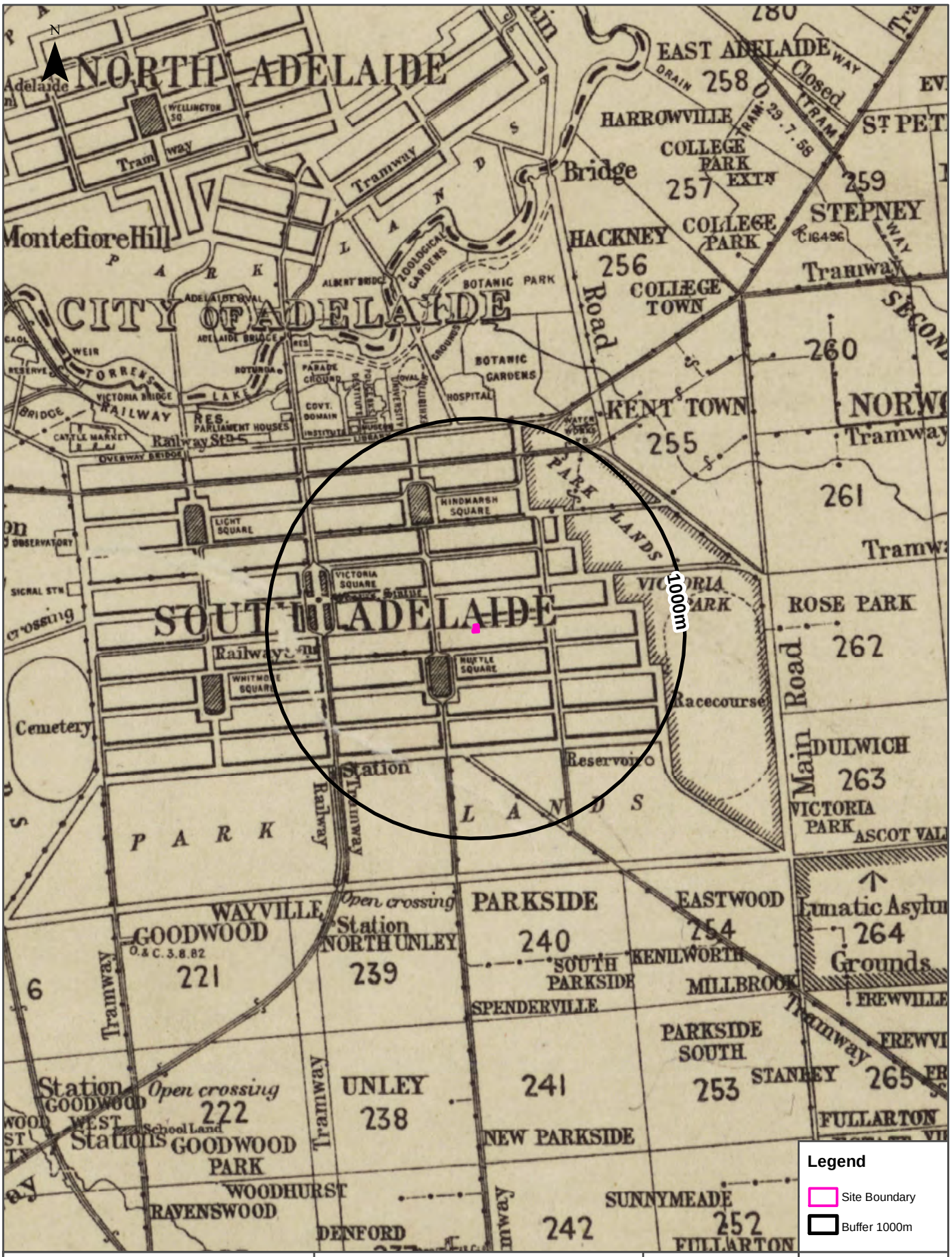
Historical Map c.1914

193 Angas Street, Adelaide, SA 5000



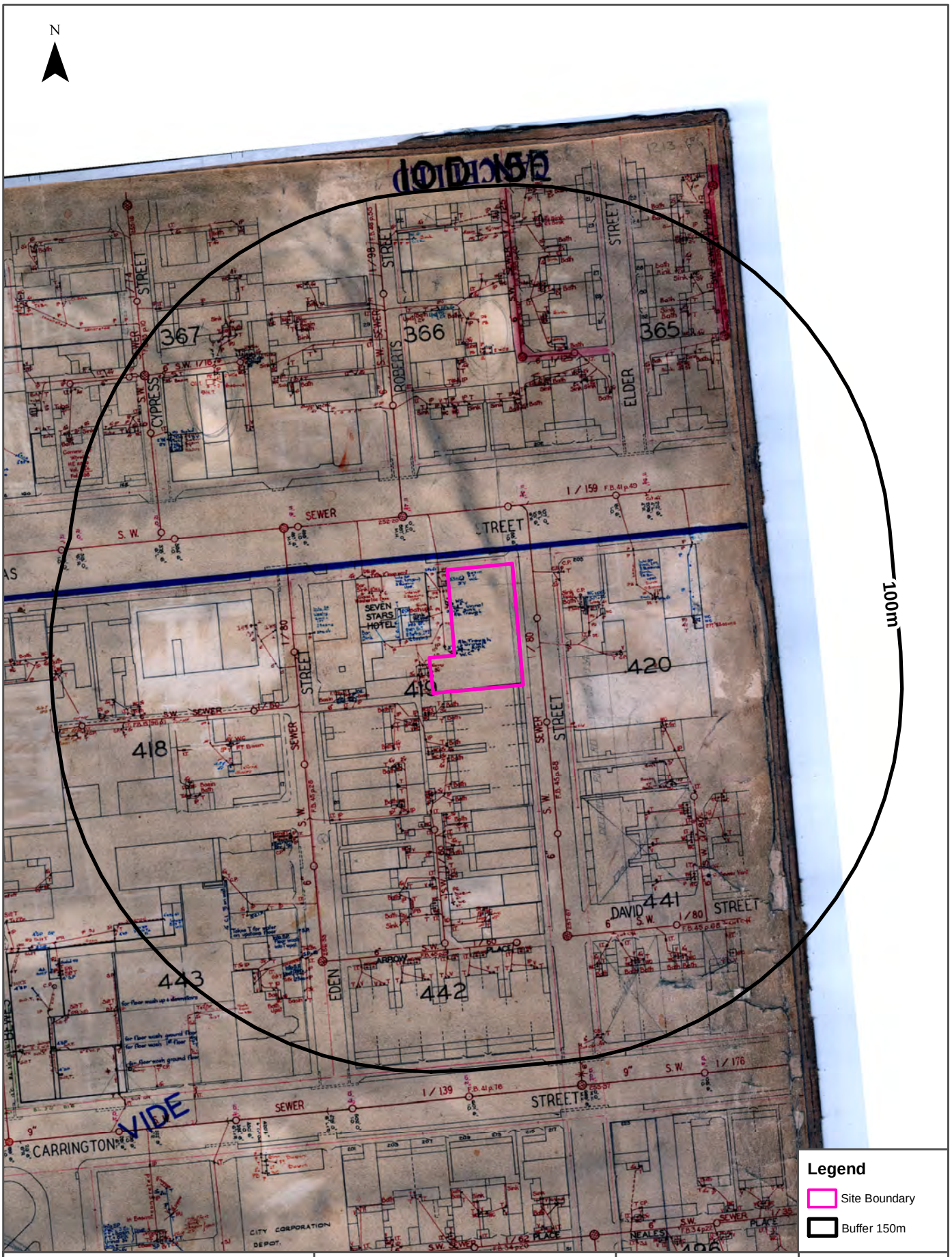
Historical Map 1909

193 Angas Street, Adelaide, SA 5000



Historical Map 1900-1970

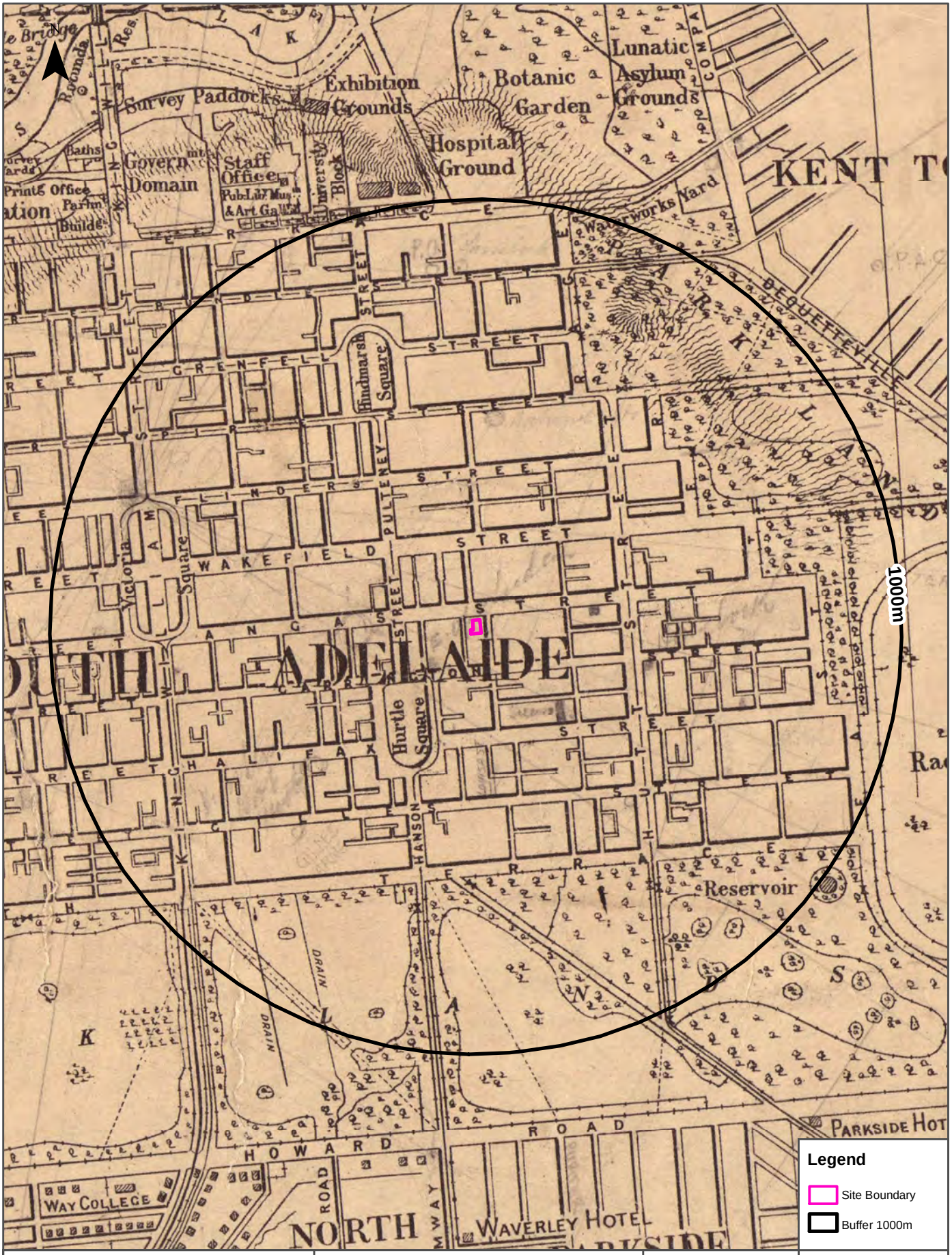
193 Angas Street, Adelaide, SA 5000



Scale: 0 25 50 Meters	Data Sources: Sewer Plans 1:480 Engineering & Water Supply Department (Former Waterworks & Drainage Commission)	Coordinate System: GDA 1994 MGA Zone 54	Date: 11 September 2021

Historical Map 1889

193 Angas Street, Adelaide, SA 5000



Scale: 0 200 400 Metres	Data Sources: Military Map Compiled in the Surveyor General's Office 1889	Coordinate System: GDA 1994 MGA Zone 54	Date: 11 September 2021

Mining

193 Angas Street, Adelaide, SA 5000

Mines and Mineral Deposits

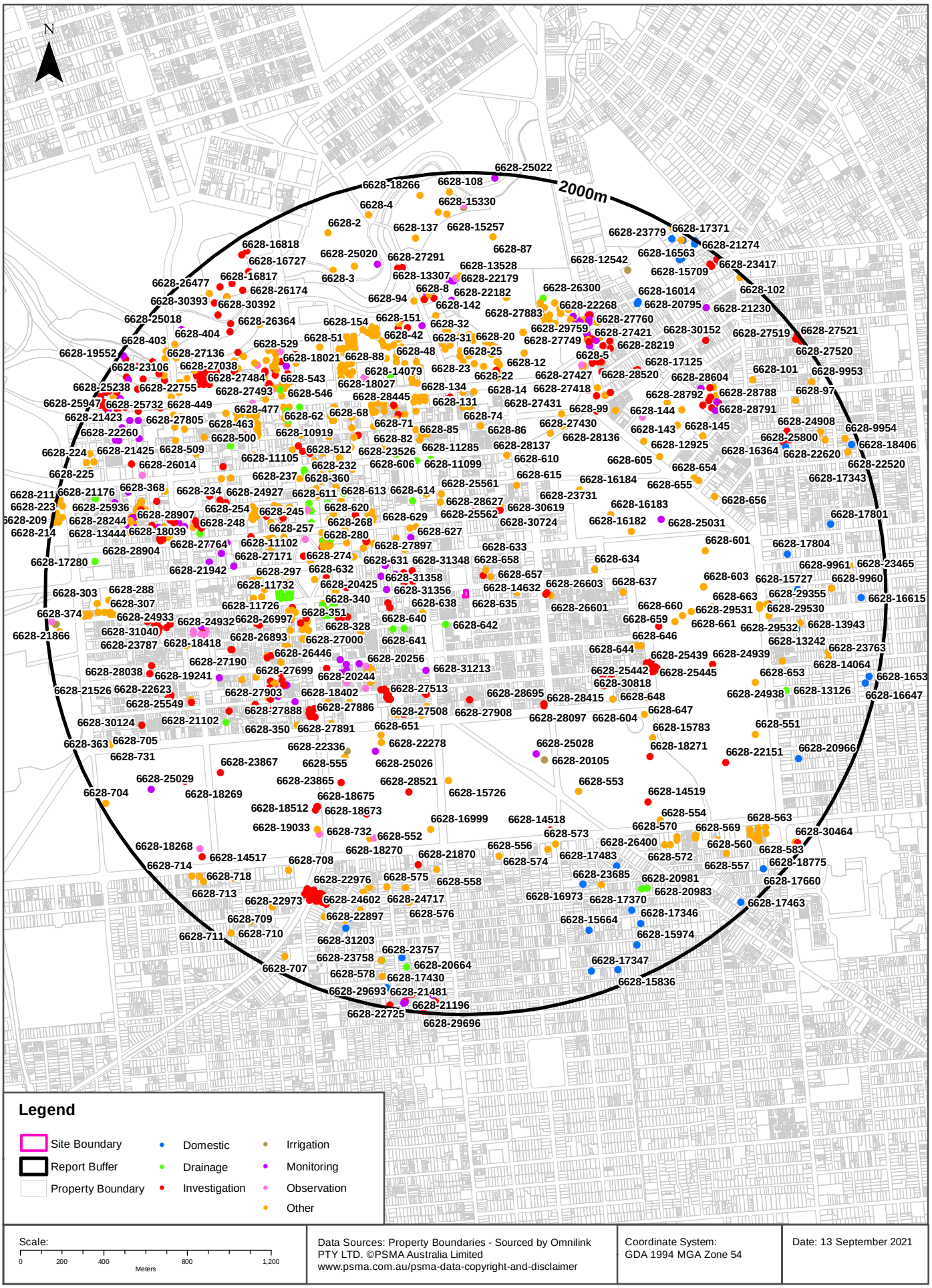
Mines and mineral deposits within the dataset buffer:

Deposit No.	Name	Class	Status	Commodity	Year	Description	Dist	Dir'n
N/A	No records in buffer							

All Mines and Mineral Deposits Data Source: Dept. of State Development, Resources and Energy - South Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Drillholes

193 Angas Street, Adelaide, SA 5000



Groundwater and Drillholes

193 Angas Street, Adelaide, SA 5000

Groundwater Aquifers

Groundwater aquifers within the dataset buffer:

Aquifer Code	Description	Distance	Direction
20	Sedimentary Rocks - basins include limestone, often cavernous, sandstone, sand shale and clay	0m	Onsite

Groundwater Aquifers Data Source: Dept. of Environment, Water and Natural Resources - South Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Drillholes

Drillholes within the dataset buffer:

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-14632	61601	GH 152	Abandoned	Investigation	1985-02-01	10.20	50.00									101m	North East
6628-657	47746							50.25								126m	North East
6628-658	47747							50.11								129m	North East
6628-642	47731		Abandoned	Drainage		26.12		48.67								156m	South West
6628-633	47722	CELLAR				42.67		49.90		1157	2094					170m	North East
6628-31077	353850		Backfilled	Investigation	2020-02-13	16.60										183m	West
6628-638	47727					10.06		47.73		3584	6380					206m	South West
6628-635	47724					22.90	50.00		7.80	5118	9014	0.0600	13.70	13.70	36.30	235m	East
6628-28021	287375		Backfilled	Investigation	2015-09-29	25.00										247m	West
6628-31348	357162			Investigation	2021-06-08	16.50										264m	North West
6628-28020	287374		Backfilled	Investigation	2015-09-30	25.00										287m	West
6628-31347	357161			Investigation	2021-06-09	18.00										301m	West
6628-636	47725							51.39		4869	8594					311m	East
6628-641	47730		Operational	Drainage		22.86		46.47		1656	2987		12.19	12.19	34.28	319m	South West
6628-31342	357152			Monitoring	2021-06-07	15.00										336m	West
6628-28631	290458				2016-12-07	25.00										343m	North West
6628-28632	290459		Backfilled		2016-12-06	25.00										348m	North West
6628-28786	293878	GW 1		Investigation	2016-11-03	14.50							11.00	11.00		354m	West
6628-20252	181277			Monitoring	2000-05-27	13.00		48.14								357m	North West
6628-28787	293879	GW 2		Investigation	2016-11-03	14.50							13.00	13.00		361m	West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-31356	357304			Monitoring	2021-06-10	18.00										367m	West
6628-640	47729		Operational	Drainage	1962-10-22	26.52		46.01		8482	14638	0.3000	11.43	11.43	34.58	369m	South West
6628-26603	272294	MW 3		Investigation	2012-06-15	13.50							11.80	11.80		372m	East
6628-28627	290446	BH 2	Backfilled	Investigation	2016-11-11	20.50										374m	North
6628-26602	272293	MW 2		Investigation	2012-06-15	13.50							11.80	11.80		378m	East
6628-28625	290444		Backfilled	Investigation	2016-11-11	22.00										380m	North
6628-629	47718	PMG 2	Unknown		1959-03-23	20.12		48.08								380m	North West
6628-627	47716	PMG 1	Unknown		1959-03-13	12.19		47.93								394m	North West
6628-31213	354761			Monitoring	2021-03-02	14.50										395m	South West
6628-31358	357306			Monitoring	2021-06-11	14.00										395m	West
6628-26601	272292	MW			2012-06-13	15.00							11.80	11.80		396m	East
6628-31357	357305			Monitoring	2021-06-11	20.00										402m	West
6628-29197	303729				2017-11-08	22.00							18.00	18.00		411m	North West
6628-30724	336597		Backfilled	Investigation	2020-01-19	17.00										412m	North
6628-30619	334434		Backfilled	Investigation	2020-01-08	17.00										412m	North
6628-31001	352960		Backfilled		2020-01-20	17.00										432m	North
6628-25562	262187	BH 3			2009-08-27	25.40							18.40	18.40		437m	North
6628-25561	262186	BH 2			2009-08-25	26.40							15.40	15.40		474m	North
6628-630	47719	MOTOR VEHICLES 1	Unknown		1972-08-15	59.00	41.13		7.50	1356	2450	0.6300	21.50	21.50	19.63	487m	North West
6628-25560	262185	BH 1			2009-08-23	25.40										494m	North
6628-25485	262037			Investigation	2010-10-08	16.00							9.00	9.00		494m	South West
6628-614	47703		Abandoned	Drainage		60.96		47.41								495m	North West
6628-27908	285939		Backfilled	Investigation	2015-08-25	22.70							6.00	6.00		496m	South
6628-25488	262042			Investigation	2010-10-08	15.50							10.00	10.00		499m	South
6628-27897	285710				2013-04-18	4.50				2386	4280		2.30	2.30		518m	North West
6628-639	47728		Abandoned		1963-09-27	6.55		45.97								519m	West
6628-631	47720	MOTOR VEHICLES 2	Unknown		1972-08-29	30.25	45.54		7.50	2253	4045		15.90	15.90	29.64	522m	North West
6628-26585	272272	MW 1		Investigation	2012-08-17	4.50				1889	3400		2.20	2.20		524m	North West
6628-26586	272273	MW 2		Investigation	2012-08-17	4.50				1917	3450		2.00	2.00		525m	North West
6628-23731	241403				2007-12-07	32.00		47.68		1839	3310	0.5000	17.00	17.00	30.68	531m	North East
6628-624	47713	SCOTS CHURCH A 2	Unknown		1956-10-30	12.19		46.86								551m	North West
6628-632	47721	MOTOR VEHICLES 3	Unknown		1972-09-20	30.40	44.98									552m	West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-649	47738	PARK ROYAL HOTEL	Backfilled		1964-09-11	9.35		44.75								553m	South
6628-615	47704		Abandoned		1963-07-03	4.57		46.48								553m	North East
6628-622	47711	SCOTS CHURCH P 1	Unknown		1956-11-19	15.34		46.90								555m	North West
6628-20423	183453	TB 12		Investigation	2000-08-24	15.30		46.63					11.38	11.38	35.25	559m	West
6628-20260	181458		Backfilled	Environmental	2000-07-04	20.00		44.37								560m	South West
6628-643	47732				1914-09-19	31.85		44.47		1485	2681	0.6300	18.29	18.29	26.18	560m	South West
6628-30371	325553			Investigation	2019-08-23	30.00										561m	West
6628-20261	181459		Backfilled	Environmental	2000-07-05	20.00		44.34								561m	South West
6628-20262	181460		Backfilled	Environmental	2000-07-05	19.00		44.30								562m	South West
6628-621	47710	SCOTS CHURCH A 5	Unknown		1956-11-09	12.19		46.76								563m	North West
6628-619	47708	SCOTS CHURCH A 4	Unknown		1956-11-08	12.19		46.84								566m	North West
6628-618	47707	SCOTS CHURCH P 2	Unknown		1956-11-27	15.44		46.85								569m	North West
6628-18403	164410			Observation	1996-01-31	23.00		44.44					18.00	18.00	26.44	570m	South West
6628-620	47709	SCOTS CHURCH A 6	Unknown		1956-11-09	12.19		46.75								572m	North West
6628-20256	181454		Abandoned	Environmental	2000-06-29	17.00		44.34					14.50	14.50	29.84	574m	South West
6628-617	47706	SCOTS CHURCH A 1	Unknown		1956-10-30	12.19		46.84								577m	North West
6628-27517	280986	MW 7	Backfilled	Investigation	2014-09-16	15.00							9.00	9.00		580m	South West
6628-31295	355263			Investigation	2020-12-15	15.00										581m	South West
6628-27512	280888	MW 5	Backfilled	Investigation	2014-07-11	3.13							1.34	1.34		585m	South West
6628-31293	355261			Investigation	2020-12-15	15.00										586m	South West
6628-616	47705	SCOTS CHURCH A 3	Unknown		1956-10-30	12.19		46.73								586m	North West
6628-20257	181455		Backfilled	Environmental	2000-06-30	21.00		44.11								588m	South West
6628-20243	181064	HFMW 77		Monitoring	2000-04-13	12.00		44.57								591m	South West
6628-30332	325468			Investigation	2019-08-21	30.00										592m	West
6628-29943	314500			Investigation	2018-10-11	30.00										593m	West
6628-31294	355262			Investigation	2020-12-15	15.00										594m	South West
6628-20258	181456		Backfilled	Environmental	2000-07-01	15.00		44.02								595m	South West
6628-27396	280466															596m	South West
6628-27510	280886	MW 3	Backfilled	Investigation	2014-06-26	3.00							1.48	1.48		596m	South West
6628-27513	280907	MW 6	Backfilled	Investigation		3.07							1.58	1.58		600m	South West
6628-27518	280987	MW 8	Backfilled	Investigation		15.00							9.00	9.00		600m	South West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-27508	280884	MW 1	Backfilled	Investigation		15.00							8.50	8.50		601m	South West
6628-650	47739	PARK ROYAL HOTEL	Backfilled		1964-09-14	9.35		44.34								602m	South
6628-20259	181457		Backfilled	Environmental	2000-07-03	19.50		43.96								603m	South West
6628-27511	280887	MW 4	Backfilled	Investigation	2014-06-26	3.26							1.92	1.92		603m	South West
6628-27509	280885	MW 2	Backfilled	Investigation	2014-06-26	3.16							1.32	1.32		605m	South West
6628-30372	325554			Investigation	2019-08-27	30.00										605m	West
6628-625	47714		Abandoned		1973-10-17	19.60	46.00		7.50	1295	2340	0.1300	16.20	16.20	29.80	605m	North West
6628-29927	314474			Investigation	2018-10-15	30.00										607m	West
6628-22964	231156	SITE 2	Backfilled			16.10		46.21								610m	West
6628-22965	231157	SITE 3	Backfilled			15.30		46.18								610m	West
6628-20425	183455	TB 14		Investigation	2000-08-25	20.00		46.17					17.00	17.00	29.17	611m	West
6628-28523	289795			Investigation	2016-09-16	15.00										614m	South West
6628-634	47723							50.32		1160	2100					616m	East
6628-367	47467			Drainage	1965-06-16	12.80		46.28								617m	West
6628-338	47438	SZ 74	Backfilled	Drainage	1965-06-11	9.40	3.00						4.88	4.88	-1.88	617m	West
6628-339	47439		Backfilled	Drainage	1965-06-15	12.80		46.25					2.59	2.59	43.66	617m	West
6628-331	47431			Drainage	1965-04-07	21.34	45.00					0.0300	16.46	16.46	28.54	618m	West
6628-27094	278449		Backfilled		2013-08-22	20.00										619m	North West
6628-335	47435			Drainage	1965-06-08	6.10		46.41								619m	West
6628-334	47434			Drainage	1965-06-08	6.10		46.46								624m	West
6628-333	47433			Drainage	1965-06-07	6.10		46.46								624m	West
6628-337	47437			Drainage	1965-06-09	6.10		46.24								626m	West
6628-336	47436			Drainage	1965-06-10	6.10		46.32								626m	West
6628-22963	231155	SITE 1	Backfilled			16.60		46.01								630m	West
6628-28695	288501		Backfilled	Investigation	2015-12-01	25.00										630m	South East
6628-28522	289794			Investigation	2016-09-15	35.00										632m	South West
6628-27095	278450		Backfilled	Investigation	2013-08-23	20.00										632m	North West
6628-28097	288196		Backfilled	Investigation	2015-12-01	25.00										636m	South East
6628-626	47715		Abandoned		1973-10-24	30.60		46.03	7.50	2309	4145	0.1300	16.20	16.20	29.83	637m	North West
6628-18402	164409			Observation	1996-01-30	26.00		43.67					21.00	21.00	22.67	640m	South West
6628-332	47432			Drainage	1965-06-04	6.10		46.34								641m	West
6628-651	47740	TRAVEL ODGE MOTEL	Abandoned		1965-12-22	12.27		43.60								644m	South West
6628-20244	181065	HFMW 78		Monitoring	2000-04-13	12.00		44.77								646m	South West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-11098	58067			Drainage				46.03								648m	North
6628-330	47430			Drainage		21.59		46.22		4426	7834					651m	West
6628-318	47418	DD 22		Drainage	1965-05-31	21.34		46.29					16.46	16.46	29.83	651m	West
6628-314	47414				1965-04-13	9.45		46.27								653m	West
6628-652	47741	TRAVEL ODGE MOTEL	Abandoned		1965-12-30	12.65		43.51								653m	South West
6628-320	47420			Drainage	1965-05-17	21.34	45.00					0.4500	16.76	16.76	28.24	659m	West
6628-319	47419			Drainage	1965-05-25	23.47	45.00					0.4500	16.46	16.46	28.54	659m	West
6628-20325	182028	HFMW 75		Monitoring	2000-03-24	12.00		44.49					9.50	9.50	34.99	659m	South West
6628-20246	181067	HFMW 79A		Monitoring	2000-04-20	13.00		45.00								660m	South West
6628-20424	183454	TB 13		Investigation	2000-08-25	23.00		45.87					17.33	17.33	28.54	660m	West
6628-327	47427			Drainage	1965-05-07	7.01		46.21								661m	West
6628-506	47603			Drainage	1965-06-16	0.61		46.07								661m	West
6628-340	47440			Drainage	1965-06-16	0.61		46.07								661m	West
6628-11099	58068			Drainage				46.14								661m	North
6628-329	47429			Drainage		18.82		46.08		171	311					661m	West
6628-317	47417			Drainage	1965-04-22	21.34		46.21					16.76	16.76	29.45	663m	West
6628-328	47428			Drainage	1965-05-14	6.10		46.17								665m	West
6628-313	47413			Drainage	1965-04-12	21.34		46.18					16.76	16.76	29.42	668m	West
6628-324	47424			Drainage	1965-06-01	6.10		45.98								669m	West
6628-325	47425			Drainage	1965-06-02	6.40		46.04								669m	West
6628-20242	181063	HFMW 76		Monitoring	2000-04-13	13.00		44.42								670m	South West
6628-326	47426			Drainage	1965-05-05	4.88		46.13								670m	West
6628-11283	58252	PUBLIC BULD DEPT	Backfilled		1961-06-09	48.77		45.83								672m	West
6628-610	47699		Backfilled			32.00		43.62								672m	North
6628-323	47423			Drainage	1965-06-03	6.10		45.92								674m	West
6628-322	47422			Drainage	1965-06-03	6.10		45.85								674m	West
6628-282	47382				1966-09-13	24.38		46.02					17.98	17.98	28.04	675m	West
6628-321	47421			Drainage	1965-05-11	22.86	45.00					0.4500	16.56	16.56	28.44	676m	West
6628-315	47415			Drainage	1965-05-04	22.86	45.00					0.4500	16.61	16.61	28.39	676m	West
6628-285	47385	PUB. BLDGS. DEPT			1964-02-17	15.24		46.03								677m	West
6628-316	47416			Drainage	1965-04-15	10.67		46.08								678m	West
6628-284	47384	PUB. BLDGS. DEPT			1964-02-14	8.53		46.02								679m	West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-283	47383	PUB. BLDGS. DEPT			1964-02-14	4.27		46.01								683m	West
6628-279	47379			Drainage	1966-09-06	24.38		45.86					17.98	17.98	27.88	683m	West
6628-274	47374	PUB. BLDGS. DEPT			1964-01-29	39.62		45.96								684m	West
6628-277	47377	PUB. BLDGS. DEPT			1964-02-13	24.38		46.00								685m	West
6628-271	47371	RESERVE BANK 4	Unknown		1960-06-17	36.58		45.81		1015	1838		16.92	16.92	28.89	687m	West
6628-20245	181066	HFMW 79		Monitoring	2000-04-17	13.00		44.46								687m	South West
6628-272	47372	PUB. BLDGS. DEPT			1964-03-13	27.43		45.85								688m	West
6628-18401	164408			Observation	1996-01-29	22.00		44.06					17.00	17.00	27.06	689m	South West
6628-275	47375	PUB. BLDGS. DEPT			1964-03-04	27.74		45.96								693m	West
6628-270	47370	RESERVE BANK 6	Unknown		1963-02-04	24.38		45.81								695m	West
6628-345	47445	SOIL ENG. LABS.			1960-05-25	6.10		46.07								700m	West
6628-269	47369	RESERVE BANK 3	Unknown		1960-06-03	27.28		45.63	7.50	787	1427		16.92	16.92	28.71	701m	North West
6628-281	47381				1966-12-13	10.67		45.92					7.19	7.19	38.73	705m	West
6628-276	47376	PUB. BLDGS. DEPT			1963-12-17	60.96		45.93					19.81	19.81	26.12	706m	West
6628-280	47380			Drainage	1966-10-25	24.38	45.00					0.5700	18.59	18.59	26.41	706m	West
6628-268	47368	RESERVE BANK 5	Unknown		1963-01-30	24.92		45.60								708m	North West
6628-5552	52521	PUB. BLDGS. DEPT		Investigation	1964-02-03	25.91		45.92								709m	West
6628-278	47378			Drainage	1966-11-04	24.38	45.00					0.5100	16.15	16.15	28.85	713m	West
6628-11114	58083	KW 14	Unknown		1979-09-03	16.75	44.74									714m	West
6628-16184	63153		Operational	Town Water Supply (Public/Municipal)	1992-09-10	20.00		42.30	7.50	1765	3181	1.6000	1.70	1.70	40.60	718m	North East
6628-344	47444	SOIL ENG. LABS.			1960-05-25	5.94		46.04								718m	West
6628-266	47366	RESERVE BANK 2	Unknown		1960-05-23	25.60		45.74		1230	2225		17.22	17.22	28.52	718m	West
6628-26133	267004	BH 3			2011-01-21	21.00										721m	North West
6628-607	47696		Operational	Drainage		21.03	46.00					7.5800				726m	North West
6628-613	47702	STATE BANK			1908-01-01	21.34		45.77								726m	North West
6628-26134	267005	BH 4			2011-01-22	21.20										727m	North West
6628-267	47367	RESERVE BANK 1	Unknown		1960-05-12	25.22		45.48		1200	2172		16.76	16.76	28.72	733m	North West
6628-24568	245589			Investigation	2009-04-02	15.00		44.96								738m	South West
6628-611	47700		Operational	Drainage		32.92		45.89								739m	North West
6628-22235	206405	GW 1			2005-08-19	11.00		43.33					8.25	8.25	35.08	742m	South West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-637	47726					10.36		50.16		5155	9081					743m	East
6628-606	47695		Operational	Drainage		20.73	46.00			1318	2383	1.5100				747m	North West
6628-286	47386	PUB. BLDGS. DEPT			1965-07-30	9.14		45.50								748m	West
6628-28417	289410	GW 3		Investigation	2016-04-30	7.50							5.20	5.20		749m	South East
6628-85	47185					6.40	45.00			2780	4975	2.0200	4.57	4.57	40.43	751m	North
6628-354	47454	LAW COURTS 4	Unknown		1968-01-18	19.51	76.90									755m	West
6628-352	47452	LAW COURTS 3	Unknown		1968-01-10	21.51	76.87									755m	West
6628-26999	276000	BH 5		Investigation	2013-11-21	40.00							18.00	18.00		759m	West
6628-27000	276001	BH 6	Backfilled		2013-11-27	40.00										767m	West
6628-11284	58253	K.W.G.SMITH PTY.	Backfilled		1975-10-09	18.80		45.31								768m	North
6628-29978	314574	GEOTECH BORE HOLE 2	Backfilled		2018-12-17	18.10										769m	North West
6628-22277	206491	SITE 1			2005-09-25	30.00		42.56		1452	2620	0.2500	11.00	11.00	31.56	770m	South West
6628-11285	58254	K.W.G.SMITH PTY	Backfilled		1975-10-08	19.00		45.40								770m	North
6628-343	47443	NCR 1	Unknown		1955-09-06	12.19		45.82								772m	West
6628-246	47346			Drainage	1936-01-01	9.14		45.19		2390	4290					775m	North West
6628-16183	63152		Backfilled		1992-09-09	24.00		42.44		1851	3332	0.5000	2.30	2.30	40.14	775m	North East
6628-28415	289408	GW 1		Investigation	2016-04-30	7.50							4.90	4.90		777m	South East
6628-29977	314573	GEOTECH BORE HOLE 1	Backfilled		2018-12-18	16.05										779m	North West
6628-351	47451	LAW COURTS 1	Unknown		1968-01-04	28.04	76.81									784m	West
6628-353	47453	LAW COURTS 2	Unknown		1968-01-10	21.49	76.87									784m	West
6628-609	47698					63.70		45.99								785m	North West
6628-242	47342				1970-04-29	14.94		45.26					1.83	1.83	43.43	785m	North West
6628-11101	58070	GH 155	Abandoned	Investigation ; Observation	1979-08-14	15.06	45.03						11.04	11.04	33.99	785m	West
6628-86	47186				1934-06-15	21.34	43.00			2385	4281	6.3100	10.67	10.67	32.33	787m	North
6628-612	47701		Abandoned		1970-04-29	12.57		45.58								788m	North West
6628-28416	289409	GW 2		Investigation	2016-04-30	7.50							5.10	5.10		788m	South East
6628-26996	275997	BH 2	Backfilled	Investigation	2013-11-14	40.00										788m	West
6628-342	47442	NCR 2	Unknown		1955-09-08	12.19		45.66								791m	West
6628-11102	58071	DEPT OF TRASIT		Observation	1979-09-13	19.80	45.12						18.05	18.05	27.07	798m	West
6628-22278	206492	SITE 2				60.00		42.48		1005	1820	1.5000	13.00	13.00	29.48	800m	South West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-247	47347			Drainage		22.86	45.00					3.0300	20.12	20.12	24.88	800m	North West
6628-84	47184	BRICKED WELL				18.29		45.33		1760	3172		4.98	4.98	40.35	801m	North
6628-312	47412	SUPREME COURT 1	Unknown		1956-07-20	30.48		45.23								806m	West
6628-311	47411	SUPREME COURT 2	Unknown		1956-08-03	14.10		45.26								814m	West
6628-26997	275998	BH 3		Investigation	2013-11-17	40.00							12.50	12.50		819m	West
6628-646	47735				1963-11-22	18.29		50.26								820m	East
6628-309	47409	WESTERN COURTS 3	Unknown		1972-08-23	57.00		45.13	6.50	1130	2045	0.6300	21.00	21.00	24.13	821m	West
6628-25028	253376	SBGW 26		Monitoring	2009-12-03	11.86	46.78			763	1384		5.17	5.17	41.61	821m	South East
6628-347	47447	WATERMAN 2	Unknown		1956-10-10	9.70		43.77								823m	South West
6628-245	47345			Drainage		22.10	45.00					3.4100	19.05	19.05	25.95	824m	North West
6628-11736	58705		Operational	Drainage	1981-05-13	19.00		44.87	7.90	1810	3260		16.50	16.50	28.37	825m	West
6628-11737	58706		Operational	Drainage	1981-05-13	19.50		44.84	7.80	1815	3270		17.00	17.00	27.84	825m	West
6628-11731	58700		Operational	Drainage	1981-05-12	18.00		44.80	7.80	1832	3300		15.50	15.50	29.30	827m	West
6628-310	47410	WESTERN COURTS 1	Unknown		1972-07-05	34.00		45.37		10601	18029					827m	West
6628-11744	58713		Operational	Drainage	1981-05-15	15.00		44.76	7.50	1776	3200		12.50	12.50	32.26	827m	West
6628-11745	58714		Operational	Drainage	1981-05-15	15.00		44.70	8.00	1776	3200		12.50	12.50	32.20	828m	West
6628-297	47397	GOVT OFFICE WEST 3	Converted to WW		1970-02-23	29.87		44.59	7.50	1832	3300					832m	West
6628-298	47398	GOVT OFFICE OBS 3	Unknown		1970-03-11	4.57		44.59								832m	West
6628-11735	58704		Operational	Drainage	1981-05-13	14.50		44.76	7.90	1810	3260		12.00	12.00	32.76	833m	West
6628-16182	63151		Backfilled		1992-09-09	92.00		43.30								833m	East
6628-26995	275995	BH 1		Investigation	2013-11-24	40.00							18.00	18.00		834m	West
6628-308	47408	WESTERN COURTS 2	Unknown		1972-07-11	25.80		45.10	6.50	1957	3520	0.2500				836m	West
6628-359	47459							44.54								836m	North West
6628-11740	58709		Operational	Drainage	1981-05-14	15.00		44.61	7.70	1776	3200		12.50	12.50	32.11	838m	West
6628-348	47448	WATERMAN 1	Unknown		1956-10-05	18.29		43.58								839m	South West
6628-293	47393	GOVT OFFICE WEST 2	Converted to WW		1970-03-07	30.18		44.72	7.50	1130	2045					840m	West
6628-294	47394	GOVT OFFICE OBS 2	Unknown		1970-03-16	4.57		44.71								840m	West
6628-11738	58707		Operational	Drainage	1981-05-14	16.50		44.83	7.60	1821	3280		14.00	14.00	30.83	841m	West
6628-11103	58072	DEPT OF TRANS		Observation	1979-09-13	30.00	45.31						17.92	17.92	27.39	842m	North West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-26998	275999	BH 4	Backfilled		2013-11-19	40.00										842m	West
6628-645	47734				1963-11-20	18.29		50.24								844m	East
6628-11741	58710		Operational	Drainage	1981-05-14	15.00		44.57	7.60	1776	3200		12.50	12.50	32.07	848m	West
6628-244	47344			Drainage		21.03	45.00			882	1600	1.0100	19.51	19.51	25.49	849m	North West
6628-28137	288424	BH 55	Backfilled			14.75										849m	North East
6628-25026	253374	SBGW 17		Monitoring	2009-12-01	11.90	41.63			2465	4420		7.26	7.26	34.37	850m	South West
6628-648	47737					8.23		49.39								850m	South East
6628-11739	58708		Operational	Drainage	1981-05-14	19.00		44.80	8.10	1776	3200		17.50	17.50	27.30	851m	West
6628-27171	279158		Dry		2013-11-28	11.00										852m	West
6628-11743	58712		Operational	Drainage	1981-05-15	19.00		44.77	7.50	1776	3200		16.50	16.50	28.27	853m	West
6628-27637	284484			Investigation	2015-02-03	20.50				3857	6850		19.00	19.00		853m	West
6628-296	47396	GOVT OFFICE OBS 4	Unknown		1970-03-06	4.57		44.47								853m	West
6628-295	47395	GOVT OFFICE WEST 4	Converted to WW		1970-02-20	24.69		44.47	7.50	2001	3600					854m	West
6628-360	47460							44.56								858m	North West
6628-239	47339				1972-07-19	37.40		45.02	12.00	1245	2252	0.2500	21.60	21.60	23.42	859m	North West
6628-291	47391	GOVT OFFICE WEST 1	Converted to WW	Drainage	1970-03-10	36.42		44.57								860m	West
6628-292	47392	GOVT OFFICE OBS 1	Unknown		1970-04-02	4.57		44.56								860m	West
6628-644	47733				1963-11-12	30.17		50.24					3.35	3.35	46.89	860m	East
6628-11742	58711		Operational	Drainage	1981-05-14	15.00		44.50	7.70	1788	3220		12.50	12.50	32.00	860m	West
6628-241	47341				1970-11-24	23.77		45.41								863m	North West
6628-20105	178739			Irrigation	1999-12-23	90.00		46.52	7.40	320	581	2.5000	9.00	9.00	37.52	865m	South East
6628-240	47340			Drainage		19.36	44.00					4.5500	15.54	15.54	28.46	866m	North West
6628-11734	58703		Operational	Drainage	1981-05-13	19.00		44.75	7.70	1804	3250		16.50	16.50	28.25	869m	West
6628-608	47697					22.25		45.51					17.98	17.98	27.53	869m	North West
6628-26441	270978	MW 4	Backfilled													870m	West
6628-26442	270979	MW 4	Backfilled													870m	West
6628-26443	270980	MW 4	Backfilled													870m	West
6628-26444	270981	MW 5	Backfilled													871m	West
6628-23526	238605		Backfilled			8.50										871m	North West
6628-11727	58696		Operational	Drainage	1981-05-13	17.00		44.64	7.50	1810	3260		14.50	14.50	30.14	872m	West
6628-349	47449					11.58		42.80		10839	18467					874m	South West
6628-26440	270977	MW 3	Backfilled													874m	West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-11746	58715		Operational	Drainage	1981-05-15	15.10		44.55	8.00	1776	3200		12.50	12.50	32.05	876m	West
6628-78	47178	COLD STORES 3	Unknown		1962-12-20	4.57		42.70								876m	North
6628-26893	275637	MW 9		Investigation	2011-12-15	7.00							3.60	3.60		877m	West
6628-26449	270986	MW 10	Backfilled													878m	West
6628-238	47338				1972-10-05	43.50		45.15	7.50	876	1590		15.80	15.80	29.35	878m	North West
6628-77	47177	COLD STORES 2	Unknown		1962-12-20	5.64		42.62								878m	North
6628-11728	58697		Operational	Drainage	1981-05-13	16.00		44.41	7.70	1832	3300		13.50	13.50	30.91	878m	West
6628-11733	58702		Operational	Drainage	1981-05-13	19.00		44.72	7.70	1804	3250		16.50	16.50	28.22	878m	West
6628-76	47176	COLD STORES 1	Unknown		1962-12-19	4.65		42.54								879m	North
6628-81	47181	ANZ BANK				10.97		45.04					3.35	3.35	41.69	880m	North
6628-11732	58701		Operational	Drainage	1981-05-13	19.00		44.65	8.10	1804	3250		16.50	16.50	28.15	880m	West
6628-11726	58695		Operational	Drainage	1981-05-11	17.50		44.60	7.60	1804	3250		15.00	15.00	29.60	880m	West
6628-11730	58699		Operational	Drainage	1981-05-13	16.00		44.57	7.60	1832	3300		13.50	13.50	31.07	881m	West
6628-15726	62695		Operational	Recreational	1991-11-09	54.00		42.93	7.70	972	1760	2.5000	12.50	12.50	30.43	882m	South
6628-11729	58698		Operational	Drainage	1981-05-13	16.50		44.49	7.60	1832	3300		14.00	14.00	30.49	882m	West
6628-26448	270985	MW 9	Backfilled													883m	West
6628-26445	270982	MW 6	Backfilled													884m	West
6628-265	47365				1954-10-07	22.86		44.89					18.29	18.29	26.60	885m	West
6628-79	47179		Abandoned		1964-12-04	12.19		44.13					3.66	3.66	40.47	886m	North
6628-27887	285626	MW 3		Investigation	2014-11-07	8.50							5.90	5.90		888m	South West
6628-80	47180					29.87		44.46								889m	North
6628-74	47174	CHEST CLINIC 2	Unknown		1971-10-18	18.29	42.00		8.00	2909	5200	0.1300				892m	North
6628-82	47182				1915-01-01	31.70		45.28					31.09	31.09	14.19	895m	North West
6628-264	47364				1954-08-05	22.86		44.97								898m	West
6628-26129	266997	BHA		Investigation	2011-07-03	18.45										898m	North West
6628-29177	302371			Investigation	2017-10-21	30.00							17.00	17.00		899m	North
6628-26055	266583		Backfilled			13.90										901m	North West
6628-29192	303717		Backfilled													908m	West
6628-29200	303736		Backfilled													908m	West
6628-28136	288423	BH54 51	Backfilled			14.52										908m	North East
6628-25117	254199	MW 13		Investigation	2010-02-19	8.00							6.30	6.30		912m	East
6628-27886	285625	MW 1		Investigation	2014-11-07	8.50							5.90	5.90		912m	South West
6628-27889	285628	MW 7		Investigation	2014-11-07	8.50							5.90	5.90		912m	South West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-27892	285631	MW 17		Investigation	2014-11-07	9.00							5.90	5.90		913m	South West
6628-30819	345646			Investigation	2020-08-19	6.50							3.70	3.70		916m	East
6628-25116	254198	MW 12		Investigation	2010-02-19	8.00							6.30	6.30		917m	East
6628-25115	254197	MW 11		Investigation	2010-02-18	8.00							6.60	6.60		920m	East
6628-27891	285630	MW 13		Investigation	2014-11-07	8.50							5.90	5.90		921m	South West
6628-27888	285627	MW 6		Investigation	2014-11-07	8.50							5.90	5.90		922m	South West
6628-29900	314333			Investigation	2019-01-18	21.00										923m	North
6628-21953	202820	BH 1			2004-12-24	22.40		45.05								924m	North West
6628-555	47652	PULTNEY GRAMMAR	Operational	Irrigation		29.26		41.28	6.50	1166	2110					925m	South West
6628-24940	252999	MW 3		Investigation	2009-05-20	10.00							6.00	6.00		925m	East
6628-131	47231							42.87								926m	North
6628-30328	325444			Investigation	2019-08-14	20.00										927m	North
6628-26438	270975	MW 1	Backfilled													928m	West
6628-28756	291841			Investigation	2017-02-24	16.90										928m	West
6628-30821	345648			Investigation	2020-08-19	6.70							3.40	3.40		929m	East
6628-25114	254196	MW 10		Investigation	2010-02-19	8.00							5.80	5.80		929m	South East
6628-27890	285629	MW 10		Investigation	2014-11-07	8.50							5.90	5.90		930m	South West
6628-132	47232							42.96								930m	North
6628-26439	270976	MW 2	Backfilled													931m	West
6628-28755	291840			Investigation	2017-02-24	17.00										932m	West
6628-26447	270984	MW 8	Backfilled													933m	West
6628-136	47236							43.27								933m	North
6628-25439	259553	MW 2		Investigation	2009-11-23	8.00							5.70	5.70		935m	East
6628-28445	289520				2016-08-23	25.00							16.00	16.00		937m	North
6628-71	47171	JOHN MARTINS 3	Unknown		1966-12-13	30.02		44.63								938m	North West
6628-21954	202821	BH 2			2004-12-23	22.70		45.20								939m	North West
6628-232	47332				1921-01-01	15.24	44.00					1.6400				941m	North West
6628-22259	206466			Monitoring		15.00		44.90					9.00	9.00	35.90	942m	South West
6628-73	47173	CHEST CLINIC 1	Backfilled		1971-10-13	20.42	41.00		8.00	2067	3715	0.1300				944m	North
6628-262	47362				1971-01-12	15.47		44.38								944m	West
6628-133	47233							42.41								944m	North
6628-233	47333					17.07	157.87									945m	North West
6628-129	47229		Not Located					45.08								946m	North West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-30818	345645			Investigation	2020-08-19	6.50							3.50	3.50		946m	South East
6628-134	47234							42.53								947m	North
6628-28628	290447	BH 2	Backfilled	Investigation	2016-07-05	28.50										947m	North
6628-27691	284581		Backfilled	Investigation	2015-02-19	20.00										947m	South West
6628-25446	259560	MW 9		Investigation	2009-11-26	8.00							5.20	5.20		947m	South East
6628-263	47363				1971-01-13	7.62		44.59								948m	West
6628-237	47337			Drainage		32.61		44.70								949m	North West
6628-25443	259557	MW 6		Investigation	2009-11-25	8.00							5.40	5.40		949m	East
6628-300	47400				1934-10-03	23.09	44.00			1014	1837	0.5100				949m	West
6628-21374	197658			Monitoring	2003-03-14	12.00		44.42				0.0100	10.60	10.60	33.82	949m	South West
6628-75	47175	DENTAL CENTRE 1	Backfilled		1974-06-14	15.15	10.50		7.60	1686	3038					950m	North
6628-11104	58073	KW 4	Unknown		1979-09-01	13.80	44.94									951m	North West
6628-135	47235							42.78								952m	North
6628-25445	259559	MW 8		Investigation	2009-11-26	8.00							5.20	5.20		952m	South East
6628-68	47168	JOHN MARTINS	Abandoned		1967-07-13	13.56		44.65								953m	North West
6628-22336	209644				2005-10-21	30.00		41.09		1384	2500	8.0000	12.00	12.00	29.09	953m	South West
6628-25440	259554	MW 3		Investigation	2009-11-24	8.00							5.40	5.40		953m	East
6628-27903	285765	MW 10		Investigation	2015-06-23	14.00							11.40	11.40		954m	South West
6628-21373	197657			Investigation	2003-03-14	12.00		44.78				0.0100	10.60	10.60	34.18	955m	South West
6628-27431	280502	BH16	Backfilled		2014-08-07	15.00										955m	North East
6628-63	47163	JOHN MARTINS	Abandoned		1967-07-11	11.33		44.64								956m	North West
6628-236	47336			Drainage		20.88	42.00					1.0100	19.51	19.51	22.49	957m	North West
6628-19653	176139			Monitoring	1999-04-17	10.80		44.76				0.0200	9.60	9.60	35.16	958m	South West
6628-25444	259558	MW 7		Investigation	2009-11-26	8.00							5.60	5.60		959m	East
6628-25441	259555	MW 4		Investigation	2009-11-25	8.00							5.70	5.70		960m	East
6628-26895	275639	MW 8		Investigation	2012-01-16	20.00							17.50	17.50		962m	West
6628-301	47401	CENTRAL MARKET 3	Unknown		1964-04-14	27.49		44.34								964m	West
6628-72	47172	JOHN MARTINS	Abandoned		1967-06-19	15.90		44.13								965m	North West
6628-25442	259556	MW 5		Investigation	2009-11-25	8.00							5.60	5.60		965m	East
6628-257	47357	CIC 5	Unknown		1957-01-29	12.80		44.48								966m	West
6628-261	47361	CIC 1	Unknown		1957-01-23	12.80		44.38								968m	West
6628-28521	289793			Investigation	2016-09-20	35.00										969m	South
6628-21525	198203			Monitoring	2003-09-19	18.00		45.05				0.0100	15.80	15.80	29.25	970m	North West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-21955	202822	BH 3			2004-12-23	26.55		44.98								970m	North West
6628-24914	252828	GMW 1		Investigation	2009-09-29	10.00							8.00	8.00		970m	East
6628-67	47167	JOHN MARTINS	Abandoned		1967-05-24	14.33		44.40								972m	North West
6628-258	47358	CIC 3	Unknown		1957-01-25	12.80		44.41								974m	West
6628-512	47609				1966-09-28	9.86		44.67								978m	North West
6628-22020	203235				2005-02-23	24.90		44.95								978m	West
6628-289	47389	CENTRAL MARKET 1	Unknown		1964-04-09	18.29	44.20									979m	West
6628-66	47166	JOHN MARTINS	Abandoned		1967-06-08	14.63		44.26								979m	North West
6628-26446	270983	MW 7	Backfilled													979m	West
6628-260	47360	CIC 2	Unknown		1957-01-24	12.80		44.31								981m	West
6628-26894	275638	MW 7		Investigation	2011-12-14	19.00							17.00	17.00		982m	West
6628-255	47355	CIC 4	Unknown		1957-01-29	12.80		44.38								983m	West
6628-29586	307622			Investigation	2018-06-15	30.00										984m	West
6628-30786	342094		Dry	Investigation	2020-07-26	30.00										985m	North West
6628-19655	176141			Monitoring	1999-04-17	10.80		44.47				0.0200	9.60	9.60	34.87	986m	South West
6628-25031	253379	SBGW 46		Monitoring	2009-12-08	18.05	47.81			1005	1821		10.12	10.12	37.69	986m	East
6628-65	47165	JOHN MARTINS	Abandoned		1967-06-13	10.97		43.93								987m	North West
6628-27715	284939	MW 6			2015-03-19	16.00							11.61	11.61		988m	South West
6628-130	47230							44.61								989m	North West
6628-647	47736		Backfilled			18.59		51.20		1685	3038					990m	South East
6628-70	47170	JOHN MARTINS	Abandoned		1966-12-13	24.00		43.57								991m	North West
6628-27716	284940	MW 7			2015-03-19	20.00							17.93	17.93		993m	West
6628-243	47343	ADVERTIZER BUILDING	Backfilled		1962-04-12	13.72		44.69					10.97	10.97	33.72	994m	North West
6628-64	47164	JOHN MARTINS	Abandoned		1967-05-29	15.39		43.99								994m	North West
6628-29585	307621			Investigation	2018-06-15	25.00										996m	West
6628-659	47748		Abandoned		1957-07-26	10.36		48.66								998m	East
6628-19654	176140			Monitoring	1999-04-17	10.80		44.36				0.0200	9.60	9.60	34.76	1000 m	South West
6628-28591	290323	MW 11			2016-10-12	20.00							16.60	16.60		1001 m	South West
6628-21372	197656			Monitoring	2003-03-14	12.00		44.38				0.0100	10.60	10.60	33.78	1001 m	South West
6628-21371	197655			Monitoring	2003-03-14	12.00		44.32				0.0100	10.60	10.60	33.72	1001 m	South West
6628-302	47402	CENTRAL MARKET 4	Unknown		1964-04-20	19.20	43.89						14.63	14.63	29.26	1002 m	West
6628-27699	284691	BH 10	Backfilled	Investigation	2015-02-21	30.00										1005 m	South West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-350	47450		Abandoned		1914-10-09	10.67		42.99					9.75	9.75	33.24	1005 m	South West
6628-21370	197654			Monitoring		12.00		44.24				0.0100	10.60	10.60	33.64	1006 m	South West
6628-28594	290326			Investigation	2016-10-21	25.00										1007 m	West
6628-69	47169	JOHN MARTINS	Abandoned		1967-10-03	10.22		43.70								1008 m	North West
6628-290	47390	CENTRAL MARKET 2	Unknown		1964-04-03	27.43	44.00									1010 m	West
6628-29501	307349		Backfilled	Investigation	2018-01-30	25.00										1010 m	West
6628-604	47693	GOVERNMENT BORE			1915-01-01	95.10		50.97		971	1760		18.29	18.29	32.68	1015 m	South East
6628-124	47224		Abandoned		1962-07-06	15.24		41.64								1016 m	North
6628-27689	284579	BH 8	Backfilled	Investigation	2015-02-13	20.00										1017 m	South West
6628-31289	355216		Backfilled	Investigation	2021-05-12	26.00										1020 m	North West
6628-27905	285767	MW 9		Investigation	2015-06-23	12.50							10.10	10.10		1022 m	South West
6628-14	47114	RADIOTHERAPY 4	Unknown		1955-04-28	20.04		39.60					7.16	7.16	32.44	1025 m	North
6628-127	47227		Abandoned		1966-08-26	9.14		41.67								1026 m	North
6628-10915	57884	BIRKS BUILDING	Abandoned		1961-03-16	11.58		43.80								1027 m	North West
6628-10926	57895	BIRKS BUILDING	Abandoned		1961-03-21	13.72		43.80								1027 m	North West
6628-10922	57891	BIRKS BUILDING	Abandoned		1961-03-19	11.58		43.80								1027 m	North West
6628-10920	57889	BIRKS BUILDING	Abandoned		1961-03-18	11.43		43.80								1027 m	North West
6628-10914	57883	BIRKS BUILDING	Abandoned		1961-03-15	11.43		43.80								1027 m	North West
6628-10928	57897	BIRKS BUILDING	Abandoned		1961-03-22	13.72		43.80								1027 m	North West
6628-10917	57886	BIRKS BUILDING	Abandoned		1961-03-17	11.43		43.80								1027 m	North West
6628-10923	57892	BIRKS BUILDING	Abandoned		1961-03-20	11.58		43.80								1027 m	North West
6628-10929	57898	BIRKS BUILDING	Abandoned		1961-03-23	13.72		43.80								1027 m	North West
6628-10927	57896	BIRKS BUILDING	Abandoned		1961-03-22	13.72		43.80								1027 m	North West
6628-10913	57882	BIRKS BUILDING	Abandoned		1961-03-15	11.58		43.80								1027 m	North West
6628-10910	57879	BIRKS BUILDING	Abandoned		1961-03-13	11.58		43.80								1027 m	North West
6628-10919	57888	BIRKS BUILDING	Abandoned		1961-03-18	11.58		43.80								1027 m	North West
6628-10911	57880	BIRKS BUILDING	Abandoned		1961-03-14	11.43		43.80								1027 m	North West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-10925	57894	BIRKS BUILDING	Abandoned		1961-03-21	13.72		43.80								1027 m	North West
6628-10916	57885	BIRKS BUILDING	Abandoned		1961-03-16	11.58		43.80								1027 m	North West
6628-10921	57890	BIRKS BUILDING	Abandoned		1961-03-19	11.58		43.80								1027 m	North West
6628-10912	57881	BIRKS BUILDING	Abandoned		1961-03-14	11.58		43.80								1027 m	North West
6628-10924	57893	BIRKS BUILDING	Abandoned		1961-03-20	13.72		43.80								1027 m	North West
6628-10918	57887	BIRKS BUILDING	Abandoned		1961-03-17	11.43		43.80								1027 m	North West
6628-660	47749		Abandoned		1957-07-26	14.93		48.78								1032 m	East
6628-27690	284580	BH 7	Backfilled	Investigation	2015-02-12	17.00										1037 m	South West
6628-27904	285766	MW 8			2015-06-22	8.00							4.00	4.00		1042 m	South West
6628-28592	290324	MW 12		Investigation	2016-10-12	13.50							10.40	10.40		1042 m	South West
6628-13	47113	RADIOTHERAPY 3	Unknown		1955-04-19	30.48		39.02	8.40	1513	2729					1042 m	North
6628-118	47218		Abandoned		1959-09-03	9.14		41.32		2070	3722		7.77	7.77	33.55	1043 m	North
6628-11105	58074	GH 156	Abandoned	Investigation; Observation	1979-08-20	31.65	43.77						19.09	19.09	24.68	1050 m	North West
6628-15	47115	RADIOTHERAPY 5	Unknown		1955-05-04	12.57		38.90					5.79	5.79	33.11	1051 m	North
6628-28593	290325			Investigation	2016-10-20	25.00										1052 m	West
6628-62	47162		Abandoned		1970-09-04	23.62		43.32								1052 m	North West
6628-27717	284941	MW 4			2015-03-18	16.00							10.87	10.87		1052 m	South West
6628-252	47352	PHONE EXCHANGE 4	Unknown		1968-03-18	26.21		44.23								1053 m	West
6628-27430	280501	BH18		Investigation	2014-08-05	20.00										1056 m	North East
6628-494	47591					18.29		42.81								1056 m	North West
6628-231	47331				1970-12-01	23.01		42.48								1061 m	North West
6628-31338	355493		Backfilled	Investigation	2021-06-18	24.95										1061 m	North
6628-254	47354	PHONE EXCHANGE 6	Unknown		1967-03-21	27.20		44.09								1062 m	West
6628-346	47446				1914-11-24	43.59		44.39		929	1685					1063 m	West
6628-23865	241835			Investigation	2008-12-18	25.00		40.72		1799	3240	3.0000	12.00	12.00	28.72	1064 m	South West
6628-126	47226		Abandoned		1962-07-04	15.24		40.58								1066 m	North
6628-123	47223		Abandoned		1965-08-23	8.94		40.37								1066 m	North
6628-251	47351	PHONE EXCHANGE 3	Unknown		1968-04-06	24.38		44.13								1066 m	West
6628-24329	245269			Investigation	2008-11-27	17.50		43.51					11.00	11.00	32.51	1067 m	South West
6628-661	47750		Abandoned		1957-07-26	4.88		49.34								1070 m	East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-249	47349	PHONE EXCHANGE 1	Unknown		1965-08-20	45.72		44.06								1073 m	West
6628-553	47650				1913-08-04	40.23		48.90		742	1347		18.29	18.29	30.61	1074 m	South East
6628-21	47121	RAH			1962-12-13	18.52		37.54	7.70	1021	1849		5.49	5.49	32.05	1075 m	North
6628-61	47161		Abandoned		1970-09-02	23.77		42.89					11.28	11.28	31.61	1075 m	North West
6628-253	47353	PHONE EXCHANGE 5	Unknown		1968-03-19	25.50		43.96								1079 m	West
6628-11106	58075	KW 6	Unknown		1979-09-01	21.30	43.07									1080 m	North West
6628-114	47214		Operational	Drainage	1935-09-10	28.35		40.90				0.8800				1080 m	North
6628-121	47221		Abandoned		1961-12-06	9.14		39.12								1085 m	North
6628-122	47222		Abandoned		1961-12-04	24.38		38.73		2241	4025		5.79	5.79	32.94	1086 m	North
6628-125	47225		Abandoned		1965-08-25	8.74		39.29								1086 m	North
6628-22	47122	RAH	Abandoned		1963-01-02	30.48		36.83					9.14	9.14	27.69	1086 m	North
6628-12	47112	RADIOTHERAPY 2	Unknown		1955-03-31	12.34		37.48					6.10	6.10	31.38	1088 m	North
6628-250	47350	PHONE EXCHANGE 2	Unknown		1965-08-25	23.01		43.77								1089 m	West
6628-117	47217		Abandoned		1959-09-01	9.14		40.04		1856	3343		6.71	6.71	33.33	1089 m	North
6628-25	47125	RAH	Abandoned		1963-01-16	18.29		35.96					7.11	7.11	28.85	1095 m	North
6628-120	47220		Abandoned		1959-09-15	9.45		38.05		1172	2120					1098 m	North
6628-11	47111	RADIOTHERAPY 1	Unknown		1955-03-28	24.38		37.35	7.60	1788	3220					1103 m	North
6628-116	47216		Abandoned		1959-09-09	12.19		39.18	7.50	1928	3470					1103 m	North
6628-12925	59894		Operational	Town Water Supply (Public/Municipal)	1984-02-13	94.40	46.00		7.70	1306	2360	0.7500	8.40	8.40	37.60	1105 m	North East
6628-21942	202236	MW 9	Backfilled	Monitoring	2004-08-23	19.20		43.06					17.00	17.00	26.06	1105 m	West
6628-14083	61052			Observation	1980-01-01	7.70		42.07				0.0000	0.00	0.00	42.07	1106 m	North West
6628-14081	61050			Observation	1980-01-01	9.60		42.07				0.0000	0.00	0.00	42.07	1106 m	North West
6628-14080	61049			Observation	1980-01-01	10.10		42.07				0.0000	0.00	0.00	42.07	1106 m	North West
6628-14085	61054			Observation	1982-01-01	9.70		42.07				0.0000	0.00	0.00	42.07	1106 m	North West
6628-14079	61048			Observation	1980-01-01	10.10		42.07				0.0000	0.00	0.00	42.07	1106 m	North West
6628-14082	61051			Observation	1980-01-01	9.90		42.07				0.0000	0.00	0.00	42.07	1106 m	North West
6628-14078	61047			Observation	1980-01-01	12.25		42.07				0.0000	0.00	0.00	42.07	1106 m	North West
6628-14084	61053			Observation	1980-01-01	7.15		42.07				0.0000	0.00	0.00	42.07	1106 m	North West
6628-11107	58076	DEPT OF TRANS.		Observation	1979-09-13	22.25	42.82						16.97	16.97	25.85	1112 m	North West
6628-99	47199		Backfilled		1938-06-01	30.33		44.90		785	1424	3.7900	9.14	9.14	35.76	1113 m	North East
6628-15783	62752		Operational	Recreational	1991-11-27	12.00		52.00	7.40	1861	3350	1.0000	3.10	3.10	48.90	1114 m	South East
6628-60	47160					1.76		40.47		1602	2890		1.76	1.76	38.71	1115 m	North

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-27759	285068	BH 34		Investigation	2015-03-25	15.00							4.00	4.00		1116 m	North East
6628-119	47219		Abandoned		1959-09-04	9.14		36.47		1945	3500		7.62	7.62	28.85	1117 m	North
6628-27425	280496	BH11		Investigation	2014-08-04	20.00										1117 m	North East
6628-23	47123	RAH	Abandoned		1963-01-08	18.29		35.07	7.50	1581	2851		7.80	7.80	27.27	1118 m	North
6628-28838	294426		Decommissioned	Investigation	2017-05-19	19.50										1119 m	South West
6628-662	47751		Abandoned		1957-07-26	6.10		50.05								1120 m	East
6628-605	47694		Backfilled		1968-05-06	27.43	46.00		7.20	1105	2000	2.2700	7.05	7.05	38.95	1120 m	North East
6628-115	47215				1959-09-24	25.60		37.66	7.40	1928	3470		10.36	10.36	27.30	1120 m	North
6628-28837	294425		Backfilled	Investigation	2017-05-19	21.00										1121 m	South West
6628-24	47124	RAH	Abandoned		1963-01-11	18.29		35.23					7.80	7.80	27.43	1122 m	North
6628-12890	59859		Backfilled	Observation	1984-03-27	6.00		41.79								1124 m	North West
6628-16999	148163	SZ 1			1993-08-02	9.95	41.00									1124 m	South
6628-12887	59856		Backfilled	Observation	1984-03-26	3.00		41.79								1124 m	North West
6628-12886	59855		Backfilled	Observation	1984-03-26	1.50		41.79								1124 m	North West
6628-12892	59861		Backfilled	Observation	1984-03-28	3.00		41.79								1124 m	North West
6628-12893	59862		Backfilled	Observation	1984-03-28	4.00		41.79								1124 m	North West
6628-12884	59853		Backfilled	Observation	1984-03-26	3.00		41.79								1124 m	North West
6628-12889	59858		Backfilled	Observation	1984-03-27	3.00		41.79								1124 m	North West
6628-12883	59852		Backfilled	Observation	1984-03-26	8.00		41.79								1124 m	North West
6628-12888	59857		Backfilled	Observation	1984-03-27	4.00		41.79								1124 m	North West
6628-12885	59854		Backfilled	Observation	1984-03-26	1.50		41.79								1124 m	North West
6628-12891	59860		Backfilled	Observation	1984-03-28	3.00		41.79								1124 m	North West
6628-12882	59851		Backfilled	Observation	1984-03-23	8.50		41.79								1125 m	North West
6628-603	47692					10.36		49.86		1514	2732					1128 m	East
6628-602	47691					15.24		49.86		1985	3572					1128 m	East
6628-496	47593				1968-12-19	15.62		41.01								1129 m	North West
6628-22130	204721		Backfilled		2005-05-30	12.00		44.05		8870	15250	0.0000	10.20	10.20	33.85	1131 m	West
6628-11286	58255	DEPT. MINES	Backfilled		1965-01-27	18.23		41.86								1131 m	North West
6628-27189	279266	MW 4		Investigation	2014-01-30	13.00							10.50	10.50		1136 m	West
6628-27190	279267	MW 3		Investigation	2014-01-29	13.20							10.60	10.60		1136 m	West
6628-16	47116	RADIOTHERAPY 6	Unknown		1955-05-11	12.57		36.72								1136 m	North
6628-27191	279268	MW 2		Investigation	2013-10-22	3.40										1136 m	West
6628-18272	164090		Abandoned	Investigation	1996-10-17	18.20		42.02								1139 m	South West
6628-27192	279269	MW 1		Investigation	2013-10-22	3.40										1139 m	West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-48	47148	ADELAIDE UNI.	Abandoned		1969-03-19	15.39	39.00		7.50	262	476	0.1300	5.18	5.18	33.82	1142 m	North
6628-28437	289492	MW 3			2016-08-08	9.50							7.50	7.50		1143 m	North East
6628-28435	289490	MW 1			2016-08-08	10.00							8.00	8.00		1143 m	North East
6628-26	47126	RAH	Abandoned		1963-01-21	18.36		33.90					7.87	7.87	26.03	1147 m	North
6628-27	47127	RAH	Abandoned		1963-01-24	18.36		34.03					7.21	7.21	26.82	1149 m	North
6628-495	47592					33.53		40.44								1152 m	North West
6628-27418	280489	BH10			2014-07-29	20.00										1152 m	North East
6628-601	47690		Backfilled		1934-01-01	30.48		49.74		1442	2604		7.62	7.62	42.12	1153 m	East
6628-19	47119	RADIOTHERAPY 9	Unknown		1955-06-09	11.89		35.14					5.79	5.79	29.35	1154 m	North
6628-18025	161850	LIBRARY PIER J1	Unknown		1965-01-27	18.23		41.43								1157 m	North West
6628-21943	202237	MW 8	Backfilled	Monitoring	2004-08-26	19.60		42.88					17.70	17.70	25.18	1157 m	West
6628-34	47134	RAH	Abandoned		1964-06-18	18.90	30.00			1210	2191	0.3800	6.10	6.10	23.90	1158 m	North
6628-18271	164089		Abandoned	Investigation	1996-10-15	20.00		51.21								1161 m	South East
6628-420	47517			Drainage	1919-01-01	40.84		40.12								1164 m	North West
6628-46	47146	ADELAIDE UNI.	Abandoned		1969-03-14	27.43		36.46	7.50	1255	2271	0.2500	13.72	13.72	22.74	1165 m	North
6628-28436	289491	MW 2		Investigation	2016-08-08	9.00							7.50	7.50		1167 m	North East
6628-138	47238	BOTANIC GARDENS						34.09		1742	3140					1168 m	North
6628-11108	58077	DEPT OF TRANS		Observation	1979-09-13	19.20	42.27						16.96	16.96	25.31	1168 m	North West
6628-20	47120	RADIOTHERAPY 10	Unknown		1955-06-27	30.48		35.93	7.00	1485	2680					1170 m	North
6628-47	47147	ADELAIDE UNI.	Abandoned		1969-04-16	27.43		38.97	7.00	1320	2387	0.1300	12.19	12.19	26.78	1171 m	North
6628-663	47752		Abandoned		1957-07-26	2.74		50.77								1172 m	East
6628-21940	202234	MW 7	Backfilled	Monitoring	2004-08-24	21.90		42.69					17.70	17.70	24.99	1173 m	West
6628-492	47589			Drainage	1966-03-31	10.06		39.80					8.69	8.69	31.11	1174 m	North West
6628-18027	161852	LIBRARY PIER N6	Unknown		1965-03-01	12.95		41.22								1175 m	North West
6628-18023	161848	LIBRARY PIER C1A	Unknown		1965-02-17	13.72		40.95								1176 m	North West
6628-493	47590			Drainage	1904-01-01	40.84		40.13		1270	2298					1177 m	North West
6628-143	47243			Observation	1964-01-01	13.72	36.00		7.50	350	637	2.5000				1177 m	North East
6628-35	47135	RAH	Abandoned		1964-06-11	36.65		31.45		1100	1992	0.3800	4.57	4.57	26.88	1178 m	North
6628-18024	161849	LIBRARY PIER G5	Unknown		1965-02-22	10.67		41.03								1180 m	North West
6628-38	47138	RAH	Abandoned		1964-05-26	18.29		30.47		1671	3013		4.57	4.57	25.90	1185 m	North
6628-14518	61487	GH 6	Abandoned	Investigation	1980-05-28	10.50	47.00									1186 m	South
6628-18	47118	RADIOTHERAPY 8	Unknown		1955-05-06	12.57		35.51					5.18	5.18	30.33	1188 m	North
6628-17	47117	RADIOTHERAPY 7	Unknown		1955-05-20	12.57		35.50								1188 m	North

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-484	47581				1964-09-17	23.37		39.51								1191 m	North West
6628-28	47128	RAH	Abandoned		1963-01-30	18.36		33.63		1010	1829		6.40	6.40	27.23	1194 m	North
6628-28135	288422	BH 51	Backfilled			34.65										1198 m	North East
6628-358	47458							41.03								1198 m	North West
6628-18022	161847	LIBRARY PIER A6	Unknown		1965-02-13	11.43		40.58								1198 m	North West
6628-45	47145	ADELAIDE UNI.	Abandoned		1969-03-26	21.34	30.00		8.00	2085	3749	0.1300	12.19	12.19	17.81	1202 m	North
6628-29	47129	RAH	Abandoned		1963-02-05	18.36		32.20					7.11	7.11	25.09	1205 m	North
6628-479	47576				1964-10-30	60.81		38.93					15.24	15.24	23.69	1206 m	North West
6628-477	47574				1964-09-30	9.14		38.92								1206 m	North West
6628-480	47577			Drainage	1966-03-09	9.60		38.90					7.62	7.62	31.28	1207 m	North West
6628-489	47586			Drainage	1966-03-29	10.06		38.90					8.53	8.53	30.37	1207 m	North West
6628-478	47575				1964-10-18	5.49		38.90								1207 m	North West
6628-475	47572				1964-10-14	5.49		38.90								1207 m	North West
6628-476	47573				1964-10-14	30.48		38.90					16.76	16.76	22.14	1207 m	North West
6628-488	47585			Drainage	1966-03-28	9.45		38.90					7.92	7.92	30.98	1207 m	North West
6628-491	47588			Drainage	1966-03-14	6.71		38.91					5.18	5.18	33.73	1207 m	North West
6628-482	47579				1966-03-11	9.45		38.90					7.92	7.92	30.98	1207 m	North West
6628-11754	58723		Abandoned	Observation		5.25	39.23		7.80	1552	2800		5.82	5.82	33.41	1208 m	North East
6628-481	47578			Drainage	1966-03-10	9.14		38.88					8.38	8.38	30.50	1208 m	North West
6628-486	47583				1964-10-11	24.38		38.88								1208 m	North West
6628-654	47743		Backfilled			18.90		49.94		1128	2042		8.53	8.53	41.41	1209 m	North East
6628-490	47587			Drainage	1966-04-01	8.53		38.86					7.92	7.92	30.94	1209 m	North West
6628-487	47584				1966-03-24	6.71		38.86								1209 m	North West
6628-18026	161851	LIBRARY PIER M13	Unknown		1965-01-28	11.28		40.75								1209 m	North West
6628-30	47130	RAH	Abandoned		1963-02-08	18.36		33.59					8.38	8.38	25.21	1211 m	North
6628-5	47105				1881-12-12	125.27		40.28		1671	3013		13.11	13.11	27.17	1211 m	North East
6628-88	47188	LIBRARY DM 1	Unknown		1964-12-16	12.98		40.58								1212 m	North West
6628-37	47137	PUBLIC BLDS. DPT	Abandoned		1964-05-28	18.29		30.16		1457	2631					1212 m	North
6628-24927	252950	MW 2		Investigation	2009-10-07	21.00										1212 m	West
6628-31	47131	PUBLIC BLDGS DPT	Abandoned		1963-02-13	18.29		34.59					5.79	5.79	28.80	1212 m	North
6628-483	47580				1964-10-01	17.20		38.92								1213 m	North West
6628-33	47133				1963-02-28	21.31		31.33								1214 m	North
6628-24929	252952	MW 3		Investigation	2009-10-08	20.50										1214 m	West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-24939	252998	MW 2		Investigation	2009-05-20	10.00							7.00	7.00		1215 m	East
6628-89	47189	LIBRARY DM 2	Unknown		1964-12-17	4.88		40.62								1216 m	North West
6628-44	47144	ADELAIDE UNI.	Abandoned		1969-03-06	21.34	36.00		7.50	2155	3874	0.1300	13.11	13.11	22.89	1217 m	North
6628-18021	161846	LIBRARY PIER A10	Unknown		1965-02-11	10.06		40.34								1217 m	North West
6628-43	47143	ADELAIDE UNI.	Abandoned		1969-04-03	25.91		34.08	6.90	2966	5300	0.2500	12.19	12.19	21.89	1221 m	North
6628-39	47139	PUB. BLDGS DEPT.			1966-08-02	5.79		29.16								1223 m	North
6628-21941	202235	MW 5		Monitoring	2004-08-23	20.30		42.70					17.20	17.20	25.50	1223 m	West
6628-18672	167087		Abandoned	Investigation; Managed Aquifer Recharge (incl ASR)	1997-11-05	30.00		39.89	7.80	1496	2700	2.0000				1224 m	South West
6628-18675	167090			Investigation	1997-11-05	30.00		39.89								1224 m	South West
6628-18673	167088			Investigation	1997-11-05	30.00		39.89								1224 m	South West
6628-18674	167089			Investigation	1997-11-05	30.00		39.89								1224 m	South West
6628-32	47132	RAH	Abandoned		1963-02-22	30.48		32.52					8.18	8.18	24.34	1224 m	North
6628-655	47744					12.19		50.17		1885	3395					1225 m	North East
6628-90	47190	LIBRARY DM 3	Unknown		1964-12-17	10.06		40.32								1226 m	North West
6628-27424	280495	BH13		Investigation	2014-08-08	15.00										1228 m	North East
6628-27426	280497	BH17		Investigation	2014-08-06	20.00										1228 m	North East
6628-19241	172406	A 2		Monitoring	1998-08-21	15.00		43.56					10.17	10.17	33.39	1230 m	West
6628-18270	164088			Observation	1996-10-17	18.50		41.01								1231 m	South
6628-485	47582				1964-09-24	20.22		38.13								1232 m	North West
6628-42	47142	ADELAIDE UNI.	Abandoned		1969-04-22	21.49	36.00		7.00	2155	3874	0.1300	12.19	12.19	23.81	1233 m	North
6628-21944	202238	MW 6		Monitoring	2004-08-28	22.00		42.29					17.40	17.40	24.89	1235 m	West
6628-507	47604	SBSA 541	Unknown		1954-03-05	18.29	37.60									1235 m	North West
6628-235	47335				1914-06-19	27.43		41.73		1456	2629	1.5200	21.34	21.34	20.39	1239 m	North West
6628-552	47649		Operational	Town Water Supply (Public/Municipal)	1934-09-01	32.00		41.16		800	1451	2.5300	8.84	8.84	32.32	1240 m	South
6628-504	47601	SBSA 564	Unknown		1956-04-23	16.76		39.98								1240 m	North West
6628-27427	280498	BH15		Investigation	2014-07-30	20.00										1240 m	North East
6628-503	47600	SBSA 563	Unknown		1956-04-19	16.81		39.97								1241 m	North West
6628-501	47598	SBSA 561	Unknown		1956-04-12	15.62		39.97								1241 m	North West
6628-502	47599	SBSA 562	Unknown		1956-04-17	18.29		39.97								1241 m	North West
6628-505	47602	SBSA 565	Unknown		1956-04-26	16.92		39.96								1241 m	North West
6628-41	47141	ADELAIDE UNI.	Abandoned		1969-05-08	18.29	30.00		7.00	1830	3297	0.2500	3.66	3.66	26.34	1242 m	North
6628-18512	165714			Investigation	1997-04-10	29.00		39.81		1776	3200	4.0000	10.00	10.00	29.81	1242 m	South West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-18418	164477			Observation	1997-03-20	4.50		43.23								1242 m	West
6628-36	47136	RAH	Abandoned		1964-06-02	18.29	30.00			1160	2100	0.6300	4.57	4.57	25.43	1244 m	North
6628-24928	252951	MW 1		Investigation	2009-10-06	25.00										1245 m	West
6628-22995	231396			Investigation	2007-01-09	15.60		42.93					15.50	15.50	27.43	1247 m	South West
6628-18417	164476			Observation	1997-03-20	4.50		43.15								1248 m	West
6628-556	47653					6.10		45.20	8.00	736	1334		1.98	1.98	43.22	1252 m	South
6628-27750	285059			Investigation	2015-03-25	15.00										1255 m	North East
6628-27853	285445			Investigation	2015-05-18	21.00										1255 m	West
6628-511	47608	SBSA 543	Unknown		1954-04-04	20.90	38.00					1.8900				1255 m	North West
6628-113	47213					60.96		29.49		1971	3547		3.10	3.10	26.39	1255 m	North
6628-27419	280490	BH9	Backfilled	Investigation	2014-07-28	15.00										1256 m	North East
6628-40	47140	ADELAIDE UNI.	Abandoned		1969-05-02	25.91		33.01	7.00	1455	2627	0.1300	12.19	12.19	20.82	1256 m	North
6628-573	47670		Backfilled			6.10		48.08		2271	4079					1256 m	South
6628-28022	287376		Backfilled	Investigation	2015-09-17	16.00										1258 m	North East
6628-18415	164474			Observation	1996-08-06	3.80		43.06					3.32	3.32	39.74	1258 m	West
6628-27751	285060			Investigation	2015-03-25	10.00										1259 m	North East
6628-20143	180521			Monitoring	2000-05-17	10.00		43.16				0.0100	5.50	5.50	37.66	1262 m	West
6628-140	47240	BOTANIC GARDENS						34.39		1213	2196					1263 m	North
6628-141	47241	BOTANIC GARDENS						34.39		1271	2300					1263 m	North
6628-139	47239	BOTANIC GARDENS						34.39		1299	2349					1263 m	North
6628-28520	289789		Backfilled		2015-05-18	20.50										1264 m	North East
6628-656	47745	SZ 78				9.14		51.04		1499	2705					1265 m	East
6628-28023	287377		Backfilled	Investigation	2015-09-25	16.50							14.00	14.00		1266 m	North East
6628-95	47195	FORENSIC LAB 1	Unknown		1966-12-08	6.71	39.11			2081	3740					1266 m	North West
6628-27428	280499	BH14		Investigation	2014-08-03	25.00										1266 m	North East
6628-499	47596	SBSA 568	Unknown		1956-05-08	16.76		38.85		860	1560					1268 m	North West
6628-500	47597	SBSA 542	Unknown		1954-03-18	18.29	37.35					0.2500				1268 m	North West
6628-18416	164475			Observation	1996-08-06	3.80		43.04					2.18	2.18	40.86	1269 m	West
6628-574	47671					6.10		47.60		3570	6355					1269 m	South
6628-59	47159	ATTC 10	Unknown		1957-07-23	30.48		39.55		1770	3190	1.2600	14.93	14.93	24.62	1270 m	North West
6628-498	47595	SBSA 567	Unknown		1956-05-04	16.76		38.82								1271 m	North West
6628-440	47537							37.07		1242	2247					1277 m	North West
6628-145	47245		Not In Use		1971-01-01	22.86	45.91	46.33	6.90	1245	2251		7.53	7.95	38.38	1277 m	North East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-497	47594	SBSA 566	Unknown		1956-05-01	15.85		38.63								1277 m	North West
6628-234	47334				1961-11-01	12.95		41.44								1278 m	North West
6628-96	47196	FORENSIC LAB 2	Unknown		1967-01-18	16.69	39.11									1281 m	North West
6628-20686	187681	ADELAIDE UNIVERSITY 1		Monitoring	2001-06-15	154.00		27.58		2290	4110					1282 m	North
6628-52	47152	ATTC 3	Unknown		1957-07-31	7.62		39.47								1282 m	North West
6628-28157	288499			Investigation	2016-02-08	20.00							5.40	5.40		1282 m	North West
6628-21102	195434			Drainage	2002-10-14	18.00		42.49					10.00	10.00	32.49	1284 m	South West
6628-28638	290476	CH 1535		Monitoring	2016-10-27	10.80										1286 m	North East
6628-23260	236057	GMW 1		Investigation	2008-01-21	6.00		27.01					3.70	3.70	23.31	1286 m	North
6628-58	47158	ATTC 9	Unknown		1957-07-29	7.92		38.69					1.22	1.22	37.47	1287 m	North West
6628-418	47515	PUB. BLDGS DEPT.			1974-02-07	19.90		37.22	7.70	2182	3920		14.35	14.35	22.87	1290 m	North West
6628-147	47247	UNION B 1	Unknown		1968-07-09	6.10		30.87								1290 m	North
6628-28651	290713			Investigation	2017-01-10	35.00										1292 m	West
6628-417	47514	PUBLIC BLDGS DPT	Abandoned		1974-02-08	14.50		37.01								1293 m	North West
6628-248	47348			Drainage	1960-03-24	21.95		41.91								1293 m	West
6628-23259	236055	GMW 2		Investigation	2008-01-21	6.00		27.19					3.70	3.70	23.49	1294 m	North
6628-53	47153	ATTC 4	Unknown		1957-08-05	7.62		38.76		357	649		1.22	1.22	37.54	1294 m	North West
6628-49	47149	UNION UR 1	Unknown		1968-05-29	6.48		33.13								1295 m	North
6628-28402	289373			Investigation	2016-04-05	25.00										1295 m	North West
6628-51	47151	ATTC 2	Unknown			8.53		38.96		2770	4957					1296 m	North West
6628-29888	313880			Investigation	2018-12-13	25.00										1297 m	West
6628-473	47570	BFBS 9	Unknown		1960-01-29	2.39	34.00									1297 m	North West
6628-11109	58078	KW 9	Unknown		1979-09-04	12.50	37.74									1298 m	North West
6628-148	47248	UNION B 2	Unknown		1968-07-09	6.10		29.95								1299 m	North
6628-21870	201056	MW 9		Investigation	2003-11-24	8.00		41.00								1300 m	South
6628-18419	164478			Observation	1997-03-20	4.50		42.89								1300 m	West
6628-50	47150	ATTC 1	Unknown		1957-06-26	15.24		38.72								1301 m	North West
6628-18420	164479			Observation	1997-03-20	3.50		42.87								1301 m	West
6628-544	47641			Drainage	1976-03-16	8.53		36.45								1302 m	North West
6628-146	47246	UNION UR 2	Unknown		1968-06-01	5.64		31.83								1302 m	North
6628-546	47643			Drainage	1976-04-03	9.14		36.45								1302 m	North West
6628-545	47642			Drainage	1976-03-23	5.18		36.45								1302 m	North West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-543	47640			Drainage	1976-03-04	6.70		36.42								1304 m	North West
6628-29856	313805	SOPH332822 SITE 7		Observation	2018-11-13	19.00				1558	2810		15.04	15.04		1305 m	North West
6628-18040	162222	MBA 6	Unknown		1957-05-14	6.10		41.77								1305 m	West
6628-474	47571	ANA 3	Unknown		1956-09-24	15.24		37.12								1305 m	North West
6628-472	47569	BFBS 3	Unknown		1960-01-22	15.24	34.00									1306 m	North West
6628-57	47157	ATTC 8	Unknown		1957-08-07	6.40		37.34								1307 m	North West
6628-14519	61488	GH 7	Abandoned	Investigation	1980-05-29	10.00	52.00									1307 m	South East
6628-28635	290473	CH 1490		Monitoring	2016-10-27	13.30										1309 m	North East
6628-469	47566	BFBS 8	Unknown		1960-01-27	3.79	34.00									1309 m	North West
6628-558	47655					9.75		41.90	7.00	800	1451		7.92	7.92	33.98	1310 m	South
6628-465	47562	ANA 1	Unknown		1956-09-14	10.72		35.76								1311 m	North West
6628-54	47154	ATTC 5	Unknown		1957-08-02	7.62		37.68		457	831		2.13	2.13	35.55	1311 m	North West
6628-452	47549		Operational	Drainage	1959-01-29	17.07	38.00					0.4500	14.33	14.33	23.67	1311 m	North West
6628-12924	59893		Operational	Town Water Supply (Public/Municipal)	1984-02-14	27.00	43.00		7.70	1160	2100	1.3800	5.40	5.40	37.60	1312 m	North East
6628-416	47513	PUB. BLDGS DEPT.			1974-02-06	12.22		36.01								1314 m	North West
6628-19033	169551				1992-11-01	23.00		39.77		2200	3952	3.7884				1314 m	South West
6628-468	47565	BFBS 2	Unknown		1960-01-19	18.29	35.50					1.5200				1315 m	North West
6628-25763	263835	BH 8			2011-01-10	19.80							5.00	5.00		1315 m	North
6628-471	47568	BFBS 4	Unknown		1960-01-22	3.15	34.00									1316 m	North West
6628-27141	278585			Investigation	2014-01-13	18.00										1316 m	West
6628-464	47561	BFBS 7	Unknown		1960-01-26	3.35	34.00									1316 m	North West
6628-536	47633							35.07								1318 m	North West
6628-152	47252		Abandoned		1968-08-23	6.40		32.30								1318 m	North
6628-156	47256		Abandoned		1968-08-23	7.31		32.30								1318 m	North
6628-155	47255		Abandoned		1968-08-23	6.71		32.30								1318 m	North
6628-154	47254		Abandoned		1968-08-23	4.27		32.30								1318 m	North
6628-153	47253		Abandoned		1968-08-23	8.53		32.30								1318 m	North
6628-467	47564	BFBS 5	Unknown		1960-01-25	2.59	34.00									1320 m	North West
6628-542	47639		Not Located		1974-09-27	11.00		36.18								1320 m	North West
6628-463	47560	BFBS 1	Unknown		1960-01-11	15.24	34.00									1321 m	North West
6628-142	47242		Abandoned		1964-09-22	15.09		29.15		1597	2880		3.50	3.50	25.65	1322 m	North
6628-415	47512	PUB. BLDGS DEPT.			1974-02-01	19.45		35.49	7.80	1508	2720		10.70	10.70	24.79	1322 m	North West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-151	47251	UNION B 6	Unknown		1968-05-13	7.92		28.50								1323 m	North
6628-27420	280491	BH6		Investigation	2014-07-27	25.00										1323 m	North East
6628-17122	148676			Investigation	1995-01-29	7.00		40.47								1325 m	North East
6628-56	47156	ATTC 7	Unknown		1957-08-08	6.10		35.75								1325 m	North West
6628-470	47567	ANA 4	Unknown		1956-09-27	15.09		36.40								1326 m	North West
6628-508	47605	GROSVENOR 1	Unknown		1955-12-19	3.96	65.68									1326 m	North West
6628-462	47559	BFBS 6	Unknown		1960-01-26	2.74	34.00									1327 m	North West
6628-732	47806			Observation	1976-07-02	123.00	40.40	39.50	7.50	2835	5070					1327 m	South West
6628-27142	278586			Investigation	2014-01-10	18.00										1328 m	West
6628-29855	313804	SOPN332821 SITE 1	Dry	Observation	2018-11-08	8.70										1328 m	North West
6628-22747	228094	BH 4E		Investigation	2007-02-09	6.00		26.42					5.10	5.10	21.32	1329 m	North
6628-27756	285065			Investigation	2015-03-22	20.00										1330 m	North East
6628-29854	313803	SOPN332820 SITE 1		Observation	2018-11-26	41.50				1698	3060		13.21	13.21		1330 m	North West
6628-29850	313799	SOPN332816 SITE 1		Observation	2018-11-07	23.00				718	1302		13.31	13.31		1330 m	North West
6628-28634	290472	CH 1460	Backfilled		2016-11-29	14.30										1331 m	North East
6628-18039	162221	MBA 1	Unknown		1957-05-09	6.10		41.69								1331 m	West
6628-27749	285058			Investigation	2015-03-23	15.00										1331 m	North East
6628-17121	148675			Investigation	1995-01-29	6.20		40.44								1332 m	North East
6628-17124	148678			Investigation	1995-01-28	10.00		41.00					4.30	4.30	36.70	1332 m	North East
6628-466	47563	ANA 2	Unknown		1956-09-18	10.67		35.84								1333 m	North West
6628-150	47250	UNION B 5	Unknown		1968-07-13	4.88		28.68								1336 m	North
6628-8986	55955	PUB. BLDGS. DEPT		Exploration	1979-01-26	12.00	35.30									1336 m	North West
6628-55	47155	ATTC 6	Unknown		1957-07-15	30.48		35.75		2370	4254	0.1300	12.19	12.19	23.56	1336 m	North West
6628-27272	279793	LAKE BORE 9				6.00	33.09	32.97					2.86	2.74	30.23	1336 m	North
6628-28153	288493			Investigation	2016-03-06	35.00										1337 m	North West
6628-28220	288585	MW 2		Investigation	2015-05-15	5.50										1337 m	North East
6628-17123	148677			Investigation	1995-01-29	8.00		41.26								1338 m	North East
6628-149	47249	UNION B 3	Unknown		1968-07-11	6.20		31.31								1339 m	North
6628-144	47244		Backfilled		1955-01-01	39.62		44.16				0.7600				1341 m	North East
6628-27266	279787	LAKE BORE 3				6.00	33.27	33.25					2.64	2.62	30.63	1342 m	North
6628-27752	285061			Investigation	2015-03-26	20.00										1343 m	North East
6628-27265	279786	LAKE BORE 2				6.00	33.49	33.37					2.09	1.97	31.40	1343 m	North

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-28221	288586	MW 3		Investigation	2015-05-14	6.50							4.50	4.50		1344 m	North East
6628-100	47200					10.06		44.92		1499	2705					1346 m	North East
6628-341	47441					33.53		42.61								1346 m	West
6628-8985	55954	PUB. BLDGS. DEPT		Exploration	1979-01-26	6.50	30.00									1347 m	North West
6628-28636	290474	MB 2	Backfilled	Monitoring	2016-07-22	7.80										1347 m	North East
6628-17125	148679			Investigation	1995-01-29	7.70		41.21								1347 m	North East
6628-27267	279788	LAKE BORE 4				6.00	33.09	33.01					2.55	2.47	30.54	1349 m	North
6628-27421	280492	BH8		Investigation		25.00										1350 m	North East
6628-29857	313806	SOPN332823 SITE 2		Observation	2018-11-09	12.00				1340	2420		7.60	7.60		1350 m	North West
6628-439	47536				1966-08-02	5.79		36.37								1352 m	North West
6628-18011	161252			Observation	1996-06-10	7.50		33.70								1352 m	North West
6628-11110	58079	KW 10A	Unknown		1979-09-01	12.50	37.26									1352 m	North West
6628-28381	289344	GWH		Investigation	2016-02-27	11.00							9.56	9.56		1353 m	North West
6628-461	47558	GROSVENOR 3	Unknown		1956-01-10	8.53	69.68									1356 m	North West
6628-27268	279789	LAKE BORE 5				6.00	33.13	33.00					2.76	2.63	30.37	1358 m	North
6628-28637	290475	CH 1430		Monitoring	2016-10-31	13.30										1358 m	North East
6628-28382	289345	GWF	Not Located	Investigation	2016-02-24	12.00							9.56	9.56		1359 m	North West
6628-18012	161253			Observation	1996-06-10	7.20		34.67								1360 m	North West
6628-460	47557	GROSVENOR 4	Unknown		1956-03-06	20.73	34.00					0.5100				1361 m	North West
6628-128	47228	ROMMILLY CHAMBER						36.88								1363 m	North East
6628-27755	285064			Investigation	2015-03-19	20.00										1364 m	North East
6628-29853	313802	SOPN332819 SITE 6	Backfilled	Observation	2018-11-14	17.84				1642	2960		12.68	12.68		1365 m	North West
6628-28138	288426	BH 23			2015-03-18	15.00										1370 m	North East
6628-28383	289346	GWE	Not Located	Investigation	2016-02-26	12.00							9.56	9.56		1370 m	North West
6628-29761	313506			Monitoring	2018-10-24	8.00										1371 m	North
6628-30242	316764		Dry	Monitoring	2019-06-06	17.00										1371 m	North West
6628-22243	206417		Dry	Monitoring	2005-07-18	15.00		41.62								1372 m	West
6628-27753	285062			Investigation	2015-03-17	9.00										1373 m	North East
6628-27883	285614	BG IMP 4														1374 m	North
6628-28219	288584	MW 1		Investigation	2015-05-15	6.00							3.80	3.80		1374 m	North East
6628-22182	206189			Monitoring	2005-07-04	7.00		30.55		1064	1925		4.00	4.00	26.55	1376 m	North
6628-27269	279790	LAKE BORE 6				6.00	33.26	33.11					3.09	2.94	30.17	1376 m	North

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-22181	206188			Monitoring	2005-07-04	7.00		30.40		1434	2590		4.00	4.00	26.40	1377 m	North
6628-459	47556	GROSVENOR 2	Unknown		1955-12-20	7.70	69.68									1377 m	North West
6628-28134	288421	BH 49	Backfilled			29.10										1377 m	North
6628-22152	205640	N117B (BG1)	Not In Use	Monitoring	2005-03-08	186.00		35.18	7.70	2460	4410		3.40	3.40	31.78	1380 m	North
6628-513	47610	SA RAILWAYS			1966-08-26	6.25		32.58					4.27	4.27	28.31	1380 m	North West
6628-27429	280500	BH7			2014-08-11	20.00										1381 m	North East
6628-27264	279785	LAKE BORE 1				6.00	34.88	34.85					3.84	3.81	31.04	1385 m	North
6628-28385	289348	GWB	Backfilled		2016-02-09	13.00										1385 m	North West
6628-457	47554				1968-12-03	14.63		37.54								1386 m	North West
6628-11111	58080	GH 157	Abandoned	Investigation	1979-08-30	13.83	35.93									1388 m	North West
6628-22266	206473	MW 6		Monitoring	2005-08-11	6.00		35.57								1389 m	North East
6628-22183	206190			Monitoring	2005-07-05	7.00		30.52		1031	1867		4.00	4.00	26.52	1390 m	North
6628-535	47632		Not Located					31.91								1392 m	North West
6628-27271	279792	LAKE BORE 8				6.00	34.34	34.28					3.43	3.37	30.91	1394 m	North
6628-25549	262162	MW 12			2009-10-10	6.00										1394 m	West
6628-27881	285612	BG IMP 2														1394 m	North
6628-28159	288504		Not Located	Investigation	2016-02-10	25.00										1395 m	North West
6628-29530	307495			Environmental	2017-09-13	8.00										1396 m	East
6628-25550	262163	MW 12		Investigation	2009-10-10	6.00										1397 m	West
6628-22265	206472	MW 5		Monitoring	2005-08-11	6.00		35.78								1397 m	North East
6628-29531	307496			Environmental	2017-09-14	8.00										1398 m	East
6628-24566	245586	BG WEST BORE	Operational	Managed Aquifer Recharge (incl ASR)	2009-02-06	130.00		33.84		3218	5740	15.0000	5.60	5.60	28.24	1398 m	North
6628-27880	285611	BG IMP 1														1401 m	North
6628-28386	289349	GWA	Not Located	Investigation		10.00							9.58	9.58		1401 m	North West
6628-23080	234232			Investigation	2007-07-19	17.30		41.56								1402 m	West
6628-22247	206422		Backfilled	Monitoring	2005-07-15	22.00		41.55					19.00	19.00	22.55	1403 m	West
6628-28111	288286			Investigation	2015-12-15	25.00							4.00	4.00		1405 m	North
6628-91	47191	CHEMISTRY BLDG 1	Unknown		1961-11-29	24.38		29.88		1999	3597		6.10	6.10	23.78	1405 m	North West
6628-94	47194		Abandoned		1959-09-30	15.24	29.00			1070	1938	0.6300	5.99	5.99	23.01	1405 m	North
6628-29759	313485			Monitoring	2018-10-24	7.00										1406 m	North
6628-22270	206477	MW 11		Monitoring	2005-08-12	6.00		35.93								1407 m	North East
6628-28110	288285			Investigation	2015-12-16	25.00							4.00	4.00		1407 m	North

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-8	47108	S.A.I.T.	Abandoned		1964-06-23	14.33		28.38					3.05	3.05	25.33	1408 m	North
6628-24932	252966	GW 1		Investigation	2009-08-14	23.00							16.00	16.00		1408 m	West
6628-534	47631							32.59		1351	2440					1410 m	North West
6628-28633	290471	CH 1390			2016-10-31	13.30										1410 m	North East
6628-29858	313807	SOPH332824 SITE 3		Observation	2018-11-09	12.00				1222	2210		8.16	8.16		1411 m	North West
6628-533	47630							32.59								1411 m	North West
6628-28384	289347	GWC	Not Located	Investigation	2016-02-12	13.00							9.70	9.70		1413 m	North West
6628-6	47106	BOTANIC GARDENS			1914-10-01	6.86	32.00			942	1707	3.7900	3.66	3.66	28.34	1413 m	North
6628-25030	253378	SBGW 29			2009-12-07	11.88	52.09			1105	2000		7.89	7.89	44.20	1413 m	South East
6628-9	47109	S.A.I.T.	Abandoned		1964-06-25	9.14		28.72					3.05	3.05	25.67	1415 m	North
6628-27882	285613	BG IMP 3														1416 m	North
6628-27270	279791	LAKE BORE 7				6.00	33.37	33.19					3.26	3.08	30.11	1417 m	North
6628-28158	288503		Not Located	Investigation	2016-02-12	25.00										1417 m	North West
6628-27884	285615	BG IMP 4														1418 m	North
6628-575	47672				1914-09-22	7.31	42.00					0.1900	5.18	5.18	36.82	1418 m	South
6628-28160	288505				2016-02-16	35.00										1420 m	North West
6628-458	47555	SZ 76			1968-01-01	12.80	2.00									1420 m	North West
6628-22267	206474	SB 6		Monitoring	2005-08-12	5.70		36.25								1420 m	North East
6628-26859	275265	MW 46		Investigation	2012-10-29	26.00							18.40	18.40		1421 m	West
6628-23719	241390	MW 25		Investigation	2008-03-26	20.00		41.58					18.00	18.00	23.58	1422 m	West
6628-22271	206478	MW 12			2005-08-12	6.00		36.43								1423 m	North East
6628-11113	58082	DEPT-TRANSPORT		Observation	1979-08-02	16.00	35.58		7.10	994	1800		11.76	11.76	23.82	1425 m	North West
6628-24567	245587	BG EAST BORE	Operational	Managed Aquifer Recharge (incl ASR)	2009-02-26	183.00		33.48		2824	5050	12.0000	6.10	6.10	27.38	1426 m	North
6628-11112	58081	KW 12	Unknown		1979-09-02	10.41	33.63									1427 m	North West
6628-10	47110	S.A.I.T.	Abandoned		1964-09-18	5.03		29.38					3.35	3.35	26.03	1427 m	North
6628-554	47651			Observation		135.00	52.47	52.10	7.70	1224	2214	0.8300	18.51	18.15	33.96	1427 m	South East
6628-31041	353600	SB17/MW 3		Investigation	2008-03-13	20.80	42.17	42.32					16.90	17.05	25.27	1428 m	West
6628-30987	352545		Backfilled													1429 m	West
6628-28488	289674	MW 4			2016-03-30	8.50							6.00	6.00		1430 m	East
6628-23867	241844			Investigation	2008-09-24	26.00		40.61					15.00	15.00	25.61	1433 m	South West
6628-22180	206187			Monitoring	2005-07-04	7.00		28.98		1580	2850		3.80	3.80	25.18	1433 m	North
6628-28790	293882	MW 3		Investigation	2016-10-22	7.00	43.15	43.23					4.20	4.28	38.95	1433 m	North East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-7	47107					6.71		34.80								1435 m	North
6628-22268	206475	MW 9		Monitoring	2005-08-11	6.00		36.69								1435 m	North East
6628-24938	252997	MW 1			2009-05-20	10.00							5.00	5.00		1436 m	East
6628-24717	247055				2008-09-06	25.00		39.81		603	1097	0.6666	7.50	7.50	32.31	1436 m	South
6628-27423	280494	BH4	Backfilled	Investigation		10.00										1438 m	North East
6628-29355	306548	MW 10		Investigation	2017-10-03	8.00							3.70	3.70		1439 m	East
6628-230	47330				1905-01-01	83.82		38.02		1856	3343	3.1600	17.98	17.98	20.04	1439 m	North West
6628-27760	285069	BH 20		Investigation	2015-03-17	11.00							3.00	3.00		1439 m	North East
6628-22245	206420		Dry	Monitoring	2005-02-21	15.00		41.42								1440 m	West
6628-509	47606					3.66	34.00			400	727	0.0100				1442 m	North West
6628-28112	288287			Investigation	2015-12-13	25.00							4.10	4.10		1442 m	North
6628-29852	313801	SOPN332818 SITE 5		Observation	2018-11-11	13.00				2114	3800		9.87	9.87		1442 m	North West
6628-22269	206476	MW 10		Monitoring	2005-08-11	6.00		36.87								1443 m	North East
6628-26300	269231	DW		Drainage	2008-09-03	180.00						2.5000	8.00	8.00		1443 m	North
6628-529	47626							31.11								1444 m	North West
6628-29532	307497			Environmental	2017-09-13	8.00										1444 m	East
6628-26860	275266	MW 47		Investigation	2012-10-30	25.50							18.50	18.50		1447 m	West
6628-23718	241389	MW 24			2008-03-23	20.00		41.51					18.00	18.00	23.51	1448 m	West
6628-530	47627							30.87								1451 m	North West
6628-28791	293883	MW 4		Investigation	2016-10-22	5.00	43.80	43.90					4.00	4.10	39.80	1458 m	North East
6628-28908	295109	MW 1B	Backfilled	Investigation	2017-06-07	23.60							20.50	20.50		1459 m	West
6628-27764	285089				2015-04-23	13.00							12.50	12.50		1460 m	West
6628-31040	353599	SB10/MW 1		Investigation	2008-03-11	17.00	41.84	41.91					13.70	13.77	28.14	1461 m	West
6628-24933	252967	GW 2		Investigation	2009-08-14	21.00							17.00	17.00		1462 m	West
6628-29851	313800	SOPN332817 SITE 4		Observation	2018-11-10	12.00				1075	1945		7.65	7.65		1462 m	North West
6628-414	47511				1970-12-18	14.78		29.84					4.57	4.57	25.27	1463 m	North West
6628-577	47674				1934-01-01	9.14		39.34	7.00	2030	3652		3.66	3.66	35.68	1464 m	South
6628-28903	295104	MW 32A	Backfilled	Investigation	2017-06-05	23.30							20.50	20.50		1465 m	West
6628-30500	331492			Monitoring	2019-11-08	9.00							4.60	4.60		1466 m	North East
6628-28789	293881	MW 2		Investigation	2016-10-22	7.00	43.31	43.39					4.50	4.58	38.81	1467 m	North East
6628-23717	241388	MW 23			2008-03-26	20.00		41.72					18.00	18.00	23.72	1467 m	West
6628-22151	205639	N117A (VPR1-VPR2)	Unknown	Investigation; Managed Aquifer Recharge (incl ASR)	2005-03-10	224.00		54.46		2932	5240	8.0000				1468 m	South East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-23786	241567	MW 1		Investigation	2008-08-22	19.00		41.96					16.00	16.00	25.96	1468 m	West
6628-31039	353598	SB6/MW2		Investigation	2008-03-12	20.00	41.81	41.87					16.90	16.95	24.91	1469 m	West
6628-23787	241568	MW 2		Investigation	2008-08-22	19.00		41.94					16.00	16.00	25.94	1471 m	West
6628-28906	295107	MW 49	Backfilled	Investigation	2017-06-03	23.70							19.30	19.30		1471 m	West
6628-23715	241386	GMW 21		Investigation	2008-03-27	18.30		41.94					17.20	17.20	24.74	1472 m	West
6628-17483	153197			Domestic	1995-09-22	30.00		51.00	7.20	1575	2840	0.5000				1473 m	South East
6628-28905	295106	MW 40A	Backfilled	Investigation	2017-05-31	24.00							19.00	19.00		1475 m	West
6628-27422	280493	BH2		Investigation		10.00										1475 m	North
6628-28849	294686		Backfilled	Monitoring	2017-04-08	7.80							5.00	5.00		1475 m	North East
6628-22622	218969	GMW 3		Investigation	2006-09-06	18.00		42.19					15.25	15.25	26.94	1475 m	West
6628-28904	295105	MW 64A		Investigation	2017-05-31	15.00										1475 m	West
6628-23716	241387	MW 22			2008-03-27	19.50		41.87					18.00	18.00	23.87	1476 m	West
6628-531	47628							28.31								1477 m	North West
6628-22623	218970	GMW 2		Investigation	2006-09-06	18.00		42.19					15.12	15.12	27.07	1481 m	West
6628-22179	206186			Monitoring	2005-07-05	7.00		30.48		1337	2415		3.80	3.80	26.68	1481 m	North
6628-527	47624							28.67								1482 m	North West
6628-22178	206185			Monitoring	2005-07-05	7.00		30.35		979	1772		3.80	3.80	26.55	1482 m	North
6628-576	47673				1914-09-09	7.77	42.00					0.1500	5.18	5.18	36.82	1483 m	South
6628-24934	252968	GW 3		Investigation	2009-08-17	20.00							16.50	16.50		1483 m	West
6628-28792	293908		Backfilled	Investigation	2017-04-07	9.00										1484 m	North East
6628-16973	147785			Domestic	1995-01-19	24.00		49.20	7.00	1597	2880					1485 m	South
6628-22246	206421			Monitoring	2005-07-20	22.00		41.84					19.00	19.00	22.84	1490 m	West
6628-27069	277898				2013-09-19	30.00				682	1239	0.7000				1492 m	South
6628-22244	206419			Monitoring	2005-07-19	21.00		41.75					19.00	19.00	22.75	1493 m	West
6628-13529	60498			Observation	1985-11-27	18.00	30.00		7.60	1334	2410	1.0000	5.00	5.00	25.00	1493 m	North
6628-22581	218505	GMW 1		Investigation	2006-06-09	16.00		42.10					14.90	14.90	27.20	1495 m	West
6628-13307	60276		Operational	Observation	1985-04-16	19.00	30.70	30.01	6.90	1199	2170	3.0000	5.16	4.47	25.54	1496 m	North
6628-30499	331491		Dry	Monitoring	2019-11-09	9.00										1496 m	North East
6628-28788	293880	MW 1		Investigation	2016-10-22	7.50	44.05	44.11					4.30	4.36	39.75	1499 m	North East
6628-13528	60497			Exploration; Observation	1985-11-22	18.00	30.00					0.5000	5.00	5.00	25.00	1502 m	North
6628-11753	58722		Abandoned			12.55		41.12	8.50	882	1600		6.35	6.35	34.77	1507 m	West
6628-98	47198					6.71		44.45		1257	2274					1509 m	North East
6628-28793	293909		Backfilled	Investigation	2017-04-07	7.50							4.00	4.00		1513 m	North East
6628-26400	270219					21.00										1515 m	South East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-532	47629							26.29								1516 m	North West
6628-24935	252969	GW 4		Investigation	2009-08-17	20.00							16.50	16.50		1516 m	West
6628-22753	228159	MW 40		Investigation	2007-01-25	7.10		25.93					4.00	4.00	21.93	1518 m	North West
6628-23685	240312				2008-04-28	24.00		50.13		1490	2690	0.2000	8.00	8.00	42.13	1520 m	South East
6628-28907	295108	MW 65A	Backfilled	Investigation	2017-06-08	15.00										1525 m	West
6628-570	47667							53.84		4883	8616					1525 m	South East
6628-28604	290359	SB04/GW 1			2016-08-25	6.00							5.22	5.22		1526 m	North East
6628-551	47648		Unknown		1949-01-01	141.73		56.64		1671	3013	1.8900	17.07	17.07	39.57	1526 m	South East
6628-28037	287438	GW 3		Investigation	2015-10-18	19.40							16.00	16.00		1527 m	West
6628-27201	279285	MB 71		Investigation	2014-03-04	6.00										1529 m	North West
6628-27532	281052		Backfilled	Investigation	2014-11-20	19.50							18.80	18.80		1531 m	West
6628-572	47669					52.43		53.49		757	1374	1.5100	14.33	14.33	39.16	1533 m	South East
6628-653	47742					7.62	54.00			1413	2552	0.0400	7.01	7.01	46.99	1536 m	East
6628-28605	290360	GW 2			2016-08-25	7.00							4.97	4.97		1536 m	North East
6628-571	47668					7.62		53.85		385	700					1538 m	South East
6628-528	47625	ADELAIDE COUNCIL				9.45		24.92					7.16	7.16	17.76	1539 m	North West
6628-17804	156084			Domestic	1996-03-04	24.00		55.84	7.50	1188	2150	0.5000				1541 m	East
6628-31234	355061		Dry	Environmental	2021-04-12	15.20										1543 m	North West
6628-28038	287439	GW 1		Investigation	2015-10-18	20.80							16.16	16.16		1544 m	West
6628-27200	279284	MB 70		Investigation	2014-03-04	6.00										1550 m	North West
6628-26482	271046		Backfilled			16.50										1554 m	North West
6628-708	47782					44.81		38.74		2860	5114					1554 m	South West
6628-453	47550	MORPHETT BRIDGES 1	Unknown		1964-06-23	18.23		34.53								1555 m	North West
6628-27494	280771	RW 55		Investigation		5.00										1556 m	North West
6628-27754	285063			Investigation	2015-03-18	15.00										1559 m	North
6628-27493	280770	RW 54		Investigation	2013-08-14	5.00							2.70	2.70		1561 m	North West
6628-27473	280750	RW 34		Investigation	2013-08-05	5.00							2.70	2.70		1562 m	North West
6628-22756	228162	MW 46		Investigation	2007-01-25	9.00		25.57					6.40	6.40	19.17	1566 m	North West
6628-27474	280751	RW 35				5.00							2.70	2.70		1567 m	North West
6628-27492	280769	RW 53		Investigation	2013-08-14	5.00										1567 m	North West
6628-27472	280749	RW 33		Investigation	2013-08-05	5.00							2.70	2.70		1568 m	North West
6628-26362	269872	BH 2	Backfilled	Investigation	2012-02-25	36.00										1571 m	North West
6628-28004	287357	MW 6	Backfilled		2014-10-31	20.60										1572 m	West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-27291	280017	GW 2		Investigation	2014-06-17	9.00							5.15	5.15		1573 m	North
6628-27491	280768	RW 52		Investigation	2013-08-13	5.00							2.70	2.70		1573 m	North West
6628-27471	280748	RW 32		Investigation		5.00							2.70	2.70		1573 m	North West
6628-27475	280752	RW 36		Investigation		5.00							2.70	2.70		1573 m	North West
6628-27292	280018	GW 3		Investigation	2014-06-17	5.00							2.30	2.30		1574 m	North
6628-24612	245752	MW 40		Investigation	2009-02-05	14.00		39.70					11.00	11.00	28.70	1574 m	South West
6628-27022	276105	RW 12		Investigation	2013-07-25	5.00							2.70	2.70		1575 m	North West
6628-24606	245746	MW 34		Investigation	2009-02-03	14.00		39.98								1576 m	South West
6628-22976	231189	MW 22		Investigation	2006-11-24	11.00		39.69					9.10	9.10	30.59	1577 m	South West
6628-24608	245748	MW 36		Investigation	2009-02-04	14.00		39.93					11.40	11.40	28.53	1577 m	South West
6628-568	47665					4.88		54.83		3242	5784		3.35	3.35	51.48	1577 m	South East
6628-27476	280753	RW 37		Investigation		5.00							2.70	2.70		1578 m	North West
6628-22654	219268	GWM 9		Investigation	2006-11-20	11.00		39.94					9.10	9.10	30.84	1578 m	South West
6628-24605	245745	MW 33		Investigation	2009-02-03	14.00		40.19					10.10	10.10	30.09	1578 m	South West
6628-27490	280767	RW 51		Investigation	2013-08-13	5.00										1578 m	North West
6628-27470	280747	RW 31		Investigation	2013-08-02	5.00							2.70	2.70		1579 m	North West
6628-559	47656					6.10		38.87	7.00	3385	6032					1579 m	South
6628-15727	62696		Operational	Domestic	1991-09-20	13.80		56.64				0.7500	6.10	6.10	50.54	1579 m	East
6628-22967	231180	MW 11		Investigation	2006-11-21	11.00		39.99					9.10	9.10	30.89	1580 m	South West
6628-27021	276104	RW 11		Investigation	2013-07-23	5.00							2.70	2.70		1580 m	North West
6628-27023	276106	RW 13		Investigation	2013-07-25	5.00							2.70	2.70		1580 m	North West
6628-24609	245749	MW 37		Investigation	2009-02-04	14.00		39.83					11.30	11.30	28.53	1581 m	South West
6628-13242	60211		Operational	Domestic	1985-01-15	11.00	54.00		7.80	1272	2300	0.6300	6.70	6.70	47.30	1583 m	East
6628-27489	280766	RW 50		Investigation		5.00							2.70	2.70		1583 m	North West
6628-27477	280754	RW 38		Investigation	2013-08-07	5.00							2.70	2.70		1584 m	North West
6628-22975	231188	MW 19		Investigation	2006-11-24	11.00		39.45					9.30	9.30	30.15	1584 m	South West
6628-27469	280746	RW 30		Investigation	2013-08-02	5.00							2.70	2.70		1585 m	North West
6628-27024	276107	RW 14		Investigation	2013-07-26	5.00							2.70	2.70		1585 m	North West
6628-27020	276103	RW 10		Investigation	2013-07-25	5.00										1586 m	North West
6628-24611	245751	MW 39		Investigation	2009-02-05	14.00		39.94					10.80	10.80	29.14	1587 m	South West
6628-22759	228166	MW 45		Investigation	2007-02-18	9.00		25.61					6.40	6.40	19.21	1587 m	North West
6628-454	47551	MORPHETT BRIDGES 2	Unknown		1964-06-16	17.07		32.78								1588 m	North West
6628-13126	60095		Operational	Drainage	1984-11-20	8.00		56.21	7.50	1418	2560	0.4500				1588 m	East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-569	47666					3.35		54.75		1699	3063		1.52	1.52	53.23	1588 m	South East
6628-27488	280765	RW 49		Investigation		5.00							2.70	2.70		1589 m	North West
6628-27468	280745	RW 29		Investigation		5.00							2.70	2.70		1590 m	North West
6628-27478	280755	RW 39		Investigation		5.00							2.70	2.70		1590 m	North West
6628-27025	276108	RW 15		Investigation	2013-07-26	5.00							2.70	2.70		1591 m	North West
6628-456	47553	MORPHETT BRIDGES 16	Unknown		1964-06-30	15.24		31.50								1591 m	North West
6628-27019	276102	RW 9		Investigation	2013-07-24	5.00							2.70	2.70		1591 m	North West
6628-22758	228165	MW 43		Investigation	2007-01-29	7.00		24.04					4.40	4.40	19.64	1591 m	North West
6628-22970	231183	MW 14		Investigation	2006-11-22	11.00		40.04					9.20	9.20	30.84	1592 m	South West
6628-27515	280909	MW 2	Backfilled	Investigation	2014-07-14	4.30							1.70	1.70		1593 m	West
6628-438	47535	SAR INSTITUTE 1	Unknown		1970-01-30	18.29	57.91									1594 m	North West
6628-20795	190003			Domestic	2001-12-22	22.50		40.31		1005	1820	1.0000	7.00	7.00	33.31	1594 m	North East
6628-24602	245742	MW 30		Investigation	2009-02-02	14.00		39.79					11.40	11.40	28.39	1594 m	South West
6628-27487	280764	RW 48		Investigation	2013-08-12	5.00							2.70	2.70		1595 m	North West
6628-27479	280756	RW 40				5.00										1595 m	North West
6628-24607	245747	MW 35		Investigation	2009-02-04	14.00		40.01					8.00	8.00	32.01	1595 m	South West
6628-23802	241631	MW 29		Investigation	2008-07-11	14.00		39.96					12.00	12.00	27.96	1596 m	South West
6628-23801	241630	MW 28		Investigation	2008-07-11	14.00		39.85					12.00	12.00	27.85	1596 m	South West
6628-13943	60912				1987-03-03	11.50		56.16		1390	2510	0.4400	6.00	6.00	50.16	1596 m	East
6628-27026	276109	RW 16		Investigation	2013-07-26	5.00							2.70	2.70		1596 m	North West
6628-24603	245743	MW 31		Investigation	2009-02-02	14.00		40.18					9.40	9.40	30.78	1596 m	South West
6628-27038	276121	RW 28		Investigation	2013-08-01	5.00							2.70	2.70		1596 m	North West
6628-27018	276101	RW 8		Investigation	2013-07-24	5.00							2.70	2.70		1597 m	North West
6628-22972	231185	MW 16		Investigation	2006-11-22	11.00		39.63					9.20	9.20	30.43	1598 m	South West
6628-18269	164087		Abandoned	Investigation	1996-10-16	20.00		40.78								1598 m	South West
6628-23800	241629	MW 27		Investigation	2008-07-11	14.00		40.04					12.00	12.00	28.04	1598 m	South West
6628-22978	231191	MW 20		Investigation	2006-11-24	11.00		39.41					9.30	9.30	30.11	1598 m	South West
6628-28005	287358	MW 7	Backfilled													1599 m	West
6628-27486	280763	RW 47		Investigation	2013-08-12	5.00										1600 m	North West
6628-24610	245750	MW 38		Investigation	2009-02-05	14.00		39.81					11.00	11.00	28.81	1600 m	South West
6628-27516	280910	MW 3	Backfilled	Investigation	2014-07-14	4.00							1.80	1.80		1600 m	West
6628-22971	231184	MW 15		Investigation	2006-11-22	11.00		39.83					9.10	9.10	30.73	1601 m	South West
6628-27037	276120	RW 27		Investigation	2013-08-01	5.00							2.70	2.70		1601 m	North West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-27480	280757	RW 41		Investigation	2013-08-08	5.00							2.70	2.70		1601 m	North West
6628-27027	276110	RW 17		Investigation	2013-07-29	5.00							2.70	2.70		1602 m	North West
6628-24624	245776			Investigation	2008-03-06	20.20		41.68								1602 m	West
6628-27622	284356		Backfilled		2014-11-11	20.50							18.50	18.50		1602 m	West
6628-28146	288463	GW 1		Monitoring	2016-02-03	21.50							19.20	19.20		1602 m	West
6628-27017	276100	RW 7		Investigation	2013-07-24	5.00							2.70	2.70		1602 m	North West
6628-22898	230072	GMW 23		Investigation	2007-05-31	12.00		40.19					8.20	8.20	31.99	1604 m	South West
6628-28007	287360	MW 11	Backfilled			2.50										1604 m	West
6628-22653	219267	MW 8		Investigation	2006-11-21	11.00		39.77					9.25	9.25	30.52	1605 m	South West
6628-413	47510							22.18		285	518					1605 m	North West
6628-22757	228163	MW 44		Investigation	2007-02-18	9.00		25.69					6.40	6.40	19.29	1606 m	North West
6628-22966	231179	MW 10		Investigation	2006-11-21	11.00		39.99					9.10	9.10	30.89	1606 m	South West
6628-22652	219256	GMW 7		Investigation	2006-09-14	10.10		39.81					9.10	9.10	30.71	1606 m	South West
6628-16014	62983		Abandoned	Domestic	1992-02-14	16.00		40.43		989	1791		5.70	5.70	34.73	1606 m	North East
6628-27481	280758	RW 42		Investigation		5.00							2.70	2.70		1606 m	North West
6628-27485	280762	RW 46		Investigation	2013-08-09	5.00							2.70	2.70		1606 m	North West
6628-27036	276119	RW 26			2013-08-01	5.00							2.70	2.70		1607 m	North West
6628-27028	276111	RW 18		Investigation	2013-07-29	5.00										1607 m	North West
6628-27016	276099	RW 6		Investigation	2013-07-23	5.00							2.70	2.70		1608 m	North West
6628-13444	60413				1984-11-29	160.00		41.68				2.0000	20.00	20.00	21.68	1608 m	West
6628-515	47612				1926-10-07	29.57		25.35								1609 m	North West
6628-23798	241627	MW 25		Investigation	2008-07-10	14.00		39.90					12.00	12.00	27.90	1610 m	South West
6628-28006	287359	MW 9	Backfilled			2.50							2.00	2.00		1610 m	West
6628-22897	230036	GMW 24		Investigation	2007-05-31	12.00		40.18					8.30	8.30	31.88	1611 m	South West
6628-23799	241628	MW 26		Investigation	2008-07-10	14.00		40.03					12.00	12.00	28.03	1611 m	South West
6628-27482	280759	RW 43				5.00							2.70	2.70		1612 m	North West
6628-27484	280761	RW 45		Investigation	2013-08-09	5.00							2.70	2.70		1612 m	North West
6628-27035	276118	RW 25		Investigation		5.00							2.70	2.70		1612 m	North West
6628-28244	288750					20.00										1613 m	West
6628-25936	265259	MW 4	Backfilled	Investigation	2014-08-25	21.00							18.50	18.50		1613 m	West
6628-27015	276098	RW 5		Investigation	2013-07-23	5.00							2.70	2.70		1613 m	North West
6628-27029	276112	RW 19		Investigation	2013-07-29	5.00							2.70	2.70		1613 m	North West
6628-25020	253368	SBGW 67		Monitoring	2009-11-23	11.87	28.24			1754	3160		7.43	7.43	20.81	1614 m	North
6628-27514	280908	MW 1	Backfilled		2014-07-14	3.80							1.80	1.80		1614 m	West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-24604	245744	MW 32		Investigation	2009-02-03	14.00		39.73					11.20	11.20	28.53	1614 m	South West
6628-22974	231187	MW 18		Investigation	2006-11-23	11.00		39.55					9.00	9.00	30.55	1614 m	South West
6628-22968	231181	MW 12		Investigation	2006-11-21	11.00		39.71					9.20	9.20	30.51	1616 m	South West
6628-24909	252813	BH 3		Investigation	2008-07-07	20.10										1616 m	West
6628-22977	231190	MW 21		Investigation	2006-11-24	11.00		39.33					9.30	9.30	30.03	1617 m	South West
6628-22969	231182	MW 13		Investigation	2006-11-22	11.00		39.79					9.10	9.10	30.69	1617 m	South West
6628-27034	276117	RW 24		Investigation	2013-07-31	5.00							2.70	2.70		1618 m	North West
6628-6881	53850		Backfilled		1978-03-28	100.00		41.66	7.80	2404	4310	0.3800	18.00	18.00	23.66	1618 m	West
6628-27483	280760	RW 44		Investigation	2013-08-09	5.00							2.70	2.70		1618 m	North West
6628-23803	241632	MW 30			2008-07-11	14.00		39.81					12.00	12.00	27.81	1618 m	South West
6628-22760	228167	MW 42		Investigation		7.30		24.31					4.40	4.40	19.91	1618 m	North West
6628-27030	276113	RW 20		Investigation	2013-07-30	5.00							2.70	2.70		1618 m	North West
6628-28145	288462	GW 2	Backfilled	Monitoring	2016-02-02	22.00							19.10	19.10		1619 m	West
6628-437	47534	SAR INSTITUTE 2	Unknown		1970-02-11	15.24	57.91									1619 m	North West
6628-27014	276097	RW 4		Investigation	2013-07-23	5.00							2.70	2.70		1619 m	North West
6628-28245	288751	MW 1				24.00										1619 m	West
6628-448	47545	MORPHETT BRIDGES 17	Unknown		1964-06-10	19.81		29.44								1623 m	North West
6628-27033	276116	RW 23		Investigation	2013-07-31	5.00							2.70	2.70		1623 m	North West
6628-27013	276096	RW 3		Investigation	2013-07-22	5.00							2.70	2.70		1624 m	North West
6628-27031	276114	RW 21		Investigation	2013-07-30	5.00							2.70	2.70		1624 m	North West
6628-24903	252790	BH 2		Investigation	2008-07-08	20.00										1625 m	West
6628-455	47552	MORPHETT BRIDGES 4	Unknown		1964-06-26	15.24		30.82								1625 m	North West
6628-28143	288460	GW 4	Backfilled	Monitoring	2016-02-04	21.50							19.20	19.20		1626 m	West
6628-22973	231186	MW 17		Investigation	2006-11-23	11.00		39.51					9.20	9.20	30.31	1627 m	South West
6628-20981	194484			Drainage	2002-06-30	3.00		52.42								1627 m	South East
6628-27032	276115	RW 22		Investigation	2013-07-30	5.00							2.10	2.10		1629 m	North West
6628-27290	280016	GW 1		Investigation	2014-06-17	9.00							5.50	5.50		1629 m	North
6628-28484	289611	MW 2	Backfilled			23.00										1629 m	West
6628-27012	276095	RW 2		Investigation	2013-07-22	5.00							2.70	2.70		1630 m	North West
6628-28483	289610	MW 5	Backfilled			20.70										1631 m	West
6628-21139	195742			Domestic	2002-02-19	17.00		38.75		1457	2630	0.8000	4.00	4.00	34.75	1633 m	South
6628-368	47468		Backfilled	Observation	1976-09-13	113.00		41.79	7.60	2802	4768		40.00	40.00	1.79	1634 m	West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-27011	276094	RW 1		Investigation	2013-07-22	5.00							2.70	2.70		1635 m	North West
6628-22752	228158	MW 41			2007-01-29	7.10		24.43					4.50	4.50	19.93	1636 m	North West
6628-28144	288461			Monitoring	2016-02-02	22.00							19.20	19.20		1638 m	West
6628-20983	194554			Drainage	2002-06-30	3.00		52.74								1638 m	South East
6628-3	47103	ADELAIDE UNIVERSITY OVAL	Abandoned			12.19		25.19		956	1733	9.4700	7.62	7.62	17.57	1639 m	North
6628-22755	228161	MW 38		Investigation	2007-01-25	7.50		25.05					5.00	5.00	20.05	1640 m	North West
6628-22754	228160	MW 39		Investigation	2007-01-25	7.50		24.77					4.80	4.80	19.97	1643 m	North West
6628-23687	240314				2008-05-07	26.00		39.09		1117	2022	0.7000	6.00	6.00	33.09	1648 m	South
6628-30152	315977			Investigation	2019-04-02	20.00										1653 m	North East
6628-30775	341956		Backfilled													1654 m	West
6628-30124	315883			Investigation	2019-03-06	4.00										1656 m	West
6628-1	47101	SUBWAY 3	Unknown		1974-07-10	30.00	28.00		6.90	4047	7179		6.00	6.00	22.00	1657 m	North
6628-442	47539	MORPHETT BRIDGES 5	Unknown		1964-06-05	38.10		29.68		1140	2063					1660 m	North West
6628-443	47540	MORPHETT BRIDGES 6	Unknown		1964-07-04	12.34		29.28					6.86	6.86	22.42	1662 m	North West
6628-449	47546	MORPHETT BRIDGES 19	Unknown		1964-07-30	21.56		27.71								1662 m	North West
6628-441	47538	ADELAIDE COUNCIL			1964-07-06	5.33		29.26	7.40	381	693					1663 m	North West
6628-26034	266533	MB 70		Investigation	2011-10-25	8.50										1663 m	North West
6628-26035	266534	MB 71			2011-10-25	8.50										1664 m	North West
6628-514	47611				1912-01-01			25.35								1669 m	North West
6628-26481	271045		Backfilled	Investigation	2012-10-08	11.00							3.00	3.00		1669 m	North West
6628-22620	218967	GMW 2		Investigation	2006-07-26	9.00		50.81					5.20	5.20	45.61	1669 m	North East
6628-27135	278553	RW 57		Investigation	2013-08-17	6.00							3.20	3.20		1671 m	North West
6628-16364	134434			Domestic	1992-12-17	15.00		51.41	6.90	1010	1829					1671 m	North East
6628-706	47780							40.10		2713	4857					1671 m	South West
6628-567	47664					10.06		55.78		1614	2911					1672 m	South East
6628-22663	219297			Monitoring	2005-11-03	20.00		41.77					19.00	19.00	22.77	1673 m	West
6628-27134	278552	RW 56		Investigation	2013-08-17	6.00							3.20	3.20		1674 m	North West
6628-30773	341954		Backfilled													1678 m	West
6628-450	47547	MORPHETT BRIDGES 20	Unknown		1964-08-07	22.25		26.92		685	1244					1678 m	North West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-444	47541	MORPHETT BRIDGES 7	Unknown		1964-07-17	18.67		28.55								1679 m	North West
6628-27136	278554	RW 58		Investigation	2013-08-17	6.00							3.20	3.20		1681 m	North West
6628-520	47617	ADELAIDE COUNCIL			1964-07-10	9.14		26.37								1684 m	North West
6628-518	47615		Abandoned		1964-07-07	9.45		26.37								1684 m	North West
6628-519	47616	ADELAIDE COUNCIL			1964-07-08	9.45		26.37					7.16	7.16	19.21	1684 m	North West
6628-517	47614	ADELAIDE COUNCIL			1964-07-13	9.45		26.37					7.16	7.16	19.21	1684 m	North West
6628-31203	354714			Domestic	2021-02-23	24.00				693	1259		8.00	8.00		1685 m	South
6628-307	47407	MAIL EXCHANGE 4	Unknown		1970-09-17	45.72		40.96	7.50	1479	2670	0.2500	16.46	16.46	24.50	1691 m	West
6628-306	47406	MAIL EXCHANGE 2	Unknown		1969-02-19	27.74		40.96	8.00	1515	2734	0.1300	17.37	17.37	23.59	1691 m	West
6628-27805	285258	GW 3	Backfilled	Investigation	2015-03-24	12.00							6.80	6.80		1694 m	North West
6628-288	47388	MAIL EXCHANGE 5	Unknown		1970-10-02	45.72		40.90	7.00	1295	2340	0.2500				1694 m	West
6628-26364	270097	BH 1	Backfilled	Investigation	2012-02-17	49.50							5.50	5.50		1696 m	North West
6628-17370	151251			Domestic	1995-06-23	22.00		51.85	7.40	1317	2380	2.0000				1696 m	South East
6628-87	47187	SUBWAY 2	Unknown		1974-06-06	25.10	29.00		7.40	1688	3042					1696 m	North
6628-101	47201					15.24		50.05		1100	1992					1697 m	North East
6628-15664	62633		Operational	Domestic	1991-10-19	15.00		49.55	7.40	1049	1900		5.20	5.20	44.35	1699 m	South
6628-22621	218968	GMW 3		Investigation	2006-07-27	6.20		51.07					3.60	3.60	47.47	1700 m	North East
6628-26014	266440	MW 1	Backfilled	Investigation	2011-09-17	24.50										1702 m	West
6628-137	47237	ADELAIDE ZOO	Operational	Recreational	1975-10-30	16.46	30.00		7.10	1005	1820	4.0000	7.62	7.62	22.38	1703 m	North
6628-21526	198204			Investigation	2003-09-09	18.00		40.92				0.0100	16.20	16.20	24.72	1705 m	West
6628-445	47542	MORPHETT BRIDGES 11	Unknown		1964-05-27	35.36		27.86		715	1298					1707 m	North West
6628-22619	218966	GMW 1		Investigation	2006-07-26	8.50		50.28					5.20	5.20	45.08	1709 m	North East
6628-27804	285257	GW 2	Backfilled	Investigation	2015-03-23	12.00							6.80	6.80		1712 m	North West
6628-27803	285256	GW 1	Backfilled		2015-03-23	12.00							8.20	8.20		1712 m	North West
6628-12542	59511		Operational	Irrigation	1983-11-11	15.00	40.00					1.2600	7.60	7.60	32.40	1714 m	North East
6628-21425	197913	MWA		Monitoring	2003-08-01	5.40		38.29					3.00	3.00	35.29	1716 m	North West
6628-305	47405	MAIL EXCHANGE 3	Unknown		1969-02-28	24.38	41.00		8.00	3100	5536	0.1300	17.98	17.98	23.02	1717 m	West
6628-21176	196337			Monitoring	2002-09-30	25.00		41.38					19.66	19.66	21.72	1722 m	West
6628-712	47786				1934-09-01	9.45		37.31		2313	4152		6.40	6.40	30.91	1735 m	South West
6628-9960	56929					11.89		58.95		1285	2324					1740 m	East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-709	47783				1914-10-01	14.94		37.98		2860	5114		8.23	8.23	29.75	1744 m	South West
6628-18268	164086			Observation	1996-10-16	20.00		38.27								1744 m	South West
6628-14064	61033				1987-10-12	9.00	58.00		7.90	1328	2400	1.0000	4.00	4.00	54.00	1744 m	East
6628-557	47654					6.10	56.00		9.00	1602	2890	0.5000	2.74	2.74	53.26	1746 m	South East
6628-304	47404	MAIL EXCHANGE 1	Unknown		1969-02-12	27.74		40.66	8.00	1515	2734					1748 m	West
6628-26533	272017			Investigation	2012-05-02	12.00							8.00	8.00		1750 m	North West
6628-566	47663	ETSA	Abandoned		1960-03-15	23.77		57.82		2570	4605					1751 m	South East
6628-303	47403	MAIL EXCHANGE 6	Unknown		1970-10-26	27.43		40.62	8.00	2067	3715	0.1300				1751 m	West
6628-23763	241495				2008-03-12	18.00		58.61		1367	2470	0.8000	6.00	6.00	52.61	1752 m	East
6628-14287	61256		Operational	Domestic	1988-07-22	17.00	42.00		8.00	2234	4010	1.0000	0.00	0.00	42.00	1752 m	South
6628-25029	253377	SBGW 5		Monitoring	2009-12-04	20.40	40.16			1664	3000		15.91	15.91	24.25	1754 m	South West
6628-22260	206467			Monitoring	2005-09-06	20.00		33.77		2245	4030		13.00	13.00	20.77	1758 m	North West
6628-20966	194429			Domestic	2002-10-29	24.00		58.04	7.08	2019	3630	0.7000	15.00	15.00	43.04	1762 m	South East
6628-14517	61486	GH 5	Abandoned	Investigation	1980-05-27	9.25	38.00									1764 m	South West
6628-26534	272018				2012-05-02	12.00										1765 m	North West
6628-565	47662	ETSA	Abandoned		1960-03-29	12.19		57.80		1613	2909					1767 m	South East
6628-17801	156081			Domestic	1996-02-09	24.00		57.79	7.40	1239	2240	0.5000				1767 m	East
6628-11606	58575	STATE TRANSPORT	Abandoned		1980-12-21	15.10		27.18								1768 m	North West
6628-17280	150964			Drainage	1994-05-06	21.60		40.74								1768 m	West
6628-17346	151224			Domestic	1995-06-21	26.00		52.47	7.50	1872	3370	0.5000				1769 m	South East
6628-30392	325616			Investigation	2019-05-20	20.00										1769 m	North West
6628-451	47548	MORPHETT BRIDGES 22	Unknown		1964-09-03	24.23		24.58								1770 m	North West
6628-21230	196722			Monitoring	2003-01-07	11.00		45.30					8.00	8.00	37.30	1770 m	North East
6628-563	47660	ETSA	Abandoned		1960-04-01	10.97		58.26		2113	3799					1778 m	South East
6628-27367	280364			Investigation		19.00										1778 m	North West
6628-446	47543	MORPHETT BRIDGES 12	Unknown		1964-05-18	27.43		25.37		1430	2583					1779 m	North West
6628-23757	241489			Drainage	2008-03-04	32.00		40.84		634	1151	1.2000	12.00	12.00	28.84	1782 m	South
6628-23758	241490				2008-02-29	36.00		40.80		611	1109	1.2000	12.00	12.00	28.80	1784 m	South
6628-26174	267205	BH 2		Investigation	2011-11-22	30.00							8.50	8.50		1786 m	North West
6628-582	47679	ETSA	Abandoned		1960-02-15	5.28		57.95								1789 m	South East
6628-23107	234354	MW 7		Investigation	2006-04-19	10.50		26.02					7.30	7.30	18.72	1791 m	North West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-373	47473	ELECTROLUX 5	Unknown		1956-01-01	3.66		40.42								1792 m	West
6628-374	47474	ELECTROLUX 6	Unknown		1956-01-01	3.66		40.42								1792 m	West
6628-564	47661	ETSA	Abandoned		1960-03-01	30.48		58.25		1499	2705	1.2628				1793 m	South East
6628-20664	186463			Drainage	2001-07-09	17.50		41.84		2358	4230	0.7500	3.00	3.00	38.84	1793 m	South
6628-22261	206468			Monitoring	2005-09-06	19.00		35.48		2194	3940		13.00	13.00	22.48	1794 m	North West
6628-19548	175521	TORBH 1		Monitoring	1996-09-05	9.00		27.34	7.46	1205	2180		7.45	7.45	19.89	1797 m	North West
6628-287	47387				1914-10-27	34.14		40.44				1.2600	18.29	18.29	22.15	1797 m	West
6628-363	47463							40.50								1799 m	South West
6628-15257	62226		Backfilled		1990-05-10	30.00		29.57					7.20	7.20	22.37	1801 m	North
6628-21424	197912	MWB		Monitoring	2003-08-01	13.20		40.32					8.00	8.00	32.32	1802 m	North West
6628-562	47659	ETSA	Abandoned		1960-03-08	23.01		58.63		1770	3190					1803 m	South East
6628-372	47472	ELECTROLUX 4	Unknown		1956-01-01	3.66		40.35								1803 m	West
6628-371	47471	ELECTROLUX 3	Unknown		1956-01-01	3.66		40.35								1804 m	West
6628-26172	267203		Backfilled	Investigation	2011-11-23	30.00							9.00	9.00		1806 m	North West
6628-26173	267204				2011-11-30	10.00							8.00	8.00		1806 m	North West
6628-583	47680	ETSA	Abandoned		1960-03-08	3.96		58.27								1808 m	South East
6628-447	47544	MORPHETT BRIDGES 13	Unknown		1964-08-25	13.41		24.71		885	1605					1809 m	North West
6628-97	47197					11.99		50.71		1028	1862		9.25	9.25	41.46	1812 m	North East
6628-21423	197911	MWC		Monitoring	2003-08-01	4.00		37.70					1.00	1.00	36.70	1812 m	North West
6628-15330	62299	HOLE 2			1990-06-08	17.40		29.88	7.70	1407	2540	3.0000	7.00	7.00	22.88	1814 m	North
6628-370	47470	ELECTROLUX 2	Unknown		1956-01-01	3.66		40.29								1814 m	West
6628-369	47469	ELECTROLUX 1	Unknown		1956-01-01	3.35		40.28								1816 m	West
6628-13227	60196		Operational	Drainage	1985-01-01	9.00		41.16								1816 m	West
6628-404	47501	MORPHETT BRIDGES 24	Unknown		1964-08-18	30.02		22.98		1200	2172					1818 m	North West
6628-21704	200139			Monitoring		12.00		40.45					7.07	7.07	33.38	1818 m	North West
6628-560	47657	ETSA	Abandoned		1960-03-24	22.86		58.25		1513	2731					1818 m	South East
6628-30393	325617		Dry	Investigation	2019-05-22	20.00										1820 m	North West
6628-561	47658	ETSA	Abandoned		1960-04-07	12.19		58.66		4941	8714					1822 m	South East
6628-25846	264437				2010-05-24	16.00				530	963	0.7000	10.00	10.00		1826 m	North East
6628-403	47500	MORPHETT BRIDGES 14	Unknown		1964-05-11	27.43		24.01		1100	1992					1829 m	North West
6628-2	47102				1934-11-01	9.14		26.16		2470	4429					1831 m	North
6628-731	47805							40.31								1831 m	South West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-23465	237481				2007-10-31	24.00		59.76		894	1620	0.8000	10.00	10.00	49.76	1832 m	East
6628-11489	58458		Operational	Irrigation; Stock	1978-06-30	28.00	30.00		7.30	1272	2300	3.1800	6.70	6.70	23.30	1832 m	North
6628-9961	56930					12.19		59.97		1128	2042					1833 m	East
6628-25238	256124	SB/MW 43		Investigation	2009-01-30	11.20							4.90	4.90		1836 m	North West
6628-718	47792					12.19	36.00		7.00	2030	3652	1.1400	5.49	5.49	30.51	1837 m	South West
6628-23105	234352	MW 5		Investigation	2006-03-16	10.00		26.60					7.30	7.30	19.30	1839 m	North West
6628-26171	267201		Backfilled	Investigation	2011-12-01	30.00							7.50	7.50		1840 m	North West
6628-16727	145689		Backfilled	Investigation	1994-07-19	39.10		26.63								1841 m	North West
6628-25018	253366	GW 126		Monitoring	2009-11-21	5.50	22.16			1052	1904		2.40	2.40	19.76	1842 m	North West
6628-11490	58459			Observation; Stock	1972-04-11	18.30	28.97	29.70	7.40	1250	2260	3.5600	5.93	6.66	23.04	1843 m	North
6628-29432	306829			Investigation	2018-03-27	30.00										1843 m	North West
6628-713	47787							37.33		2216	3981					1844 m	South West
6628-18667	167077			Investigation	1997-10-24	9.00		25.01		1423	2570		4.70	4.70	20.31	1850 m	North West
6628-705	47779					23.47		40.19		3817	6784		15.24	15.24	24.95	1850 m	South West
6628-26170	267200		Backfilled	Investigation	2011-11-30	30.00							8.50	8.50		1851 m	North West
6628-24908	252812					4.20										1851 m	North East
6628-25237	256123	SB/MW 42	Backfilled	Investigation	2009-01-29	17.00							14.90	14.90		1851 m	North West
6628-15974	62943		Operational	Domestic	1992-03-26	18.00		52.54	7.50	1765	3181		7.50	7.50	45.04	1853 m	South East
6628-4	47104					11.58		25.47								1855 m	North
6628-25800	264105				2011-06-17	15.00										1858 m	North East
6628-578	47675				1914-03-14	7.31	42.00			1985	3572	0.3200	3.35	3.35	38.65	1858 m	South
6628-710	47784				1954-01-01	11.28		37.01		2044	3677		4.88	4.88	32.13	1859 m	South West
6628-16817	146778		Backfilled	Investigation	1994-07-13	40.00		25.02								1864 m	North West
6628-714	47788					18.00		37.08		2356	4229					1864 m	South West
6628-25766	263889	T75AB/MW75	Backfilled	Investigation	2009-07-29	20.00							17.70	17.70		1867 m	North West
6628-25945	265268	T32/MW66			2009-07-29	20.00							17.50	17.50		1867 m	North West
6628-30778	341959		Backfilled													1869 m	North West
6628-26477	271041	BRICK WELL	Backfilled			2.70										1870 m	North West
6628-225	47325				1915-03-01	52.43		41.52				1.2600	19.81	19.81	21.71	1876 m	West
6628-27765	285093		Backfilled			19.80										1879 m	North West
6628-15709	62678		Operational	Domestic	1991-10-17	16.70		43.39	7.40	1178	2131	2.7500	7.10	7.10	36.29	1879 m	North East
6628-405	47502					9.75		23.14		1213	2196		6.71	6.71	16.43	1880 m	North West
6628-227	47327				1939-07-01	23.77		41.42		2798	5005					1881 m	West
6628-226	47326				1915-02-01	30.48		41.42					3.66	3.66	37.76	1881 m	West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-229	47329				1938-05-01	22.86		41.42		2984	5332		19.81	19.81	21.61	1881 m	West
6628-228	47328				1938-03-01	21.34		41.42		3184	5684		17.98	17.98	23.44	1881 m	West
6628-16615	141363			Domestic	1994-04-22	20.00		60.84	7.10	1322	2390					1881 m	East
6628-25770	263893	G25/MW72			2009-06-19	10.50										1885 m	North West
6628-25948	265271	G25/MW72		Monitoring	2009-06-19	10.50							8.50	8.50		1885 m	North West
6628-18775	167556			Domestic	1998-01-14	18.00		58.78		2642	4730		16.00	16.00	42.78	1885 m	South East
6628-29431	306828			Investigation	2018-03-29	30.00										1887 m	North West
6628-17347	151225			Domestic	1995-08-15	30.00		49.83	7.10	1726	3110	0.5000				1888 m	South
6628-25926	265249	MW 41		Monitoring	2004-01-30	18.00										1890 m	North West
6628-23103	234350	MW 8		Investigation	2006-03-15	10.00		25.63					6.90	6.90	18.73	1892 m	North West
6628-16636	142115			Domestic	1993-11-19	16.00		43.58	7.30	337	612	1.2000				1893 m	North East
6628-19549	175522	TORBH 2		Monitoring	1996-09-05	10.00		27.19	7.62	1233	2230		7.79	7.79	19.40	1896 m	North West
6628-30774	341955		Backfilled													1903 m	North West
6628-18266	164084			Environmental; Recreational	1996-10-28	19.80		28.39		2238	4020	2.0000	8.00	8.00	20.39	1903 m	North
6628-510	47607					1.83		41.27		642	1167					1905 m	West
6628-224	47324				1915-01-01	137.77		41.10					24.38	24.38	16.72	1906 m	West
6628-108	47208		Operational	Recreational	1967-11-08	12.80	29.00		7.00	1658	2990	4.4200	6.40	6.40	22.60	1907 m	North
6628-25767	263890	G20/MW67	Backfilled	Investigation	2009-07-30	19.00										1908 m	North West
6628-25946	265269	G20/MW67		Monitoring	2009-07-30	19.00							17.90	17.90		1908 m	North West
6628-17430	152914			Domestic	1995-10-21	24.00		41.45					5.90	5.90	35.55	1908 m	South
6628-25259	256154	BH 1	Backfilled	Investigation	2009-10-20	20.00										1910 m	North West
6628-23106	234353	MW 4		Investigation	2006-03-15	10.50		27.01					7.30	7.30	19.71	1910 m	North West
6628-21064	195366			Monitoring	2002-05-23	7.00		43.32					3.10	3.10	40.22	1912 m	South
6628-21869	201054	MW 38		Investigation	2004-02-05	18.00		26.57					17.50	17.50	9.07	1913 m	North West
6628-30772	341953		Backfilled													1916 m	North West
6628-25771	263894	G19/MW71			2009-06-23	17.50							15.50	15.50		1920 m	North West
6628-707	47781				1934-09-01	11.58		36.37		742	1347		8.53	8.53	27.84	1920 m	South West
6628-25947	265270	G19/MW71		Investigation	2009-06-23	17.50							14.70	14.70		1920 m	North West
6628-21479	198083	MW 17		Investigation	2003-04-07	8.00		42.53					5.50	5.50	37.03	1921 m	South
6628-17660	155122			Domestic	1996-01-29	14.00		58.16	7.24	1917	3450	2.0000				1923 m	South East
6628-25729	263649	BH 3	Backfilled	Investigation	2009-12-15	25.00										1924 m	North West
6628-21480	198084	MW 16		Investigation	2003-04-07	8.00		42.40					5.50	5.50	36.90	1924 m	South
6628-9953	56922					14.02		52.43		1128	2042					1924 m	North East
6628-16818	146779		Backfilled	Investigation	1994-07-15	39.00		27.03								1925 m	North West

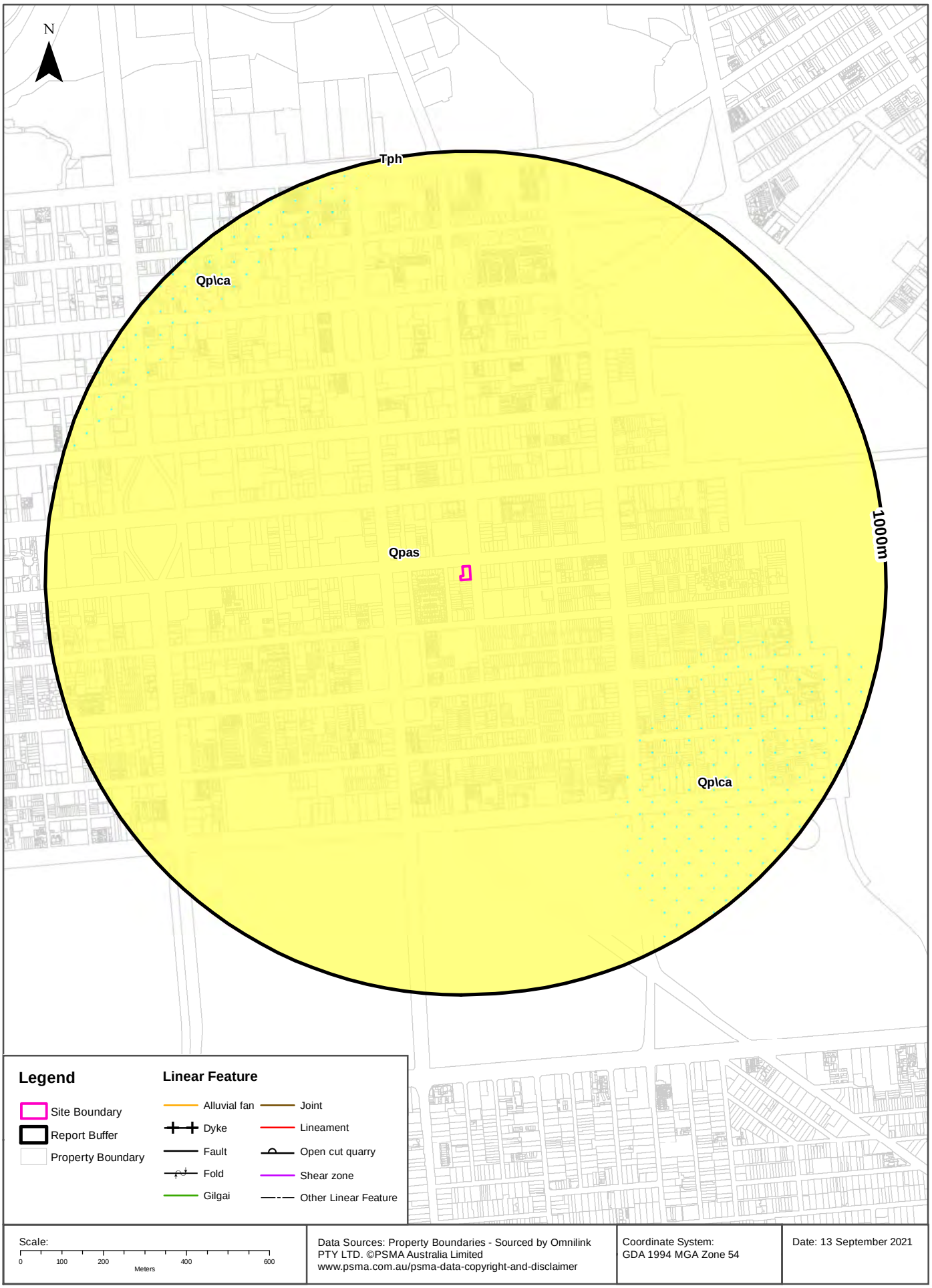
Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-15836	62805		Operational	Domestic	1992-01-07	18.00		51.11					0.00	0.00	51.11	1926 m	South
6628-26175	267206		Backfilled	Investigation	2011-11-24	30.00										1927 m	North West
6628-29693	312612			Investigation	2018-06-26	8.00										1928 m	South
6628-22520	215157					5.50		54.72								1936 m	East
6628-201	47301		Abandoned		1968-02-22	112.78		38.42				0.2500	17.37	17.37	21.05	1938 m	West
6628-23417	236957	MW 21		Investigation	2007-09-19	12.00		45.40								1941 m	North East
6628-25730	263650	BH 4		Investigation	2009-12-17	25.00										1943 m	North West
6628-17371	151252			Domestic	1995-08-03	18.00		42.73	7.60	1143	2070	1.2500				1944 m	North East
6628-29703	312724			Investigation	2018-06-19	6.00										1945 m	South
6628-23419	236959	MW 23		Investigation	2007-09-21	12.00		45.28								1945 m	North East
6628-16647	142272			Domestic	1994-07-11	17.00		61.63	7.10	1541	2780					1946 m	East
6628-9954	56923					59.74		53.88								1948 m	East
6628-25240	256126	SB/MW 45		Investigation	2009-01-22	17.00										1949 m	North West
6628-21566	198444			Irrigation	2003-11-13	78.00		37.35	7.27	2138	3840	7.8000	30.00	30.00	7.35	1952 m	West
6628-25239	256125	SB/MW 44		Investigation	2009-01-21	18.00							16.00	16.00		1953 m	North West
6628-222	47322	PUB BLDGS DEPT			1941-05-01	7.62		40.01								1953 m	West
6628-711	47785					9.14		36.15		2545	4563					1954 m	South West
6628-21196	196545	MW 19		Monitoring	2003-04-14	7.50		42.37					3.03	3.03	39.34	1955 m	South
6628-21866	200942		Abandoned			19.00		37.89								1958 m	West
6628-30464	330210		Backfilled													1958 m	South East
6628-16537	138692			Domestic	1994-02-14	21.00		61.96	7.20	1367	2470					1958 m	East
6628-22725	220576	MW 18		Investigation	2006-10-04	7.00		42.35					3.70	3.70	38.65	1960 m	South
6628-25732	263652	BH 6		Investigation	2009-12-11	15.00										1960 m	North West
6628-21481	198085	MW 15		Investigation	2003-04-07	8.00		42.39					5.60	5.60	36.79	1962 m	South
6628-223	47323	PUB BLDGS DEPT			1941-05-01	7.62		39.36								1962 m	West
6628-23102	234349	MW 9		Investigation	2006-03-16	10.00		25.32					6.40	6.40	18.92	1962 m	North West
6628-17463	152971			Domestic	1995-11-28	20.00		57.53	8.00	1676	3020	0.1250				1962 m	South East
6628-23662	240237				2008-01-16	20.00		43.41		1166	2110	1.2000	8.80	8.80	34.61	1964 m	North East
6628-21229	196721			Monitoring	2003-04-14	8.00		42.35					4.13	4.13	38.22	1966 m	South
6628-218	47318	PUB BLDGS DEPT			1941-03-01	2.21		40.07								1966 m	West
6628-17281	150965			Domestic	1995-06-02	19.00		43.54	7.60	1284	2320	1.1000				1966 m	North East
6628-18406	164465			Domestic	1996-05-04	24.00		54.39		1412	2551	0.5000				1967 m	East
6628-25355	258779	MW 6		Investigation	2010-03-18	9.50							6.93	6.93		1969 m	South East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-25260	256155	BH 2		Investigation	2009-10-21	25.00										1970 m	North West
6628-202	47302			Observation; Recreational	1972-01-01	121.92	38.47	38.30	7.50	1496	2700	11.3700	17.33	17.16	21.14	1972 m	West
6628-704	47778					55.00	38.53	38.23	7.30	1995	3590		16.05	15.75	22.48	1976 m	South West
6628-25022	253370	GW 125		Monitoring	2009-11-25	13.20	28.41			1312	2371		7.42	7.42	20.99	1978 m	North
6628-27520	280989	GW 1	Backfilled	Investigation		9.00										1979 m	North East
6628-21274	196903			Domestic	2003-06-05	24.00		44.30		1066	1930	0.6000	9.00	9.00	35.30	1980 m	North East
6628-214	47314	PUB BLDGS DEPT			1941-04-10	4.57		39.80								1980 m	West
6628-19552	175525	TORBH 5		Monitoring	1996-09-05	11.00		25.07	6.95	1804	3250		9.61	9.61	15.46	1980 m	North West
6628-22823	228844	SB/MW 20		Investigation	2006-07-10	12.00		46.11					8.30	8.30	37.81	1981 m	North East
6628-213	47313	PUB BLDGS DEPT			1941-04-10	5.18		39.65								1984 m	West
6628-216	47316	PUB BLDGS DEPT			1941-01-01	2.41		38.88								1984 m	West
6628-210	47310	PUB BLDGS DEPT			1941-04-10	6.40		39.01		853	1547					1984 m	West
6628-23418	236958	MW 22		Investigation	2007-09-20	12.00		45.82								1984 m	North East
6628-220	47320	PUB BLDGS DEPT			1941-05-01	7.62		38.87								1985 m	West
6628-102	47202							48.12		6088	10665					1985 m	North East
6628-29694	312613			Investigation	2018-06-20	6.00										1986 m	South
6628-27521	280990	GW 3	Backfilled	Investigation	2014-09-18	9.00										1991 m	North East
6628-212	47312	PUB BLDGS DEPT			1941-04-10	5.18		38.60								1991 m	West
6628-209	47309	PUB BLDGS DEPT			1941-04-10	6.40		39.04								1993 m	West
6628-23779	241519				2008-01-25	18.00		42.74				1.0000				1993 m	North East
6628-29696	312615			Investigation	2018-06-19	6.00										1994 m	South
6628-27519	280988	GW 2	Backfilled	Investigation		9.00										1995 m	North East
6628-16563	140951			Domestic	1993-11-19	16.00		44.25				1.2000				1997 m	North East
6628-17343	151221			Domestic	1995-08-29	14.00		55.98	7.20	1804	3250	0.5000				1999 m	East
6628-211	47311	PUB BLDGS DEPT			1941-04-10	4.88		38.26								2000 m	West

Drillholes Data Source: Dept of Environment, Water and Natural Resources - South Australia
Creative Commons 4.0 © Commonwealth of Australia https://creativecommons.org/licenses/by/4.0/

Geology 1:100,000

193 Angas Street, Adelaide, SA 5000



Geology

193 Angas Street, Adelaide, SA 5000

Surface Geology 1:100,000

Surface Geology Units within the dataset buffer:

Map Unit Code	Name	Description	Parent Name	Province	Age	Min Age	Max Age	Distance
Qpas	Keswick Clay	Clay, smectite-rich, grey-green, with red or yellow mottling and rare sand lenses.	Unnamed GIS Unit - see description	ST VINCENT BASIN	PLEISTOCENE	Pleistocene	Pleistocene	0m
Qp\ca	Unnamed GIS Unit - see description	Undifferentiated Pleistocene calcrete.	Unnamed GIS Unit - see description	UNKNOWN	PLEISTOCENE	Pleistocene	Pleistocene	533m
Tph	Hallett Cove Sandstone	Sandstone, calcareous; limestone, sandy, fossiliferous. Transgressive, shallow marginal marine.	Unnamed GIS Unit - see description	ST VINCENT BASIN	PLIOCENE	Pliocene	Pliocene	993m

Geology Data Source: Dept of Environment, Water and Natural Resources - South Australia
Creative Commons 4.0 © Commonwealth of Australia https://creativecommons.org/licenses/by/4.0/

Linear Structures 1:100,000

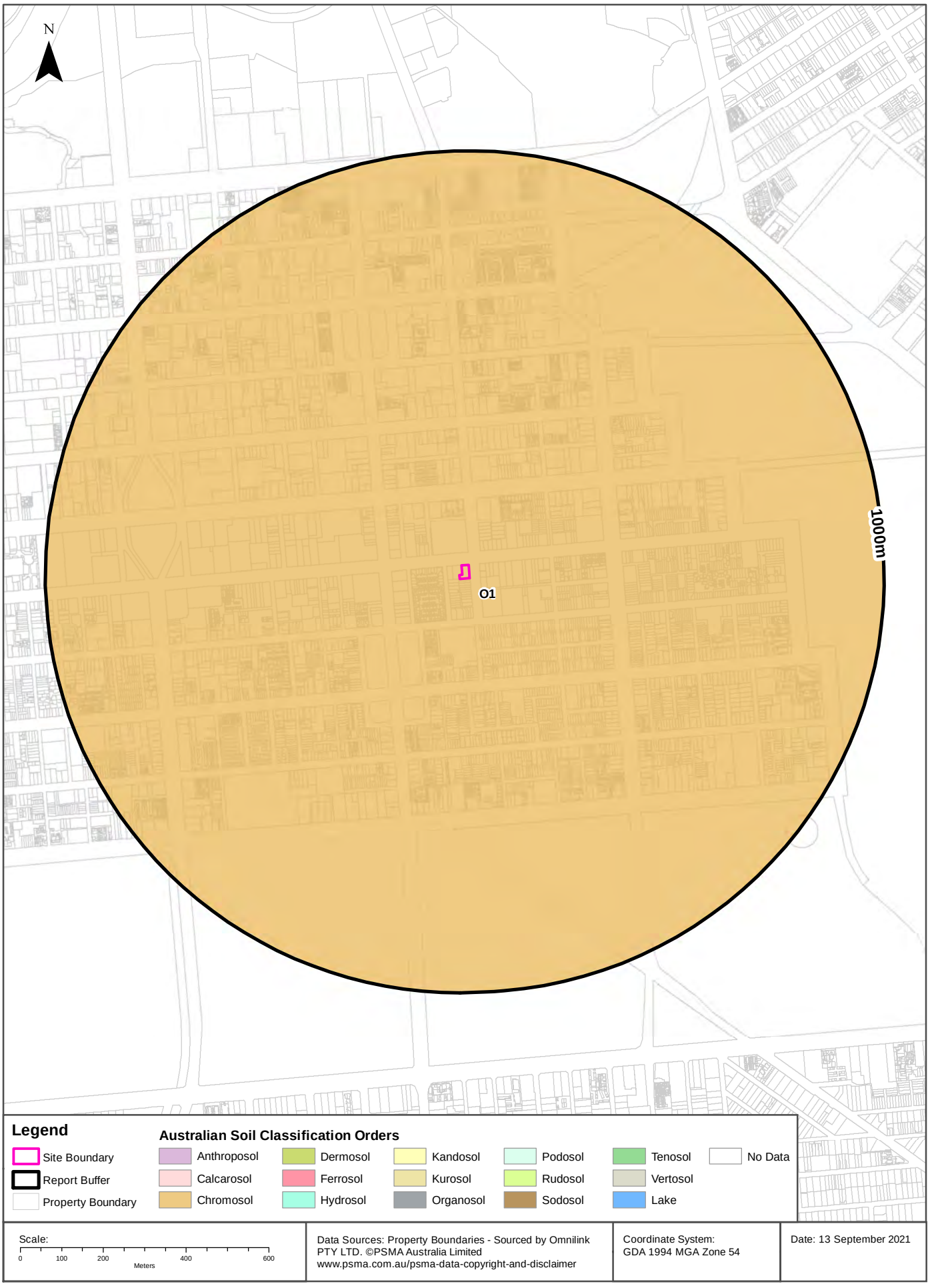
Linear geological structures within the dataset buffer:

Map Code	Description	Distance
N/A	No features in buffer	

Geology Data Source: Dept of Environment, Water and Natural Resources - South Australia
Creative Commons 4.0 © Commonwealth of Australia https://creativecommons.org/licenses/by/4.0/

Atlas of Australian Soils

193 Angas Street, Adelaide, SA 5000



Soils

193 Angas Street, Adelaide, SA 5000

Atlas of Australian Soils

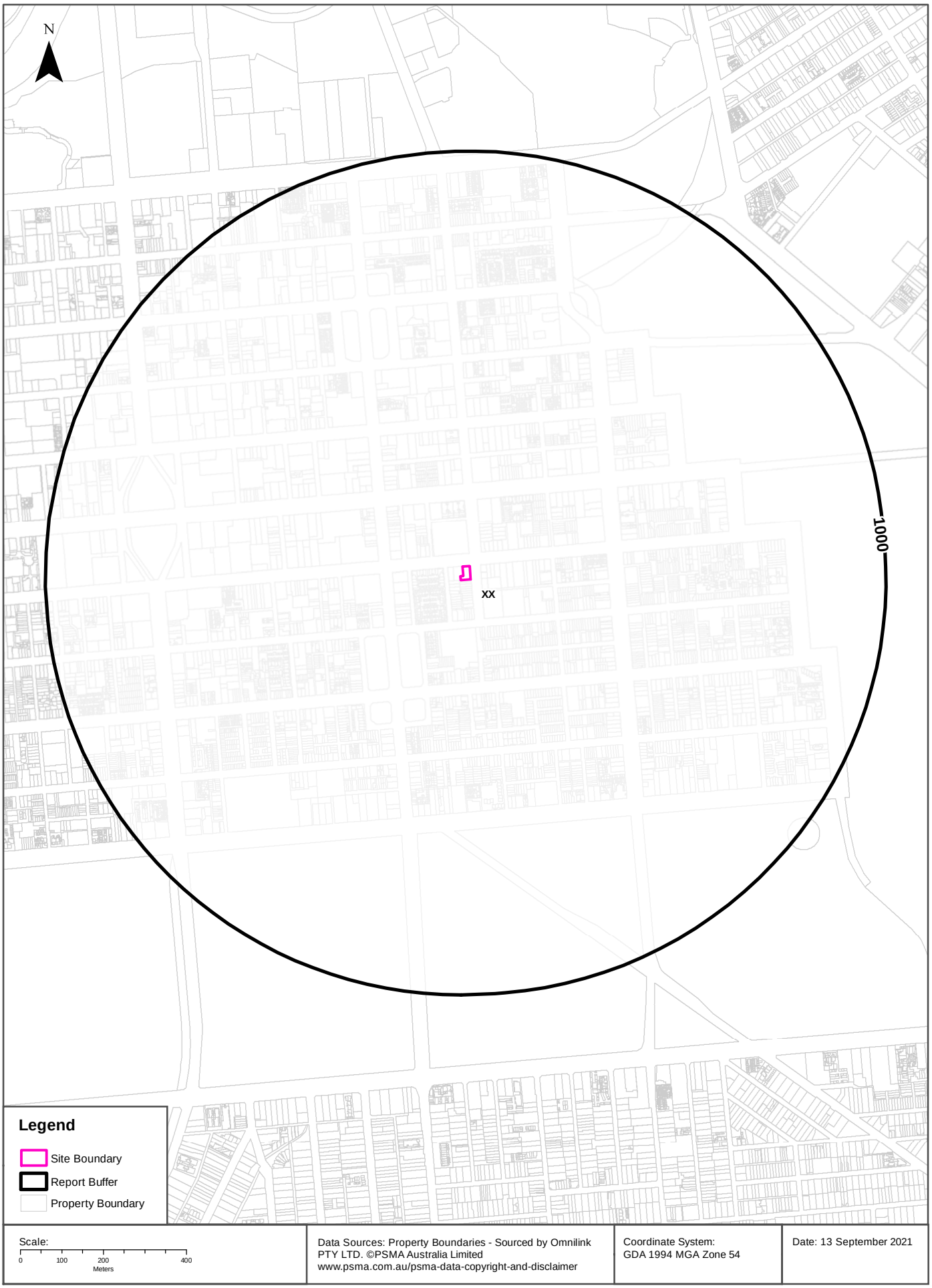
Soil mapping units and Australian Soil Classification orders within the dataset buffer:

Map Unit Code	Soil Order	Map Unit Description	Distance
O1	Chromosol	Outwash plains: hard alkaline red soils (Dr2.23 with small areas Dr2.33); small areas cracking clay soils (Ug5.15, Ug5.16, and Ug5.2), also hard alkaline yellow mottled soils (Dy3.43); minor areas (Um6.21) and (Uf6.11); various alluvial soils (unclassified) in the stream valleys.	0m

Atlas of Australian Soils Data Source: CSIRO
Creative Commons 4.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/4.0/au/deed.en

Soil Types

193 Angas Street, Adelaide, SA 5000



Soils

193 Angas Street, Adelaide, SA 5000

Soil Types

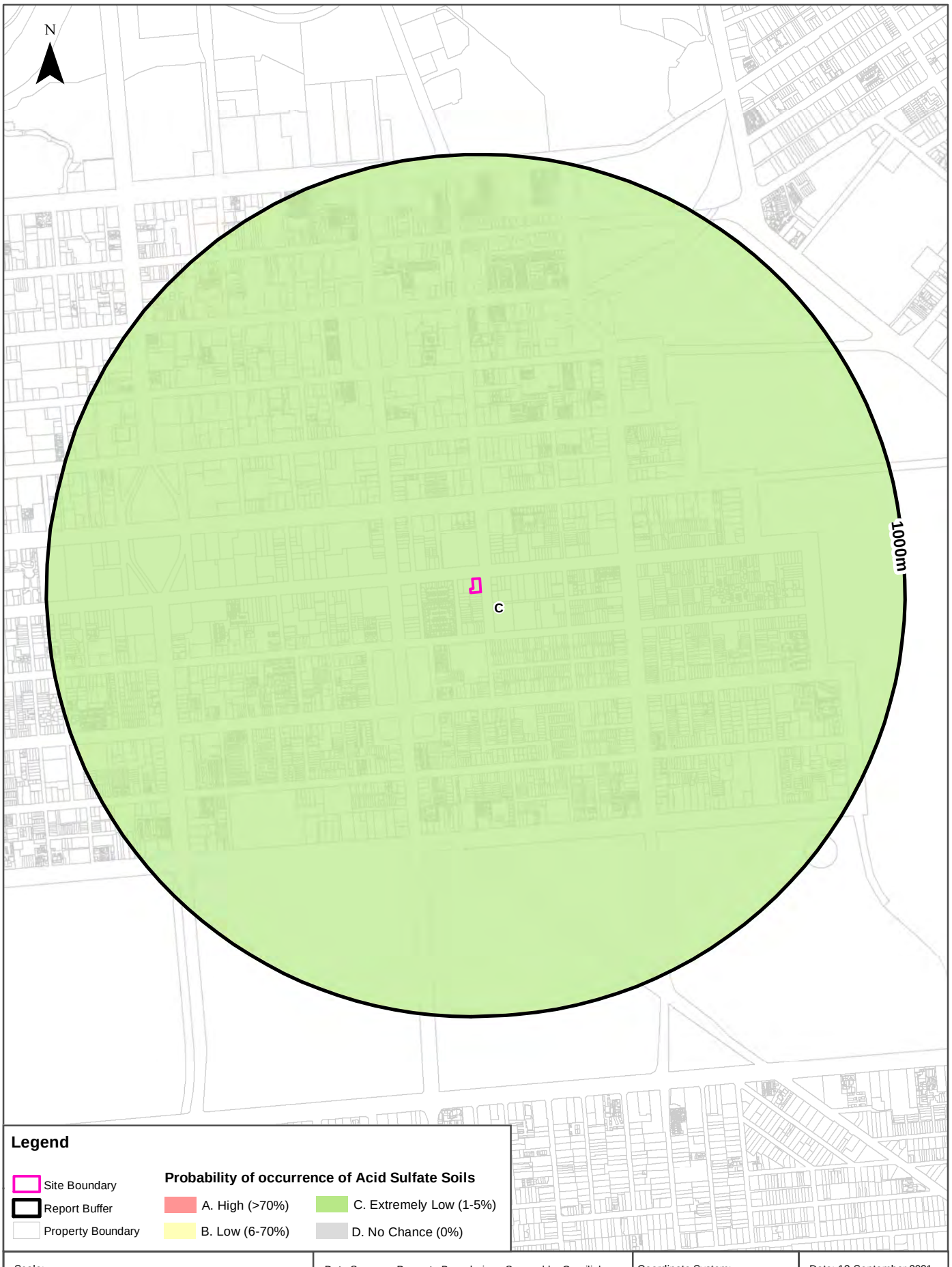
Soil types within the dataset buffer:

Map category code	Soil type description	Distance
XX	Not applicable - No assessment/analysis undertaken	0m

Soil Types Data Source: Dept of Environment, Water and Natural Resources - South Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Atlas of Australian Acid Sulfate Soils

193 Angas Street, Adelaide, SA 5000



Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System: GDA 1994 MGA Zone 54

Date: 13 September 2021

Acid Sulfate Soils

193 Angas Street, Adelaide, SA 5000

Atlas of Australian Acid Sulfate Soils

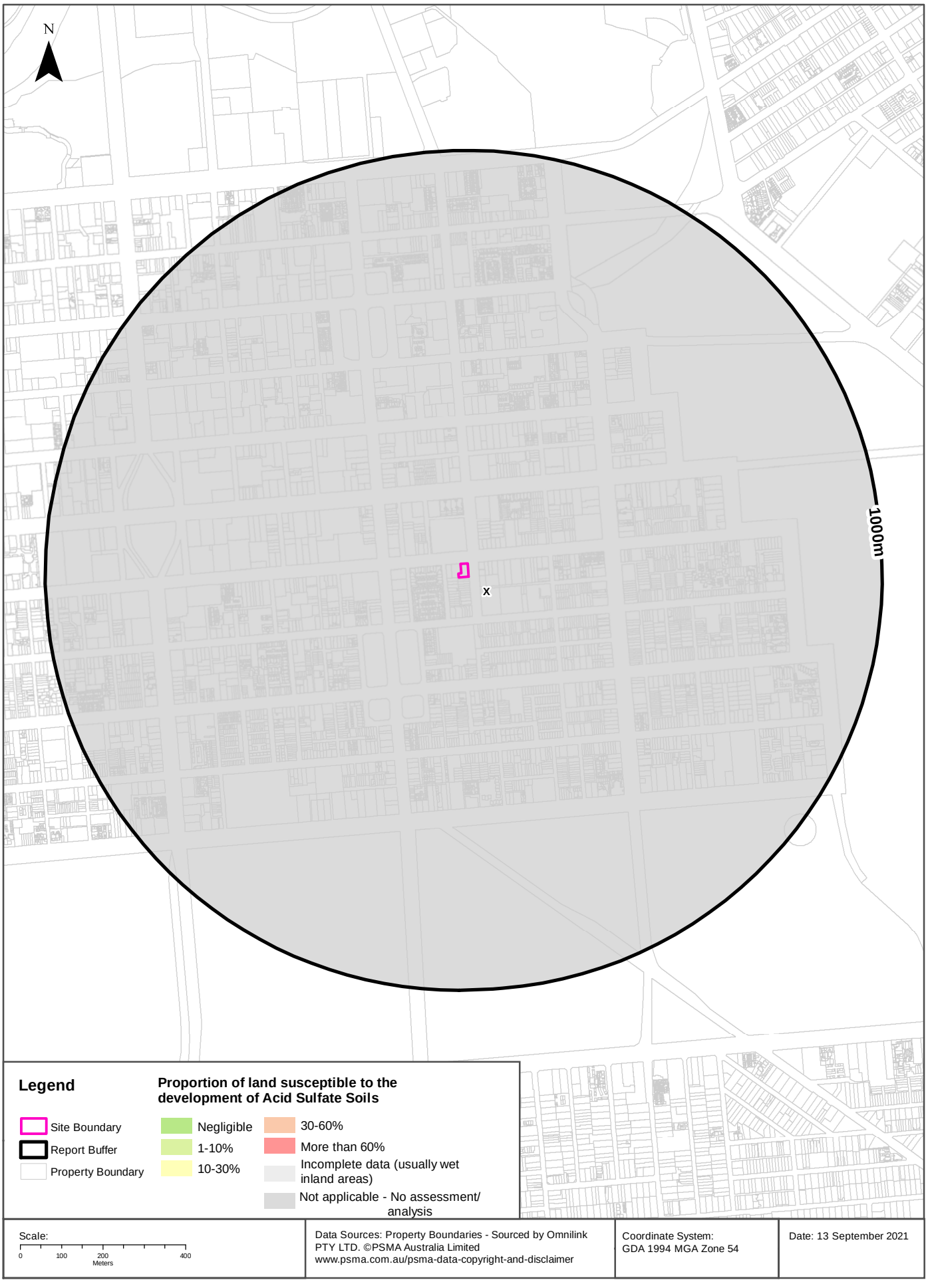
Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

Class	Description	Distance
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Acid Sulfate Soils Potential

193 Angas Street, Adelaide, SA 5000



Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System: GDA 1994 MGA Zone 54

Date: 13 September 2021

Acid Sulfate Soils

193 Angas Street, Adelaide, SA 5000

Acid Sulfate Soil Potential

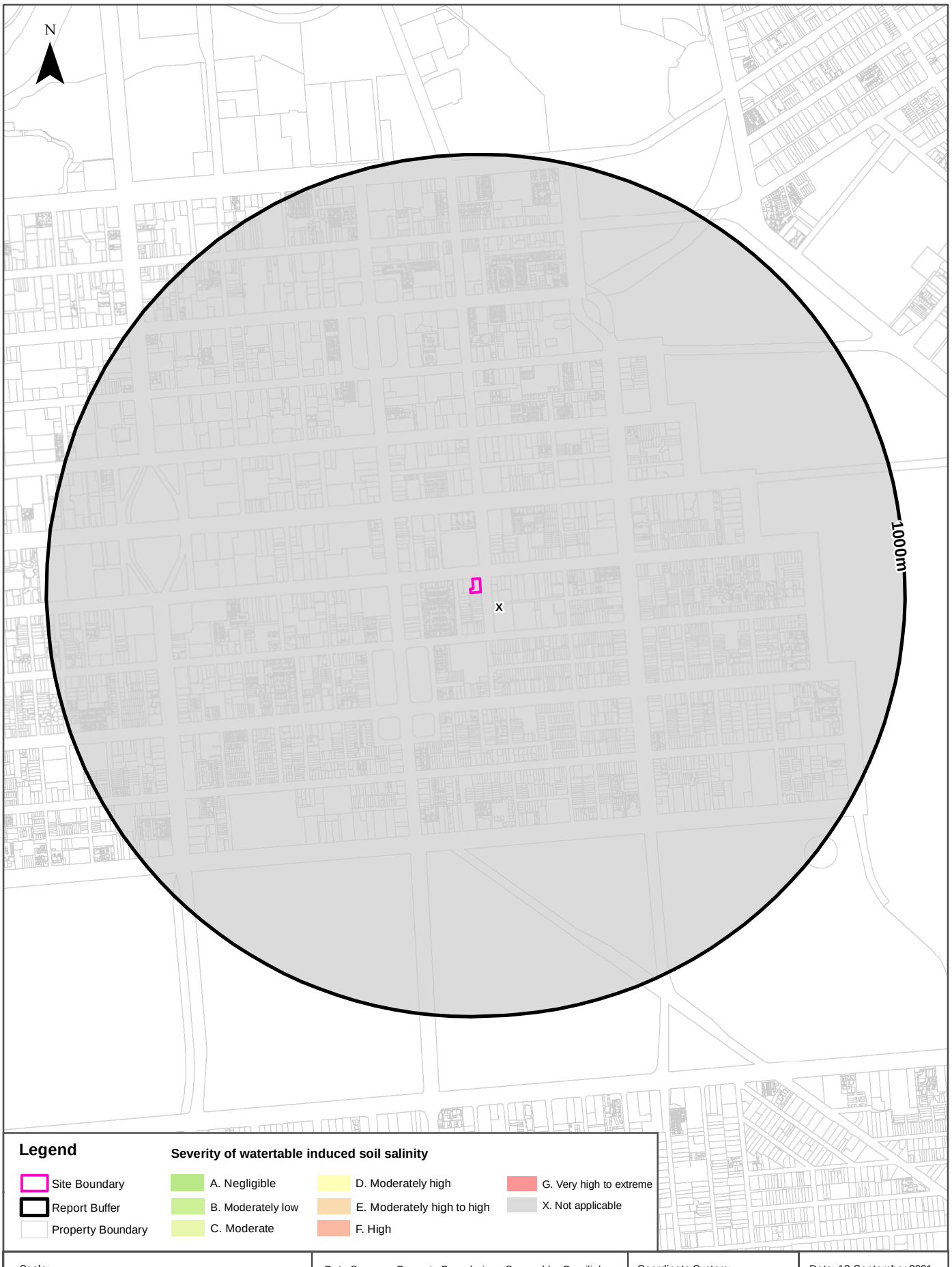
Acid sulfate soil potential within the dataset buffer:

Map category code	Proportion of land susceptible to the development of acid sulfate soils	Distance
X	Not applicable - No assessment/analysis undertaken	0m

Acid Sulfate Soils Data Source: Dept of Environment, Water and Natural Resources - South Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Soil Salinity - Watertable Induced

193 Angas Street, Adelaide, SA 5000



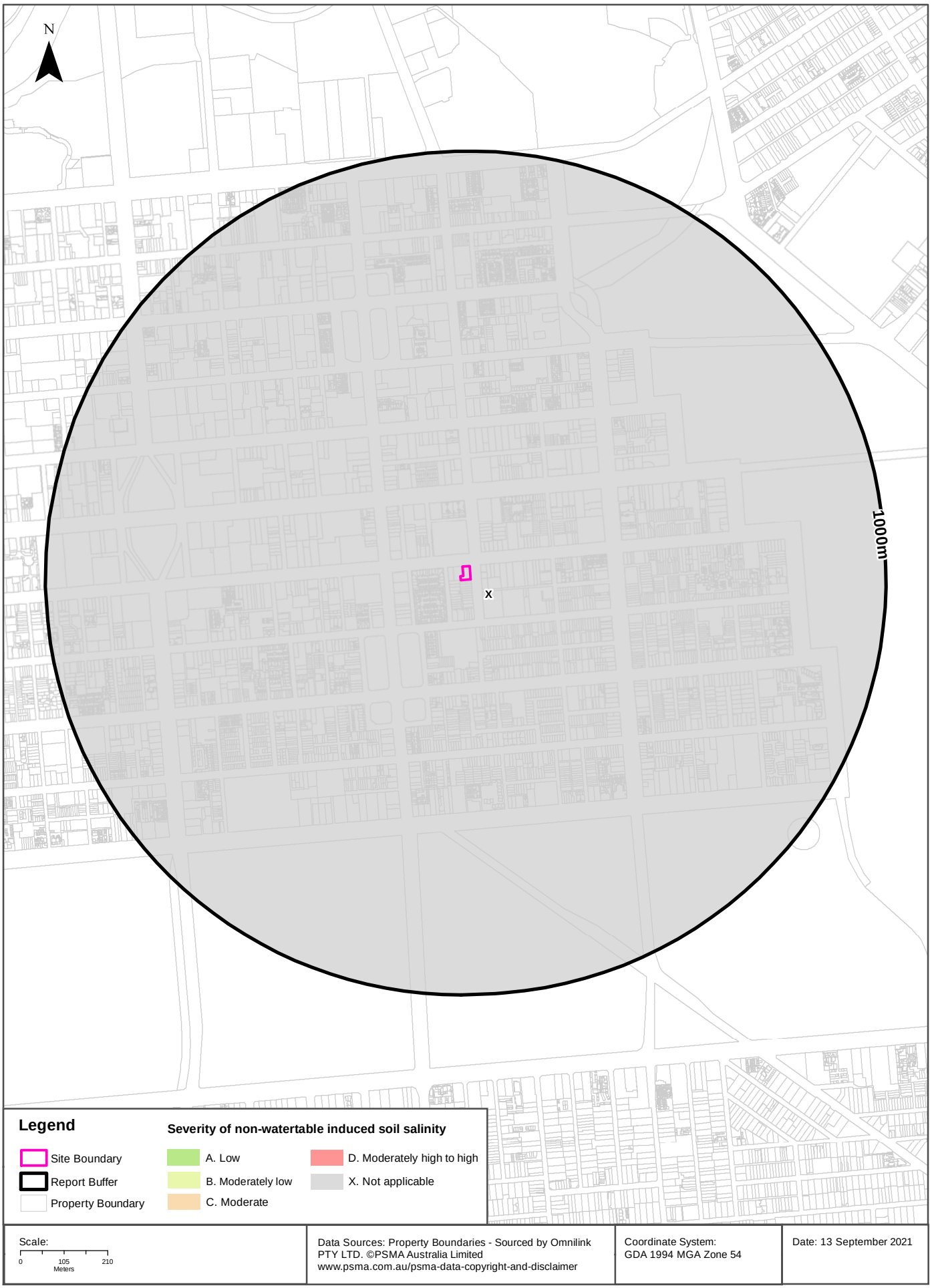
Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited
www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System:
GDA 1994 MGA Zone 54

Date: 13 September 2021

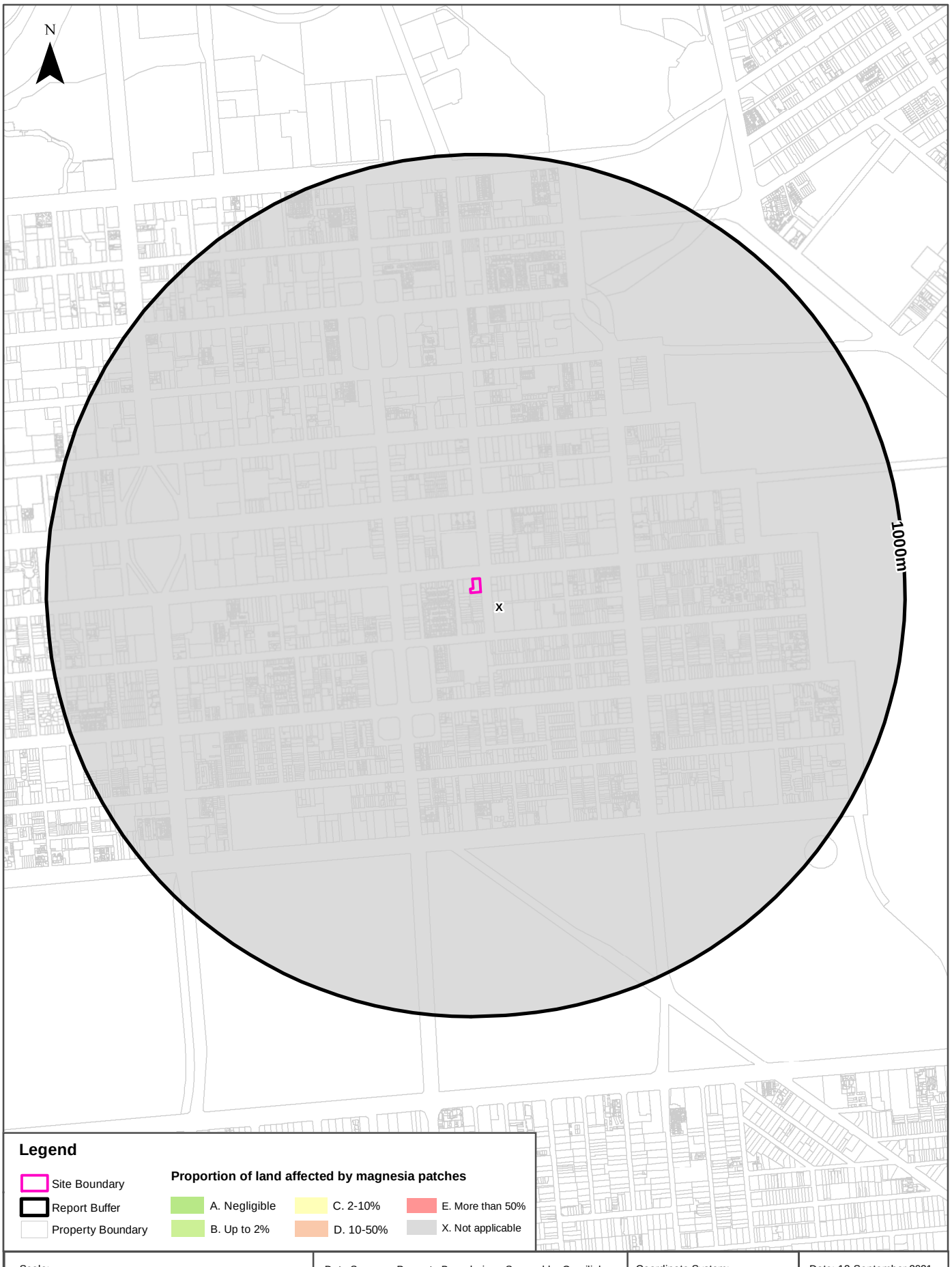
Soil Salinity - Non-watertable

193 Angas Street, Adelaide, SA 5000



Soil Salinity - Non-watertable (Magnesia Patches)

193 Angas Street, Adelaide, SA 5000



Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited
www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System:
GDA 1994 MGA Zone 54

Date: 13 September 2021

Soil Salinity

193 Angas Street, Adelaide, SA 5000

Soil Salinity - Watertable Induced

Watertable induced soil salinity within the dataset buffer:

Map category code	Severity description	Distance
X	Not applicable - No assessment/analysis undertaken	0m

Salinity Watertable Induced Data Source: Dept of Environment, Water and Natural Resources - South Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Soil Salinity - Non-Watertable

Non-watertable soil salinity within the dataset buffer:

Map category code	Severity description	Surface ECe (dS/m)	Subsoil ECe (dS/m)	Distance
X	Not applicable - No assessment/analysis undertaken			0m

Salinity Non-Watertable Data Source: Dept of Environment, Water and Natural Resources - South Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Soil Salinity - Non-Watertable (Magnesia Patches)

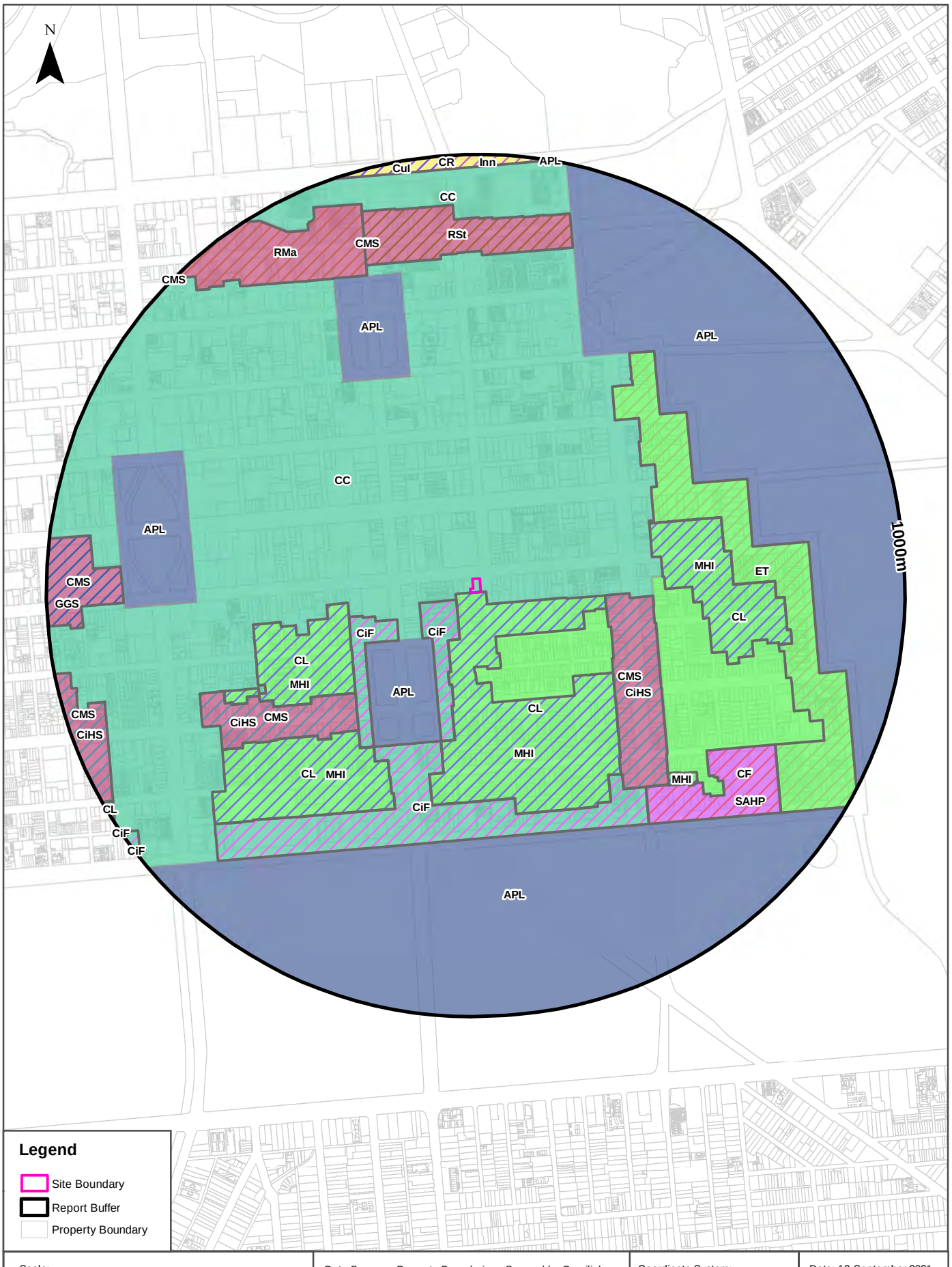
Magnesia patches within the dataset buffer:

Map category code	Proportion of land affected by magnesia patches	Distance
X	Not applicable - No assessment/analysis undertaken	0m

Salinity Non-Watertable (Magnesia Patches) Data Source: Dept of Environment, Water and Natural Resources - South Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Planning and Design Code Zones

193 Angas Street, Adelaide, SA 5000



Planning

193 Angas Street, Adelaide, SA 5000

Planning and Design Code - Zones

Planning and Design Code zones within the dataset buffer:

Map Id	Zone Code	Zone Name	Legal Start State	Status	Distance	Direction
CC	Z0905	Capital City	19/03/2021	0	0m	Onsite
CL	Z0908	City Living	19/03/2021	0	0m	Onsite
APL	Z0302	Adelaide Park Lands	19/03/2021	0	138m	South West
CL	Z0908	City Living	19/03/2021	0	290m	South West
CMS	Z0909	City Main Street	19/03/2021	0	294m	South East
CMS	Z0909	City Main Street	19/03/2021	0	359m	South West
CL	Z0908	City Living	19/03/2021	0	403m	East
CL	Z0908	City Living	19/03/2021	0	417m	South West
APL	Z0302	Adelaide Park Lands	19/03/2021	0	502m	North
APL	Z0302	Adelaide Park Lands	19/03/2021	0	550m	South East
CF	Z0903	Community Facilities	19/03/2021	0	601m	South East
APL	Z0302	Adelaide Park Lands	19/03/2021	0	646m	West
CMS	Z0909	City Main Street	19/03/2021	0	759m	North
CMS	Z0909	City Main Street	19/03/2021	0	817m	West
CMS	Z0909	City Main Street	19/03/2021	0	900m	West
CR	Z0911	City Riverbank	19/03/2021	0	968m	North
CL	Z0908	City Living	19/03/2021	0	975m	South West

Land Development Zones Data Source: Department of Planning, Transport and Infrastructure - South Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Planning and Design Code - Subzones

Planning and Design Code subzones within the dataset buffer:

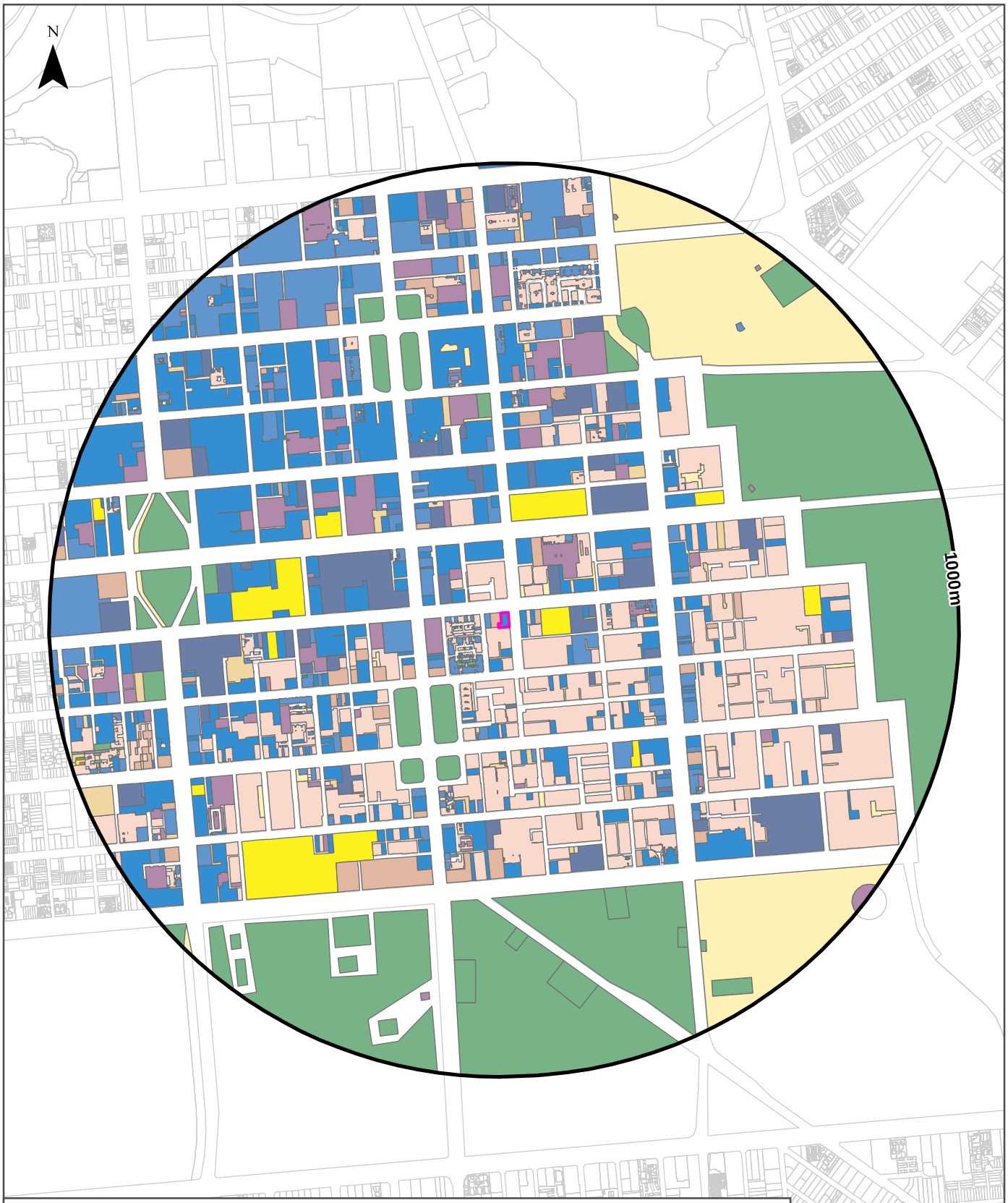
Map Id	Subzone Code	Subzone Name	Legal Start State	Status	Distance	Direction
MHI	S3902	Medium-High Intensity	19/03/2021	0	0m	South
CiF	S0901	City Frame	19/03/2021	0	38m	South West
CiF	S0901	City Frame	19/03/2021	0	185m	South West
MHI	S3902	Medium-High Intensity	19/03/2021	0	291m	South West
CiHS	S0903	City High Street	19/03/2021	0	293m	South East
CiF	S0901	City Frame	19/03/2021	0	356m	South
CiHS	S0903	City High Street	19/03/2021	0	361m	South West

Map Id	Subzone Code	Subzone Name	Legal Start State	Status	Distance	Direction
MHI	S3902	Medium-High Intensity	19/03/2021	0	409m	East
MHI	S3902	Medium-High Intensity	19/03/2021	0	418m	South West
ET	S1504	East Terrace	19/03/2021	0	420m	East
SAHP	S5704	St Andrews Hospital Precinct	19/03/2021	0	602m	South East
MHI	S3902	Medium-High Intensity	19/03/2021	0	614m	South East
RMa	S5401	Rundle Mall	19/03/2021	0	758m	North West
RSt	S5402	Rundle Street	19/03/2021	0	758m	North
GGS	S2101	Gouger and Grote Street	19/03/2021	0	818m	West
CiHS	S0903	City High Street	19/03/2021	0	901m	West
CiF	S0901	City Frame	19/03/2021	0	964m	South West
CuI	S0902	Cultural Institutions	19/03/2021	0	968m	North
Inn	S2701	Innovation	19/03/2021	0	968m	North
MHI	S3902	Medium-High Intensity	19/03/2021	0	976m	South West

Land Development Zones Data Source: Department of Planning, Transport and Infrastructure - South Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Land Use Generalised 2019

193 Angas Street, Adelaide, SA 5000



Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited
www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System: GDA 1994 MGA Zone 54

Date: 13 September 2021

Planning

193 Angas Street, Adelaide, SA 5000

Land Use Generalised 2019

Land use classes within the dataset buffer:

Description	Distance	Direction
Commercial	0m	Onsite
Residential	0m	Onsite
Non Private Residential	0m	Onsite
Retail Commercial	17m	West
Vacant Urban Land	32m	South
Vacant	44m	North East
Education	71m	East
Recreation	72m	South West
Utilities or Industry	77m	South West
Public Institution	101m	North East
Reserves	576m	North East

Land Use Generalised Data Source: Dept of Planning, Transport and Infrastructure - South Australia
Creative Commons 4.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/4.0/au/deed.en

Heritage

193 Angas Street, Adelaide, SA 5000



Legend

- Site Boundary
- Report Buffer
- Property Boundary
- State Heritage Area
- SA Heritage Places
- Aboriginal Land
- Commonwealth Heritage List
- National Heritage List

Scale: 0 100 200 Meters

Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System: GDA 1994 MGA Zone 54

Date: 13 September 2021

Heritage

193 Angas Street, Adelaide, SA 5000

Commonwealth Heritage List

What are the Commonwealth Heritage List Items located within the dataset buffer?

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
Creative Commons 3.0 © Commonwealth of Australia https://creativecommons.org/licenses/by/3.0/au/deed.en

National Heritage List

What are the National Heritage List Items located within the dataset buffer?
Note. Please click on Place Id to activate a hyperlink to online website.

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
105758	The Adelaide Park Lands and City Layout	South Tce, Adelaide SA	3/03/001/0279	Historic	Listed place	2008-11-07	0m	North West

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
Creative Commons 3.0 © Commonwealth of Australia https://creativecommons.org/licenses/by/3.0/au/deed.en

State Heritage Areas

State Heritage Areas within the dataset buffer:

Heritage Id	Name	Distance	Direction
N/A	No records in buffer		

Heritage Areas Data Source: Dept of Environment, Water and Natural Resources - South Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

SA Heritage Places

SA Heritage Places within the dataset buffer:

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
21945	11-19 Regent Street North ADELAIDE	Local	House	Row House	30/08/2007	0m	South
1074	12-14 Eden Street ADELAIDE	Local	House	Attached Houses	1/11/2001	4m	South West
1501	187-191 Angas Street ADELAIDE	State	Hotel - Motel - Inn	Seven Stars Hotel		6m	North West
1075	18-20 Eden Street ADELAIDE	Local	House	Attached Houses	1/11/2001	9m	South West
1056	21 Regent Street ADELAIDE	Local	House	House	1/11/2001	32m	South
1057	23 Regent Street ADELAIDE	Local	House	House	1/11/2001	38m	South

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
27076	228-256 Carrington Street, 7-29 Hume Lane, 1-32 RegentStN ADELAIDE	State	House	Manitoba Housing Complex		40m	South East
1058	25 Regent Street ADELAIDE	Local	House	House	1/11/2001	43m	South
1059	27 Regent Street ADELAIDE	Local	House	Shop	1/11/2001	50m	South
1502	214 Angas Street ADELAIDE	State	House	Dwelling ('Elder Mews') (former Adelaide Workmen's Homes)		50m	North East
1060	29 Regent Street ADELAIDE	Local	House	former House	1/11/2001	58m	South
1727	216 Angas Street ADELAIDE	State	House	Dwelling ('Elder Mews') (former Adelaide Workmen's Homes)		60m	North East
1728	220 Angas Street ADELAIDE	State	House	Dwelling ('Elder Mews') (former Adelaide Workmen's Homes)		67m	North East
20655	230 Frome Street ADELAIDE	State	House	Dwelling ('Elder Mews') (former Adelaide Workmen's Homes)		67m	North East
20654	228 Frome Street ADELAIDE	State	House	Dwelling ('Elder Mews') (former Adelaide Workmen's Homes)		76m	North East
1497	204-218 Carrington Street ADELAIDE	State	House	Dwelling ('Albert Terrace')		76m	South
1729	222 Angas Street ADELAIDE	State	House	Dwelling ('Elder Mews') (former Adelaide Workmen's Homes)		77m	North East
20653	226 Frome Street ADELAIDE	State	House	Dwelling ('Elder Mews') (former Adelaide Workmen's Homes)		83m	North East
1730	224 Angas Street ADELAIDE	State	House	Dwelling ('Elder Mews') (former Adelaide Workmen's Homes)		86m	North East
1712	224 Frome Street ADELAIDE	State	House	Dwelling ('Elder Mews') (former Adelaide Workmen's Homes)		90m	North East
1731	224A Angas Street ADELAIDE	State	House	Dwelling ('Elder Mews') (former Adelaide Workmen's Homes)		93m	North East
1503	220 Frome Street ADELAIDE	State	House	Dwelling ('Elder Mews') (former Adelaide Workmen's Homes)		98m	North
1732	226 Angas Street ADELAIDE	State	House	Dwelling ('Elder Mews') (former Adelaide Workmen's Homes)		101m	North East
1733	226A Angas Street ADELAIDE	State	House	Dwelling ('Elder Mews') (former Adelaide Workmen's Homes)		110m	North East
970	233-235 Carrington Street ADELAIDE	Local	House	Attached Houses	1/11/2001	125m	South East
971	237-239 Carrington Street ADELAIDE	Local	House	Attached Houses	1/11/2001	130m	South East
974	258-260 Carrington Street ADELAIDE	Local	House	House	1/11/2001	134m	South East
972	245-249 Carrington Street ADELAIDE	Local	House	Row Houses	1/11/2001	145m	South East
1595	59 Regent Street South ADELAIDE	Local	Civic/Community Centre	Box Factory Community Centre	1/11/2001	145m	South
1026	8-10 McLaren Street ADELAIDE	Local	House	Attached Houses	1/11/2001	153m	South
1028	12 McLaren Street ADELAIDE	Local	House	House	1/11/2001	157m	South East
25022	14-16 McLaren Street ADELAIDE	Local		Dwelling	24/02/2011	158m	South East
1031	18 McLaren Street ADELAIDE	Local	House	House	1/11/2001	161m	South East
1032	20-22 McLaren Street ADELAIDE	Local	House	House	1/11/2001	165m	South East

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
973	255 Carrington Street ADELAIDE	Local	House	House	1/11/2001	165m	South East
1365	221 Wakefield Street ADELAIDE	State	Secondary School/College	Office (former Our Boys Institute Building) [facade only]		168m	North
1084	316-320 Pulteney Street ADELAIDE	Local	Hotel - Motel - Inn	Earl of Aberdeen Hotel	1/11/2001	170m	South West
1034	24 McLaren Street ADELAIDE	Local	House	House	1/11/2001	172m	South East
1036	28-30 McLaren Street ADELAIDE	Local	House	Attached Houses	1/11/2001	175m	South East
25008	265 Carrington Street ADELAIDE	Local		Dwelling	24/02/2011	179m	South East
1596	61-65 Regent Street South ADELAIDE	Local	House	Row Houses	1/11/2001	183m	South
1037	32 McLaren Street ADELAIDE	Local	House	House	1/11/2001	185m	South East
25023	34-36 McLaren Street ADELAIDE	Local		Dwelling	24/02/2011	187m	South East
1024	5 McLaren Street ADELAIDE	Local	House	House	1/11/2001	190m	South
1025	7 McLaren Street ADELAIDE	Local	House	House	1/11/2001	191m	South
25009	267 Carrington Street ADELAIDE	Local		Dwelling	24/02/2011	191m	South East
1027	9-11 McLaren Street ADELAIDE	Local	House	Attached Houses	1/11/2001	193m	South
1038	38-40 McLaren Street ADELAIDE	Local	House	Attached Houses	1/11/2001	195m	South East
1029	13-15 McLaren Street ADELAIDE	Local	House	Attached Houses	1/11/2001	196m	South East
25010	269 Carrington Street ADELAIDE	Local		Dwelling	24/02/2011	197m	South East
1030	17-19 McLaren Street ADELAIDE	Local	House	Attached Houses	1/11/2001	201m	South East
1597	67 Regent Street South ADELAIDE	Local	House	House	1/11/2001	202m	South
1073	54-56 Cardwell Street 2 - 4 Hume Street ADELAIDE	Local	House	Semi-Detached Houses	1/11/2001	205m	East
1033	21-23 McLaren Street ADELAIDE	Local	House	Attached Houses	1/11/2001	206m	South East
1083	154-160 Carrington Street ADELAIDE	Local	House	Terrace House	1/11/2001	207m	South West
1638	214 Wakefield Street ADELAIDE	State	Secondary School/College	Christian Brothers College (CBC) - Brothers House and Hurley Wing (originally Dormitory/Gymnasium wing) [External load-bearing walls only]		208m	North
1039	42-44 McLaren Street ADELAIDE	Local	House	Attached Houses	1/11/2001	209m	South East
1035	25-35 McLaren Street ADELAIDE	Local	House	Row Houses	1/11/2001	212m	South East
1072	28-30 Cardwell Street ADELAIDE	Local	House	Row Houses	1/11/2001	214m	North East

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
1040	48 McLaren Street ADELAIDE	Local	House	House	1/11/2001	218m	South East
1071	26 Cardwell Street ADELAIDE	Local	House	House	1/11/2001	220m	North East
1042	50-52 McLaren Street ADELAIDE	Local	House	Row Houses	1/11/2001	222m	South East
1010	196-198 Halifax Street ADELAIDE	Local	House	Attached Houses	1/11/2001	224m	South
1011	200 Halifax Street ADELAIDE	Local	House	House	1/11/2001	227m	South
1070	16 Cardwell Street ADELAIDE	Local	House	Attached House	1/11/2001	229m	North East
25466	152-160 Wakefield Street ADELAIDE	Local		St Stephen's Lutheran Church Hall	27/03/2013	232m	North West
1012	206-208 Halifax Street ADELAIDE	Local	House	House	1/11/2001	233m	South East
1044	54-56 McLaren Street , 91-99 Cardwell Street ADELAIDE	Local	House	Attached Houses	1/11/2001	235m	South East
975	283-285 Carrington Street 82-90 Cardwell Street ADELAIDE	Local	House	Attached Houses	1/11/2001	237m	South East
240	267-271 Wakefield Street ADELAIDE	Local	House	House	1/11/2001	240m	North East
243	152-160 Wakefield Street ADELAIDE	Local	Religious Building	St Stephen's Lutheran Church	1/11/2001	240m	North West
25450	263-265 Wakefield Street ADELAIDE	Local		Former Dwelling	27/03/2013	241m	North East
1013	212-214 Halifax Street ADELAIDE	Local	House	House	1/11/2001	242m	South East
978	294-296 Carrington Street ADELAIDE	Local	House	Attached Houses	1/11/2001	245m	East
1014	216-218 Halifax Street ADELAIDE	Local	House	House	1/11/2001	248m	South East
976	287-289 Carrington Street ADELAIDE	Local	House	Attached Houses	1/11/2001	249m	South East
1076	13-13a & 17 Kenton Street ADELAIDE	Local	House	Row Houses	1/11/2001	250m	North East
1041	49-51 McLaren Street ADELAIDE	Local	House	Row Houses	1/11/2001	251m	South East
1046	62 McLaren Street , 92-100 Cardwell Street ADELAIDE	Local	House	House	1/11/2001	254m	South East
27078	81-129 Wakefield Street ADELAIDE	State	Fire Station	Adelaide Fire Station		254m	West
1069	279-281 Angas Street ADELAIDE	Local	House	Attached House	1/11/2001	257m	East
1047	64 McLaren Street ADELAIDE	Local	House	House	1/11/2001	259m	South East

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
979	298 Carrington Street ADELAIDE	Local	House	House	1/11/2001	259m	East
236	20 Princess Street ADELAIDE	Local	House	House	1/11/2001	260m	West
1077	14 Kenton Street ADELAIDE	Local	House	House	1/11/2001	260m	North East
977	291 & 295 Carrington Street ADELAIDE	Local	House	Row Houses	1/11/2001	261m	South East
1043	53-55 McLaren Street , 103-107 Cardwell Street ADELAIDE	Local	House	Attached Houses	1/11/2001	262m	South East
1049	66 McLaren Street ADELAIDE	Local	House	House	1/11/2001	265m	South East
25012	293 Carrington Street ADELAIDE	Local		Dwelling	24/02/2011	266m	South East
241	273-275 Wakefield Street ADELAIDE	Local	House	House	1/11/2001	267m	North East
1050	68 McLaren Street ADELAIDE	Local	House	House	1/11/2001	271m	South East
1504	132-140 Carrington Street ADELAIDE	State	House	Dwelling		272m	South West
25017	232-234 Halifax Street ADELAIDE	Local		Dwellings	24/02/2011	275m	South East
1064	171-173 Halifax Street ADELAIDE	Local	Business House - Offices	Offices (former Shop)	1/11/2001	277m	South
1498	302-304 Carrington Street ADELAIDE	State	House	Dwelling		278m	East
25016	187 Halifax Street ADELAIDE	Local		Shop and Dwelling	24/02/2011	278m	South
1045	61-63 McLaren Street , 104-108 Cardwell Street ADELAIDE	Local	House	Attached Houses	1/11/2001	279m	South East
1009	193 Halifax Street , 2-8 Castle Street ADELAIDE	Local	House	House	1/11/2001	280m	South
242	281-285 Wakefield Street ADELAIDE	Local	Business House - Offices	Office (former house) designated site comprises that part of the CT to a depth of half town acre 352 from the Wakefield Street alignment	1/11/2001	280m	North East
25020	236-238 Halifax Street ADELAIDE	Local		Dwellings	24/02/2011	284m	South East
1048	65 McLaren Street ADELAIDE	Local	House	House	1/11/2001	288m	South East
980	301-303 Carrington Street ADELAIDE	Local	House	Attached Houses	1/11/2001	289m	South East
1571	101-119 Hutt Street ADELAIDE	Local	Restaurant - Cabaret - Nightclub	Naval Military & Air Force Club	1/11/2001	290m	East
1499	306-308 Carrington Street ADELAIDE	State	House	Dwelling and Shop		293m	East
282	143-147 Hutt Street , 33-39 Hume Street ADELAIDE	Local	Business House - Offices	Dormer House	1/11/2001	294m	East

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
25024	67 McLaren Street ADELAIDE	Local		Dwelling	24/02/2011	295m	South East
234	11-19 Princess Street ADELAIDE	Local	House	Attached Houses	1/11/2001	296m	West
981	305-307 Carrington Street ADELAIDE	Local	House	Attached Houses	1/11/2001	301m	East
21946	95-99 Hutt Street ADELAIDE	Local	Business House - Offices	Feeney House	30/08/2007	301m	North East
1051	71-73 McLaren Street ADELAIDE	Local	House	Attached Houses	1/11/2001	302m	South East
1052	80-82 McLaren Street ADELAIDE	Local	House	Attached Houses	1/11/2001	304m	South East
1079	15-23 Hurtle Square ADELAIDE	Local	House	Terrace House	1/11/2001	306m	South West
983	10-14 Castle Street ADELAIDE	Local	House	Row Houses	1/11/2001	310m	South
984	11 Castle Street ADELAIDE	Local	House	House	1/11/2001	310m	South
1061	11-13 Wakeham Street ADELAIDE	Local	House	Attached Houses	1/11/2001	313m	South
982	309 Carrington Street ADELAIDE	Local	House	House	1/11/2001	313m	East
1054	84 McLaren Street ADELAIDE	Local	House	House	1/11/2001	313m	South East
1066	14-16 Wakeham Street ADELAIDE	Local	House	Semi-detached Houses and Walling	1/11/2001	314m	South
249	217-219 Flinders Street ADELAIDE	Local	Business House - Offices	Offices and Laboratories (Flinders Hall Former St Paul's School)	1/11/2001	315m	North
1015	14-16 Harriett Street ADELAIDE	Local	House	Attached Houses	1/11/2001	320m	South
1062	15-19a Wakeham Street ADELAIDE	Local	House	Row Houses	1/11/2001	322m	South
1055	86-88 McLaren Street ADELAIDE	Local	House	Attached Houses	1/11/2001	322m	South East
1116	22-26 Queen Street ADELAIDE	Local	House	Terrace Houses	1/11/2001	326m	West
1080	29-31 Hurtle Square ADELAIDE	Local	House	Terrace House	1/11/2001	330m	South West
1090	116-120 Carrington Street , 32-40 Queen Street ADELAIDE	Local	House	Former Terrace	1/11/2001	330m	West
1053	81 McLaren Street ADELAIDE	Local	House	House	1/11/2001	332m	South East
1104	5-11 Mocatta Place ADELAIDE	Local	House	Terrace House	1/11/2001	333m	South West
1016	18-20 Harriett Street ADELAIDE	Local	House	Attached Houses	1/11/2001	335m	South
1067	21-21a Wakeham Street ADELAIDE	Local	House	Semi-detached House,	1/11/2001	342m	South
1505	33 Hurtle Square ADELAIDE	State	House	Dwelling - Darcy Lever Terrace		343m	South West

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
985	22 Castle Street ADELAIDE	Local	House	House	1/11/2001	345m	South
1017	22-24 Harriett Street ADELAIDE	Local	House	Attached Houses	1/11/2001	346m	South
1734	35 Hurtle Square ADELAIDE	State	House	Dwelling - Darcy Lever Terrace		347m	South West
1735	37 Hurtle Square ADELAIDE	State	House	Dwelling - Darcy Lever Terrace		351m	South West
986	23a-25 Castle Street , 34-40 Ely Place ADELAIDE	Local	House	Attached Houses	1/11/2001	351m	South
987	24-26 Castle Street , 22-30 Ely Place ADELAIDE	Local	House	Attached Houses	1/11/2001	353m	South
1068	23-25 Wakeham Street ADELAIDE	Local	House	Semi-detached Houses	1/11/2001	353m	South
1736	39 Hurtle Square ADELAIDE	State	House	Dwelling - Darcy Lever Terrace		355m	South West
25180	187-189 Hutt Street ADELAIDE	Local		Shop and Dwelling	24/02/2011	358m	South East
1018	26-28 Harriett Street ADELAIDE	Local	House	Attached Houses	1/11/2001	359m	South
1065	25-27 Harriett Street ADELAIDE	Local	House	House	1/11/2001	367m	South
251	122-130 Hutt Street 301 - 303 Angas Street ADELAIDE	Local	House	Former House	1/11/2001	369m	East
993	214-216 Gilles Street ADELAIDE	Local	House	Attached Houses	1/11/2001	373m	South
994	218-220 Gilles Street ADELAIDE	Local	House	House	1/11/2001	373m	South
1366	170 Flinders Street ADELAIDE	State	Religious Building	Bethlehem Lutheran Church and former Day School		373m	North
25018	29-31 Harriett Street ADELAIDE	Local		Dwelling	24/02/2011	374m	South
1643	146-158 Hutt Street ADELAIDE	State	Business: Commercial/Retail	Shops (former 'Victoria Terrace' Dwellings)		374m	East
1019	32 Harriett Street ADELAIDE	Local	House	House	1/11/2001	375m	South
1383	160 Hutt Street ADELAIDE	State	Restaurant - Cabaret - Nightclub	Chianti Restaurant (former Shop)		377m	East
25502	81-83 Angas Street ADELAIDE	Local		Former Dwelling	27/03/2013	378m	West
1367	265-279 Flinders Street ADELAIDE	State	Colleges of Advanced Education	School of Music (former Flinders Street Primary School)		379m	North East
992	210-212 Gilles Street ADELAIDE	Local	House	Attached Houses	1/11/2001	379m	South
1644	162-166 Hutt Street ADELAIDE	State	Hotel - Motel - Inn	General Havelock Hotel and Outbuilding (former Stables)		382m	East
1598	142-160 Flinders Street ADELAIDE	Local	Restaurant - Cabaret - Nightclub	Former St Paul's Rectory	1/11/2001	384m	North
999	250-252 Gilles Street ADELAIDE	Local	House	Attached Houses	1/11/2001	386m	South
233	79 Angas Street ADELAIDE	Local	House	Terrace House	1/11/2001	388m	West

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
996	222-224 Gilles Street ADELAIDE	Local	House	House	1/11/2001	389m	South
1001	254 Gilles Street ADELAIDE	Local	House	Attached House	1/11/2001	389m	South
1002	256 Gilles Street , 1-3 Ely Place ADELAIDE	Local	House	Attached House	1/11/2001	391m	South
1089	101-103 Carrington Street ADELAIDE	Local	House	Row Houses	1/11/2001	391m	South West
1364	82-96 Wakefield Street ADELAIDE	State	Business House - Offices	Office (former Menz Biscuit Factory)		392m	North West
230	74-80 Angas Street 26 - 40 Chancery Lane ADELAIDE	Local	Hotel - Motel - Inn	Former Angas Hotel	1/11/2001	392m	West
238	26-30 Roper Street ADELAIDE	Local	Business House - Offices	Offices (Former Blacksmith's Shop) (Conservation site comprises that part of the above CT to a depth of half Town Acre 298 from the Roper Street alignment)	1/11/2001	392m	North West
239	192-200 Pulteney Street ADELAIDE	Local	Restaurant - Cabaret - Nightclub	Former Saint Paul's Anglican Church	1/11/2001	392m	North West
291	* 274-280 Halifax Street 199 Hutt Street ADELAIDE	Local	Business: Commercial/Retail	Shops and Offices	1/11/2001	393m	South East
283	168-170 Hutt Street ADELAIDE	Local	Business: Commercial/Retail	Terrace Shops	1/11/2001	394m	East
232	77 Angas Street ADELAIDE	Local	House	Terrace House	1/11/2001	394m	West
1368	147 Frome Street ADELAIDE	State	House	Offices (former Reid, Jay and Co. Stables and Residential Quarters)		394m	North
1088	100 Carrington Street ADELAIDE	Local	House	House	1/11/2001	395m	West
231	75 Angas Street ADELAIDE	Local	House	Terrace House	1/11/2001	400m	West
1087	98 Carrington Street ADELAIDE	Local	House	House	1/11/2001	402m	West
1500	188 Gilles Street ADELAIDE	State	House	Dwelling (former Beresford Arms, later Oddfellows Arms Hotel)		402m	South
284	178 Hutt Street ADELAIDE	Local	Business: Commercial/Retail	Terrace Shop	1/11/2001	406m	East
968	20-22 Cairns Street ADELAIDE	Local	House	Attached Houses	1/11/2001	408m	South East
839	332-340 Carrington Street ADELAIDE	Local	Flat - Units	Row Houses	1/11/2001	409m	East
1570	27-29 Roper Street ADELAIDE	Local	Hotel - Motel - Inn	Former Wheelwright Arms Hotel (Designated site comprises that part of the above CT to a depth of half Town Acre 299 from the Wakefield Street alignment)	1/11/2001	410m	North West
292	* 201 Hutt Street ADELAIDE	Local	House	House	1/11/2001	415m	South East
969	26-28 Cairns Street ADELAIDE	Local	House	Attached Houses	1/11/2001	417m	South East
837	318 Angas Street ADELAIDE	Local	House	House	1/11/2001	418m	East
229	63-69 Angas Street 2 - 12 Moore Street ADELAIDE	Local	Theatre - Cinema	Royalty Theatre	1/11/2001	421m	West
293	* 205 Hutt Street ADELAIDE	Local	House	House	1/11/2001	423m	South East
838	320 Angas Street ADELAIDE	Local	House	House	1/11/2001	424m	East

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
1508	110 Halifax Street ADELAIDE	State	Hotel - Motel - Inn	Rob Roy Hotel & Outbuilding		424m	South West
1081	431-435 Pulteney Street ADELAIDE	Local	House	former House	1/11/2001	424m	South West
1678	26-28 Moore Street ADELAIDE	State	Religious Building	St Mary Magdalene's Anglican Church		424m	West
1679	30 Moore Street ADELAIDE	State	Religious Building	St Peter's College Mission (Anglican)		425m	West
17458	333-339 Carrington Street 2-8 Corryton Street ADELAIDE	Local	Flat - Units	Row Houses	30/03/2006	425m	East
1086	84-90 Carrington Street , 34-30 Moore Street ADELAIDE	Local	Hotel - Motel - Inn	Saracens Head Hotel	1/11/2001	427m	West
995	221 Gilles Street ADELAIDE	Local	House	House	1/11/2001	427m	South
997	233-235 Gilles Street , 2-8 Charlotte Street ADELAIDE	Local	House	House	1/11/2001	429m	South
1005	284-286 Gilles Street , 152-160 Cardwell Street ADELAIDE	Local	House	Former Shop and Residence	1/11/2001	429m	South East
967	15-17 Cairns Street ADELAIDE	Local	House	Row Houses	1/11/2001	429m	South East
998	237-239 Gilles Street ADELAIDE	Local	House	Attached Houses	1/11/2001	430m	South
1096	111-117 Halifax Street 1-7 Stephen Street ADELAIDE	Local	House	Row Houses	1/11/2001	432m	South West
1106	36-38 Sanders Place ADELAIDE	Local	House	Row Houses	1/11/2001	434m	South West
850	12-14 Corryton Street ADELAIDE	Local	House	Attached Houses	1/11/2001	434m	East
294	* 213 Hutt Street ADELAIDE	Local	House	House	1/11/2001	436m	South East
25181	198 Hutt Street ADELAIDE	Local		Shop and Dwelling	24/02/2011	437m	South East
880	17a-19 Gladstone Street ADELAIDE	Local	House	Attached Houses	1/11/2001	438m	East
851	16-18 Corryton Street ADELAIDE	Local	House	Attached Houses	1/11/2001	439m	East
879	15-17 Gladstone Street ADELAIDE	Local	House	Attached Houses	1/11/2001	439m	East
285	198a Hutt Street ADELAIDE	Local	Business: Commercial/Retail	Terrace Shop and Residence	1/11/2001	439m	South East
1082	437-439 Pulteney Street , 152-160 Gilles Street ADELAIDE	Local	Hotel - Motel - Inn	Astor Hotel	1/11/2001	439m	South West
840	342 Carrington Street ADELAIDE	Local	House	House	1/11/2001	440m	East
877	9-13 Gladstone Street ADELAIDE	Local	House	Row Houses	1/11/2001	440m	East
1000	253-255 Gilles Street ADELAIDE	Local	House	House	1/11/2001	441m	South

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
286	200 Hutt Street ADELAIDE	Local	Business: Commercial/Retail	Shop	1/11/2001	442m	South East
1093	148 Gilles Street , Johns Lane ADELAIDE	Local	House	House	1/11/2001	442m	South West
25291	4-8 Nil Street ADELAIDE	Local		Former coach house	27/03/2013	444m	North East
1003	257-259 Gilles Street ADELAIDE	Local	House	House	1/11/2001	444m	South
295	* 215 Hutt Street ADELAIDE	Local	House	House	1/11/2001	445m	South East
852	20-22 Corryton Street ADELAIDE	Local	House	Attached Houses	1/11/2001	445m	East
25081	321-325 Wakefield Street ADELAIDE	Local		Former Dwellings	24/02/2011	445m	North East
1593	294-294a Gilles Street ADELAIDE	Local	House	Attached Houses	1/11/2001	445m	South East
1092	146 Gilles Street ADELAIDE	Local	House	House	1/11/2001	446m	South West
1004	263 Gilles Street ADELAIDE	Local	House	House	1/11/2001	448m	South East
841	344 Carrington Street ADELAIDE	Local	House	House	1/11/2001	449m	East
1109	18-20 Stephens Street ADELAIDE	Local	House	House	1/11/2001	449m	South West
25125	341-343 Carrington Street ADELAIDE	Local		Dwelling	24/02/2011	449m	East
853	24 Corryton Street ADELAIDE	Local	House	House	1/11/2001	450m	East
1091	142 Gilles Street ADELAIDE	Local	House	House	1/11/2001	452m	South West
25069	105-109 Halifax Street ADELAIDE	Local		Church	24/02/2011	453m	South West
237	74-78 Wakefield Street 29 - 39 Divett Place ADELAIDE	Local	Hotel - Motel - Inn	Wakefield Hotel	1/11/2001	453m	North West
1369	56 Hutt Street ADELAIDE	State	Business: Commercial/Retail	Bray House		454m	North East
1108	11-19 Stephens Street ADELAIDE	Local	House	Row Houses	1/11/2001	455m	South West
1363	1-3/ 22-24 Divett Place ADELAIDE	State	Business House - Offices	Divett Mews (former Goode, Durrant & Co. Stables)		455m	North West
25127	346-350 Carrington Street ADELAIDE	Local		Former Shop and Dwelling	24/02/2011	455m	East
1063	265-269 Gilles Street ADELAIDE	Local	Business: Commercial/Retail	Shop and Terrace Houses	1/11/2001	455m	South East
287	227-229 Hutt Street ADELAIDE	Local	House	Attached Houses	1/11/2001	456m	South East
1111	22-28 Stephens Street , 24-28 Sanders ADELAIDE	Local	House	Place Row Houses	1/11/2001	457m	South West
25095	11-13 Kate Court ADELAIDE	Local		Dwelling	24/02/2011	459m	East
165	112-116 Flinders Street ADELAIDE	Local	Restaurant - Cabaret - Nightclub	Restaurant	1/11/2001	459m	North West

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
988	10-20 Charlotte Street , 2-10 Charlotte Place ADELAIDE	Local	House	Row Houses	1/11/2001	459m	South
1592	32 Corryton Street ADELAIDE	Local	House	House	1/11/2001	460m	South East
245	32 Tucker Street ADELAIDE	Local	House	House	1/11/2001	461m	North East
25126	345-349 Carrington Street ADELAIDE	Local		Former Shop and Dwelling	24/02/2011	462m	East
911	17 Kate Court ADELAIDE	Local	House	House	1/11/2001	463m	East
989	12-14 Charlotte Place ADELAIDE	Local	House	Attached Houses	1/11/2001	464m	South
913	19 Kate Court ADELAIDE	Local	House	House	1/11/2001	467m	East
914	21-21a Kate Court ADELAIDE	Local	House	Attached Houses	1/11/2001	471m	East
881	298 Halifax Street ADELAIDE	Local	House	House	1/11/2001	472m	South East
878	10-20 Gladstone Street ADELAIDE	Local	House	Row Houses	1/11/2001	472m	East
1485	329 Wakefield Street ADELAIDE	State	House	Dwelling ('Carhayes')		473m	North East
916	23-25 Kate Court ADELAIDE	Local	House	Attached Houses	1/11/2001	474m	East
1110	21 Stephens Street ADELAIDE	Local	House	House	1/11/2001	476m	South West
917	27-29 Kate Court ADELAIDE	Local	House	House	1/11/2001	478m	East
882	300 Halifax Street ADELAIDE	Local	House	House	1/11/2001	478m	South East
246	38 Tucker Street ADELAIDE	Local	House	House	1/11/2001	478m	North East
990	26 Charlotte Place ADELAIDE	Local	House	House	1/11/2001	478m	South
991	28 Charlotte Place ADELAIDE	Local	House	House	1/11/2001	480m	South
20890	261-269 Pirie Street ADELAIDE	State	Hotel - Motel - Inn	Tivoli Hotel (including former Ballroom)		481m	North
1112	23-25 Stephens Street , 16-20 Sanders Place ADELAIDE	Local	House	Attached Houses	1/11/2001	482m	South West
883	302-304 Halifax Street ADELAIDE	Local	House	House	1/11/2001	484m	South East
842	353 Carrington Street (known as 351), 2-6 Kate Court ADELAIDE	Local	House	House	1/11/2001	485m	East
247	44 Tucker Street ADELAIDE	Local	House	House	1/11/2001	486m	North East
1115	86-88 Halifax Street ADELAIDE	Local	House	Attached Houses	1/11/2001	486m	South West
25013	291-295 Gilles Street ADELAIDE	Local		Dwellings	24/02/2011	488m	South East
1020	10-12 Louisa Street ADELAIDE	Local	House	Attached Houses	1/11/2001	489m	South East
1105	6-10 Sanders Place ADELAIDE	Local	House	Row Houses	1/11/2001	492m	South West

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
909	12 Kate Court ADELAIDE	Local	House	Attached House	1/11/2001	494m	East
843	360 Carrington Street (known as 358) ADELAIDE	Local	House	House	1/11/2001	495m	East
1006	297-299 Gilles Street ADELAIDE	Local	House	Row Houses	1/11/2001	495m	South East
25096	12A Kate Court ADELAIDE	Local		Dwelling	24/02/2011	496m	East
1113	29-33 Stephens Street , 17-19 Sanders Place ADELAIDE	Local	House	Row Houses	1/11/2001	497m	South West
910	14 Kate Court ADELAIDE	Local	House	Attached House	1/11/2001	497m	East
884	306-310 Halifax Street 33-39 Kate Court ADELAIDE	Local	House	House	1/11/2001	497m	South East
1022	17 Louisa Street , 32-40 Charlotte Place ADELAIDE	Local	House	House	1/11/2001	498m	South East
1095	76-82 Halifax Street ADELAIDE	Local	House	Row Houses	1/11/2001	499m	South West
1325	71-75 Flinders Street ADELAIDE	State	Religious Building	Flinders Street Baptist Church		499m	North West
250	261-269 Pirie Street ADELAIDE	Local	Hotel - Motel - Inn	Tivoli Hotel	1/11/2001	499m	North
1021	14-20 Louisa Street ADELAIDE	Local	House	Row Houses	1/11/2001	499m	South East
954	11 Blackburn Street ADELAIDE	Local	House	House	1/11/2001	500m	South East
1094	137-139 Gilles Street ADELAIDE	Local	House	Row Houses	1/11/2001	500m	South West

Heritage Places Data Source: Dept of Environment, Water and Natural Resources - South Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Aboriginal Land

Aboriginal Land within the dataset buffer:

Map Id	Grant Date	Address	Locality	Description	Title	Distance	Direction
N/A	No records in buffer						

Aboriginal Land Data Source: Department of State Development, Resources and Energy - South Australia

Natural Hazards

193 Angas Street, Adelaide, SA 5000

Bushfire Protection Areas

Bushfire Protection Areas within the dataset buffer:

Map Id	Bushfire Risk Code	Development Plan Code	Additional Development Criteria	Distance	Direction
N/A	No records in buffer				

Bushfire Protection Areas Data Source: Dept of Planning, Transport and Infrastructure - South Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Bushfires and Prescribed Burns History

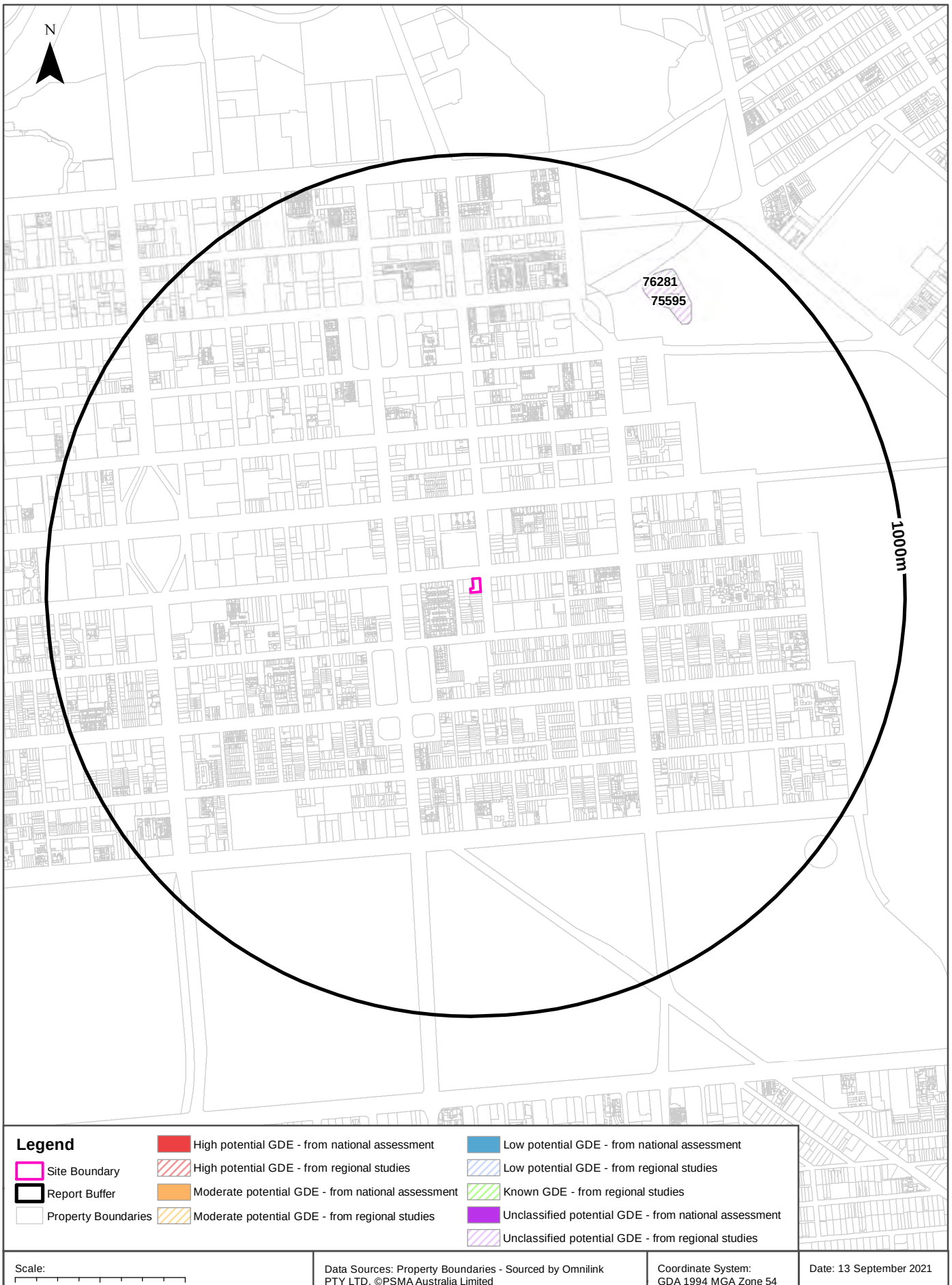
Bushfires and prescribed burns within the dataset buffer:

Map Id	Incident No.	Incident Name	Incident Type	Date of Fire	Area of Fire	Distance	Direction
N/A	No records in buffer						

Bushfires and Prescribed Burns History Data Source: Dept of Environment, Water and Natural Resources - South Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Ecological Constraints - Groundwater Dependent Ecosystems Atlas

193 Angas Street, Adelaide, SA 5000



Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited
www.psma.com.au/psma-data-copyright-and-disclaimer

Coordinate System: GDA 1994 MGA Zone 54

Date: 13 September 2021

Ecological Constraints

193 Angas Street, Adelaide, SA 5000

Groundwater Dependent Ecosystems Atlas

GDEs within the dataset buffer:

MapID	Type	Name	GDE Potential	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
76281	Aquatic		Unclassified potential GDE - from regional studies	10	Salt lake and bahadas in north; alluvial and littoral plains in south; north-west/south-east longitudinal dunes, mainly stabilized.	Wetland		763m
75595	Aquatic		Unclassified potential GDE - from regional studies	10	Salt lake and bahadas in north; alluvial and littoral plains in south; north-west/south-east longitudinal dunes, mainly stabilized.	Wetland		784m

Groundwater Dependent Ecosystems Atlas Data Source: The Bureau of Meteorology
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Ecological Constraints

193 Angas Street, Adelaide, SA 5000

Ramsar Wetlands

Ramsar Wetlands within the dataset buffer:

Wetland	Distance	Direction
No records in buffer		

Ramsar Wetlands Data Source: Dept of Environment, Water and Natural Resources - South Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Location Confidences

Where Lotsearch has had to georeference features from supplied addresses, a location confidence has been assigned to the data record. This indicates a confidence to the positional accuracy of the feature. Where applicable, a code is given under the field heading “LC” or “LocConf”. These codes lookup to the following location confidences:

LC Code	Location Confidence
Premise match	Georeferenced to the site location / premise or part of site
General area or suburb match	Georeferenced with the confidence of the general/approximate area
Road match	Georeferenced to the road or rail
Road intersection	Georeferenced to the road intersection
Feature is a buffered point	Feature is a buffered point
Land adjacent to geocoded site	Land adjacent to Georeferenced Site
Network of features	Georeferenced to a network of features

USE OF REPORT - APPLICABLE TERMS

The following terms apply to any person (End User) who is given the Report by the person who purchased the Report from Lotsearch Pty Ltd (ABN: 89 600 168 018) (Lotsearch) or who otherwise has access to the Report (Terms). The contract terms that apply between Lotsearch and the purchaser of the Report are specified in the order form pursuant to which the Report was ordered and the terms set out below are of no effect as between Lotsearch and the purchaser of the Report.

1. End User acknowledges and agrees that:
   (a) the Report is compiled from or using content (**Third Party Content**) which is comprised of:
      (i) content provided to Lotsearch by third party content suppliers with whom Lotsearch has contractual arrangements or content which is freely available or methodologies licensed to Lotsearch by third parties with whom Lotsearch has contractual arrangements (**Third Party Content Suppliers**); and
      (ii) content which is derived from content described in paragraph (i);
   (b) Neither Lotsearch nor Third Party Content Suppliers takes any responsibility for or give any warranty in relation to the accuracy or completeness of any Third Party Content included in the Report including any contaminated land assessment or other assessment included as part of a Report;
   (c) the Third Party Content Suppliers do not constitute an exhaustive set of all repositories or sources of information available in relation to the property which is the subject of the Report (**Property**) and accordingly neither Lotsearch nor Third Party Content Suppliers gives any warranty in relation to the accuracy or completeness of the Third Party Content incorporated into the report including any contaminated land assessment or other assessment included as part of a Report;
   (d) Reports are generated at a point in time (as specified by the date/time stamp appearing on the Report) and accordingly the Report is based on the information available at that point in time and Lotsearch is not obliged to undertake any additional reporting to take into consideration any information that may become available between the point in time specified by the date/time stamp and the date on which the Report was provided by Lotsearch to the purchaser of the Report;
   (e) Reports must be used or reproduced in their entirety and End User must not reproduce or make available to other persons only parts of the Report;
   (f) Lotsearch has not undertaken any physical inspection of the property;
   (g) neither Lotsearch nor Third Party Content Suppliers warrants that all land uses or features whether past or current are identified in the Report;
   (h) the Report does not include any information relating to the actual state or condition of the Property;
   (i) the Report should not be used or taken to indicate or exclude actual fitness or unfitness of Land or Property for any particular purpose
   (j) the Report should not be relied upon for determining saleability or value or making any other decisions in relation to the Property and in particular should not be taken to be a rating or assessment of the desirability or market value of the property or its features; and
   (k) the End User should undertake its own inspections of the Land or Property to satisfy itself that there are no defects or failures
2. The End User may not make the Report or any copies or extracts of the report or any part of it available to any other person. If End User wishes to provide the Report to any other person or make extracts or copies of the Report, it must contact the purchaser of the Report before doing so to ensure the proposed use is consistent with the contract terms between Lotsearch and the purchaser.
3. Neither Lotsearch (nor any of its officers, employees or agents) nor any of its Third Party Content Suppliers will have any liability to End User or any person to whom End User provides the Report and End User must not represent that Lotsearch or any of its Third Party Content Suppliers accepts liability to any such person or make any other representation to any such person on behalf of Lotsearch or any Third Party Content Supplier.
4. The End User hereby to the maximum extent permitted by law:
   (a) acknowledges that the Lotsearch (nor any of its officers, employees or agents), nor any

of its Third Party Content Supplier have any liability to it under or in connection with the Report or these Terms;

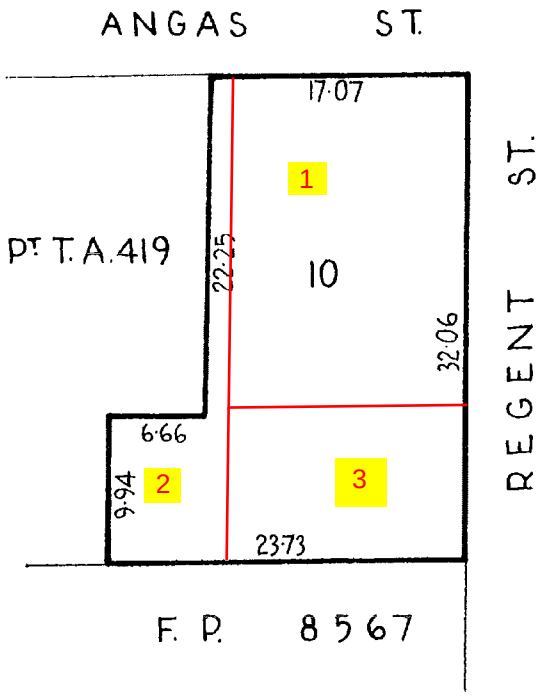
(b) waives any right it may have to claim against Third Party Content Supplier in connection with the Report, or the negotiation of, entry into, performance of, or termination of these Terms; and

(c) releases each Third Party Content Supplier from any claim it may have otherwise had in connection with the Report, or the negotiation of, entry into, performance of, or termination of these Terms.

5. The End User acknowledges that any Third Party Supplier shall be entitled to plead the benefits conferred on it under clause 4, despite not being a party to these terms.
6. End User must not remove any copyright notices, trade marks, digital rights management information, other embedded information, disclaimers or limitations from the Report or authorise any person to do so.
7. End User acknowledges and agrees that Lotsearch and Third Party Content Suppliers retain ownership of all copyright, patent, design right (registered or unregistered), trade marks (registered or unregistered), database right or other data right, moral right or know how or any other intellectual property right in any Report or any other item, information or data included in or provided as part of a Report.
8. To the extent permitted by law and subject to paragraph 9, all implied terms, representations and warranties whether statutory or otherwise relating to the subject matter of these Terms other than as expressly set out in these Terms are excluded.
9. Subject to paragraph 6, Lotsearch excludes liability to End User for loss or damage of any kind, however caused, due to Lotsearch's negligence, breach of contract, breach of any law, in equity, under indemnities or otherwise, arising out of all acts, omissions and events whenever occurring.
10. Lotsearch acknowledges that if, under applicable State, Territory or Commonwealth law, End User is a consumer certain rights may be conferred on End User which cannot be excluded, restricted or modified. If so, and if that law applies to Lotsearch, then, Lotsearch's liability is limited to the greater of an amount equal to the cost of resupplying the Report and the maximum extent permitted under applicable laws.
11. Subject to paragraph 9, neither Lotsearch nor the End User is liable to the other for:
    (a) any indirect, incidental, consequential, special or exemplary damages arising out of or in relation to the Report or these Terms; or
    (b) any loss of profit, loss of revenue, loss of interest, loss of data, loss of goodwill or loss of business opportunities, business interruption arising directly or indirectly out of or in relation to the Report or these Terms,

    irrespective of how that liability arises including in contract or tort, liability under indemnity or for any other common law, equitable or statutory cause of action or otherwise.
12. These Terms are subject to New South Wales law.

Appendix C: Infotrack Report



Copyright: www.landservices.com.au/copyright | Privacy: www.landservices.com.au/privacy | Terms of Use: www.landservices.com.au/sailis-terms-of-use

Mortgage No 203850 (including also other property) from Joseph Orchard to William Knox Simms (C) Produced for registration the 2nd day July 1874 at 11.35 am.

E. Heath Dep. Reg. Genl

South Australia.

(CERTIFICATE OF TITLE.)

Register Book, Vol. CCLXVIII Folio 54

Pursuant to Application No. 15491

Joseph Orchard of Adelaide Licensed Victualler is now seised of an estate in fee simple, subject nevertheless to such incumbrances, liens, and interests, as are notified by memorial underwritten or endorsed hereon, in That piece of land situated in the City of Adelaide, being portion of the Town Acre numbered 419 and bounded as appears in the plan in the margin hereof, and therein colored green, which said piece of land contains thirteen perches or thereabouts and measures as well on the North side next Angas Street as on the south side next other part of the said acre fifty feet or thereabouts and as well on the east side next Leland Street as on the west side next other part of the said acre seventy feet or thereabouts

which said Town Acre 419 is delineated in the public map of the said city, deposited in the office of the Surveyor-General, and was originally granted the 23rd day of December, 1837, under the hand and seal of James Hurtle Fisher, Esquire, Resident Commissioner of the said Province, to George Fife Angas and others

In witness whereof, I have hereunto signed my name and affixed my seal this 20th day of January one thousand eight hundred and seventy eight in presence of

Under Lease No 38907 from William Ross Sawers Augustus Davies and William Selby Downe for 21 years 4th Instalment of Angas Street Adelaide Signed Memorandum of the within Lease No 203849 cancelled 29th January 1878 to the 1st day February 1900. Produced for registration the 30th day July 1877 at 2.30 pm.

E. Heath Dep. Reg. Genl

Cancelled Vide Letter No 395 of 1897 Vol 623 Fol 115

Registrar-General.

Transfer No 291022. from Joseph Orchard to Eleanor Jane Orchard his wife of an estate in fee simple in the within land for her separate use produced for registration this 11th day April 1878 at 3 pm.

E. Heath Dep. Reg. Genl



Mortgage No 294567 from Eleanor Jane Orchard to Charles Heinze produced for registration the 30 day July 1895 at 2.55 pm

E. Heath Dep. Reg. Genl

10 5 0 10 20 30 40 50 100 feet

Transfer of the within Mortgage No 294567 by endorsement thereon from Charles Heinze to William Knox Simms of Adelaide gentleman produced for registration this 25 day September 1896 at 2.20 pm.

E. Heath Dep. Reg. Genl

Cancelled and a New Certificate of Title issued Vide Letter No 395 of 1897 Vol 623 Fol 115.

E. Heath

Dep. Reg. Genl

Mortgage No 103455. (Including also other property) from Joseph Orchard to William Ross Sawers and Samuel Robert Fox. Produced the 23rd day September 1879 at 11.a.m.

Manfield Dep. Reg. Genl

Lease No 103814 (including also other property) from James Orchard to William Ross Sawers and Samuel Robert Fox of the above land from 14 years from the 1st day May 1879 at Produced the 2nd day October 1879 at 2pm

Manfield Dep. Reg. Genl

Discharge of the above Mortgage No 103456 by receipt endorsed thereon dated the 1 day August 1883.
Entered the 7 day August 1883 at 11 a.m.
Mmew Cuntt D. Reg Genl

Surrender of the above Lease No 23814 by endorsement thereon dated the 1 day August 1883. Entered the 7 day August 1883 at 11 a.m.
Mmew Cuntt D. Reg Genl

Mortgage No 164376 (Including also other property) from Joseph Orchard to William Ross Sawers and Arthur Rait Malcom.
Produced the 7 day August 1883 at 9 a.m.
Mmew Cuntt D. Reg Genl

Lease No 164548 (Including also other property) from Joseph Orchard to William Ross Sawers and Arthur Rait Malcom of the above land.
Term 21 years from the 19 day July 1883.
Produced the 10 day August 1883 at 9 a.m.
Mmew Cuntt D. Reg Genl

Power of Attorney No 207140 Produced the 6th day of September 1886 at 11.50 a.m.
Entered the 28th day of June 1889 at 3 p.m.
WmMCuttle Dept Genl

The time for payment of the above Mortgage No 164376 is extended for five years from the 1st day of April 1889 as appears by Endorsement thereon. Produced for registration the 1st day of June 1889 at 11.25 a.m.
WmMCuttle Dept Genl

Mortgage No 230100. (Including also other property) from Joseph Orchard to William Ross Sawers. Produced for registration the 1st day of June 1889 at 11.25 a.m.
WmMCuttle Dept Genl

The within named Arthur Rait Malcom died on the 23 day December 1890 as appears by Certificate of Death No 2611900 produced for registration the 5 day August 1892 at 11.45 pm.
E J Heath Dep. Reg. Genl

Transfer No 261480 from William Ross Sawers to the said William Ross Sawers. Augusta Davies of Adelaide gentleman and William Selby Douglas of Adelaide agent of the within Mortgages No 164376 and 230100 and Lease No 164548 produced for registration the 22 day July 1892 at 11.45 am.
E J Heath Dep. Reg. Genl

Mortgage No 264963 (Including also other property) from William Ross Sawers Augusta Davies and William Selby Douglas to The Union Bank of Australia Limited of the within Mortgages No 164376 and 230100 and Lease No 164548. Produced for registration the 4 day November 1892 at 12.35 pm.
E J Heath Dep. Reg. Genl

No 270056 dated the 25 day April 1893 produced for registration the 25 day April 1893 at 2.55 pm.
E J Heath Dep. Reg. Genl

Power of Attorney deposited No 275187.
E J Heath Dep. Reg. Genl

The within Lease No 164548 and Mortgages Nos 164376 and 230100 are discharged from all moneys secured by Mortgage No 264963 as appears by Memorandum No 283407. Produced for registration the 28 day July 1894 at 11.15 am.
E J Heath Dep. Reg. Genl

Surrender of the within Lease No 164548 by endorsement thereon dated the 25 day July 1894 Produced for registration the 28 day July 1894 at 11.15 am.
E J Heath Dep. Reg. Genl

Discharge of the within Mortgages Nos 164376 and 230100 by receipts endorsed thereon Produced for registration the 28 day July 1894 at 11.15 am.
E J Heath Dep. Reg. Genl

Power of Attorney deposited No 22 of 1882.
E J Heath Dep. Reg. Genl

The within Caveat No 270056 was withdrawn on the 25 day July 1894 as appears by Memorandum No 283848. Produced for registration the 28 day July 1894 at 11.15 am.
E J Heath Dep. Reg. Genl

Lease No 283849 (Including also other property from Joseph Orchard to William Ross Sawers Augusta Davies and William Selby Douglas of the within land Term 10 years from the 20 day July 1894. Produced for registration the 28 day July 1894 at 11.15 am.
E J Heath Dep. Reg. Genl

See back

Lease No 283849 (Including also other property) from Joseph Orchard to William Ross Sawers, Augustus Sawers, August Davies and William Selby Douglas Davies and William Selby Douglas of the within land for Term 10 years from the 20 day July 1889. Produced for registration the 30 day July 1889 at 11.25 am.

E. Heath Dep Reg Genl

Under Lease No 318907 from William Ross Sawers, Augustus Sawers, August Davies and William Selby Douglas Davies to Julius Otto Stabenrath of Angas Street Adelaide Licensed Victualler of the within Lease No 283849 Term from the 11 day January 1897 to the 1 day February 1900 Produced for Registration the 30 day July 1897 at 2.30 pm

E. Heath Dep Reg Genl

Mortgage No 283850 (Including also other property) from Joseph Orchard to William Knox Simms. Produced for registration the 27 day July 1889 at 11.15 am

E. Heath Dep Reg Genl

[CERTIFICATE OF TITLE]

Register Book,

Vol. CLV Folio. 166

Joseph Orchard the Younger of Angas Street Licensed Victualler is

now seized of an estate in fee simple, subject, nevertheless, to such encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon, in That piece of land situated in the City of Adelaide, being portion of the Town Acre numbered 419, and bounded as appears in the plan in the margin hereof, and therein colored green, which said piece of land contains Thirteen perches or thereabouts and measures as well on the North side Angas Street as on the South side next other part of the said acre Thirty six feet or thereabouts and as well on the East as on the West side next other parts of the said acre one hundred and five feet or thereabouts the said East side being distant from Acland Street fifty feet or thereabouts

which said Town Acre is delineated in the public map of the said city, deposited in the office of the Surveyor-General, and was originally granted the Twenty third day of December, 1837, under the hand and seal of James Hurtle Fisher, Esquire, Resident Commissioner of the said Province, to George Fife Angas and others

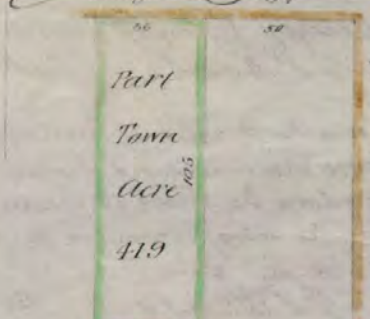
In witness whereof, I have hereunto signed my name and affixed my seal this fourth day of July one thousand eight hundred and Ninety one

Wm. Rounsevell Registrar-General

Signed, the 4th day of July 1891 in presence of W. Rowe.

Transfer of the within Mortgage No 294476 by endorsement thereon from Charles Henige to William Knox Simms of Adelaide Gentleman. Produced for Registration the 25 day September 1896 at 2.25 pm

E. Heath Dep. Reg Genl.



Mortgage No 103,455. (Including also other property) from Joseph Orchard to William Ross Sawers and Samuel Robert Fox. Produced the 23rd day September 1879 at 11 am.

Wm. Caute Dep Reg Genl

Lease No 103814 (including also other property) from Joseph Orchard to William Ross Sawers and Samuel Robert Fox of the above land. Term 10 years from the 1st day May 1879. Produced the 2nd day October 1879 at 2 pm.

Wm. Caute Dep Reg Genl

Under Lease No 134,528 (including also other property) from William Ross Sawers and Samuel Robert Fox to Mary Mc Fie of the above Lease No 103814 Term 7 years from the 1st day May 1879 Produced the 18th day November 1881 at 3 pm

Wm. Caute Dep Reg Genl

Transfer No of the above Under Lease No 134528 from Mary Mc Fie to Alfred Pinchbeck of Port Town Licensed Victualler by endorsement thereon dated the 23 day February 1882 Entered the 31 day March 1882 at 2 pm.

Wm. Caute Dep Reg Genl

Cancelled and a New Certificate of Title issued Vide Letter 395 of 1897 Vol 623 Fol 115

E. Heath Dep Reg Genl

Transfer No 291022 from Joseph Orchard to Eleanor Jane Orchard his wife of an estate in fee simple in the within land for her separate use Produced for registration the 11 day April 1895 at 3 pm

E. Heath Dep Reg Genl

Mortgage No 294476 (Including also other property) from Eleanor Jane Orchard to Charles Henige. Produced for registration the 27 day July 1896 at 11 am

E. Heath Dep Reg Genl

Discharge of the above Mortgage No 103456 by receipt endorsed thereon dated the 1 day August 1883.
Entered the 7 day August 1883 at 11 am
Mwewtherry Dy Reg Genl

Surrender of the above Lease No 108114 by endorsement thereon dated the 1 day August 1883. Entered the 7 day August 1883 at 11 am.
Mwewtherry Dy Reg Genl

Mortgage No 164376 (Including also other properties) from Joseph Orchard to William Ross Sawers and Arthur Rait Malcom
Produced the 7 day August 1883 at 11 a.m.
Mwewtherry Dy Reg Genl

Lease No 164548 (Including also other properties) from Joseph Orchard to William Ross Sawers and Arthur Rait Malcom of the above land. Term 21 years from the 19 day July 1883.
Produced the 10 day August 1883 at Noon
WMannCatte Dep Reg Genl

Transfer No 177046 from Alfred Pinchbeck to Arthur William Jones of Adelaide Licensed Victualler of the lease Under Lease No 134528. Produced the 13 day June 1884 at 2 p.m.
AWotheringham Dep Reg Genl

Transfer No 177047 from Arthur William Jones to James O'Brien the Elder of Adelaide Publican of the above Under Lease No 134528
Produced the 13 day June 1884 at 2 p.m.
AWotheringham Dep Reg Genl

Power of Attorney No 207149. Produced the 6th day of September 1886 Entered the 28th day of June 1889 at 3 p.m.
WMannCatte Dep Reg Genl

The time for payment of the above Mortgage No 164376 is Extended for five years from the 1st day of April 1889. as appears by Endorsement thereon
Produced for registration the 1st day of June 1889 at 11.35 a.m.
WMannCatte Dep Reg Genl

Mortgage No 230100. (Including also other properties) from Joseph Orchard to William Ross Sawers.
Produced for registration the 1st day of June 1889 at 11.25 a.m.
WMannCatte Dep Reg Genl

The within named Arthur Rait Malcolm died on the 23 day December 1890 as appears by Certificate of Death No 261900 produced for registration the 5 day August 1892 at 11.15 am
E J Heath Dep Reg Genl

Transfer No 261480 from William Ross Sawers to the said William Ross Sawers Augustus Davies of Adelaide gentleman and William Selby Douglas of Adelaide agent of the within Mortgages No 164376 and 230100 and Lease No 164548
produced for registration the 22 day July 1893 at 11.45 am
E J Heath Dep Reg Genl

Mortgage No 264963 (Including also other property) from William Ross Sawers Augustus Davies and William Selby Douglas to The Union Bank of Australia Limited of the within Mortgages No 164376 and 230100 and Lease No 164548.
produced for registration the 4 day November 1893 at 12.35 pm.
E J Heath Dep Reg Genl

X No 270056 dated the 25 day April 1893 produced for registration the 25 day April 1893 at 2.55 pm
E J Heath Dep Reg Genl

Power of Attorney deposited No 275183
E J Heath Dep Reg Genl

The within Lease No 164548 and Mortgages No 164376 and 230100 are discharged from all moneys secured by Mortgage No 264963 as appears by Memorandum No 283447 Produced for registration the 20 day July 1894 at 11.35 am
E J Heath Dep Reg Genl

Surrender of the within Lease No 164548 by endorsement thereon dated the 25 day July 1894. Produced for registration the 20 days July 1894 at 11.35 am
E J Heath Dep Reg Genl

Discharge of the within Mortgages No 164376 and 230100 by receipts endorsed thereon. Produced for registration the 20 day July 1894 at 11.35 am
E J Heath Dep Reg Genl

Power of Attorney deposited No 284484.
E J Heath Dep Reg Genl

The within Caveat No 270066 was withdrawn on the 20 day July 1894 as appears by Memorandum No 283548
Produced for registration the 20 day July 1894 at 11.35 am
E J Heath Dep Reg Genl

See Book

Lease No 283849 (including also other property) from Joseph Orchard to William Ross Sawers Auguste Davies and William Selby Douglas of the within land Term 10 years from the 20 day July 1874. Produced for registration the 24 day July 1874 at 11.35 am

E J Heath Dep Reg Genl

Under Lease No 318907 from William Ross Sawers Auguste Davies and William Selby Douglas to John Mc Flaherty of Angas Street Adelaide Licensed Victualler of the within Lease No 283849 Term from the 11 day January 1897 to the 10 day February 1900 Produced for registration the 30 day July 1897 at 2.30 pm

E J Heath Dy Reg Genl

Mortgage No 283850 (Including also other property) from Joseph Orchard to William Ross Sawers Produced for registration the 28 day July 1874 at 11.37 am

E J Heath Dep Reg Genl

South Australia.

CERTIFICATE OF TITLE.

Register Book,

Vol. CXL Folio. 137

Joseph Orchard the Younger of is

now seised of an estate in fee simple, subject, nevertheless, to such encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon, in That piece of land situated in the City of Adelaide, being portion of the Town Acre numbered 419, and bounded as appears in the plan in the margin hereof, and therein colored green, which said piece of land contains Six perches or thereabouts and measures as well on the North Side as on the South Side next other parts of the said acre fifty feet or thereabouts and as well on the East Side next Acland Street as on the West Side next other part of the said acre thirty five feet or thereabouts the said North Side being distant from Angas Street seventy feet or thereabouts

which said Town Acre is delineated in the public map of the said city, deposited in the office of the Surveyor-General, and was originally granted the Twenty third day of December, 1837, under the hand and seal of James Hurtle Fisher, Esquire, Resident Commissioner of the said Province, to George Fife Angas and others

In witness whereof, I have hereunto signed my name and affixed my seal this twenty sixth day of January one thousand eight hundred and seventy

W S Rees L.S.

Registrar-General

REGISTRAR GENERAL SOUTH AUSTRALIA

Signed, the 26th day of January 1870, in presence of W S Rees

Transfer No 291022. from Joseph Orchard to Eleanor Jane Orchard his wife of an estate in fee simple in the within Angas St land for her separate use produced for registration the 11 day April 1895 at 3 pm

E J Heath Dep Reg Genl

Transfer No 294476 of the within Mortgage from Charles Heinze to William Knox Simms of Adelaide gentleman produced for registration the 25 day September 1895 at 2.20 pm

E J Heath Dep Reg Genl



Mortgage No 294476 (Including also other property) from Eleanor Jane Orchard to Charles Heinze. Produced for registration the 27 day July 1896 at 11.10 am

E J Heath Dep Reg Genl

Mortgage No 103,455. (including also other property) from Joseph Orchard to William Ross Sawers and Samuel Robert Fox &c. Produced the 28th day September 1879 at 11 am

W Manuel Lette Dep Reg Genl

Lease No 103814 (including also other property) from Joseph Orchard to William Ross Sawers and Samuel Robert Fox of the above land Term 10 years from the 1st day May 1879 Witness the 28th day October 1879 at 3 pm

W Manuel Lette Dep Reg Genl

Under Lease No 134528 (including also other property) from William Ross Sawers and Samuel Robert Fox to Mary Mc Fie portion of the land comprised in the above Lease No 103814 Term 7 years from the 1st day May 1879 Produced the 15th day January 1880 at 3 pm

W Manuel Lette Dep Reg Genl

Transfer of the above Under Lease No 134528 from Mary Mc Fie to Alfred Pinchbeck of Kent Town Licensed Victualler by endorsement thereon dated the 23 day February 1882 Entered the 31 day March 1882 at 2 pm

W Manuel Lette Dep Reg Genl

Cancelled and a New Certificate of Title issued Vide Letter No ~~2111~~ 345 of 1897 Vol 623 Fol 115

E J Heath Dep Reg Genl

Discharge of the above Mortgage No 103455 by Receipt endorsed thereon dated the 1 day August 1883. Entered the 7 day August 1883 at 11 am

E Meecham Dp Reg Genl

Surrender of the above Lease No 103814 by endorsement thereon dated the 1 day August 1883. Entered the 7 day August 1883 at 11 am

E Meecham Dp Reg Genl

Mortgage No 164376 (Including also other property) from Joseph Orchard to William Ross Sawers and Arthur Pait Malcom

Produced the 7 day August 1883 at 11 am

E Meecham Dp Reg Genl

Lease No 164548 (Including also other property) from Joseph Orchard to William Ross Sawers and Arthur Pait Malcom of the above land From 21 years from the 19 day July 1883 Entered the 10 day August 1883 at 11 am

E Meecham Dp Reg Genl

Transfer for No 177046 from Alfred Hambrook to Arthur William Jones of Adelaide Licensed Victualler of the above Under Lease No 134528. Produced the 13 day June 1884 at 2 pm

A Nottingham Dep Reg Genl

Transfer No 177047 from Arthur William Jones to James O'Brien of Adelaide Publican of the above Under Lease No 134528. Produced the 13 day June 1884 at 2 pm

A Nottingham Dep Reg Genl

Power of Attorney No 207149. Produced the 6th day of September 1886 at 11.50 a.m. Entered the 7th day of June 1889 at 3 p.m.

Wm Catto Deputy Genl

The time for payment of the above Mortgage No 164376 is Extended for five years from the 1st day of April 1889 as appears by Endorsement thereon. Produced for registration the 1st day of June 1889 at 11.25 a.m.

Wm Catto Dep Reg Genl

Mortgage No 230100. (Including also other property) from Joseph Orchard to William Ross Sawers. Produced for registration the 1st day of June 1889 at 11.25 a.m.

Wm Catto Dep Reg Genl

Power of Attorney deposited No 220468 Dep Reg Genl

The within named Arthur Pait Malcom died on the 23 day December 1890 as appears by Certificate of Death No 261900 produced for registration the 3 day August 1892 at 11.15 am

E J Heath Dep Reg Genl

Transfer No 261480 from William Ross Sawers to William Ross Sawers Auguste Davies of Adelaide gentleman & William Selby Douglas of Adelaide agent by the within Mortgage No 164376 and 230100 and Lease No 164548 produced for registration the 22 day July 1892 at 11.45 am.

E J Heath Dep Reg Genl

Mortgage No 264963 (Including also other property) from William Ross Sawers Auguste Davies and William Selby Douglas to The Union Bank of Australia Limited of the within Mortgages No 164376 and 230100 and Lease No 164548 produced for registration the 4 day November 1892 at 12.35 pm

E J Heath Dep Reg Genl

X No 270056 dated the 25 day April 1893 produced for registration the 25 day April 1893 at 2.55 pm

E J Heath Dep Reg Genl

Power of Attorney deposited No 276183

E J Heath Dep Reg Genl

The within Lease No 164548 and Mortgages Nos 164376 and 230100 are discharged from all moneys secured by Mortgage No 264963 as appears by Memorandum No 283407. Produced for registration the 28 day July 1894 at 11.35 am

E J Heath Dep Reg Genl

Surrender of the within Lease No 164548 by endorsement thereon dated the 26 day July 1894 at 11.35 Produced for registration the 28 day July 1894 at 11.35 am

E J Heath Dep Reg Genl

Discharge of the within Mortgages Nos 164376 and 230100 by receipt endorsed thereon Produced for registration the 28 day July 1894 at 11.35 am

E J Heath Dep Reg Genl

The within Caveat No 270056 was withdrawn on the 28 day July 1894 as appears by Memorandum No 283548. Produced for registration the 28 day July 1894 at 11.35 am

E J Heath Dep Reg Genl

See back

South Australia.

(CERTIFICATE OF TITLE.)

Register Book.

Vol. 623 Folio 115

New Certificate of Title from Volume 140 folio 137 Volume 155 folio 166 Volume 174 folio 214 and Volume 206 folio 54

Eleanor Jane Orchard wife of Joseph Orchard of West Maitland Gentleman

is the proprietor of an estate in fee simple for her separate use

subject nevertheless to such incumbrances liens and interests as are notified by memorial underwritten or endorsed hereon in

That piece of land situated in the CITY OF ADELAIDE being PORTION OF THE TOWN ACRE numbered 419 and bounded as appears in the plan in the margin hereof and therein colored green: Which said piece of land contains one rood and twelve perches or thereabouts and measures as well on the northerly side next Angas Street as on the southerly side next other part of the said Acre one hundred and thirty five feet or thereabouts and as well on the easterly side next Acland Street as on the westerly side next other part of the said Acre one hundred and five feet or thereabouts

CANCELLED AND A NEW CERTIFICATE OF TITLE ISSUED, VIDE LETTER No. 5715 OF 1901 VOL. 681 FOL. 23 DEP. REG. GENERAL

which said Town Acre is delineated in the public map of the said City deposited in the office of the Surveyor-General.

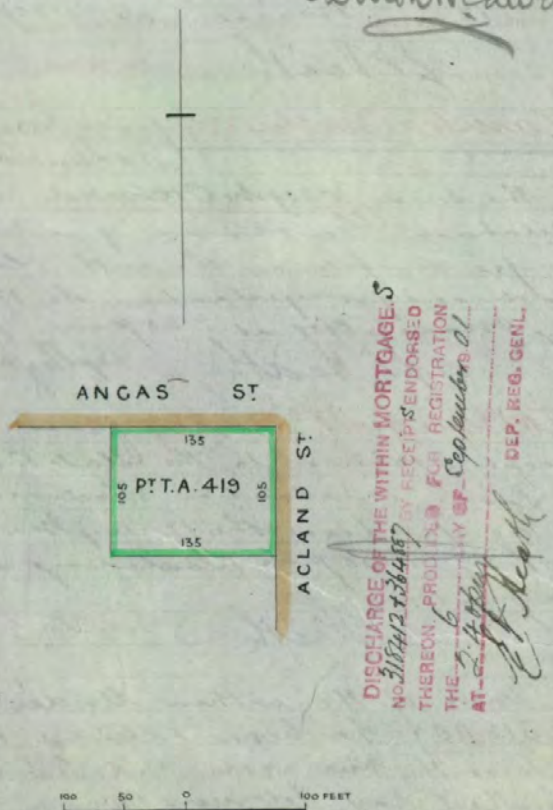
In witness whereof I have hereunto signed my name and affixed my seal this Seventh day of August one thousand eight hundred and ninety seven

Signed the 7th day of August 1897 in the presence of Vernon H Edwards

Fred. T. Turner

Registrar-General.

REGISTRAR GENERAL SOUTH AUSTRALIA



DISCHARGE OF THE WITHIN MORTGAGE No. 5782 27 JUNE 1895 BY RECEIPT ENDORSED THEREON PRODUCED FOR REGISTRATION THE 5th DAY OF July 1895 AT 9.0 o'clock A.M. DEP. REG. GEN.

Lease No 283849 from Joseph Orchard to William Ross Sawers Auguste Davies and William Selby Douglas of the within land Term 10 years from the 20 day July 1894 Produced for registration the 28 day July 1894 at 11.35 a.m.

Fred. T. Turner Reg. Genl

Mortgage No 283850 from Joseph Orchard to William Knox Simms Produced for registration the 28 day July 1894 at 11.35 a.m.

Fred. T. Turner Reg. Genl

Mortgage No 294476 from Eleanor Jane Orchard to Charles Heinze of portion of the within land Produced for registration the 27 day July 1895 at 11.10 a.m.

Fred. T. Turner Reg. Genl

Transfer of the within Mortgage No 294476 by endorsement thereon from Charles Heinze to William Knox Simms of Adelaide Gentleman Produced for registration the 25 day September 1896 at 2.20 p.m.

Fred. T. Turner Reg. Genl

over

Mortgage No 294567 from Eleanor Jane Orchard to Charles Heinze of portion of the within land Produced for registration the 20 day July 1895 at 2.55 pm
E. H. Heath Reg. Genl

Transfer of the within mortgage No 294567 from Eleanor Jane Orchard & Charles Heinze to William Knox Simms of Adelaide Gentleman Produced for registration the 25 day September 1896 at 2.10 pm
E. H. Heath Reg. Genl

Power of Attorney dpposited No 318185
E. H. Heath Dep Reg Genl

Discharge of the within Mortgages No 283850, 294476 and 294567 by receipt endorsed thereon Produced for registration the 17 day July 1897 at 11 am
E. H. Heath Dep Reg Genl

Mortgage No 318412 from Eleanor Jane Orchard to The State Bank of South Australia. Produced for registration the 17 day July 1897 at 11 am
E. H. Heath Dep Reg Genl

Mortgage No 318779 from Eleanor Jane Orchard to Thomas Corin Holland and Richard Hedley Laidlaw. Produced for registration the 17 day July 1897 at 2.30 pm
E. H. Heath Dep Reg Genl

Under Lease No 318907 from William Rose Simms Augusta Elvira Williams Selby Douglas to Julius Otto Stabernack of Angas Street Adelaide Licensed Victualler of the within Lease No 283849 from the 11 day January 1897 to the 1 day February 1900 Produced for registration the 30 day July 1897 at 2.30 pm
E. H. Heath Dep Reg Genl

Transfer No 339854 from Julius Otto Stabernack to William Henry Smith of Adelaide Licensed Victuallers of the within Under Lease No 318907 produced for registration the 19 day April 1899 at 2.40 pm
Dep Reg Genl

Transfer No 339855 from William Henry Smith to Thomas Green Pappin of Adelaide Licensed Victualler of the within Under Lease No 318907 produced for registration the 19 day April 1899 at 2.40 pm
E. H. Heath Dep Reg Genl

Transfer No 339856 from Thomas George Pappin to Robert George Richardson of Adelaide Licensed Victualler of the within Under Lease No 318907. produced for registration the 19 day April 1899 at 2.40 pm
E. H. Heath Dep Reg Genl

Transfer No 3 of the within Mortgage No 318779 from Thomas Corin Holland and Richard Hedley Laidlaw to Nathaniel Alexander Knox of Adelaide Solicitor & appears by Endorsement thereon Produced for registration the 12 day April 1899 at 11.10 am
E. H. Heath Dep Reg Genl

Discharge of the within Mortgage No 318779 by receipt Endorsed thereon Produced for registration the 12 day March 1901 at 2.30 pm
E. H. Heath Dep Reg Genl

Pursuant to Application No 364885
Joseph Orchard of Mitcham Gardener
TO PROPRIETORSHIP OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND AS THE EXECUTOR NAMED IN THE WILL DATED THE 27 DAY OF January 1876 OF THE WITHIN NAMED Eleanor Jane Orchard WHO DIED ON THE 18 DAY OF June 1900 AS APPEARS BY PROBATE DATED THE 6 DAY OF December 1900 PRODUCED FOR REGISTRATION THE 12 DAY OF March 1901 AT 2.30 pm
E. H. Heath Dep. Reg. Genl

Transfer No 364886 from Joseph Orchard to the said Joseph Orchard of Mitcham Gentleman of an Estate in fee simple in the within land Produced for registration the 12 day March 1901 at 2.30 pm
E. H. Heath Dep Reg Genl

Mortgage No 364887 from Joseph Orchard to The State Bank of South Australia Produced for registration the 12 day March 1901 at 2.30 pm (Exchange other papers)
E. H. Heath

The terms of the within Under Lease No 318907 has been extended for the term of four years and five months from the 1st day February 1900 as appears by Memorandum No 366163 produced for registration the 13 day April 1901 at 11.15 am
E. H. Heath Dep Reg Genl

318908

South Australia

(CERTIFICATE OF TITLE.)

Register Book.

Vol. 681 Folio 3

New Certificate of Title from Vol 623 Folio 115

Joseph Orchard of Mitcham Gentleman

is the proprietor of an estate in fee simple

subject nevertheless to such incumbrances liens and interests as are notified by memorial underwritten or endorsed hereon in

That piece of land situated in the CITY OF ADELAIDE, being PORTION OF THE TOWN ACRE numbered 419 and bounded as appears in the plan in the margin hereof and therein colored green: Which said piece of land contains one rood and twelve perches or thereabouts and measures as well on the northerly side next Angas Street as on the southerly side next other part of the said Acre one hundred and thirty five feet or thereabouts and as well on the easterly side next Acland Street as on the westerly side next other part of the said Acre one hundred and five feet or thereabouts

which said Town Acre 12 delineated in the public map of the said city deposited in the office of the Surveyor-General.

In witness whereof I have hereunto signed my name and affixed my seal this twenty eighth day of September one thousand eight hundred and one

Signed the 28th day of September 1901 in the presence of A H Salter

E T Heath

Dep Registrar-General.

REGISTRAR GENERAL SOUTH AUSTRALIA

DISCHARGE OF THE above MORTGAGE No. 411532 THEREON PRODUCED BY RECEIPT ENDORSED 1 OF REGISTRATION THE 11 DAY OF July 1902 AT 11 10 am

E T Heath DEP. REG. GENL

Lease No. 283849 from Joseph Orchard to William Ross Sawers Auguste Davies and William Selby Douglas of the within land. Term 10 years from the 20 day July 1894. Produced for registration the 28 day July 1894 at 11.35 am.

E T Heath Dep Regr. Genl.

Under Lease No. 318907 from William Ross Sawers Auguste Davies and William Selby Douglas to Julius Otto Stabernack of Angas Street Adelaide Licensed Victualler of the within Lease No. 283849. Term from the 11 day January 1897 to the 1 day February 1900. Produced for registration the 30 day July 1897 at 2.30 pm.

E T Heath Dep Regr. Genl.

Transfer No. 339854 from Julius Otto Stabernack to William Henry Smith of Adelaide Licensed Victualler of the within Under Lease No. 318907. Produced for registration the 19 day April 1899 at 2.40 pm.

E T Heath Dep Regr. Genl.



Cancelled and a new Certificate of Title issued Vide Letter 5288 of 1906 Vol 1751 Fo 65

Dep Reg Genl.

Transfer No. 339855 from William Henry Smith to Thomas Green Sappin of Adelaide licensed Victualler of the within Under Lease No. 318907 Produced for registration the 19 day April 1899 at 2.40 pm. E. Heath Dep Regr. Gen.

Transfer No. 339856 from Thomas George Sappin to Robert George Richardson of Adelaide licensed Victualler of the within Under Lease No. 318907. Produced for registration the 19 day April 1899 at 2.40 pm. E. Heath Dep Regr. Gen.

The term of the within Under Lease No. 318907 has been extended for the Term of 4 years and 5 months from the 1 day February 1900 as appears by Memorandum No. 366163. Produced for registration the 13 day April 1901 at 11-15 am. E. Heath Dep Regr. Gen.

Pursuant to Application No. 37767

Susan Elizabeth Kitto wife of William John Kitto mason both of Norwood Ethel Owens wife of George Owens Commercial Traveller both of Hutchison and Albert Ernest Hancken of Norwood Clerk Manager ARE PROPRIETORS OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND AS THE EXECUTORS NAMED IN THE WILL DATED THE 13 day September 1900 with Codicil thereto OF THE WITHIN NAMED Joseph Orchard WHO DIED ON THE 11 DAY OF March 1901 AS APPEARS BY PROBATE DATED THE 24 DAY OF April 1901 PRODUCED FOR REGISTRATION THIS 6 DAY OF September 1901 AT 2.40 pm

E. Heath Dep. Regr. Genl.

Transfer No. 37767 from Susan Elizabeth Kitto Ethel Owens and Albert Ernest Hancken to William Walter Warren Brewer and William Peck out of business both of Adelaide of an estate in fee simple in the within land Produced for registration the 6 day September 1901 at 2.40 pm

E. Heath Dep Regr Genl

Transfer No. 366164 from Robert George Richardson to Matilda Coffey of Adelaide licensed Victualler of the within Under Lease No. 318907 Produced for registration the 13 day April 1902 at 11.15 am (Encumbrances on Page 2 Hereof)

E. Heath Dep Regr Genl

Mortgage No. 366165 from Matilda Coffey to George Milne of the within Under Lease No. 318907 Produced for registration the 13 day April 1902 at 11.15 am (Assignment on Page 2 Hereof)

E. Heath Dep Regr Genl

Transfer No 383944 from George Milne to William Walter Warren Brewer and William Peck Out of business both of Adelaide of the within Mortgage No. 366165 produced for registration the 16 day August 1902 at 11.30 am

E. Heath Dep Regr Genl

SURRENDER of the within Lease No 283849 and Under Lease No. 318907 by endorsement thereon, dated the 14 day of August 1902 respectively Produced for registration the 16 day of Aug 1902 at 11 30 am

E. Heath Dep. Regr.-General.

Lease No 383945 from William Walter Warren and William Peck to Hugh Sheridan of portion of the within land Term five years from the 7 day August 1902 produced for registration the 16 day August 1902 at 11 30 am

E. Heath Dep Regr Gen

Transfer No 415730 from Hugh Sheridan to Hugh Whelan of Adelaide Hotelkeeper of the above Lease No. 383945. Produced for registration the 11 day of October 1902 at 11 30 am

G. Wilfred Anthony Dep Reg Genl

The Term of the above Lease No 383945 is extended until the 3 day of October 1907 with certain variations and alterations as appear by Memorandum No. 415731 Produced for registration the 11 day of October 1902 at 11-30 am

G. Wilfred Anthony Dep Reg Genl

Mortgage No 415732 from Hugh Whelan to George Milne of the above Lease No 383945 Produced for registration the 11 day of October 1902 at 11 30 Am

G. Wilfred Anthony Dep Reg Genl

Transfer No 419715 from William Walter Warren and William Peck to the said William Walter Warren and William Peck and James Samuel Wells of Eastwood Publican of an estate in fee Simple in the within land Produced for registration the 21 day of February 1905 at 2-55 pm

G. Wilfred Anthony Dep Reg Gen

See Page of C. T.

South Australia

(CERTIFICATE OF TITLE.)

Register Book,

Vol. 751 Folio 65

New Certificate of Title from Vol 681 Folio 23.

William Walter Warren of Adelaide Brewer William Peck of Adelaide and Medindie Out of business and James Samuel Wells of Eastwood Publican are

the proprietors of an estate in fee simple

subject nevertheless to such incumbrances liens and interests as are notified by memorial underwritten or endorsed hereon in That piece of land situated in the City of Adelaide being Portion of the Town Acre 419 and bounded as appears in the plan in the margin hereof and therein colored green Which said piece of land contains one rood and twelve perches or thereabouts and measures as well on the northerly side next Angas Street as on the southerly side next other part of the said Acre one hundred and thirty five feet or thereabouts and so well on the easterly side next Regent ~~Leland~~ Street as on the westerly side next other part of the said Acre one hundred and five feet or thereabouts

W.G. Dep Reg Genl 19.5.37

which said Town Acre is delineated in the public map of the said City deposited in the office of the Surveyor-General.

In witness whereof I have hereunto signed my name and affixed my seal this Eleventh day of August 1906

Signed the 11th day of August 1906 in the presence of

E.T. Parsons

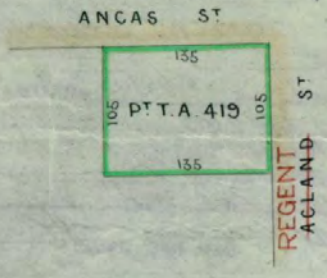
M. Giles

Registrar-General.

REGISTRAR GENERAL SOUTH AUSTRALIA

Authority for Regent Street Vide Lr 459 of 1917

Dep. Reg Genl. 19.5.37



Lease No: 383945 from William Walter Warren and William Peck to Hugh Sheridan of portion of the within land Term five years from the 7 day August 1902 Produced for registration the 16 day August 1902 at 11.30 a.m.

M. Giles Regr Genl.

Transfer No: 415130 from Hugh Sheridan to Hugh Whelan of Adelaide Wheelwright of the above Lease No: 383945 Produced for registration the 11 day October 1904 at 11.20 a.m.

M. Giles Regr Genl.

The Term of the above Lease No: 383945 is extended until the 3 day October 1909 with certain variations and alterations as appears by Memorandum No: 415131 Produced for registration the 11 day October 1904 at 11.20 a.m.

M. Giles Regr Genl.

WEP

Transfer No 140337 from William Walter Warren William Peek and James Samuel Wells to the said William Walter Warren and James Samuel Wells and Alexander McGregor of Adelaide Out of business of an estate in fee simple in the within land Produced for registration the 7th day of July 1906 at 3pm

Vernon H Edwards Dep Reg Gen

Lease No 51359 from William Walter Warren James Samuel Wells and Alexander McGregor to Frank Collingwood Moore of the portion of the within land term five years from the 9 day of September 1909 Produced for registration the 10 day of July 1910 at 2.45pm

Whitfield Anthony Dep Reg Gen

Transfer No 52237 from Frank Collingwood Moore to Edward Thomas Murphy of Adelaide Hotel Keeper of the above Lease No 51359. Produced for registration the 22 day of November 1910 at 2.45pm (No entry on Reg)

Vernon H Edwards Dep Reg Gen

The above named Alexander McGregor died on the 24 day of December 1910 as appears by Office Copy Certificate of Death No 53636 Produced for registration the 12 day of June 1911 at 11.15 am

Whitfield Anthony Dep Reg Gen

Transfer No 53636 from William Walter Warren and James Samuel Wells to Meshach Fricker of Adelaide Hotel Keeper of an estate in fee simple in the within land Produced for registration the 12 day of June 1911 at 11.15 am

Whitfield Anthony Dep Reg Gen

Transfer No 74696 from Meshach Fricker to Samuel Robert Price of Adelaide Hotelkeeper Caveat to be entered to be withdrawn Land Produced for registration the 22 day of April 1920 at 2.30pm

W Waterwood Dep Reg Gen

Mortgage No 74697 from Samuel Robert Price to George Edwin Day Melville Edwin and Edwin Gordon Edwin Produced for registration the 22 day of April 1920 at 2.35 pm

W Waterwood Dep Reg Gen

DISCHARGE OF THE above MORTGAGE NO. 74697 BY RECEIPT ENDORSED THEREON PRODUCED FOR REGISTRATION THE 25 DAY OF May 1922 AT 11.20 A M

W Waterwood DEP. REG. GEN'L

Lease No 81760 from Samuel Robert Price to Walkerville Co-operative Brewing Company Limited of the within land Term 7 years from the 19 day of May 1922 Produced for registration the 25 day of May 1922 at 11.20 am

W Waterwood Dep Reg Gen

Under Lease No 81760 from Walkerville Co-operative Brewing Company Limited to Samuel Robert Price of the above Lease No 81760 Term 7 years from the 19 day of May 1922 (Less the last day thereof) Produced for registration the 25 day of May 1922 at 11.20 am

W Waterwood Dep Reg Gen

Mortgage No 81760 from Samuel Robert Price to Walkerville Co-operative Brewing Company Limited Produced for registration the 25 day of May 1922 at 11.20 am

W Waterwood Dep Reg Gen

DISCHARGE OF THE above MORTGAGE NO. 81760 BY RECEIPT ENDORSED THEREON PRODUCED FOR REGISTRATION THE 2 DAY OF August 1923 AT 2.10 P M

W Waterwood DEP. REG. GEN'L

Pursuant to Application 860260

Public Trustee

PROPRIETOR OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND AS THE EXECUT. OR ..... NAMED IN THE WILL DATED THE 26 DAY OF February 1923 OF THE ABOVE NAMED Samuel Robert Price WHO DIED ON THE 16 DAY OF May 1923 AS APPEARS BY PROBATE DATED THE ..... DAY OF ..... 1923 PRODUCED FOR REGISTRATION THE 2 DAY OF August 1923 AT 2.30 P.M.

DEP. REG. GENL.

THE Lease under Lease NO 917605 WAS TRANSMITTED TO Public Trustee

AS THE EXECUT. OR ..... NAMED IN THE WILL DATED THE 26 DAY OF February 1923 OF THE above NAMED Samuel Robert Price WHO DIED ON THE 16 DAY OF May 1923 AS APPEARS BY PROBATE DATED THE ..... DAY OF ..... 1923 PRODUCED FOR REGISTRATION THE ..... DAY OF August 1923 AT 2.30 P.M. NO 860260 (Country on Trip)

DEP. REG. GENL.

Transfer 860261 from Public Trustee to David Ballel David of Adelaide Hotelkeeper of the estate in fee simple in the within land produced for registration the 2 day of August 1923 at 2.30 p.m.

Transfer 860262 from Public Trustee to David Ballel David of Adelaide Hotelkeeper of the above Under Lease 817605 Produced for registration the 2 day of August 1923 at 2.30 p.m. (Country on Trip)

Mortgage 860263 from David Ballel David to the Bank of Australasia Produced for registration the 2 day of August 1923 at 2.30 p.m. (including other land)

Lease 860264 from David Ballel David to Walkerville Co-operative Brewing Company Limited of the within land Term ten years from the 14 day of May 1929 Produced for registration the 2 day of August 1923 at 2.30 p.m.

Under Lease 860265 from Walkerville Co-operative Brewing Company Limited David Ballel David of the above Lease 860264 Term ten years from the 14 day of May 1929 (less the last day thereof) Produced for registration the 2 day of August 1923 at 2.30 p.m.

Under Lease 877081 from David Ballel David to Henry Caleb Walpole of portion of the land in the under Lease 917605 and 860265 Term ten years from the 14 day of January 1927 Produced for registration the 24 day of January 1927 at 2.10 p.m. (Country on Trip)

Mortgage 877082 from Henry Caleb Walpole to David Ballel David of the above Under Lease 877081 Produced for registration the 24 day of January 1927 at 2.10 p.m. (No Country on Trip)

Transfer No 934153 from Walkerville Co-operative Brewing Company Limited (in liquidation) to Walkerville Co-operative Brewing Company Limited whose registered office is situated at Southwood Street Southwark of the above Lease 860264 Produced for registration the 15 day of September 1925 at 4 p.m. (No Country on Trip)

Transfer No 951612 from Walkerville Co-operative Brewing Company Limited (in liquidation) to Walkerville Co-operative Brewing Company Limited whose registered office is situated at Winwood Street Southwark of the above Lease 917605 Produced for registration the 29 day of January 1926 at 12.15 p.m. (No Country on Trip)

DISCHARGE OF THE above MORTGAGE NO. 877082 BY RECEIPT ENDORSED THEREON PRODUCED FOR REGISTRATION THE 26 DAY OF August 1926 AT 2.30 P.M.

DEP. REG. GENL.

Transfer No 974385 from Henry Caleb Walpole to Clarence Edmund Stanley Langmead of Seven Stars Hotel Angas Street Adelaide Hotelkeeper of the above Underlease 877081 Produced for registration the 26 day of August 1926 at 2.30 p.m.

Underlease 974386 from David Ballel David to Clarence Edmund Stanley Langmead of portion of the land in the above Underlease 860265 Term commencing on the 14 day of January 1934 and expiring on the 14 day of January 1934 Produced for registration the 26 day of August 1926 at 2.30 p.m. (No Country on Trip)

Mortgage No 974387 from Clarence Edmund Stanley Langmead to Walkerville Co-operative Brewing Company Limited of the within Underleases Nos. 877081 and 974386 Produced for registration the 26 day of August 1926 at 2.30pm

Dep Reg Gene

Mortgage No 974388 from Clarence Edmund Stanley Langmead to Henry Caleb Walpole of the within Underleases Nos. 877081 and 974386 Produced for registration the 26 day of August 1926 at 2.30pm

Dep Reg Gene

Transfer No 981550 from Henry Caleb Walpole to William Richard Cock of Sundry out of Business of the above Mortgage No 974388 Produced for registration the 3 day of November 1926 at 2.35 pm

Dep Reg Genl

DISCHARGE OF THE above MORTGAGES NOS. 974387 and 974388 BY RECEIPT ENDORSED THEREON PRODUCED FOR REGISTRATION THE 18 DAY OF August 1927 AT 3 p.m.

DEP REG GENL

Transfer No 101926 from Clarence Edmund Stanley Langmead to Horace Hubert Blackwell of Seven Stars Hotel Angas Street Adelaide Hotelkeeper of the within Underleases Nos 877081 and 974386 Produced for registration the 18 day of August 1927 at 3 p.m.

Dep Reg Genl

Mortgage No 101927 from Horace Hubert Blackwell to Walkerville Co-operative Brewing Company Limited and Adelaide Wine and Spirit Company Limited of the within Underleases Nos 877081 and 974386 as tenants in Common. Produced for registration the 18 day of August 1927 at 3 p.m.

Dep Reg Genl

Mortgage No. 1059450 from Horace Hubert Blackwell to Walkerville Co-operative Brewing Company Limited and Adelaide Wine and Spirit Company Limited of the within Underleases Nos. 877081 and 974386 as Tenants in Common. Produced for registration the 5 day of February 1929 at 3 p.m. (no entry on triplicates)

Dep Reg Genl

TRANSFER No. 1212197 FROM Walkerville Co-operative Brewing Company Limited and Adelaide Wine and Spirit Company Limited as mortgagee to Harold Joseph Keller of Adelaide Hotelkeeper OF THE WITHIN underlease No. 974386 PRODUCED FOR REGISTRATION THE 12 DAY OF May 1936 AT 2.30 p.m. (No Entry on Trip)

G Hentelow DEP. REG. GENL.

LEASE No. 1235629 FROM David Callel David to Walkerville Cooperative Brewing Company Limited of portion ~~OF THE WITHIN LAND, THEN 7~~ commencing on the 19 DAY OF May ~~expiring~~ 1939 PRODUCED FOR REGISTRATION THE 17 DAY OF May 1937 AT 11.25 am

G Hentelow DEP. REG. GENL.

Underlease No 1235630 from Walkerville Cooperative Brewing Company Limited to David Callel David of the above Lease No 1235629. Term 7 years commencing on the 19 day of May 1939 and expiring at 6pm on the 15 day of May 1946. Produced for registration the 17 day of May 1937 at 11.25am

G Hentelow Dep Reg Genl

TRANSFER No. 1270883 FROM Walkerville Co-operative Brewing Company Limited to The South Australian Brewing Company Limited of Hindley Street Adelaide OF THE WITHIN leases No. 860264 and 1235629. PRODUCED FOR REGISTRATION THE 16 DAY OF August 1938 AT 12.40 p.m. (No Entry on Trip.)

G Hentelow DEP. REG. GENL.

Underlease No 1285824 from David Callel David to Adeline Elizabeth Lynch of the within Underlease No 860265 Term Commencing on the 15 day of January 1939 and expiring On the 16 day of May 1939 Produced for registration the 14 day of March 1939 at 2.35 pm

W Sleeman Dep Reg Genl

Underlease No 1285825 from David Callel David to Adeline Elizabeth Lynch of the within Underlease No 1235630 Term Commencing On the 19 day of May 1939 and expiring at 6 p.m. on the 14 day of May 1946 Produced for registration the 14 day of March 1939 at 2.35 p.m.

W Sleeman Dep Reg Genl

CANCELLED

AND New CERTIFICATE OF TITLE ISSUED VIDE Letter No. 407 of 1939 VOL 1725 FOL 10

DEP. REG. GENL

CANCELLED

AND New
CERTIFICATE OF TITLE ISSUED
VIDE Letter 1483/46
VOL. 1904 FOL. 182 [illegible]
DEP. REG. GENL.

South Australia. (CERTIFICATE OF TITLE.)

Register Book,

Vol. 1725 *Folio* 10

New Certificate of Title for the whole of the Land in Vol.751 Folio 65

DAVID CALLEL DAVID of Adelaide Land Agent

is the proprietor of an estate in fee simple

subject nevertheless to such encumbrances liens and interests as are notified by memorial underwritten or endorsed hereon in

THAT piece of land situated in the CITY OF ADELAIDE, being PORTION OF THE TOWN ACRE numbered 419 and bounded as appears in the plan in the margin hereof and therein coloured green:

Which said piece of land ~~measures as well on the northerly side next Angas Street as on the southerly side next other portion of the said Acre one hundred and thirty five feet or thereabouts and as well on the easterly side next Regent Street as on the westerly side next other portion of the said Acre one hundred and five feet or thereabouts~~ is more particularly delineated in the said plan

Reg. Genl. 11-1-40

which said Town Acre is delineated in the public map of the said City deposited in the Land Office at Adelaide.

In witness whereof I have hereunto signed my name and affixed my seal this sixth day of April 1939

Signed the 6th day of April 1939, in the presence of R. G. Pearson

Registrar-General.

Corrections in Red vide L.T.O. Docket No 1667/1939
Reg. Genl 11-1-40.

Mortgage No.860263 from David Callel David to The Bank of Australasia Produced for registration the 2 day of August 1923 at 2.40 p.m. (Including other land)

Reg.Genl.

Lease No.860264 from David Callel David to Walkerville Co-operative Brewing Company Limited of the within land Term ten years from the 19 day of May 1929 Produced for registration the 2 day of August 1923 at 2.40 p.m.

Reg.Genl.

Underlease No.860265 from Walkerville Co-operative Brewing Company Limited to David Callel David of the above Lease No.860264 Term ten years from the 19 day of May 1929 (less the last day thereof) Produced for registration the 2 day of August 1923 at 2.40 p.m.

Reg.Genl.



100 50 0 100 Ft.

OVER

Transfer No.939153 from Walkerville Co-operative Brewing Company Limited (in liquidation) to Walkerville Co-operative Brewing Company Limited whose registered office is situated at Winwood Street Southwark of the above Lease No.860264 Produced for registration the 15 day of September 1925 at 1 p.m. (No entry on trip)

W.W. Clayfield Reg.Genl.

Lease No.1235629 from David Callel David to Walkerville Co-operative Brewing Company Limited of portion of the within land. Term 7 years commencing on the 19 day of May 1939 and expiring at 6 p.m. on the 18 day of May 1946 Produced for registration the 17 day of May 1937 at 11.25 a.m.

W.W. Clayfield Reg.Genl.

Underlease No.1235630 from Walkerville Co-operative Brewing Company Limited to David Callel David of the above Lease No.1235629 Term 7 years commencing on the 19 day of May 1939 and expiring at 6 p.m. on the 15 day of May 1946 Produced for registration the 17 day of May 1937 at 11.25 a.m.

W.W. Clayfield Reg.Genl.

Transfer No.1270883 from Walkerville Co-operative Brewing Company Limited to The South Australian Brewing Company Limited of Hindley Street Adelaide of the within Leases No.860264 and 1235629 Produced for registration the 16 day of August 1938 at 12.40 p.m. (no entry on trip)

W.W. Clayfield Reg.Genl.

Underlease No.1285824 from David Callel David to Adeline Elizabeth Lynch of the within Underlease No.860265 Term commencing on the 15 day of January 1939 and expiring on the 16 day of May 1939 Produced for registration the 14 day of March 1939 at 2.35 p.m.

W.W. Clayfield Reg.Genl.

Underlease No.1285825 from David Callel David to Adeline Elizabeth Lynch of the within Underlease No.1235630 Term commencing on the 19 day of May 1939 and expiring at 6 p.m. on the 14 day of May 1946 Produced for registration the 14 day of March 1939 at 2.35 p.m.

W.W. Clayfield Reg.Genl.

DISCHARGE OF THE WITHIN MORTGAGE No. 1385791 and 1385792 BY ENDORSEMENT THEREON PRODUCED FOR REGISTRATION THE 16 DAY OF January 1946 AT 12.10 pm (No entry on Trip)

DEP. REG. GENL.

LEASE No. 1285826 FROM David Callel David TO Adeline Elizabeth Lynch OF THE WITHIN LAND portion of TERM from the 19 day of May 1939 and expiring at 6 pm on the 14 day of July 1946 PRODUCED FOR REGISTRATION THE 14 DAY OF March 1939 AT 2.35 pm

DEP. REG. GENL.

I B13266

TRANSFER No. 1329266 FROM Adeline Elizabeth Lynch to Andrew Sawford of Seven Stars Hotel Angas Street Adelaide Hotelkeeper OF THE WITHIN Lease No. 1285826 underlease No. 1285825 PRODUCED FOR REGISTRATION THE 10 DAY OF June 1940 AT 12.55 pm

DEP. REG. GENL.

I 1547433

TRANSFER No. 1347433 FROM Andrew Sawford to Margaret Angela McMahon of Seven Stars Hotel Angas Street Adelaide married woman Hotelkeeper OF THE WITHIN Lease No. 1285826 and the within Underlease No. 1285825 PRODUCED FOR REGISTRATION THE 8 DAY OF July 1941 AT 11.30 am

DEP. REG. GENL.

I/1385789 · I/1385790 · I/1385791 I/1385792

TRANSFER No. 1385789 FROM Margaret Angela McMahon to John William Selth of Seven Stars Hotel Angas Street Adelaide Hotelkeeper OF THE WITHIN Underlease No. 1285825 PRODUCED FOR REGISTRATION THE 5 DAY OF April 1943 AT 2.15 pm

DEP. REG. GENL.

TRANSFER No. 1385790 FROM Margaret Angela McMahon to John William Selth of Seven Stars Hotel Angas Street Adelaide Hotelkeeper OF THE WITHIN Lease No. 1285826 PRODUCED FOR REGISTRATION THE 5 DAY OF April 1943 AT 2.15 pm

DEP. REG. GENL.

MORTGAGE No. 1385791 FROM John William Selth to Florence Margaret Cadan of the within Underlease No. 1285825 PRODUCED FOR REGISTRATION THE 5 DAY OF April 1943 AT 2.15 pm

DEP. REG. GENL.

MORTGAGE No. 1385792 FROM John William Selth to Florence Margaret Cadan of the within Lease No. 1285826 PRODUCED FOR REGISTRATION THE 5 DAY OF April 1943 AT 2.15 pm

DEP. REG. GENL.

DM 1385791 DM 1385792

L 147702

see fol. 6 ff.

South Australia.

(CERTIFICATE OF TITLE.)

Register Book,

Vol. 1904 *Folio* 182

New Certificate of Title for the whole of the Land in Vol.1725 Folio 10

D A V I D C A L L E L D A V I D of Adelaide Land Agent

is the proprietor of an estate in fee simple

subject nevertheless to such encumbrances liens and interests as are notified by memorial underwritten or endorsed hereon in

T H A T piece of land situated in the CITY OF ADELAIDE, being PORTION OF THE TOWN ACRE numbered 419 and more particularly delineated and bounded as appears in the plan in the margin hereof and therein colored green——

which said Town Acre is delineated in the public map of the said City deposited in the Land Office at Adelaide.

In witness whereof I have hereunto signed my name and affixed my seal this twentyninth day of August 1946

Signed the 29th day of August 1946, in the presence of D.J.Macy.

Registrar-General.

REGISTRAR-GENERAL SOUTH AUSTRALIA

Mortgage No.860263 from David Callel David to The Bank of Australasia Produced for registration the 2 day of August 1923 at 2.40 p.m. (Including other land)

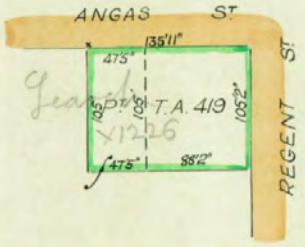
Reg. Genl.

~~1471702~~

LEASE No. 1471702 FROM David Callel David to John William Selth PORTION OF OF THE WITHIN LAND. TERM commencing at 6p.m. on the 14 day of July 1946 and expiring at 6p.m. on the 14 day of July 1949 PRODUCED FOR REGISTRATION THE 16 DAY OF August 1946 AT 11.40 a.m.

DEP. REG. GENL.

~~L 584579~~



LEASE No. 1584579 FROM David Callel David to portion of John William Selth OF THE WITHIN LAND. TERM from 6 p.m. on the 14 day of July 1949 and expiring at 6 p.m. on the 14 day of July 1952 PRODUCED FOR REGISTRATION THE 12 DAY OF August 1949 AT 11.5 a.m.

DEP. REG. GENL.

100 50 0 100 FT.

CANCELLED

AND Memo Balance

CERTIFICATE S OF TITLE ISSUED

VIDE Dr. 2538/49

VOL. 2056 FOLS. 16 & 17

REG. REQ. CERTS.

South Australia.

(CERTIFICATE OF TITLE.)

CANCELLED AND New CERTIFICATE OF TITLE ISSUED VIDE 443501 VOL. 4149 FOL. 771

Register Book,

Vol. 2056 *Folio* 16

New Certificate of Title for portion of the Land in Vol.1904 Folio 182

DAVID CALLEL DAVID of Adelaide Land Agent

is the proprietor of an estate in fee simple

subject nevertheless to such encumbrances liens and interests as are notified by memorial underwritten or endorsed hereon in

THAT piece of land situated in the CITY OF ADELAIDE, being PORTION OF THE TOWN ACRE numbered 419 more particularly delineated and bounded as appears in the plan in the margin hereof and therein colored green

which said Town Acre is delineated in the public map of the said City deposited in the Land Office at Adelaide.

In witness whereof I have hereunto signed my name and affixed my seal this sixteenth day of December 1949

Signed the 16th day of December 1949, in the presence of [illegible]

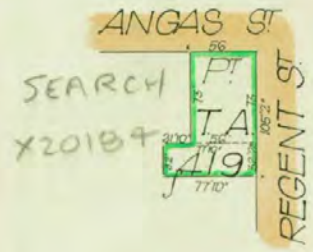
Registrar-General.

REGISTRAR-GENERAL SOUTH AUSTRALIA

Mortgage No.860263 from David Callel David to The Bank of Australasia Produced for registration the 2 day of August 1923 at 2.40 p.m. (Including other land)

Reg.Genl.

L1654179



LEASE No. 1654179 FROM David Callel David & S.A. Brass Engineering Company Limited OF THE WITHIN LAND. TERM Commencing on the 27 day of October 1950 and ending on the 26 day of October 1960

PRODUCED FOR REGISTRATION THE 12 DAY OF December 1950. AT 11.30 am

DEP. REG. GENL.

C/N 1738932 M860263 M738933

CHANGE OF NAME No. 1738932

THE NAME OF THE WITHIN COMPANY IS CHANGED FROM THE BANK OF AUSTRALASIA TO THE BANK OF AUSTRALASIA LIMITED AS APPEARS BY CERTIFICATE OF REGISTRAR OF COMPANIES DATED THE 13 DAY OF JUNE, 1951.

PRODUCED FOR REGISTRATION THE 25 DAY OF July 1952 AT 2 P.M.

DEP. REG. GEN.

P/A. No. 1700410 per D.R.G.

DISCHARGE OF THE WITHIN MORTGAGE No. 860263
BY ENDORSEMENT THEREON
PRODUCED FOR REGISTRATION THE 25 DAY OF July 1952 AT 2 p.m.
DEP. REG. GEN'L.

MORTGAGE No. 1738933 FROM
David called David to
AUSTRALIA AND NEW ZEALAND BANK LIMITED
PRODUCED FOR REGISTRATION THE 25 DAY OF July 1952 AT 2 p.m.
(including other land)
DEP. REG. GENL.

T/A 190797/

TRANSMISSION APPLICATION No. 190797/
Thomas Reginald Mellor of 13 Grenfell Street Adelaide Solicitor Harry David of 13 Davenport Terrace Wayville Traveller and Anthony David of 3 Sixth Avenue Helmsdale Carpenter and James Corry Mellor of 13 Grenfell Street Adelaide Solicitor and Codicil both
PROPRIETOR OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND AS THE EXECUTORS NAMED IN THE WILL DATED THE 19 DAY OF November 1951 OF THE ABOVE NAMED David Callel David WHO DIED ON THE 13 DAY OF February 1955 AS APPEARS BY PROBATE DATED THE 7 DAY OF March 1955 PRODUCED FOR REGISTRATION THE 31 DAY OF August 1955 AT 11.35 a.m.
DEP. REG. GENL.

D 1738933 4/5/56
P/A 1699681/1897804 63 DAC

THE WITHIN LAND IS DISCHARGED FROM THE WITHIN MORTGAGE No. 1738933 AS APPEARS BY ENDORSEMENT THEREON. PRODUCED FOR REGISTRATION THE 4 DAY OF May 1956 at 12.10 p.m.
DEP. REG. GENL.

M/A 101298

MORTGAGE No. 2101298 FROM Thomas Reginald Mellor Harry David and Anthony David to Manchester Unity Independent Order of Oddfellows Friendly Society in South Australia
PRODUCED 24.12.1958 AT 12.5 p.m.
DEP. REG. GEN.

A/N T 234750/ E/L 234769 & Judicial Lease

MEMORANDUM OF APPOINTMENT No. 234750/ IS NOW VESTED IN
Lands Harry David of 13 Davenport Terrace Wayville Traveller Anthony David of 3 Sixth Avenue Helmsdale Carpenter and James Corry Mellor of 13 Grenfell Street Adelaide Carpenter
PRODUCED 13.4.1962 AT 11.30 a.m.
DEP. REG. GEN.

CHANGE OF NAME No. 2379607. THE NAME OF THE WITHIN COMPANY IS CHANGED FROM S.A. Brass Engineering Company Limited TO Alloycraft Proprietary Limited AS APPEARS BY THE CERTIFICATE OF THE REGISTRAR OF COMPANIES DATED 6.10.1961. PRODUCED 4.9.1962 AT 2.45 p.m.
DEP. REG. GEN.

EXTENSION No. 2379608 OF LEASE No 1654179. FOR 10 YEARS AND 6 DAYS UNTIL AND INCLUDING TO 7.11.1970 WITH VARIED COVENANTS.
PRODUCED 4.9.1962 AT 2.45 p.m.
D.P. REG. GEN.

O/E 2580471

ORDER OF SUPREME COURT No. 2580471 DATED 26.10.1964 VESTING THE WITHIN LAND IN DAVID JOHN DAVID, OF 13 DAVENPORT TERRACE, WAYVILLE, MEDICAL STUDENT; AND IN THE WITHIN NAMED ANTHONY DAVID, OF 3 SIXTH AVENUE, HELMSDALE, RETIRED; AND JAMES CORRY MELLOR, OF 26 PIRIE STREET, ADELAIDE, SOLICITOR, UPON THE TRUSTS OF THE WILL AND CODICIL OF DAVID CALLEL DAVID (DECEASED).
PRODUCED THE 18th DAY OF NOVEMBER, 1964, AT 11.20 A.M.
DEP. REG. GEN.

TRANSFER No. 2800864 to Thorn Electrical Industries (Australia) Proprietary Limited of 498 Albion Street West Brunswick Victoria OF THE WITHIN LAND PRODUCED 1.3.1967 AT 11.20am Lease No 1654179.
DEP. REG. GEN.

L 2948017

LEASE No. 2948017 to
Thorn Electrical Industries (Australia) Proprietary Limited
OF THE WITHIN LAND. TERM 5 years commencing on 2.11.1970 and ending at midnight on 1.11.1975
PRODUCED 27.9.1968 AT 11.20am.
DEP. REG. GEN.

T 3793769

TRANSFER No. 3793769 to Henrietta Adelaide Dorothy David of 215 Greenhill Road Eastwood 5063 Widow for an estate of freehold for her life so long as she shall remain the widow of the said David Callel David deceased and Barbara Minnie Rees of 112 Wellington Parade Alawa Darwin 5790 Married Woman for an estate of freehold for her life expectant upon the determination of the said life estate and the within named David John David of 85 Moriatta Road Rostrevor 5073 Medical Practitioner and to Michael David of 32 Anglesey Terrace St. Georges 5064 Barrister as Tenants in common in equal shares of an estate in fee simple in remainder expectant upon the determination of the said life estates
Produced 15.9.1975 at 11.10pm

L H010089

LEASE No. 4010089 to
Thorn Lighting Industries Proprietary Limited
OF THE WITHIN LAND. TERM of 3 years commencing on 2.11.1975 and expires on 1.11.1978
PRODUCED 24.2.1977 AT 1.15 am

DM 4435401 DM 4435402 DM 4435403 DM 4435404

SEE SEARCH X 20184

ORIGINAL CERTIFICATE OF TITLE

South Australia

Register Book,
Volume 4149 Folio 771

New Certificate for the whole of the Land in Vol.2056 Folio 16

HENRIETTA ADELAIDE DOROTHY DAVID of 215 Greenhill Road Eastwood 5063 Widow is the proprietor of an estate OF FREEHOLD FOR HER LIFE DURING WIDOWHOOD subject nevertheless to such encumbrances liens and interests as are notified by memorial underwritten or endorsed hereon in PORTION OF TOWN ACRE 419 CITY OF ADELAIDE HUNDRED OF ADELAIDE delineated on the plan hereon by bold black lines

In witness whereof I have signed my name and affixed my seal this 18th day of October 1979

Signed the 18th day of October 1979, in the presence of R. Davies

J.A. Hughes.

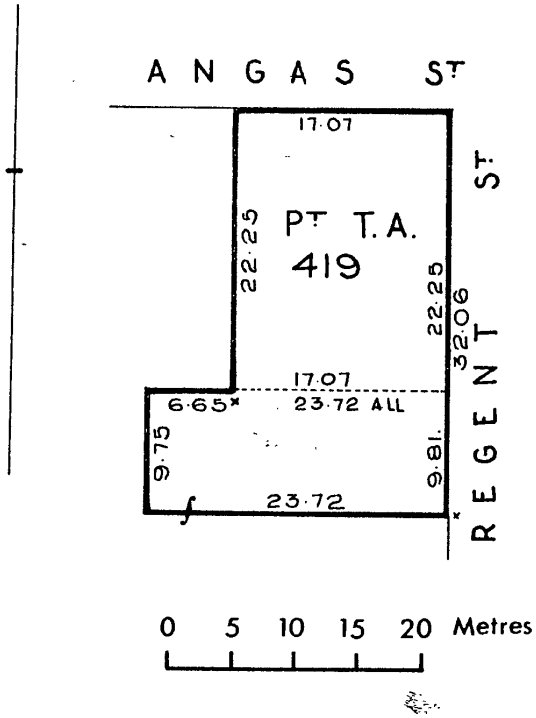
Deputy Registrar-General

REGISTRAR-GENERAL SOUTH AUSTRALIA

THE LAND IN THIS CERTIFICATE IS REDESIGNATED AS ALLOTMENT(S) 10 IN FILED PLAN 9067 NEW CERTIFICATE TO BE ISSUED WHEN DUPLICATE IS PRODUCED.

BARBARA MINNIE REES of 112 Wellington Parade Alawa Darwin in the Northern Territory 5790 Married Woman of an estate of FREEHOLD FOR HER LIFE IN REMAINDER EXPECTANT upon the determination of the LIFE ESTATE DURING WIDOWHOOD of the said Henrietta Adelaide Dorothy David in the within land

REGISTRAR-GENERAL SOUTH AUSTRALIA



DAVID JOHN DAVID of 85 Morialta Road Rostrevor 5073 Medical Practitioner and MICHAEL DAVID of 32 Anglesey Terrace St. Georges 5064 Barrister of an estate in fee simple AS TENANTS IN COMMON IN REMAINDER EXPECTANT upon the determination of the LIFE ESTATE DURING WIDOWHOOD of the said Henrietta Adelaide Dorothy David and the LIFE ESTATE of the said Barbara Minnie Rees

REGISTRAR-GENERAL SOUTH AUSTRALIA

MORTGAGE 2101298 to MANCHESTER UNITY INDEPENDENT ORDER OF ODDFELLOWS FRIENDLY SOCIETY IN SOUTH AUSTRALIA Produced 24.12.1958 at 12.5 p.m.

REGISTRAR-GENERAL SOUTH AUSTRALIA

~~DM4435401 T4435402 M4435403 M4435404~~

OVER

DISCHARGE of Mortgage-2101298 vide 4435401
Produced-3.9.1979 at 11.45 a.m.

TRANSFER 4435402 to K.G.P. NOMINEES PTY. LTD. of 231 Greenhill Road Dulwich 5065 of the within land Produced 3.9.1979 at-11.45 a.m.

MORTGAGE 4435403 to STATE GOVERNMENT INSURANCE COMMISSION Produced 3.9.1979 at 11.45 a.m.

MORTGAGE 4435404 to HENRIETTA ADELAIDE DOROTHY DAVID Produced 3.9.1979 at 11.45 a.m.

~~R7448937~~.

CANCELLED

AND New CERTIFICATE OF TITLE

ISSUED VIDE 4489876 FILED PLAN No. 9067

VOL 4155 FOL. 617

ORIGINAL CERTIFICATE OF TITLE

South Australia

Register Book,

Volume 4155 Folio 617

New Certificate for the whole of the Land in Vol.4149 Folio 771

K.G.P. - NOMINEES PROPRIETARY LIMITED of 231 Greenhill Road Dulwich 5065 is the proprietor of an estate in fee simple subject nevertheless to such encumbrances liens and interests as are notified by memorial underwritten or endorsed hereon in ALLOTMENT 10 of portion of Town Acre 419 CITY OF ADELAIDE HUNDRED OF ADELAIDE (L.T.R.O. FILED PLAN No.9067) and delineated on the plan hereon by bold black lines

In witness whereof I have signed my name and affixed my seal this 11th day of February 1980

Signed the 11th day of February)
1980, in the presence of)

J.W. Hughes.

Deputy Registrar-General

REGISTRAR-GENERAL SOUTH AUSTRALIA

MORTGAGE 4435403 to STATE GOVERNMENT INSURANCE COMMISSION Produced 3.9.1979 at 11.45 a.m.

REGISTRAR-GENERAL SOUTH AUSTRALIA

MORTGAGE 4435404 to HENRIETTA ADELAIDE DOROTHY DAVID Produced 3.9.1979 at 11.45 a.m.

REGISTRAR-GENERAL SOUTH AUSTRALIA

~~CAVEAT 4960589 Lodged 28.10.82 at 2.30 p.m.~~

CAVEAT 4960589 lodged by ANGELO ENZO BELLUZZO over the within land Produced 28.10.1982 at 2.30 p.m.

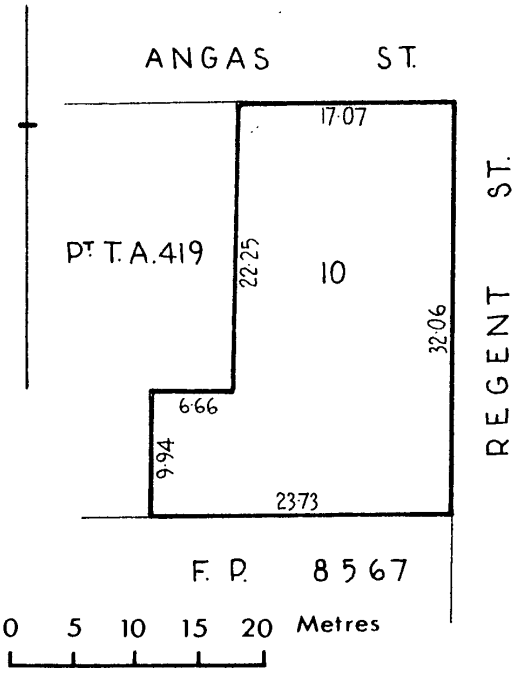
REGISTRAR-GENERAL SOUTH AUSTRALIA

~~CAVEAT 4965507 Lodged 9.11.82 at 2.35 p.m.~~

~~RX 4965564~~ To no avail vide WX 4970716

CAVEAT 4965507 lodged by FALSTAFF PTY. LTD. over the within land Produced 9.11.1982 at 2.35 p.m.

REGISTRAR-GENERAL SOUTH AUSTRALIA



WX-4970716---WX-4970717-

DM-4970718- DM--4970-719- T--4970720

M--4970-722-

Caveat 4960589 has been withdrawn vide 4970716
Produced 22.11.1982 at 2.30 p.m.

Caveat 4965507 has been withdrawn vide 4970717
Produced 22.11.1982 at 2.30 p.m.

P/A 4565214
DISCHARGE Of Mortgage 4435403 vide 4970718
Produced 22.11.1982 at 2.30 p.m.

P/A 4432208
DISCHARGE of Mortgage 4435404 vide 4970719
Produced 22.11.1982 at 2.30 p.m.

TRANSFER 4970720 to FALSTAFF PTY. LTD. of 193-197 Angas Street Adelaide 5000 of the within land
Produced 22.11.1982 at 2.30 p.m.

MORTGAGE 4970722 to THE NATIONAL BANK OF AUSTRALASIA LIMITED Produced 22.11.1982 at 2.30 p.m. (Including other land)

MORTGAGE 6557353 to NATIONAL AUSTRALIA BANK LIMITED Produced 30.6.1988 at 10:35

CANCELLED

CONVERTED TO A COMPUTERISED TITLE

Product	Historical Search
Date/Time	14/10/2021 06:09PM
Customer Reference	am adelaide
Order ID	20211014010745

Certificate of Title

Title Reference:	CT 5490/356
Status:	CURRENT
Parent Title(s):	CT 4155/617
Dealing(s) Creating Title:	CONVERTED TITLE
Title Issued:	12/01/1998
Edition:	6

Dealings

Lodgement Date	Completion Date	Dealing Number	Dealing Type	Dealing Status	Details
27/07/2020	31/07/2020	13341309	CAVEAT	REGISTERED	COMMISSIONER OF STATE TAXATION
11/12/2019	16/12/2019	13220993	MORTGAGE	REGISTERED	PERPETUAL CORPORATE TRUST LTD. (ACN: 000 341 533)
11/12/2019	16/12/2019	13220992	DISCHARGE OF MORTGAGE	REGISTERED	13077760
12/03/2019	18/03/2019	13077760	MORTGAGE	REGISTERED	JCSP HOLDINGS PTY. LTD. (ACN: 144 934 645)
12/03/2019	18/03/2019	13077759	DISCHARGE OF MORTGAGE	REGISTERED	13034890
11/12/2018	20/12/2018	13034890	MORTGAGE	REGISTERED	CAPITAL SECURITIES AUSTRALIA PTY. LTD. (ACN: 614 144 213)
11/12/2018	20/12/2018	13034889	WITHDRAWAL OF CAVEAT	REGISTERED	12691045
06/08/2018	12/12/2018	12969045	MORTGAGE	WITHDRAWN	MUNRO PROPERTY GROUP PTY. LTD. (ACN: 007 878 079)
25/06/2018	25/06/2018	12944218	TITLE REPAIR - NEW EDITION	REGISTERED	FALSTAFF PTY. LTD. (ACN: 007 919 100)
07/03/2017	10/03/2017	12691045	CAVEAT	REGISTERED	ACN 603 303 126 PTY. LTD. (ACN: 603 303 126)
18/11/2016	01/12/2016	12635231	DISCHARGE OF MORTGAGE	REGISTERED	4970722 6557353
30/06/1988	08/08/1988	6557353	MORTGAGE	REGISTERED	
22/11/1982	22/11/1982	4970722	MORTGAGE	REGISTERED	

Copyright: www.landservices.com.au/copyright | Privacy: www.landservices.com.au/privacy | Terms of Use: www.landservices.com.au/sailis-terms-of-use

LAND SERVICES SA

Product	Register Search (CT 5490/356)
Date/Time	23/03/2021 05:33PM
Customer Reference	
Order ID	20210323011263

REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

REGISTRAR - GENERAL SOUTH AUSTRALIA

Certificate of Title - Volume 5490 Folio 356

Parent Title(s)	CT 4155/617				
Creating Dealing(s)	CONVERTED TITLE				
Title Issued	12/01/1998	**Edition**	6	**Edition Issued**	16/12/2019

Estate Type

FEE SIMPLE

Registered Proprietor

FALSTAFF PTY. LTD. (ACN: 007 919 100)
OF 193 ANGAS STREET ADELAIDE SA 5000

Description of Land

ALLOTMENT 10 FILED PLAN 9067
IN THE AREA NAMED ADELAIDE
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
13220993	MORTGAGE TO PERPETUAL CORPORATE TRUST LTD. (ACN: 000 341 533)
13341309	CAVEAT BY COMMISSIONER OF STATE TAXATION

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

Copyright: www.landservices.com.au/copyright | Privacy: www.landservices.com.au/privacy | Terms of Use: www.landservices.com.au/sailis-terms-of-use

Appendix D: SA EPA Section 7

Environment Protection Authority
GPO Box 2607 Adelaide SA 5001
211 Victoria Square Adelaide SA 5000
T (08) 8204 2004
Country areas 1800 623 445

A.M. Environmental Consulting Pty Ltd
PO BOX 119
ALDGATE SA 5154

Contact: Section 7
Telephone: (08) 8204 2026
Email: epasection7@sa.gov.au

Contact: Public Register
Telephone: (08) 8204 9128
Email: epa.publicregister@sa.gov.au

14 September, 2021

EPA STATEMENT TO FORM 1 - CONTRACTS FOR SALE OF LAND OR BUSINESS

The EPA provides this statement to assist the vendor meet its obligations under section 7(1)(b) of the *Land and Business (Sale and Conveyancing) Act 1994*. A response to the questions prescribed in Schedule 1-Contracts for sale of land or business-forms (Divisions 1 and 2) of the *Land and Business (Sale and Conveyancing) Act 1994* is provided in relation to the land.

I refer to your enquiry concerning the parcel of land comprised in

Title Reference CT Volume 5490 Folio 356
Address 193 Angas Street, ADELAIDE SA 5000

Schedule – Division 1 – *Land and Business (Sale and Conveyancing) Regulations 2010*

PARTICULARS OF MORTGAGES, CHARGES AND PRESCRIBED ENCUMBRANCES AFFECTING THE LAND

8. Environment Protection Act 1993

Does the EPA hold any of the following details relating to the *Environment Protection Act 1993*:

8.1	Section 59 - Environment performance agreement that is registered in relation to the land.	NO
8.2	Section 93 - Environment protection order that is registered in relation to the land.	NO
8.3	Section 93A - Environment protection order relating to cessation of activity that is registered in relation to the land.	NO
8.4	Section 99 - Clean-up order that is registered in relation to the land.	NO
8.5	Section 100 - Clean-up authorisation that is registered in relation to the land.	NO
8.6	Section 103H - Site contamination assessment order that is registered in relation to the land.	NO
8.7	Section 103J - Site remediation order that is registered in relation to the land.	NO

8.8	Section 103N - Notice of declaration of special management area in relation to the land (due to possible existence of site contamination).	NO
8.9	Section 103P - Notation of site contamination audit report in relation to the land.	NO
8.10	Section 103S - Notice of prohibition or restriction on taking water affected by site contamination in relation to the land.	NO

Schedule – Division 2 – ***Land and Business (Sale and Conveyancing) Regulations 2010***

PARTICULARS RELATING TO ENVIRONMENT PROTECTION

3-Licences and exemptions recorded by EPA in public register

Does the EPA hold any of the following details in the public register:

a)	details of a current licence issued under Part 6 of the *Environment Protection Act 1993* to conduct any prescribed activity of environmental significance under Schedule 1 of that Act at the land?	NO
b)	details of a licence no longer in force issued under Part 6 of the *Environment Protection Act 1993* to conduct any prescribed activity of environmental significance under Schedule 1 of that Act at the land?	NO
c)	details of a current exemption issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
d)	details of an exemption no longer in force issued under Part 6 of the *Environment Protection Act 1993* from the application of a specified provision of that Act in relation to an activity carried on at the land?	NO
e)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to operate a waste depot at the land?	NO
f)	details of a licence issued under the repealed *Waste Management Act 1987* to operate a waste depot at the land?	NO
g)	details of a licence issued under the repealed *South Australian Waste Management Commission Act 1979* to produce waste of a prescribed kind (within the meaning of that Act) at the land?	NO
h)	details of a licence issued under the repealed *Waste Management Act 1987* to produce prescribed waste (within the meaning of that Act) at the land?	NO

4-Pollution and site contamination on the land - details recorded by the EPA in public register

Does the EPA hold any of the following details in the public register in relation to the land or part of the land:

a)	details of serious or material environmental harm caused or threatened in the course of an activity (whether or not notified under section 83 of the *Environment Protection Act 1993*)?	NO

b)	details of site contamination notified to the EPA under section 83A of the *Environment Protection Act 1993*?	NO
c)	a copy of a report of an environmental assessment (whether prepared by the EPA or some other person or body and whether or not required under legislation) that forms part of the information required to be recorded in the public register?	NO
d)	a copy of a site contamination audit report?	NO
e)	details of an agreement for the exclusion or limitation of liability for site contamination to which section 103E of the *Environment Protection Act 1993* applies?	NO
f)	details of an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
g)	details of an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993?*	NO
h)	details of a notification under section 103Z(1) of the *Environment Protection Act 1993* relating to the commencement of a site contamination audit?	NO
i)	details of a notification under section 103Z(2) of the *Environment Protection Act 1993* relating to the termination before completion of a site contamination audit?	NO
j)	details of records, held by the former *South Australian Waste Management Commission* under the repealed *Waste Management Act 1987*, of waste (within the meaning of that Act) having been deposited on the land between 1 January 1983 and 30 April 1995?	NO

5-Pollution and site contamination on the land - other details held by EPA

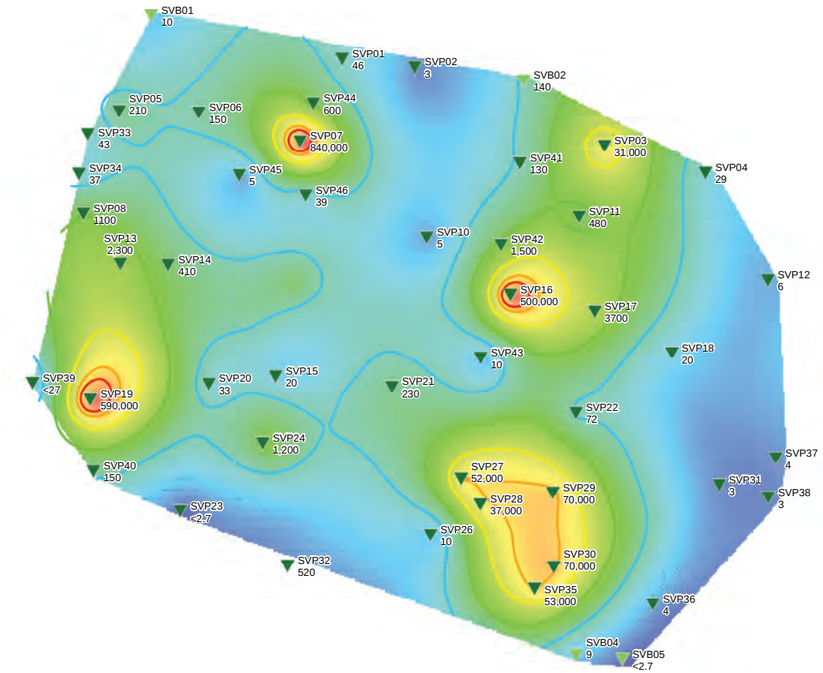
Does the EPA hold any of the following details in relation to the land or part of the land:

a)	a copy of a report known as a "Health Commission Report" prepared by or on behalf of the *South Australian Health Commission* (under the repealed *South Australian Health Commission Act 1976*)?	NO
b)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site contamination assessment proposal under section 103I of the *Environment Protection Act 1993?*	NO
c)	details (which may include a report of an environmental assessment) relevant to an agreement entered into with the EPA relating to an approved voluntary site remediation proposal under section 103K of the *Environment Protection Act 1993*?	NO
d)	a copy of a pre-1 July 2009 site audit report?	NO
e)	details relating to the termination before completion of a pre-1 July 2009 site audit?	NO

All care and diligence has been taken to access the above information from available records. Historical records provided to the EPA concerning matters arising prior to 1 May 1995 are limited and may not be accurate or complete and therefore the EPA cannot confirm the accuracy of the historical information provided.

Appendix E: Soil Vapour Method

Leading Science. Lasting Solutions



WATERLOO MEMBRANE SAMPLER™

Sampler Ordering and Analysis:

Sample Reception
Eurofins Air Toxics, Inc.

180 Blue Ravine Road, Suite B
Folsom, California, 95630
Ph: 916-985-1000
Toll Free: 800-985-5955

Technical Information:

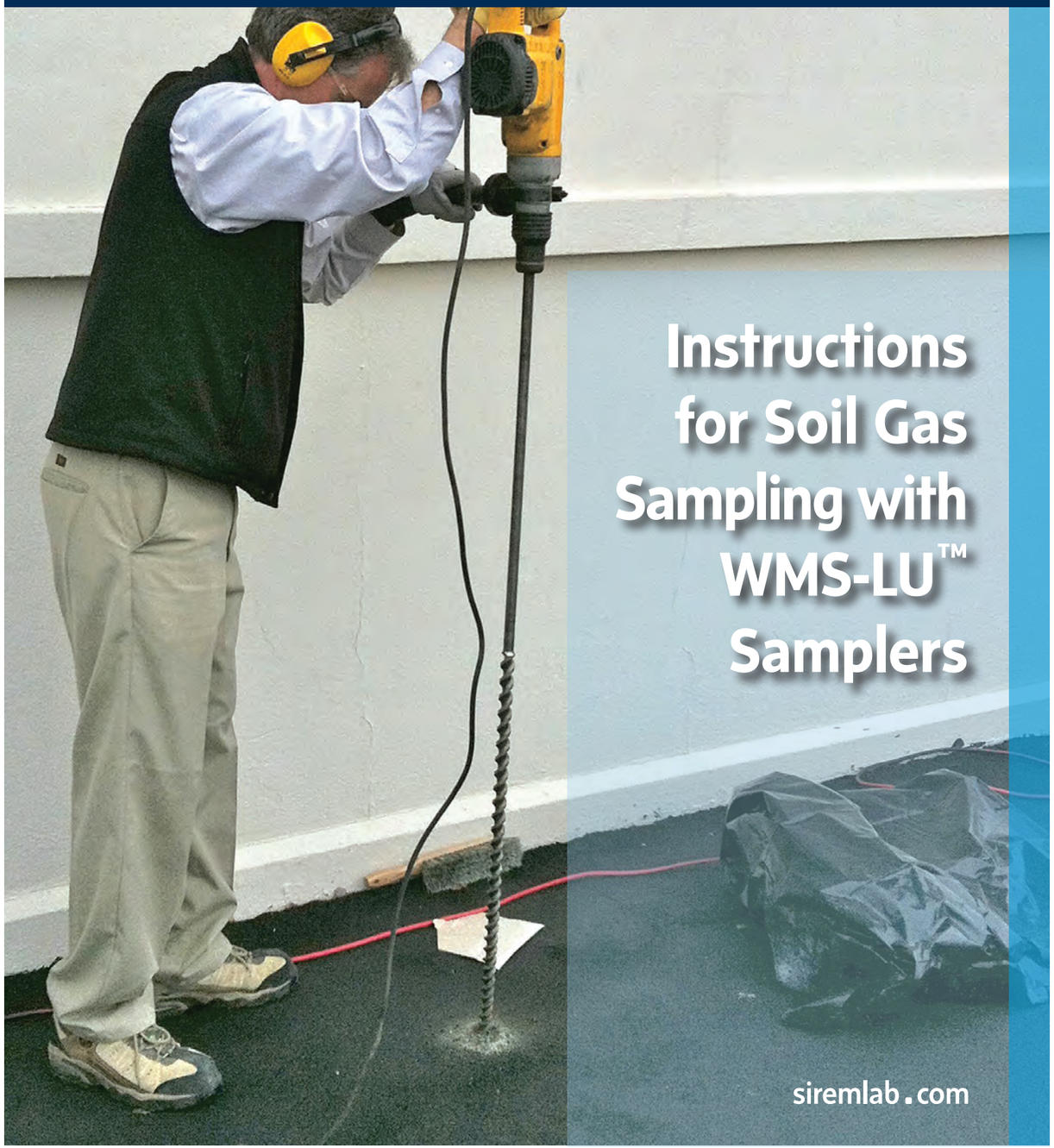
SiREM

130 Research Lane, Suite 2
Guelph, ON N1G 5G3
Ph: (519) 822-2265
Toll Free: 1-866-251-1747

siremlab.com

SiREM
Leading Science · Lasting Solutions

WATERLOO MEMBRANE SAMPLER™



Instructions for Soil Gas Sampling with WMS-LU™ Samplers

siremlab.com

Overview

Passive soil gas sampling has been available for over 30 years, but only recently Geosyntec discovered the secret to determining the soil vapor concentrations.

This document provides operating instructions for passive soil gas sampling and quantitative analysis of volatile organic compound (VOC) vapor concentrations using the Waterloo Membrane Sampler™, or WMS. The key to quantitative passive sampling is having a passive sampler with an uptake rate that is similar to or lower than the rate of diffusive delivery of soil vapors to the void-space in which the passive sampler is deployed. Mathematical modeling, laboratory testing and field testing to demonstrate this innovation was published by McAlary et al.[1]. The low-uptake variety of the WMS sampler is referred to as WMS-LU™.

This innovation is subject to U.S. Patent #9399912: "Passive Sampling Device and Method of Sampling and Analysis", and cannot be used without expressed written consent of Geosyntec Consultants, Inc. This invention was made with financial support from the U.S. Federal government under Contract W912HQ-08-C-0046 awarded by the Environmental Security Technology Certification Program (ESTCP), so all U.S. government agencies are granted royalty-free use of this patented technology.

[1] McAlary, T.A., X. Wang, A. Unger, H. Groenevelt and T. Górecki, Quantitative Passive Soil Vapor Sampling for VOCs - Part I: Theory. Environmental Science: Processes & Impacts, DOI:10.1039/C3EM00652B: http://xlink.rsc.org/?doi=C3EM00652B

McAlary, T.A., H. Groenevelt, S. Seethapathy, P. Sacco, D. Crump, M. Tuday, B. Schumacher, H. Hayes, P. Johnson and T. Górecki, Quantitative Passive Soil Vapor Sampling for VOCs – Part 2: Laboratory Experiments. Environ. Sci.: Processes Impacts, 2014, DOI: 10.1039/C3EM00128H: http://xlink.rsc.org/?doi=C3EM00128H

McAlary, T.A., H. Groenevelt, P. Nicholson, S. Seethapathy, P. Sacco, D. Crump, M. Tuday, H. Hayes, B. Schumacher, P. Johnson, T. Górecki and I. Rivera Duarte, Quantitative Passive Soil Vapor Sampling for VOCs - Part 3: Field Experiments. Environ. Sci.: Processes Impacts, 2014, DOI: 10.1039/C3EM00653K: http://xlink.rsc.org/?doi=C3EM00653K

Instructions:

1. Acquire apparatus:
   - WMS-LU™ Sampler and deployment materials (described further in item 2);
   - Borehole drilling, coring, or augering equipment;
   - A piece of rigid pipe (acrylic or PVC), slightly smaller in diameter than the borehole diameter, about 1 foot longer than the depth that the WMS-LU™ samplers will be deployed; and
   - A piece of dowel, slightly smaller in diameter than the pipe, about 2 feet longer than the depth that the WMS-LU™ sampler will be deployed.

2. Open the plastic bag of deployment materials. It should contain **(Fig 1)**:
   - a 4-inch long piece of 3-inch diameter foam plug
   - a rubber stopper with an eyelet in the top and in the bottom
   - a 5½-foot long, 4-inch diameter flexible plastic sleeve, sealed at one end and open at the other
   - a small plastic bag containing 5 feet of 20-pound fishing line

   Note: the plastic bag of deployment materials does NOT include a WMS-LU™ sampler.

3. Tie one end of the fishing line to the top of the wire hanger **(Fig 2)** and tie the other end to the eyelet at the BOTTOM of the rubber stopper, leaving sufficient length of fishing line between the rubber stopper and the WMS-LU™ sampler to position the sampler at the desired deployment depth.

4. The Waterloo Membrane Sampler is shipped in a protective Ziploc aluminum package and glass vial, which protects the sampler from exposure to chemicals during shipping. Tear or cut open pouch above the zip-lock seal. Remove the glass vial from the bubble pack and remove the aluminum foil wrap. Insert the WMS-LU™ sampler membrane first into wire hanger **(Fig. 3)**. The end of the wire hanger must be moved to one side to allow the WMS-LU™ sampler to enter or exit the wire hanger coil **(Fig. 4)**. Once inserted, the WMS-LU™ sampler will sit approximately half-way down in the wire hanger, with several coils of wire underneath the bottom of the WMS-LU™ sampler to protect the sampling end of the WMS-LU™ sampler from contact with soil at the bottom of the borehole **(Fig. 5)**. The sampler must be positioned with the membrane down during sampling to keep the sorbent inside the vial in contact with the inner side of the membrane.



Figure 1 - Contents of the soil gas sampling kit



Figure 2 - complete sampler/wire hanger/ rubber stopper assembly

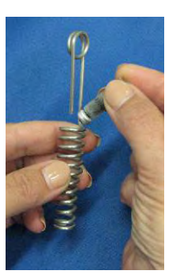


Figure 3 - aligning the sampler in the wire hanger

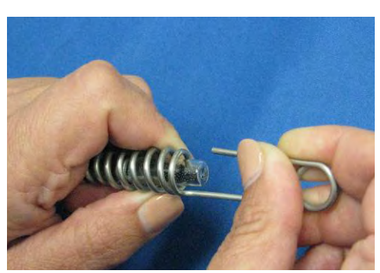


Figure 4 - bending the wire to insert the sampler



Figure 5 - complete sampler/wire hanger assembly



Figure 6 - lowering the sampler down the borehole (represented by the glass cylinder)



Figure 7 - foam plug and the pipe



Figure 8 - insertion of compressed foam plug into the pipe



Figure 9 - insertion of the pipe, with foam plug at bottom, into plastic sleeve



Figure 10 - positioning of pipe and foam plug at the bottom of plastic sleeve



Figure 11 - insertion of pipe/foam plug and flexible plastic sleeve into borehole (represented by the glass cylinder)

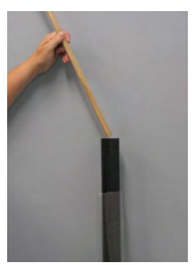


Figure 12 - insertion of dowel into rigid pipe



Figure 13 - extrusion of foam plug from the pipe, approximately 6 inches above the WMS-LU™ sampler

5. Lower the WMS-LU™ sampler, attached to the fishing line and the rubber stopper, down the borehole to the desired deployment depth **(Fig. 6)**. Lay the rubber stopper beside the opening of the borehole.

6. Compress the 4-inch long piece of 3-inch diameter foam plug **(Fig. 7)** along its cylindrical axis and insert it into one end of the pipe **(Fig. 8)**.

7. Insert the pipe, with the foam plug at the BOTTOM, into the open end of the 5-foot flexible plastic sleeve **(Fig 9)**, down to the sealed end of the 5-foot flexible plastic sleeve **(Fig 10)**.

8. Lower the 5½-foot flexible plastic sleeve containing the pipe (with the foam plug at the bottom) down the borehole to approximately 6 inches above the WMS-LU™ sampler. The fishing line holding the WMS-LU™ sampler will be between the borehole wall and outside of the 5½-foot flexible plastic sleeve **(Fig. 11)**.

9. Insert the dowel into the pipe until it touches the top of the foam plug **(Fig. 12)**. Hold the dowel stationary while slowly pulling the pipe upwards. The foam plug will be extruded from the pipe **(Fig. 13)** and expand inside the 5½-foot flexible plastic sleeve, at a depth of approximately 6 inches above the WMS-LU™ sampler. This will press the flexible plastic sleeve against the borehole wall to provide a seal between the WMS-LU™ sampler and the rest of the borehole and the atmosphere, resulting in a depth-discrete soil vapor sample.

10. Remove the pipe and dowel from the flexible plastic sleeve and seal the top of the borehole with the rubber stopper. The 5½-foot flexible plastic sleeve will be pinned between the rubber stopper and the borehole, and will be visible at ground surface. Excess plastic on the 5½-foot flexible plastic sleeve can be trimmed, if needed. Place a piece of dowelling, steel rod, etc. through the eyelet at the top of the rubber stopper to prevent the rubber stopper sliding into the borehole **(Fig 14)**. This can also aid in removing the rubber stopper after sampling.

11. When sampling is complete, remove the rubber stopper and slowly pull the 5½-foot flexible plastic slleve containing the foam plug out of the borehole along with the fishing line attached to the WMS-LU™ sampler. The foam plug will keep the borehole open as it slides upward, providing a path for the WMS-LU™ sampler, even if there has been any sloughing of the borehole wall.

12. Remove the WMS-LU™ sampler from the wire hanger by holding the wire hanger upside down and pushing the end of the wire hanger to one side and allowing the WMS-LU™ sampler to slide out **(Fig. 15)**. Brush any loose soil from the WMS-LU™ sampler, taking care not to damage the membrane.

13. Remove the MiniPax scavenger carbon from the 20 mL glass vial, and put it in the aluminum pouch **(Fig. 16)**. Return the WMS-LU™ sampler to the glass vial, replace the cap and seal with Teflon™ tape. Aluminum foil around glass vial does not need to be replaced. Put the vial in bubble pack, place in aluminum pouch and seal. Record stop date and time on pouch label.

14. Complete chain of custody form and ship with samplers to Eurofins-Air Toxics Ltd (180 Blue Ravine Road, Suite B, Folsom, California, 95630) for analysis.



Figure 14 – restraining the rubber stopper



Figure 15 – removal of WMS-LU™ sampler from wire hanger



Figure 16 – repackaging of WMS-LU™ sampler for shipment to laboratory

Appendix F: Borelogs

A.M. Environmental Consulting Pty Ltd

Log of Borehole: BH1

Date: 11 November 2021
Client: forme projex
Project No.: 2071
Location: 193 Angas Street, Adelaide
Sheet: 1 of 1

Contractor: In-Depth
Method: Pushtube
Operator: LS
Field Rep: AM
Checked:

SUBSURFACE PROFILE			SAMPLE		
Depth (m)	**Symbol**	**Description**	**Sample ID**	**PID (ppm)**	**Comments**
0		**Ground Surface**			
		Bitumen Seal	BH1/1 - Dup 1	0	
		FILL. Gravel, sand, dark brown clayey sand. No visual or odour.			
			BH1/2	0	
		Red/brown Sandy Clay. No visual or odour.	BH1/3	0	
		Green/brown SandyClay. No visual or odour. Calcareous traces.	BH1/4	0	
1					
		Red/brown high plasticity Sandy Clay. No visual or odour. Groundwater not encountered. End of BH at 3.2m bgl.	BH1/5	0	
2					
3			BH1/6	0	

This log is not suitable for engineering purposes.

A.M. Environmental Consulting Pty Ltd

Log of Borehole: BH2

Date: 11 November 2021
Client: forme projex
Project No.: 2071
Location: 193 Angas Street, Adelaide
Sheet: 1 of 1

Contractor: In-Depth
Method: Pushtube
Operator: LS
Field Rep: AM
Checked:

SUBSURFACE PROFILE			SAMPLE		
Depth (m)	Symbol	Description	Sample ID	PID (ppm)	Comments
0		**Ground Surface**			
		Bitumen Seal			
		FILL. Gravel, sand, dark brown clayey sand. No visual or odour.	BH2/1 - Dup 2	0	
		Red/brown Sandy Clay. No visual or odour.	BH2/2	0	
		Green/brown SandyClay. No visual or odour. Calcareous traces. End of BH at 1.2m. Groundwater not encountered.	BH2/3	0	
1					

This log is not suitable for engineering purposes.

A.M. Environmental Consulting Pty Ltd

Log of Borehole: BH3

Date: 11 November 2021
Client: forme projex
Project No.: 2071
Location: 193 Angas Street, Adelaide
Sheet: 1 of 1

Contractor: In-Depth
Method: Pushtube
Operator: LS
Field Rep: AM
Checked:

SUBSURFACE PROFILE			SAMPLE		
Depth (m)	Symbol	Description	Sample ID	PID (ppm)	Comments
0		**Ground Surface**			
		Bitumen Seal			
		FILL. Gravel, sand, dark brown clayey sand. No visual or odour.	BH3/1	0	
		Red/brown Sandy Clay. No visual or odour.	BH3/2	0	
		Green/brown SandyClay. No visual or odour. Calcareous traces. End of BH at 1.2m. Groundwater not encountered.	BH3/3	0	
1					

This log is not suitable for engineering purposes.

Appendix G: Certified Analytical Laboratory Certificates

CHAIN OF CUSTODY DOCUMENTATION

3

PROJECT: Angas Street	LABORATORY: Eurofins MGT	LABORATORY BATCH NO.:
	COC Reference #: 2071	SAMPLERS: ACM
SEND REPORT TO: Ashley@AMEnvironmental.com.au	SEND INVOICE TO: Ashley@AMEnvironmental.com.au	PHONE: 0407 352 036 (Ashley)
DATA NEEDED BY:	REPORT NEEDED BY:	REPORT FORMAT: E-MAIL
	QUOTE#	

RELINQUISHED BY: Ashley Moule

NAME : ACM	DATE: 15/11/21	RECEIVED BY NAME : Pasquinal	DATE: 15/11
OF: AME	TIME:PM	OF: Eurofins	TIME: 2pm
NAME :	DATE:	NAME :	DATE:
OF:	TIME:	OF:	TIME:

P.O. NO.:	COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:	METHOD OF SHIPMENT: Overnight
FOR LAB USE ONLY	Dup 2 to Envirolab for HM(8) please	CONSIGNMENT NOTE NO.
COOLER SEAL		TRANSPORT CO. NAME.
Yes ..... No		
Broken ..... Intact		
COOLER TEMP: deg.C		

SAMPLE DATA				CONTAINER DATA			ANALYSIS REQUIRED														
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	NO.	pH field	pH	TRH/BTEX	OCP's	PAH	HM(8)	BTEX	HM(8)	R21 EIL'S	SA EPA Waste Screen	VOC's					
BH1/1	Soil	11/11/2021		Lab Supplied											x						
BH1/2	Soil	11/11/2021		Lab Supplied																	
BH1/3	Soil	11/11/2021		Lab Supplied																	
BH1/4	Soil	11/11/2021		Lab Supplied																	
BH1/5	Soil	11/11/2021		Lab Supplied											x						
BH1/6	Soil	11/11/2021		Lab Supplied												x					
BH2/1	Soil	11/11/2021		Lab Supplied												x					
BH2/2	Soil	11/11/2021		Lab Supplied											x						
BH2/3	Soil	11/11/2021		Lab Supplied																	
BH3/1	Soil	11/11/2021		Lab Supplied											x						
BH3/2	Soil	11/11/2021		Lab Supplied											x						
BH3/3	Soil	11/11/2021		Lab Supplied																	
EIL	Soil	11/11/2021		Lab Supplied											x						
Dup 1	Soil	11/11/2021		Lab Supplied									x								
Dup 2	Soil	11/11/2021		Lab Supplied								x									
Trip	Water	11/11/2021		Lab Supplied							x										
Rinsate	Water	11/11/2021		Lab Supplied								x									
				TOTAL			0														

Relinquished by L Reyes
EF 17.11.21

ENVIROLAB

Envirolab Services
25 Research Drive
Croydon South VIC 3136
Ph: (03) 9763 2500

'NOTES

Job No: 28729
Date Received: 17/11/21
Time Received: 12:10
Received By: LO
Temp: Cool/Ambient 17-3
Cooling: Ice/Icepack
Security: Intact/Broken/None

18.4°C
-0.4°C
18.0°C on
LB

#840899

Pasquinal

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph 03 9763 2500 fax 03 9763 2633
melbourne@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 28729

Client Details

Client	A.M.Environmental Consulting Pty Ltd
Attention	Ashley Moule
Address	7 Rudd Court, BRIDGEWATER, SA, 5155

Sample Details

Your Reference	**Angas Street**
Number of Samples	1 Soil
Date samples received	17/11/2021
Date completed instructions received	17/11/2021

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	24/11/2021
Date of Issue	22/11/2021

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Chris De Luca, Operations Manager

Authorised By

Pamela Adams, Laboratory Manager

Acid Extractable metals in soil		
Our Reference		28729-1
Your Reference	UNITS	Dup2
Date Sampled		11/11/2021
Type of sample		Soil
Date digested	-	19/11/2021
Date analysed	-	20/11/2021
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	22
Copper	mg/kg	34
Lead	mg/kg	24
Mercury	mg/kg	0.1
Nickel	mg/kg	10
Zinc	mg/kg	45

Moisture		
Our Reference		28729-1
Your Reference	UNITS	Dup2
Date Sampled		11/11/2021
Type of sample		Soil
Date prepared	-	19/11/2021
Date analysed	-	20/11/2021
Moisture	%	9.5

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105°C for a minimum of 12 hours.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date digested	-			19/11/2021	[NT]	[NT]	[NT]	[NT]	19/11/2021	[NT]
Date analysed	-			20/11/2021	[NT]	[NT]	[NT]	[NT]	20/11/2021	[NT]
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	[NT]	[NT]	102	[NT]
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	[NT]	[NT]	103	[NT]
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	[NT]	[NT]	117	[NT]
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

CHAIN OF CUSTODY DOCUMENTATION

PROJECT: Angas Street	LABORATORY: Eurofins MGT	LABORATORY BATCH NO.:
	COC Reference #: 2071	SAMPLERS: ACM
SEND REPORT TO: Ashley@AMEnvironmental.com.au	SEND INVOICE TO: Ashley@AMEnvironmental.com.au	PHONE: 0407 352 036 (Ashley)
DATA NEEDED BY:	REPORT NEEDED BY:	REPORT FORMAT: E-MAIL
	QUOTE#	

RELINQUISHED BY: Ashley Moule		RECEIVED BY		METHOD OF SHIPMENT: Overnight
NAME : ACM	DATE: 15/11/21	NAME : Pazfinal	DATE: 15/11	CONSIGNMENT NOTE NO.
OF: AME	TIME:PM	OF: Eurofins	TIME: 2pm	
NAME :	DATE:	NAME :	DATE:	TRANSPORT CO. NAME.
OF:	TIME:	OF:	TIME:	

P.O. NO.:	COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:	ANALYSIS REQUIRED
FOR LAB USE ONLY	**Dup 2 to Envirolab for HM(8) please**	
COOLER SEAL		
Yes ..... No		
Broken ..... Intact		
COOLER TEMP: deg.C		

SAMPLE DATA				CONTAINER DATA			pH	TRH/BTEX	OCP's	PAH	HM(8)	BTEX	HM(8)	R21 EIL'S	SA EPA Waste Screen	VOC's					'NOTES
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	NO.	pH field															
BH1/1	Soil	11/11/2021		Lab Supplied											x						
BH1/2	Soil	11/11/2021		Lab Supplied																	
BH1/3	Soil	11/11/2021		Lab Supplied																	
BH1/4	Soil	11/11/2021		Lab Supplied											x						
BH1/5	Soil	11/11/2021		Lab Supplied												x					
BH1/6	Soil	11/11/2021		Lab Supplied												x					
BH2/1	Soil	11/11/2021		Lab Supplied											x						18.4°C
BH2/2	Soil	11/11/2021		Lab Supplied																	−0.4°C
BH2/3	Soil	11/11/2021		Lab Supplied											x						18.0°C on IB
BH3/1	Soil	11/11/2021		Lab Supplied											x						
BH3/2	Soil	11/11/2021		Lab Supplied																	
BH3/3	Soil	11/11/2021		Lab Supplied											x						
EIL	Soil	11/11/2021		Lab Supplied										x							#840899
Dup 1	Soil	11/11/2021		Lab Supplied									x								Pazfinal
Dup 2	Soil	11/11/2021		Lab Supplied																	
Trip	Water	11/11/2021		Lab Supplied								x									
Rinsate	Water	11/11/2021		Lab Supplied									x								
						TOTAL		0													

eurofins | Environment Testing

www.eurofins.com.au EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

Eurofins ARL Pty Ltd

ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited

NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Sample Receipt Advice

Company name:	AM Environmental Consulting P/L
Contact name:	-Ashley Moule (all SRA/REPORTS)
Project name:	ANGAS STREET
Project ID:	Not provided
Turnaround time:	5 Day
Date/Time received	Nov 15, 2021 2:00 PM
Eurofins reference	840899

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
✓	Split sample sent to requested external lab.
✗	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Michael Cassidy on phone : +61 3 8564 5000 or by email: MichaelCassidy@eurofins.com

Results will be delivered electronically via email to -Ashley Moule (all SRA/REPORTS) - ashley@amenvironmental.com.au.

Global Leader - Results you can trust

eurofins | Environment Testing

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited
NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: AM Environmental Consulting P/L
Address: 7 Rudd Crt
Bridgewater
SA 5155

Project Name: ANGAS STREET

Order No.:
Report #: 840899
Phone: 0407 352 036
Fax:

Received: Nov 15, 2021 2:00 PM
Due: Nov 22, 2021
Priority: 5 Day
Contact Name: -Ashley Moule (all SRA/REPORTS)

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Metals M8	BTEX	Volatile Organics	Moisture Set	NEPM Screen for Soil Classification	SA Waste Screen
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217												
Brisbane Laboratory - NATA # 1261 Site # 20794											X	
Mayfield Laboratory - NATA # 1261 Site # 25079												
Perth Laboratory - NATA # 2377 Site # 2370												
External Laboratory												
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**							
1	BH1/1	Nov 11, 2021		Soil	M21-No32759					X		X
2	BH1/4	Nov 11, 2021		Soil	M21-No32760					X		X
3	BH1/5	Nov 11, 2021		Soil	M21-No32761				X	X		
4	BH1/6	Nov 11, 2021		Soil	M21-No32762				X	X		
5	BH2/1	Nov 11, 2021		Soil	M21-No32763					X		X
6	BH2/3	Nov 11, 2021		Soil	M21-No32764					X		X
7	BH3/1	Nov 11, 2021		Soil	M21-No32765					X		X
8	BH3/3	Nov 11, 2021		Soil	M21-No32766					X		X
9	EIL	Nov 11, 2021		Soil	M21-No32767					X	X	
10	DUP 1	Nov 11, 2021		Soil	M21-No32768		X			X		

eurofins | Environment Testing

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited
NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: AM Environmental Consulting P/L
Address: 7 Rudd Crt
Bridgewater
SA 5155

Project Name: ANGAS STREET

Order No.:
Report #: 840899
Phone: 0407 352 036
Fax:

Received: Nov 15, 2021 2:00 PM
Due: Nov 22, 2021
Priority: 5 Day
Contact Name: -Ashley Moule (all SRA/REPORTS)

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Metals M8	BTEX	Volatile Organics	Moisture Set	NEPM Screen for Soil Classification	SA Waste Screen
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217												
Brisbane Laboratory - NATA # 1261 Site # 20794											X	
Mayfield Laboratory - NATA # 1261 Site # 25079												
Perth Laboratory - NATA # 2377 Site # 2370												
External Laboratory												
11	TRIP	Nov 11, 2021		Water	M21-No32769			X				
12	RINSATE	Nov 11, 2021		Water	M21-No32770		X					
13	BH1/2	Nov 11, 2021		Soil	M21-No32771	X						
14	BH1/3	Nov 11, 2021		Soil	M21-No32772	X						
15	BH2/2	Nov 11, 2021		Soil	M21-No32773	X						
16	BH3/2	Nov 11, 2021		Soil	M21-No32774	X						
Test Counts						4	2	1	2	10	1	6

AM Environmental Consulting P/L
7 Rudd Crt
Bridgewater
SA 5155

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **-Ashley Moule (all SRA/REPORTS)**

Report **840899-S**
Project name ANGAS STREET
Received Date Nov 15, 2021

Client Sample ID			**BH1/1**	**BH1/4**	**BH1/5**	**BH1/6**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**M21-No32759**	**M21-No32760**	**M21-No32761**	**M21-No32762**
Date Sampled			**Nov 11, 2021**	**Nov 11, 2021**	**Nov 11, 2021**	**Nov 11, 2021**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	-	-
TRH C10-C14	20	mg/kg	< 20	< 20	-	-
TRH C15-C28	50	mg/kg	< 50	< 50	-	-
TRH C29-C36	50	mg/kg	91	< 50	-	-
TRH C10-C36 (Total)	50	mg/kg	91	< 50	-	-
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	-	-
TRH C6-C10	20	mg/kg	< 20	< 20	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	-	-
TRH >C10-C16	50	mg/kg	< 50	< 50	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	-	-
TRH >C16-C34	100	mg/kg	< 100	< 100	-	-
TRH >C34-C40	100	mg/kg	< 100	< 100	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	-	-
Volatile Organics						
Tetrachloroethene	0.5	mg/kg	< 0.5	< 0.5	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	-	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	-
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	-	-
4-Bromofluorobenzene (surr.)	1	%	90	94	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	-	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	-	-

Client Sample ID			BH1/1	BH1/4	BH1/5	BH1/6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M21-No32759	M21-No32760	M21-No32761	M21-No32762
Date Sampled			Nov 11, 2021	Nov 11, 2021	Nov 11, 2021	Nov 11, 2021
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	75	81	-	-
p-Terphenyl-d14 (surr.)	1	%	86	96	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	-	-
a-HCH	0.05	mg/kg	< 0.05	< 0.05	-	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
b-HCH	0.05	mg/kg	< 0.05	< 0.05	-	-
d-HCH	0.05	mg/kg	< 0.05	< 0.05	-	-
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	-	-
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	-	-
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	-	-
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	-	-
Dibutylchlorendate (surr.)	1	%	70	81	-	-
Tetrachloro-m-xylene (surr.)	1	%	68	86	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	-	-
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	-	-
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	-	-
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1	-	-
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	-	-
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1	-	-
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1	-	-
Total PCB*	0.1	mg/kg	< 0.1	< 0.1	-	-
Dibutylchlorendate (surr.)	1	%	70	81	-	-
Tetrachloro-m-xylene (surr.)	1	%	68	86	-	-

Client Sample ID			BH1/1	BH1/4	BH1/5	BH1/6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M21-No32759	M21-No32760	M21-No32761	M21-No32762
Date Sampled			Nov 11, 2021	Nov 11, 2021	Nov 11, 2021	Nov 11, 2021
Test/Reference	LOR	Unit				
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	-	-
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	-	-
2.4.5-Trichlorophenol	1	mg/kg	< 1	< 1	-	-
2.4.6-Trichlorophenol	1	mg/kg	< 1	< 1	-	-
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	-	-
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1	-	-
Pentachlorophenol	1	mg/kg	< 1	< 1	-	-
Tetrachlorophenols - Total	10	mg/kg	< 10	< 10	-	-
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	-	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	< 20	-	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5	-	-
2-Nitrophenol	1.0	mg/kg	< 1	< 1	-	-
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	-	-
2.4-Dinitrophenol	5	mg/kg	< 5	< 5	-	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	-	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	-	-
Total cresols*	0.5	mg/kg	< 0.5	< 0.5	-	-
4-Nitrophenol	5	mg/kg	< 5	< 5	-	-
Dinoseb	20	mg/kg	< 20	< 20	-	-
Phenol	0.5	mg/kg	< 0.5	< 0.5	-	-
Phenol-d6 (surr.)	1	%	66	69	-	-
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	-	-
Chromium (hexavalent)	1	mg/kg	< 1	< 1	-	-
Chromium (trivalent)	5	mg/kg	36	27	-	-
Cyanide (total)	5	mg/kg	< 5	< 5	-	-
% Moisture	1	%	9.4	20	26	25
Heavy Metals						
Arsenic	2	mg/kg	3.3	< 2	-	-
Barium	10	mg/kg	78	110	-	-
Beryllium	2	mg/kg	< 2	< 2	-	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	-	-
Chromium	5	mg/kg	36	27	-	-
Cobalt	5	mg/kg	13	6.0	-	-
Copper	5	mg/kg	710	9.2	-	-
Iron	20	mg/kg	29000	19000	-	-
Lead	5	mg/kg	38	9.2	-	-
Manganese	5	mg/kg	370	190	-	-
Mercury	0.1	mg/kg	0.3	< 0.1	-	-
Nickel	5	mg/kg	18	13	-	-
Silver	2	mg/kg	< 2	< 2	-	-
Zinc	5	mg/kg	94	23	-	-
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	-	-	< 0.5	< 0.5
1.1-Dichloroethene	0.5	mg/kg	-	-	< 0.5	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	-	-	< 0.5	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	-	-	< 0.5	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	-	-	< 0.5	< 0.5

Client Sample ID			BH1/1	BH1/4	BH1/5	BH1/6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M21-No32759	M21-No32760	M21-No32761	M21-No32762
Date Sampled			Nov 11, 2021	Nov 11, 2021	Nov 11, 2021	Nov 11, 2021
Test/Reference	LOR	Unit				
Volatile Organics						
1.1.2.2-Tetrachloroethane	0.5	mg/kg	-	-	< 0.5	< 0.5
1.2-Dibromoethane	0.5	mg/kg	-	-	< 0.5	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	< 0.5
1.2-Dichloroethane	0.5	mg/kg	-	-	< 0.5	< 0.5
1.2-Dichloropropane	0.5	mg/kg	-	-	< 0.5	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	-	-	< 0.5	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	-	-	< 0.5	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	< 0.5
1.3-Dichloropropane	0.5	mg/kg	-	-	< 0.5	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	-	-	< 0.5	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	< 0.5
2-Butanone (MEK)	0.5	mg/kg	-	-	< 0.5	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	-	-	< 0.5	< 0.5
4-Chlorotoluene	0.5	mg/kg	-	-	< 0.5	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	-	-	< 0.5	< 0.5
Allyl chloride	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzene	0.1	mg/kg	-	-	< 0.1	< 0.1
Bromobenzene	0.5	mg/kg	-	-	< 0.5	< 0.5
Bromochloromethane	0.5	mg/kg	-	-	< 0.5	< 0.5
Bromodichloromethane	0.5	mg/kg	-	-	< 0.5	< 0.5
Bromoform	0.5	mg/kg	-	-	< 0.5	< 0.5
Bromomethane	0.5	mg/kg	-	-	< 0.5	< 0.5
Carbon disulfide	0.5	mg/kg	-	-	< 0.5	< 0.5
Carbon Tetrachloride	0.5	mg/kg	-	-	< 0.5	< 0.5
Chlorobenzene	0.5	mg/kg	-	-	< 0.5	< 0.5
Chloroethane	0.5	mg/kg	-	-	< 0.5	< 0.5
Chloroform	0.5	mg/kg	-	-	< 0.5	< 0.5
Chloromethane	0.5	mg/kg	-	-	< 0.5	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	-	-	< 0.5	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	-	-	< 0.5	< 0.5
Dibromochloromethane	0.5	mg/kg	-	-	< 0.5	< 0.5
Dibromomethane	0.5	mg/kg	-	-	< 0.5	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	-	-	< 0.5	< 0.5
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	< 0.1
Iodomethane	0.5	mg/kg	-	-	< 0.5	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	-	-	< 0.5	< 0.5
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	< 0.2
Methylene Chloride	0.5	mg/kg	-	-	< 0.5	< 0.5
o-Xylene	0.1	mg/kg	-	-	< 0.1	< 0.1
Styrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Tetrachloroethene	0.5	mg/kg	-	-	< 0.5	< 0.5
Toluene	0.1	mg/kg	-	-	< 0.1	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	-	-	< 0.5	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	-	-	< 0.5	< 0.5
Trichloroethene	0.5	mg/kg	-	-	< 0.5	< 0.5
Trichlorofluoromethane	0.5	mg/kg	-	-	< 0.5	< 0.5
Vinyl chloride	0.5	mg/kg	-	-	< 0.5	< 0.5
Xylenes - Total*	0.3	mg/kg	-	-	< 0.3	< 0.3
Total MAH*	0.5	mg/kg	-	-	< 0.5	< 0.5

Client Sample ID			BH1/1	BH1/4	BH1/5	BH1/6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M21-No32759	M21-No32760	M21-No32761	M21-No32762
Date Sampled			Nov 11, 2021	Nov 11, 2021	Nov 11, 2021	Nov 11, 2021
Test/Reference	LOR	Unit				
Volatile Organics						
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	-	-	< 0.5	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	-	-	< 0.5	< 0.5
4-Bromofluorobenzene (surr.)	1	%	-	-	80	82
Toluene-d8 (surr.)	1	%	-	-	72	77

Client Sample ID			BH2/1	BH2/3	BH3/1	BH3/3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M21-No32763	M21-No32764	M21-No32765	M21-No32766
Date Sampled			Nov 11, 2021	Nov 11, 2021	Nov 11, 2021	Nov 11, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	53	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	81	< 50	56	< 50
TRH C10-C36 (Total)	50	mg/kg	134	< 50	56	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	100	< 100	< 100	< 100
Volatile Organics						
Tetrachloroethene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	77	71	87	78
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			BH2/1	BH2/3	BH3/1	BH3/3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M21-No32763	M21-No32764	M21-No32765	M21-No32766
Date Sampled			Nov 11, 2021	Nov 11, 2021	Nov 11, 2021	Nov 11, 2021
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	70	74	85	72
p-Terphenyl-d14 (surr.)	1	%	80	81	93	75
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	65	67	83	76
Tetrachloro-m-xylene (surr.)	1	%	70	68	79	69
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	65	67	83	76
Tetrachloro-m-xylene (surr.)	1	%	70	68	79	69

Client Sample ID			BH2/1	BH2/3	BH3/1	BH3/3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M21-No32763	M21-No32764	M21-No32765	M21-No32766
Date Sampled			Nov 11, 2021	Nov 11, 2021	Nov 11, 2021	Nov 11, 2021
Test/Reference	LOR	Unit				
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2.4.6-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1	< 1	< 1
Pentachlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10	< 10	< 10	< 10
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	< 1	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	< 20	< 20	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Nitrophenol	1.0	mg/kg	< 1	< 1	< 1	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Total cresols*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenol-d6 (surr.)	1	%	56	43	39	59
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	< 20	< 20
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	< 1
Chromium (trivalent)	5	mg/kg	29	56	21	42
Cyanide (total)	5	mg/kg	< 5	< 5	< 5	< 5
% Moisture	1	%	12	25	11	17
Heavy Metals						
Arsenic	2	mg/kg	3.6	4.7	3.8	5.5
Barium	10	mg/kg	70	110	83	87
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	29	56	21	42
Cobalt	5	mg/kg	14	11	< 5	8.5
Copper	5	mg/kg	46	25	18	21
Iron	20	mg/kg	22000	43000	13000	30000
Lead	5	mg/kg	46	16	40	19
Manganese	5	mg/kg	240	250	150	200
Mercury	0.1	mg/kg	0.2	< 0.1	0.2	< 0.1
Nickel	5	mg/kg	14	28	9.2	20
Silver	2	mg/kg	< 2	< 2	< 2	< 2
Zinc	5	mg/kg	65	44	92	36

Client Sample ID			EIL	DUP 1
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**M21-No32767**	**M21-No32768**
Date Sampled			**Nov 11, 2021**	**Nov 11, 2021**
Test/Reference	LOR	Unit		
% Moisture	1	%	24	11
% Clay	1	%	23	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	150	-
pH (units)(1:5 soil:CaCl2 extract at 25°C as rec.)	0.1	pH Units	8.7	-
Total Organic Carbon	0.1	%	0.3	-
Heavy Metals				
Arsenic	2	mg/kg	-	3.5
Cadmium	0.4	mg/kg	-	< 0.4
Chromium	5	mg/kg	-	31
Copper	5	mg/kg	-	39
Iron	20	mg/kg	30000	-
Lead	5	mg/kg	-	87
Mercury	0.1	mg/kg	-	0.3
Nickel	5	mg/kg	-	13
Zinc	5	mg/kg	-	120
Heavy Metals				
Iron (%)	0.01	%	3.0	-
Cation Exchange Capacity				
Cation Exchange Capacity	0.05	meq/100g	39	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
SA Waste Screen			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Nov 17, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Nov 17, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Nov 17, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Volatile Organics	Melbourne	Nov 17, 2021	7 Days
- Method: USEPA 8260 - MGT 350A Volatile Organics by GCMS			
BTEX	Melbourne	Nov 17, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Nov 17, 2021	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Organochlorine Pesticides	Melbourne	Nov 17, 2021	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270)			
Polychlorinated Biphenyls	Melbourne	Nov 17, 2021	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8082)			
Phenols (Halogenated)	Melbourne	Nov 17, 2021	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Nov 17, 2021	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Chromium (hexavalent)	Melbourne	Nov 17, 2021	28 Days
- Method: APHA 3500-Cr Hexavalent Chromium- (Extraction:- USEPA3060)			
Cyanide (total)	Melbourne	Nov 18, 2021	14 Days
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
SA Waste Metals : Metals M14SA	Melbourne	Nov 17, 2021	28 Days
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
Volatile Organics	Melbourne	Nov 17, 2021	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices (USEPA 8260)			
% Moisture	Melbourne	Nov 15, 2021	14 Days
- Method: LTM-GEN-7080 Moisture			
NEPM Screen for Soil Classification			
% Clay	Brisbane	Nov 30, 2021	14 Days
- Method: LTM-GEN-7040			
Conductivity (1:5 aqueous extract at 25°C as rec.)	Melbourne	Nov 17, 2021	7 Days
- Method: LTM-INO-4030 Conductivity			
pH (units)(1:5 soil:CaCl2 extract at 25°C as rec.)	Melbourne	Nov 17, 2021	7 Days
- Method: LTM-GEN-7090 pH in soil by ISE			
Total Organic Carbon	Melbourne	Nov 18, 2021	28 Days
- Method: LTM-INO-4060 Total Organic Carbon in water and soil			
Heavy Metals	Melbourne	Nov 17, 2021	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Cation Exchange Capacity	Melbourne	Nov 18, 2021	28 Days
- Method: LTM-MET-3060 Cation Exchange Capacity by bases & Exchangeable Sodium Percentage			
Metals M8	Melbourne	Nov 17, 2021	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

eurofins | Environment Testing

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited
NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: AM Environmental Consulting P/L
Address: 7 Rudd Crt
Bridgewater
SA 5155

Project Name: ANGAS STREET

Order No.:
Report #: 840899
Phone: 0407 352 036
Fax:

Received: Nov 15, 2021 2:00 PM
Due: Nov 22, 2021
Priority: 5 Day
Contact Name: -Ashley Moule (all SRA/REPORTS)

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Metals M8	BTEX	Volatile Organics	Moisture Set	NEPM Screen for Soil Classification	SA Waste Screen
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217												
Brisbane Laboratory - NATA # 1261 Site # 20794											X	
Mayfield Laboratory - NATA # 1261 Site # 25079												
Perth Laboratory - NATA # 2377 Site # 2370												
External Laboratory												
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**							
1	BH1/1	Nov 11, 2021		Soil	M21-No32759					X		X
2	BH1/4	Nov 11, 2021		Soil	M21-No32760					X		X
3	BH1/5	Nov 11, 2021		Soil	M21-No32761				X	X		
4	BH1/6	Nov 11, 2021		Soil	M21-No32762				X	X		
5	BH2/1	Nov 11, 2021		Soil	M21-No32763					X		X
6	BH2/3	Nov 11, 2021		Soil	M21-No32764					X		X
7	BH3/1	Nov 11, 2021		Soil	M21-No32765					X		X
8	BH3/3	Nov 11, 2021		Soil	M21-No32766					X		X
9	EIL	Nov 11, 2021		Soil	M21-No32767					X	X	
10	DUP 1	Nov 11, 2021		Soil	M21-No32768		X			X		

eurofins | Environment Testing

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited
NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: AM Environmental Consulting P/L
Address: 7 Rudd Crt
Bridgewater
SA 5155

Project Name: ANGAS STREET

Order No.:
Report #: 840899
Phone: 0407 352 036
Fax:

Received: Nov 15, 2021 2:00 PM
Due: Nov 22, 2021
Priority: 5 Day
Contact Name: -Ashley Moule (all SRA/REPORTS)

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Metals M8	BTEX	Volatile Organics	Moisture Set	NEPM Screen for Soil Classification	SA Waste Screen
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217												
Brisbane Laboratory - NATA # 1261 Site # 20794											X	
Mayfield Laboratory - NATA # 1261 Site # 25079												
Perth Laboratory - NATA # 2377 Site # 2370												
External Laboratory												
11	TRIP	Nov 11, 2021		Water	M21-No32769			X				
12	RINSATE	Nov 11, 2021		Water	M21-No32770		X					
13	BH1/2	Nov 11, 2021		Soil	M21-No32771	X						
14	BH1/3	Nov 11, 2021		Soil	M21-No32772	X						
15	BH2/2	Nov 11, 2021		Soil	M21-No32773	X						
16	BH3/2	Nov 11, 2021		Soil	M21-No32774	X						
Test Counts						4	2	1	2	10	1	6

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ug/L: micrograms per litre
ppm: Parts per million
ppb: Parts per billion
%: Percentage
org/100mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs..

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM where no positive PFAS results have been reported have been reviewed and no data was affected.

.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Volatile Organics							
Tetrachloroethene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 10			10	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Cyanide (total)	mg/kg	< 5			5	Pass	
Conductivity (1:5 aqueous extract at 25°C as rec.)	uS/cm	< 10			10	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Arsenic	mg/kg	< 2			2	Pass	
Barium	mg/kg	< 10			10	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Chromium	mg/kg	< 5			5	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Iron	mg/kg	< 20			20	Pass	
Iron	mg/kg	< 20			20	Pass	
Lead	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Nickel	mg/kg	< 5			5	Pass	
Silver	mg/kg	< 2			2	Pass	
Zinc	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dibromoethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Butanone (MEK)	mg/kg	< 0.5			0.5	Pass	
2-Propanone (Acetone)	mg/kg	< 0.5			0.5	Pass	
4-Chlorotoluene	mg/kg	< 0.5			0.5	Pass	
4-Methyl-2-pentanone (MIBK)	mg/kg	< 0.5			0.5	Pass	
Allyl chloride	mg/kg	< 0.5			0.5	Pass	
Bromobenzene	mg/kg	< 0.5			0.5	Pass	
Bromochloromethane	mg/kg	< 0.5			0.5	Pass	
Bromodichloromethane	mg/kg	< 0.5			0.5	Pass	
Bromoform	mg/kg	< 0.5			0.5	Pass	
Bromomethane	mg/kg	< 0.5			0.5	Pass	
Carbon disulfide	mg/kg	< 0.5			0.5	Pass	
Carbon Tetrachloride	mg/kg	< 0.5			0.5	Pass	
Chlorobenzene	mg/kg	< 0.5			0.5	Pass	
Chloroethane	mg/kg	< 0.5			0.5	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	
Chloromethane	mg/kg	< 0.5			0.5	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dibromochloromethane	mg/kg	< 0.5			0.5	Pass	
Dibromomethane	mg/kg	< 0.5			0.5	Pass	
Dichlorodifluoromethane	mg/kg	< 0.5			0.5	Pass	
Iodomethane	mg/kg	< 0.5			0.5	Pass	
Isopropyl benzene (Cumene)	mg/kg	< 0.5			0.5	Pass	
Methylene Chloride	mg/kg	< 0.5			0.5	Pass	
Styrene	mg/kg	< 0.5			0.5	Pass	
trans-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Trichloroethene	mg/kg	< 0.5			0.5	Pass	
Trichlorofluoromethane	mg/kg	< 0.5			0.5	Pass	
Vinyl chloride	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Iron (%)	%	< 0.01			0.01	Pass	
Method Blank							
Cation Exchange Capacity							
Cation Exchange Capacity	meq/100g	< 0.05			0.05	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	94			70-130	Pass	
TRH C10-C14	%	104			70-130	Pass	
Naphthalene	%	81			70-130	Pass	
TRH C6-C10	%	86			70-130	Pass	
TRH >C10-C16	%	103			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	81			70-130	Pass	
Toluene	%	85			70-130	Pass	
Ethylbenzene	%	91			70-130	Pass	
m&p-Xylenes	%	88			70-130	Pass	
Xylenes - Total*	%	89			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	74			70-130	Pass	
Acenaphthylene	%	75			70-130	Pass	
Anthracene	%	99			70-130	Pass	
Benz(a)anthracene	%	94			70-130	Pass	
Benzo(a)pyrene	%	79			70-130	Pass	
Benzo(b&j)fluoranthene	%	76			70-130	Pass	
Benzo(g.h.i)perylene	%	95			70-130	Pass	
Benzo(k)fluoranthene	%	76			70-130	Pass	
Chrysene	%	87			70-130	Pass	
Dibenz(a.h)anthracene	%	88			70-130	Pass	
Fluoranthene	%	73			70-130	Pass	
Fluorene	%	71			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	87			70-130	Pass	
Naphthalene	%	75			70-130	Pass	
Phenanthrene	%	106			70-130	Pass	
Pyrene	%	101			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	87			70-130	Pass	
4.4'-DDD	%	89			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDE	%	102			70-130	Pass	
4.4'-DDT	%	84			70-130	Pass	
a-HCH	%	77			70-130	Pass	
Aldrin	%	74			70-130	Pass	
b-HCH	%	76			70-130	Pass	
d-HCH	%	86			70-130	Pass	
Dieldrin	%	102			70-130	Pass	
Endosulfan I	%	82			70-130	Pass	
Endosulfan II	%	103			70-130	Pass	
Endosulfan sulphate	%	96			70-130	Pass	
Endrin	%	104			70-130	Pass	
Endrin aldehyde	%	83			70-130	Pass	
Endrin ketone	%	104			70-130	Pass	
g-HCH (Lindane)	%	82			70-130	Pass	
Heptachlor	%	103			70-130	Pass	
Heptachlor epoxide	%	74			70-130	Pass	
Hexachlorobenzene	%	109			70-130	Pass	
Methoxychlor	%	77			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	79			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	71			25-140	Pass	
2.4-Dichlorophenol	%	108			25-140	Pass	
2.4.5-Trichlorophenol	%	54			25-140	Pass	
2.4.6-Trichlorophenol	%	40			25-140	Pass	
2.6-Dichlorophenol	%	59			25-140	Pass	
4-Chloro-3-methylphenol	%	32			25-140	Pass	
Pentachlorophenol	%	61			25-140	Pass	
Tetrachlorophenols - Total	%	34			25-140	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	69			25-140	Pass	
2-Methyl-4.6-dinitrophenol	%	34			25-140	Pass	
2-Nitrophenol	%	32			25-140	Pass	
2.4-Dimethylphenol	%	65			25-140	Pass	
2.4-Dinitrophenol	%	31			25-140	Pass	
2-Methylphenol (o-Cresol)	%	77			25-140	Pass	
3&4-Methylphenol (m&p-Cresol)	%	42			25-140	Pass	
4-Nitrophenol	%	46			25-140	Pass	
Dinoseb	%	68			25-140	Pass	
Phenol	%	68			25-140	Pass	
LCS - % Recovery							
Chromium (hexavalent)	%	102			70-130	Pass	
Cyanide (total)	%	104			70-130	Pass	
% Clay	%	108			70-130	Pass	
Total Organic Carbon	%	102			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	105			80-120	Pass	
Arsenic	%	98			80-120	Pass	
Barium	%	108			80-120	Pass	
Beryllium	%	104			80-120	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cadmium	%	105			80-120	Pass	
Cadmium	%	102			80-120	Pass	
Chromium	%	107			80-120	Pass	
Chromium	%	101			80-120	Pass	
Cobalt	%	106			80-120	Pass	
Copper	%	107			80-120	Pass	
Copper	%	99			80-120	Pass	
Iron	%	109			80-120	Pass	
Iron	%	102			80-120	Pass	
Lead	%	108			80-120	Pass	
Lead	%	99			80-120	Pass	
Manganese	%	108			80-120	Pass	
Mercury	%	96			80-120	Pass	
Mercury	%	88			80-120	Pass	
Nickel	%	107			80-120	Pass	
Nickel	%	99			80-120	Pass	
Silver	%	107			80-120	Pass	
Zinc	%	108			80-120	Pass	
Zinc	%	100			80-120	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	94			70-130	Pass	
1.1.1-Trichloroethane	%	80			70-130	Pass	
1.2-Dichlorobenzene	%	101			70-130	Pass	
1.2-Dichloroethane	%	99			70-130	Pass	
Trichloroethene	%	86			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M21-No62221	NCP	%	93			70-130	Pass	
Acenaphthylene	M21-No62221	NCP	%	99			70-130	Pass	
Anthracene	M21-No62221	NCP	%	94			70-130	Pass	
Benz(a)anthracene	M21-No62221	NCP	%	96			70-130	Pass	
Benzo(a)pyrene	M21-No62221	NCP	%	72			70-130	Pass	
Benzo(b&j)fluoranthene	M21-No62221	NCP	%	102			70-130	Pass	
Benzo(g.h.i)perylene	M21-No62221	NCP	%	82			70-130	Pass	
Benzo(k)fluoranthene	M21-No62221	NCP	%	115			70-130	Pass	
Chrysene	M21-No62221	NCP	%	116			70-130	Pass	
Dibenz(a.h)anthracene	M21-No62221	NCP	%	97			70-130	Pass	
Fluoranthene	M21-No62221	NCP	%	86			70-130	Pass	
Fluorene	M21-No62221	NCP	%	91			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M21-No62221	NCP	%	93			70-130	Pass	
Naphthalene	M21-No62221	NCP	%	95			70-130	Pass	
Phenanthrene	M21-No62221	NCP	%	76			70-130	Pass	
Pyrene	M21-No62221	NCP	%	83			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	M21-No39998	NCP	%	83			70-130	Pass	
4.4'-DDD	M21-No39998	NCP	%	99			70-130	Pass	
4.4'-DDE	M21-No39998	NCP	%	82			70-130	Pass	
4.4'-DDT	S21-No37970	NCP	%	78			70-130	Pass	
a-HCH	M21-No39998	NCP	%	94			70-130	Pass	
Aldrin	M21-No39998	NCP	%	123			70-130	Pass	
b-HCH	M21-No39998	NCP	%	101			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
d-HCH	M21-No39998	NCP	%	95			70-130	Pass	
Dieldrin	M21-No39998	NCP	%	81			70-130	Pass	
Endosulfan I	M21-No39998	NCP	%	99			70-130	Pass	
Endosulfan II	M21-No39998	NCP	%	95			70-130	Pass	
Endosulfan sulphate	M21-No39998	NCP	%	72			70-130	Pass	
Endrin	M21-No39998	NCP	%	75			70-130	Pass	
Endrin aldehyde	M21-No39998	NCP	%	71			70-130	Pass	
Endrin ketone	M21-No39998	NCP	%	98			70-130	Pass	
g-HCH (Lindane)	M21-No39998	NCP	%	98			70-130	Pass	
Heptachlor	M21-No39998	NCP	%	78			70-130	Pass	
Heptachlor epoxide	M21-No39998	NCP	%	74			70-130	Pass	
Hexachlorobenzene	M21-No39998	NCP	%	87			70-130	Pass	
Methoxychlor	M21-No39998	NCP	%	99			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	M21-No36726	NCP	%	114			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	M21-No32760	CP	%	80			70-130	Pass	
TRH C10-C14	M21-No32760	CP	%	122			70-130	Pass	
Naphthalene	M21-No32760	CP	%	89			70-130	Pass	
TRH C6-C10	M21-No32760	CP	%	72			70-130	Pass	
TRH >C10-C16	M21-No32760	CP	%	120			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M21-No32760	CP	%	83			70-130	Pass	
Toluene	M21-No32760	CP	%	81			70-130	Pass	
Ethylbenzene	M21-No32760	CP	%	82			70-130	Pass	
m&p-Xylenes	M21-No32760	CP	%	80			70-130	Pass	
o-Xylene	M21-No32760	CP	%	86			70-130	Pass	
Xylenes - Total*	M21-No32760	CP	%	82			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	M21-No32760	CP	%	81			70-130	Pass	
Aroclor-1260	M21-No32760	CP	%	86			70-130	Pass	
Spike - % Recovery									
				Result 1					
Cyanide (total)	M21-No32760	CP	%	94			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M21-No32760	CP	%	94			75-125	Pass	
Barium	M21-No32760	CP	%	113			75-125	Pass	
Beryllium	M21-No32760	CP	%	95			75-125	Pass	
Cadmium	M21-No32760	CP	%	74			75-125	Fail	Q08
Chromium	M21-No32760	CP	%	105			75-125	Pass	
Cobalt	M21-No32760	CP	%	98			75-125	Pass	
Copper	M21-No32760	CP	%	97			75-125	Pass	
Lead	M21-No32760	CP	%	104			75-125	Pass	
Manganese	M21-No32760	CP	%	118			75-125	Pass	
Mercury	M21-No32760	CP	%	108			75-125	Pass	
Nickel	M21-No32760	CP	%	99			75-125	Pass	
Silver	M21-No32760	CP	%	75			75-125	Pass	
Zinc	M21-No32760	CP	%	99			75-125	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Volatile Organics				Result 1					
1.1-Dichloroethene	M21-No32760	CP	%	99			70-130	Pass	
1.2-Dichlorobenzene	M21-No32760	CP	%	98			70-130	Pass	
1.2-Dichloroethane	M21-No32760	CP	%	100			70-130	Pass	
Trichloroethene	M21-No32760	CP	%	84			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethene	M21-No35775	NCP	%	83			70-130	Pass	
1.2-Dichlorobenzene	M21-No35775	NCP	%	71			70-130	Pass	
1.2-Dichloroethane	M21-No35775	NCP	%	94			70-130	Pass	
Trichloroethene	M21-No35775	NCP	%	71			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	M21-No32759	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M21-No32759	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M21-No32759	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M21-No32759	CP	mg/kg	91	88	4.0	30%	Pass	
Naphthalene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M21-No32759	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	M21-No32759	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M21-No32759	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M21-No32759	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Tetrachloroethene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M21-No32759	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M21-No32759	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M21-No32759	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M21-No32759	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M21-No32759	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	M21-No32759	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M21-No32759	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M21-No37564	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M21-No32759	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	M21-No32759	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	M21-No32759	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	M21-No32759	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	M21-No32759	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	M21-No32759	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	M21-No32759	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	M21-No32759	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	M21-No32759	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	M21-No32759	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	M21-No32759	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	M21-No37564	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	M21-No32759	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	M21-No32759	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	M21-No32759	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M21-No32759	CP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M21-No32759	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Nitrophenol	M21-No32759	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	M21-No32759	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M21-No32759	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M21-No32759	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	M21-No32759	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	M21-No32759	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	M21-No32759	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Cyanide (total)	M21-No32759	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M21-No32759	CP	mg/kg	3.3	3.3	2.0	30%	Pass	
Barium	M21-No32759	CP	mg/kg	78	78	<1	30%	Pass	
Beryllium	M21-No32759	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	M21-No32759	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M21-No32759	CP	mg/kg	36	36	1.0	30%	Pass	
Cobalt	M21-No32759	CP	mg/kg	13	13	2.0	30%	Pass	
Copper	M21-No32759	CP	mg/kg	710	800	11	30%	Pass	
Iron	M21-No32759	CP	mg/kg	29000	30000	1.0	30%	Pass	
Lead	M21-No32759	CP	mg/kg	38	40	5.0	30%	Pass	
Manganese	M21-No32759	CP	mg/kg	370	380	3.0	30%	Pass	
Mercury	M21-No32759	CP	mg/kg	0.3	0.3	3.0	30%	Pass	
Nickel	M21-No32759	CP	mg/kg	18	19	3.0	30%	Pass	
Silver	M21-No32759	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Zinc	M21-No32759	CP	mg/kg	94	98	5.0	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2-Trichloroethane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dibromoethane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trimethylbenzene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trimethylbenzene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Butanone (MEK)	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Propanone (Acetone)	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chlorotoluene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Allyl chloride	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromobenzene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromochloromethane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromoform	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon disulfide	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroethane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Dibromochloromethane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromomethane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dichlorodifluoromethane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Iodomethane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Isopropyl benzene (Cumene)	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methylene Chloride	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Styrene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.2-Dichloroethene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.3-Dichloropropene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloroethene	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichlorofluoromethane	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Vinyl chloride	M21-No32759	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M21-No32760	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Barium	M21-No32760	CP	mg/kg	110	110	2.0	30%	Pass	
Beryllium	M21-No32760	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	M21-No32760	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M21-No32760	CP	mg/kg	27	26	4.0	30%	Pass	
Cobalt	M21-No32760	CP	mg/kg	6.0	5.9	2.0	30%	Pass	
Copper	M21-No32760	CP	mg/kg	9.2	9.1	2.0	30%	Pass	
Iron	M21-No32760	CP	mg/kg	19000	18000	1.0	30%	Pass	
Lead	M21-No32760	CP	mg/kg	9.2	8.6	6.0	30%	Pass	
Manganese	M21-No32760	CP	mg/kg	190	180	2.0	30%	Pass	
Mercury	M21-No32760	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M21-No32760	CP	mg/kg	13	12	4.0	30%	Pass	
Silver	M21-No32760	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Zinc	M21-No32760	CP	mg/kg	23	23	1.0	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2-Trichloroethane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dibromoethane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trimethylbenzene	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trimethylbenzene	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Butanone (MEK)	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Propanone (Acetone)	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chlorotoluene	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Allyl chloride	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromobenzene	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromochloromethane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Bromoform	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon disulfide	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroethane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromochloromethane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromomethane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dichlorodifluoromethane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Iodomethane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Isopropyl benzene (Cumene)	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methylene Chloride	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Styrene	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.2-Dichloroethene	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.3-Dichloropropene	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloroethene	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichlorofluoromethane	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Vinyl chloride	M21-No35772	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M21-No32767	CP	%	24	23	2.0	30%	Pass	
Conductivity (1:5 aqueous extract at 25°C as rec.)	M21-No32767	CP	uS/cm	150	170	7.8	30%	Pass	
pH (units)(1:5 soil:CaCl2 extract at 25°C as rec.)	M21-No32767	CP	pH Units	8.7	8.7	pass	30%	Pass	
Total Organic Carbon	M21-No34372	NCP	%	7.1	1.5	130	30%	Fail	Q02
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Iron (%)	M21-No38577	NCP	%	2.4	2.5	5.0	30%	Pass	
Duplicate									
Cation Exchange Capacity				Result 1	Result 2	RPD			
Cation Exchange Capacity	M21-No33974	NCP	meq/100g	32	30	5.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q02	The duplicate %RPD is outside the recommended acceptance criteria. Further analysis indicates sample heterogeneity as the cause
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.

Authorised by:

Adrian Tabacchiera	Analytical Services Manager
Vivian Wang	Senior Analyst-Volatile (VIC)
Scott Beddoes	Senior Analyst-Inorganic (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Emily Rosenberg	Senior Analyst-Metal (VIC)
Jonathon Angell	Senior Analyst-Inorganic (QLD)



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

AM Environmental Consulting P/L
7 Rudd Crt
Bridgewater
SA 5155

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **-Ashley Moule (all SRA/REPORTS)**

Report **840899-W**
Project name ANGAS STREET
Received Date Nov 15, 2021

Client Sample ID			**TRIP**	**RINSATE**
Sample Matrix			**Water**	**Water**
Eurofins Sample No.			**M21-No32769**	**M21-No32770**
Date Sampled			**Nov 11, 2021**	**Nov 11, 2021**
Test/Reference	LOR	Unit		
BTEX				
Benzene	0.001	mg/L	< 0.001	-
Toluene	0.001	mg/L	< 0.001	-
Ethylbenzene	0.001	mg/L	< 0.001	-
m&p-Xylenes	0.002	mg/L	< 0.002	-
o-Xylene	0.001	mg/L	< 0.001	-
Xylenes - Total*	0.003	mg/L	< 0.003	-
4-Bromofluorobenzene (surr.)	1	%	100	-
Heavy Metals				
Arsenic	0.001	mg/L	-	< 0.001
Cadmium	0.0002	mg/L	-	< 0.0002
Chromium	0.001	mg/L	-	< 0.001
Copper	0.001	mg/L	-	< 0.001
Lead	0.001	mg/L	-	< 0.001
Mercury	0.0001	mg/L	-	< 0.0001
Nickel	0.001	mg/L	-	< 0.001
Zinc	0.005	mg/L	-	< 0.005

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
SA Waste Screen			
BTEX	Melbourne	Nov 16, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Metals M8	Melbourne	Nov 16, 2021	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

eurofins | Environment Testing

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited
NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: AM Environmental Consulting P/L
Address: 7 Rudd Crt
Bridgewater
SA 5155

Project Name: ANGAS STREET

Order No.:
Report #: 840899
Phone: 0407 352 036
Fax:

Received: Nov 15, 2021 2:00 PM
Due: Nov 22, 2021
Priority: 5 Day
Contact Name: -Ashley Moule (all SRA/REPORTS)

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Metals M8	BTEX	Volatile Organics	Moisture Set	NEPM Screen for Soil Classification	SA Waste Screen
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217												
Brisbane Laboratory - NATA # 1261 Site # 20794											X	
Mayfield Laboratory - NATA # 1261 Site # 25079												
Perth Laboratory - NATA # 2377 Site # 2370												
External Laboratory												
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**							
1	BH1/1	Nov 11, 2021		Soil	M21-No32759					X		X
2	BH1/4	Nov 11, 2021		Soil	M21-No32760					X		X
3	BH1/5	Nov 11, 2021		Soil	M21-No32761				X	X		
4	BH1/6	Nov 11, 2021		Soil	M21-No32762				X	X		
5	BH2/1	Nov 11, 2021		Soil	M21-No32763					X		X
6	BH2/3	Nov 11, 2021		Soil	M21-No32764					X		X
7	BH3/1	Nov 11, 2021		Soil	M21-No32765					X		X
8	BH3/3	Nov 11, 2021		Soil	M21-No32766					X		X
9	EIL	Nov 11, 2021		Soil	M21-No32767					X	X	
10	DUP 1	Nov 11, 2021		Soil	M21-No32768		X			X		

eurofins | Environment Testing

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited
NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: AM Environmental Consulting P/L
Address: 7 Rudd Crt
Bridgewater
SA 5155

Project Name: ANGAS STREET

Order No.:
Report #: 840899
Phone: 0407 352 036
Fax:

Received: Nov 15, 2021 2:00 PM
Due: Nov 22, 2021
Priority: 5 Day
Contact Name: -Ashley Moule (all SRA/REPORTS)

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						HOLD	Metals M8	BTEX	Volatile Organics	Moisture Set	NEPM Screen for Soil Classification	SA Waste Screen
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217												
Brisbane Laboratory - NATA # 1261 Site # 20794											X	
Mayfield Laboratory - NATA # 1261 Site # 25079												
Perth Laboratory - NATA # 2377 Site # 2370												
External Laboratory												
11	TRIP	Nov 11, 2021		Water	M21-No32769			X				
12	RINSATE	Nov 11, 2021		Water	M21-No32770		X					
13	BH1/2	Nov 11, 2021		Soil	M21-No32771	X						
14	BH1/3	Nov 11, 2021		Soil	M21-No32772	X						
15	BH2/2	Nov 11, 2021		Soil	M21-No32773	X						
16	BH3/2	Nov 11, 2021		Soil	M21-No32774	X						
Test Counts						4	2	1	2	10	1	6

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ug/L: micrograms per litre
ppm: Parts per million
ppb: Parts per billion
%: Percentage
org/100mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs..

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM where no positive PFAS results have been reported have been reviewed and no data was affected.

.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	98			70-130	Pass	
Toluene	%	98			70-130	Pass	
Ethylbenzene	%	96			70-130	Pass	
m&p-Xylenes	%	97			70-130	Pass	
Xylenes - Total*	%	96			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	96			80-120	Pass	
Cadmium	%	89			80-120	Pass	
Chromium	%	92			80-120	Pass	
Copper	%	88			80-120	Pass	
Lead	%	91			80-120	Pass	
Mercury	%	90			80-120	Pass	
Nickel	%	90			80-120	Pass	
Zinc	%	93			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
BTEX				Result 1					
Benzene	M21-No35682	NCP	%	101			70-130	Pass	
Toluene	M21-No35682	NCP	%	99			70-130	Pass	
Ethylbenzene	M21-No35682	NCP	%	97			70-130	Pass	
m&p-Xylenes	M21-No35682	NCP	%	96			70-130	Pass	
o-Xylene	M21-No35682	NCP	%	94			70-130	Pass	
Xylenes - Total*	M21-No35682	NCP	%	95			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M21-No28484	NCP	%	100			75-125	Pass	
Cadmium	M21-No28484	NCP	%	97			75-125	Pass	
Chromium	M21-No28484	NCP	%	99			75-125	Pass	
Copper	M21-No28484	NCP	%	97			75-125	Pass	
Lead	M21-No28484	NCP	%	99			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Mercury	M21-No28484	NCP	%	102			75-125	Pass	
Nickel	M21-No28484	NCP	%	97			75-125	Pass	
Zinc	M21-No28484	NCP	%	100			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M21-No28486	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	M21-No28486	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	M21-No28486	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M21-No28486	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	M21-No28486	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	M21-No28486	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M21-No28484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	M21-No28484	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M21-No28484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	M21-No28484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	M21-No28484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	M21-No28484	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	M21-No28484	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc	M21-No28484	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised by:

Adrian Tabacchiera	Analytical Services Manager
Vivian Wang	Senior Analyst-Volatile (VIC)
Emily Rosenberg	Senior Analyst-Metal (VIC)



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ **Sydney Laboratory** Unit F3 Bld F 16 Mars Road Lane Cove West NSW 2066 02 9900 8400 EnviroSampleNSW@eurofins.com

☐ **Brisbane Laboratory** Unit 1 21 Smallwood Place Murarrie QLD 4172 07 3902 4600 EnviroSampleQLD@eurofins.com

☐ **Perth Laboratory** Unit 2 91 Leach Highway Kewdale WA 6105 08 9251 9600 EnviroSampleWA@eurofins.com

☐ **Melbourne Laboratory** 6 Monterey Road Dandenong South VIC 3175 03 8564 5000 EnviroSampleVic@eurofins.com

Company	AME	Project №	Angas Street.	Project Manager	
Address		Project Name		EDD Format ESdat, EQuIS etc	
Contact Name	AM				
Phone №	0407352036				
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s): CH

Handed over by: CH

Email for Invoice: CH

Email for Results: CH

Analyses Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.

HOLD

Containers Change container type & size if necessary

Required Turnaround Time (TAT) Default will be 5 days if not ticked

♦Surcharge will apply

☐ Overnight (reporting by 9am)♦

☐ Same day♦ ☐ 1 day♦

☐ 2 days♦ ☐ 3 days♦

☐ 5 days (Standard)

☐ Other( )

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos, Metals, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
1	VS1	19/11/21	Soil Vapour									
2	VS2	19/11/21	Soil Vapour									
3												
4												
5												
6												
7												
8												
9												
10												
	Total Counts											

Method of Shipment: ☐ Courier (# ☐ Hand Delivered ☐ Postal Name Signature Date Time

Laboratory use Only: Received By: Pasquale SYD | BNE | MEL | PER | ADL | NTL | DRW Signature Date 19/11 Time 10 am Temperature

Received By: SYD | BNE | MEL | PER | ADL | NTL | DRW Signature Date Time Report №: 842828

22/11/21

Submission of samples to this laboratory will be deemed as acceptance of Eurofins | Environment Testing Standard Terms and Conditions unless agreed otherwise. Please see overleaf for details.

eurofins | Environment Testing

www.eurofins.com.au EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited
NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Sample Receipt Advice

Company name:	AM Environmental Consulting P/L
Contact name:	-Ashley Moule (all SRA/REPORTS)
Project name:	ANGAS STREET
Project ID:	Not provided
Turnaround time:	5 Day
Date/Time received	Nov 19, 2021 10:00 AM
Eurofins reference	842828

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
N/A	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Michael Cassidy on phone : +61 3 8564 5000 or by email: MichaelCassidy@eurofins.com

Results will be delivered electronically via email to -Ashley Moule (all SRA/REPORTS) - ashley@amenvironmental.com.au.

Global Leader - Results you can trust

eurofins | Environment Testing

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited
NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: AM Environmental Consulting P/L
Address: 7 Rudd Crt
Bridgewater
SA 5155

Project Name: ANGAS STREET

Order No.:
Report #: 842828
Phone: 0407 352 036
Fax:

Received: Nov 19, 2021 10:00 AM
Due: Nov 26, 2021
Priority: 5 Day
Contact Name: -Ashley Moule (all SRA/REPORTS)

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						VOCs in Ambient Air by GC/MS
Melbourne Laboratory - NATA # 1261 Site # 1254						X
Sydney Laboratory - NATA # 1261 Site # 18217						
Brisbane Laboratory - NATA # 1261 Site # 20794						
Mayfield Laboratory - NATA # 1261 Site # 25079						
Perth Laboratory - NATA # 2377 Site # 2370						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	VS1	Nov 19, 2021		WMS	M21-No48623	X
2	VS2	Nov 19, 2021		WMS	M21-No48624	X
Test Counts						2

AM Environmental Consulting P/L
7 Rudd Crt
Bridgewater
SA 5155

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **-Ashley Moule (all SRA/REPORTS)**

Report **842828-A**
Project name ANGAS STREET
Received Date Nov 19, 2021

Client Sample ID			**VS1**	**VS2**
Sample Matrix			**WMS**	**WMS**
Eurofins Sample No.			**M21-No48623**	**M21-No48624**
Date Sampled			**Nov 19, 2021**	**Nov 19, 2021**
Test/Reference	LOR	Unit		
VOCs in Ambient Air (WMS Sampler)				
1.1-Dichloroethane	9.5	ug/m3	< 9.5	< 9.5
1.1-Dichloroethene	43	ug/m3	< 43	< 43
1.1.1-Trichloroethane	9.9	ug/m3	< 9.9	< 9.9
1.1.2-Trichloroethane	5.7	ug/m3	< 5.7	< 5.7
1.1.2.2-Tetrachloroethane	3.3	ug/m3	< 3.3	< 3.3
1.2-Dichlorobenzene	1.8	ug/m3	< 1.8	< 1.8
1.2-Dichloroethane	6.6	ug/m3	< 6.6	< 6.6
1.2.4-Trimethylbenzene	2.2	ug/m3	< 2.2	< 2.2
1.3-Dichlorobenzene	2.1	ug/m3	< 2.1	< 2.1
1.3.5-Trimethylbenzene	2.4	ug/m3	< 2.4	< 2.4
1.4-Dichlorobenzene	2	ug/m3	< 2	< 2
Benzene	27	ug/m3	< 27	< 27
Carbon Tetrachloride	8.4	ug/m3	< 8.4	< 8.4
Chlorobenzene	4.1	ug/m3	< 4.1	< 4.1
Chloroform	7.6	ug/m3	< 7.6	< 7.6
Chloromethane	50	ug/m3	< 50	< 50
cis-1.2-Dichloroethene	7.8	ug/m3	< 7.8	< 7.8
Ethylbenzene	3.5	ug/m3	< 3.5	< 3.5
Isopropyl benzene (Cumene)	2.6	ug/m3	< 2.6	< 2.6
m.p-Xylene	3.5	ug/m3	13	< 3.5
Naphthalene	3.3	ug/m3	< 3.3	< 3.3
o-Xylene	3.3	ug/m3	4.5	< 3.3
Propylbenzene	2.6	ug/m3	< 2.6	< 2.6
Styrene	3.3	ug/m3	< 3.3	< 3.3
Tetrachloroethene	3.8	ug/m3	< 3.8	< 3.8
Toluene	5	ug/m3	< 5	< 5
trans-1.2-Dichloroethene	18	ug/m3	< 18	< 18
Trichloroethene	5.6	ug/m3	< 5.6	< 5.6
Vinyl Chloride	48	ug/m3	< 48	< 48

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
VOCs in Ambient Air (WMS Sampler)	Melbourne	Nov 25, 2021	30 Days

- Method: SOP #100 Rev 10 June 22 2017 Eurofins Air Toxics Analysis of VOCs

eurofins | Environment Testing

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited
NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: AM Environmental Consulting P/L
Address: 7 Rudd Crt
Bridgewater
SA 5155

Project Name: ANGAS STREET

Order No.:
Report #: 842828
Phone: 0407 352 036
Fax:

Received: Nov 19, 2021 10:00 AM
Due: Nov 26, 2021
Priority: 5 Day
Contact Name: -Ashley Moule (all SRA/REPORTS)

Eurofins Analytical Services Manager : Michael Cassidy

Sample Detail						VOCs in Ambient Air by GC/MS
Melbourne Laboratory - NATA # 1261 Site # 1254						X
Sydney Laboratory - NATA # 1261 Site # 18217						
Brisbane Laboratory - NATA # 1261 Site # 20794						
Mayfield Laboratory - NATA # 1261 Site # 25079						
Perth Laboratory - NATA # 2377 Site # 2370						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	VS1	Nov 19, 2021		WMS	M21-No48623	X
2	VS2	Nov 19, 2021		WMS	M21-No48624	X
Test Counts						2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ug/L: micrograms per litre
ppm: Parts per million
ppb: Parts per billion
%: Percentage
org/100mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs..

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM where no positive PFAS results have been reported have been reviewed and no data was affected.

.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
VOCs in Ambient Air (WMS Sampler)							
1.1-Dichloroethane	ug/m3	< 9.5			9.5	Pass	
1.1-Dichloroethene	ug/m3	< 43			43	Pass	
1.1.1-Trichloroethane	ug/m3	< 9.9			9.9	Pass	
1.1.2-Trichloroethane	ug/m3	< 5.7			5.7	Pass	
1.1.2.2-Tetrachloroethane	ug/m3	< 3.3			3.3	Pass	
1.2-Dichlorobenzene	ug/m3	< 1.8			1.8	Pass	
1.2-Dichloroethane	ug/m3	< 6.6			6.6	Pass	
1.2.4-Trimethylbenzene	ug/m3	< 2.2			2.2	Pass	
1.3-Dichlorobenzene	ug/m3	< 2.1			2.1	Pass	
1.3.5-Trimethylbenzene	ug/m3	< 2.4			2.4	Pass	
1.4-Dichlorobenzene	ug/m3	< 2			2	Pass	
Benzene	ug/m3	< 27			27	Pass	
Carbon Tetrachloride	ug/m3	< 8.4			8.4	Pass	
Chlorobenzene	ug/m3	< 4.1			4.1	Pass	
Chloroform	ug/m3	< 7.6			7.6	Pass	
Chloromethane	ug/m3	< 50			50	Pass	
cis-1.2-Dichloroethene	ug/m3	< 7.8			7.8	Pass	
Ethylbenzene	ug/m3	< 3.5			3.5	Pass	
Isopropyl benzene (Cumene)	ug/m3	< 2.6			2.6	Pass	
m.p-Xylene	ug/m3	< 3.5			3.5	Pass	
Naphthalene	ug/m3	< 3.3			3.3	Pass	
o-Xylene	ug/m3	< 3.3			3.3	Pass	
Propylbenzene	ug/m3	< 2.6			2.6	Pass	
Styrene	ug/m3	< 3.3			3.3	Pass	
Tetrachloroethene	ug/m3	< 3.8			3.8	Pass	
Toluene	ug/m3	< 5			5	Pass	
trans-1.2-Dichloroethene	ug/m3	< 18			18	Pass	
Trichloroethene	ug/m3	< 5.6			5.6	Pass	
Vinyl Chloride	ug/m3	< 48			48	Pass	
LCS - % Recovery							
VOCs in Ambient Air (WMS Sampler)							
1.1-Dichloroethane	%	98			70-130	Pass	
1.1-Dichloroethene	%	75			70-130	Pass	
1.1.1-Trichloroethane	%	95			70-130	Pass	
1.1.2-Trichloroethane	%	106			70-130	Pass	
1.1.2.2-Tetrachloroethane	%	98			70-130	Pass	
1.2-Dichlorobenzene	%	95			70-130	Pass	
1.2-Dichloroethane	%	95			70-130	Pass	
1.2.4-Trimethylbenzene	%	96			70-130	Pass	
1.3-Dichlorobenzene	%	95			70-130	Pass	
1.3.5-Trimethylbenzene	%	98			70-130	Pass	
1.4-Dichlorobenzene	%	95			70-130	Pass	
Benzene	%	102			70-130	Pass	
Carbon Tetrachloride	%	93			70-130	Pass	
Chlorobenzene	%	95			70-130	Pass	
Chloroform	%	100			70-130	Pass	
Chloromethane	%	87			70-130	Pass	
cis-1.2-Dichloroethene	%	97			70-130	Pass	
Ethylbenzene	%	95			70-130	Pass	
Isopropyl benzene (Cumene)	%	93			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
m.p-Xylene	%	93			70-130	Pass	
Naphthalene	%	94			70-130	Pass	
o-Xylene	%	94			70-130	Pass	
Propylbenzene	%	96			70-130	Pass	
Styrene	%	90			70-130	Pass	
Tetrachloroethene	%	91			70-130	Pass	
Toluene	%	97			70-130	Pass	
trans-1.2-Dichloroethene	%	92			70-130	Pass	
Trichloroethene	%	98			70-130	Pass	
Vinyl Chloride	%	78			70-130	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised by:

Harry Bacalis	Analytical Services Manager
Joseph Edouard	Senior Analyst-Organic (VIC)



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

Schedule 2 — Site contamination declaration form

Site contamination declaration form

Council area:

City of Adelaide

Regarding the land comprised by 193 Angas Street, Adelaide, South Australia (the subject land)

I Ashley Moule per A.M. Environmental Consulting Pty Ltd, a site contamination consultant, certify within the context of the terms of engagement and importation information related to this commission, the following details:

Part 1—Investigations

(a) I have relied on the following reports to complete this statement: Preliminary Site History and Soil and Soil Vapour Report dated 13 December 2021 (Reference 2071 R1) and the various reports and information on which the report is based.

(b) Investigations were conducted in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999*. (ASC NEPM)

Part 3—Site contamination exists or may exist

(a) site contamination exists or may exist on or below the surface of the land as a result of a class 1 activity (including where a class 1 activity exists or previously existed on adjacent land), class 2 activity, class 3 activity (see the *State Planning Commission Practice Direction 14 (Site Contamination Assessment)*);

However, please see report in terms of the preliminary screening soil vapour assessment which did not indicate a material issue as well as the nature of the end development in that the residential component would not be at ground level.

(b) the site contamination originated or is likely to have originated—

(i) on the subject land*—

(A) as a result of the following activities carried on there

See report

(B) at the following location:
See report and

It is important to consider that the final development would have comprised works which include soil and groundwater assessment, removal of soils and ground level carparking and office space with no access to subsurface soils once developed.

Date

15 December 2021

Signature of site contamination consultant



Name of consultant'scompany or business
A.M. Environmental Consulting Pty Ltd

ATTACHMENT 2 – Subject Land & Locality Plan

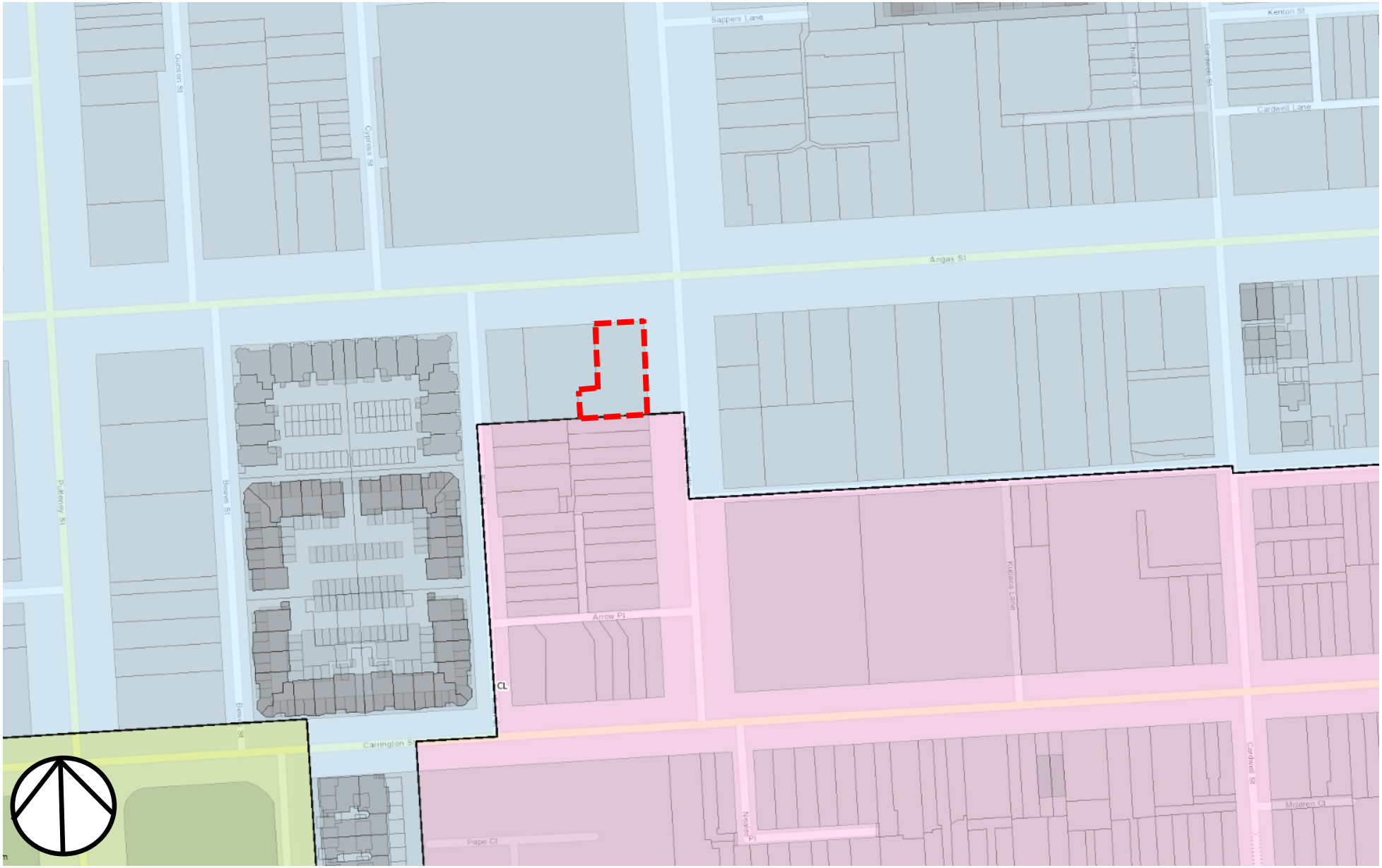


LEGEND

Subject Site

Locality

ATTACHMENT 3 – Zoning Map



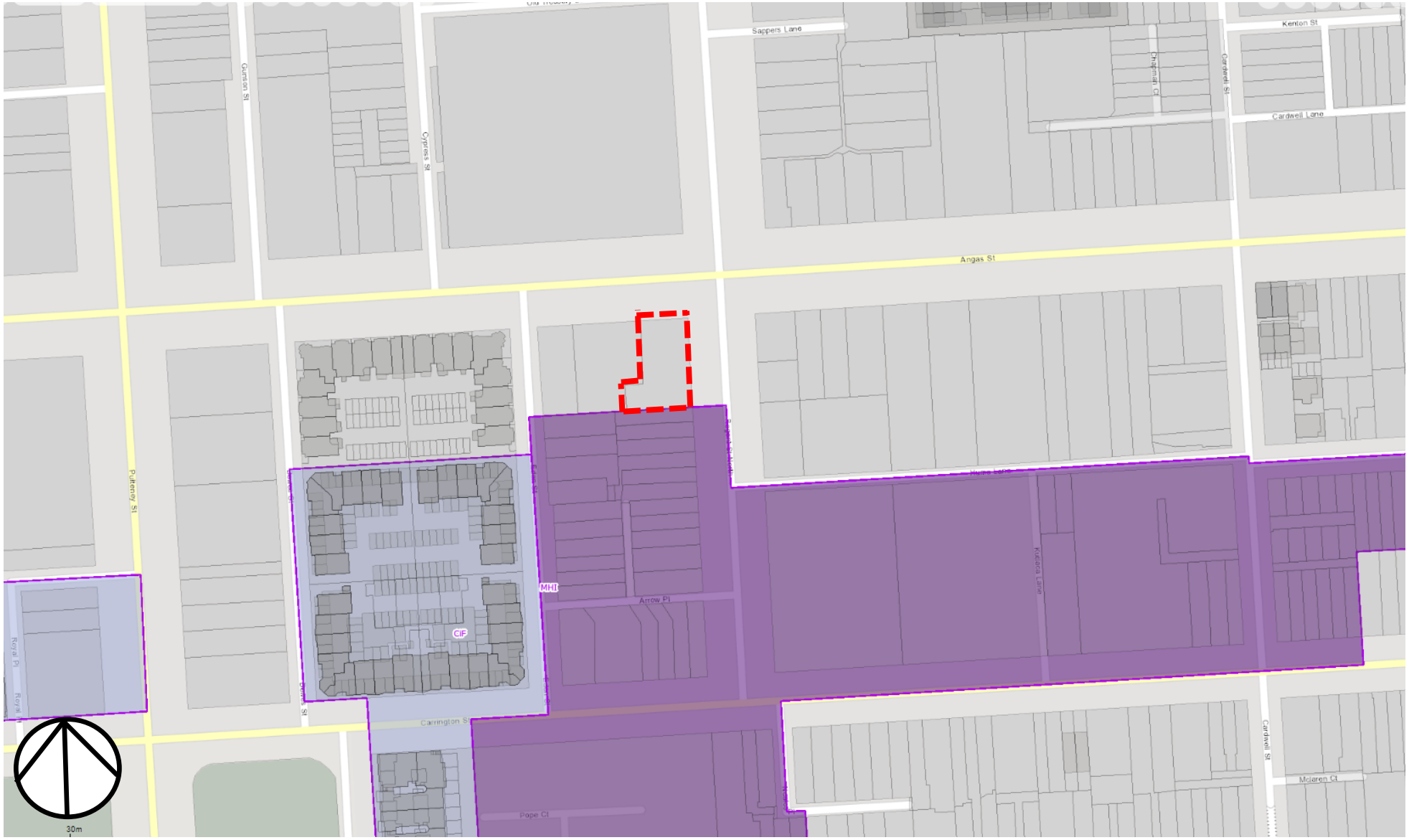
LEGEND

Subject Site

City Living Zone

Capital City Zone

ATTACHMENT 4 – Sub-Zoning Map



LEGEND

Subject Site

Medium-High Intensity Subzone

Capital City Zone

ATTACHMENT 5 – Representation Map



LEGEND

Subject Site

Properties Notified

R Representor

1 Representor Wishing to be Heard

ATTACHMENT 5 – Representations

Details of Representations

Application Summary

Application ID	21041709
Proposal	Retain external walls of existing building and construct nine storey mixed use building with office, car parking and ancillary services at ground level and 36 dwellings at upper levels
Location	193 ANGAS ST ADELAIDE SA 5000

Representations

Representor 1 - Nikki Johnston

Name	Nikki Johnston
Address	Unit 36C, 18 Bewes St ADELAIDE SA, 5000 Australia
Phone Number	0408846779
Email Address	n.a.johnston81@gmail.com
Submission Date	06/04/2022 12:15 PM
Submission Source	Online
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	Nine stories is significantly higher than other buildings in the area, this is a residential area and has multiple dwellings with historic features. A building of this style does not fit aesthetically with the neighbourhood. I am also concerned at the build time and impact it will have on the surrounding residential buildings. We have endured the construction of the Calvary hospital but that had public benefit. We are currently coming to the end of being awoken from the construction on Pulteney Street and finally have the roads open for the work on Hurtle Square. It is very frustrating that we are being expected to enter yet another period of significant construction that does not respect the needs of people living in this area.

Attached Documents

Representations

Representor 2 - Fran KNight

Name	Fran KNight
Address	214 Angas st ADELAIDE SA, 5000 Australia
Phone Number	0499942049
Email Address	fknight@adam.com.au
Submission Date	07/04/2022 02:02 PM
Submission Source	Online
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I support the development with some concerns
Reasons	I am concerned about parking. There are very limited parking spaces around Angas and Frome Streets, so 36 apartments mean 70 or so cars.

Attached Documents

Representations

Representor 4 - Ricardas Samulis

Name	Ricardas Samulis
Address	33/17 Eden Street ADELAIDE SA, 5000 Australia
Phone Number	0422643204
Email Address	samulis@gmail.com
Submission Date	11/04/2022 10:08 AM
Submission Source	Online
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	The proposal exceeds the PO 4.1 Maximum Building Height of 22 Metres, by 7.12 metres (a total proposed height of 29.120 metres), and there would appear to be no valid reasons for exceeding this height. The adjacent properties on Regent Street North are of heritage value, and the scale of the proposal would visually overwhelm these properties, and place them in shade for much of the winter season.

Attached Documents

Representations

Representor 5 - Debbie Rumere

Name	Debbie Rumere
Address	Unit 6/16 HUME LANE ADELAIDE SA, 5000 Australia
Phone Number	
Email Address	debbierumere@hotmail.com
Submission Date	12/04/2022 01:58 PM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	Yes
My position is	I oppose the development
Reasons	See attachment.

Attached Documents

Representation-2625907.pdf

From: Debbie Rumere <debbierumere@hotmail.com>
Sent: Tuesday, 12 April 2022 1:22 PM
To: Duty Planner <D.Planner@cityofadelaide.com.au>
Subject: Re: Feedback re: Development Application site 193 Angas St Adelaide

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hello,

My address is Unit 6/16 Hume Lane Adelaide. I am happy to talk at the
Council Assessment Panel meeting as long as it is outside my working hours.I work Mondays/Wednesday Thursdays and Fridays.

Kind regards
Debbie Rumere

From: Duty Planner <D.Planner@cityofadelaide.com.au>
Sent: Monday, 11 April 2022 3:11 AM
To: debbierumere@hotmail.com <debbierumere@hotmail.com>
Subject: RE: Feedback re: Development Application site 193 Angas St Adelaide

Good Afternoon Debbie

Thank you for your representation.

Are you able to provide your address please and whether you would like to speak at the Council Assessment Panel meeting?

I will then be able to lodge this on the portal on your behalf.

Thanks

Zorica

Zorica Burmazovic
Administration Assistant – City Development
4th Floor 25 Pirie Street
Adelaide, South Australia, 5000
TEL:+61882037821
F. +61882037575
E. Z.Burmazovic@cityofadelaide.com.au

CITY OF

To whom it may concern,

I wish to voice my strong objection to your planned development of Forme Projex Development application number 21041709. The site is located on the corner of Regent North Street and Angas Street 193 Angas Street and is the premises of Valerie Travers.

I have been a resident in this corner of the city for more than 20 years.

The following are the reasons for my objection

- The height of this 9-storey building is out of proportion to the surrounding buildings. The streetscape with the state-of-the-art bikeway would be overshadowed by the architecture of 9-storey-building and destroy the character of this location.
- The density of this 9-storey building would create congestion and discourage cyclists from using the state-of-the art bikeway
- The building doesn't appear to have Climate Active Carbon Neutral Standards in contradiction to the bikeway which is Carbon Neutral transportation.

The Developers should reconsider this development, especially in the light of Climate Change. The importance of developments complying to Climate Active Carbon Neutral Standards is essential. Communities, governments and businesses should do their upmost to prevent the devastating effects of climate change.

Kind regards
Debbie Rumere

Representations

Representor 6 - Ian Brown

Name	Ian Brown
Address	UNIT 17A 188 CARRINGTON STREET ADELAIDE SA, 5000 Australia
Phone Number	0479088951
Email Address	iancbrown3@tpg.com.au
Submission Date	26/04/2022 02:11 PM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	

Attached Documents

Submission-IanBrown-Id21041709-193AngasStreet-2705188.pdf

IAN BROWN ABN 89519932653

Ian Brown LLB. G.D.L.P..

A17, 188 Carrington Street
Adelaide Sth.Aust.5000
e-mail iancbrown3@tpg.com.au
Ph 0479 088 951

24 April 2022

Plan SA
PO Box 2252
ADELAIDE SA 5000

By email to planning@cityofadelaide.com.au

Dear Sirs,

Development Proposal 193 Angas Street Application 21041709

I have received a letter from Plan SA regarding this proposal, received a week ago (although dated 6th April).

Firstly, I note that the building of the new Calvary Hospital has placed significant strain on already limited street parking. I know that as I frequently see the Clinical Lab courier vehicle parked in Bewes Street. Staff at the new Calvary Hospital park in various locations, including the Wilson carpark opposite and the Karidis Corp allotment carpark on the corner of Angas and Pulteney Streets. I know this from staff members, including my son

The few 'unlimited hour' carparl spaces are always occupied by either by staff of local offices or Calvary staff, and even the 2 hour (8am to 6pm) parking is now much more difficult to locate.

The construction of that building created problems with parking (contractors), traffic (one lane of traffic closed for about 2 years), noise etc. And the hospital was not required to provide adequate parking for staff, contractors (eg Clinical Labs etc), patients, visitors etc.

I also note the absolute traffic disaster caused by ACC allowing the closure of 2 lanes of Frome Street and 1-2 lanes of North Terrace over a period of about 3 years for the construction of Frome Central on North Terrace.

I further note the new 10 storey building being constructed on 266 Pulteney Street/Gunson Street, in relation to which I have received no communication regarding either the nature of that construction or the relevant parking etc. On recent investigation, I note that this appears to be a tourist hotel and office building. The Plans at https://www.saplanningcommission.sa.gov.au/__data/assets/pdf_file/0008/558944/2.1.1_Hardy_Milazzo_266-270_Pulteney_St,_Adelaide_Report_and_Attachments.pdf indicate 18 on-site carpark spaces (8 designated for office use), with reference being made to the developers arranging valet carparking with nearby parking facilities (presumably Karidis and Wilson).
4
This has required the long-term closure of Gunson Street during construction.

I did not receive any notification of the various apartment complexes being built over the last 2 years or so on the east side of Hurtle Square. This has required that the street on the east side of Hurtle Square has largely effectively been closed for about 3 years, although this has had little impact on other than immediately adjacent buildings.

I make the following observations/ concerns regarding this current proposal:

(a) The site is immediately adjacent to the 7 Stars Hotel and Adelaide City Cafe, which have very limited available on-street parking. 5 in total

(b) There are NO street parking spaces for the subject property either on Angas St or Regent Street.

(c) The proposal is for ground floor office/ commercial premises and 36 residential apartments (including 'affordable housing', and noting the social/ behavioural problems caused by such ACC owned affordable housing in the Box Factory and the frequent attendances by SAPOL at the frequent arrests of Box Factory residents for bike theft – including theft of bikes from Carringgton Gardens Apartments), with 28 carpark spaces using some 'vehicle racking system'. It has 44 bike spaces.

(i) There is no parking proposed for either the office/ commercial workers or the customers. Where are they supposed to park? Page 37 states that there is 'adequate parking' when taken into consideration with on-street parking (what there is comprises 2 hours only) and possible 'shared parking'. That is arrant rubbish, given there is no on-street parking at all adjacent to the building, on either Angas Street or Regent Street.

(ii) The proposal has one existing carpark space on Regent Street being made into a loading zone to allow rubbish collection, deliveries etc. Ie one street carpark space less.

(iii) The nine 'cottages' on the west side of Regent Street (6 'row cottages' and 3 detached cottages plus two businesses on that side of the street – Mohyla Architects and Om Yoga – have limited if any off street parking. The satellite image (attached) shows four car par spaces in a lane off Eden Street, but how they are allocated between the eight adjacent cottages on Regent Street and the two buildings on Eden Street I do not know.

There are also businesses located on the east side of Regent Street which appear to have either nil or inadequate parking off-street parking. The (presumably private) off-street carpark on the east side of Regent Street is limited to Hume Apartment residents only.

Frankly, I'm surprised that the west side of this part of Regent Street is not already currently 'resident permit parking only'.

(iv) Removal of 1 carpark space will mean that there will be insufficient carpark spaces to service those residences. At the moment Google Earth indicates 1x 2 hour carpark outside each cottage (with 1 car space equivalent of garden outside one)

(v) There is reference to 'overlook' and 'shadow' in the document, but locating details in the 449 pages document is difficult. Despite what is said on page 36 of the report, the 'shadow' will adversely affect the courtyard and back windows of the row cottages, and will largely remove the ability to install solar on those roofs. It will also adversely affect existing solar panels located on buildings to the south-west.

(vi) A car wash was refused. 660 li waste bins are to washed, but it doesn't say where. The only place I can see for that would be on the footpath or bike path (outside the premises), with the contaminated water flowing over the footpath and down the street gutter.

(vii) There is a bike path adjacent to the east side of the premises (west side of Regent St). I expect that this will be affected by the construction and later the putting out and cleaning of bins.

(viii) The existing residences and businesses should not be adversely affected by this proposal.

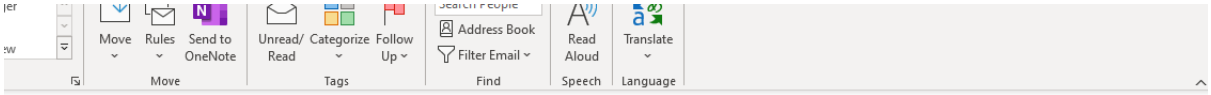
(d) What will the effect be on local residents and commuters during the building process? This is not addressed.
    (i) Road lane closures and closed off parking spaces?
    (ii) Effect on the bike lane which has very significant use.
    (iii) Delivery and storage of building materials (noting the proposal takes up the entire site)
    (iv) Parking for construction workers
    (v) Noise, dust etc. What hours will construction be undertaken?

I was surprised to read in the Report that there is no requirement for each newly built apartment to have one carpark space (or indeed any parking space). My understanding was to the contrary, and that ACC actually wants to increase the requirement beyond 1 space per apartment.

I request that the submission, as made, be rejected.

Regards,
Ian Brown
Local owner/ resident Carrington Gardens Apartments


Angas St
Angas St
Angas St
Angas St
Eden St
Eden St
Eden St
Eden St
Regent St N
Regent St N
Regent St N
Seven Stars Hotel
Valerie Travers
191-199
183-185
Greenway Architects
213
20
155
177
7
169
13
12
11
13
15
15A
17
19
21
23
20
22
24
26
28
30
30A
10
8
5
7
32
2
176
186
200
198
212
214
Arrow Pl
Om Yoga
Square Holes
Castaway® - Food Packaging Supplies...
Packaging supply store
Rock & Royal
Clothing store
Clelands Lawyers
Retreat To The Forest Of Dreams
Google



Planning Proposal 21041709

IB

Ian Brown <iancbrown3@tpg.com.au>
To Duty Planner

Paula

This message was sent with High importance.

Reply | Reply All | Forward

Sun 24/04/2022 12:53 PM

Letter to Plan SA 193 Angas Street.pdf
646 KB

Screenshot 193 Angas Street.pdf
277 KB

Open PDFs in Adobe Acrobat

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Dear Sirs,

Please find attached my letter of objection to Application 21041709.

Regards,
Ian Brown
A17, 188 Carrington Street Adelaide SA 5000

Representations

Representor 7 - Dorothy Dunne

Name	Dorothy Dunne
Address	70 Corryton street ADELAIDE SA, 5000 Australia
Phone Number	0406010051
Email Address	dorodun@yahoo.com
Submission Date	26/04/2022 10:36 PM
Submission Source	Online
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	I believe that the planning consent should be refused because of the following negative impacts:- 1. The height of the building of 8 storeys is out of character with predominately single storey residential dwellings in the area. 2. The additional traffic in the area will cause parking congestion by visitors to the building. 3. The apartments will overlook the existing low-rise residences thereby invading outdoor privacy and blocking sunlight and night sky view. 4. The facilities in the building will cause additional noise to neighbouring residences i.e. air-conditioning, electronic lifts and gates. Adelaide has been deemed the most live-able city in Australia because it is uncrowded with residential space even in the inner city. Why do we need to cram more people into this area by building high-rise buildings that obscure the view of the hills and other natural features of our environment.

Attached Documents

Representations

Representor 8 - Doug Boothey

Name	Doug Boothey
Address	19 Regent Street North ADELAIDE SA, 5000 Australia
Phone Number	0882322929
Email Address	dougboothey@internode.on.net
Submission Date	27/04/2022 07:05 PM
Submission Source	Online
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	The proposed building is not in character with existing buildings. Overshadowing will rob the homes on Regent St N of vital sunlight for solar panels endorsed by the state and local government. All cottages have solar panels. And overshadowing will limit sunlight to warm up the cottages during winter. The proposed height of 9 stories is not in keeping with local builds. The 53-metre build is a long distance away from Angas/Regent St corner. A build to the height of 4-5 stories would be more suitable. The cottages on Regent St N are only one story high. We all experience very little sunshine during the cooler months as it is due to the surrounding buildings on Eden St and the poor design of the cottages. The Council already has provided for numerous multistoried buildings and apartments to attract business and people to the City. Does the city really require another building that may, or may not get occupied? Has the use of social housing added to the mix of residential apartments been considered? Or is it not the type of mix that the Council wants to encourage? I expect that the development will be given the green light. However, I do hope that more consideration of local residents and, not business owners, are taken into consideration.

Attached Documents

Representations

Representor 9 - Marie Wise

Name	Marie Wise
Address	21 REGENT STREET NORTH ADELAIDE SA, 5000 Australia
Phone Number	82234771
Email Address	
Submission Date	28/04/2022 03:29 PM
Submission Source	Post
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I oppose the development
Reasons	

Attached Documents

PublicNotificationRepresentation-193AngasStreet-Id21041709-MarieAliceWise-28April2022-2728472.pdf

PlanSA

Proposed Development

Under the Planning, Development and Infrastructure Act 2016

Public notification commencement on 06/04/2022

Marie Alice Wise
21 Regent St N, ADELAIDE SA 5000
SA

Notice of Development Application

Applicant: Forme Projex
Application ID: 21041709
Proposed Development: Retain external walls of existing building and construct nine storey mixed use building with office, car parking and ancillary services at ground level and 36 dwellings at upper levels
Notified Elements: Other - Residential, Office
Subject Land: 193 ANGAS ST ADELAIDE SA 5000

As an adjoining owner/occupier or person potentially affected by the above development application, you are invited to view details of the application and make a representation.

The application documentation may be examined:

- online on the PlanSA Portal: https://plan.sa.gov.au/en/pn?aid=2611

Use your smart phone to scan this code

- in person at the principal office of Adelaide City Council at City of Adelaide Customer Centre, 25 Pirie Street, Adelaide, SA, 5000

If you wish to comment on the application, please complete an:

- online representation form at https://plan.sa.gov.au/en/pn?aid=2611, or
- hard copy form at https://plan.sa.gov.au/en/pn-form and submit to Assessment Panel at City of Adelaide at PO Box 2252, Adelaide, SA, 5000 or planning@cityofadelaide.com.au.

All representations must be received by no later **than 11:59pm on 29/04/2022**.

Please note that, in order for representations to be valid, they must:

REPRESENTATION ON APPLICATION – PERFORMANCE ASSESSED DEVELOPMENT

Planning, Development and Infrastructure Act 2016

Applicant: Forme Projex

Development Number: 21041709.
Nature of Development:construction of nine storey apartment block
Click here to enter text.
Zone/Sub-zone/Overlay:

Subject Land: 193 Angas Street, Adelaide 5000
Click here to enter text. *[street number, street name, suburb, postcode]*
[lot number, plan number, certificate of title number, volume & folio]
Contact Officer:
Click here to enter text. *[relevant authority name]*
Phone Number:
Click here to enter text. *[authority phone]*
Close Date: 29/04/2022

My name*: Marie Alice Wise
My phone number: 82234771

My postal address*: 21 Regent Street Nth, Adelaide 5000
My email: Click here to enter text.

** Indicates mandatory information*

My position is:
☐ I support the development
☐ I support the development with some concerns (detail below)
☒ X I oppose the development

The specific reasons I believe that planning consent should be granted/refused are:
I feel that nine storeys is too high in this part of the city particularly as there are nine single storey cottages that are
adjoin this site on Regent St Nth most of which are either Heritage Listed or Heritage style.
The six adjoining cottage have solar panels of which may be shaded from winter sunshine.
Solar panels were encouraged by the Adelaide City Council.
I feel that if this project is to go ahead four to five storeys would be better suited.

[attach additional pages as needed]

Note: In order for this submission to be valid, it must:

- be in writing; and
- include the name and address of the person (or persons) who are making the representation; and
- set out the particular reasons why planning consent should be granted or refused; and
- comment only on the performance-based elements of the proposal, which does not include the:
  - Click here to enter text. *[list any accepted or deemed-to-satisfy elements of the development].*

I:
☐ wish to be heard in support of my submission*

☒ do not wish to be heard in support of my submission

By:

☐ appearing personally

☐ being represented by the following person: Click here to enter text.

**You may be contacted if you indicate that you wish to be heard by the relevant authority in support of your submission*

Signature:  Date: Click here to enter text. 26-04-2022.

Return Address: *[relevant authority postal address]* or
Email: Click here to enter text. *[relevant authority email address]* or
Complete online submission: plan.sa.gov.au/have_your_say/notified_developments/current_notified_developments

Representations

Representor 10 - Simon Frost

Name	Simon Frost
Address	207 Angas Street ADELAIDE SA, 5000 Australia
Phone Number	+61882321888
Email Address	s.frost@greenwayarchitects.com.au
Submission Date	29/04/2022 04:13 PM
Submission Source	Online
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	No
My position is	I support the development with some concerns
Reasons	Refer supporting documents

Attached Documents

Response.pdf

File Not Appended

The file below failed to append to this representation. This file is available in the DAP system.

Response.pdf

Representations

Representor 11 - SECRA

Name	SECRA
Address	Hutt Street ADELAIDE SA, 5000 Australia
Phone Number	
Email Address	itqueen@bigpond.com
Submission Date	02/05/2022 10:54 AM
Submission Source	Email
Late Submission	No
Would you like to talk to your representation at the decision-making hearing for this development?	Yes
My position is	I oppose the development
Reasons	See attachment.

Attached Documents

Secra-2746418.pdf

From: Elizabeth Rushbrook <itqueen@bigpond.com>
Sent: Friday, 29 April 2022 10:59 PM
To: Duty Planner <D.Planner@cityofadelaide.com.au>
Subject: SECRA response to193 Angas Street Adelaide (DA 21041709).

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Please find attached SECRA's response to the development application to 193 Angus Street Adelaide.

Could we please have an acknowledgement of its receipt?

Kind Regards
Elizabeth Rushbrook

Email: planning@cityofadelaide.com.au

Presiding Member
Mr Nathan Cunningham
Council Assessment Panel
PO Box 2252 GPO
Adelaide SA 5000

RE: 193 ANGAS STREET ADELAIDE

South-East City Residents Association (SECRA) is an organisation that provides the residents of the south-east precinct of the City of Adelaide with a voice to achieve the following objectives:

- To promote the interests of the residents of the south-east precinct of the City of Adelaide and adjoining areas.
- To preserve and enhance the inherent character and heritage of the neighbourhood, including the adjacent area of the Park Lands, and in particular, Victoria Park.
- To support the provision of local retail and service facilities whilst retaining the "village atmosphere" of Hutt Street.
- To determine the policy of the Association to matters affecting the south-east precinct.

This letter notes the concerns expressed by a SECRA member about the impact on their neighbourhood amenity of the car movements and vehicle access associated with the new development at 193 Angas Street Adelaide (DA 21041709).

We refer the Panel to the following performance outcomes in the City Living Zone:

PO 5.1 development is designed to manage the interface with residential users in the City Living Zone, particularly (b) avoiding land use or intensity of land use that unduly impacts residential amenity (including licenced premises).
Also relevant are PO's 6.1and 7.1.

Some of the specific concerns are:

- The limited existing on-street parking for the single-fronted cottages on Regent Street and the nearby 7 Stars Hotel, Adelaide City Café and other properties is challenged by the additional needs of this proposed development.
- Ability to service the proposed apartments and shops with waste management, bin washing, deliveries and contractors, and the
- Effect on the neighbourhood during the construction period based on previous experiences such as the Calvery Hospital and North Terrace developments.

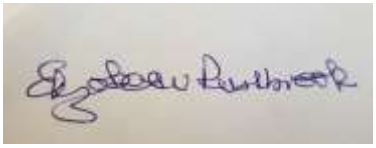
SECRA understands that Crs Donovan and Snape have also been advised of these concerns.

CONCLUSION
The issue that SECRA would like to bring to the Panel's attention is that successive development approvals made both by SCAP and CAP at times

combine to result in a significant loss of residential amenities. Therefore we urge the Panel to recommend that the City of Adelaide develop a traffic management plan for the CBD as a matter of urgency.

SECRA wishes to make a presentation at the meeting held to discuss this development. SECRA can be contacted at secra.sa@gmail.com.

Yours sincerely



Elizabeth Rushbrook
Chair
SECRA

Date 29 April 2022

ATTACHMENT 6 – Response to Representations

MASTERPLAN
TOWN + COUNTRY PLANNERS SINCE 1977

13 May 2022

City of Adelaide
25 Pirie Street,
ADELAIDE SA 5000

Attention: Mr. Dylan Grieve – Senior Planner

Dear Dylan

Re: Application ID: 21041709
Mixed use multi-storey development at 193 Angas Street, Adelaide
Response to Representations

On behalf of the applicant, Forme Projex, MasterPlan (SA) Pty Ltd ('MasterPlan') have reviewed and respond herein to the representations received during public notification of the abovementioned development application.

The application was publicly notified from the 11 April 2022 to the 29 April 2022, during which time eleven (11) representations were received, comprising of two (2) representors which support the application with some concerns, and nine (9) representors which oppose the development. Three (3) representors have indicated a desire to be heard by the Council Assessment Panel (CAP) in support of their submission.

The representations are summarised in **Table 1** below.

Table 1: Representations Summary

REPRESENTOR	ADDRESS	POSITION	CONCERNS	CAP
Nikki Johnston	Unit 36C, 18 Bewes Street, Adelaide	Opposes	• Building height. • Heritage character. • Construction impacts.	No
Fran Knight	214 Angas Street, Adelaide	Supports with concerns	• Parking.	No
Gary Swarbrick	25/177 Angas Street, Adelaide	Opposes	• Interruption of views. • Property value.	Yes
Ricardas Samulis	33/17 Eden Street, Adelaide	Opposes	• Building height. • Heritage character. • Overshadowing.	No

REPRESENTOR	ADDRESS	POSITION	CONCERNS	CAP
Debbie Rumere	Unit 6/16 Hume Lane, Adelaide	Opposes	• Building height. • Impact on bikeway. • Traffic. • Environmental impact.	Yes
Ian Brown	Unit 17a 188 Carrington Street, Adelaide	Opposes	• Parking. • Crime. • Overshadowing. • Servicing. • Impact on bikeway. • Construction impact.	No
Dorothy Dunne	70 Corryton street, Adelaide	Opposes	• Building height. • Traffic. • Overlooking. • Acoustics. • Density.	No
Doug Boothey	19 Regent Street North, Adelaide	Opposes	• Building height. • Heritage character. • Overshadowing.	No
Marie Wise	21 Regent Street North, Adelaide	Opposes	• Building height. • Heritage character. • Overshadowing.	No
Simon Frost	207 Angas Street, Adelaide	Supports with concerns	• Parking. • Office amenities. • Balcony space. • Acoustics. • Built form and materiality.	No
Elizabeth Rushbrook SECRA	Hutt Street, Adelaide	Opposes	• Parking. • Servicing. • Construction impact.	Yes

We have considered the comments and concerns raised in the representations and distilled a list of the key overarching matters to be addressed **below**. Some of the issues raised above are related and have been addressed under what is considered to be the overarching issue of concern, as follows:

- Building height.
- Built form and materiality.
- Traffic and parking.
- Environmental impact.

- Acoustic impact.
- Servicing.
- Crime.
- Construction impact.
- Property value.

We provide a response to these matters **below**.

Building Height and Character

One of the common concerns across the representations received related to the proposed nine storey building height (29.12 metres). The related issues of concern comprised of overshadowing, overlooking, and the deviation from the prevailing local character.

The Capital City Zone Designated Performance Feature (DPF) 4.2 outlines quantitative policy which guides building heights within the Zone, setting a desired maximum height of 22 metres. The proposed building height exceeds this by 7.12 metres.

It should be noted at the outset that exceedances to the quantitative maximum building height is contemplated by the Zone policy, provided that the development meets certain quantitative criteria. The proposed development satisfies a number of the circumstances outlined which may afford a building height exceedance, as follows:

- the development provides for the retention and reuse of a building that provides a notable positive contribution to the character of the local area;
- the development provides an orderly transition up to a prescribed maximum height in an adjacent zone;
- approximately 40 percent of the apartments will be priced at an affordable level, comparable with the affordable price index set by the SA Housing Authority (≤$419,750 at the point of sale);
- a substantial proportion of the dual frontages can be considered activated frontages; and
- the impact on adjacent properties is no greater than what would occur with a building of 22 metres in height.

On this basis, we disagree with the assertion that the proposal is not in compliance with the building height provisions for the Capital City Zone. It is our view that the proposed building height of 29.12 metres complies with the relevant policies when the relevant polices are considered in aggregate and not isolation.

It is important to recognise that in certain circumstances planning policy and established character can differ, especially where policy envisages or provides for a transition in built form and development. Whilst the proposed nine storey building height and dwelling density will undoubtably differ from the prevailing low-rise character of the locality, this emergence of building intensity and density is consistent with the relevant provisions of the Planning and Design Code, as well as the overarching State Planning Polices, which encourage higher density residential development in strategic centres to support the economic viability of these locations (SPP 6.5).

The policies of the Zone acknowledge circumstances where this can occur and provides guidance on how taller building forms, through considered architectural design, can appropriately respond to their local context in order to manage the difference in scale between the proposed building and the existing built form. The proposed built form is consistent with this policy, in that the design achieves a clear distinction between the podium level, which follows the prevailing datum line, and the recessed upper levels which project above the prevailing parapet levels. By utilising the existing building on the land as the podium, the development provides continuity with the existing streetscape context and maintains the prevailing street wall heights and form.

Furthermore, the design has taken steps to ensure that key impacts associated with taller building forms is addressed and ameliorated. These include overlooking and overshadowing. The development is positioned in relation to adjoining development so as to have limited potential for overlooking into sensitive areas (private open space and habitable rooms) on adjacent and nearby land. Some views may be available; however, these will be tangential and at a reasonable distance from the development. The maintenance of absolute privacy is not typically achievable in areas where the emergence of higher density development is envisaged.

In respect to the issue of overshadowing, we highlight that a series of detailed shadow diagrams have been provided outlying both the existing and proposed shadow conditions in the locality at key times throughout the year. The overshadowing diagrams depict both the existing and proposed shadow conditions in the locality. As demonstrated, the overshadowing impacts presented by the development are largely consistent with what is already evident in the locality, with only minor impacts on a small number of properties for limited periods throughout the day. We note that no concerns with respect to overshadowing have been raised by any directly adjoining landowners or occupants.

Rather than reiterating our previously provided analysis herein, we refer you to our letter dated 1 March 2022 (52404LET02), where we outline the proposals compliance with the relevant quantitative policy on this issue.

Built Form and Materiality

Architectural merit is a highly subjective topic. We would note that the property developer and project architect are well experienced in developments of this nature within the inner-metropolitan area. Their apartments are in high demand, generally sell prior to construction and have an extremely high retention rate for residents and owners. This would indicate that the residential market favours the proponents distinctive design approach contrary to the views of some.

An error noted on the plans in respect to the Juliette balconies has now been reconciled and an updated plan package from Locus Architecture is **enclosed**.

Concerns relating to the quality of the selected material choices are considered to be unfounded. The predominant external material will comprise pre-cast concrete with a painted finish. This is consistent with previous developments by the proponent. Pre-cast concrete is a highly durable long-lasting material which is utilised extensively for buildings of this nature throughout the city.

Traffic and Parking

A number of the representations refer to concerns around the availability of on-site parking and the potential disruption the increased density of development in the locality will have on local traffic conditions.

The development promotes the use of alternative transport modes including cycling and public transport use. It is conveniently located in proximity to CBD bus routes and provides sufficient on-site bicycle parking facilities in the order of 44 spaces.

This is consistent the relevant policies of the Planning and Design Code as well as the intent of the overarching State Planning Polices. The State Planning Policies encourage development that supports the increased use of a wider variety of transport modes, including public transport, walking and cycling to facilitate reduced reliance on private vehicle travel and promote beneficial community health outcomes (SPP 11.5).

Contrary to the claims that the proposal will disrupt the adjacent Bikeway, the development is conveniently located to increase patronage of this important cycling infrastructure and it will likely be well-utilised by future residents.

Furthermore, it should be noted that no minimum parking rate is applicable within the Capital City Zone for all classes of development. This is consistent with the intent of promoting the use of alternative transport modes within key centres in the inner metropolitan area. Therefore, the provision of 28 on-site parking spaces is well in excess of the requirements of the Planning and Design Code.

A number of comments indicated concerns regarding traffic impacts resulting from increased movements within the locality. With respect to traffic movements into and out of the subject land we defer to the previous advice provided by Cirqa in their Traffic and Parking Report and additional correspondence dated 21 February 2022. The assessment provided by Cirqa indicates that the proposed access arrangements are suitable to provide safe and convenient access for the low frequency of vehicle movements expected.

We strongly disagree with any assertions that Regent Street North or Angas Street do not have capacity to accommodate the low number of additional traffic movements expected to be generated by the development. These roads handle in the order of 3600 and 6400 average vehicle movements daily, respectively.

Environmental Impact

The building will achieve energy efficiencies largely through the utilisation of passive environmental design techniques. Thermal massing will be achieved through the use of high quality and durable materials, including brickwork at the podium levels and pre-cast concrete panels at the upper levels.

Windows will also be low-e coated and double glazed to improve thermal performance. Solar reducing glass will be provided to east and west facing windows to reduce heat and glare during summer months, and promote heat retention during winter months. Natural temperature control through cross-ventilation will be provided through the use of large operable windows and doors at the upper levels.

Bestec have provided a preliminary Part J assessment against the National Construction Code in respect to energy efficiency. It is anticipated that the development will achieve an average 8.1-star rating, well in excess of the minimum requirement for an average 6-star rating. As such, the proposal represents an exemplary example in respect to energy efficiency.

Solar panels are proposed to be located on the roof. This will provide a sustainable energy source to power the common user demands within the development. Additionally, lighting in communal areas will be equipped with movement sensors for energy saving purposes and will utilise low-energy LED lighting.

Opportunities for roof water collection and reuse have been incorporated into the proposal. A roof catchment area of 57 square meters over the bicycle and refuse storage area has been identified as an opportunity to collect roof water which will be stored in a 3,000-litre rainwater tank and directed for reuse into the flushing of the office tenancy toilets.

Acoustic Impact

Noise from vehicles utilising the proposed parking area (both office and apartment related) is also not considered to result in noise impacts that would be unreasonable or unexpected within the locality. It is noted that the car parking area will utilise an existing crossover, albeit slightly altered, to provide access. As such the proposed does not introduce vehicle movements to this location.

Although some noise associated with residents in the upper-level apartments, it is not considered that this would ever reach levels that would be considered unreasonable. Occasional noise from residents utilising outdoor balcony and courtyard space will occur; however, the upper levels of the apartment building will be significantly separated from adjoining sensitive uses. Noise from balconies and outdoor areas at the lower-level apartments may be heard at adjoining sensitive uses; however, would be consistent with the nature of noise already present within the locality. Furthermore, given the envisaged nature of the development, this is a contemplated and accepted planning outcome.

Air-conditioning compression units have been strategically distributed throughout the building so as to minimise potential noise impacts associated with clustering this plant. The balcony alcove which will accommodate the majority of air conditioning plant has been designed so as to encase the unit within a predominately walled cavity, which will ameliorate noise generated by these units on external receptors to a significant degree.

An Acoustic Design Report has been prepared by Resonate and accompanies the application. This report undertakes an acoustic assessment in accordance with Ministerial Building Standard (MBS 010) for the proposed apartment building to determine the acoustic criterial and external construction requirements for the development.

The acoustic requirements documented in the report include the above provisions of the P&D Code and those in MBS 010. The report undertakes an external noise intrusion assessment for the apartments and office. The assessment demonstrates compliance with MBS 010 and makes various recommendations for mitigation treatments to attenuate noise intrusion from the Seven Stars Hotel. The applicant has adopted these recommendations, and exceeded them through the provision of "Hush" laminated glass and double glazing.

Servicing

Comments received in relation to servicing related to bin washing and parking for service vehicles. In respect to the latter, we note again that the Planning and Design Code does not envisage any parking being provided for any class of development within the Capital City Zone.

Nevertheless, the proposal has outlined how loading for service vehicles and bin collection can be accommodated via minor alterations to one (1) parking bay to re-designate this from a timed limited parking space to a timed loading zone. This is to be determined separate to this development application through a permit application to the Council.

In respect to bin washing, this occurs via a private contractor who provides this service. The service utilises a mobile purpose-built cleaning facility (vehicle) which is entirely self-contained. All water used in the cleaning operations is contained to the facility. bin cleaning will occur infrequently and will be able to occur within the parking area, with residents within the building being notified prior to this occurring.

Crime

Concerns have been raised in respect to crime as a consequence of the provision of housing at an affordable price point. We strongly disagree with the assertion that there is a correlation between crime increase and the provision of lower cost housing.

The provision of a diversity of dwelling types that cater for a variety of household structures and socio-economic statuses is critically important to the on-going function of the City of Adelaide as the key economic centre of the State. The proposed development intends to provide an appropriate mixture of apartment types which will provide important inner-city housing for a broad range of key workers.

We note that an increase in residential density typically decreases crime and anti-social behaviour by greater opportunity for passive surveillance and a general discouragement of anti-social behaviour within the neighbourhood that one lives.

Construction Impacts

Concerns have been raised in respect to concerns regarding traffic disruption and general inconvenience and amenity impacts associated with the construction of the proposed building. Concerns relating to construction activity are not typically accepted grounds for objection to a development proposal. Nevertheless, if approved the construction activity will occur in accordance with all relevant regulatory requirements.

Property Value

The issue of property values is a concern often expressed in representations against development in one form or another. As often as there have been assertions that policy changes and/or development proposals reduce the value of existing properties so have there been assertions that the value of existing properties can be increased. The issue has been considered by the ERD Court from time to time and in particular the matters of:

- Meyer and Northern Areas Council & Broughton Hills [1998] SAERDC 471, where it was stated in the judgement that:

  "The development plans applicable to the regions and districts of South Australia do not refer to land values except in the most oblique and inferential way here and there and the demonstration of any link, if it is possible, could only be made by very specialised evidence from a range of experts including planners, valuers, land economists and the like."

- St Raphael's School v Unley City Council [1995] EDLR 113, where it was stated:

  "Fear of, and even actual, reductions in property value are rarely relevant in deciding a development application."

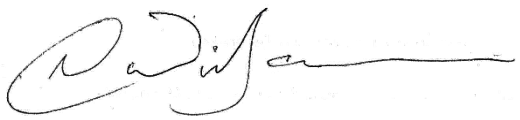
We therefore submit that this issue raised by the representors is not a valid consideration of the matter before Council, and regardless, the representors have not demonstrated that there will be a devaluation of the properties.

Conclusion

We consider that the letter herein appropriately responds to the matters of concern raised in relation to the proposed development in the eleven (11) representations received during the public notification. We wish to reiterate that two (2) of the representations received were in support with some concerns.

Please keep us informed of a time and date for the Council Assessment Panel (CAP) meeting so that we can arrange to be in attendance to respond to any verbal representations to the CAP.

Yours sincerely



Nick Wilson
MasterPlan SA Pty Ltd

enc: Updated Plan Package from Locus Architecture.

ATTACHMENT 7 – Prescribed Body Responses

Government of South Australia
Department for Environment and Water

Heritage South Australia
Environment, Heritage and Sustainability Division

81-95 Waymouth Street
Adelaide SA 5000

GPO Box 1047
Adelaide SA 5001
Australia
DX138

Ph: +61 8 8124 4922
Fax: +61 8 8124 4980

www.environment.sa.gov.au

Ref: SH/13602D
Date: 16 February 2022

City of Adelaide
GPO Box 2252
ADELAIDE SA 5001

Attention: Dylan Grieve

Dear Mr Grieve

DESCRIPTION: HERITAGE ADJACENCY - NINE (9) STOREY MIXED USE BUILDING CONTAINING 36 DWELLINGS WITH OFFICE, CAR PARKING AND ANCILLARY SERVICES AT GROUND LEVEL CONTAINED WITHIN AN EXISTING BUILDING - 193 ANGAS STREET, ADELAIDE

Application number:	21041709
Referral received:	10/01/2022
Adjacent State Heritage Place:	Seven Stars Hotel - 187-191 Angas Street, Adelaide
Documentation:	Architectural drawing set 22-sheets dated 23/11/2021 Planning Report 47-pages dated Dec 2021 (Rev 1)
☒	Support the application

In accordance with Section 122(1) of the *Planning, Development and infrastructure Act 2016* and Regulation 41(1) of the *Planning, Development and Infrastructure (General) Regulations 2017*, the above application has been referred to the Minister for Environment and Water as the prescribed body listed in Schedule 9 Clause 3 Item 17 of the Regulations.

The subject land is affected by the Heritage Adjacency Overlay of the Planning and Design Code, because of the adjacent location of a State Heritage Place. The following Desired Outcome/s and Performance Outcome/s are considered relevant to this application.

DO 1 Development adjacent to State and Local Heritage Places maintains the heritage and cultural values of those Places.

Built Form

PO 1.1 Development adjacent to a State or Local Heritage Place does not dominate, encroach on or unduly impact on the setting of the Place.

The proposed development is considered to be acceptable in relation to the above State Heritage Place for the following reason/s.

- The proposed development does not directly affect the land parcel of the State Heritage Place. There is no direct impact on fabric of heritage value. The heritage and cultural values of the State Heritage Place insofar as they are embodied in its physical fabric are not affected.
- The impact of the proposed 9-storey building on the setting of the 2-storey State Heritage Place is moderated by the hotel's set-back of approximately 5.8m from their common side boundary. So although the new development is built close to its western boundary, the State Heritage Place is protected to some extent by its own site configuration from visual domination by the new building.
- The side set-back zone of the hotel has been used for some time as an open beer garden, with recent approval to upgrade the area with a new semi-enclosed roofed

structure. From within the hotel site, the new beer garden structure will mitigate any sense of the new building being visually overbearing, and it can be anticipated that there will be minimal impact on the continuing use of the area.

- The retention of the existing perimeter walls on the subject site means there is little change to the immediate streetscape context of the hotel, as the retained walls are similar in height to the hotel itself.
- Beyond the immediate streetscape context, the significant views of the Seven Stars Hotel fall within a 180 degree arc from west to east. The additional levels proposed above the retained base will certainly be a prominent new presence in these views, but will not actually obstruct or diminish them.

Further advice

The following advice should be incorporated into any consent or approval.

Advice 1: The former Valerie Travers building is of interest as a 1950s building in the Modernist style. Elements that embody its architectural style include the face brickwork external walls, the use of concrete/render to boldly frame openings and also as mullions for vertical articulation within these perimeter frames, as well as what appear to be steel-framed windows in carefully-proportioned banks of four panes.

To regain the design integrity of the retained facades, removal of the paint to return to unpainted red brick face masonry is strongly encouraged. The concrete/rendered perimeter frames and mullions between windows should be retained (or reconstructed to the same proportional spacing and cross-sections), and replacement steel-framed windows and doors considered in place of the proposed aluminium windows without intervening mullions as currently documented.

General notes

1. Any changes to the proposal for which Planning Consent is sought or granted may give rise to heritage impacts requiring further consultation with the Department for Environment and Water, or an additional referral to the Minister for Environment and Water. Such changes would include for example (a) an application to vary the Planning Consent, or (b) Building Rules documentation that incorporates differences from the proposal as documented in the development application.
2. Please note the following requirements of the *Heritage Places Act 1993*.

   (a) If an archaeological artefact believed to be of heritage significance is encountered during excavation works, disturbance in the vicinity must cease and the SA Heritage Council must be notified.

   (b) Where it is known in advance (or there is reasonable cause to suspect) that significant archaeological artefacts may be encountered, a permit is required prior to commencing excavation works.

   For further information, contact the Department for Environment and Water.
3. Please note the following requirements of the *Aboriginal Heritage Act 1988*.

   (a) If Aboriginal sites, objects or remains are discovered during excavation works, the Aboriginal Heritage Branch of the Aboriginal Affairs and Reconciliation Division of the Department of the Premier and Cabinet (as delegate of the Minister) is to be notified under Section 20 of the *Aboriginal Heritage Act 1988*.

For any enquiries in relation to this application, I can be contacted on telephone 8124 4935 or e-mail peter.wells@sa.gov.au.

Yours sincerely



Peter Wells
Principal Conservation Architect
DEPARTMENT FOR ENVIRONMENT AND WATER
as delegate of the
MINISTER FOR ENVIRONMENT AND WATER

Environment Protection Authority
GPO Box 2607 Adelaide SA 5001
211 Victoria Square Adelaide SA 5000
T (08) 8204 2004
Country areas 1800 623 445

EPA Reference: PDI 205

10 May 2022

Dylan Grieve
City of Adelaide
GPO Box 2252
ADELAIDE SA 5001

d.grieve@cityofadelaide.com.au

Dear Dylan

EPA Development Application Referral Response

Development Application Number	**21041709**
Applicant	**Forme Projex c/- Nick Wilson, MasterPlan**
Location	**193 ANGAS ST, ADELAIDE SA 5000**
Proposal	**Retain external walls of existing building and construct nine storey mixed use building with office, car parking and ancillary services at ground level and 36 dwellings at upper levels**

This application was referred to the Environment Protection Authority (EPA) by the City of Adelaide in accordance with section 122 of the *Planning, Development and Infrastructure Act 2016* (PDI Act), Schedule 9(3)(9A) of the *Planning, Development and Infrastructure (General) Regulations 2017* and Part 9.1 of the *Planning and Design Code*.

The purpose of this referral is to ensure that an appropriate and proportionate assessment of site contamination occurs to ensure land is suitable, or can be made suitable, for the proposed use.

The following response is provided in accordance with section 122(5)(b)(ii) of the PDI Act.

PROPOSAL

The application proposes a change in the use of land to a more sensitive use. The relevant authority has determined the current land use is an embroidery business (categorised as a light industrial land

use, being Item 7 in the Land Use Sensitivity Hierarchy of the *State Planning Commission Practice Direction 14 (Site Contamination Assessment) 2021* ('Practice Direction 14')) and the proposed land use is a multi-storey mixed use building containing offices and residential dwellings. The most sensitive of the proposed land uses is categorised as Residential class 1, being Item 1 in the Land Use Sensitivity Hierarchy. Residential dwellings are also defined by Practice Direction 14 to be a 'sensitive use'.

The Site Contamination Declaration Form submitted with the DA (prepared by A.M. Consulting Pty Ltd and dated 21 January 2021[sic]) identifies that site contamination exists or may exist (for the purposes of planning consent) because the following activities have occurred onsite:

- Class 1 activity[1] – foundry
- Class 1 activity – electrical or electronics component manufacturing, and
- Class 2 activity – textiles operations.

At lodgement, the DA was accompanied by a *Preliminary Environmental Site History and Screening Level Soil and Vapour Assessment – 193 Angas Street, Adelaide, South Australia* prepared by A.M. Environmental Consulting Pty Ltd and dated 15 December 2021 ('the PSI report').

SITE CONTAMINATION ASSESSMENT

Following an administrative review of the PSI report, the EPA noted the following:

- the site history information is not sufficient to identify the nature and extent of onsite activities that are described as a foundry and textile operations
- limited soil and vapour investigations have been undertaken to date, and
- the report concludes that more detailed site investigations of soil and groundwater should be conducted to inform the understanding of site contamination issues (including any required remediation) at the site and, further, these additional investigations are best undertaken post-building demolition.

The EPA concurs with the need for more detailed site investigations[2] of soil and groundwater that would:

- allow for a detailed conceptual site model ('CSM') to be developed
- address the data gaps identified in the PSI report's CSM
- inform an understanding of potential exposure pathways, and
- identify whether remediation is necessary for the proposed use.

In the absence of adequate information about the nature and extent of site contamination and any potential site-specific remediation strategy, the EPA requested (on 20 January 2022) the applicant provide:

[1] According to the classes of activity at Schedule 1, Practice Direction 14
[2] Prepared in general accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999*

- a report of detailed site investigations ('DSI'), and
- if remediation is identified as being necessary in the DSI, a Site Remediation Plan ('SRP') and/or a Construction Environmental Management Plan ('CEMP').

In response to the EPA's request for further information, the applicant provided supplementary information including (but not limited to):

- a letter from Mud Environmental Pty Ltd to Masterplan, titled DA 21041709 – Practicality of Detailed Site Investigation and dated 1 April 2022 and attaching:
    - Preliminary Environmental Site History and Screening Level Soil and Vapour Assessment – 193 Angas Street, Adelaide, South Australia prepared by A.M. Environmental Consulting Pty Ltd and dated 21 March 2022 ('the updated PSI report')

- letter from A.M. Environmental Consulting Pty Ltd to Forme Projex dated 21 February 2022 detailing a methodology to undertake detailed site investigations, and

- letter from Piper Alderman to Forme Projex dated 18 February 2022 providing options for the applicant's consideration in light of the EPA's request for detailed site investigations.

The applicant has not fulfilled the EPA's 20 January 2022 request for further information for the following reasons:

- The undertaking of intrusive site investigations (such as soil sampling) is most effectively undertaken with clear and unobstructed access to site soils.
- The entire site area is occupied by a building.
- The entirety of the site is currently occupied by a tenant with a lease under the *Retail and Commercial Leases Act 1995*. It is further noted that the applicant is not a party to the lease agreement.
- The lease agreement entitles the tenants to quiet enjoyment of the tenanted areas.
- The undertaking of intrusive site investigations is likely to result in tenants being exposed to noise and dust impacts.

The EPA notes that the applicant does not object to the provision of further information in the form of a DSI report and potentially SRP and/or CEMP, and the applicant's site contamination consultant states that detailed site investigations are best undertaken after the granting of any Planning Consent and the demolition of existing buildings/structures.

The EPA acknowledges that 'constrained sites'[3] warrant a development assessment and agency referral approach that is not currently anticipated by the *Planning, Development and Infrastructure Act 2016*,

[3] In the context of the site contamination development assessment scheme, the EPA considers a 'constrained site' to mean a site that is covered by buildings and permanent structures to an extent that prejudices the undertaking of detailed site investigations in general accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999* **and** the applicant does not have a legal right to access the site to undertake intrusive site investigations.

Planning, Development and Infrastructure (General) Regulations 2017 and Practice Direction 14[4]. As such, the EPA proposes a unique approach to its assessment of this DA.

EPA recommendation

The EPA recommends that the relevant authority[5] reserve its decision on the matter of detailed site investigations and any subsequent requirements for remediation[6].

If the relevant authority agrees to the imposition of a reserve matter, the EPA requests that it is provided with a copy of any DSI report and potential SRP and/or CEMP (that is provided by the applicant in order to address the reserve matter condition) as an informal agency referral.

In this circumstance, the EPA would undertake a regulatory review of the DSI report and any SRP and/or CEMP and complete its referral role to determine the most appropriate site contamination practitioner to determine site suitability.

It is anticipated that following the EPA's advice about the most suitable site contamination practitioner, the relevant authority would impose an additional condition on the Planning Consent that states whether a site contamination consultant or a site contamination auditor must issue the statement of site suitability.

CONCLUSION

The site contamination development assessment scheme supports the purpose of State Planning Policy 16 by ensuring "*that, as much as possible, land is not developed for more sensitive uses unless site contamination risks have been considered and appropriate cost-effective remediation measures put in place*".

This DA has been referred to the EPA due to:

- historical Class 1 and Class 2 potentially contaminating activities having occurred onsite, and
- the DA proposes a sensitive use (i.e. residential dwellings).

In order to undertake its referral role, the EPA must be confident that the site can be made suitable for the proposed use and understand what, if any, remediation is required to be undertaken to protect the health of future occupants.

The EPA has determined that this DA warrants detailed site investigations be undertaken in order to understand the nature and extent of site contamination and any necessary remediation.

The EPA acknowledges the current constraints pertaining to the subject site and deficiencies in the site contamination development assessment scheme to deal with this scenario. As such, the EPA

[4] Collectively known as the 'site contamination development assessment scheme'.
[5] Pursuant to section 102(3) of the *Planning, Development and Infrastructure Act 2016*
[6] Noting that the EPA does not have the legal head power to direct the relevant authority to reserve its decision on a matter

recommends that the relevant authority impose a reserve matter relating to the need for detailed site investigations and any subsequent requirements for remediation.

Upon receipt of detailed site investigations and any subsequent remediation plan/s[7], the EPA requests the opportunity to:

- undertake a regulatory review of the DSI report and any remediation plan/s, and
- advise the imposition of additional condition/s of Planning Consent relating to the most appropriate site contamination practitioner to determine site suitability.

ADVICE

The relevant authority is advised to reserve the following matter for further assessment under section 57 of the Environment Protection Act 1993:

Reserved matter

1. The following information must be submitted for further assessment by the Environment Protection Authority ('EPA') under section 57 of the *Environment Protection Act 1993*:

   (i) a report of detailed site investigations ('DSI') prepared by an appropriately qualified and experienced site contamination consultant in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999* and the EPA publication *Guidelines for the assessment and remediation of site contamination* (2019).

   The DSI must be sufficient to identify:

   a) the nature and extent of any site contamination present or remaining on or below the surface of the land
   b) the likely suitability of the land for the proposed use, and
   c) what remediation (if any) is necessary for the proposed use.

   Where remediation is identified as being necessary in the DSI, a Site Remediation Plan ('SRP') and/or a Construction Environmental Management Plan ('CEMP') must be prepared by a site contamination consultant to the reasonable satisfaction of the EPA as per the guidance contained in the EPA *Guidelines for the assessment and remediation of site contamination* (2019).

The EPA reserves its advice on the form and substance of any further conditions of planning consent considered appropriate to impose in respect of the reserved matter in accordance with regulations 3(6) and 103C and of the *Planning, Development and Infrastructure (General) Regulations 2017*.

[7] Including a Construction Environmental Management Plan

If you have any questions about this response, please contact Melissa Chrystal on 8204 1318 or email melissa.chrystal@sa.gov.au

Yours faithfully

Phil Hazell
Delegate
ENVIRONMENT PROTECTION AUTHORITY

APPENDIX 1– Relevant P&D Code Policies

Address: **193 ANGAS ST ADELAIDE SA 5000**

Click to view a detailed interactive SAILIS in SAILIS

To view a detailed interactive property map in SAPPA click on the map below



Property Zoning Details

Local Variation (TNV)
Maximum Building Height (Metres) *(Maximum building height is 22m)*
Overlay
Airport Building Heights (Regulated) *(All structures over 140 metres AHD)*
Affordable Housing
Building Near Airfields
Design
Heritage Adjacency
Hazards (Flooding - Evidence Required)
Noise and Air Emissions
Prescribed Wells Area
Regulated and Significant Tree
Zone
Capital City

Development Pathways

- Capital City

1. Accepted Development
   Means that the development type does not require planning consent (planning approval). Please ensure compliance with relevant land use and development controls in the Code.

   - Fence and retaining wall structure
   - Internal building work
   - Partial demolition of a building or structure
   - Shade sail
   - Solar photovoltaic panels (roof mounted)
   - Temporary public service depot
   - Water tank (underground)

2. Code Assessed - Deemed to Satisfy
   Means that the development type requires consent (planning approval). Please ensure compliance with relevant land use

and development controls in the Code.

- Consulting room
- Office
- Shop

3. Code Assessed - Performance Assessed
   Performance Assessed development types listed below are those for which the Code identifies relevant policies. Additional development types that are not listed as Accepted, Deemed to Satisfy or Restricted default to a Performance assessed Pathway. Please contact your local council for more information.

   - Advertisement
   - Consulting room
   - Demolition
   - Dwelling
   - Licensed Premises
   - Office
   - Residential flat building
   - Shop
   - Student Accommodation
   - Tourist accommodation
   - Tree-damaging activity

4. Impact Assessed - Restricted
   Means that the development type requires approval. Classes of development that are classified as Restricted are listed in Table 4 of the relevant Zones.

Property Policy Information for above selection

Part 2 - Zones and Sub Zones

Capital City Zone

Assessment Provisions (AP)

Desired Outcome	
DO 1	A zone that is the economic and cultural focus of the state supporting a range of residential, employment, community, educational, innovation, recreational, tourism and entertainment facilities generating opportunities for population and employment growth.
DO 2	High intensity and large- scale development with high street walls reinforcing the distinctive grid pattern layout of the city with active non-residential ground level uses to positively contribute to public safety, inclusivity and vibrancy. Design quality of buildings and public spaces is a priority in this zone.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Land Use	
PO 1.1	DTS/DPF 1.1

A vibrant mix of residential, retail, community, commercial and professional services, civic and cultural, health, educational, recreational, tourism and entertainment facilities.	The following types of development, or combinations thereof, are envisaged: (a) Advertisement (b) Consulting Room (c) Dwelling (d) Educational Establishment (e) Hospital (f) Hotel (g) Licensed Premises (h) Library (i) Office (j) Pre-School (k) Supported Accommodation (l) Residential Flat Building (m) Shop (n) Student Accommodation (o) Tourist accommodation.
PO 1.2 Changes in the use of land between similar businesses encourages the efficient reuse of commercial premises and supports continued local access to a range of services compatible to the locality.	DTS/DPF 1.2 A change of use to a shop, office, consulting room or any combination of these uses where all of the following are achieved: (a) the area to be occupied by the proposed development is located in an existing building and is currently used as a shop, office, consulting room or any combination of these uses (b) if the proposed change of use is for a shop that primarily involves the handling and sale of foodstuffs, areas used for the storage and collection of refuse are sited at least 10m from the site of a dwelling (other than a dwelling directly associated with the proposed shop) (c) if the proposed change of use is for a shop that primarily involves heating and cooking of foodstuffs in a commercial kitchen and is within 30m of any neighbourhood-type zone boundary or a dwelling (other than a dwelling directly associated with the proposed shop), an exhaust duct and stack (chimney) exists or is capable of being installed for discharging exhaust emissions (d) if the change in use involves a gross leasable floor area greater than 250m^2 and has direct frontage to an arterial road, it achieves either (i) or (ii): (i) the primary vehicle access (being the access where the majority of vehicles access / egress the site of the proposed development) is from a road that is not an arterial road (ii) the development is located on a site that operates as an integrated complex containing two or more tenancies (and which may comprise more than one building) where facilities for off-street vehicle parking, vehicle loading and unloading, and the storage and collection of refuse are shared.
Activation	

PO 2.1 Non-residential land uses at ground floor level such as shops and restaurants support and maximise pedestrian activity to provide visual interest and positively contribute to public safety, walkability and vibrancy.	DTS/DPF 2.1 None are applicable.
PO 2.2 Development: (a) contributes to the activation of the public realm by presenting an attractive human scaled pedestrian-oriented frontage at ground level that adds interest and vibrancy; (b) maintains a sense of openness to the sky for pedestrians and allow sunlight access to the public realm; (c) provides a clear sense of address to each building.	DTS/DPF 2.2 None are applicable.
PO 2.3 Land uses typically open during night time hours incorporate activities along street frontages at ground level that encourage day time activation compatible with surrounding land uses.	DTS/DPF 2.3 None are applicable.
PO 2.4 Shopfronts incorporating security features such as security grilles and shutters are designed to allow visual permeability into the premises, allow for light spill onto the street, and complement the appearance of the building's frontage.	DTS/DPF 2.4 Grilles, shutters or similar security features with at least 75% permeability.
Built form and Character	
PO 3.1 A contextual design response that manages differences in scale and building proportions to maintain a cohesive streetscape and frame city streets.	DTS/DPF 3.1 None are applicable
PO 3.2 Buildings: (a) are designed to reinforce the prevailing datum heights and parapet levels of the street through design elements that provide a clear distinction between levels above and below the prevailing datum line; (b) where located in an existing low-rise context, are designed to include a podium/street wall height and upper level setback that: (i) relates to the scale and context of adjoining built form; (ii) provides a human scale at street level; (iii) creates a well-defined and continuity of frontage; (iv) gives emphasis and definition to street corners to clearly define the street grid; and (v) contributes to the interest, vitality and security of the pedestrian environment.	DTS/DPF 3.2 None are applicable.

PO 3.3 Building facades are strongly modelled, incorporate a vertical composition which reflects the proportions of existing frontages, and ensure that architectural detailing is consistent around corners and along minor streets and laneways.	DTS/DPF 3.3 None are applicable
PO 3.4 Development along The Terraces (North, East, South and West) is designed to positively contribute to a continuous built form to frame the Park Lands and city edge.	DTS/DPF 3.4 None are applicable.
PO 3.5 Development along the city's boulevards (as identified in Capital City Zone Table 5.1): (a) built to the street boundary at lower levels to reinforce the City's grid layout and frame the boulevard (b) designed to provide a sense of arrival into the City and strongly define junctions where located on a corner site.	DTS/DPF 3.5 None are applicable.
PO 3.6 Development avoids activities that result in a gap in the built form along a public road or thoroughfare (such as an open lot car park) for an extended period of time to minimise negative impacts on streetscape continuity.	DTS/DPF 3.6 None are applicable.
PO 3.7 Development along the city's boulevards (as identified in Capital City Zone Table 5.1) is designed to maximise views to the Park Lands and not clutter existing view corridors to the Adelaide Hills when viewed from the public realm.	DTS/DPF 3.7 None are applicable.
PO 3.8 Development fronting Victoria, Hindmarsh, Whitmore, Hurtle and Light Squares is designed to provide a comfortable pedestrian and recreation environment by enabling direct sunlight to a majority of the Square.	DTS/DPF 3.8 Development enables direct sunlight to a minimum of 75% of the landscaped part of each Square at the September equinox.
PO 3.9 Development fronting Victoria, Hindmarsh, Whitmore, Hurtle and Light Squares is designed to reinforce the enclosure of the Squares with a continuous built-form with no upper level setbacks.	DTS/DPF 3.9 None are applicable.
PO 3.10 Provision of outdoor eating and drinking facilities associated with cafes and restaurants fronting Victoria, Hindmarsh, Whitmore, Hurtle and Light Squares positively contributes to activity and creates a focus for leisure in the Squares.	DTS/DPF 3.10 None are applicable.
PO 3.11 Development along minor streets and laneways is informed by its local context to maintain the prevailing built form pattern and structure, and designed to provide a sense of enclosure, and enable fine-grain uses at street level to create an intimate, active,	DTS/DPF 3.11 None are applicable.

inclusive and walkable public realm.	
PO 3.12 Buildings north of the City Main Street Zone are designed to enable natural sunlight access to the southern footpath of the main street.	DTS/DPF 3.12 Buildings north of the City Main Street Zone that cast a shadow on the southern footpath of the main street incorporate narrow and setback tower elements and provide spaces between buildings.
PO 3.13 Buildings are adaptable and flexible to accommodate a range of land uses.	DTS/DPF 3.13 The ground floor of buildings has a minimum floor to ceiling height of 3.5m.
Building Height	
PO 4.1 Building height is consistent with the form expressed in any relevant *Maximum Building Height (Levels) Technical and Numeric Variation* and *Maximum Building Height (Metres) Technical and Numeric Variation* or otherwise positively responds to the local context and achieves the desired outcomes of the Zone.	DTS/DPF 4.1 Development does not exceed the following building heights: **Maximum Building Height (Metres)** Maximum building height is 22m In relation to DTS/DPF 4.1, in instances where: (a) more than one value is returned in the same field, refer to the *Maximum Building Height (Levels) Technical and Numeric Variation layer or Maximum Building Height (Metres) Technical and Numeric Variation* layer in the SA planning database to determine the applicable value relevant to the site of the proposed development (b) only one value is returned (i.e. there is one blank field), then the relevant height in metres or building levels applies with no criteria for the other (c) no value is returned (i.e. there are blank fields for both maximum building height (metres) and maximum building height (levels), then none are applicable and the relevant development cannot be classified as deemed-to-satisfy.
PO 4.2 Development exceeding the building height specified in the *Maximum Building Height (Levels) Technical* and *Numeric Variation layer and the Maximum Building Height (Metres) Technical and Numeric Variatio*n layer is generally not contemplated unless: (a) the development provides for the retention, conservation and reuse of a building that: (i) is a State or local heritage place and the heritage values of the place will be maintained (ii) provides a notable positive contribution to the character of the local area or (b) the building incorporates measures that provide for a substantial additional gain in sustainability and it demonstrates at least four of the following are met: (i) the development provides an orderly transition up to an existing taller building or prescribed maximum height in an adjacent Zone or building height area on the *Maximum Building Height*	DTS/DPF 4.2 None are applicable.

*(Levels) Technical and Numeric Variation laye*r and *Maximum Building Height (Metres) Technical and Numeric Variation* layer (ii) incorporates high quality open space that is universally accessible and directly connected to, and well integrated with, public realm areas of the street (iii) Incorporates high quality, safe and secure, universally accessible pedestrian linkages that connect through the development site to the surrounding pedestrian network (iv) provides higher amenity through provision of private open space in excess of minimum requirements by 25 percent for at least 50 percent of dwellings (v) no on site car parking is provided (vi) at least 75% of the ground floor street fronts of the building are active frontages (vii) the building has frontage to a public road that abuts the Adelaide Park Lands; (viii) where the development includes housing, at least 15% of the dwellings are affordable housing (ix) the impact on adjacent properties is no greater than a building of the maximum height on the *Maximum Building Height (Levels) Technical and Numeric Variation layer* and *Maximum Building Height (Metres) Technical and Numeric Variation* layer in relation to sunlight access and overlooking.	
PO 4.3 Buildings designed to achieve optimal height and floor space yields.	DTS/DPF 4.3 New development has a minimum building height of: (a) not less than half of the maximum building height specified in DTS/DPF 4.1, or 8 building levels (with a minimum of 28m) in instances where 'No prescribed height limit' is specified in DTS/DPF 4.1; or (b) within the City Frame Subzone: 3 building levels (with a minimum of 11.5m), or 4 building levels (with a minimum of 15m) on sites fronting South Terrace other than where: (a) a lower building height is necessary to achieve compliance with the Commonwealth Airports (Protection of Airspace) Regulations (b) the site of the development adjoins the City Living Zone and a lesser building height is required to positively manage the interface with low-rise residential development (c) the site of the development adjoins a heritage place, or contains a heritage place or (d) the development includes the construction of a building in the same, or substantially the same, position as a building which was demolished, as a result of significant damage caused by an event within the previous three years where the new building has the same, or substantially the same, layout and external appearance

	as the previous building.
Interface	
PO 5.1 Development is designed to manage the interface with residential uses in the City Living Zone: (a) in relation to building proportions, massing, and overshadowing; and (b) by avoiding land uses, or intensity of land uses, that unduly impact residential amenity (including licensed premises).	DTS/DPF 5.1 None are applicable.
PO 5.2 Parts of a development exceed the maximum building height specified in DTS/DPF 4.1 and adjoin the City Living Zone boundaries are designed to minimise negative visual and amenity impacts to residential living areas and outdoor open space.	DTS/DPF 5.2 Parts of a building above the maximum building height specified in DTS/DPF 4.1 include additional setbacks, avoid tall sheer walls, centrally locate taller elements, and provide variation of light and shadow through articulation.
Movement	
PO 6.1 Access to, and movement within, the Capital City Zone to be universally accessible, easy, safe, comfortable, convenient and legible for people of all abilities, with priority given to pedestrians and cyclists.	DTS/DPF 6.1 None are applicable.
Access	
PO 7.1 Vehicular access points are associated with multi-level and/or non-ancillary car parks located to minimise disruption to traffic flow.	DTS/DPF 7.1 Vehicular access points associated with multi-level and/or non-ancillary car parks are located on a secondary road frontage, or utilise an existing crossover.
PO 7.2 Development designed so that vehicle access points for parking, servicing or deliveries, and pedestrian access to a site, are located to minimise interrupting the operation of and queuing on public roads and pedestrian paths.	DTS/DPF 7.2 None are applicable.
Advertisements	
PO 8.1 Advertisements use simple graphics and are restrained in their size, design and colour, and achieve an overall consistency of design and appearance along individual street frontages.	DTS/DPF 8.1 None are applicable.
PO 8.2 Advertisements along Chesser Street, French Street and Coromandel Place are located below verandah level of the ground floor.	DTS/DPF 8.2 Along Chesser Street, French Street and Coromandel Place, advertisements are not located more than 3.7m above natural ground level or an abutting footpath or street.
Concept Plans	
PO 9.1 Development is compatible with the outcomes sought by any relevant Concept Plan contained within Part 12 - Concept Plans	DTS/DPF 9.1 The site of the development is wholly located outside any relevant Concept Plan boundary. The following Concept Plans are

of the Planning and Design Code to support the orderly development of land through staging of development and provision of infrastructure.	relevant: In relation to DTS/DPF 9.1, in instances where: (a) one or more Concept Plan is returned, refer to Part 12 - Concept Plans in the Planning and Design Code to determine if a Concept Plan is relevant to the site of the proposed development. Note: multiple concept plans may be relevant. (b) in instances where 'no value' is returned, there is no relevant concept plan and DTS/DPF 9.1 is met.
Public Realm	
PO 10.1 Development in the public realm where it: (a) does not present a safety risk to pedestrians or other users of the public road (b) does not interrupt pedestrian movement (c) does not interfere with existing infrastructure or services on the street (d) positively contributes to the vibrancy of the area (e) is consistent with the outcomes of the zone.	DTS/DPF 10.1 None are applicable.

Table 5 - Procedural Matters (PM) - Notification

The following table identifies, pursuant to section 107(6) of the *Planning, Development and Infrastructure Act 2016*, classes of performance assessed development that are excluded from notification. The table also identifies any exemptions to the placement of notices when notification is required.

Interpretation

A class of development listed in Column A is excluded from notification provided that it does not fall within a corresponding exclusion prescribed in Column B. In instances where development falls within multiple classes within Column A, each clause is to be read independently such that if a development is excluded from notification by any clause, it is, for the purposes of notification excluded irrespective of any other clause.

Class of Development (Column A)	Exceptions (Column B)
1. A kind of development which, in the opinion of the relevant authority, is of a minor nature only and will not unreasonably impact on the owners or occupiers of land in the locality of the site of the development.	None specified.
2. Any kind of development where the site of the development is **not** adjacent land to a site (or land) used for residential purposes in a neighbourhood-type zone.	Except any of the following: 1. the demolition of a State or Local Heritage Place 2. the demolition of a building (except an ancillary building) in a Historic Area Overlay.
3. Any development involving any of the following (or of any combination of any of the following): (a) advertisement (b) air handling unit, air conditioning system or	Except development that exceeds the maximum building height specified in Capital City Zone DTS/DPF 4.1.

exhaust fan (c) consulting room (d) dwelling (e) fence (f) office (g) pre-school (h) residential flat building (i) retaining wall (j) shade sail (k) shop (l) solar photovoltaic panels (roof mounted) (m) student accommodation (n) temporary public service depot (o) water tank.	
4. Any development involving any of the following (or of any combination of any of the following): (a) internal building works (b) tree damaging activity.	None specified.
5. Demolition.	Except any of the following: 1. the demolition of a State or Local Heritage Place 2. the demolition of a building (except an ancillary building) in a Historic Area Overlay.

Placement of Notices - Exemptions for Performance Assessed Development
None specified.

Placement of Notices - Exemptions for Restricted Development
None specified.

Table 5.1 - City Boulevards

West Terrace, North Terrace, East Terrace, South Terrace, Currie Street, Grenfell Street, Franklin Street, Flinders Street, Grote Street, Wakefield Street, Morphett Street, King William Street and Pulteney Street.

Part 3 - Overlays

Affordable Housing Overlay

Assessment Provisions (AP)

Desired Outcome

DO 1	Affordable housing is integrated with residential and mixed use development.
DO 2	Affordable housing caters for a variety of household structures.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Land Division	
PO 1.1 Development comprising 20 or more dwellings / allotments incorporates affordable housing.	DTS/DPF 1.1 Development results in 0-19 additional allotments / dwellings.
PO 1.2 Development comprising 20 or more dwellings or residential allotments provides housing suited to a range of incomes including households with low to moderate incomes.	DTS/DPF 1.2 Development comprising 20 or more dwellings / or residential allotments includes a minimum of 15% affordable housing except where: (a) it can be demonstrated that any shortfall in affordable housing has been provided in a previous stage of development or (b) it can be demonstrated that any shortfall in affordable housing will be accommodated in a subsequent stage or stages of development.
PO 1.3 Affordable housing is distributed throughout the development to avoid an overconcentration.	DTS/DPF 1.3 None are applicable.
Built Form and Character	
PO 2.1 Affordable housing is designed to complement the design and character of residential development within the locality.	DTS/DPF 2.1 None are applicable.
Affordable Housing Incentives	
PO 3.1 To support the provision of affordable housing, minimum allotment sizes may be reduced below the minimum allotment size specified in a zone while providing allotments of a suitable size and dimension to accommodate dwellings with a high standard of occupant amenity.	DTS/DPF 3.1 The minimum site area specified for a dwelling can be reduced by up to 20%, or the maximum density per hectare increased by up to 20%, where it is to be used to accommodate affordable housing except where the development is located within the Character Area Overlay or Historic Area Overlay.
PO 3.2 To support the provision of affordable housing, building heights may be increased above the maximum specified in a zone.	DTS/DPF 3.2 Where a building incorporates dwellings above ground level and includes at least 15% affordable housing, the maximum building height specified in any relevant zone policy can be increased by 1

	building level in the: (a) Business Neighbourhood Zone (b) City Living Zone (c) Established Neighbourhood Zone (d) General Neighbourhood Zone (e) Hills Neighbourhood Zone (f) Housing Diversity Neighbourhood Zone (g) Neighbourhood Zone (h) Master Planned Neighbourhood Zone (i) Master Planned Renewal Zone (j) Master Planned Township Zone (k) Rural Neighbourhood Zone (l) Suburban Business Zone (m) Suburban Neighbourhood Zone (n) Township Neighbourhood Zone (o) Township Zone (p) Urban Renewal Neighbourhood Zone (q) Waterfront Neighbourhood Zone and up to 30% in any other zone, except where: (a) the development is located within the Character Area Overlay or Historic Area Overlay or (b) other height incentives already apply to the development.
Movement and Car Parking	
PO 4.1 Sufficient car parking is provided to meet the needs of occupants of affordable housing.	DTS/DPF 4.1 Dwellings constituting affordable housing are provided with car parking in accordance with the following: (a) 0.3 carparks per dwelling within a building which incorporates dwellings located above ground level within either: (i) 200 metres of any section of road reserve along which a bus service operates as a high frequency public transit service(2) (ii) is within 400 metres of a bus interchange(1) (iii) is within 400 metres of an O-Bahn interchange(1) (iv) is within 400 metres of a passenger rail station(1) (v) is within 400 metres of a passenger tram station(1) (vi) is within 400 metres of the Adelaide Parklands. or (b) 1 carpark per dwelling for any other dwelling. [NOTE(S): (1) Measured from an area that contains any platform(s), shelter(s) or stop(s) where people congregate for the purpose waiting to board a bus, tram or train, but does not include areas used for the parking of vehicles. (2) A high frequency public transit service is a route serviced every 15 minutes between 7.30am and 6.30pm Monday to Friday and every 30 minutes at night, Saturday, Sunday and public holidays

	until 10pm.]

Procedural Matters (PM) - Referrals

The following table identifies classes of development / activities that require referral in this Overlay and the applicable referral body. It sets out the purpose of the referral as well as the relevant statutory reference from Schedule 9 of the Planning, Development and Infrastructure (General) Regulations 2017.

Class of Development / Activity	Referral Body	Purpose of Referral	Statutory Reference
Development for the purposes of the provision of affordable housing (applying the criteria determined under regulation 4 of the *South Australian Housing Trust Regulations 2010*).	Minister responsible for administering the *South Australian Housing Trust Act 1995*.	To provide direction on the conditions required to secure the provision of dwellings or allotments for affordable housing.	Development of a class to which Schedule 9 clause 3 item 20 of the Planning, Development and Infrastructure (General) Regulations 2017 applies.

Airport Building Heights (Regulated) Overlay

Assessment Provisions (AP)

Desired Outcome	
DO 1	Management of potential impacts of buildings and generated emissions to maintain operational and safety requirements of registered and certified commercial and military airfields, airports, airstrips and helicopter landing sites.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Built Form	
PO 1.1 Building height does not pose a hazard to the operation of a certified or registered aerodrome.	DTS/DPF 1.1 Buildings are located outside the area identified as 'All structures' (no height limit is prescribed) and do not exceed the height specified in the Airport Building Heights (Regulated) Overlay which applies to the subject site as shown on the SA

	Property and Planning Atlas. In instances where more than one value applies to the site, the lowest value relevant to the site of the proposed development is applicable.
PO 1.2 Exhaust stacks are designed and sited to minimise plume impacts on aircraft movements associated with a certified or registered aerodrome.	DTS/DPF 1.2 Development does not include exhaust stacks.

Procedural Matters (PM) - Referrals

The following table identifies classes of development / activities that require referral in this Overlay and the applicable referral body. It sets out the purpose of the referral as well as the relevant statutory reference from Schedule 9 of the Planning, Development and Infrastructure (General) Regulations 2017.

Class of Development / Activity	Referral Body	Purpose of Referral	Statutory Reference
Any of the following classes of development: (a) building located in an area identified as 'All structures' (no height limit is prescribed) or will exceed the height specified in the *Airport Building Heights (Regulated) Overlay* (b) building comprising exhaust stacks that generates plumes, or may cause plumes to be generated, above a height specified in the *Airport Building Heights (Regulated) Overlay.*	The airport-operator company for the relevant airport within the meaning of the *Airports Act 1996* of the Commonwealth or, if there is no airport-operator company, the Secretary of the Minister responsible for the administration of the *Airports Act 1996* of the Commonwealth.	To provide expert assessment and direction to the relevant authority on potential impacts on the safety and operation of aviation activities.	Development of a class to which Schedule 9 clause 3 item 1 of the Planning, Development and Infrastructure (General) Regulations 2017 applies.

Building Near Airfields Overlay

Assessment Provisions (AP)

Desired Outcome	
DO 1	Maintain the operational and safety requirements of certified commercial and military airfields, airports, airstrips and helicopter landing sites through management of non-residential lighting, turbulence and activities that may attract or result in the congregation of wildlife.

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
PO 1.1 Outdoor lighting associated with a non-residential use does not pose a hazard to commercial or military aircraft operations.	DTS/DPF 1.1 Development: (a) primarily or wholly for residential purposes (b) for non-residential purposes that does not incorporate

	outdoor floodlighting.
PO 1.2 Development likely to attract or result in the congregation of wildlife is adequately separated from airfields to minimise the potential for aircraft wildlife strike.	DTS/DPF 1.2 All development except where it comprises one or more of the following located not less than 3km from the boundaries of an airport used by commercial or military aircraft: (a) food packing/processing plant (b) horticulture (c) intensive animal husbandry (d) showground (e) waste management facility (f) waste transfer station (g) wetland (h) wildlife sanctuary.
PO 1.3 Buildings are adequately separated from runways and other take-off and landing facilities within certified or registered aerodromes to minimise the potential for building-generated turbulence and windshear that may pose a safety hazard to aircraft flight movement.	DTS/DPF 1.3 The distance from any part of a runway centreline to the closest point of the building is not less than 35 times the building height.

Procedural Matters (PM) - Referrals

The following table identifies classes of development / activities that require referral in this Overlay and the applicable referral body. It sets out the purpose of the referral as well as the relevant statutory reference from Schedule 9 of the Planning, Development and Infrastructure (General) Regulations 2017.

Class of Development / Activity	Referral Body	Purpose of Referral	Statutory Reference
None	None	None	None

Design Overlay

Assessment Provisions (AP)

Desired Outcome	
DO 1	Development positively contributes to the liveability, durability and sustainability of the built environment through high-quality design.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
General	
PO 1.1 Medium to high rise buildings and state significant development demonstrate high quality design.	DTS/DPF 1.1 None are applicable.

Procedural Matters (PM)

The following table identifies classes of development / activities that require referral in this Overlay and the applicable referral body. It sets out the purpose of the referral as well as the relevant statutory reference from Schedule 9 of the Planning, Development and Infrastructure (General) Regulations 2017.

Class of Development / Activity	Referral Body	Purpose of Referral	Statutory Reference
Except where the development comprises a variation to an application that has previously: (a) been referred to the Government Architect or Associate Government Architect or (b) been given development authorisation under the *Planning, Design and Infrastructure Act 2016 or Development Act 1993* any of the following classes of development: (a) development within the area of the overlay located within the Corporation of the City of Adelaide where the total amount to be applied to any work, when all stages of the development are completed, exceeds $10,000,000 (b) development within the area of the overlay located within the City of Port Adelaide Enfield where the total amount to be applied to any work, when all stages of the development are completed, exceeds $3 000 000 (c) development within all other areas of the overlay that involves the erection or construction of a building that exceeds 4 building levels.	Government Architect or Associate Government Architect	To provide expert design advice to the relevant authority on how the development: (a) responds to its surrounding context and contributes to the quality and character of a place (b) contributes to inclusiveness, connectivity, and universal design of the built environment (c) enables buildings and places that are fit for purpose, adaptable and long-lasting (d) adds value by positively contributing to places and communities (e) optimises performance and public benefit (f) supports sustainable and environmentally responsible development.	Development of a class to which Schedule 9 clause 3 item 22 of the Planning, Development and Infrastructure (General) Regulations 2017 applies.

Hazards (Flooding - Evidence Required) Overlay

Assessment Provisions (AP)

Desired Outcome	
DO 1	Development adopts a precautionary approach to mitigate potential impacts on people, property, infrastructure and the environment from potential flood risk through the appropriate siting and design of development.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Flood Resilience	
PO 1.1 Development is sited, designed and constructed to minimise the risk of entry of potential floodwaters where the entry of flood waters is likely to result in undue damage to or compromise ongoing activities within buildings.	DTS/DPF 1.1 Habitable buildings, commercial and industrial buildings, and buildings used for animal keeping incorporate a finished floor level at least 300mm above: (a) the highest point of top of kerb of the primary street or (b) the highest point of natural ground level at the primary street boundary where there is no kerb
Environmental Protection	
PO 2.1 Buildings and structures used either partly or wholly to contain or store hazardous materials are designed to prevent spills or leaks leaving the confines of the building.	DTS/DPF 2.1 Development does not involve the storage of hazardous materials.

Procedural Matters (PM) - Referrals

The following table identifies classes of development / activities that require referral in this Overlay and the applicable referral body. It sets out the purpose of the referral as well as the relevant statutory reference from Schedule 9 of the Planning, Development and Infrastructure (General) Regulations 2017.

Class of Development / Activity	Referral Body	Purpose of Referral	Statutory Reference
None	None	None	None

Heritage Adjacency Overlay

Assessment Provisions (AP)

Desired Outcome	
DO 1	Development adjacent to State and Local Heritage Places maintains the heritage and cultural values of those Places.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Built Form	
PO 1.1 Development adjacent to a State or Local Heritage Place does not dominate, encroach on or unduly impact on the setting of the Place.	DTS/DPF 1.1 None are applicable.
Land Division	
PO 2.1 Land division adjacent to a State or Local Heritage Place creates allotments that are of a size and dimension that enables the siting and setbacks of new buildings from allotment boundaries so that they do not dominate, encroach or unduly impact on the setting of the Place.	DTS/DPF 2.1 None are applicable.

Procedural Matters (PM) - Referrals

The following table identifies classes of development / activities that require referral in this Overlay and the applicable referral body. It sets out the purpose of the referral as well as the relevant statutory reference from Schedule 9 of the Planning, Development and Infrastructure (General) Regulations 2017.

Class of Development / Activity	Referral Body	Purpose of Referral	Statutory Reference
Development that may materially affect the context of a State Heritage Place.	Minister responsible for the administration of the *Heritage Places Act 1993.*	To provide expert assessment and direction to the relevant authority on the potential impacts of development adjacent State Heritage Places.	Development of a class to which Schedule 9 clause 3 item 17 of the Planning, Development and Infrastructure (General) Regulations 2017 applies.

Noise and Air Emissions Overlay

Assessment Provisions (AP)

Desired Outcome	
DO 1	Community health and amenity is protected from adverse impacts of noise and air emissions.

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Siting and Design	
PO 1.1 Sensitive receivers adjoining high noise and/or air pollution sources are designed and sited to shield sensitive receivers from the emission source using measures such as: (a) placing buildings containing non-sensitive receivers (such as retail and commercial) between the emission source and sensitive receivers (b) within individual buildings, placing rooms more sensitive to air quality and noise impacts (such as living rooms and bedrooms) further away from the emission source (c) providing appropriate separation or erecting noise attenuation barriers, provided the requirements for safety, urban design and access can be met (d) the use of building design elements such as podiums and jutting, deep or enclosed balconies (including with solid balustrades).	DTS/DPF 1.1 Sensitive receivers satisfy all of the following: (a) do not adjoin a: (i) Designated Road: Type A (ii) Designated Road Corridor: Type B (iii) Designated Road: Type R (iv) Train Corridor (v) Tram Corridor (b) adjoining development incorporating music includes noise attenuation measures to achieve a noise level in any bedroom exposed to music noise (L10) less than: (i) 8 dB above the level of background noise (L90,15 min) in any octave band of the sound spectrum; and (ii) 5 dB(A) above the level of background noise (LA90,15 min) for the overall (sum of all octave bands) A-weighted levels.
PO 1.2 Development incorporating a sensitive receiver adjoining high air pollution sources use building design elements such as varying building heights, widths, articulation, setbacks and shapes to increase wind turbulence and the dispersion of air pollutants.	DTS/DPF 1.2 Sensitive receivers do not adjoin any of the following: (a) Designated Road: Type A (b) Designated Road: Type B (c) Designated Road: Type R (d) Train Corridor (e) Tram Corridor.
PO 1.3 Development incorporating a sensitive receiver adjoining high noise and/or air pollution sources locates private open space (including ground level courtyards and balconies), common open space and outdoor play areas within educational establishments and pre-schools away from the emission source.	DTS/DPF 1.3 Open space associated with a sensitive receiver is not adjoining any of the following: (a) Designated Road: Type A (b) Designated Road: Type B (c) Designated Road: Type R (d) Train Corridor (e) Tram Corridor (f) Development incorporating music.

Procedural Matters (PM) - Referrals

The following table identifies classes of development / activities that require referral in this Overlay and the applicable referral body. It sets out the purpose of the referral as well as the relevant statutory reference from Schedule 9 of the Planning, Development and Infrastructure (General) Regulations 2017.

Class of Development / Activity	Referral Body	Purpose of Referral	Statutory Reference
None	None	None	None

Prescribed Wells Area Overlay

Assessment Provisions (AP)

Desired Outcome	
DO 1	Sustainable water use in prescribed wells areas.

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
PO 1.1 All development, but in particular involving any of the following: (a) horticulture (b) activities requiring irrigation (c) aquaculture (d) industry (e) intensive animal husbandry (f) commercial forestry has a lawful, sustainable and reliable water supply that does not place undue strain on water resources in prescribed wells areas.	DTS/DPF 1.1 Development satisfies either of the following: (a) the applicant has a current water licence in which sufficient spare capacity exists to accommodate the water needs of the proposed use or (b) the proposal does not involve the taking of water for which a licence would be required under the *Landscape South Australia Act 2019*.

Procedural Matters (PM) - Referrals

The following table identifies classes of development / activities that require referral in this Overlay and the applicable referral body. It sets out the purpose of the referral as well as the relevant statutory reference from Schedule 9 of the Planning, Development and Infrastructure (General) Regulations 2017.

Class of Development / Activity	Referral Body	Purpose of Referral	Statutory Reference
Any of the following classes of development that require or may require water to be taken in addition to any allocation that has already been	The Chief Executive of the Department of the Minister responsible for the administration of the	To provide expert technical assessment and direction to the relevant authority on	Development of a class to which

granted under the *Landscape South Australia Act 2019*: (a) horticulture (b) activities requiring irrigation (c) aquaculture (d) industry (e) intensive animal husbandry (f) commerical forestry.	*Landscape South Australia Act 2019*.	the taking of water to ensure development is undertaken sustainably.	Schedule 9 clause 3 item 13 of the Planning, Development and Infrastructure (General) Regulations 2017 applies.
Commercial forestry that requires a forest water licence under Part 8 Division 6 of the *Landscape South Australia Act 2019*.			

Regulated and Significant Tree Overlay

Assessment Provisions (AP)

Desired Outcome	
DO 1	Conservation of regulated and significant trees to provide aesthetic and environmental benefits and mitigate tree loss.

Performance Outcomes (PO) and Deemed to Satisfy (DTS) / Designated Performance Feature (DPF) Criteria

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Tree Retention and Health	
PO 1.1 Regulated trees are retained where they: (a) make an important visual contribution to local character and amenity (b) are indigenous to the local area and listed under the *National Parks and Wildlife Act 1972* as a rare or endangered native species and / or (c) provide an important habitat for native fauna.	DTS/DPF 1.1 None are applicable.
PO 1.2 Significant trees are retained where they: (a) make an important contribution to the character or amenity of the local area (b) are indigenous to the local area and are listed under the *National Parks and Wildlife Act 1972* as a rare or endangered native species (c) represent an important habitat for native fauna	DTS/DPF 1.2 None are applicable.

(d) are part of a wildlife corridor of a remnant area of native vegetation (e) are important to the maintenance of biodiversity in the local environment and / or (f) form a notable visual element to the landscape of the local area.	
PO 1.3 A tree damaging activity not in connection with other development satisfies (a) and (b): (a) tree damaging activity is only undertaken to: (i) remove a diseased tree where its life expectancy is short (ii) mitigate an unacceptable risk to public or private safety due to limb drop or the like (iii) rectify or prevent extensive damage to a building of value as comprising any of the following: A. a Local Heritage Place B. a State Heritage Place C. a substantial building of value and there is no reasonable alternative to rectify or prevent such damage other than to undertake a tree damaging activity (iv) reduce an unacceptable hazard associated with a tree within 20m of an existing residential, tourist accommodation or other habitable building from bushfire (v) treat disease or otherwise in the general interests of the health of the tree and / or (vi) maintain the aesthetic appearance and structural integrity of the tree (b) in relation to a significant tree, tree-damaging activity is avoided unless all reasonable remedial treatments and measures have been determined to be ineffective.	DTS/DPF 1.3 None are applicable.
PO 1.4 A tree-damaging activity in connection with other development satisfies all the following: (a) it accommodates the reasonable development of land in accordance with the relevant zone or subzone where such development might not otherwise be possible (b) in the case of a significant tree, all reasonable development options and design solutions have been considered to prevent substantial tree-damaging activity occurring.	DTS/DPF 1.4 None are applicable.
Ground work affecting trees	
PO 2.1 Regulated and significant trees, including their root systems, are not unduly compromised by excavation and / or filling of land, or the sealing of surfaces within the vicinity of the tree to support	DTS/DPF 2.1 None are applicable.

their retention and health.	
Land Division	
PO 3.1 Land division results in an allotment configuration that enables its subsequent development and the retention of regulated and significant trees as far as is reasonably practicable.	DTS/DPF 3.1 Land division where: (a) there are no regulated or significant trees located within or adjacent to the plan of division or (b) the application demonstrates that an area exists to accommodate subsequent development of proposed allotments after an allowance has been made for a tree protection zone around any regulated tree within and adjacent to the plan of division.

Procedural Matters (PM) - Referrals

The following table identifies classes of development / activities that require referral in this Overlay and the applicable referral body. It sets out the purpose of the referral as well as the relevant statutory reference from Schedule 9 of the Planning, Development and Infrastructure (General) Regulations 2017.

Class of Development / Activity	Referral Body	Purpose of Referral	Statutory Reference
None	None	None	None

Part 4 - General Development Policies

Advertisements

Assessment Provisions (AP)

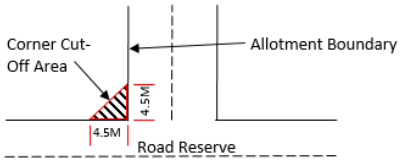
Desired Outcome	
DO 1	Advertisements and advertising hoardings are appropriate to context, efficient and effective in communicating with the public, limited in number to avoid clutter, and do not create hazard.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Appearance	
PO 1.1 Advertisements are compatible and integrated with the design of	DTS/DPF 1.1 Advertisements attached to a building satisfy all of the following:

the building and/or land they are located on.	(a) are not located in a Neighbourhood-type zone (b) where they are flush with a wall: (i) if located at canopy level, are in the form of a fascia sign (ii) if located above canopy level: A. do not have any part rising above parapet height B. are not attached to the roof of the building (c) where they are not flush with a wall: (i) if attached to a verandah, no part of the advertisement protrudes beyond the outer limits of the verandah structure (ii) if attached to a two-storey building: A. has no part located above the finished floor level of the second storey of the building B. does not protrude beyond the outer limits of any verandah structure below C. does not have a sign face that exceeds 1m2 per side. (d) if located below canopy level, are flush with a wall (e) if located at canopy level, are in the form of a fascia sign (f) if located above a canopy: (i) are flush with a wall (ii) do not have any part rising above parapet height (iii) are not attached to the roof of the building. (g) if attached to a verandah, no part of the advertisement protrudes beyond the outer limits of the verandah structure (h) if attached to a two-storey building, have no part located above the finished floor level of the second storey of the building (i) where they are flush with a wall, do not, in combination with any other existing sign, cover more than 15% of the building facade to which they are attached.
PO 1.2 Advertising hoardings do not disfigure the appearance of the land upon which they are situated or the character of the locality.	DTS/DPF 1.2 Where development comprises an advertising hoarding, the supporting structure is: (a) concealed by the associated advertisement and decorative detailing or (b) not visible from an adjacent public street or thoroughfare, other than a support structure in the form of a single or dual post design.
PO 1.3 Advertising does not encroach on public land or the land of an adjacent allotment.	DTS/DPF 1.3 Advertisements and/or advertising hoardings are contained within the boundaries of the site.
PO 1.4	DTS/DPF 1.4

Where possible, advertisements on public land are integrated with existing structures and infrastructure.	Advertisements on public land that meet at least one of the following: (a) achieves Advertisements DTS/DPF 1.1 (b) are integrated with a bus shelter.
PO 1.5 Advertisements and/or advertising hoardings are of a scale and size appropriate to the character of the locality.	DTS/DPF 1.5 None are applicable.
Proliferation of Advertisements	
PO 2.1 Proliferation of advertisements is minimised to avoid visual clutter and untidiness.	DTS/DPF 2.1 No more than one freestanding advertisement is displayed per occupancy.
PO 2.2 Multiple business or activity advertisements are co-located and coordinated to avoid visual clutter and untidiness.	DTS/DPF 2.2 Advertising of a multiple business or activity complex is located on a single advertisement fixture or structure.
PO 2.3 Proliferation of advertisements attached to buildings is minimised to avoid visual clutter and untidiness.	DTS/DPF 2.3 Advertisements satisfy all of the following: (a) are attached to a building (b) other than in a Neighbourhood-type zone, where they are flush with a wall, cover no more than 15% of the building facade to which they are attached (c) do not result in more than one sign per occupancy that is not flush with a wall.
Advertising Content	
PO 3.1 Advertisements are limited to information relating to the lawful use of land they are located on to assist in the ready identification of the activity or activities on the land and avoid unrelated content that contributes to visual clutter and untidiness.	DTS/DPF 3.1 Advertisements contain information limited to a lawful existing or proposed activity or activities on the same site as the advertisement.
Amenity Impacts	
PO 4.1 Light spill from advertisement illumination does not unreasonably compromise the amenity of sensitive receivers.	DTS/DPF 4.1 Advertisements do not incorporate any illumination.
Safety	
PO 5.1 Advertisements and/or advertising hoardings erected on a verandah or projecting from a building wall are designed and located to allow for safe and convenient pedestrian access.	DTS/DPF 5.1 Advertisements have a minimum clearance of 2.5m between the top of the footpath and base of the underside of the sign.
PO 5.2 Advertisements and/or advertising hoardings do not distract or create a hazard to drivers through excessive illumination.	DTS/DPF 5.2 No advertisement illumination is proposed.

PO 5.3 Advertisements and/or advertising hoardings do not create a hazard to drivers by: (a) being liable to interpretation by drivers as an official traffic sign or signal (b) obscuring or impairing drivers' view of official traffic signs or signals (c) obscuring or impairing drivers' view of features of a road that are potentially hazardous (such as junctions, bends, changes in width and traffic control devices) or other road or rail vehicles at/or approaching level crossings.	DTS/DPF 5.3 Advertisements satisfy all of the following: (a) are not located in a public road or rail reserve (b) are located wholly outside the land shown as 'Corner Cut-Off Area' in the following diagram 
PO 5.4 Advertisements and/or advertising hoardings do not create a hazard by distracting drivers from the primary driving task at a location where the demands on driver concentration are high.	DTS/DPF 5.4 Advertisements and/or advertising hoardings are not located along or adjacent to a road having a speed limit of 80km/h or more.
PO 5.5 Advertisements and/or advertising hoardings provide sufficient clearance from the road carriageway to allow for safe and convenient movement by all road users.	DTS/DPF 5.5 Where the advertisement or advertising hoarding is: (a) on a kerbed road with a speed zone of 60km/h or less, the advertisement or advertising hoarding is located at least 0.6m from the roadside edge of the kerb (b) on an unkerbed road with a speed zone of 60km/h or less, the advertisement or advertising hoarding is located at least 5.5m from the edge of the seal (c) on any other kerbed or unkerbed road, the advertisement or advertising hoarding is located a minimum of the following distance from the roadside edge of the kerb or the seal: (a) 110 km/h road - 14m (b) 100 km/h road - 13m (c) 90 km/h road - 10m (d) 70 or 80 km/h road - 8.5m.
PO 5.6 Advertising near signalised intersections does not cause unreasonable distraction to road users through illumination, flashing lights, or moving or changing displays or messages.	DTS/DPF 5.6 Advertising: (a) is not illuminated (b) does not incorporate a moving or changing display or message (c) does not incorporate a flashing light(s).

Animal Keeping and Horse Keeping

Assessment Provisions (AP)

Desired Outcome	
DO 1	Animals are kept at a density that is not beyond the carrying capacity of the land and in a manner that minimises their

	adverse effects on the environment, local amenity and surrounding development.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Siting and Design	
PO 1.1 Animal keeping, horse keeping and associated activities do not create adverse impacts on the environment or the amenity of the locality.	DTS/DPF 1.1 None are applicable.
PO 1.2 Animal keeping and horse keeping is located and managed to minimise the potential transmission of disease to other operations where animals are kept.	DTS/DPF 1.2 None are applicable.
Horse Keeping	
PO 2.1 Water from stable wash-down areas is directed to appropriate absorption areas and/or drainage pits to minimise pollution of land and water.	DTS/DPF 2.1 None are applicable.
PO 2.2 Stables, horse shelters or associated yards are sited appropriate distances away from sensitive receivers and/or allotments in other ownership to avoid adverse impacts from dust, erosion and odour.	DTS/DPF 2.2 Stables, horse shelters and associated yards are sited in accordance with all of the following: (a) 30m or more from any sensitive receivers (existing or approved) on land in other ownership (b) where an adjacent allotment is vacant and in other ownership, 30m or more from the boundary of that allotment.
PO 2.3 All areas accessible to horses are separated from septic tank effluent disposal areas to protect the integrity of that system. Stable flooring is constructed with an impervious material to facilitate regular cleaning.	DTS/DPF 2.3 Septic tank effluent disposal areas are enclosed with a horse-proof barrier such as a fence to exclude horses from this area.
PO 2.4 To minimise environmental harm and adverse impacts on water resources, stables, horse shelters and associated yards are appropriately set back from a watercourse.	DTS/DPF 2.4 Stables, horse shelters and associated yards are set back 50m or more from a watercourse.
PO 2.5 Stables, horse shelters and associated yards are located on slopes that are stable to minimise the risk of soil erosion and water runoff.	DTS/DPF 2.5 Stables, horse shelters and associated yards are not located on land with a slope greater than 10% (1-in-10).

Kennels	
PO 3.1 Kennel flooring is constructed with an impervious material to facilitate regular cleaning.	DTS/DPF 3.1 The floors of kennels satisfy all of the following: (a) are constructed of impervious concrete (b) are designed to be self-draining when washed down.
PO 3.2 Kennels and exercise yards are designed and sited to minimise noise nuisance to neighbours through measures such as: (a) adopting appropriate separation distances (b) orientating openings away from sensitive receivers.	DTS/DPF 3.2 Kennels are sited 500m or more from the nearest sensitive receiver on land in other ownership.
PO 3.3 Dogs are regularly observed and managed to minimise nuisance impact on adjoining sensitive receivers from animal behaviour.	DTS/DPF 3.3 Kennels are sited in association with a permanent dwelling on the land.
Wastes	
PO 4.1 Storage of manure, used litter and other wastes (other than wastewater lagoons) is designed, constructed and managed to minimise attracting and harbouring vermin.	DTS/DPF 4.1 None are applicable.
PO 4.2 Facilities for the storage of manure, used litter and other wastes (other than wastewater lagoons) are located to minimise the potential for polluting water resources.	DTS/DPF 4.2 Waste storage facilities (other than wastewater lagoons) are located outside the 1% AEP flood event areas.

Aquaculture

Assessment Provisions (AP)

Desired Outcome	
DO 1	Aquaculture facilities are developed in an ecologically, economically and socially sustainable manner to support an equitable sharing of marine, coastal and inland resources and mitigate conflict with other water-based and land-based uses.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Land-based Aquaculture	

PO 1.1 Land-based aquaculture and associated components are sited and designed to mitigate adverse impacts on nearby sensitive receivers.	DTS/DPF 1.1 Land-based aquaculture and associated components are located to satisfy all of the following: (a) 200m or more from a sensitive receiver in other ownership (b) 500m or more from the boundary of a zone primarily intended to accommodate sensitive receivers.
PO 1.2 Land-based aquaculture and associated components are sited and designed to prevent surface flows from entering ponds in a 1% AEP sea flood level event.	DTS/DPF 1.2 None are applicable.
PO 1.3 Land-based aquaculture and associated components are sited and designed to prevent pond leakage that would pollute groundwater.	DTS/DPF 1.3 None are applicable.
PO 1.4 Land-based aquaculture and associated components are sited and designed to prevent farmed species escaping and entering into any waters.	DTS/DPF 1.4 None are applicable.
PO 1.5 Land-based aquaculture and associated components, including intake and discharge pipes, are designed to minimise the need to traverse sensitive areas to minimise impact on the natural environment.	DTS/DPF 1.5 None are applicable.
PO 1.6 Pipe inlets and outlets associated with land-based aquaculture are sited and designed to minimise the risk of disease transmission.	DTS/DPF 1.6 None are applicable.
PO 1.7 Storage areas associated with aquaculture activity are integrated with the use of the land and sited and designed to minimise their visual impact on the surrounding environment.	DTS/DPF 1.7 None are applicable.
Marine Based Aquaculture	
PO 2.1 Marine aquaculture is sited and designed to minimise its adverse impacts on sensitive ecological areas including: (a) creeks and estuaries (b) wetlands (c) significant seagrass and mangrove communities (d) marine habitats and ecosystems.	DTS/DPF 2.1 None are applicable.
PO 2.2 Marine aquaculture is sited in areas with adequate water current to disperse sediments and dissolve particulate wastes to	DTS/DPF 2.2 None are applicable.

prevent the build-up of waste that may cause environmental harm.	
PO 2.3 Marine aquaculture is designed to not involve discharge of human waste on the site, on any adjacent land or into nearby waters.	DTS/DPF 2.3 None are applicable.
PO 2.4 Marine aquaculture (other than inter-tidal aquaculture) is located an appropriate distance seaward of the high water mark.	DTS/DPF 2.4 Marine aquaculture development is located 100m or more seaward of the high water mark.
PO 2.5 Marine aquaculture is sited and designed to not obstruct or interfere with: (a) areas of high public use (b) areas, including beaches, used for recreational activities such as swimming, fishing, skiing, sailing and other water sports (c) areas of outstanding visual or environmental value (d) areas of high tourism value (e) areas of important regional or state economic activity, including commercial ports, wharfs and jetties (f) the operation of infrastructure facilities including inlet and outlet pipes associated with the desalination of sea water.	DTS/DPF 2.5 None are applicable.
PO 2.6 Marine aquaculture is sited and designed to minimise interference and obstruction to the natural processes of the coastal and marine environment.	DTS/DPF 2.6 None are applicable.
PO 2.7 Marine aquaculture is designed to be as unobtrusive as practicable by incorporating measures such as: (a) using feed hoppers painted in subdued colours and suspending them as close as possible to the surface of the water (b) positioning structures to protrude the minimum distance practicable above the surface of the water (c) avoiding the use of shelters and structures above cages and platforms unless necessary to exclude predators and protected species from interacting with the farming structures and/or stock inside the cages, or for safety reasons (d) positioning racks, floats and other farm structures in unobtrusive locations landward from the shoreline.	DTS/DPF 2.7 None are applicable.
PO 2.8 Access, launching and maintenance facilities utilise existing established roads, tracks, ramps and paths to or from the sea where possible to minimise environmental and amenity impacts.	DTS/DPF 2.8 None are applicable.
PO 2.9	DTS/DPF 2.9

Access, launching and maintenance facilities are developed as common user facilities and are co-located where practicable to mitigate adverse impacts on coastal areas.	None are applicable.
PO 2.10 Marine aquaculture is sited to minimise potential impacts on, and to protect the integrity of, reserves under the *National Parks and Wildlife Act 1972*.	DTS/DPF 2.10 Marine aquaculture is located 1000m or more seaward of the boundary of any reserve under the *National Parks and Wildlife Act 1972*.
PO 2.11 Onshore storage, cooling and processing facilities do not impair the coastline and its visual amenity by: (a) being sited, designed, landscaped and of a scale to reduce the overall bulk and appearance of buildings and complement the coastal landscape (b) making provision for appropriately sited and designed vehicular access arrangements, including using existing vehicular access arrangements as far as practicable (c) incorporating appropriate waste treatment and disposal.	DTS/DPF 2.11 None are applicable.
Navigation and Safety	
PO 3.1 Marine aquaculture sites are suitably marked to maintain navigational safety.	DTS/DPF 3.1 None are applicable.
PO 3.2 Marine aquaculture is sited to provide adequate separation between farms for safe navigation.	DTS/DPF 3.2 None are applicable.
Environmental Management	
PO 4.1 Marine aquaculture is maintained to prevent hazards to people and wildlife, including breeding grounds and habitats of native marine mammals and terrestrial fauna, especially migratory species.	DTS/DPF 4.1 None are applicable.
PO 4.2 Marine aquaculture is designed to facilitate the relocation or removal of structures in the case of emergency such as oil spills, algal blooms and altered water flows.	DTS/DPF 4.2 None are applicable.
PO 4.3 Marine aquaculture provides for progressive or future reclamation of disturbed areas ahead of, or upon, decommissioning.	DTS/DPF 4.3 None are applicable.
PO 4.4 Aquaculture operations incorporate measures for the removal and disposal of litter, disused material, shells, debris, detritus, dead animals and animal waste to prevent pollution of waters, wetlands, or the nearby coastline.	DTS/DPF 4.4 None are applicable.

Beverage Production in Rural Areas

Assessment Provisions (AP)

Desired Outcome	
DO 1	Mitigation of potential amenity and environmental impacts of value-adding beverage production facilities such as wineries, distilleries, cideries and breweries.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Odour and Noise	
PO 1.1 Beverage production activities are designed and sited to minimise odour impacts on rural amenity.	DTS/DPF 1.1 None are applicable.
PO 1.2 Beverage production activities are designed and sited to minimise noise impacts on sensitive receivers.	DTS/DPF 1.2 None are applicable.
PO 1.3 Fermentation, distillation, manufacturing, storage, packaging and bottling activities occur within enclosed buildings to improve the visual appearance within a locality and manage noise associated with these activities.	DTS/DPF 1.3 None are applicable.
PO 1.4 Breweries are designed to minimise odours emitted during boiling and fermentation stages of production.	DTS/DPF 1.4 Brew kettles are fitted with a vapour condenser.
PO 1.5 Beverage production solid wastes are stored in a manner that minimises odour impacts on sensitive receivers in other ownership.	DTS/DPF 1.5 Solid waste from beverage production is collected and stored in sealed containers and removed from the site within 48 hours.
Water Quality	
PO 2.1 Beverage production wastewater management systems (including wastewater irrigation) are set back from watercourses to minimise adverse impacts on water resources.	DTS/DPF 2.1 Wastewater management systems are set back 50m or more from the banks of watercourses and bores.

PO 2.2 The storage or disposal of chemicals or hazardous substances is undertaken in a manner to prevent pollution of water resources.	DTS/DPF 2.2 None are applicable.
PO 2.3 Stormwater runoff from areas that may cause contamination due to beverage production activities (including vehicle movements and machinery operations) is drained to an onsite stormwater treatment system to manage potential environmental impacts.	DTS/DPF 2.3 None are applicable.
PO 2.4 Stormwater runoff from areas unlikely to cause contamination by beverage production and associated activities (such as roof catchments and clean hard-paved surfaces) is diverted away from beverage production areas and wastewater management systems.	DTS/DPF 2.4 None are applicable.
Wastewater Irrigation	
PO 3.1 Beverage production wastewater irrigation systems are designed and located to not contaminate soil and surface and ground water resources or damage crops.	DTS/DPF 3.1 None are applicable.
PO 3.2 Beverage production wastewater irrigation systems are designed and located to minimise impact on amenity and avoid spray drift onto adjoining land.	DTS/DPF 3.2 Beverage production wastewater is not irrigated within 50m of any dwelling in other ownership.
PO 3.3 Beverage production wastewater is not irrigated onto areas that pose an undue risk to the environment or amenity such as: (a) waterlogged areas (b) land within 50m of a creek, swamp or domestic or stock water bore (c) land subject to flooding (d) steeply sloping land (e) rocky or highly permeable soil overlaying an unconfined aquifer.	DTS/DPF 3.3 None are applicable.

Bulk Handling and Storage Facilities

Assessment Provisions (AP)

Desired Outcome	
DO 1	Facilities for the bulk handling and storage of agricultural, mineral, petroleum, rock, ore or other similar commodities are designed to minimise adverse impacts on transport networks, the landscape and surrounding land uses.

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Siting and Design	
PO 1.1 Bulk handling and storage facilities are sited and designed to minimise risks of adverse air quality and noise impacts on sensitive receivers.	DTS/DPF 1.1 Facilities for the handling, storage and dispatch of commodities in bulk (excluding processing) meet the following minimum separation distances from sensitive receivers: (a) bulk handling of agricultural crop products, rock, ores, minerals, petroleum products or chemicals at a wharf or wharf side facility (including sea-port grain terminals), where the handling of these materials into or from vessels does not exceed 100 tonnes per day: 300m or more from residential premises not associated with the facility (b) bulk handling of agricultural crop products, rock, ores, minerals, petroleum products or chemicals to or from any commercial storage facility: 300m or more from residential premises not associated with the facility (c) bulk petroleum storage involving individual containers with a capacity up to 200 litres and a total on-site storage capacity not exceeding 1,000 cubic metres: 500m or more (d) coal handling with: a. capacity up to 1 tonne per day or a storage capacity up to 50 tonnes: 500m or more b. capacity exceeding 1 tonne per day but not exceeding 100 tonnes per day or a storage capacity exceeding 50 tonnes but not exceeding 5000 tonnes: 1000m or more.
Buffers and Landscaping	
PO 2.1 Bulk handling and storage facilities incorporate a buffer area for the establishment of dense landscaping adjacent road frontages to enhance the appearance of land and buildings from public thoroughfares.	DTS/DPF 2.1 None are applicable.
PO 2.2 Bulk handling and storage facilities incorporate landscaping to assist with screening and dust filtration.	DTS/DPF 2.2 None are applicable.
Access and Parking	
PO 3.1 Roadways and vehicle parking areas associated with bulk handling and storage facilities are designed and surfaced to control dust emissions and prevent drag out of material from the site.	DTS/DPF 3.1 Roadways and vehicle parking areas are sealed with an all-weather surface.
Slipways, Wharves and Pontoons	

PO 4.1 Slipways, wharves and pontoons used for the handling of bulk materials (such as fuel, oil, catch, bait and the like) incorporate catchment devices to avoid the release of materials into adjacent waters.	DTS/DPF 4.1 None are applicable.

Clearance from Overhead Powerlines

Assessment Provisions (AP)

Desired Outcome	
DO 1	Protection of human health and safety when undertaking development in the vicinity of overhead transmission powerlines.

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
PO 1.1 Buildings are adequately separated from aboveground powerlines to minimise potential hazard to people and property.	DTS/DPF 1.1 One of the following is satisfied: (a) a declaration is provided by or on behalf of the applicant to the effect that the proposal would not be contrary to the regulations prescribed for the purposes of section 86 of the *Electricity Act 1996* (b) there are no aboveground powerlines adjoining the site that are the subject of the proposed development.

Design

Assessment Provisions (AP)

Desired Outcome	
DO 1	Development is: (a) contextual - by considering, recognising and carefully responding to its natural surroundings or built environment and positively contributes to the character of the immediate area (b) durable - fit for purpose, adaptable and long lasting (c) inclusive - by integrating landscape design to optimise pedestrian and cyclist usability, privacy and equitable access, and promoting the provision of quality spaces integrated with the public realm that can be used for access and recreation and help optimise security and safety both internally and within the public realm, for occupants and visitors (d) sustainable - by integrating sustainable techniques into the design and siting of development and landscaping

	to improve community health, urban heat, water management, environmental performance, biodiversity and local amenity and to minimise energy consumption.

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
All development	
External Appearance	
PO 1.1 Buildings reinforce corners through changes in setback, articulation, materials, colour and massing (including height, width, bulk, roof form and slope).	DTS/DPF 1.1 None are applicable.
PO 1.2 Where zero or minor setbacks are desirable, development provides shelter over footpaths (in the form of verandahs, awnings, canopies and the like, with adequate lighting) to positively contribute to the walkability, comfort and safety of the public realm.	DTS/DPF 1.2 None are applicable.
PO 1.3 Building elevations facing the primary street (other than ancillary buildings) are designed and detailed to convey purpose, identify main access points and complement the streetscape.	DTS/DPF 1.3 None are applicable.
PO 1.4 Plant, exhaust and intake vents and other technical equipment is integrated into the building design to minimise visibility from the public realm and negative impacts on residential amenity by: (a) positioning plant and equipment in unobtrusive locations viewed from public roads and spaces (b) screening rooftop plant and equipment from view (c) when located on the roof of non-residential development, locating the plant and equipment as far as practicable from adjacent sensitive land uses.	DTS/DPF 1.4 Development does not incorporate any structures that protrude beyond the roofline.
PO 1.5 The negative visual impact of outdoor storage, waste management, loading and service areas is minimised by integrating them into the building design and screening them from public view (such as fencing, landscaping and built form) taking into account the form of development contemplated in the relevant zone.	DTS/DPF 1.5 None are applicable.
Safety	
PO 2.1 Development maximises opportunities for passive surveillance of the public realm by providing clear lines of sight, appropriate lighting and the use of visually permeable screening wherever practicable.	DTS/DPF 2.1 None are applicable.

PO 2.2 Development is designed to differentiate public, communal and private areas.	DTS/DPF 2.2 None are applicable.
PO 2.3 Buildings are designed with safe, perceptible and direct access from public street frontages and vehicle parking areas.	DTS/DPF 2.3 None are applicable.
PO 2.4 Development at street level is designed to maximise opportunities for passive surveillance of the adjacent public realm.	DTS/DPF 2.4 None are applicable.
PO 2.5 Common areas and entry points of buildings (such as the foyer areas of residential buildings), and non-residential land uses at street level, maximise passive surveillance from the public realm to the inside of the building at night.	DTS/DPF 2.5 None are applicable.
Landscaping	
PO 3.1 Soft landscaping and tree planting is incorporated to: (a) minimise heat absorption and reflection (b) maximise shade and shelter (c) maximise stormwater infiltration (d) enhance the appearance of land and streetscapes (e) contribute to biodiversity.	DTS/DPF 3.1 None are applicable.
PO 3.2 Soft landscaping and tree planting maximises the use of locally indigenous plant species, incorporates plant species best suited to current and future climate conditions and avoids pest plant and weed species.	DTS/DPF 3.2 None are applicable.
Environmental Performance	
PO 4.1 Buildings are sited, oriented and designed to maximise natural sunlight access and ventilation to main activity areas, habitable rooms, common areas and open spaces.	DTS/DPF 4.1 None are applicable.
PO 4.2 Buildings are sited and designed to maximise passive environmental performance and minimise energy consumption and reliance on mechanical systems, such as heating and cooling.	DTS/DPF 4.2 None are applicable.
PO 4.3 Buildings incorporate climate-responsive techniques and features such as building and window orientation, use of eaves, verandahs and shading structures, water harvesting, at ground	DTS/DPF 4.3 None are applicable.

landscaping, green walls, green roofs and photovoltaic cells.	
Water Sensitive Design	
PO 5.1 Development is sited and designed to maintain natural hydrological systems without negatively impacting: (a) the quantity and quality of surface water and groundwater (b) the depth and directional flow of surface water and groundwater (c) the quality and function of natural springs.	DTS/DPF 5.1 None are applicable.
On-site Waste Treatment Systems	
PO 6.1 Dedicated on-site effluent disposal areas do not include any areas to be used for, or could be reasonably foreseen to be used for, private open space, driveways or car parking.	DTS/DPF 6.1 Effluent disposal drainage areas do not: (a) encroach within an area used as private open space or result in less private open space than that specified in Design Table 1 - Private Open Space (b) use an area also used as a driveway (c) encroach within an area used for on-site car parking or result in less on-site car parking than that specified in Transport, Access and Parking Table 1 - General Off-Street Car Parking Requirements or Table 2 - Off-Street Car Parking Requirements in Designated Areas.
Carparking Appearance	
PO 7.1 Development facing the street is designed to minimise the negative impacts of any semi-basement and undercroft car parking on the streetscapes through techniques such as: (a) limiting protrusion above finished ground level (b) screening through appropriate planting, fencing and mounding (c) limiting the width of openings and integrating them into the building structure.	DTS/DPF 7.1 None are applicable.
PO 7.2 Vehicle parking areas are appropriately located, designed and constructed to minimise impacts on adjacent sensitive receivers through measures such as ensuring they are attractively developed and landscaped, screen fenced and the like.	DTS/DPF 7.2 None are applicable.
PO 7.3 Safe, legible, direct and accessible pedestrian connections are provided between parking areas and the development.	DTS/DPF 7.3 None are applicable.
PO 7.4 Street level vehicle parking areas incorporate tree planting to provide shade and reduce solar heat absorption and reflection.	DTS/DPF 7.4 None are applicable.
PO 7.5	DTS/DPF 7.5

Street level parking areas incorporate soft landscaping to improve visual appearance when viewed from within the site and from public places.	None are applicable.
PO 7.6 Vehicle parking areas and associated driveways are landscaped to provide shade and positively contribute to amenity.	DTS/DPF 7.6 None are applicable.
PO 7.7 Vehicle parking areas and access ways incorporate integrated stormwater management techniques such as permeable or porous surfaces, infiltration systems, drainage swales or rain gardens that integrate with soft landscaping.	DTS/DPF 7.7 None are applicable.
Earthworks and sloping land	
PO 8.1 Development, including any associated driveways and access tracks, minimises the need for earthworks to limit disturbance to natural topography.	DTS/DPF 8.1 Development does not involve any of the following: (a) excavation exceeding a vertical height of 1m (b) filling exceeding a vertical height of 1m (c) a total combined excavation and filling vertical height of 2m or more.
PO 8.2 Driveways and access tracks are designed and constructed to allow safe and convenient access on sloping land (with a gradient exceeding 1 in 8).	DTS/DPF 8.2 Driveways and access tracks on sloping land (with a gradient exceeding 1 in 8) satisfy (a) and (b): (a) do not have a gradient exceeding 25% (1-in-4) at any point along the driveway (b) are constructed with an all-weather trafficable surface.
PO 8.3 Driveways and access tracks on sloping land (with a gradient exceeding 1 in 8): (a) do not contribute to the instability of embankments and cuttings (b) provide level transition areas for the safe movement of people and goods to and from the development (c) are designed to integrate with the natural topography of the land.	DTS/DPF 8.3 None are applicable.
PO 8.4 Development on sloping land (with a gradient exceeding 1 in 8) avoids the alteration of natural drainage lines and includes on-site drainage systems to minimise erosion.	DTS/DPF 8.4 None are applicable.
PO 8.5 Development does not occur on land at risk of landslip nor increases the potential for landslip or land surface instability.	DTS/DPF 8.5 None are applicable.
Fences and Walls	

PO 9.1 Fences, walls and retaining walls are of sufficient height to maintain privacy and security without unreasonably impacting the visual amenity and adjoining land's access to sunlight or the amenity of public places.	DTS/DPF 9.1 None are applicable.
PO 9.2 Landscaping incorporated on the low side of retaining walls is visible from public roads and public open space to minimise visual impacts.	DTS/DPF 9.2 A vegetated landscaped strip 1m wide or more is provided against the low side of a retaining wall.
Overlooking / Visual Privacy (in building 3 storeys or less)	
PO 10.1 Development mitigates direct overlooking from upper level windows to habitable rooms and private open spaces of adjoining residential uses.	DTS/DPF 10.1 Upper level windows facing side or rear boundaries shared with a residential allotment/site satisfy one of the following: (a) are permanently obscured to a height of 1.5m above finished floor level and are fixed or not capable of being opened more than 200mm (b) have sill heights greater than or equal to 1.5m above finished floor level (c) incorporate screening with a maximum of 25% openings, permanently fixed no more than 500mm from the window surface and sited adjacent to any part of the window less than 1.5 m above the finished floor level.
PO 10.2 Development mitigates direct overlooking from balconies, terraces and decks to habitable rooms and private open space of adjoining residential uses.	DTS/DPF 10.2 One of the following is satisfied: (a) the longest side of the balcony or terrace will face a public road, public road reserve or public reserve that is at least 15m wide in all places faced by the balcony or terrace or (b) all sides of balconies or terraces on upper building levels are permanently obscured by screening with a maximum 25% transparency/openings fixed to a minimum height of: (i) 1.5m above finished floor level where the balcony is located at least 15 metres from the nearest habitable window of a dwelling on adjacent land or (ii) 1.7m above finished floor level in all other cases
All Residential development	
Front elevations and passive surveillance	
PO 11.1 Dwellings incorporate windows along primary street frontages to encourage passive surveillance and make a positive contribution to the streetscape.	DTS/DPF 11.1 Each dwelling with a frontage to a public street: (a) includes at least one window facing the primary street from a habitable room that has a minimum internal room dimension of 2.4m (b) has an aggregate window area of at least $2m^2$ facing the

	primary street.
PO 11.2 Dwellings incorporate entry doors within street frontages to address the street and provide a legible entry point for visitors.	DTS/DPF 11.2 Dwellings with a frontage to a public street have an entry door visible from the primary street boundary.
Outlook and amenity	
PO 12.1 Living rooms have an external outlook to provide a high standard of amenity for occupants.	DTS/DPF 12.1 A living room of a dwelling incorporates a window with an outlook towards the street frontage or private open space, public open space, or waterfront areas.
PO 12.2 Bedrooms are separated or shielded from active communal recreation areas, common access areas and vehicle parking areas and access ways to mitigate noise and artificial light intrusion.	DTS/DPF 12.2 None are applicable.
Ancillary Development	
PO 13.1 Residential ancillary buildings and structures are sited and designed to not detract from the streetscape or appearance of buildings on the site or neighbouring properties.	DTS/DPF 13.1 Ancillary buildings: (a) are ancillary to a dwelling erected on the same site (b) have a floor area not exceeding 60m2 (c) are not constructed, added to or altered so that any part is situated: (i) in front of any part of the building line of the dwelling to which it is ancillary or (ii) within 900mm of a boundary of the allotment with a secondary street (if the land has boundaries on two or more roads) (d) in the case of a garage or carport, the garage or carport: (i) is set back at least 5.5m from the boundary of the primary street (ii) when facing a primary street or secondary street, has a total door / opening not exceeding: A. for dwellings of single building level - 7m in width or 50% of the site frontage, whichever is the lesser B. for dwellings comprising two or more building levels at the building line fronting the same public street - 7m in width (e) if situated on a boundary (not being a boundary with a primary street or secondary street), do not exceed a length of 11.5m unless: (i) a longer wall or structure exists on the adjacent site and is situated on the same allotment boundary and (ii) the proposed wall or structure will be built along the same length of boundary as the existing adjacent wall or structure to the same or lesser extent

	(f) if situated on a boundary of the allotment (not being a boundary with a primary street or secondary street), all walls or structures on the boundary will not exceed 45% of the length of that boundary (g) will not be located within 3m of any other wall along the same boundary unless on an adjacent site on that boundary there is an existing wall of a building that would be adjacent to or about the proposed wall or structure (h) have a wall height or post height not exceeding 3m above natural ground level (i) have a roof height where no part of the roof is more than 5m above the natural ground level (j) if clad in sheet metal, is pre-colour treated or painted in a non-reflective colour (k) retains a total area of soft landscaping in accordance with (i) or (ii), whichever is less: (i) a total area as determined by the following table: <table><tr><th>Dwelling site area (or in the case of residential flat building or group dwelling(s), average site area) (m^2)</th><th>Minimum percentage of site</th></tr><tr><td><150</td><td>10%</td></tr><tr><td>150-200</td><td>15%</td></tr><tr><td>201-450</td><td>20%</td></tr><tr><td>>450</td><td>25%</td></tr></table> (ii) the amount of existing soft landscaping prior to the development occurring.
PO 13.2 Ancillary buildings and structures do not impede on-site functional requirements such as private open space provision or car parking requirements and do not result in over-development of the site.	DTS/DPF 13.2 Ancillary buildings and structures do not result in: (a) less private open space than specified in Design in Urban Areas Table 1 - Private Open Space (b) less on-site car parking than specified in Transport, Access and Parking Table 1 - General Off-Street Car Parking Requirements or Table 2 - Off-Street Car Parking Requirements in Designated Areas.
PO 13.3 Fixed plant and equipment in the form of pumps and/or filtration systems for a swimming pool or spa is positioned and/or housed to not cause unreasonable noise nuisance to adjacent sensitive receivers.	DTS/DPF 13.3 The pump and/or filtration system is ancillary to a dwelling erected on the same site and is: (a) enclosed in a solid acoustic structure that is located at least 5m from the nearest habitable room located on an adjoining allotment or (b) located at least 12m from the nearest habitable room located on an adjoining allotment.

Garage appearance	
PO 14.1 Garaging is designed to not detract from the streetscape or appearance of a dwelling.	DTS/DPF 14.1 Garages and carports facing a street: (a) are situated so that no part of the garage or carport is in front of any part of the building line of the dwelling (b) are set back at least 5.5m from the boundary of the primary street (c) have a garage door / opening not exceeding 7m in width (d) have a garage door /opening width not exceeding 50% of the site frontage unless the dwelling has two or more building levels at the building line fronting the same public street.
Massing	
PO 15.1 The visual mass of larger buildings is reduced when viewed from adjoining allotments or public streets.	DTS/DPF 15.1 None are applicable
Dwelling additions	
PO 16.1 Dwelling additions are sited and designed to not detract from the streetscape or amenity of adjoining properties and do not impede on-site functional requirements.	DTS / DPF 16.1 Dwelling additions: (a) are not constructed, added to or altered so that any part is situated closer to a public street (b) do not result in: (i) excavation exceeding a vertical height of 1m (ii) filling exceeding a vertical height of 1m (iii) a total combined excavation and filling vertical height of 2m or more (iv) less Private Open Space than specified in Design Table 1 - Private Open Space (v) less on-site parking than specified in Transport Access and Parking Table 1 - General Off-Street Car Parking Requirements or Table 2 - Off-Street Car Parking Requirements in Designated Areas (vi) upper level windows facing side or rear boundaries unless: A. they are permanently obscured to a height of 1.5m above finished floor level that is fixed or not capable of being opened more than 200mm or B. have sill heights greater than or equal to 1.5m above finished floor level or C. incorporate screening to a height of 1.5m above finished floor level (vii) all sides of balconies or terraces on upper building levels are permanently obscured by screening with a maximum 25% transparency/openings fixed to a minimum height of: A. 1.5m above finished floor level where the balcony is located at least 15 metres from the nearest habitable

	window of a dwelling on adjacent land B. 1.7m above finished floor level in all other cases.
Private Open Space	
PO 17.1 Dwellings are provided with suitable sized areas of usable private open space to meet the needs of occupants.	DTS/DPF 17.1 Private open space is provided in accordance with Design Table 1 - Private Open Space.
Water Sensitive Design	
PO 18.1 Residential development creating a common driveway / access includes stormwater management systems that minimise the discharge of sediment, suspended solids, organic matter, nutrients, bacteria, litter and other contaminants to the stormwater system, watercourses or other water bodies.	DTS/DPF 18.1 Residential development creating a common driveway / access that services 5 or more dwellings achieves the following stormwater runoff outcomes: (a) 80 per cent reduction in average annual total suspended solids (b) 60 per cent reduction in average annual total phosphorus (c) 45 per cent reduction in average annual total nitrogen.
PO 18.2 Residential development creating a common driveway / access includes a stormwater management system designed to mitigate peak flows and manage the rate and duration of stormwater discharges from the site to ensure that the development does not increase the peak flows in downstream systems.	DTS/DPF 18.2 Development creating a common driveway / access that services 5 or more dwellings: (a) maintains the pre-development peak flow rate from the site based upon a 0.35 runoff coefficient for the 18.1% AEP 30-minute storm and the stormwater runoff time to peak is not increased or captures and retains the difference in pre-development runoff volume (based upon a 0.35 runoff coefficient) vs post development runoff volume from the site for an 18.1% AEP 30-minute storm; and (b) manages site generated stormwater runoff up to and including the 1% AEP flood event to avoid flooding of buildings.
Car parking, access and manoeuvrability	
PO 19.1 Enclosed parking spaces are of a size and dimensions to be functional, accessible and convenient.	DTS/DPF 19.1 Residential car parking spaces enclosed by fencing, walls or other structures have the following internal dimensions (separate from any waste storage area): (a) single width car parking spaces: (i) a minimum length of 5.4m per space (ii) a minimum width of 3.0m (iii) a minimum garage door width of 2.4m (b) double width car parking spaces (side by side): (i) a minimum length of 5.4m (ii) a minimum width of 5.4m (iii) minimum garage door width of 2.4m per space.

PO 19.2 Uncovered parking spaces are of a size and dimensions to be functional, accessible and convenient.	DTS/DPF 19.2 Uncovered car parking spaces have: (a) a minimum length of 5.4m (b) a minimum width of 2.4m (c) a minimum width between the centre line of the space and any fence, wall or other obstruction of 1.5m
PO 19.3 Driveways are located and designed to facilitate safe access and egress while maximising land available for street tree planting, landscaped street frontages, domestic waste collection and on-street parking.	DTS/DPF 19.3 Driveways and access points on sites with a frontage to a public road of 10m or less have a width between 3.0 and 3.2 metres measured at the property boundary and are the only access point provided on the site.
PO 19.4 Vehicle access is safe, convenient, minimises interruption to the operation of public roads and does not interfere with street infrastructure or street trees.	DTS/DPF 19.4 Vehicle access to designated car parking spaces satisfy (a) or (b): (a) is provided via a lawfully existing or authorised access point or an access point for which consent has been granted as part of an application for the division of land (b) where newly proposed: (i) is set back 6m or more from the tangent point of an intersection of 2 or more roads (ii) is set back outside of the marked lines or infrastructure dedicating a pedestrian crossing (iii) does not involve the removal, relocation or damage to of mature street trees, street furniture or utility infrastructure services.
PO 19.5 Driveways are designed to enable safe and convenient vehicle movements from the public road to on-site parking spaces.	DTS/DPF 19.5 Driveways are designed and sited so that: (a) the gradient from the place of access on the boundary of the allotment to the finished floor level at the front of the garage or carport is not steeper than 1:4 on average (b) they are aligned relative to the street boundary so that there is no more than a 20 degree deviation from 90 degrees between the centreline of any dedicated car parking space to which it provides access (measured from the front of that space) and the street boundary (c) if located to provide access from an alley, lane or right of way - the alley, land or right or way is at least 6.2m wide along the boundary of the allotment / site
PO 19.6 Driveways and access points are designed and distributed to optimise the provision of on-street visitor parking.	DTS/DPF 19.6 Where on-street parking is available abutting the site's street frontage, on-street parking is retained in accordance with the following requirements: (a) minimum 0.33 on-street spaces per dwelling on the site (rounded up to the nearest whole number) (b) minimum car park length of 5.4m where a vehicle can enter or exit a space directly (c) minimum carpark length of 6m for an intermediate

	space located between two other parking spaces or to an end obstruction where the parking is indented.
Waste storage	
PO 20.1 Provision is made for the adequate and convenient storage of waste bins in a location screened from public view.	DTS/DPF 20.1 None are applicable.
Design of Transportable Dwellings	
PO 21.1 The sub-floor space beneath transportable buildings is enclosed to give the appearance of a permanent structure.	DTS/DPF 21.1 Buildings satisfy (a) or (b): (a) are not transportable or (b) the sub-floor space between the building and ground level is clad in a material and finish consistent with the building.
Group dwelling, residential flat buildings and battle-axe development	
Amenity	
PO 22.1 Dwellings are of a suitable size to accommodate a layout that is well organised and provides a high standard of amenity for occupants.	DTS/DPF 22.1 Dwellings have a minimum internal floor area in accordance with the following table:
PO 22.2 The orientation and siting of buildings minimises impacts on the amenity, outlook and privacy of occupants and neighbours.	DTS/DPF 22.2 None are applicable.
PO 22.3 Development maximises the number of dwellings that face public open space and public streets and limits dwellings oriented towards adjoining properties.	DTS/DPF 22.3 None are applicable.
PO 22.4 Battle-axe development is appropriately sited and designed to respond to the existing neighbourhood context.	DTS/DPF 22.4 Dwelling sites/allotments are not in the form of a battle-axe arrangement.

Number of bedrooms	**Minimum internal floor area**
Studio	35m^2
1 bedroom	50m^2
2 bedroom	65m^2
3+ bedrooms	80m^2 and any dwelling over 3 bedrooms provides an additional 15m^2 for every additional bedroom

Communal Open Space	
PO 23.1 Private open space provision may be substituted for communal open space which is designed and sited to meet the recreation and amenity needs of residents.	DTS/DPF 23.1 None are applicable.
PO 23.2 Communal open space is of sufficient size and dimensions to cater for group recreation.	DTS/DPF 23.2 Communal open space incorporates a minimum dimension of 5 metres.
PO 23.3 Communal open space is designed and sited to: (a) be conveniently accessed by the dwellings which it services (b) have regard to acoustic, safety, security and wind effects.	DTS/DPF 23.3 None are applicable.
PO 23.4 Communal open space contains landscaping and facilities that are functional, attractive and encourage recreational use.	DTS/DPF 23.4 None are applicable.
PO 23.5 Communal open space is designed and sited to: (a) in relation to rooftop or elevated gardens, minimise overlooking into habitable room windows or onto the useable private open space of other dwellings (b) in relation to ground floor communal space, be overlooked by habitable rooms to facilitate passive surveillance.	DTS/DPF 23.5 None are applicable.
Carparking, access and manoeuvrability	
PO 24.1 Driveways and access points are designed and distributed to optimise the provision of on-street visitor parking.	DTS/DPF 24.1 Where on-street parking is available directly adjacent the site, on-street parking is retained adjacent the subject site in accordance with the following requirements: (a) minimum 0.33 on-street car parks per proposed dwellings (rounded up to the nearest whole number) (b) minimum car park length of 5.4m where a vehicle can enter or exit a space directly (c) minimum carpark length of 6m for an intermediate space located between two other parking spaces or to an end obstruction where the parking is indented.
PO 24.2 The number of vehicular access points onto public roads is minimised to reduce interruption of the footpath and positively contribute to public safety and walkability.	DTS/DPF 24.2 Access to group dwellings or dwellings within a residential flat building is provided via a single common driveway.
PO 24.3 Residential driveways that service more than one dwelling are designed to allow safe and convenient movement.	DTS/DPF 24.3 Driveways that service more than 1 dwelling or a dwelling on a battle-axe site:

	(a) have a minimum width of 3m (b) for driveways servicing more than 3 dwellings: (i) have a width of 5.5m or more and a length of 6m or more at the kerb of the primary street (ii) where the driveway length exceeds 30m, incorporate a passing point at least every 30 metres with a minimum width of 5.5m and a minimum length of 6m.
PO 24.4 Residential driveways in a battle-axe configuration are designed to allow safe and convenient movement.	DTS/DPF 24.4 Where in a battle-axe configuration, a driveway servicing one dwelling has a minimum width of 3m.
PO 24.5 Residential driveways that service more than one dwelling are designed to allow passenger vehicles to enter and exit the site and manoeuvre within the site in a safe and convenient manner.	DTS/DPF 24.5 Driveways providing access to more than one dwelling, or a dwelling on a battle-axe site, allow a B85 passenger vehicle to enter and exit the garages or parking spaces in no more than a three-point turn manoeuvre.
PO 24.6 Dwellings are adequately separated from common driveways and manoeuvring areas.	DTS/DPF 24.6 Dwelling walls with entry doors or ground level habitable room windows are set back at least 1.5m from any driveway or area designated for the movement and manoeuvring of vehicles.
Soft Landscaping	
PO 25.1 Soft landscaping is provided between dwellings and common driveways to improve the outlook for occupants and appearance of common areas.	DTS/DPF 25.1 Other than where located directly in front of a garage or a building entry, soft landscaping with a minimum dimension of 1m is provided between a dwelling and common driveway.
PO 25.2 Soft landscaping is provided that improves the appearance of common driveways.	DTS/DPF 25.2 Where a common driveway is located directly adjacent the side or rear boundary of the site, soft landscaping with a minimum dimension of 1m is provided between the driveway and site boundary (excluding along the perimeter of a passing point).
Site Facilities / Waste Storage	
PO 26.1 Provision is made for suitable mailbox facilities close to the major pedestrian entry to the site or conveniently located considering the nature of accommodation and mobility of occupants.	DTS/DPF 26.1 None are applicable.
PO 26.2 Provision is made for suitable external clothes drying facilities.	DTS/DPF 26.2 None are applicable.
PO 26.3 Provision is made for suitable household waste and recyclable material storage facilities which are: (a) located away, or screened, from public view, and (b) conveniently located in proximity to dwellings and the waste collection point.	DTS/DPF 26.3 None are applicable.

PO 26.4 Waste and recyclable material storage areas are located away from dwellings.	DTS/DPF 26.4 Dedicated waste and recyclable material storage areas are located at least 3m from any habitable room window.
PO 26.5 Where waste bins cannot be conveniently collected from the street, provision is made for on-site waste collection, designed to accommodate the safe and convenient access, egress and movement of waste collection vehicles.	DTS/DPF 26.5 None are applicable.
PO 26.6 Services including gas and water meters are conveniently located and screened from public view.	DTS/DPF 26.6 None are applicable.
Supported accommodation and retirement facilities	
Siting and Configuration	
PO 27.1 Supported accommodation and housing for aged persons and people with disabilities is located where on-site movement of residents is not unduly restricted by the slope of the land.	DTS/DPF 27.1 None are applicable.
Movement and Access	
PO 28.1 Development is designed to support safe and convenient access and movement for residents by providing: (a) ground-level access or lifted access to all units (b) level entry porches, ramps, paths, driveways, passenger loading areas and areas adjacent to footpaths that allow for the passing of wheelchairs and resting places (c) car parks with gradients no steeper than 1-in-40 and of sufficient area to provide for wheelchair manoeuvrability (d) kerb ramps at pedestrian crossing points.	DTS/DPF 28.1 None are applicable.
Communal Open Space	
PO 29.1 Development is designed to provide attractive, convenient and comfortable indoor and outdoor communal areas to be used by residents and visitors.	DTS/DPF 29.1 None are applicable.
PO 29.2 Private open space provision may be substituted for communal open space which is designed and sited to meet the recreation and amenity needs of residents.	DTS/DPF 29.2 None are applicable.
PO 29.3 Communal open space is of sufficient size and dimensions to cater for group recreation.	DTS/DPF 29.3 Communal open space incorporates a minimum dimension of 5 metres.
PO 29.4 Communal open space is designed and sited to:	DTS/DPF 29.4 None are applicable.

(a) be conveniently accessed by the dwellings which it services (b) have regard to acoustic, safety, security and wind effects.	
PO 29.5 Communal open space contains landscaping and facilities that are functional, attractive and encourage recreational use.	DTS/DPF 29.5 None are applicable.
PO 29.6 Communal open space is designed and sited to: (a) in relation to rooftop or elevated gardens, minimise overlooking into habitable room windows or onto the useable private open space of other dwellings (b) in relation to ground floor communal space, be overlooked by habitable rooms to facilitate passive surveillance.	DTS/DPF 29.6 None are applicable.
Site Facilities / Waste Storage	
PO 30.1 Development is designed to provide storage areas for personal items and specialised equipment such as small electric powered vehicles, including facilities for the recharging of small electric powered vehicles.	DTS/DPF 30.1 None are applicable.
PO 30.2 Provision is made for suitable mailbox facilities close to the major pedestrian entry to the site or conveniently located considering the nature of accommodation and mobility of occupants.	DTS/DPF 30.2 None are applicable.
PO 30.3 Provision is made for suitable external clothes drying facilities.	DTS/DPF 28.3 None are applicable.
PO 30.4 Provision is made for suitable household waste and recyclable material storage facilities conveniently located and screened from public view.	DTS/DPF 30.4 None are applicable.
PO 30.5 Waste and recyclable material storage areas are located away from dwellings.	DTS/DPF 30.5 Dedicated waste and recyclable material storage areas are located at least 3m from any habitable room window.
PO 30.6 Provision is made for on-site waste collection where 10 or more bins are to be collected at any one time.	DTS/DPF 30.6 None are applicable.
PO 30.7 Services including gas and water meters are conveniently located and screened from public view.	DTS/DPF 30.7 None are applicable.
All non-residential development	

Water Sensitive Design	
PO 31.1 Development likely to result in significant risk of export of litter, oil or grease includes stormwater management systems designed to minimise pollutants entering stormwater.	DTS/DPF 31.1 None are applicable.
PO 31.2 Water discharged from a development site is of a physical, chemical and biological condition equivalent to or better than its pre-developed state.	DTS/DPF 31.2 None are applicable.
Wash-down and Waste Loading and Unloading	
PO 32.1 Areas for activities including loading and unloading, storage of waste refuse bins in commercial and industrial development or wash-down areas used for the cleaning of vehicles, vessels, plant or equipment are: (a) designed to contain all wastewater likely to pollute stormwater within a bunded and roofed area to exclude the entry of external surface stormwater run-off (b) paved with an impervious material to facilitate wastewater collection (c) of sufficient size to prevent 'splash-out' or 'over-spray' of wastewater from the wash-down area (d) designed to drain wastewater to either: (i) a treatment device such as a sediment trap and coalescing plate oil separator with subsequent disposal to a sewer, private or Community Wastewater Management Scheme or (ii) a holding tank and its subsequent removal off-site on a regular basis.	DTS/DPF 32.1 None are applicable.

Table 1 - Private Open Space

Dwelling Type	Minimum Rate
Dwelling (at ground level)	Total private open space area: (a) Site area <301m2: 24m2 located behind the building line. (b) Site area ≥ 301m2: 60m2 located behind the building line. Minimum directly accessible from a living room: 16m2 / with a minimum dimension 3m.
Dwelling (above ground level)	Studio (no separate bedroom): 4m^2 with a minimum dimension 1.8m One bedroom: 8m^2 with a minimum dimension 2.1m Two bedroom dwelling: 11m^2 with a minimum dimension 2.4m Three + bedroom dwelling: 15m^2 with a minimum dimension 2.6m

Cabin or caravan (permanently fixed to the ground) in a residential park or a caravan and tourist park	Total area: 16m^2, which may be used as second car parking space, provided on each site intended for residential occupation.

Design in Urban Areas

Assessment Provisions (AP)

Desired Outcome	
DO 1	Development is: (a) contextual - by considering, recognising and carefully responding to its natural surroundings or built environment and positively contributing to the character of the locality (b) durable - fit for purpose, adaptable and long lasting (c) inclusive - by integrating landscape design to optimise pedestrian and cyclist usability, privacy and equitable access and promoting the provision of quality spaces integrated with the public realm that can be used for access and recreation and help optimise security and safety both internally and within the public realm, for occupants and visitors (d) sustainable - by integrating sustainable techniques into the design and siting of development and landscaping to improve community health, urban heat, water management, environmental performance, biodiversity and local amenity and to minimise energy consumption.

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
All Development	
External Appearance	
PO 1.1 Buildings reinforce corners through changes in setback, articulation, materials, colour and massing (including height, width, bulk, roof form and slope).	DTS/DPF 1.1 None are applicable.
PO 1.2 Where zero or minor setbacks are desirable, development provides shelter over footpaths (in the form of verandahs, awnings, canopies and the like, with adequate lighting) to positively contribute to the walkability, comfort and safety of the public realm.	DTS/DPF 1.2 None are applicable.
PO 1.3 Building elevations facing the primary street (other than ancillary buildings) are designed and detailed to convey purpose, identify main access points and complement the streetscape.	DTS/DPF 1.3 None are applicable.
PO 1.4	DTS/DPF 1.4

Plant, exhaust and intake vents and other technical equipment are integrated into the building design to minimise visibility from the public realm and negative impacts on residential amenity by: (a) positioning plant and equipment discretely, in unobtrusive locations as viewed from public roads and spaces (b) screening rooftop plant and equipment from view (c) when located on the roof of non-residential development, locating the plant and equipment as far as practicable from adjacent sensitive land uses.	Development does not incorporate any structures that protrude beyond the roofline.
PO 1.5 The negative visual impact of outdoor storage, waste management, loading and service areas is minimised by integrating them into the building design and screening them from public view (such as fencing, landscaping and built form), taking into account the form of development contemplated in the relevant zone.	DTS/DPF 1.5 None are applicable.
Safety	
PO 2.1 Development maximises opportunities for passive surveillance of the public realm by providing clear lines of sight, appropriate lighting and the use of visually permeable screening wherever practicable.	DTS/DPF 2.1 None are applicable.
PO 2.2 Development is designed to differentiate public, communal and private areas.	DTS/DPF 2.2 None are applicable.
PO 2.3 Buildings are designed with safe, perceptible and direct access from public street frontages and vehicle parking areas.	DTS/DPF 2.3 None are applicable.
PO 2.4 Development at street level is designed to maximise opportunities for passive surveillance of the adjacent public realm.	DTS/DPF 2.4 None are applicable.
PO 2.5 Common areas and entry points of buildings (such as the foyer areas of residential buildings) and non-residential land uses at street level, maximise passive surveillance from the public realm to the inside of the building at night.	DTS/DPF 2.5 None are applicable.
Landscaping	
PO 3.1 Soft landscaping and tree planting are incorporated to: (a) minimise heat absorption and reflection (b) maximise shade and shelter (c) maximise stormwater infiltration (d) enhance the appearance of land and streetscapes.	DTS/DPF 3.1 None are applicable.

Environmental Performance	
PO 4.1 Buildings are sited, oriented and designed to maximise natural sunlight access and ventilation to main activity areas, habitable rooms, common areas and open spaces.	DTS/DPF 4.1 None are applicable.
PO 4.2 Buildings are sited and designed to maximise passive environmental performance and minimise energy consumption and reliance on mechanical systems, such as heating and cooling.	DTS/DPF 4.2 None are applicable.
PO 4.3 Buildings incorporate climate responsive techniques and features such as building and window orientation, use of eaves, verandahs and shading structures, water harvesting, at ground landscaping, green walls, green roofs and photovoltaic cells.	DTS/DPF 4.3 None are applicable.
Water Sensitive Design	
PO 5.1 Development is sited and designed to maintain natural hydrological systems without negatively impacting: (a) the quantity and quality of surface water and groundwater (b) the depth and directional flow of surface water and groundwater (c) the quality and function of natural springs.	DTS/DPF 5.1 None are applicable.
On-site Waste Treatment Systems	
PO 6.1 Dedicated on-site effluent disposal areas do not include any areas to be used for, or could be reasonably foreseen to be used for, private open space, driveways or car parking.	DTS/DPF 6.1 Effluent disposal drainage areas do not: (a) encroach within an area used as private open space or result in less private open space than that specified in Design in Urban Areas Table 1 - Private Open Space (b) use an area also used as a driveway (c) encroach within an area used for on-site car parking or result in less on-site car parking than that specified in Transport, Access and Parking Table 1 - General Off-Street Car Parking Requirements or Table 2 - Off-Street Car Parking Requirements in Designated Areas.
Car parking appearance	
PO 7.1 Development facing the street is designed to minimise the negative impacts of any semi-basement and undercroft car parking on streetscapes through techniques such as: (a) limiting protrusion above finished ground level (b) screening through appropriate planting, fencing and mounding (c) limiting the width of openings and integrating them into the building structure.	DTS/DPF 7.1 None are applicable.

PO 7.2 Vehicle parking areas appropriately located, designed and constructed to minimise impacts on adjacent sensitive receivers through measures such as ensuring they are attractively developed and landscaped, screen fenced and the like.	DTS/DPF 7.2 None are applicable.
PO 7.3 Safe, legible, direct and accessible pedestrian connections are provided between parking areas and the development.	DTS/DPF 7.3 None are applicable.
PO 7.4 Street-level vehicle parking areas incorporate tree planting to provide shade, reduce solar heat absorption and reflection.	DTS/DPF 7.4 Vehicle parking areas that are open to the sky and comprise 10 or more car parking spaces include a shade tree with a mature canopy of 4m diameter spaced for each 10 car parking spaces provided and a landscaped strip on any road frontage of a minimum dimension of 1m.
PO 7.5 Street level parking areas incorporate soft landscaping to improve visual appearance when viewed from within the site and from public places.	DTS/DPF 7.5 Vehicle parking areas comprising 10 or more car parking spaces include soft landscaping with a minimum dimension of: (a) 1m along all public road frontages and allotment boundaries (b) 1m between double rows of car parking spaces.
PO 7.6 Vehicle parking areas and associated driveways are landscaped to provide shade and positively contribute to amenity.	DTS/DPF 7.6 None are applicable.
PO 7.7 Vehicle parking areas and access ways incorporate integrated stormwater management techniques such as permeable or porous surfaces, infiltration systems, drainage swales or rain gardens that integrate with soft landscaping.	DTS/DPF 7.7 None are applicable.
Earthworks and sloping land	
PO 8.1 Development, including any associated driveways and access tracks, minimises the need for earthworks to limit disturbance to natural topography.	DTS/DPF 8.1 Development does not involve any of the following: (a) excavation exceeding a vertical height of 1m (b) filling exceeding a vertical height of 1m (c) a total combined excavation and filling vertical height of 2m or more.
PO 8.2 Driveways and access tracks designed and constructed to allow safe and convenient access on sloping land.	DTS/DPF 8.2 Driveways and access tracks on sloping land (with a gradient exceeding 1 in 8) satisfy (a) and (b): (a) do not have a gradient exceeding 25% (1-in-4) at any point along the driveway (b) are constructed with an all-weather trafficable surface.
PO 8.3	DTS/DPF 8.3

Driveways and access tracks on sloping land (with a gradient exceeding 1 in 8): (a) do not contribute to the instability of embankments and cuttings (b) provide level transition areas for the safe movement of people and goods to and from the development (c) are designed to integrate with the natural topography of the land.	None are applicable.
PO 8.4 Development on sloping land (with a gradient exceeding 1 in 8) avoids the alteration of natural drainage lines and includes on site drainage systems to minimise erosion.	DTS/DPF 8.4 None are applicable.
PO 8.5 Development does not occur on land at risk of landslip or increase the potential for landslip or land surface instability.	DTS/DPF 8.5 None are applicable.
Fences and walls	
PO 9.1 Fences, walls and retaining walls of sufficient height maintain privacy and security without unreasonably impacting visual amenity and adjoining land's access to sunlight or the amenity of public places.	DTS/DPF 9.1 None are applicable.
PO 9.2 Landscaping is incorporated on the low side of retaining walls that are visible from public roads and public open space to minimise visual impacts.	DTS/DPF 9.2 A vegetated landscaped strip 1m wide or more is provided against the low side of a retaining wall.
Overlooking / Visual Privacy (low rise buildings)	
PO 10.1 Development mitigates direct overlooking from upper level windows to habitable rooms and private open spaces of adjoining residential uses in neighbourhood-type zones.	DTS/DPF 10.1 Upper level windows facing side or rear boundaries shared with a residential use in a neighbourhood-type zone: (a) are permanently obscured to a height of 1.5m above finished floor level and are fixed or not capable of being opened more than 125mm (b) have sill heights greater than or equal to 1.5m above finished floor level (c) incorporate screening with a maximum of 25% openings, permanently fixed no more than 500mm from the window surface and sited adjacent to any part of the window less than 1.5 m above the finished floor level.
PO 10.2 Development mitigates direct overlooking from balconies to habitable rooms and private open space of adjoining residential uses in neighbourhood type zones.	DTS/DPF 10.2 One of the following is satisfied: (a) the longest side of the balcony or terrace will face a public road, public road reserve or public reserve that is at least 15m wide in all places faced by the balcony or terrace or (b) all sides of balconies or terraces on upper building levels are permanently obscured by screening with a maximum 25% transparency/openings fixed to a

	minimum height of: (i) 1.5m above finished floor level where the balcony is located at least 15 metres from the nearest habitable window of a dwelling on adjacent land or (ii) 1.7m above finished floor level in all other cases
Site Facilities / Waste Storage (excluding low rise residential development)	
PO 11.1 Development provides a dedicated area for on-site collection and sorting of recyclable materials and refuse, green organic waste and wash bay facilities for the ongoing maintenance of bins that is adequate in size considering the number and nature of the activities they will serve and the frequency of collection.	DTS/DPF 11.1 None are applicable.
PO 11.2 Communal waste storage and collection areas are located, enclosed and designed to be screened from view from the public domain, open space and dwellings.	DTS/DPF 11.2 None are applicable.
PO 11.3 Communal waste storage and collection areas are designed to be well ventilated and located away from habitable rooms.	DTS/DPF 11.3 None are applicable.
PO 11.4 Communal waste storage and collection areas are designed to allow waste and recycling collection vehicles to enter and leave the site without reversing.	DTS/DPF 11.4 None are applicable.
PO 11.5 For mixed use developments, non-residential waste and recycling storage areas and access provide opportunities for on-site management of food waste through composting or other waste recovery as appropriate.	DTS/DPF 11.5 None are applicable.
All Development - Medium and High Rise	
External Appearance	
PO 12.1 Buildings positively contribute to the character of the local area by responding to local context.	DTS/DPF 12.1 None are applicable.
PO 12.2 Architectural detail at street level and a mixture of materials at lower building levels near the public interface are provided to reinforce a human scale.	DTS/DPF 12.2 None are applicable.
PO 12.3 Buildings are designed to reduce visual mass by breaking up building elevations into distinct elements.	DTS/DPF 12.3 None are applicable.
PO 12.4 Boundary walls visible from public land include visually interesting treatments to break up large blank elevations.	DTS/DPF 12.4 None are applicable.
PO 12.5 External materials and finishes are durable and age well to minimise ongoing maintenance requirements.	DTS/DPF 12.5 Buildings utilise a combination of the following external materials and finishes:

	(a) masonry (b) natural stone (c) pre-finished materials that minimise staining, discolouring or deterioration.
PO 12.6 Street-facing building elevations are designed to provide attractive, high quality and pedestrian-friendly street frontages.	DTS/DPF 12.6 Building street frontages incorporate: (a) active uses such as shops or offices (b) prominent entry areas for multi-storey buildings (where it is a common entry) (c) habitable rooms of dwellings (d) areas of communal public realm with public art or the like, where consistent with the zone and/or subzone provisions.
PO 12.7 Entrances to multi-storey buildings are safe, attractive, welcoming, functional and contribute to streetscape character.	DTS/DPF 12.7 Entrances to multi-storey buildings are: (a) oriented towards the street (b) clearly visible and easily identifiable from the street and vehicle parking areas (c) designed to be prominent, accentuated and a welcoming feature if there are no active or occupied ground floor uses (d) designed to provide shelter, a sense of personal address and transitional space around the entry (e) located as close as practicable to the lift and / or lobby access to minimise the need for long access corridors (f) designed to avoid the creation of potential areas of entrapment.
PO 12.8 Building services, plant and mechanical equipment are screened from the public realm.	DTS/DPF 12.8 None are applicable.
Landscaping	
PO 13.1 Development facing a street provides a well landscaped area that contains a deep soil space to accommodate a tree of a species and size adequate to provide shade, contribute to tree canopy targets and soften the appearance of buildings.	DTS/DPF 13.1 Buildings provide a 4m by 4m deep soil space in front of the building that accommodates a medium to large tree, except where no building setback from front property boundaries is desired.
PO 13.2 Deep soil zones are provided to retain existing vegetation or provide areas that can accommodate new deep root vegetation, including tall trees with large canopies to provide shade and soften the appearance of multi-storey buildings.	DTS/DPF 13.2 Multi-storey development provides deep soil zones and incorporates trees at not less than the following rates, except in a location or zone where full site coverage is desired.

Site area	Minimum deep soil area	Minimum dimension	Tree / deep soil zones
<300 m^2	10 m^2	1.5m	1 small tree / 10 m^2

	300-1500 m^2 | 7% site area | 3m | 1 medium tree / 30 m^2 >1500 m^2 | 7% site area | 6m | 1 large or medium tree / 60 m^2 **Tree size and site area definitions** Small tree: 4-6m mature height and 2-4m canopy spread Medium tree: 6-12m mature height and 4-8m canopy spread Large tree: 12m mature height and >8m canopy spread Site area: The total area for development site, not average area per dwelling
PO 13.3 Deep soil zones with access to natural light are provided to assist in maintaining vegetation health.	DTS/DPF 13.3 None are applicable.
PO 13.4 Unless separated by a public road or reserve, development sites adjacent to any zone that has a primary purpose of accommodating low-rise residential development incorporate a deep soil zone along the common boundary to enable medium to large trees to be retained or established to assist in screening new buildings of 3 or more building levels in height.	DTS/DPF 13.4 Building elements of 3 or more building levels in height are set back at least 6m from a zone boundary in which a deep soil zone area is incorporated.
Environmental	
PO 14.1 Development minimises detrimental micro-climatic impacts on adjacent land and buildings.	DTS/DPF 14.1 None are applicable.
PO 14.2 Development incorporates sustainable design techniques and features such as window orientation, eaves and shading structures, water harvesting and use, green walls and roof designs that enable the provision of rain water tanks (where they are not provided elsewhere on site), green roofs and photovoltaic cells.	DTS/DPF 14.2 None are applicable.
PO 14.3 Development of 5 or more building levels, or 21m or more in height (as measured from natural ground level and excluding roof-mounted mechanical plant and equipment) is designed to minimise the impacts of wind through measures such as: (a) a podium at the base of a tall tower and aligned with the street to deflect wind away from the street (b) substantial verandahs around a building to deflect	DTS/DPF 14.3 None are applicable.

downward travelling wind flows over pedestrian areas (c) the placement of buildings and use of setbacks to deflect the wind at ground level (d) avoiding tall shear elevations that create windy conditions at street level.	
Car Parking	
PO 15.1 Multi-level vehicle parking structures are designed to contribute to active street frontages and complement neighbouring buildings.	DTS/DPF 15.1 Multi-level vehicle parking structures within buildings: (a) provide land uses such as commercial, retail or other non-car parking uses along ground floor street frontages (b) incorporate facade treatments in building elevations facing along major street frontages that are sufficiently enclosed and detailed to complement adjacent buildings.
PO 15.2 Multi-level vehicle parking structures within buildings complement the surrounding built form in terms of height, massing and scale.	DTS/DPF 15.2 None are applicable.
Overlooking/Visual Privacy	
PO 16.1 Development mitigates direct overlooking of habitable rooms and private open spaces of adjacent residential uses in neighbourhood-type zones through measures such as: (a) appropriate site layout and building orientation (b) off-setting the location of balconies and windows of habitable rooms or areas with those of other buildings so that views are oblique rather than direct to avoid direct line of sight (c) building setbacks from boundaries (including building boundary to boundary where appropriate) that interrupt views or that provide a spatial separation between balconies or windows of habitable rooms (d) screening devices that are integrated into the building design and have minimal negative effect on residents' or neighbours' amenity.	DTS/DPF 16.1 None are applicable.
All residential development	
Front elevations and passive surveillance	
PO 17.1 Dwellings incorporate windows facing primary street frontages to encourage passive surveillance and make a positive contribution to the streetscape.	DTS/DPF 17.1 Each dwelling with a frontage to a public street: (a) includes at least one window facing the primary street from a habitable room that has a minimum internal room dimension of 2.4m (b) has an aggregate window area of at least $2m^2$ facing the primary street.
PO 17.2 Dwellings incorporate entry doors within street frontages to	DTS/DPF 17.2 Dwellings with a frontage to a public street have an entry door

address the street and provide a legible entry point for visitors.	visible from the primary street boundary.
Outlook and Amenity	
PO 18.1 Living rooms have an external outlook to provide a high standard of amenity for occupants.	DTS/DPF 18.1 A living room of a dwelling incorporates a window with an external outlook of the street frontage, private open space, public open space, or waterfront areas.
PO 18.2 Bedrooms are separated or shielded from active communal recreation areas, common access areas and vehicle parking areas and access ways to mitigate noise and artificial light intrusion.	DTS/DPF 18.2 None are applicable.
Ancillary Development	
PO 19.1 Residential ancillary buildings are sited and designed to not detract from the streetscape or appearance of primary residential buildings on the site or neighbouring properties.	DTS/DPF 19.1 Ancillary buildings: (a) are ancillary to a dwelling erected on the same site (b) have a floor area not exceeding 60m2 (c) are not constructed, added to or altered so that any part is situated: (i) in front of any part of the building line of the dwelling to which it is ancillary or (ii) within 900mm of a boundary of the allotment with a secondary street (if the land has boundaries on two or more roads) (d) in the case of a garage or carport, the garage or carport: (i) is set back at least 5.5m from the boundary of the primary street (ii) when facing a primary street or secondary street, has a total door / opening not exceeding: A. for dwellings of single building level - 7m in width or 50% of the site frontage, whichever is the lesser B. for dwellings comprising two or more building levels at the building line fronting the same public street - 7m in width (e) if situated on a boundary (not being a boundary with a primary street or secondary street), do not exceed a length of 11.5m unless: (i) a longer wall or structure exists on the adjacent site and is situated on the same allotment boundary and (ii) the proposed wall or structure will be built along the same length of boundary as the existing adjacent wall or structure to the same or lesser extent (f) if situated on a boundary of the allotment (not being a boundary with a primary street or secondary street), all walls or structures on the boundary will not exceed 45% of the length of that boundary

	(g) will not be located within 3m of any other wall along the same boundary unless on an adjacent site on that boundary there is an existing wall of a building that would be adjacent to or about the proposed wall or structure (h) have a wall height or post height not exceeding 3m above natural ground level (i) have a roof height where no part of the roof is more than 5m above the natural ground level (j) if clad in sheet metal, is pre-colour treated or painted in a non-reflective colour (k) retains a total area of soft landscaping in accordance with (i) or (ii), whichever is less: (i) a total area as determined by the following table: <table><tr><th>Dwelling site area (or in the case of residential flat building or group dwelling(s), average site area) (m^2)</th><th>Minimum percentage of site</th></tr><tr><td><150</td><td>10%</td></tr><tr><td>150-200</td><td>15%</td></tr><tr><td>201-450</td><td>20%</td></tr><tr><td>>450</td><td>25%</td></tr></table> (ii) the amount of existing soft landscaping prior to the development occurring.
PO 19.2 Ancillary buildings and structures do not impede on-site functional requirements such as private open space provision, car parking requirements or result in over-development of the site.	DTS/DPF 19.2 Ancillary buildings and structures do not result in: (a) less private open space than specified in Design in Urban Areas Table 1 - Private Open Space (b) less on-site car parking than specified in Transport, Access and Parking Table 1 - General Off-Street Car Parking Requirements or Table 2 - Off-Street Car Parking Requirements in Designated Areas.
PO 19.3 Fixed plant and equipment in the form of pumps and/or filtration systems for a swimming pool or spa positioned and/or housed to not cause unreasonable noise nuisance to adjacent sensitive receivers.	DTS/DPF 19.3 The pump and/or filtration system is ancillary to a dwelling erected on the same site and is: (a) enclosed in a solid acoustic structure that is located at least 5m from the nearest habitable room located on an adjoining allotment or (b) located at least 12m from the nearest habitable room located on an adjoining allotment.
Residential Development - Low Rise	
External appearance	

PO 20.1 Garaging is designed to not detract from the streetscape or appearance of a dwelling.	DTS/DPF 20.1 Garages and carports facing a street: (a) are situated so that no part of the garage or carport will be in front of any part of the building line of the dwelling (b) are set back at least 5.5m from the boundary of the primary street (c) have a garage door / opening width not exceeding 7m (d) have a garage door / opening width not exceeding 50% of the site frontage unless the dwelling has two or more building levels at the building line fronting the same public street.
PO 20.2 Dwelling elevations facing public streets and common driveways make a positive contribution to the streetscape and the appearance of common driveway areas.	DTS/DPF 20.2 Each dwelling includes at least 3 of the following design features within the building elevation facing a primary street, and at least 2 of the following design features within the building elevation facing any other public road (other than a laneway) or a common driveway: (a) a minimum of 30% of the building wall is set back an additional 300mm from the building line (b) a porch or portico projects at least 1m from the building wall (c) a balcony projects from the building wall (d) a verandah projects at least 1m from the building wall (e) eaves of a minimum 400mm width extend along the width of the front elevation (f) a minimum 30% of the width of the upper level projects forward from the lower level primary building line by at least 300mm (g) a minimum of two different materials or finishes are incorporated on the walls of the front building elevation, with a maximum of 80% of the building elevation in a single material or finish.
PO 20.3 The visual mass of larger buildings is reduced when viewed from adjoining allotments or public streets.	DTS/DPF 20.3 None are applicable
Private Open Space	
PO 21.1 Dwellings are provided with suitable sized areas of usable private open space to meet the needs of occupants.	DTS/DPF 21.1 Private open space is provided in accordance with Design in Urban Areas Table 1 - Private Open Space.
PO 21.2 Private open space is positioned to provide convenient access from internal living areas.	DTS/DPF 21.2 Private open space is directly accessible from a habitable room.

Landscaping	
PO 22.1 Soft landscaping is incorporated into development to: (a) minimise heat absorption and reflection (b) contribute shade and shelter (c) provide for stormwater infiltration and biodiversity (d) enhance the appearance of land and streetscapes.	DTS/DPF 22.1 Residential development incorporates soft landscaping with a minimum dimension of 700mm provided in accordance with (a) and (b): (a) a total area as determined by the following table: **Dwelling site area (or in the case of residential flat building or group dwelling(s), average site area) (m^2)** / **Minimum percentage of site** <150 / 10% 150-200 / 15% >200-450 / 20% >450 / 25% (b) at least 30% of any land between the primary street boundary and the primary building line.
Car parking, access and manoeuvrability	
PO 23.1 Enclosed car parking spaces are of dimensions to be functional, accessible and convenient.	DTS/DPF 23.1 Residential car parking spaces enclosed by fencing, walls or other structures have the following internal dimensions (separate from any waste storage area): (a) single width car parking spaces: (i) a minimum length of 5.4m per space (ii) a minimum width of 3.0m (iii) a minimum garage door width of 2.4m (b) double width car parking spaces (side by side): (i) a minimum length of 5.4m (ii) a minimum width of 5.4m (iii) minimum garage door width of 2.4m per space.
PO 23.2 Uncovered car parking space are of dimensions to be functional, accessible and convenient.	DTS/DPF 23.2 Uncovered car parking spaces have: (a) a minimum length of 5.4m (b) a minimum width of 2.4m (c) a minimum width between the centre line of the space and any fence, wall or other obstruction of 1.5m.
PO 23.3 Driveways and access points are located and designed to facilitate safe access and egress while maximising land available for street tree planting, domestic waste collection, landscaped street frontages and on-street parking.	DTS/DPF 23.3 Driveways and access points satisfy (a) or (b): (a) sites with a frontage to a public road of 10m or less, have a width between 3.0 and 3.2 metres measured at the property boundary and are the only access point provided on the site

	(b) sites with a frontage to a public road greater than 10m: (i) have a maximum width of 5m measured at the property boundary and are the only access point provided on the site; (ii) have a width between 3.0 metres and 3.2 metres measured at the property boundary and no more than two access points are provided on site, separated by no less than 1m.
PO 23.4 Vehicle access is safe, convenient, minimises interruption to the operation of public roads and does not interfere with street infrastructure or street trees.	DTS/DPF 23.4 Vehicle access to designated car parking spaces satisfy (a) or (b): (a) is provided via a lawfully existing or authorised access point or an access point for which consent has been granted as part of an application for the division of land (b) where newly proposed, is set back: (i) 0.5m or more from any street furniture, street pole, infrastructure services pit, or other stormwater or utility infrastructure unless consent is provided from the asset owner (ii) 2m or more from the base of the trunk of a street tree unless consent is provided from the tree owner for a lesser distance (iii) 6m or more from the tangent point of an intersection of 2 or more roads (iv) outside of the marked lines or infrastructure dedicating a pedestrian crossing.
PO 23.5 Driveways are designed to enable safe and convenient vehicle movements from the public road to on-site parking spaces.	DTS/DPF 23.5 Driveways are designed and sited so that: (a) the gradient from the place of access on the boundary of the allotment to the finished floor level at the front of the garage or carport is not steeper than 1-in-4 on average (b) they are aligned relative to the street so that there is no more than a 20 degree deviation from 90 degrees between the centreline of any dedicated car parking space to which it provides access (measured from the front of that space) and the road boundary. (c) if located so as to provide access from an alley, lane or right of way - the alley, lane or right or way is at least 6.2m wide along the boundary of the allotment / site
PO 23.6 Driveways and access points are designed and distributed to optimise the provision of on-street visitor parking.	DTS/DPF 23.6 Where on-street parking is available abutting the site's street frontage, on-street parking is retained in accordance with the following requirements: (a) minimum 0.33 on-street spaces per dwelling on the site (rounded up to the nearest whole number) (b) minimum car park length of 5.4m where a vehicle can enter or exit a space directly (c) minimum carpark length of 6m for an intermediate space located between two other parking spaces or to an end obstruction where the parking is indented.

Waste storage	
PO 24.1 Provision is made for the convenient storage of waste bins in a location screened from public view.	DTS/DPF 24.1 Where dwellings abut both side boundaries a waste bin storage area is provided behind the building line of each dwelling that: (a) has a minimum area of $2m^2$ with a minimum dimension of 900mm (separate from any designated car parking spaces or private open space); and (b) has a continuous unobstructed path of travel (excluding moveable objects like gates, vehicles and roller doors) with a minimum width of 800mm between the waste bin storage area and the street.
Design of Transportable Buildings	
PO 25.1 The sub-floor space beneath transportable buildings is enclosed to give the appearance of a permanent structure.	DTS/DPF 25.1 Buildings satisfy (a) or (b): (a) are not transportable (b) the sub-floor space between the building and ground level is clad in a material and finish consistent with the building.
Residential Development - Medium and High Rise (including serviced apartments)	
Outlook and Visual Privacy	
PO 26.1 Ground level dwellings have a satisfactory short range visual outlook to public, communal or private open space.	DTS/DPF 26.1 Buildings: (a) provide a habitable room at ground or first level with a window facing toward the street (b) limit the height / extent of solid walls or fences facing the street to 1.2m high above the footpath level or, where higher, to 50% of the site frontage.
PO 26.2 The visual privacy of ground level dwellings within multi-level buildings is protected.	DTS/DPF 26.2 The finished floor level of ground level dwellings in multi-storey developments is raised by up to 1.2m.
Private Open Space	
PO 27.1 Dwellings are provided with suitable sized areas of usable private open space to meet the needs of occupants.	DTS/DPF 27.1 Private open space provided in accordance with Design in Urban Areas Table 1 - Private Open Space.
Residential amenity in multi-level buildings	
PO 28.1 Residential accommodation within multi-level buildings have habitable rooms, windows and balconies designed and positioned to be separated from those of other dwellings and accommodation to provide visual and acoustic privacy and allow for natural ventilation and the infiltration of daylight into interior and outdoor spaces.	DTS/DPF 28.1 Habitable rooms and balconies of independent dwellings and accommodation are separated by at least 6m from one another where there is a direct line of sight between them and 3m or more from a side or rear property boundary.
PO 28.2	DTS/DPF 28.2

Balconies are designed, positioned and integrated into the overall architectural form and detail of the development to: (a) respond to daylight, wind, and acoustic conditions to maximise comfort and provide visual privacy (b) allow views and casual surveillance of the street while providing for safety and visual privacy of nearby living spaces and private outdoor areas.	Balconies utilise one or a combination of the following design elements: (a) sun screens (b) pergolas (c) louvres (d) green facades (e) openable walls.
PO 28.3 Balconies are of sufficient size and depth to accommodate outdoor seating and promote indoor / outdoor living.	DTS/DPF 28.3 Balconies open directly from a habitable room and incorporate a minimum dimension of 2m.
PO 28.4 Dwellings are provided with sufficient space for storage to meet likely occupant needs.	DTS/DPF 28.4 Dwellings (not including student accommodation or serviced apartments) are provided with storage at the following rates with at least 50% or more of the storage volume to be provided within the dwelling: (a) studio: not less than $6m^3$ (b) 1 bedroom dwelling / apartment: not less than $8m^3$ (c) 2 bedroom dwelling / apartment: not less than $10m^3$ (d) 3+ bedroom dwelling / apartment: not less than $12m^3$.
PO 28.5 Dwellings that use light wells for access to daylight, outlook and ventilation for habitable rooms, are designed to ensure a reasonable living amenity is provided.	DTS/DPF 28.5 Light wells: (a) are not used as the primary source of outlook for living rooms (b) up to 18m in height have a minimum horizontal dimension of 3m, or 6m if overlooked by bedrooms (c) above 18m in height have a minimum horizontal dimension of 6m, or 9m if overlooked by bedrooms.
PO 28.6 Attached or abutting dwellings are designed to minimise the transmission of sound between dwellings and, in particular, to protect bedrooms from possible noise intrusions.	DTS/DPF 28.6 None are applicable.
PO 28.7 Dwellings are designed so that internal structural columns correspond with the position of internal walls to ensure that the space within the dwelling/apartment is useable.	DTS/DPF 28.7 None are applicable.
Dwelling Configuration	
PO 29.1 Buildings containing in excess of 10 dwellings provide a variety of dwelling sizes and a range in the number of bedrooms per dwelling to contribute to housing diversity.	DTS/DPF 29.1 Buildings containing in excess of 10 dwellings provide at least one of each of the following: (a) studio (where there is no separate bedroom) (b) 1 bedroom dwelling / apartment with a floor area of at least $50m^2$ (c) 2 bedroom dwelling / apartment with a floor area of at least $65m^2$ (d) 3+ bedroom dwelling / apartment with a floor area of at

	least 80m^2, and any dwelling over 3 bedrooms provides an additional 15m^2 for every additional bedroom.
PO 29.2 Dwellings located on the ground floor of multi-level buildings with 3 or more bedrooms have the windows of their habitable rooms overlooking internal courtyard space or other public space, where possible.	DTS/DPF 29.2 None are applicable.
Common Areas	
PO 30.1 The size of lifts, lobbies and corridors is sufficient to accommodate movement of bicycles, strollers, mobility aids and visitor waiting areas.	DTS/DPF 30.1 Common corridor or circulation areas: (a) have a minimum ceiling height of 2.7m (b) provide access to no more than 8 dwellings (c) incorporate a wider section at apartment entries where the corridors exceed 12m in length from a core.
Group Dwellings, Residential Flat Buildings and Battle axe Development	
Amenity	
PO 31.1 Dwellings are of a suitable size to provide a high standard of amenity for occupants.	DTS/DPF 31.1 Dwellings have a minimum internal floor area in accordance with the following table:

Number of bedrooms	**Minimum internal floor area**
Studio	35m^2
1 bedroom	50m^2
2 bedroom	65m^2
3+ bedrooms	80m^2 and any dwelling over 3 bedrooms provides an additional 15m^2 for every additional bedroom

PO 31.2 The orientation and siting of buildings minimises impacts on the amenity, outlook and privacy of occupants and neighbours.	DTS/DPF 31.2 None are applicable.
PO 31.3 Development maximises the number of dwellings that face public open space and public streets and limits dwellings oriented towards adjoining properties.	DTS/DPF 31.3 None are applicable.
PO 31.4 Battle-axe development is appropriately sited and designed to respond to the existing neighbourhood context.	DTS/DPF 31.4 Dwelling sites/allotments are not in the form of a battle-axe arrangement.
Communal Open Space	

PO 32.1 Private open space provision may be substituted for communal open space which is designed and sited to meet the recreation and amenity needs of residents.	DTS/DPF 32.1 None are applicable.
PO 32.2 Communal open space is of sufficient size and dimensions to cater for group recreation.	DTS/DPF 32.2 Communal open space incorporates a minimum dimension of 5 metres.
PO 32.3 Communal open space is designed and sited to: (a) be conveniently accessed by the dwellings which it services (b) have regard to acoustic, safety, security and wind effects.	DTS/DPF 32.3 None are applicable.
PO 32.4 Communal open space contains landscaping and facilities that are functional, attractive and encourage recreational use.	DTS/DPF 32.4 None are applicable.
PO 32.5 Communal open space is designed and sited to: (a) in relation to rooftop or elevated gardens, minimise overlooking into habitable room windows or onto the useable private open space of other dwellings (b) in relation to ground floor communal space, be overlooked by habitable rooms to facilitate passive surveillance.	DTS/DPF 32.5 None are applicable.
Car parking, access and manoeuvrability	
PO 33.1 Driveways and access points are designed and distributed to optimise the provision of on-street visitor parking.	DTS/DPF 33.1 Where on-street parking is available directly adjacent the site, on-street parking is retained adjacent the subject site in accordance with the following requirements: (a) minimum 0.33 on-street car parks per proposed dwelling (rounded up to the nearest whole number) (b) minimum car park length of 5.4m where a vehicle can enter or exit a space directly (c) minimum carpark length of 6m for an intermediate space located between two other parking spaces or to an end obstruction where the parking is indented.
PO 33.2 The number of vehicular access points onto public roads is minimised to reduce interruption of the footpath and positively contribute to public safety and walkability.	DTS/DPF 33.2 Access to group dwellings or dwellings within a residential flat building is provided via a single common driveway.
PO 33.3 Residential driveways that service more than one dwelling are designed to allow safe and convenient movement.	DTS/DPF 33.3 Driveways that service more than 1 dwelling or a dwelling on a battle-axe site: (a) have a minimum width of 3m (b) for driveways servicing more than 3 dwellings: (i) have a width of 5.5m or more and a length of

	6m or more at the kerb of the primary street (ii) where the driveway length exceeds 30m, incorporate a passing point at least every 30 metres with a minimum width of 5.5m and a minimum length of 6m.
PO 33.4 Residential driveways that service more than one dwelling or a dwelling on a battle-axe site are designed to allow passenger vehicles to enter and exit and manoeuvre within the site in a safe and convenient manner.	DTS/DPF 33.4 Driveways providing access to more than one dwelling, or a dwelling on a battle-axe site, allow a B85 passenger vehicle to enter and exit the garages or parking spaces in no more than a three-point turn manoeuvre.
PO 33.5 Dwellings are adequately separated from common driveways and manoeuvring areas.	DTS/DPF 33.5 Dwelling walls with entry doors or ground level habitable room windows are set back at least 1.5m from any driveway or area designated for the movement and manoeuvring of vehicles.
Soft landscaping	
PO 34.1 Soft landscaping is provided between dwellings and common driveways to improve the outlook for occupants and appearance of common areas.	DTS/DPF 34.1 Other than where located directly in front of a garage or building entry, soft landscaping with a minimum dimension of 1m is provided between a dwelling and common driveway.
PO 34.2 Battle-axe or common driveways incorporate landscaping and permeability to improve appearance and assist in stormwater management.	DTS/DPF 34.2 Battle-axe or common driveways satisfy (a) and (b): (a) are constructed of a minimum of 50% permeable or porous material (b) where the driveway is located directly adjacent the side or rear boundary of the site, soft landscaping with a minimum dimension of 1m is provided between the driveway and site boundary (excluding along the perimeter of a passing point).
Site Facilities / Waste Storage	
PO 35.1 Provision is made for suitable mailbox facilities close to the major pedestrian entry to the site or conveniently located considering the nature of accommodation and mobility of occupants.	DTS/DPF 35.1 None are applicable.
PO 35.2 Provision is made for suitable external clothes drying facilities.	DTS/DPF 35.2 None are applicable.
PO 35.3 Provision is made for suitable household waste and recyclable material storage facilities which are: (a) located away, or screened, from public view, and (b) conveniently located in proximity to dwellings and the waste collection point.	DTS/DPF 35.3 None are applicable.
PO 35.4	DTS/DPF 35.4

Waste and recyclable material storage areas are located away from dwellings.	Dedicated waste and recyclable material storage areas are located at least 3m from any habitable room window.
PO 35.5 Where waste bins cannot be conveniently collected from the street, provision is made for on-site waste collection, designed to accommodate the safe and convenient access, egress and movement of waste collection vehicles.	DTS/DPF 35.5 None are applicable.
PO 35.6 Services including gas and water meters are conveniently located and screened from public view.	DTS/DPF 35.6 None are applicable.
Water sensitive urban design	
PO 36.1 Residential development creating a common driveway / access includes stormwater management systems that minimise the discharge of sediment, suspended solids, organic matter, nutrients, bacteria, litter and other contaminants to the stormwater system, watercourses or other water bodies.	DTS/DPF 36.1 None are applicable.
PO 36.2 Residential development creating a common driveway / access includes a stormwater management system designed to mitigate peak flows and manage the rate and duration of stormwater discharges from the site to ensure that the development does not increase the peak flows in downstream systems.	DTS/DPF 36.2 None are applicable.
Supported Accommodation and retirement facilities	
Siting, Configuration and Design	
PO 37.1 Supported accommodation and housing for aged persons and people with disabilities is located where on-site movement of residents is not unduly restricted by the slope of the land.	DTS/DPF 37.1 None are applicable.
PO 37.2 Universal design features are incorporated to provide options for people living with disabilities or limited mobility and / or to facilitate ageing in place.	DTS/DPF 37.2 None are applicable.
Movement and Access	
PO 38.1 Development is designed to support safe and convenient access and movement for residents by providing: (a) ground-level access or lifted access to all units (b) level entry porches, ramps, paths, driveways, passenger loading areas and areas adjacent to footpaths that allow for the passing of wheelchairs and resting places (c) car parks with gradients no steeper than 1-in-40, and of sufficient area to provide for wheelchair manoeuvrability (d) kerb ramps at pedestrian crossing points.	DTS/DPF 38.1 None are applicable.

Communal Open Space	
PO 39.1 Development is designed to provide attractive, convenient and comfortable indoor and outdoor communal areas to be used by residents and visitors.	DTS/DPF 39.1 None are applicable.
PO 39.2 Private open space provision may be substituted for communal open space which is designed and sited to meet the recreation and amenity needs of residents.	DTS/DPF 39.2 None are applicable.
PO 39.3 Communal open space is of sufficient size and dimensions to cater for group recreation.	DTS/DPF 39.3 Communal open space incorporates a minimum dimension of 5 metres.
PO 39.4 Communal open space is designed and sited to: (a) be conveniently accessed by the dwellings which it services (b) have regard to acoustic, safety, security and wind effects.	DTS/DPF 39.4 None are applicable.
PO 39.5 Communal open space contains landscaping and facilities that are functional, attractive and encourage recreational use.	DTS/DPF 39.5 None are applicable.
PO 39.6 Communal open space is designed and sited to: (a) in relation to rooftop or elevated gardens, minimise overlooking into habitable room windows or onto the useable private open space of other dwellings (b) in relation to ground floor communal space, be overlooked by habitable rooms to facilitate passive surveillance.	DTS/DPF 39.6 None are applicable.
Site Facilities / Waste Storage	
PO 40.1 Development is designed to provide storage areas for personal items and specialised equipment such as small electric powered vehicles, including facilities for the recharging of small electric-powered vehicles.	DTS/DPF 40.1 None are applicable.
PO 40.2 Provision is made for suitable mailbox facilities close to the major pedestrian entry to the site or conveniently located considering the nature of accommodation and mobility of occupants.	DTS/DPF 40.2 None are applicable.
PO 40.3 Provision is made for suitable external clothes drying facilities.	DTS/DPF 40.3 None are applicable.

PO 40.4 Provision is made for suitable household waste and recyclable material storage facilities conveniently located away, or screened, from view.	DTS/DPF 40.4 None are applicable.
PO 40.5 Waste and recyclable material storage areas are located away from dwellings.	DTS/DPF 40.5 Dedicated waste and recyclable material storage areas are located at least 3m from any habitable room window.
PO 40.6 Provision is made for on-site waste collection where 10 or more bins are to be collected at any one time.	DTS/DPF 40.6 None are applicable.
PO 40.7 Services, including gas and water meters, are conveniently located and screened from public view.	DTS/DPF 40.7 None are applicable.
Student Accommodation	
PO 41.1 Student accommodation is designed to provide safe, secure, attractive, convenient and comfortable living conditions for residents, including an internal layout and facilities that are designed to provide sufficient space and amenity for the requirements of student life and promote social interaction.	DTS/DPF 41.1 Student accommodation provides: (a) a range of living options to meet a variety of accommodation needs, such as one-bedroom, two-bedroom and disability access units (b) common or shared facilities to enable a more efficient use of space, including: (i) shared cooking, laundry and external drying facilities (ii) internal and external communal and private open space provided in accordance with Design in Urban Areas Table 1 - Private Open Space (iii) common storage facilities at the rate of $8m^3$ for every 2 dwellings or students (iv) common on-site parking in accordance with Transport, Access and Parking Table 1 - General Off-Street Car Parking Requirements or Table 2 - Off-Street Car Parking Requirements in Designated Areas (v) bicycle parking at the rate of one space for every 2 students.
PO 41.2 Student accommodation is designed to provide easy adaptation of the building to accommodate an alternative use of the building in the event it is no longer required for student housing.	DTS/DPF 41.2 None are applicable.
All non-residential development	
Water Sensitive Design	
PO 42.1 Development likely to result in risk of export of sediment, suspended solids, organic matter, nutrients, oil and grease include stormwater management systems designed to minimise pollutants entering stormwater.	DTS/DPF 42.1 None are applicable.

PO 42.2 Water discharged from a development site is of a physical, chemical and biological condition equivalent to or better than its pre-developed state.	DTS/DPF 42.2 None are applicable.
PO 42.3 Development includes stormwater management systems to mitigate peak flows and manage the rate and duration of stormwater discharges from the site to ensure that development does not increase peak flows in downstream systems.	DTS/DPF 42.3 None are applicable.
Wash-down and Waste Loading and Unloading	
PO 43.1 Areas for activities including loading and unloading, storage of waste refuse bins in commercial and industrial development or wash-down areas used for the cleaning of vehicles, plant or equipment are: (a) designed to contain all wastewater likely to pollute stormwater within a bunded and roofed area to exclude the entry of external surface stormwater run-off (b) paved with an impervious material to facilitate wastewater collection (c) of sufficient size to prevent 'splash-out' or 'over-spray' of wastewater from the wash-down area (d) are designed to drain wastewater to either: (i) a treatment device such as a sediment trap and coalescing plate oil separator with subsequent disposal to a sewer, private or Community Wastewater Management Scheme or (ii) a holding tank and its subsequent removal off-site on a regular basis.	DTS/DPF 43.1 None are applicable.
Laneway Development	
Infrastructure and Access	
PO 44.1 Development with a primary street comprising a laneway, alley, lane, right of way or similar minor thoroughfare only occurs where: (a) existing utility infrastructure and services are capable of accommodating the development (b) the primary street can support access by emergency and regular service vehicles (such as waste collection) (c) it does not require the provision or upgrading of infrastructure on public land (such as footpaths and stormwater management systems) (d) safety of pedestrians or vehicle movement is maintained (e) any necessary grade transition is accommodated within the site of the development to support an appropriate development intensity and orderly development of land fronting minor thoroughfares.	DTS/DPF 44.1 Development with a primary street frontage that is not an alley, lane, right of way or similar public thoroughfare.

Table 1 - Private Open Space

Dwelling Type	Dwelling / Site Configuration	Minimum Rate
Dwelling (at ground level, other than a residential flat building that includes above ground dwellings)		Total private open space area: (a) Site area <301m2: 24m2 located behind the building line. (b) Site area ≥ 301m2: 60m2 located behind the building line. Minimum directly accessible from a living room: 16m2 / with a minimum dimension 3m.
Cabin or caravan (permanently fixed to the ground) in a residential park or caravan and tourist park		Total area: 16m^2, which may be uses as second car parking space, provided on each site intended for residential occupation.
Dwelling in a residential flat building or mixed use building which incorporate above ground level dwellings	Dwellings at ground level:	15m^2 / minimum dimension 3m
	Dwellings above ground level:	
	Studio (no separate bedroom)	4m^2 / minimum dimension 1.8m
	One bedroom dwelling	8m^2 / minimum dimension 2.1m
	Two bedroom dwelling	11m^2 / minimum dimension 2.4m
	Three + bedroom dwelling	15 m^2 / minimum dimension 2.6m

Forestry

Assessment Provisions (AP)

Desired Outcome	
DO 1	Commercial forestry is designed and sited to maximise economic benefits whilst managing potential negative impacts on the environment, transport networks, surrounding land uses and landscapes.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance

	Feature
Siting	
PO 1.1 Commercial forestry plantations are established where there is no detrimental effect on the physical environment or scenic quality of the rural landscape.	DTS/DPF 1.1 None are applicable.
PO 1.2 Commercial forestry plantations are established on slopes that are stable to minimise the risk of soil erosion.	DTS/DPF 1.2 Commercial forestry plantations are not located on land with a slope exceeding 20% (1-in-5).
PO 1.3 Commercial forestry plantations and operations associated with their establishment, management and harvesting are appropriately set back from any sensitive receiver to minimise fire risk and noise disturbance.	DTS/DPF 1.3 Commercial forestry plantations and operations associated with their establishment, management and harvesting are set back 50m or more from any sensitive receiver.
PO 1.4 Commercial forestry plantations are separated from reserves gazetted under the *National Parks and Wildlife Act 1972* and/or *Wilderness Protection Act 1992* to minimise fire risk and potential for weed infestation.	DTS/DPF 1.4 Commercial forestry plantations and operations associated with their establishment, management and harvesting are set back 50m or more from a reserve gazetted under the *National Parks and Wildlife Act 1972* and/or *Wilderness Protection Act 1992*.
Water Protection	
PO 2.1 Commercial forestry plantations incorporate artificial drainage lines (i.e. culverts, runoffs and constructed drains) integrated with natural drainage lines to minimise concentrated water flows onto or from plantation areas.	DTS/DPF 2.1 None are applicable.
PO 2.2 Appropriate siting, layout and design measures are adopted to minimise the impact of commercial forestry plantations on surface water resources.	DTS/DPF 2.2 Commercial forestry plantations: (a) do not involve cultivation (excluding spot cultivation) in drainage lines (b) are set back 20m or more from the banks of any major watercourse (a third order or higher watercourse), lake, reservoir, wetland or sinkhole (with direct connection to an aquifer) (c) are set back 10m or more from the banks of any first or second order watercourse or sinkhole (with no direct connection to an aquifer).
Fire Management	
PO 3.1 Commercial forestry plantations incorporate appropriate firebreaks and fire management design elements.	DTS/DPF 3.1 Commercial forestry plantations provide: (a) 7m or more wide external boundary firebreaks for plantations of 40ha or less (b) 10m or more wide external boundary firebreaks for plantations of between 40ha and 100ha (c) 20m or more wide external boundary firebreaks, or 10m with an additional 10m or more of fuel-reduced

<table>
<tr><td></td><td>plantation, for plantations of 100ha or greater.</td></tr>
<tr><td>PO 3.2

Commercial forestry plantations incorporate appropriate fire management access tracks.</td><td>DTS/DPF 3.2

Commercial forestry plantation fire management access tracks:

(a) are incorporated within all firebreaks
(b) are 7m or more wide with a vertical clearance of 4m or more
(c) are aligned to provide straight through access at junctions, or if they are a no through access track are appropriately signposted and provide suitable turnaround areas for fire-fighting vehicles
(d) partition the plantation into units of 40ha or less in area.</td></tr>
<tr><td colspan="2">Power-line Clearances</td></tr>
<tr><td>PO 4.1

Commercial forestry plantations achieve and maintain appropriate clearances from aboveground powerlines.</td><td>DTS/DPF 4.1

Commercial forestry plantations incorporating trees with an expected mature height of greater than 6m meet the clearance requirements listed in the following table:

<table>
<tr><th>Voltage of transmission line</th><th>Tower or Pole</th><th>Minimum horizontal clearance distance between plantings and transmission lines</th></tr>
<tr><td>500 kV</td><td>Tower</td><td>38m</td></tr>
<tr><td>275 kV</td><td>Tower</td><td>25m</td></tr>
<tr><td>132 kV</td><td>Tower</td><td>30m</td></tr>
<tr><td>132 kV</td><td>Pole</td><td>20m</td></tr>
<tr><td>66 kV</td><td>Pole</td><td>20m</td></tr>
<tr><td>Less than 66 kV</td><td>Pole</td><td>20m</td></tr>
</table>
</td></tr>
</table>

Housing Renewal

Assessment Provisions (AP)

Desired Outcome	
DO 1	Renewed residential environments replace older social housing and provide new social housing infrastructure and other housing options and tenures to enhance the residential amenity of the local area.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Land Use and Intensity	
PO 1.1 Residential development provides a range of housing choices.	DTS/DPF 1.1 Development comprises one or more of the following: (a) detached dwellings (b) semi-detached dwellings (c) row dwellings (d) group dwellings (e) residential flat buildings.
PO 1.2 Medium-density housing options or higher are located in close proximity to public transit, open space and/or activity centres.	DTS/DPF 1.2 None are applicable.
Building Height	
PO 2.1 Buildings generally do not exceed 3 building levels unless in locations close to public transport, centres and/or open space.	DTS/DPF 2.1 Building height (excluding garages, carports and outbuildings) does not exceed 3 building levels and 12m and wall height does not exceed 9m (not including a gable end).
PO 2.2 Medium or high rise residential flat buildings located within or at the interface with zones which restrict heights to a maximum of 2 building levels transition down in scale and height towards the boundary of that zone, other than where it is a street boundary.	DTS/DPF 2.2 None are applicable.
Primary Street Setback	
PO 3.1 Buildings are set back from the primary street boundary to contribute to an attractive streetscape character.	DTS/DPF 3.1 Buildings are no closer to the primary street (excluding any balcony, verandah, porch, awning or similar structure) than 3m.
Secondary Street Setback	
PO 4.1 Buildings are set back from secondary street boundaries to maintain separation between building walls and public streets and contribute to a suburban streetscape character.	DTS/DPF 4.1 Buildings are set back at least 900mm from the boundary of the allotment with a secondary street frontage.
Boundary Walls	
PO 5.1 Boundary walls are limited in height and length to manage visual impacts and access to natural light and ventilation.	DTS/DPF 5.1 Except where the dwelling is located on a central site within a row dwelling or terrace arrangement, dwellings with side boundary walls are sited on only one side boundary and satisfy (a) or (b):

	(a) adjoin or abut a boundary wall of a building on adjoining land for the same length and height (b) do not: (i) exceed 3.2m in height from the lower of the natural or finished ground level (ii) exceed 11.5m in length (iii) when combined with other walls on the boundary of the subject development site, a maximum 45% of the length of the boundary (iv) encroach within 3 metres of any other existing or proposed boundary walls on the subject land.
PO 5.2 Dwellings in a semi-detached, row or terrace arrangement maintain space between buildings consistent with a suburban streetscape character.	DTS/DPF 5.2 Dwellings in a semi-detached or row arrangement are set back 900mm or more from side boundaries shared with allotments outside the development site, except for a carport or garage.
Side Boundary Setback	
PO 6.1 Buildings are set back from side boundaries to provide: (a) separation between dwellings in a way that contributes to a suburban character (b) access to natural light and ventilation for neighbours.	DTS/DPF 6.1 Other than walls located on a side boundary, buildings are set back from side boundaries: (a) at least 900mm where the wall height is up to 3m (b) other than for a wall facing a southern side boundary, at least 900mm plus 1/3 of the wall height above 3m (c) at least 1.9m plus 1/3 of the wall height above 3m for walls facing a southern side boundary.
Rear Boundary Setback	
PO 7.1 Buildings are set back from rear boundaries to provide: (a) separation between dwellings in a way that contributes to a suburban character (b) access to natural light and ventilation for neighbours (c) private open space (d) space for landscaping and vegetation.	DTS/DPF 7.1 Dwellings are set back from the rear boundary: (a) 3m or more for the first building level (b) 5m or more for any subsequent building level.
Buildings elevation design	
PO 8.1 Dwelling elevations facing public streets and common driveways make a positive contribution to the streetscape and common driveway areas.	DTS/DPF 8.1 Each dwelling includes at least 3 of the following design features within the building elevation facing a primary street, and at least 2 of the following design features within the building elevation facing any other public road (other than a laneway) or a common driveway: (a) a minimum of 30% of the building elevation is set back an additional 300mm from the building line (b) a porch or portico projects at least 1m from the building elevation (c) a balcony projects from the building elevation (d) a verandah projects at least 1m from the building elevation (e) eaves of a minimum 400mm width extend along the

	width of the front elevation (f) a minimum 30% of the width of the upper level projects forward from the lower level primary building line by at least 300mm. (g) a minimum of two different materials or finishes are incorporated on the walls of the building elevation, with a maximum of 80% of the building elevation in a single material or finish.
PO 8.2 Dwellings incorporate windows along primary street frontages to encourage passive surveillance and make a positive contribution to the streetscape.	DTS/DPF 8.2 Each dwelling with a frontage to a public street: (a) includes at least one window facing the primary street from a habitable room that has a minimum internal room dimension of 2.4m (b) has an aggregate window area of at least $2m^2$ facing the primary street
PO 8.3 The visual mass of larger buildings is reduced when viewed from adjoining allotments or public streets.	DTS/DPF 8.3 None are applicable.
PO 8.4 Built form considers local context and provides a quality design response through scale, massing, materials, colours and architectural expression.	DTS/DPF 8.4 None are applicable.
PO 8.5 Entrances to multi-storey buildings are: (a) oriented towards the street (b) visible and easily identifiable from the street (c) designed to include a common mail box structure.	DTS/DPF 8.5 None are applicable.
Outlook and amenity	
PO 9.1 Living rooms have an external outlook to provide a high standard of amenity for occupants.	DTS/DPF 9.1 A living room of a dwelling incorporates a window with an external outlook towards the street frontage or private open space.
PO 9.2 Bedrooms are separated or shielded from active communal recreation areas, common access areas and vehicle parking areas and access ways to mitigate noise and artificial light intrusion.	DTS/DPF 9.2 None are applicable.
Private Open Space	
PO 10.1 Dwellings are provided with suitable sized areas of usable private open space to meet the needs of occupants.	DTS/DPF 10.1 Private open space is provided in accordance with the following table: **Dwelling Type** / **Dwelling / Site Configuration** / **Minimum Rate**

	Dwelling (at ground level)		Total area: 24m^2 located behind the building line Minimum adjacent to a living room: 16m^2 with a minimum dimension 3m
	Dwelling (above ground level)	Studio	4m^2 / minimum dimension 1.8m
		One bedroom dwelling	8m^2 / minimum dimension 2.1m
		Two bedroom dwelling	11m^2 / minimum dimension 2.4m
		Three + bedroom dwelling	15 m^2 / minimum dimension 2.6m

PO 10.2 Private open space positioned to provide convenient access from internal living areas.	DTS/DPF 10.2 At least 50% of the required area of private open space is accessible from a habitable room.
PO 10.3 Private open space is positioned and designed to: (a) provide useable outdoor space that suits the needs of occupants; (b) take advantage of desirable orientation and vistas; and (c) adequately define public and private space.	DTS/DPF 10.3 None are applicable.
Visual privacy	
PO 11.1 Development mitigates direct overlooking from upper level windows to habitable rooms and private open spaces of adjoining residential uses.	DTS/DPF 11.1 Upper level windows facing side or rear boundaries shared with another residential allotment/site satisfy one of the following: (a) are permanently obscured to a height of 1.5m above finished floor level and are fixed or not capable of being opened more than 200mm (b) have sill heights greater than or equal to 1.5m above finished floor level (c) incorporate screening with a maximum of 25% openings, permanently fixed no more than 500mm from the window surface and sited adjacent to any part of the window less than 1.5m above the finished floor.
PO 11.2 Development mitigates direct overlooking from upper level balconies and terraces to habitable rooms and private open space of adjoining residential uses.	DTS/DPF 11.2 One of the following is satisfied: (a) the longest side of the balcony or terrace will face a public road, public road reserve or public reserve that is

	at least 15m wide in all places faced by the balcony or terrace or (b) all sides of balconies or terraces on upper building levels are permanently obscured by screening with a maximum 25% transparency/openings fixed to a minimum height of: (i) 1.5m above finished floor level where the balcony is located at least 15 metres from the nearest habitable window of a dwelling on adjacent land or (ii) 1.7m above finished floor level in all other cases
Landscaping	
PO 12.1 Soft landscaping is incorporated into development to: (a) minimise heat absorption and reflection (b) maximise shade and shelter (c) maximise stormwater infiltration and biodiversity (d) enhance the appearance of land and streetscapes.	DTS/DPF 12.1 Residential development incorporates pervious areas for soft landscaping with a minimum dimension of 700mm provided in accordance with (a) and (b): (a) a total area as determined by the following table: Dwelling site area (or in the case of residential flat building or group dwelling(s), average site area) (m^2) — Minimum percentage of site <150 — 10% <200 — 15% 200-450 — 20% >450 — 25% (b) at least 30% of land between the road boundary and the building line.
Water Sensitive Design	
PO 13.1 Residential development is designed to capture and use stormwater to: (a) maximise efficient use of water resources (b) manage peak stormwater runoff flows and volume to ensure the carrying capacities of downstream systems are not overloaded (c) manage runoff quality to maintain, as close as practical, pre-development conditions.	DTS/DPF 13.1 None are applicable.
Car Parking	
PO 14.1 On-site car parking is provided to meet the anticipated demand of residents, with less on-site parking in areas in close proximity to public transport.	DTS/DPF 14.1 On-site car parking is provided at the following rates per dwelling: (a) 2 or fewer bedrooms - 1 car parking space (b) 3 or more bedrooms - 2 car parking spaces.
PO 14.2	DTS/DPF 14.2

Enclosed car parking spaces are of dimensions to be functional, accessible and convenient.	Residential parking spaces enclosed by fencing, walls or other obstructions with the following internal dimensions (separate from any waste storage area): (a) single parking spaces: (i) a minimum length of 5.4m (ii) a minimum width of 3.0m (iii) a minimum garage door width of 2.4m (b) double parking spaces (side by side): (i) a minimum length of 5.4m (ii) a minimum width of 5.5m (iii) minimum garage door width of 2.4m per space.
PO 14.3 Uncovered car parking spaces are of dimensions to be functional, accessible and convenient.	DTS/DPF 14.3 Uncovered car parking spaces have: (a) a minimum length of 5.4m (b) a minimum width of 2.4m (c) a minimum width between the centre line of the space and any fence, wall or other obstruction of 1.5m.
PO 14.4 Residential flat buildings and group dwelling developments provide sufficient on-site visitor car parking to cater for anticipated demand.	DTS/DPF 14.4 Visitor car parking for group and residential flat buildings incorporating 4 or more dwellings is provided on-site at a minimum ratio of 0.25 car parking spaces per dwelling.
PO 14.5 Residential flat buildings provide dedicated areas for bicycle parking.	DTS/DPF 14.5 Residential flat buildings provide one bicycle parking space per dwelling.
Overshadowing	
PO 15.1 Development minimises overshadowing of the private open spaces of adjoining land by ensuring that ground level open space associated with residential buildings receive direct sunlight for a minimum of 2 hours between 9am and 3pm on 21 June.	DTS/DPF 15.1 None are applicable.
Waste	
PO 16.1 Provision is made for the convenient storage of waste bins in a location screened from public view.	DTS/DPF 16.1 A waste bin storage area is provided behind the primary building line that: (a) has a minimum area of $2m^2$ with a minimum dimension of 900mm (separate from any designated car parking spaces or private open space).; and (b) has a continuous unobstructed path of travel (excluding moveable objects like gates, vehicles and roller doors) with a minimum width of 800mm between the waste bin storage area and the street.
PO 16.2	DTS/DPF 16.2

Residential flat buildings provide a dedicated area for the on-site storage of waste which is: (a) easily and safely accessible for residents and for collection vehicles (b) screened from adjoining land and public roads (c) of sufficient dimensions to be able to accommodate the waste storage needs of the development considering the intensity and nature of the development and the frequency of collection.	None are applicable.
Vehicle Access	
PO 17.1 Driveways are located and designed to facilitate safe access and egress while maximising land available for street tree planting, landscaped street frontages and on-street parking.	DTS/DPF 17.1 None are applicable.
PO 17.2 Vehicle access is safe, convenient, minimises interruption to the operation of public roads and does not interfere with street infrastructure or street trees.	DTS/DPF 17.2 Vehicle access to designated car parking spaces satisfy (a) or (b): (a) is provided via a lawfully existing or authorised access point or an access point for which consent has been granted as part of an application for the division of land (b) where newly proposed, is set back: (i) 0.5m or more from any street furniture, street pole, infrastructure services pit, or other stormwater or utility infrastructure unless consent is provided from the asset owner (ii) 2m or more from the base of the trunk of a street tree unless consent is provided from the tree owner for a lesser distance (iii) 6m or more from the tangent point of an intersection of 2 or more roads (iv) outside of the marked lines or infrastructure dedicating a pedestrian crossing.
PO 17.3 Driveways are designed to enable safe and convenient vehicle movements from the public road to on-site parking spaces.	DTS/DPF 17.3 Driveways are designed and sited so that: (a) the gradient from the place of access on the boundary of the allotment to the finished floor level at the front of the garage or carport is not more than 1-in-4 on average (b) they are aligned relative to the street so that there is no more than a 20 degree deviation from 90 degrees between the centreline of any dedicated car parking space to which it provides access (measured from the front of that space) and the road boundary. (c) if located so as to provide access from an alley, lane or right of way - the alley, lane or right or way is at least 6.2m wide along the boundary of the allotment / site.
PO 17.4 Driveways and access points are designed and distributed to optimise the provision of on-street parking.	DTS/DPF 17.4 Where on-street parking is available abutting the site's street frontage, on-street parking is retained in accordance with the following requirements:

	1. minimum 0.33 on-street spaces per dwelling on the site (rounded up to the nearest whole number) 2. Minimum car park length of 5.4m where a vehicle can enter or exit a space directly 3. minimum car park length of 6m for an intermediate space located between two other parking spaces.
PO 17.5 Residential driveways that service more than one dwelling of a dimension to allow safe and convenient movement.	DTS/DPF 17.5 Where on-street parking is available abutting the site's street frontage, on-street parking is retained in accordance with the following requirements: (a) minimum 0.33 on-street spaces per dwelling on the site (rounded up to the nearest whole number) (b) minimum car park length of 5.4m where a vehicle can enter or exit a space directly (c) minimum carpark length of 6m for an intermediate space located between two other parking spaces or to an end obstruction where the parking is indented.
PO 17.6 Residential driveways that service more than one dwelling are designed to allow passenger vehicles to enter and exit the site and manoeuvre within the site in a safe and convenient manner.	DTS/DPF 17.6 Driveways providing access to more than one dwelling, or a dwelling on a battle-axe site, allow a B85 passenger vehicle to enter and exit the garages or parking spaces in no more than a three-point turn manoeuvre
PO 17.7 Dwellings are adequately separated from common driveways and manoeuvring areas.	DTS/DPF 17.7 Dwelling walls with entry doors or ground level habitable room windows are set back at least 1.5m from any driveway or area designated for the movement and manoeuvring of vehicles.
Storage	
PO 18.1 Dwellings are provided with sufficient and accessible space for storage to meet likely occupant needs.	DTS/DPF 18.1 Dwellings are provided with storage at the following rates and 50% or more of the storage volume is provided within the dwelling: (a) studio: not less than $6m^3$ (b) 1 bedroom dwelling / apartment: not less than $8m^3$ (c) 2 bedroom dwelling / apartment: not less than $10m^3$ (d) 3+ bedroom dwelling / apartment: not less than $12m^3$.
Earthworks	
PO 19.1 Development, including any associated driveways and access tracks, minimises the need for earthworks to limit disturbance to natural topography.	DTS/DPF 19.1 The development does not involve: (a) excavation exceeding a vertical height of 1m or (b) filling exceeding a vertical height of 1m or (c) a total combined excavation and filling vertical height exceeding 2m.
Service connections and infrastructure	
PO 20.1	DTS/DPF 20.1

Dwellings are provided with appropriate service connections and infrastructure.	The site and building: (a) have the ability to be connected to a permanent potable water supply (b) have the ability to be connected to a sewerage system, or a wastewater system approved under the *South Australian Public Health Act 2011* (c) have the ability to be connected to electricity supply (d) have the ability to be connected to an adequate water supply (and pressure) for fire-fighting purposes (e) would not be contrary to the Regulations prescribed for the purposes of Section 86 of the *Electricity Act 1996*.
Site contamination	
PO 21.1 Land that is suitable for sensitive land uses to provide a safe environment.	DTS/DPF 21.1 Development satisfies (a), (b), (c) or (d): (a) does not involve a change in the use of land (b) involves a change in the use of land that does not constitute a change to a more sensitive use (c) involves a change in the use of land to a more sensitive use on land at which site contamination does not exist (as demonstrated in a site contamination declaration form) (d) involves a change in the use of land to a more sensitive use on land at which site contamination exists, or may exist (as demonstrated in a site contamination declaration form), and satisfies both of the following: (i) a site contamination audit report has been prepared under Part 10A of the *Environment Protection Act 1993* in relation to the land within the previous 5 years which states that A. site contamination does not exist (or no longer exists) at the land or B. the land is suitable for the proposed use or range of uses (without the need for any further remediation) or C. where remediation is, or remains, necessary for the proposed use (or range of uses), remediation work has been carried out or will be carried out (and the applicant has provided a written undertaking that the remediation works will be implemented in association with the development) and (ii) no other class 1 activity or class 2 activity has taken place at the land since the preparation of the site contamination audit report (as demonstrated in a site contamination declaration form).

Infrastructure and Renewable Energy Facilities

Assessment Provisions (AP)

Desired Outcome	
DO 1	Efficient provision of infrastructure networks and services, renewable energy facilities and ancillary development in a manner that minimises hazard, is environmentally and culturally sensitive and manages adverse visual impacts on natural and rural landscapes and residential amenity.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
General	
PO 1.1 Development is located and designed to minimise hazard or nuisance to adjacent development and land uses.	DTS/DPF 1.1 None are applicable.
Visual Amenity	
PO 2.1 The visual impact of above-ground infrastructure networks and services (excluding high voltage transmission lines), renewable energy facilities (excluding wind farms), energy storage facilities and ancillary development is minimised from townships, scenic routes and public roads by: (a) utilising features of the natural landscape to obscure views where practicable (b) siting development below ridgelines where practicable (c) avoiding visually sensitive and significant landscapes (d) using materials and finishes with low-reflectivity and colours that complement the surroundings (e) using existing vegetation to screen buildings (f) incorporating landscaping or landscaped mounding around the perimeter of a site and between adjacent allotments accommodating or zoned to primarily accommodate sensitive receivers.	DTS/DPF 2.1 None are applicable.
PO 2.2 Pumping stations, battery storage facilities, maintenance sheds and other ancillary structures incorporate vegetation buffers to reduce adverse visual impacts on adjacent land.	DTS/DPF 2.2 None are applicable.

PO 2.3 Surfaces exposed by earthworks associated with the installation of storage facilities, pipework, penstock, substations and other ancillary plant are reinstated and revegetated to reduce adverse visual impacts on adjacent land.	DTS/DPF 2.3 None are applicable.
Rehabilitation	
PO 3.1 Progressive rehabilitation (incorporating revegetation) of disturbed areas, ahead of or upon decommissioning of areas used for renewable energy facilities and transmission corridors.	DTS/DPF 3.1 None are applicable.
Hazard Management	
PO 4.1 Infrastructure and renewable energy facilities and ancillary development located and operated to not adversely impact maritime or air transport safety, including the operation of ports, airfields and landing strips.	DTS/DPF 4.1 None are applicable.
PO 4.2 Facilities for energy generation, power storage and transmission are separated as far as practicable from dwellings, tourist accommodation and frequently visited public places (such as viewing platforms / lookouts) to reduce risks to public safety from fire or equipment malfunction.	DTS/DPF 4.2 None are applicable.
PO 4.3 Bushfire hazard risk is minimised for renewable energy facilities by providing appropriate access tracks, safety equipment and water tanks and establishing cleared areas around substations, battery storage and operations compounds.	DTS/DPF 4.3 None are applicable.
Electricity Infrastructure and Battery Storage Facilities	
PO 5.1 Electricity infrastructure is located to minimise visual impacts through techniques including: (a) siting utilities and services: (i) on areas already cleared of native vegetation (ii) where there is minimal interference or disturbance to existing native vegetation or biodiversity (b) grouping utility buildings and structures with non-residential development, where practicable.	DTS/DPF 5.1 None are applicable.
PO 5.2	DTS/DPF 5.2

Electricity supply (excluding transmission lines) serving new development in urban areas and townships installed underground, excluding lines having a capacity exceeding or equal to 33kV.	None are applicable.
PO 5.3 Battery storage facilities are co-located with substation infrastructure where practicable to minimise the development footprint and reduce environmental impacts.	DTS/DPF 5.3 None are applicable.
Telecommunication Facilities	
PO 6.1 The proliferation of telecommunications facilities in the form of towers/monopoles in any one locality is managed, where technically feasible, by co-locating a facility with other communications facilities to mitigate impacts from clutter on visual amenity.	DTS/DPF 6.1 None are applicable.
PO 6.2 Telecommunications antennae are located as close as practicable to support structures to manage overall bulk and mitigate impacts on visual amenity.	DTS/DPF 6.2 None are applicable.
PO 6.3 Telecommunications facilities, particularly towers/monopoles, are located and sized to mitigate visual impacts by the following methods: (a) where technically feasible, incorporating the facility within an existing structure that may serve another purpose or all of the following: (b) using existing buildings and landscape features to obscure or interrupt views of a facility from nearby public roads, residential areas and places of high public amenity to the extent practical without unduly hindering the effective provision of telecommunications services (c) using materials and finishes that complement the environment (d) screening using landscaping and vegetation, particularly for equipment shelters and huts.	DTS/DPF 6.3 None are applicable.
Renewable Energy Facilities	
PO 7.1 Renewable energy facilities are located as close as practicable to existing transmission infrastructure to facilitate connections and minimise environmental impacts as a result of extending transmission infrastructure.	DTS/DPF 7.1 None are applicable.

Renewable Energy Facilities (Wind Farm)	
PO 8.1 Visual impact of wind turbine generators on the amenity of residential and tourist development is reduced through appropriate separation.	DTS/DPF 8.1 Wind turbine generators are: (a) set back at least 2000m from the base of a turbine to any of the following zones: (i) Rural Settlement Zone (ii) Township Zone (iii) Rural Living Zone (iv) Rural Neighbourhood Zone with an additional 10m setback per additional metre over 150m overall turbine height (measured from the base of the turbine). (b) set back at least 1500m from the base of the turbine to non-associated (non-stakeholder) dwellings and tourist accommodation
PO 8.2 The visual impact of wind turbine generators on natural landscapes is managed by: (a) designing wind turbine generators to be uniform in colour, size and shape (b) coordinating blade rotation and direction (c) mounting wind turbine generators on tubular towers as opposed to lattice towers.	DTS/DPF 8.2 None are applicable.
PO 8.3 Wind turbine generators and ancillary development minimise potential for bird and bat strike.	DTS/DPF 8.3 None are applicable.
PO 8.4 Wind turbine generators incorporate recognition systems or physical markers to minimise the risk to aircraft operations.	DTS/DPF 8.4 No Commonwealth air safety (CASA / ASA) or Defence requirement is applicable.
PO 8.5 Meteorological masts and guidewires are identifiable to aircraft through the use of colour bands, marker balls, high visibility sleeves or flashing strobes.	DTS/DPF 8.5 None are applicable.
Renewable Energy Facilities (Solar Power)	
PO 9.1 Ground mounted solar power facilities generating 5MW or more are not located on land requiring the clearance of areas of intact native vegetation or on land of high environmental, scenic or cultural value.	DTS/DPF 9.1 None are applicable.
PO 9.2 Ground mounted solar power facilities allow for movement of wildlife by: (a) incorporating wildlife corridors and habitat refuges	DTS/DPF 9.2 None are applicable.

<table>
<tr><td>(b) avoiding the use of extensive security or perimeter fencing or incorporating fencing that enables the passage of small animals without unreasonably compromising the security of the facility.</td><td></td></tr>
<tr><td>PO 9.3

Amenity impacts of solar power facilities are minimised through separation from conservation areas and sensitive receivers in other ownership.</td><td>DTS/DPF 9.3

Ground mounted solar power facilities are set back from land boundaries, conservation areas and relevant zones in accordance with the following criteria:

<table>
<tr><th>Generation Capacity</th><th>Approximate size of array</th><th>Setback from adjoining land boundary</th><th>Setback from conservation areas</th><th>Setback from Township, Rural Settlement, Rural Neighbourhood and Rural Living Zones[1]</th></tr>
<tr><td>50MW></td><td>80ha+</td><td>30m</td><td>500m</td><td>2km</td></tr>
<tr><td>10MW<50MW</td><td>16ha-<80ha</td><td>25m</td><td>500m</td><td>1.5km</td></tr>
<tr><td>5MW<10MW</td><td>8ha to <16ha</td><td>20m</td><td>500m</td><td>1km</td></tr>
<tr><td>1MW<5MW</td><td>1.6ha to <8ha</td><td>15m</td><td>500m</td><td>500m</td></tr>
<tr><td>100kW<1MW</td><td>0.5ha<1.6ha</td><td>10m</td><td>500m</td><td>100m</td></tr>
<tr><td><100kW</td><td><0.5ha</td><td>5m</td><td>500m</td><td>25m</td></tr>
</table>
Notes:

1. Does not apply when the site of the proposed ground mounted solar power facility is located within one of these zones.</td></tr>
<tr><td>PO 9.4

Ground mounted solar power facilities incorporate landscaping within setbacks from adjacent road frontages and boundaries of adjacent allotments accommodating non-host dwellings, where balanced with infrastructure access and bushfire safety considerations.</td><td>DTS/DPF 9.4

None are applicable.</td></tr>
<tr><td colspan="2">Hydropower / Pumped Hydropower Facilities</td></tr>
<tr><td>PO 10.1

Hydropower / pumped hydropower facility storage is designed and operated to minimise the risk of storage dam failure.</td><td>DTS/DPF 10.1

None are applicable.</td></tr>
</table>

PO 10.2 Hydropower / pumped hydropower facility storage is designed and operated to minimise water loss through increased evaporation or system leakage, with the incorporation of appropriate liners, dam covers, operational measures or detection systems.	DTS/DPF 10.2 None are applicable.
PO 10.3 Hydropower / pumped hydropower facilities on existing or former mine sites minimise environmental impacts from site contamination, including from mine operations or water sources subject to such processes, now or in the future.	DTS/DPF 10.3 None are applicable.
Water Supply	
PO 11.1 Development is connected to an appropriate water supply to meet the ongoing requirements of the intended use.	DTS/DPF 11.1 Development is connected, or will be connected, to a reticulated water scheme or mains water supply with the capacity to meet the on-going requirements of the development.
PO 11.2 Dwellings are connected to a reticulated water scheme or mains water supply with the capacity to meet the requirements of the intended use. Where this is not available an appropriate rainwater tank or storage system for domestic use is provided.	DTS/DPF 11.2 A dwelling is connected, or will be connected, to a reticulated water scheme or mains water supply with the capacity to meet the requirements of the development. Where this is not available it is serviced by a rainwater tank or tanks capable of holding at least 50,000 litres of water which is: (a) exclusively for domestic use (b) connected to the roof drainage system of the dwelling.
Wastewater Services	
PO 12.1 Development is connected to an approved common wastewater disposal service with the capacity to meet the requirements of the intended use. Where this is not available an appropriate on-site service is provided to meet the ongoing requirements of the intended use in accordance with the following: (a) it is wholly located and contained within the allotment of the development it will service (b) in areas where there is a high risk of contamination of surface, ground, or marine water resources from on-site disposal of liquid wastes, disposal systems are included to minimise the risk of pollution to those water resources (c) septic tank effluent drainage fields and other wastewater disposal areas are located away from watercourses and flood prone, sloping, saline or poorly drained land to minimise environmental harm.	DTS/DPF 12.1 Development is connected, or will be connected, to an approved common wastewater disposal service with the capacity to meet the requirements of the development. Where this is not available it is instead capable of being serviced by an on-site waste water treatment system in accordance with the following: (a) the system is wholly located and contained within the allotment of development it will service; and (b) the system will comply with the requirements of the South Australian Public Health Act 2011.
PO 12.2 Effluent drainage fields and other wastewater disposal areas are maintained to ensure the effective operation	DTS/DPF 12.2 Development is not built on, or encroaches within, an area that is, or will be, required for a sewerage system or waste control system.

of waste systems and minimise risks to human health and the environment.	
Temporary Facilities	
PO 13.1 In rural and remote locations, development that is likely to generate significant waste material during construction, including packaging waste, makes provision for a temporary on-site waste storage enclosure to minimise the incidence of wind-blown litter.	DTS/DPF 13.1 A waste collection and disposal service is used to dispose of the volume of waste at the rate it is generated.
PO 13.2 Temporary facilities to support the establishment of renewable energy facilities (including borrow pits, concrete batching plants, laydown, storage, access roads and worker amenity areas) are sited and operated to minimise environmental impact.	DTS/DPF 13.2 None are applicable.

Intensive Animal Husbandry and Dairies

Assessment Provisions (AP)

Desired Outcome	
DO 1	Development of intensive animal husbandry and dairies in locations that are protected from encroachment by sensitive receivers and in a manner that minimises their adverse effects on amenity and the environment.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Siting and Design	
PO 1.1 Intensive animal husbandry, dairies and associated activities are sited, designed, constructed and managed to not unreasonably impact on the environment or amenity of the locality.	DTS/DPF 1.1 None are applicable.
PO 1.2 Intensive animal husbandry, dairies and associated activities are sited, designed, constructed and managed to prevent the potential transmission of disease to other operations where animals are kept.	DTS/DPF 1.2 None are applicable.

PO 1.3 Intensive animal husbandry and associated activities such as wastewater lagoons and liquid/solid waste disposal areas are sited, designed, constructed and managed to not unreasonably impact on sensitive receivers in other ownership in terms of noise and air emissions.	DTS/DPF 1.3 None are applicable.
PO 1.4 Dairies and associated activities such as wastewater lagoons and liquid/solid waste disposal areas are sited, designed, constructed and managed to not unreasonably impact on sensitive receivers in other ownership in terms of noise and air emissions.	DTS/DPF 1.4 Dairies, associated wastewater lagoon(s) and liquid/solid waste storage and disposal facilities are located 500m or more from the nearest sensitive receiver in other ownership.
PO 1.5 Lagoons for the storage or treatment of milking shed effluent is adequately separated from roads to minimise impacts from odour on the general public.	DTS/DPF 1.5 Lagoons for the storage or treatment of milking shed effluent are set back 20m or more from public roads.
Waste	
PO 2.1 Storage of manure, used litter and other wastes (other than waste water lagoons) is sited, designed, constructed and managed to: (a) avoid attracting and harbouring vermin (b) avoid polluting water resources (c) be located outside 1% AEP flood event areas.	DTS/DPF 2.1 None are applicable.
Soil and Water Protection	
PO 3.1 To avoid environmental harm and adverse effects on water resources, intensive animal husbandry operations are appropriately set back from: (a) public water supply reservoirs (b) major watercourses (third order or higher stream) (c) any other watercourse, bore or well used for domestic or stock water supplies.	DTS/DPF 3.1 Intensive animal husbandry operations are set back: (a) 800m or more from a public water supply reservoir (b) 200m or more from a major watercourse (third order or higher stream) (c) 100m or more from any other watercourse, bore or well used for domestic or stock water supplies.
PO 3.2 Intensive animal husbandry operations and dairies incorporate appropriately designed effluent and run-off facilities that: (a) have sufficient capacity to hold effluent and runoff from the operations on site (b) ensure effluent does not infiltrate and pollute groundwater, soil or other water resources.	DTS/DPF 3.2 None are applicable.

Interface between Land Uses

Assessment Provisions (AP)

Desired Outcome	
DO 1	Development is located and designed to mitigate adverse effects on or from neighbouring and proximate land uses.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
General Land Use Compatibility	
PO 1.1 Sensitive receivers are designed and sited to protect residents and occupants from adverse impacts generated by lawfully existing land uses (or lawfully approved land uses) and land uses desired in the zone.	DTS/DPF 1.1 None are applicable.
PO 1.2 Development adjacent to a site containing a sensitive receiver (or lawfully approved sensitive receiver) or zone primarily intended to accommodate sensitive receivers is designed to minimise adverse impacts.	DTS/DPF 1.2 None are applicable.
Hours of Operation	
PO 2.1 Non-residential development does not unreasonably impact the amenity of sensitive receivers (or lawfully approved sensitive receivers) or an adjacent zone primarily for sensitive receivers through its hours of operation having regard to: (a) the nature of the development (b) measures to mitigate off-site impacts (c) the extent to which the development is desired in the zone (d) measures that might be taken in an adjacent zone primarily for sensitive receivers that mitigate adverse impacts without unreasonably compromising the intended use of that land.	DTS/DPF 2.1 Development operating within the following hours: **Class of Development** / **Hours of operation** Consulting room: 7am to 9pm, Monday to Friday; 8am to 5pm, Saturday Office: 7am to 9pm, Monday to Friday; 8am to 5pm, Saturday Shop, other than any one or combination of the following: (a) restaurant (b) cellar door in the Productive Rural Landscape Zone, Rural: 7am to 9pm, Monday to Friday; 8am to 5pm, Saturday and Sunday

	Zone or Rural Horticulture Zone	
Overshadowing		
PO 3.1 Overshadowing of habitable room windows of adjacent residential land uses in: a. a neighbourhood-type zone is minimised to maintain access to direct winter sunlight b. other zones is managed to enable access to direct winter sunlight.		DTS/DPF 3.1 North-facing windows of habitable rooms of adjacent residential land uses in a neighbourhood-type zone receive at least 3 hours of direct sunlight between 9.00am and 3.00pm on 21 June.
PO 3.2 Overshadowing of the primary area of private open space or communal open space of adjacent residential land uses in: a. a neighbourhood type zone is minimised to maintain access to direct winter sunlight b. other zones is managed to enable access to direct winter sunlight.		DTS/DPF 3.2 Development maintains 2 hours of direct sunlight between 9.00 am and 3.00 pm on 21 June to adjacent residential land uses in a neighbourhood-type zone in accordance with the following: a. for ground level private open space, the smaller of the following: i. half the existing ground level open space or ii. 35m2 of the existing ground level open space (with at least one of the area's dimensions measuring 2.5m) b. for ground level communal open space, at least half of the existing ground level open space.
PO 3.3 Development does not unduly reduce the generating capacity of adjacent rooftop solar energy facilities taking into account: (a) the form of development contemplated in the zone (b) the orientation of the solar energy facilities (c) the extent to which the solar energy facilities are already overshadowed.		DTS/DPF 3.3 None are applicable.
PO 3.4 Development that incorporates moving parts, including windmills and wind farms, are located and operated to not cause unreasonable nuisance to nearby dwellings and tourist accommodation caused by shadow flicker.		DTS/DPF 3.4 None are applicable.
Activities Generating Noise or Vibration		
PO 4.1 Development that emits noise (other than music) does not unreasonably impact the amenity of sensitive receivers (or lawfully approved sensitive receivers).		DTS/DPF 4.1 Noise that affects sensitive receivers achieves the relevant Environment Protection (Noise) Policy criteria.
PO 4.2 Areas for the on-site manoeuvring of service and delivery vehicles, plant and equipment, outdoor work spaces (and the like) are designed and sited to not unreasonably impact the		DTS/DPF 4.2 None are applicable.

amenity of adjacent sensitive receivers (or lawfully approved sensitive receivers) and zones primarily intended to accommodate sensitive receivers due to noise and vibration by adopting techniques including: (a) locating openings of buildings and associated services away from the interface with the adjacent sensitive receivers and zones primarily intended to accommodate sensitive receivers (b) when sited outdoors, locating such areas as far as practicable from adjacent sensitive receivers and zones primarily intended to accommodate sensitive receivers (c) housing plant and equipment within an enclosed structure or acoustic enclosure (d) providing a suitable acoustic barrier between the plant and / or equipment and the adjacent sensitive receiver boundary or zone.	
PO 4.3 Fixed plant and equipment in the form of pumps and/or filtration systems for a swimming pool or spa are positioned and/or housed to not cause unreasonable noise nuisance to adjacent sensitive receivers (or lawfully approved sensitive receivers).	DTS/DPF 4.3 The pump and/or filtration system ancillary to a dwelling erected on the same site is: (a) enclosed in a solid acoustic structure located at least 5m from the nearest habitable room located on an adjoining allotment or (b) located at least 12m from the nearest habitable room located on an adjoining allotment.
PO 4.4 External noise into bedrooms is minimised by separating or shielding these rooms from service equipment areas and fixed noise sources located on the same or an adjoining allotment.	DTS/DPF 4.4 Adjacent land is used for residential purposes.
PO 4.5 Outdoor areas associated with licensed premises (such as beer gardens or dining areas) are designed and/or sited to not cause unreasonable noise impact on existing adjacent sensitive receivers (or lawfully approved sensitive receivers).	DTS/DPF 4.5 None are applicable.
PO 4.6 Development incorporating music achieves suitable acoustic amenity when measured at the boundary of an adjacent sensitive receiver (or lawfully approved sensitive receiver) or zone primarily intended to accommodate sensitive receivers.	DTS/DPF 4.6 Development incorporating music includes noise attenuation measures that will achieve the following noise levels: **Assessment location** / **Music noise level** Externally at the nearest existing or envisaged noise sensitive location / Less than 8dB above the level of background noise ($L_{90,15min}$) in any octave band of the sound spectrum (LOCT10,15 < LOCT90,15 + 8dB)
Air Quality	
PO 5.1 Development with the potential to emit harmful or nuisance-	DTS/DPF 5.1 None are applicable.

generating air pollution incorporates air pollution control measures to prevent harm to human health or unreasonably impact the amenity of sensitive receivers (or lawfully approved sensitive receivers) within the locality and zones primarily intended to accommodate sensitive receivers.	
PO 5.2 Development that includes chimneys or exhaust flues (including cafes, restaurants and fast food outlets) is designed to minimise nuisance or adverse health impacts to sensitive receivers (or lawfully approved sensitive receivers) by: (a) incorporating appropriate treatment technology before exhaust emissions are released (b) locating and designing chimneys or exhaust flues to maximise the dispersion of exhaust emissions, taking into account the location of sensitive receivers.	DTS/DPF 5.2 None are applicable.
Light Spill	
PO 6.1 External lighting is positioned and designed to not cause unreasonable light spill impact on adjacent sensitive receivers (or lawfully approved sensitive receivers).	DTS/DPF 6.1 None are applicable.
PO 6.2 External lighting is not hazardous to motorists and cyclists.	DTS/DPF 6.2 None are applicable.
Solar Reflectivity / Glare	
PO 7.1 Development is designed and comprised of materials and finishes that do not unreasonably cause a distraction to adjacent road users and pedestrian areas or unreasonably cause heat loading and micro-climatic impacts on adjacent buildings and land uses as a result of reflective solar glare.	DTS/DPF 7.1 None are applicable.
Electrical Interference	
PO 8.1 Development in rural and remote areas does not unreasonably diminish or result in the loss of existing communication services due to electrical interference.	DTS/DPF 8.1 The building or structure: (a) is no greater than 10m in height, measured from existing ground level or (b) is not within a line of sight between a fixed transmitter and fixed receiver (antenna) other than where an alternative service is available via a different fixed transmitter or cable.
Interface with Rural Activities	
PO 9.1 Sensitive receivers are located and designed to mitigate impacts from lawfully existing horticultural and farming activities (or lawfully approved horticultural and farming activities), including spray drift and noise and do not prejudice the continued operation of these activities.	DTS/DPF 9.1 None are applicable.

PO 9.2 Sensitive receivers are located and designed to mitigate potential impacts from lawfully existing intensive animal husbandry activities and do not prejudice the continued operation of these activities.	DTS/DPF 9.2 None are applicable.
PO 9.3 Sensitive receivers are located and designed to mitigate potential impacts from lawfully existing land-based aquaculture activities and do not prejudice the continued operation of these activities.	DTS/DPF 9.3 Sensitive receivers are located at least 200m from the boundary of a site used for land-based aquaculture and associated components in other ownership.
PO 9.4 Sensitive receivers are located and designed to mitigate potential impacts from lawfully existing dairies including associated wastewater lagoons and liquid/solid waste storage and disposal facilities and do not prejudice the continued operation of these activities.	DTS/DPF 9.4 Sensitive receivers are sited at least 500m from the boundary of a site used for a dairy and associated wastewater lagoon(s) and liquid/solid waste storage and disposal facilities in other ownership.
PO 9.5 Sensitive receivers are located and designed to mitigate the potential impacts from lawfully existing facilities used for the handling, transportation and storage of bulk commodities (recognising the potential for extended hours of operation) and do not prejudice the continued operation of these activities.	DTS/DPF 9.5 Sensitive receivers are located away from the boundary of a site used for the handling, transportation and/or storage of bulk commodities in other ownership in accordance with the following: (a) 300m or more, where it involves the handling of agricultural crop products, rock, ores, minerals, petroleum products or chemicals to or from any commercial storage facility (b) 300m or more, where it involves the handling of agricultural crop products, rock, ores, minerals, petroleum products or chemicals at a wharf or wharf side facility (including sea-port grain terminals) where the handling of these materials into or from vessels does not exceed 100 tonnes per day (c) 500m or more, where it involves the storage of bulk petroleum in individual containers with a capacity up to 200 litres and a total on-site storage capacity not exceeding 1000 cubic metres (d) 500m or more, where it involves the handling of coal with a capacity up to 1 tonne per day or a storage capacity up to 50 tonnes (e) 1000m or more, where it involves the handling of coal with a capacity exceeding 1 tonne per day but not exceeding 100 tonnes per day or a storage capacity exceeding 50 tonnes but not exceeding 5000 tonnes.
PO 9.6 Setbacks and vegetation plantings along allotment boundaries should be incorporated to mitigate the potential impacts of spray drift and other impacts associated with agricultural and horticultural activities.	DTS/DPF 9.6 None are applicable.
PO 9.7 Urban development does not prejudice existing agricultural and horticultural activities through appropriate separation and design	DTS/DPF 9.7 None are applicable.

techniques.	
Interface with Mines and Quarries (Rural and Remote Areas)	
PO 10.1 Sensitive receivers are separated from existing mines to minimise the adverse impacts from noise, dust and vibration.	DTS/DPF 10.1 Sensitive receivers are located no closer than 500m from the boundary of a Mining Production Tenement under the *Mining Act 1971*.

Land Division

Assessment Provisions (AP)

Desired Outcome	
DO 1	Land division: (a) creates allotments with the appropriate dimensions and shape for their intended use (b) allows efficient provision of new infrastructure and the optimum use of underutilised infrastructure (c) integrates and allocates adequate and suitable land for the preservation of site features of value, including significant vegetation, watercourses, water bodies and other environmental features (d) facilitates solar access through allotment orientation (e) creates a compact urban form that supports active travel, walkability and the use of public transport (f) avoids areas of high natural hazard risk.

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
All land division	
Allotment configuration	
PO 1.1 Land division creates allotments suitable for their intended use.	DTS/DPF 1.1 Division of land satisfies (a) or (b): (a) reflects the site boundaries illustrated and approved in an operative or existing development authorisation for residential development under the *Development Act 1993* or *Planning, Development and Infrastructure Act 2016* where the allotments are used or are proposed to be used solely for residential purposes (b) is proposed as part of a combined land division application with deemed-to-satisfy dwellings on the proposed allotments.
PO 1.2 Land division considers the physical characteristics of the land, preservation of environmental and cultural features of value and the prevailing context of the locality.	DTS/DPF 1.2 None are applicable.

Design and Layout	
PO 2.1 Land division results in a pattern of development that minimises the likelihood of future earthworks and retaining walls.	DTS/DPF 2.1 None are applicable.
PO 2.2 Land division enables the appropriate management of interface impacts between potentially conflicting land uses and/or zones.	DTS/DPF 2.2 None are applicable.
PO 2.3 Land division maximises the number of allotments that face public open space and public streets.	DTS/DPF 2.3 None are applicable.
PO 2.4 Land division is integrated with site features, adjacent land uses, the existing transport network and available infrastructure.	DTS/DPF 2.4 None are applicable.
PO 2.5 Development and infrastructure is provided and staged in a manner that supports an orderly and economic provision of land, infrastructure and services.	DTS/DPF 2.5 None are applicable.
PO 2.6 Land division results in watercourses being retained within open space and development taking place on land not subject to flooding.	DTS/DPF 2.6 None are applicable.
PO 2.7 Land division results in legible street patterns connected to the surrounding street network.	DTS/DPF 2.7 None are applicable.
PO 2.8 Land division is designed to preserve existing vegetation of value including native vegetation and regulated and significant trees.	DTS/DPF 2.8 None are applicable.
Roads and Access	
PO 3.1 Land division provides allotments with access to an all-weather public road.	DTS/DPF 3.1 None are applicable.
PO 3.2 Street patterns and intersections are designed to enable the safe and efficient movement of pedestrian, cycle and vehicular traffic.	DTS/DPF 3.2 None are applicable.
PO 3.3 Land division does not impede access to publicly owned open space and/or recreation facilities.	DTS/DPF 3.3 None are applicable.
PO 3.4 Road reserves provide for safe and convenient movement and parking of projected volumes of vehicles and allow for the	DTS/DPF 3.4 None are applicable.

efficient movement of service and emergency vehicles.	
PO 3.5 Road reserves are designed to accommodate pedestrian and cycling infrastructure, street tree planting, landscaping and street furniture.	DTS/DPF 3.5 None are applicable.
PO 3.6 Road reserves accommodate stormwater drainage and public utilities.	DTS/DPF 3.6 None are applicable.
PO 3.7 Road reserves provide unobstructed vehicular access and egress to and from individual allotments and sites.	DTS/DPF 3.7 None are applicable.
PO 3.8 Street patterns and intersections are designed to enable the safe and efficient movement of pedestrian, cycle and vehicular traffic.	DTS/DPF 3.8 None are applicable.
PO 3.9 Roads, open space and thoroughfares provide safe and convenient linkages to the surrounding open space and transport network.	DTS/DPF 3.9 None are applicable.
PO 3.10 Public streets are designed to enable tree planting to provide shade and enhance the amenity of streetscapes.	DTS/DPF 3.10 None are applicable.
PO 3.11 Local streets are designed to create low-speed environments that are safe for cyclists and pedestrians.	DTS/DPF 3.11 None are applicable.
Infrastructure	
PO 4.1 Land division incorporates public utility services within road reserves or dedicated easements.	DTS/DPF 4.1 None are applicable.
PO 4.2 Waste water, sewage and other effluent is capable of being disposed of from each allotment without risk to public health or the environment.	DTS/DPF 4.2 Each allotment can be connected to: (a) a waste water treatment plant that has the hydraulic volume and pollutant load treatment and disposal capacity for the maximum predicted wastewater volume generated by subsequent development of the proposed allotment or (b) a form of on-site waste water treatment and disposal that meets relevant public health and environmental standards.
PO 4.3 Septic tank effluent drainage fields and other waste water disposal areas are maintained to ensure the effective operation	DTS/DPF 4.3 Development is not built on, or encroaches within, an area that is or will be, required for a sewerage system or waste control

of waste systems and minimise risks to human health and the environment.	system.
PO 4.4 Constructed wetland systems, including associated detention and retention basins, are sited and designed to ensure public health and safety is protected, including by minimising potential public health risks arising from the breeding of mosquitoes.	DTS/DPF 4.4 None are applicable.
PO 4.5 Constructed wetland systems, including associated detention and retention basins, are sited and designed to allow sediments to settle prior to discharge into watercourses or the marine environment.	DTS/DPF 4.5 None are applicable.
PO 4.6 Constructed wetland systems, including associated detention and retention basins, are sited and designed to function as a landscape feature.	DTS/DPF 4.6 None are applicable.
Minor Land Division (Under 20 Allotments)	
Open Space	
PO 5.1 Land division proposing an additional allotment under 1 hectare provides or supports the provision of open space.	DTS/DPF 5.1 None are applicable.
Solar Orientation	
PO 6.1 Land division for residential purposes facilitates solar access through allotment orientation.	DTS/DPF 6.1 None are applicable.
Water Sensitive Design	
PO 7.1 Land division creating a new road or common driveway includes stormwater management systems that minimise the discharge of sediment, suspended solids, organic matter, nutrients, bacteria, litter and other contaminants to the stormwater system, watercourses or other water bodies.	DTS/DPF 7.1 None are applicable.
PO 7.2 Land division designed to mitigate peak flows and manage the rate and duration of stormwater discharges from the site to ensure that the development does not increase the peak flows in downstream systems.	DTS/DPF 7.2 None are applicable.
Battle-Axe Development	
PO 8.1 Battle-axe development appropriately responds to the existing neighbourhood context.	DTS/DPF 8.1 Allotments are not in the form of a battle-axe arrangement.
PO 8.2 Battle-axe development designed to allow safe and convenient movement.	DTS/DPF 8.2 The handle of a battle-axe development:

	(a) has a minimum width of 4m or (b) where more than 3 allotments are proposed, a minimum width of 5.5m.
PO 8.3 Battle-axe allotments and/or common land are of a suitable size and dimension to allow passenger vehicles to enter and exit and manoeuvre within the site in a safe and convenient manner.	DTS/DPF 8.3 Battle-axe development allows a B85 passenger vehicle to enter and exit parking spaces in no more than a three-point turn manoeuvre.
PO 8.4 Battle-axe or common driveways incorporate landscaping and permeability to improve appearance and assist in stormwater management.	DTS/DPF 8.4 Battle-axe or common driveways satisfy (a) and (b): (a) are constructed of a minimum of 50% permeable or porous material (b) where the driveway is located directly adjacent the side or rear boundary of the site, soft landscaping with a minimum dimension of 1m is provided between the driveway and site boundary (excluding along the perimeter of a passing point).
Major Land Division (20+ Allotments)	
Open Space	
PO 9.1 Land division allocates or retains evenly distributed, high quality areas of open space to improve residential amenity and provide urban heat amelioration.	DTS/DPF 9.1 None are applicable.
PO 9.2 Land allocated for open space is suitable for its intended active and passive recreational use considering gradient and potential for inundation.	DTS/DPF 9.2 None are applicable.
PO 9.3 Land allocated for active recreation has dimensions capable of accommodating a range of active recreational activities.	DTS/DPF 9.3 None are applicable.
Water Sensitive Design	
PO 10.1 Land division creating 20 or more residential allotments includes a stormwater management system designed to mitigate peak flows and manage the rate and duration of stormwater discharges from the site to ensure that the development does not increase the peak flows in downstream systems.	DTS/DPF 10.1 None are applicable.
PO 10.2 Land division creating 20 or more non-residential allotments includes a stormwater management system designed to mitigate peak flows and manage the rate and duration of stormwater discharges from the site to ensure that the development does not increase the peak flows in downstream systems.	DTS/DPF 10.2 None are applicable.
PO 10.3 Land division creating 20 or more allotments includes	DTS/DPF 10.3 None are applicable.

stormwater management systems that minimise the discharge of sediment, suspended solids, organic matter, nutrients, bacteria, litter and other contaminants to the stormwater system, watercourses or other water bodies.	
Solar Orientation	
PO 11.1 Land division creating 20 or more allotments for residential purposes facilitates solar access through allotment orientation and allotment dimensions.	DTS/DPF 11.1 None are applicable.

Marinas and On-Water Structures

Assessment Provisions (AP)

Desired Outcome	
DO 1	Marinas and on-water structures are located and designed to minimise the impairment of commercial, recreational and navigational activities and adverse impacts on the environment.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Navigation and Safety	
PO 1.1 Safe public access is provided or maintained to the waterfront, public infrastructure and recreation areas.	DTS/DPF 1.1 None are applicable.
PO 1.2 The operation of wharves is not impaired by marinas and on-water structures.	DTS/DPF 1.2 None are applicable.
PO 1.3 Navigation and access channels are not impaired by marinas and on-water structures.	DTS/DPF 1.3 None are applicable.
PO 1.4 Commercial shipping lanes are not impaired by marinas and on-water structures.	DTS/DPF 1.4 Marinas and on-water structures are set back 250m or more from commercial shipping lanes.
PO 1.5 Marinas and on-water structures are located to avoid interfering	DTS/DPF 1.5 On-water structures are set back:

with the operation or function of a water supply pumping station.	(a) 3km or more from upstream water supply pumping station take-off points (b) 500m or more from downstream water supply pumping station take-off points.
PO 1.6 Maintenance of on-water infrastructure, including revetment walls, is not impaired by marinas and on-water structures.	DTS/DPF 1.6 None are applicable.
Environmental Protection	
PO 2.1 Development is sited and designed to facilitate water circulation and exchange.	DTS/DPF 2.1 None are applicable.

Open Space and Recreation

Assessment Provisions (AP)

Desired Outcome	
DO 1	Pleasant, functional and accessible open space and recreation facilities are provided at State, regional, district, neighbourhood and local levels for active and passive recreation, biodiversity, community health, urban cooling, tree canopy cover, visual amenity, gathering spaces, wildlife and waterway corridors, and a range of other functions and at a range of sizes that reflect the purpose of that open space.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Land Use and Intensity	
PO 1.1 Recreation facilities are compatible with surrounding land uses and activities.	DTS/DPF 1.1 None are applicable.
PO 1.2 Open space areas include natural or landscaped areas using locally indigenous plant species and large trees.	DTS/DPF 1.2 None are applicable.
Design and Siting	
PO 2.1 Open space and recreation facilities address adjacent public roads to optimise pedestrian access and visibility.	DTS/DPF 2.1 None are applicable.

PO 2.2 Open space and recreation facilities incorporate park furniture, shaded areas and resting places.	DTS/DPF 2.2 None are applicable.
PO 2.3 Open space and recreation facilities link habitats, wildlife corridors and existing open spaces and recreation facilities.	DTS/DPF 2.3 None are applicable.
Pedestrians and Cyclists	
PO 3.1 Open space incorporates: (a) pedestrian and cycle linkages to other open spaces, centres, schools and public transport nodes; (b) safe crossing points where pedestrian routes intersect the road network; (c) easily identified access points.	DTS/DPF 3.1 None are applicable.
Usability	
PO 4.1 Land allocated for open space is suitable for its intended active and passive recreational use taking into consideration its gradient and potential for inundation.	DTS/DPF 4.1 None are applicable.
Safety and Security	
PO 5.1 Open space is overlooked by housing, commercial or other development to provide casual surveillance where possible.	DTS/DPF 5.1 None are applicable.
PO 5.2 Play equipment is located to maximise opportunities for passive surveillance.	DTS/DPF 5.2 None are applicable.
PO 5.3 Landscaping provided in open space and recreation facilities maximises opportunities for casual surveillance throughout the park.	DTS/DPF 5.3 None are applicable.
PO 5.4 Fenced parks and playgrounds have more than one entrance or exit to minimise potential entrapment.	DTS/DPF 5.4 None are applicable.
PO 5.5 Adequate lighting is provided around toilets, telephones, seating, litter bins, bicycle storage, car parks and other such facilities.	DTS/DPF 5.5 None are applicable.
PO 5.6 Pedestrian and bicycle movement after dark is focused along clearly defined, adequately lit routes with observable entries and exits.	DTS/DPF 5.6 None are applicable.
Signage	

PO 6.1 Signage is provided at entrances to and within the open space and recreation facilities to provide clear orientation to major points of interest such as the location of public toilets, telephones, safe routes, park activities and the like.	DTS/DPF 6.1 None are applicable.
Buildings and Structures	
PO 7.1 Buildings and car parking areas in open space areas are designed, located and of a scale to be unobtrusive.	DTS/DPF 7.1 None are applicable.
PO 7.2 Buildings and structures in open space areas are clustered where practical to ensure that the majority of the site remains open.	DTS/DPF 7.2 None are applicable.
PO 7.3 Development in open space is constructed to minimise the extent of impervious surfaces.	DTS/DPF 7.3 None are applicable.
PO 7.4 Development that abuts or includes a coastal reserve or Crown land used for scenic, conservation or recreational purposes is located and designed to have regard to the purpose, management and amenity of the reserve.	DTS/DPF 7.4 None are applicable.
Landscaping	
PO 8.1 Open space and recreation facilities provide for the planting and retention of large trees and vegetation.	DTS/DPF 8.1 None are applicable.
PO 8.2 Landscaping in open space and recreation facilities provides shade and windbreaks: (a) along cyclist and pedestrian routes; (b) around picnic and barbecue areas; (c) in car parking areas.	DTS/DPF 8.2 None are applicable.
PO 8.3 Landscaping in open space facilitates habitat for local fauna and facilitates biodiversity.	DTS/DPF 8.3 None are applicable.
PO 8.4 Landscaping including trees and other vegetation passively watered with local rainfall run-off, where practicable.	DTS/DPF 8.4 None are applicable.

Out of Activity Centre Development

Assessment Provisions (AP)

Desired Outcome

DO1	The role of Activity Centres in contributing to the form and pattern of development and enabling equitable and convenient access to a range of shopping, administrative, cultural, entertainment and other facilities in a single trip is maintained and reinforced.

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
PO 1.1 Non-residential development outside Activity Centres of a scale and type that does not diminish the role of Activity Centres: (a) as primary locations for shopping, administrative, cultural, entertainment and community services (b) as a focus for regular social and business gatherings (c) in contributing to or maintaining a pattern of development that supports equitable community access to services and facilities.	DTS/DPF 1.1 None are applicable.
PO 1.2 Out-of-activity centre non-residential development complements Activity Centres through the provision of services and facilities: (a) that support the needs of local residents and workers, particularly in underserviced locations (b) at the edge of Activities Centres where they cannot readily be accommodated within an existing Activity Centre to expand the range of services on offer and support the role of the Activity Centre.	DTS/DPF 1.2 None are applicable.

Resource Extraction

Assessment Provisions (AP)

Desired Outcome	
DO 1	Resource extraction activities are developed in a manner that minimises human and environmental impacts.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Land Use and Intensity	

PO 1.1 Resource extraction activities minimise landscape damage outside of those areas unavoidably disturbed to access and exploit a resource and provide for the progressive reclamation and betterment of disturbed areas.	DTS/DPF 1.1 None are applicable.
PO 1.2 Resource extraction activities avoid damage to cultural sites or artefacts.	DTS/DPF 1.2 None are applicable.
Water Quality	
PO 2.1 Stormwater and/or wastewater from resource extraction activities is diverted into appropriately sized treatment and retention systems to enable reuse on site.	DTS/DPF 2.1 None are applicable.
Separation Treatments, Buffers and Landscaping	
PO 3.1 Resource extraction activities minimise adverse impacts upon sensitive receivers through incorporation of separation distances and/or mounding/vegetation.	DTS/DPF 3.1 None are applicable.
PO 3.2 Resource extraction activities are screened from view from adjacent land by perimeter landscaping and/or mounding.	DTS/DPF 3.2 None are applicable.

Site Contamination

Assessment Provisions (AP)

Desired Outcome	
DO 1	Ensure land is suitable for the proposed use in circumstances where it is, or may have been, subject to site contamination.

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
PO 1.1 Ensure land is suitable for use when land use changes to a more sensitive use.	DTS/DPF 1.1 Development satisfies (a), (b), (c) or (d): (a) does not involve a change in the use of land (b) involves a change in the use of land that does not constitute a change to a more sensitive use (c) involves a change in the use of land to a more sensitive use on land at which site contamination is unlikely to exist (as demonstrated in a site contamination declaration form)

	(d) involves a change in the use of land to a more sensitive use on land at which site contamination exists, or may exist (as demonstrated in a site contamination declaration form), and satisfies both of the following: (i) a site contamination audit report has been prepared under Part 10A of the *Environment Protection Act 1993* in relation to the land within the previous 5 years which states that- A. site contamination does not exist (or no longer exists) at the land or B. the land is suitable for the proposed use or range of uses (without the need for any further remediation) or C. where remediation is, or remains, necessary for the proposed use (or range of uses), remediation work has been carried out or will be carried out (and the applicant has provided a written undertaking that the remediation works will be implemented in association with the development) and (ii) no other class 1 activity or class 2 activity has taken place at the land since the preparation of the site contamination audit report (as demonstrated in a site contamination declaration form).

Tourism Development

Assessment Provisions (AP)

Desired Outcome	
DO 1	Tourism development is built in locations that cater to the needs of visitors and positively contributes to South Australia's visitor economy.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
General	
PO 1.1 Tourism development complements and contributes to local, natural, cultural or historical context where:	DTS/DPF 1.1 None are applicable.

(a) it supports immersive natural experiences (b) it showcases South Australia's landscapes and produce (c) its events and functions are connected to local food, wine and nature.	
PO 1.2 Tourism development comprising multiple accommodation units (including any facilities and activities for use by guests and visitors) is clustered to minimise environmental and contextual impact.	DTS/DPF 1.2 None are applicable.
Caravan and Tourist Parks	
PO 2.1 Potential conflicts between long-term residents and short-term tourists are minimised through suitable siting and design measures.	DTS/DPF 2.1 None are applicable.
PO 2.2 Occupants are provided privacy and amenity through landscaping and fencing.	DTS/DPF 2.2 None are applicable.
PO 2.3 Communal open space and centrally located recreation facilities are provided for guests and visitors.	DTS/DPF 2.3 12.5% or more of a caravan park comprises clearly defined communal open space, landscaped areas and areas for recreation.
PO 2.4 Perimeter landscaping is used to enhance the amenity of the locality.	DTS/DPF 2.4 None are applicable.
PO 2.5 Amenity blocks (showers, toilets, laundry and kitchen facilities) are sufficient to serve the full occupancy of the development.	DTS/DPF 2.5 None are applicable.
PO 2.6 Long-term occupation does not displace tourist accommodation, particularly in important tourist destinations such as coastal and riverine locations.	DTS/DPF 2.6 None are applicable.
Tourist accommodation in areas constituted under the National Parks and Wildlife Act 1972	
PO 3.1 Tourist accommodation avoids delicate or environmentally sensitive areas such as sand dunes, cliff tops, estuaries, wetlands or substantially intact strata of native vegetation (including regenerated areas of native vegetation lost through bushfire).	DTS/DPF 3.1 None are applicable.
PO 3.2 Tourist accommodation is sited and designed in a manner that is subservient to the natural environment and where adverse impacts on natural features, landscapes, habitats and cultural	DTS/DPF 3.2 None are applicable.

assets are avoided.	
PO 3.3 Tourist accommodation and recreational facilities, including associated access ways and ancillary structures, are located on cleared (other than where cleared as a result of bushfire) or degraded areas or where environmental improvements can be achieved.	DTS/DPF 3.3 None are applicable.
PO 3.4 Tourist accommodation is designed to prevent conversion to private dwellings through: (a) comprising a minimum of 10 accommodation units (b) clustering separated individual accommodation units (c) being of a size unsuitable for a private dwelling (d) ensuring functional areas that are generally associated with a private dwelling such as kitchens and laundries are excluded from, or physically separated from individual accommodation units, or are of a size unsuitable for a private dwelling.	DTS/DPF 3.4 None are applicable.

Transport, Access and Parking

Assessment Provisions (AP)

Desired Outcome	
DO 1	A comprehensive, integrated and connected transport system that is safe, sustainable, efficient, convenient and accessible to all users.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Movement Systems	
PO 1.1 Development is integrated with the existing transport system and designed to minimise its potential impact on the functional performance of the transport system.	DTS/DPF 1.1 None are applicable.
PO 1.2 Development is designed to discourage commercial and industrial vehicle movements through residential streets and adjacent other sensitive receivers.	DTS/DPF 1.2 None are applicable.

PO 1.3 Industrial, commercial and service vehicle movements, loading areas and designated parking spaces are separated from passenger vehicle car parking areas to ensure efficient and safe movement and minimise potential conflict.	DTS/DPF 1.3 None are applicable.
PO 1.4 Development is sited and designed so that loading, unloading and turning of all traffic avoids interrupting the operation of and queuing on public roads and pedestrian paths.	DTS/DPF 1.4 All vehicle manoeuvring occurs onsite.
Sightlines	
PO 2.1 Sightlines at intersections, pedestrian and cycle crossings, and crossovers to allotments for motorists, cyclists and pedestrians are maintained or enhanced to ensure safety for all road users and pedestrians.	DTS/DPF 2.1 None are applicable.
PO 2.2 Walls, fencing and landscaping adjacent to driveways and corner sites are designed to provide adequate sightlines between vehicles and pedestrians.	DTS/DPF 2.2 None are applicable.
Vehicle Access	
PO 3.1 Safe and convenient access minimises impact or interruption on the operation of public roads.	DTS/DPF 3.1 The access is: (a) provided via a lawfully existing or authorised driveway or access point or an access point for which consent has been granted as part of an application for the division of land or (b) not located within 6m of an intersection of 2 or more roads or a pedestrian activated crossing.
PO 3.2 Development incorporating vehicular access ramps ensures vehicles can enter and exit a site safely and without creating a hazard to pedestrians and other vehicular traffic.	DTS/DPF 3.2 None are applicable.
PO 3.3 Access points are sited and designed to accommodate the type and volume of traffic likely to be generated by the development or land use.	DTS/DPF 3.3 None are applicable.
PO 3.4 Access points are sited and designed to minimise any adverse impacts on neighbouring properties.	DTS/DPF 3.4 None are applicable.
PO 3.5	DTS/DPF 3.5

Access points are located so as not to interfere with street trees, existing street furniture (including directional signs, lighting, seating and weather shelters) or infrastructure services to maintain the appearance of the streetscape, preserve local amenity and minimise disruption to utility infrastructure assets.	Vehicle access to designated car parking spaces satisfy (a) or (b): (a) is provided via a lawfully existing or authorised access point or an access point for which consent has been granted as part of an application for the division of land (b) where newly proposed, is set back: (i) 0.5m or more from any street furniture, street pole, infrastructure services pit, or other stormwater or utility infrastructure unless consent is provided from the asset owner (ii) 2m or more from the base of the trunk of a street tree unless consent is provided from the tree owner for a lesser distance (iii) 6m or more from the tangent point of an intersection of 2 or more roads (iv) outside of the marked lines or infrastructure dedicating a pedestrian crossing.
PO 3.6 Driveways and access points are separated and minimised in number to optimise the provision of on-street visitor parking (where on-street parking is appropriate).	DTS/DPF 3.6 Driveways and access points: (a) for sites with a frontage to a public road of 20m or less, one access point no greater than 3.5m in width is provided (b) for sites with a frontage to a public road greater than 20m: (i) a single access point no greater than 6m in width is provided or (ii) not more than two access points with a width of 3.5m each are provided.
PO 3.7 Access points are appropriately separated from level crossings to avoid interference and ensure their safe ongoing operation.	DTS/DPF 3.7 Development does not involve a new or modified access or cause an increase in traffic through an existing access that is located within the following distance from a railway crossing: (a) 80 km/h road - 110m (b) 70 km/h road - 90m (c) 60 km/h road - 70m (d) 50km/h or less road - 50m.
PO 3.8 Driveways, access points, access tracks and parking areas are designed and constructed to allow adequate movement and manoeuvrability having regard to the types of vehicles that are reasonably anticipated.	DTS/DPF 3.8 None are applicable.
PO 3.9 Development is designed to ensure vehicle circulation between activity areas occurs within the site without the need to use public roads.	DTS/DPF 3.9 None are applicable.
Access for People with Disabilities	
PO 4.1	DTS/DPF 4.1

Development is sited and designed to provide safe, dignified and convenient access for people with a disability.	None are applicable.
Vehicle Parking Rates	
PO 5.1 Sufficient on-site vehicle parking and specifically marked accessible car parking places are provided to meet the needs of the development or land use having regard to factors that may support a reduced on-site rate such as: (a) availability of on-street car parking (b) shared use of other parking areas (c) in relation to a mixed-use development, where the hours of operation of commercial activities complement the residential use of the site, the provision of vehicle parking may be shared (d) the adaptive reuse of a State or Local Heritage Place.	DTS/DPF 5.1 Development provides a number of car parking spaces on-site at a rate no less than the amount calculated using one of the following, whichever is relevant: (a) Transport, Access and Parking Table 1 - General Off-Street Car Parking Requirements (b) Transport, Access and Parking Table 2 - Off-Street Vehicle Parking Requirements in Designated Areas (c) if located in an area where a lawfully established carparking fund operates, the number of spaces calculated under (a) or (b) less the number of spaces offset by contribution to the fund.
Vehicle Parking Areas	
PO 6.1 Vehicle parking areas are sited and designed to minimise impact on the operation of public roads by avoiding the use of public roads when moving from one part of a parking area to another.	DTS/DPF 6.1 Movement between vehicle parking areas within the site can occur without the need to use a public road.
PO 6.2 Vehicle parking areas are appropriately located, designed and constructed to minimise impacts on adjacent sensitive receivers through measures such as ensuring they are attractively developed and landscaped, screen fenced, and the like.	DTS/DPF 6.2 None are applicable.
PO 6.3 Vehicle parking areas are designed to provide opportunity for integration and shared-use of adjacent car parking areas to reduce the total extent of vehicle parking areas and access points.	DTS/DPF 6.3 None are applicable.
PO 6.4 Pedestrian linkages between parking areas and the development are provided and are safe and convenient.	DTS/DPF 6.4 None are applicable.
PO 6.5 Vehicle parking areas that are likely to be used during non-daylight hours are provided with sufficient lighting to entry and exit points to ensure clear visibility to users.	DTS/DPF 6.5 None are applicable.
PO 6.6 Loading areas and designated parking spaces for service vehicles are provided within the boundary of the site.	DTS/DPF 6.6 Loading areas and designated parking spaces are wholly located within the site.
PO 6.7 On-site visitor parking spaces are sited and designed to be accessible to all visitors at all times.	DTS/DPF 6.7 None are applicable.

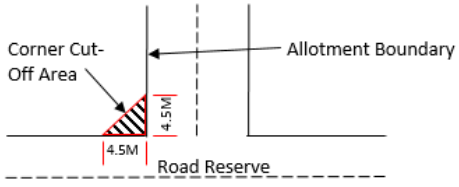
Undercroft and Below Ground Garaging and Parking of Vehicles	
PO 7.1 Undercroft and below ground garaging of vehicles is designed to enable safe entry and exit from the site without compromising pedestrian or cyclist safety or causing conflict with other vehicles.	DTS/DPF 7.1 None are applicable.
Internal Roads and Parking Areas in Residential Parks and Caravan and Tourist Parks	
PO 8.1 Internal road and vehicle parking areas are surfaced to prevent dust becoming a nuisance to park residents and occupants.	DTS/DPF 8.1 None are applicable.
PO 8.2 Traffic circulation and movement within the park is pedestrian friendly and promotes low speed vehicle movement.	DTS/DPF 8.2 None are applicable.
Bicycle Parking in Designated Areas	
PO 9.1 The provision of adequately sized on-site bicycle parking facilities encourages cycling as an active transport mode.	DTS/DPF 9.1 Areas and / or fixtures are provided for the parking and storage of bicycles at a rate not less than the amount calculated using Transport, Access and Parking Table 3 - Off Street Bicycle Parking Requirements.
PO 9.2 Bicycle parking facilities provide for the secure storage and tethering of bicycles in a place where casual surveillance is possible, is well lit and signed for the safety and convenience of cyclists and deters property theft.	DTS/DPF 9.2 None are applicable.
PO 9.3 Non-residential development incorporates end-of-journey facilities for employees such as showers, changing facilities and secure lockers, and signage indicating the location of the facilities to encourage cycling as a mode of journey-to-work transport.	DTS/DPF 9.3 None are applicable.
Corner Cut-Offs	
PO 10.1 Development is located and designed to ensure drivers can safely turn into and out of public road junctions.	DTS/DPF 10.1 Development does not involve building work, or building work is located wholly outside the land shown as Corner Cut-Off Area in the following diagram: 

Table 1 - General Off-Street Car Parking Requirements

The following parking rates apply and if located in an area where a lawfully established carparking fund operates, the number of spaces is reduced by an amount equal to the number of spaces offset by contribution to the fund.

Class of Development	Car Parking Rate (unless varied by Table 2 onwards) Where a development comprises more than one development type, then the overall car parking rate will be taken to be the sum of the car parking rates for each development type.
Residential Development	
Detached Dwelling	Dwelling with 1 bedroom (including rooms capable of being used as a bedroom) - 1 space per dwelling. Dwelling with 2 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling, 1 of which is to be covered.
Group Dwelling	Dwelling with 1 or 2 bedrooms (including rooms capable of being used as a bedroom) - 1 space per dwelling. Dwelling with 3 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling, 1 of which is to be covered. 0.33 spaces per dwelling for visitor parking where development involves 3 or more dwellings.
Residential Flat Building	Dwelling with 1 or 2 bedrooms (including rooms capable of being used as a bedroom) - 1 space per dwelling. Dwelling with 3 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling, 1 of which is to be covered. 0.33 spaces per dwelling for visitor parking where development involves 3 or more dwellings.
Row Dwelling where vehicle access is from the primary street	Dwelling with 1 bedroom (including rooms capable of being used as a bedroom) - 1 space per dwelling. Dwelling with 2 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling, 1 of which is to be covered.
Row Dwelling where vehicle access is not from the primary street (i.e. rear-loaded)	Dwelling with 1 or 2 bedrooms (including rooms capable of being used as a bedroom) - 1 space per dwelling. Dwelling with 3 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling, 1 of which is to be covered.
Semi-Detached Dwelling	Dwelling with 1 bedroom (including rooms capable of being used as a bedroom) - 1 space per dwelling. Dwelling with 2 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling, 1 of which is to be covered.
Aged / Supported Accommodation	
Retirement village	Dwelling with 1 or 2 bedrooms (including rooms capable of being used as a bedroom) - 1 space per dwelling. Dwelling with 3 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling. 0.2 spaces per dwelling for visitor parking.

Supported accommodation	0.3 spaces per bed.
Residential Development (Other)	
Ancillary accommodation	No additional requirements beyond those associated with the main dwelling.
Residential park	Dwelling with 1 or 2 bedrooms (including rooms capable of being used as a bedroom) - 1 space per dwelling. Dwelling with 3 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling. 0.2 spaces per dwelling for visitor parking.
Student accommodation	0.3 spaces per bed.
Workers' accommodation	0.5 spaces per bed plus 0.2 spaces per bed for visitor parking.
Tourist	
Caravan park / tourist park	Parks with 100 sites or less - a minimum of 1 space per 10 sites to be used for accommodation. Parks with more than 100 sites - a minimum of 1 space per 15 sites used for accommodation. A minimum of 1 space for every caravan (permanently fixed to the ground) or cabin.
Tourist accommodation	1 car parking space per accommodation unit / guest room.
Commercial Uses	
Auction room/ depot	1 space per 100m^2 of building floor area plus an additional 2 spaces.
Automotive collision repair	3 spaces per service bay.
Call centre	8 spaces per 100m^2 of gross leasable floor area.
Motor repair station	3 spaces per service bay.
Office	4 spaces per 100m^2 of gross leasable floor area.
Retail fuel outlet	3 spaces per 100m^2 gross leasable floor area.
Service trade premises	2.5 spaces per 100m^2 of gross leasable floor area 1 space per 100m^2 of outdoor area used for display purposes.
Shop (no commercial kitchen)	5.5 spaces per 100m^2 of gross leasable floor area where not located in an integrated complex containing two or more tenancies (and which may comprise more than one building) where facilities for off-street vehicle parking, vehicle loading and unloading, and the storage and collection of refuse are shared.

	5 spaces per 100m^2 of gross leasable floor area where located in an integrated complex containing two or more tenancies (and which may comprise more than one building) where facilities for off-street vehicle parking, vehicle loading and unloading, and the storage and collection of refuse are shared.
Shop (in the form of a bulky goods outlet)	2.5 spaces per 100m^2 of gross leasable floor area.
Shop (in the form of a restaurant or involving a commercial kitchen)	Premises with a dine-in service only (which may include a take-away component with no drive-through) - 0.4 spaces per seat. Premises with take-away service but with no seats - 12 spaces per 100m^2 of total floor area plus a drive-through queue capacity of ten vehicles measured from the pick-up point. Premises with a dine-in and drive-through take-away service - 0.3 spaces per seat plus a drive through queue capacity of 10 vehicles measured from the pick-up point.
Community and Civic Uses	
Childcare centre	0.25 spaces per child
Library	4 spaces per 100m^2 of total floor area.
Community facility	10 spaces per 100m^2 of total floor area.
Hall / meeting hall	0.2 spaces per seat.
Place of worship	1 space for every 3 visitor seats.
Pre-school	1 per employee plus 0.25 per child (drop off/pick up bays)
Educational establishment	For a primary school - 1.1 space per full time equivalent employee plus 0.25 spaces per student for a pickup/set down area either on-site or on the public realm within 300m of the site. For a secondary school - 1.1 per full time equivalent employee plus 0.1 spaces per student for a pickup/set down area either on-site or on the public realm within 300m of the site. For a tertiary institution - 0.4 per student based on the maximum number of students on the site at any time.
Health Related Uses	
Hospital	4.5 spaces per bed for a public hospital. 1.5 spaces per bed for a private hospital.

Consulting room	4 spaces per consulting room excluding ancillary facilities.
Recreational and Entertainment Uses	
Cinema complex	0.2 spaces per seat.
Concert hall / theatre	0.2 spaces per seat.
Hotel	1 space for every 2m^2 of total floor area in a public bar plus 1 space for every 6m^2 of total floor area available to the public in a lounge, beer garden plus 1 space per 2 gaming machines, plus 1 space per 3 seats in a restaurant.
Indoor recreation facility	6.5 spaces per 100m^2 of total floor area for a Fitness Centre 4.5 spaces per 100m^2 of total floor area for all other Indoor recreation facilities.
Industry/Employment Uses	
Fuel depot	1.5 spaces per 100m^2 total floor area 1 spaces per 100m^2 of outdoor area used for fuel depot activity purposes.
Industry	1.5 spaces per 100m^2 of total floor area.
Store	0.5 spaces per 100m^2 of total floor area.
Timber yard	1.5 spaces per 100m^2 of total floor area 1 space per 100m^2 of outdoor area used for display purposes.
Warehouse	0.5 spaces per 100m^2 total floor area.
Other Uses	
Funeral Parlour	1 space per 5 seats in the chapel plus 1 space for each vehicle operated by the parlour.
Radio or Television Station	5 spaces per 100m^2 of total building floor area.

Table 2 - Off-Street Car Parking Requirements in Designated Areas

The following parking rates apply in any zone, subzone or other area described in the 'Designated Areas' column subject to the following:

(a) the location of the development is unable to satisfy the requirements of Table 2 – Criteria (other than where a location is exempted from the application of those criteria)

or

(b) the development satisfies Table 2 – Criteria (or is exempt from those criteria) and is located in an area where a lawfully established carparking fund operates, in which case the number of spaces are reduced by an amount equal to the number of spaces offset by contribution to the fund.

Class of Development	Car Parking Rate Where a development comprises more than one development type, then the overall car parking rate will be taken to be the sum of the car parking rates for each development type.		Designated Areas
	Minimum number of spaces	Maximum number of spaces	
Development generally			
All classes of development	No minimum.	No maximum except in the Primary Pedestrian Area identified in the Primary Pedestrian Area Concept Plan, where the maximum is: 1 space for each dwelling with a total floor area less than 75 square metres 2 spaces for each dwelling with a total floor area between 75 square metres and 150 square metres 3 spaces for each dwelling with a total floor area greater than 150 square metres. Residential flat building or Residential component of a multi-storey building: 1 visitor space for each 6 dwellings.	Capital City Zone City Main Street Zone City Riverbank Zone Adelaide Park Lands Zone Business Neighbourhood Zone (within the City of Adelaide) The St Andrews Hospital Precinct Subzone and Women's and Children's Hospital Precinct Subzone of the Community Facilities Zone
Non-residential development			
Non-residential development excluding tourist accommodation	3 spaces per 100m^2 of gross leasable floor area.	5 spaces per 100m^2 of gross leasable floor area.	City Living Zone Urban Corridor (Boulevard) Zone Urban Corridor (Business) Zone Urban Corridor (Living) Zone Urban Corridor (Main Street) Zone Urban Neighbourhood Zone
Non-residential development excluding tourist accommodation	3 spaces per 100m^2 of gross leasable floor area.	6 spaces per 100m^2 of gross leasable floor area.	Strategic Innovation Zone Suburban Activity Centre Zone Suburban Business Zone Business Neighbourhood Zone Suburban Main Street Zone

			Urban Activity Centre Zone
Tourist accommodation	1 space for every 4 bedrooms up to 100 bedrooms plus 1 space for every 5 bedrooms over 100 bedrooms	1 space per 2 bedrooms up to 100 bedrooms and 1 space per 4 bedrooms over 100 bedrooms	City Living Zone Urban Activity Centre Zone Urban Corridor (Boulevard) Zone Urban Corridor (Business) Zone Urban Corridor (Living) Zone Urban Corridor (Main Street) Zone Urban Neighbourhood Zone
Residential development			
Residential component of a multi-storey building	Dwelling with no separate bedroom -0.25 spaces per dwelling 1 bedroom dwelling - 0.75 spaces per dwelling 2 bedroom dwelling - 1 space per dwelling 3 or more bedroom dwelling - 1.25 spaces per dwelling 0.25 spaces per dwelling for visitor parking.	None specified.	City Living Zone Strategic Innovation Zone Urban Activity Centre Zone Urban Corridor (Boulevard) Zone Urban Corridor (Business) Zone Urban Corridor (Living) Zone Urban Corridor (Main Street) Zone Urban Neighbourhood Zone
Residential flat building	Dwelling with no separate bedroom -0.25 spaces per dwelling 1 bedroom dwelling - 0.75 spaces per dwelling 2 bedroom dwelling - 1 space per dwelling 3 or more bedroom dwelling - 1.25 spaces per dwelling 0.25 spaces per dwelling for visitor parking.	None specified.	City Living Zone Urban Activity Centre Zone Urban Corridor (Boulevard) Zone Urban Corridor (Business) Zone Urban Corridor (Living) Zone Urban Corridor (Main Street) Zone Urban Neighbourhood Zone

Table 2 - Criteria:
The following criteria are used in conjunction with Table 2. The 'Exception' column identifies locations where the criteria do not apply and the car parking rates in Table 2 are applicable.

Criteria	Exceptions

The designated area is wholly located within Metropolitan Adelaide and any part of the development site satisfies one or more of the following: (a) is within 200 metres of any section of road reserve along which a bus service operates as a high frequency public transit service(2) (b) is within 400 metres of a bus interchange(1) (c) is within 400 metres of an O-Bahn interchange(1) (d) is within 400 metres of a passenger rail station(1) (e) is within 400 metres of a passenger tram station(1) (f) is within 400 metres of the Adelaide Parklands.	(a) All zones in the City of Adelaide (b) Strategic Innovation Zone in the following locations: (i) City of Burnside (ii) City of Marion (iii) City of Mitcham (c) Urban Corridor (Boulevard) Zone (d) Urban Corridor (Business) Zone (e) Urban Corridor (Living) Zone (f) Urban Corridor (Main Street) Zone (g) Urban Neighbourhood Zone

[NOTE(S): (1)Measured from an area that contains any platform(s), shelter(s) or stop(s) where people congregate for the purpose waiting to board a bus, tram or train, but does not include areas used for the parking of vehicles. (2) A high frequency public transit service is a route serviced every 15 minutes between 7.30am and 6.30pm Monday to Friday and every 30 minutes at night, Saturday, Sunday and public holidays until 10pm.]

Table 3 - Off-Street Bicycle Parking Requirements

The bicycle parking rates apply within designated areas located within parts of the State identified in the Schedule to Table 3.

Class of Development	Bicycle Parking Rate **Where a development comprises more than one development type, then the overall bicycle parking rate will be taken to be the sum of the bicycle parking rates for each development type.**
Consulting Room	1 space per 20 employees plus 1 space per 20 consulting rooms for customers.
Educational establishment	For a secondary school - 1 space per 20 full-time time employees plus 10 percent of the total number of employee spaces for visitors. For tertiary education - 1 space per 20 employees plus 1 space per 10 full time students.
Hospital	1 space per 15 beds plus 1 space per 30 beds for visitors.
Indoor recreation facility	1 space per 4 employees plus 1 space per 200m^2 of gross leasable floor area for visitors.
Licensed Premises	1 per 20 employees, plus 1 per 60 square metres total floor area, plus 1 per 40 square metres of bar floor area, plus 1 per 120 square metres lounge and beer garden floor area, plus 1 per 60 square metres dining floor area, plus 1 per 40 square metres gaming room floor area.
Office	1 space for every 200m^2 of gross leasable floor area plus 2 spaces plus 1 space

	per 1000m^2 of gross leasable floor area for visitors.
Pre-school	1 space per 20 full time employees plus 1 space per 40 full time children.
Recreation area	1 per 1500 spectator seats for employees plus 1 per 250 visitor and customers.
Residential flat building	Within the City of Adelaide 1 for every dwelling for residents with a total floor area less than 150 square metres, 2 for every dwelling for residents with a total floor area greater than 150 square metres, plus 1 for every 10 dwellings for visitors, and in all other cases 1 space for every 4 dwellings for residents plus 1 for every 10 dwellings for visitors.
Residential component of a multi-storey building	Within the City of Adelaide 1 for every dwelling for residents with a total floor area less than 150 square metres, 2 for every dwelling for residents with a total floor area greater than 150 square metres, plus 1 for every 10 dwellings for visitors, and in all other cases 1 space for every 4 dwellings for residents plus 1 space for every 10 dwellings for visitors.
Shop	1 space for every 300m^2 of gross leasable floor area plus 1 space for every 600m^2 of gross leasable floor area for customers.
Tourist accommodation	1 space for every 20 employees plus 2 for the first 40 rooms and 1 for every additional 40 rooms for visitors.

Schedule to Table 3

Designated Area	**Relevant part of the State** **The bicycle parking rate applies to a designated area located in a relevant part of the State described below.**
All zones	City of Adelaide
Business Neighbourhood Zone Strategic Innovation Zone Suburban Activity Centre Zone Suburban Business Zone Suburban Main Street Zone Urban Activity Centre Zone Urban Corridor (Boulevard) Zone Urban Corridor (Business) Zone Urban Corridor (Living) Zone Urban Corridor (Main Street) Zone Urban Neighbourhood Zone	Metropolitan Adelaide

Waste Treatment and Management Facilities

Assessment Provisions (AP)

Desired Outcome	
DO 1	Mitigation of the potential environmental and amenity impacts of waste treatment and management facilities.

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Siting	
PO 1.1 Waste treatment and management facilities incorporate separation distances and attenuation measures within the site between waste operations areas (including all closed, operating and future cells) and sensitive receivers and sensitive environmental features to mitigate off-site impacts from noise, air and dust emissions.	DTS/DPF 1.1 None are applicable.
Soil and Water Protection	
PO 2.1 Soil, groundwater and surface water are protected from contamination from waste treatment and management facilities through measures such as: (a) containing potential groundwater and surface water contaminants within waste operations areas (b) diverting clean stormwater away from waste operations areas and potentially contaminated areas (c) providing a leachate barrier between waste operations areas and underlying soil and groundwater.	DTS/DPF 2.1 None are applicable.
PO 2.2 Wastewater lagoons are set back from watercourses to minimise environmental harm and adverse effects on water resources.	DTS/DPF 2.2 Wastewater lagoons are set back 50m or more from watercourse banks.
PO 2.3 Wastewater lagoons are designed and sited to: (a) avoid intersecting underground waters; (b) avoid inundation by flood waters; (c) ensure lagoon contents do not overflow; (d) include a liner designed to prevent leakage.	DTS/DPF 2.3 None are applicable.
PO 2.4	DTS/DPF 2.4

Waste operations areas of landfills and organic waste processing facilities are set back from watercourses to minimise adverse impacts on water resources.	Waste operations areas are set back 100m or more from watercourse banks.
Amenity	
PO 3.1 Waste treatment and management facilities are screened, located and designed to minimise adverse visual impacts on amenity.	DTS/DPF 3.1 None are applicable.
PO 3.2 Access routes to waste treatment and management facilities via residential streets is avoided.	DTS/DPF 3.2 None are applicable.
PO 3.3 Litter control measures minimise the incidence of windblown litter.	DTS/DPF 3.3 None are applicable.
PO 3.4 Waste treatment and management facilities are designed to minimise adverse impacts on both the site and surrounding areas from weed and vermin infestation.	DTS/DPF 3.4 None are applicable.
Access	
PO 4.1 Traffic circulation movements within any waste treatment or management site are designed to enable vehicles to enter and exit the site in a forward direction.	DTS/DPF 4.1 None are applicable.
PO 4.2 Suitable access for emergency vehicles is provided to and within waste treatment or management sites.	DTS/DPF 4.2 None are applicable.
Fencing and Security	
PO 5.1 Security fencing provided around waste treatment and management facilities prevents unauthorised access to operations and potential hazard to the public.	DTS/DPF 5.1 Chain wire mesh or pre-coated painted metal fencing 2m or more in height is erected along the perimeter of the waste treatment or waste management facility site.
Landfill	
PO 6.1 Landfill gas emissions are managed in an environmentally acceptable manner.	DTS/DPF 6.1 None are applicable.
PO 6.2 Landfill facilities are separated from areas of environmental significance and land used for public recreation and enjoyment.	DTS/DPF 6.2 Landfill facilities are set back 250m or more from a public open space reserve, forest reserve, national park or Conservation Zone.
PO 6.3 Landfill facilities are located on land that is not subject to land	DTS/DPF 6.3 None are applicable.

slip.	
PO 6.4 Landfill facilities are separated from areas subject to flooding.	DTS/DPF 6.4 Landfill facilities are set back 500m or more from land inundated in a 1% AEP flood event.
Organic Waste Processing Facilities	
PO 7.1 Organic waste processing facilities are separated from the coast to avoid potential environment harm.	DTS/DPF 7.1 Organic waste processing facilities are set back 500m or more from the coastal high water mark.
PO 7.2 Organic waste processing facilities are located on land where the engineered liner and underlying seasonal water table cannot intersect.	DTS/DPF 7.2 None are applicable.
PO 7.3 Organic waste processing facilities are sited away from areas of environmental significance and land used for public recreation and enjoyment.	DTS/DPF 7.3 Organic waste processing facilities are set back 250m or more from a public open space reserve, forest reserve, national park or a Conservation Zone.
PO 7.4 Organic waste processing facilities are located on land that is not subject to land slip.	DTS/DPF 7.4 None are applicable.
PO 7.5 Organic waste processing facilities separated from areas subject to flooding.	DTS/DPF 7.5 Organic waste processing facilities are set back 500m or more from land inundated in a 1% AEP flood event.
Major Wastewater Treatment Facilities	
PO 8.1 Major wastewater treatment and disposal systems, including lagoons, are designed to minimise potential adverse odour impacts on sensitive receivers, minimise public and environmental health risks and protect water quality.	DTS/DPF 8.1 None are applicable.
PO 8.2 Artificial wetland systems for the storage of treated wastewater are designed and sited to minimise potential public health risks arising from the breeding of mosquitoes.	DTS/DPF 8.2 None are applicable.

Workers' accommodation and Settlements

Assessment Provisions (AP)

Desired Outcome	
DO 1	Appropriately designed and located accommodation for seasonal and short-term workers in rural areas that minimises environmental and social impacts.

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
PO 1.1 Workers' accommodation and settlements are obscured from scenic routes, tourist destinations and areas of conservation significance or otherwise designed to complement the surrounding landscape.	DTS/DPF 1.1 None are applicable.
PO 1.2 Workers' accommodation and settlements are sited and designed to minimise nuisance impacts on the amenity of adjacent users of land.	DTS/DPF 1.2 None are applicable.
PO 1.3 Workers' accommodation and settlements are built with materials and colours that blend with the landscape.	DTS/DPF 1.3 None are applicable.
PO 1.4 Workers' accommodation and settlements are supplied with service infrastructure such as power, water and effluent disposal sufficient to satisfy the living requirements of workers.	DTS/DPF 1.4 None are applicable.