# Special Council Assessment Panel
# **Agenda & Reports**

**29 January 2026**

## Our Vision

*A City which values its heritage, cultural diversity, sense of place and natural environment.*

*A progressive City which is prosperous, sustainable and socially cohesive, with a strong community spirit.*

City of Norwood Payneham & St Peters
175 The Parade, Norwood SA 5067

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City of Norwood Payneham & St Peters

23 January 2026

## To all Members of the Council Assessment Panel:

- Mr Stephen Smith (Presiding Member)
- Mr Julian Rutt
- Cr Christel Mex
- Mr Paul Mickan (Deputy Member)
- Mr Mark Adcock
- Mr Ross Bateup
- Cr Kester Moorhouse (Deputy Member)

**NOTICE OF MEETING**

I wish to advise that pursuant to Clause 1.5 of the Meeting Procedures, the next Ordinary Meeting of the Norwood Payneham & St Peters Council Assessment Panel, will be held in the Council Chambers, Norwood Town Hall, 175 The Parade, Norwood, on:

**Thursday 29 January 2026, commencing at 6.00pm.**

Please advise Tala Aslat on 8366 4530 or email taslat@npsp.sa.gov.au if you are unable to attend this meeting or will be late.

Yours faithfully

Geoff Parsons
**ASSESSMENT MANAGER**

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City of Norwood Payneham & St Peters

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**VENUE** Council Chambers, Norwood Town Hall

**HOUR** 6:00pm

**PRESENT**

**Panel Members**
Mr Stephen Smith
Mr Mark Adcock
Mr Ross Bateup
Mr Julian Rutt
Cr Christel Mex

**Staff**
Geoff Parsons – Manager, Development & Regulatory Services
Kieran Fairbrother – Senior Urban Planner
Ned Feary – Senior Urban Planner
Tala Aslat – Administration Officer

**APOLOGIES**

**ABSENT**

## 1. COMMENCEMENT AND WELCOME

## 2. APOLOGIES

## 3. CONFIRMATION OF THE MINUTES OF THE MEETING OF THE COUNCIL ASSESSMENT PANEL HELD ON 19 JANUARY 2026

## 4. DECLARATION OF INTERESTS

## 5. DEVELOPMENT APPLICATIONS – PDI ACT

### 5.1 DEVELOPMENT NUMBER ID 24040449 – ASPEN GROUP – 24-46 RICHMOND ST HACKNEY SA 5069, 36 RICHMOND ST HACKNEY SA 5069, LOT 41 RICHMOND ST HACKNEY SA 5069

| | |
|---|---|
| **DEVELOPMENT NO.:** | 24040449 |
| **APPLICANT:** | Aspen Group |
| **ADDRESS:** | 24-46 RICHMOND ST HACKNEY SA 5069<br>36 RICHMOND ST HACKNEY SA 5069<br>LOT 41 RICHMOND ST HACKNEY SA 5069 |
| **NATURE OF DEVELOPMENT:** | Torrens Title Land Division creating 47 allotments (from 11 existing), three (3) public roads with associated footpaths and shared use path, public open space reserves, and together with associated earthworks (bank stabilisation works).<br>Construction of a six-storey mixed-use building comprising:<br>- 78 serviced apartments (in the form of a residential flat building) across all six levels;<br>- associated office and amenities at ground level;<br>- a separate café tenancy at ground level<br>- a basement car park;<br>- a ground level car park;<br>- together with associated earthworks, fencing and landscaping.<br>Partial demolition of 2 Local Heritage Places and a change of use to detached dwellings |
| **ZONING INFORMATION:** | **Zones:**<br>• Open Space<br>• Housing Diversity Neighbourhood<br>**Overlays:**<br>• Hazards (Flooding)<br>• Prescribed Watercourses<br>• Prescribed Wells Area<br>• Regulated and Significant Tree<br>• Traffic Generating Development<br>• Water Resources |

| | |
|---|---|
| | • Airport Building Heights (Regulated)<br>• Affordable Housing<br>• Heritage Adjacency<br>• Hazards (Flooding - General)<br>• Local Heritage Place<br>• Stormwater Management<br>• Urban Tree Canopy<br>• Local Heritage Place<br>**Technical Numeric Variations (TNVs):**<br>• Minimum Frontage (Minimum frontage for a detached dwelling is 9m; semi-detached dwelling is 8m; row dwelling is 5m; group dwelling is 18m; residential flat building is 18m)<br>• Minimum Site Area (Minimum site area for a detached dwelling is 330 sqm; semi-detached dwelling is 300 sqm; row dwelling is 200 sqm; group dwelling is 200 sqm)<br>• Concept Plan (Concept Plan 82 - Hackney)<br>• Maximum Building Height (Levels) (Maximum building height is 2 levels) |
| **LODGEMENT DATE:** | 7 January 2025 |
| **RELEVANT AUTHORITY:** | **Planning Consent**:- Assessment Panel at City of Norwood Payneham & St Peters<br>**Land Division Consent**:- Assessment Manager at City of Norwood Payneham & St. Peters |
| **PLANNING & DESIGN CODE VERSION:** | P&D Code (in effect) Version 2024.23 19/12/2024 |
| **CATEGORY OF DEVELOPMENT:** | Code Assessed - Performance Assessed |
| **NOTIFICATION:** | Yes |
| **RECOMMENDING OFFICER:** | Kieran Fairbrother, Senior Urban Planner |
| **REFERRALS STATUTORY:** | Commissioner of Highways |
| **REFERRALS NON-STATUTORY:** | Matthew Cole, City Arborist<br>David Brown, Heritage Advisor<br>Rebecca Van Der Pennen, Senior Traffic Engineer<br>East Waste<br>Tonkin (External), Geotechnical Engineer<br>Tonkin (External), Civil Engineer |

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## PANEL AS RELEVANT AUTHORITY:

The Panel should note that it is the relevant authority for this development application only in respect of Planning Consent. Legal Advice obtained by Council administration has confirmed that the Assessment Manager remains the relevant authority for Land Division Consent. Accordingly, this report covers only those aspects of the development relevant to a determination of Planning Consent. For example, consideration as to the construction details and widths of the roads and footpaths are matters for Land Division Consent and won't be discussed in this report.

That being said, where considerations for Land Division Consent are relevant to the Panel's determination as to Planning Consent (for example, that the roads are an appropriate width to cater for the required vehicle movements), the Assessment Manager's view on such considerations will be borne out in this report for the Panel's benefit.

## CONCEPT PLAN:

The development site is the subject matter of a Concept Plan within the Planning & Design Code, as contained in **Appendix 1**. The Concept Plan envisages the future development of this site as follows:

- The construction of buildings up to four storeys in height, transitioning down to one storey at the interface with Richmond Street and two storeys at the interface with Old Mill Reserve and Twelftree Reserve;
- A shared use path at the northern end of the development linking the two reserves, providing an improved pedestrian and cycling route south of the River Torrens;
- Pedestrian links between the development and the two reserves; and
- Vehicle access from Richmond Street in two locations.

## DETAILED DESCRIPTION OF PROPOSAL:

This proposal seeks to undertake the following development:

- Torrens Title Land Division creating 47 allotments (with a stormwater easement in favour of the Council), 3 public roads, 3 open space reserves (to vest in Council), and associated footpaths, on-street parking bays and shared use path, and associated earthworks;
- Bank stabilisation works (bulk earthworks) on the southern bank of the River Torrens (along the northern side of the development site) necessary to facilitate proposed Lots 35-46;
- The partial demolition of two (2) Local Heritage Places (including make-good work following demolition) and a change in their use to detached dwellings;
- Construction of a six-storey mixed-use building comprising:
    - 78 serviced apartments (in the form of a residential flat building) across all six levels;
    - associated office and amenities at ground level;
    - a separate café tenancy at ground level;
    - a basement car park containing 15 parking spaces;
    - a ground level car park containing 26 parking space;
    - together with associated earthworks and landscaping.

The plans for the six-storey building show indicative signage locations for the café and office uses, but these do not form part of this development proposal because sufficient details for the signage have not been provided for a proper assessment to take place. Hence, their location is purely indicative and any future signage will require a separate approval.

Additionally, some of the application documentation includes renders and building footprints for dwellings on proposed Lots 1-46, but these are not being proposed as part of this application – they are purely indicative. This application seeks only to create residential allotments with respect to Lots 1 to 46 by way of a land division; not to construct any dwellings on those allotments.

## LAND MANAGEMENT AGREEMENTS (LMAs):

The Panel should be aware that the Council and the landowner have entered into three (3) separate LMAs over the land pursuant to section 192 of the PDI Act. The LMAs are fully executed and noted on the relevant certificates of title of the subject land. The LMAs relate to the future development of the land and specifically apply to three separate groups of the proposed residential allotments. By way of summary, the LMAs provide that:

1. Proposed Lots 1-7 – with frontages to Richmond Street – may be developed with buildings up to three storeys in height, with appropriate setbacks, building envelope plans, design criteria and materiality to complement the Richmond Street streetscape and the two Local Heritage Places on the site.

2. Proposed Lots 23-34 – with frontages to Twelftree Reserve – may be developed with buildings up the three storeys in height, with appropriate setbacks, fencing styles and design guidelines to complement the amenity of the reserve.

3. Proposed Lots 35-46 – which back onto the River Torrens and whose creation and use relies on the proposed bank stabilisation works – may be developed subject to certain geotechnical engineering requirements being met that ensure the structural integrity of the subject allotments and the engineered riverbank slope are not compromised during or after construction.

The LMAs all have a clause that precludes the obligations of the LMAs from taking effect unless and until the development application receives development approval. As such, this information is being provided to the Panel as context for what the future development of the subject land may entail and to also provide some assurance as to the suitability of the proposed allotments and the Assessment Manager's support thereof. The LMAs are by no means, however, a mechanism by which the Panel can be bound to make any particular decision – nor are they intended to be.

## SUBJECT LAND & LOCALITY:

### Site Description:

The development site (see **Attachment 2**) is comprised by:

- the area bound by the following Certificates of Title, that are collectively known as 24-46 Richmond St, Hackney:
    - Certificate of Title Volume 5923 Folio 342
    - Certificate of Title Volume 5923 Folio 344
    - Certificate of Title Volume 5389 Folio 440
    - Certificate of Title Volume 5624 Folio 154
    - Certificate of Title Volume 5923 Folio 343
    - Certificate of Title Volume 5389 Folio 442
    - Certificate of Title Volume 5389 Folio 439
    - Certificate of Title Volume 5556 Folio 452
    - Certificate of Title Volume 5556 Folio 453

  - Certificate of Title Volume 5389 Folio 441
  - Certificate of Title Volume 5187 Folio 275

- and includes Certificate of Title Volume 5459 Folio 79 (north of the current caravan park) that is under the ownership of the Department of Environment and Water and comprises part of the River Torrens and its embankment.

The development site is an irregular shape that extends from Richmond Street and partially into the River Torrens. The site has a total developable area of 13,990m$^2$ (1.4 hectares) and frontages of:

- 154 metres to Richmond Street to the south;
- 142.88 metres to Twelftree Reserve to the east;
- 46.35 metres to Old Mill Reserve to the west; and
- Approx. 159 metres to the River Torrens to the north.

The site is currently used as a caravan park (tourist accommodation) for the majority but is also host to two (2) Local Heritage Places, one of which is approved for use as a shop and the other as the office for the caravan park. The caravan park accommodates 45 cabins and villas, 40 powered camping sites, amenity buildings, recreation areas and internal roads throughout. There are a number of non-regulated trees planted throughout and some small areas of lawn and low-lying plantings. The topography of the land is relatively flat, except for the steep embankment to the River Torrens.

## Locality

The chosen locality for this assessment is depicted in **Attachment 2**. This locality is intended to capture the streets and sites surrounding that would have a view onto this development (at ground level) and which would be influenced by this development.

The locality is varied both in respect of land use and density. Residential development within this locality is mixed in density: to the east Torrens Street is characterised by low-density dwellings from varying eras, whereas south of the site are medium density, low-rise dwellings of a more historic character (including several Local Heritage Places), see **Attachment 3**. On the opposite side of the River Torrens is a more

recent medium-density development, which is reflective of the convenient location of this CBD-adjacent suburb. Similarly, on the corner of Hackney Road and Richmond Street is the recently-constructed six-storey apartment building on the site of the Hackney Hotel, which includes some commercial uses at ground level and low to medium rise townhouses surrounding.

This locality is hence influenced by a mix of building heights, densities and land uses. Nonetheless, the locality enjoys a very high level of amenity except very close to Hackney Road (west) where very high levels of traffic having a diminishing effect. Consistent street tree plantings, two well-landscaped public reserves, a public playground and the River Torrens Linear Park trail all contribute to this amenity.

## CONSENT TYPE REQUIRED:

Planning and Land Division Consent

## CATEGORY OF DEVELOPMENT:

- **PER ELEMENT:**
  Land division: Code Assessed - Performance Assessed
  Residential flat building: Code Assessed - Performance Assessed

Detached dwelling: Code Assessed - Performance Assessed
Partial demolition of a building or structure: Code Assessed - Performance Assessed
Shop: Code Assessed - Performance Assessed
Other - Residential - Bank stabilisation works: Code Assessed - Performance Assessed
Other - Infrastructure - Public roads and footpaths: Code Assessed - Performance Assessed

- **OVERALL APPLICATION CATEGORY:**
  Code Assessed - Performance Assessed

- **REASON**
  P&D Code

## PUBLIC NOTIFICATION

- **REASON**
  Involves the construction of a building that exceeds 2 building levels in height
  Involves partial demolition on the site a Local Heritage Place

- **LIST OF REPRESENTATIONS**

| Rep # | First Name | Surname | Address | Position | Wishes to be heard? |
|---|---|---|---|---|---|
| 1 | Rebecca | Madigan | | Opposed | No |
| 2 | Patrick | Swanson | | Support | No |
| 3 | Ewan | Stewart | | Opposed | No |
| 4 | Kerrie | Greve-Golding | | Opposed | No |
| 5 | Terry | Healey | | Support, with concerns | No |
| 6 | Derek | Seret | | Support, with concerns | No |
| 7 | Marysia | Marchant | | Opposed | Yes |
| 8 | Helen | Goldsworthy | | Opposed | No |
| 9 | Anne | Mitchell | | Support | No |
| 10 | David | Elliott | | Support, with concerns | No |
| 11 | Allan | Green | | Support, with concerns | No |
| 12 | Helen | Beasley | | Opposed | Yes |
| 13 | Cuong | Phan | | Opposed | Yes |
| 14 | Edwina | Hicks | | Opposed | No |
| 15 | Tom | Hicks | | Opposed | No |
| 16 | Lynette | Davies | | Opposed | Yes |
| 17 | *Duplicate of above* | | | | |
| 18 | Bailey | Feltus | | Support | No |
| 19 | Isaac | Feltus | | Support | No |
| 20 | Shaghayegh | Koosh | | Support | No |
| 21 | Yiorgo | Ormsby | | Support | No |

| | | | | | |
|---|---|---|---|---|---|
| **22** | Sarah | Fahlbusch | | Support | No |
| **23** | Kym | Perks | | Support | No |
| **24** | Kathryn | Quigley | | Support | No |
| **25** | Brad | Jackson | | Support, with concerns | No |
| **26** | Greg | Wilmot | | Support, with concerns | Yes |
| **27** | Walking SA | | | Support, with concerns | No |
| **28** | St Peters Residents Association Inc | | | Opposed | Yes |
| **29** | Shaun | Cleggett | | Opposed | No |
| **30** | Martin | McMahon | | Support, with concerns | No |
| **31** | Chris | Keightley | | Support, with concerns | Yes |
| **32** | Cathy | Reid | | Opposed | No |
| **33** | Tom | Duffy | | Support | No |
| **34** | David | Reid | | Opposed | Yes |
| **35** | Charlie | Dowling | | Support | No |
| **36** | Trudi | Newson | | Support | No |
| **37** | Tim | Moore | | Opposed | Yes |
| **38** | Evonne | Moore | | Opposed | Yes |
| **39** | Fay | Patterson | | Support, with concerns | No |

- **SUMMARY**

As shown in **Attachment 4**, only nine (9) of the 38 representors are within a 300m radius of the site; five (5) of which are within the chosen locality. Nonetheless, the proposed development has the potential for far-

reaching implications due to increased housing supply, increased traffic volumes and the removal of an inner-metropolitan caravan park, hence the public interest generated.

The representations can be read in full in **Attachment 5**, but the concerns raised can be summarised as follows:

- The increase in traffic volumes and movements cannot be supported by the existing road network
- Increased traffic will result in congestion at the Hackney Road intersection
- This increase in traffic also poses safety concerns for users of Twelftree Reserve and a nearby cafe
- The proposed residential density is too high for this locality
- Consequently, the development will detriment the existing character of the neighbourhood
- Not enough 'green space' is provided by the development, and overall tree canopy will reduce as a result
- Not enough car parking is provided for the development
- Consequently, people are likely to use the Old Mill Reserve car park instead
- The building height is too tall and not in keeping with this locality and heritage buildings

- The six-storey building will create unreasonable overshadowing for properties to the south
- The development will result in an unreasonable visual impact on users of the Linear Park
- The shared path would be better located north of all dwelling sites, to avoid potential conflict with vehicles and provide better amenity for users
- The bank stabilisation works will damage the ecosystem of the River Torrens by removing vegetation and habitat
- The loss of an inner-metropolitan caravan park so close to the CBD is a loss for country residents visiting the capital
- The partial demolition of the Local Heritage Places is unjustified
- Overlooking from the development will diminish residential amenity
- This development will be detrimental to the surrounding natural environment
- Continuous construction noise and dust with disrupt the amenity of the area (especially following 6 years of similar disruption from the Hackney Hotel development)
- The closure of roads during construction will cause traffic issues
- The increase in stormwater run-off into the River Torrens is concerning

Those that were in support of the proposal made the following comments:

- The addition of more housing in this locality is needed
- The pedestrian connectivity and public transport available near this development site supports the proposed density
- The rejuvenation of this site is welcomed
- This development will activate Twelfree Reserve better
- General support for a shared use path through the development linking the Linear Trail

## AGENCY REFERRALS

- Commissioner of Highways

This is the only statutory referral required for Planning Consent; required because the development involves the construction of more than 50 dwellings within 250m of a State-maintained road (Hackney Road). The Commissioner of Highways issued an RFI to the Applicant and following their response expressed no concerns with the proposal and hence made no comment.

## INTERNAL REFERRALS

- Matthew Cole, City Arborist

Council's Arborist has confirmed that no regulated trees exist on the subject land, consistent with the advice of the Applicant's arborist. All trees on the site with a trunk circumference >1m are in fact *Fraxinus angustifolia,* which is an exempt species.

Council's Arborist was also asked to investigate whether there are any regulated/significant trees on the adjacent Council reserves that could be impacted by this work. Advice obtained confirms that no adverse impact should be caused to any of these trees as a result of the proposed and future development of the subject site. Accordingly, "tree-damaging activity" does not form an element of this proposal.

- David Brown, Heritage Advisor

Council's Heritage Advisor supports the partial demolition of the two Local Heritage Places; noting that those elements to be demolished are non-heritage fabric that don't contribute to the heritage values of the place.

- Rebecca Van Der Pennen, Senior Traffic Engineer

To date, traffic concerns have formed a substantial portion of the negotiations with the Applicant to amend their proposal. After several rounds of concerns being expressed, Council's traffic engineer is supportive of the proposed widths and configurations of the roads, shared path and footpaths. Some further negotiations need to occur at the detailed design stage (a matter for Land Division Consent), but the general arrangement is suitable for this development.

Turn path diagrams demonstrate that the roads can cater for the largest vehicle type to access the development (a waste truck) as well as simultaneous movements for a B99 vehicle. Sufficient sight lines have been provided at all intersections. Finally, the interface between the east-west public road (202 Road) and the private car park (bollards) can be sufficiently conditioned and managed to mitigate any potential conflicts.

- East Waste

After some amendments to the plans, East Waste are comfortable with the proposed arrangement for the collection of residential waste throughout this development. Vehicle turn path diagrams demonstrate that the East Waste truck will be able to safely and conveniently move throughout the site, and sufficient kerb room is available for the placement of waste bins.

- Tonkin (External), Geotechnical Engineer

After raising several queries, Tonkin are supportive of the proposed bank stabilisation works. Further, Tonkin are satisfied that Lots 35-46 can be developed in the future for residential land uses without impacting the stability of the slope to the north, provided appropriate controls are put in place for such construction. The Council, the Applicant and the landowner have entered into a Land Management Agreement to this end (discussed further in this report).

- Tonkin (External), Civil Engineer & Council's Assets Manager

With respect to the general stormwater arrangement for the whole of the development site, Tonkin and Council's Infrastructure Department are satisfied that sufficient and appropriate infrastructure is being provided within the development to cater for anticipated stormwater capture and flows. Tonkin are also satisfied that the FFL of the proposed six-storey building provides sufficient freeboard in a 1% AEP event.

## PLANNING ASSESSMENT

The application has been assessed against the relevant provisions of the Planning & Design Code, which are contained in Appendix One.

**Site Contamination**

Performance Outcome 1.1 of the Site Contamination module states:

> *Ensure land is suitable for use when land use changes to a more sensitive use.*

Clause 2A(1) of the *Planning, Development and Infrastructure (General) Regulations 2017* state that where an application for Planning Consent proposes a change in the use of the land to a more sensitive use, then particular site contamination investigations are required to be undertaken and reports provided to the relevant authority.

*State Planning Commission Practice Direction 14 (Site Contamination Assessment)* sets out that the proposed changes in use of the land (from office, shop and caravan park to shop (café), dwellings and residential allotments) constitute a change in use to a more sensitive use.

Accordingly, the Applicant provided a Site Contamination Declaration Form and Preliminary Site Investigation Report as required by Clause 2A(1) of the Regulations. These documents state that a potentially contaminating activity is not known to have occurred on the land, nor has a class 1 activity been known to occur on adjacent land. Consequently, the land has been deemed suitable for the proposed uses by a site contamination consultant. Per Practice Direction 14, the relevant authority does not need to undertake any further assessment of site contamination on this basis and hence the land can be considered free of any contamination that would preclude the proposed development from occurring.

**Land Use**

This development seeks to introduce predominantly residential land uses in the form of 44 vacant residential allotments, two residential allotments containing Local Heritage Places converted into dwellings, and a six-storey residential flat building containing 78 serviced apartments. A café (shop) is also proposed at ground level of the six-storey building.

Desired Outcome 1 of the Housing Diversity Neighbourhood Zone states:

> *Medium density housing supports a range of needs and lifestyles, located within easy reach of a diversity of services and facilities. Employment and community service uses contribute to making the neighbourhood a convenient place to live without compromising residential amenity.*

Performance Outcome 1.1 of the Housing Diversity Neighbourhood Zone states:

> *Diverse range of medium density housing and accommodation complemented by a range of compatible non-residential uses supporting an active, convenient, and walkable neighbourhood.*

The corresponding Designated Performance Feature suggests that dwellings, residential flat buildings and shops are all envisaged land uses within the Zone.

The six-storey building provides accommodation by way of 78 one-bedroom, furnished apartments (dwellings) and includes common facilities such as a large lobby entrance, a gym, shared laundry and shared waste facilities. Basement and at-grade parking is provided for occupants. The building is to be owned and operated by Aspen Group and offers a mix of short- and long-term tenancy options – anything from a single day/night to several months. Aspen Group will be responsible for the operation and maintenance of common facilities, cleaning, parking allocation, landscaping and site maintenance and waste management.

In determining how to describe the use of this building (and the land relevantly comprised in proposed Lot 47), two court judgments were considered: *Paradise Developments (Investments) Pty Ltd v District Council of Yorke Peninsula & Anor* [2008] SASC 139 and *The Oaks Hotel & Resorts P/L v City of Holdfast Bay & Anor* [2010] SAERDC 16.

In *Paradise Investments*, the ERD Court was concerned with a question of whether the nature of the proposed development was that of serviced holiday apartments, and whether, if so, that meant that they could not comprise a residential flat building (in circumstances where the apartments were designed for holiday makers and were serviced). The Court held, at [41]:

> One immediate difficulty is that holiday apartments, be they serviced or not, can as a general rule be classified as a residential flat building which in every sense is a building containing apartments. The fact that the apartments are intended for those taking holidays or the fact that they are serviced does not mean they are not apartments in a residential flat building. The fact that an office is provided does not in any respect alter the nature of the development.

At [42] the Court also said '…there is no material difference for planning purposes between an apartment and a serviced holiday apartment. Both form part of a residential flat building.'

The Court in *Oaks* was concerned with the question as to whether the use of 69 apartments in a 253-apartment building as serviced apartments for short term accommodation constituted a change of use. In so doing, the Court said, at [27]:

> We do not consider that in *Paradise Developments*, Debelle J, intended to say that any kind of serviced apartments will, in all circumstances, be considered to be residential flats and nothing else. As Wells J said in *Prestige Car Sales*, labels are not principles. All of the relevant circumstances need to be taken into consideration.

In *Oaks* the Court considered there to be a change of use in the land, stating at [29]:

> There is a commercial element to the use proposed, which requires infrastructure, namely the office, the bag storage area, and the linen store, which are not usual components of a residential flat building. The use proposed includes activities, such as the use of the ground floor reception area and the activities of the cleaners, which are not usual components of a residential flat building.

In light of these two judgments, the use associated with the proposed six-storey building is considered to be most appropriately described as serviced apartments (in the form of a residential flat building). The co-working area, the gym, and cleaners, are all non-standard components of a residential flat building that have a more commercial element to them. This is nonetheless consistent with Performance Outcome 1.1 of the Housing Diversity Neighbourhood Zone, which seeks "*a diverse range of medium density housing and accommodation*".

The proposed residential flat building and 46 residential allotments are all consistent with the predominantly residential nature sought by the Housing Diversity Neighbourhood Zone and are therefore appropriate land uses. The café proposed at the ground level of the six-storey building is supported in principle by Performance Outcome 1.1 of the Zone, but requires further consideration as to scale, location and amenity impacts.

Performance Outcome 1.2 of the Housing Diversity Neighbourhood Zone states:

> *Commercial activities improve community access to services are of a scale and type to maintain residential amenity.*

Performance Outcome 1.3 of the Housing Diversity Neighbourhood Zone states:

> *Non-residential development located and design to improve community accessibility to services, primarily in the form of:*
>
> *(a) Small-scale commercial uses such as offices, shops and consulting rooms…*

Performance Outcome 1.5 of the Housing Diversity Neighbourhood Zone states:

> *Non-residential development sited and designed to complement the residential character and amenity of the neighbourhood.*

The proposed café has a gross leasable floor area of approximately 164m$^2$, including the undefined co-working area and the outdoor terrace area. Proportionate to the balance of the ground floor of the building, this accounts for approximately one-fifth of the floor area. In the context of the building in which it is contained, this land use is considered to be relatively small scale consistent with these Performance Outcomes.

Small scales uses such as cafes and other shops are integral to creating a walkable, pleasant neighbourhood. Located adjacent to a public reserve, overlooking the River Torrens and having access via the proposed shared path that links with a larger active transport network into the CBD, this is an ideal setting for such a land use. The café use complements the residential character of the proposed development as well as the residential character of the neighbourhood and being located at the northern end of the development rather than on Richmond Street enhances this argument. Moreover, this use will complement the dominant residential use of the building in which it is located; a type of mixed-use development that has demonstrated success all over Adelaide. Accordingly, the café use is considered appropriate and supported by Performance Outcomes 1.2, 1.3 and 1.5 of the Zone above.

# LAND DIVISION

**Density**

Performance Outcome 2.1 of the Housing Diversity Neighbourhood Zone states:

> *Allotments/sites created for residential purposes accommodate a diverse range of low to medium density housing, with higher densities closer to public open space, public transport stations and activity centres.*

The corresponding Designated Performance Feature suggests that:

- Detached dwelling sites should have frontages of at least 9m and a minimum site area of 330m$^2$;
- Residential flat buildings should be constructed on sites with a minimum frontage of 18m, with no minimum site area per dwelling stipulated; and
- Row dwelling sites should have a minimum 5m frontage and a minimum site area of 200m$^2$.

The six-storey building aside, this proposal inherently seeks to create sites for detached dwellings (i.e, no party wall rights are proposed). In practical terms, however, almost all of these allotments would be expected to accommodate dwellings constructed to both side boundaries (except for a few of the allotments fronting the River Torrens, perhaps). To that end, the Panel should be aware that the Land Management Agreements executed between the Council and the developer provide building envelope plans for proposed Lots 1-7 and Lots 23-34 that would permit dwelling construction to both side boundaries. Notwithstanding the absence of the same for proposed Lots 10-22 and Lots 35-46, the same would be expected there.

Therefore, it is reasonable to consider the proposed land division against the DPF criteria set out for row dwellings, because the ultimate built form pattern is likely to reflect that. The obvious exceptions to this are Lots 8 and 9 which contain the two Local Heritage Places, but these both comply with the DPF criteria for detached dwellings in any event.

In this context, the application proposes the following allotments (excluding public spaces):

- One (1) allotment of 2090m$^2$ to accommodate the six-storey mixed-use building;
- Seven (7) allotments facing Richmond Street of 111m$^2$ to 116m$^2$ site area and with frontages of 4.8m (x6) and 5m (x1);
- Two (2) allotments facing Richmond Street that contain the LHPs (both >9m frontage and >330m$^2$);
- Twelve (12) allotments facing onto Twelftree Reserve, ranging from 145m$^2$ to 227m$^2$ and with frontages between 6.32m and 19.82m;
- Twelve (12) allotments backing onto the River Torrens, ranging from 158m$^2$ to 612m$^2$ and with frontages between 8.4m and 14.99m; and
- Thirteen (13) central allotments, ranging from 73m$^2$ to 115m$^2$ and with frontages between 4.5m and 6.4m

Excluding the allotment for the six-storey residential flat building, the 46 allotments have an average site area of 175m$^2$, which is 12.5% short of what DPF 2.1 of the Zone expects for row dwellings. The average frontage width exceeds the 5 metres sought by DPF 2.1.

Performance Outcome 2.1 seeks primarily “low to medium density” housing, but goes on to say that “higher densities” are envisaged “closer to public open space, public transport stations and activity centres”. It is not clear whether this should be interpreted as meaning densities higher than “low to medium” are envisaged in these areas, or whether it simply means that densities closer to the upper limit of medium density are envisaged in such areas.

In any case, at an average of 175m$^2$ per site, the 46 proposed residential allotments create a medium net residential density of 57 dwellings/hectare. Accounting for the public roads and reserves, the gross residential density becomes 39 dwellings/hectare, which is still considered to be medium density.

Considering the residential flat building in isolation, this comprises 78 apartments dwellings on a 2090m$^2$ site which equates to an average of 27m$^2$ per dwelling, or a net residential density of 370 dwellings/hectare – far above the upper limit of medium net density of 70 dwellings/hectare.

Combining the two residential developments together creates a total of 124 dwellings across 10,140m$^2$. This results in a net residential density of 122 dwellings/hectare, which is definitionally high density. In terms of

gross residential density (i.e. accounting for the public space created by the development), the development proposes 88 dwellings/hectare, which is still considered high density.

Thus, the question turns to how Performance Outcome 2.1 should be interpreted in how it talks to “*higher densities*”, and what is an appropriate density outcome for this site considering its setting and the locality.

The development is suitably located between two (2) public reserves, being Old Mill Reserve and Twelftree Tree Reserve, and adjacent the River Torrens Linear Park trail. In terms of being “closer to public open space”, this site arguably couldn’t be better positioned.
There is no public transport *station* close the site, but the site is within walking distance of a bus stop on

Hackney Road which facilitates a high frequency bus service that travels between the CBD and Paradise Interchange (both public transport stations). Furthermore, the site is located adjacent the River Torrens Linear Park trail which provides an active transport route into the CBD just over 1km away; and this development proposes an improvement to this active transport route.

Consequently, the proposed residential density – despite being high – is considered to be appropriate for this development site given its location characteristics and proximity to open space and transport routes. A detailed assessment of the allotment pattern and configuration, and those of the traffic impacts generated by this development, need to be considered before full support can be provided for the proposed density.

**Allotment pattern and configuration (including proposed roads)**

Desired Outcome 1 of the Land Division module states:

> *Land division:*
> *(a) Creates allotments with the appropriate dimensions and shape for their intended use*
> *…*
> *(e) Creates a compact urban form that supports active travel, walkability and the use of public transport*

Performance Outcome 2.3 of the Land Division module states:

> *Land division maximises the number of allotments that face public open space and public streets.*

Performance Outcome 2.4 of the Land Division module states:

> *Land division is integrated with site features, adjacent land uses, the existing transport network and available infrastructure.*

Performance Outcome 2.7 of the Land Division module states:

> *Land division results in legible street patterns connected to the surrounding street network.*

The proposed land division creates 47 allotments that all have a frontage to an existing or proposed public road; satisfying Performance Outcome 2.3 above. The three (3) proposed roads connect into the existing transport network, with access to the development site obtained from Richmond Street. Two of the roads will act as typical local roads that serve vehicle traffic and waste collection, with footpaths, on-street parking spaces, tree plantings and street lighting to be provided. Proposed “200 Road” will act more akin to a laneway, providing vehicle access to Lots 1-22 and with some street lighting to be provided. Accordingly, Performance Outcomes 2.4 and 2.7 above are considered to be satisfied.

Performance Outcome 3.8 of the Land Division module states:

> *Roads, open space and thoroughfares provide safe and convenient linkages to the surrounding open space and transport network.*

The proposed roads satisfactorily link with the existing road network, as discussed above. In addition, the development includes a shared use path which will provide better connectivity between Torrens St and Old Mill Reserve; something envisaged in the Concept Plan for this site (see **Appendix 1**). The shared use path will provide an improvement to existing cycling and walking routes along the south of River Torrens –

currently, anybody seeking to access Torrens Street or Old Mill Reserve has to either traverse the north side of the River Torrens and use a staircase to Torrens Street, or approach via Richmond Street which currently has no dedicated bicycle lane. The performance of the proposed roads is discussed further in the "Traffic" section of this report.

Performance Outcome 1.1 of the Land Division module states:

> *Land division creates allotments suitable for their intended use.*

Indicative built form plans provided by the Applicant demonstrate that the proposed allotments are of a suitable size and dimension to accommodate the anticipated dwelling form (see the "Site Plan - Proposed Master Plan" by Forum in **Attachment 1.5**).

With respect to Performance Outcome 1.1 above, significant consideration was given to proposed Lots 35-46 and their suitability for their intended use given their proximity to the River Torrens and the bank stabilisation works that are required. This is discussed in greater detail in later sections of this report, but for the purposes of Performance Outcome 1.1, the Assessment Manager has been satisfied that these allotments will be able to be developed for residential dwellings in the future such that this provision is satisfied.

With respect to the proposed public reserve allotments, these have been determined to be acceptable by the relevant delegates of the Council, and vesting of these reserves in the Council would be forthcoming if this development application is approved. Accordingly, the Panel can be satisfied that the proposed reserves are suitable for their intended use.

Performance Outcome 2.1 of the Land Division module states:

> *Land division results in a pattern of development that minimises the likelihood of future earthworks and retaining walls.*

The "Overall Layout Plan" (prepared by WGA) in **Attachment 1.4** demonstrates the design contour levels for the site. This has considered the existing topography of the land and has been designed to minimise the extent of cut and fill required for the initial development (excluding the bank stabilisation works), but with foresight to minimise cut and fill required when the 46 vacant residential allotments are eventually developed also. The design contour levels are subject to detailed design (in consultation with Council staff) but the above Performance Outcome can be considered satisfied.

Performance Outcome 3.1 of the Land Division module states:

> *Land division provides allotments with access to an all-weather public road.*

The construction detail of the public roads is subject to detailed design but Council standards require that the roads are constructed to a standard capable of accommodating the anticipated traffic types and volumes. The initial proposal is for the roads to be constructed of permeable paving, which Council's external civil engineer has confirmed could be a suitable outcome. If permeable paving as a road option proves to be untenable during detailed design, the roads can be constructed of bitumen as typical to Council's standards. Either way, the Panel can be satisfied that this Performance Outcome can be met.

Performance Outcome 9.1 of the Housing Diversity Neighbourhood Zone states:

> *Development is compatible with the outcomes sought by any relevant Concept Plan contained within Part 12- Concept Plans of the Planning and Design Code to support the orderly development of land through staging of development and provision of infrastructure.*

Per Table 3 of the Zone, this policy is applicable to the land division element of this proposal, not for the residential flat building. The Concept Plan does not indicate any desired density or allotment pattern, and so this Performance Outcome is somewhat inapplicable to this assessment. The Concept Plan does identify a shared use path being included in any redevelopment of this site (insofar as the "provision of infrastructure" is concerned), which this proposal does include.

# SIX-STOREY "CO-LIVING" BUILDING (HEIGHT, DESIGN AND SETBACKS)

**Building Height, Setbacks and Visual Impact (Bulk)**

Performance Outcome 3.1 of the Housing Diversity Neighbourhood Zone states:

> *Building height is consistent with the form expressed in any relevant [TNV] or is generally low rise, or complements the height of nearby buildings.*

The corresponding TNV has a maximum building height of 2 levels, whereas the Concept Plan envisages building up to 4 levels on this site.

The proposed building is six levels in height, exceeding the envisaged heights of both the TNV and the Concept Plan. Moreover, the building is six levels in height at the interface with Old Mill Reserve (setback 1.16m), which is inconsistent with the Concept Plan's suggestion of a maximum of 2 levels at this interface. Thus, the building is neither consistent with the TNV or low rise, and so the only other means by which this Performance Outcome could be satisfied is with respect to its third test: "complementing the height of nearby buildings".

The locality exhibits predominantly single- and two-storey buildings, but there are some three-storey row dwellings at the west end of Richmond Street and on the opposite side of the River Torrens. The Hackney Hotel (Botaniq) site (southwest) has been developed with a six-storey tower central to the site (set back 19m from Richmond Street), 4-storey apartments facing Hackney Road, 3-storey townhouses facing Richmond Street and 2-storey townhouses facing Bertram Street. The Botaniq site has a maximum building height TNV of 4 levels, similar to the Concept Plan for the subject development site.

The proposed six level building is 22.4m tall, plus 1.1m for the lift over-run (which won't be visible from the street). By way of comparison, the six-storey building at the Botaniq site is 21.56m tall. Despite the separation between these two sites, the existing six-storey building on the Botaniq site heavily influences the built form character of the locality and cannot be ignored.

The proposed building has an 8.3m tall podium level fronting Richmond Street, equivalent to 2.5 storeys within the building, before recessing further for the four building levels above. The podium level is set back 4.5 metres from the primary street boundary whereas the balance of the building is set back a further 6 metres – both of which satisfy Performance Outcome 4.1 below. Stood at ground level within Richmond Street, the podium level of the building complements the height of nearby buildings and isn't anticipated to

provide a sense of building mass such that would diminish the amenity or character of the street. The complementary material palette chosen for the building is discussed in the "Design" section below, but the height and setback of the podium level of the building is considered to satisfy Performance Outcome 3.1 above.

The four uppermost levels that are set further back will be visible from Richmond Street as well as surrounding streets and will have a large impact on the character of the locality. Nonetheless, the bulk and mass of the building is somewhat softened by the site's context. To that end the following policies are relevant.

Performance Outcome 4.1 of the Housing Diversity Neighbourhood Zone states:

> *Buildings are set back from primary street boundaries to contribute to the existing/emerging pattern of street setbacks in the streetscape.*

Performance Outcome 7.1 of the Housing Diversity Neighbourhood Zone states:

> *Building walls are set back from side boundaries to provide:*
> *(a) Separation between buildings in a way that complements the established character of the locality*
> *(b) Access to natural light and ventilation for neighbours*

Performance Outcome 8.1 of the Housing Diversity Neighbourhood Zone states:

> *Building walls (excluding ancillary buildings and structures) are set back from rear boundaries to provide:*
> *(a) Separation between buildings in a way that complements the established character of the locality*
> *(b) Access to natural light and ventilation for neighbours*
> *(c) Open space recreational opportunities*
> *(d) Space for landscaping and vegetation*

The building is adjacent on its western side to Old Mill Reserve, which is home to many tall, established trees that provide visual relief from the building despite it only have a 1.16m setback from this boundary. East of the building will be the ground level car park that serves this building, which provides a good level of separation (over 20m) between the six-storey building and the future townhouses that will front Richmond Street. To the north, the River Torrens also provides separation and visual relief through natural features and established vegetation.

Thus, while there is no doubt that this building will be highly visible in the streetscape and surrounding streets such as Hatswell St and Regent St, the setting of the building provides some justification for its height. The building will influence the streetscape character, but the six level building on the Botaniq site has already had an influence such that this building would not be considered 'out of place' or at odds with the existing character. The use of a podium level to break up the critical mass of the building is important in this respect, aligning the proposal more with Performance Outcome 3.1.

Despite not being consistent with the TNV applicable to the site or the Concept Plan for the site, and despite not being low rise, the proposed six level building is considered to sufficiently complement the height of nearby buildings through its setting and design to not be considered at serious odds with Performance Outcome 3.1 of the Zone. The height of the building certainly does not outrightly satisfy this Performance Outcome, but the design elements discussed below are considered to provide justification for consent.

Furthermore, despite being constructed close to the western side boundary and on the northern rear boundary of proposed Lot 47, the separation provided by the public spaces surrounding, and the car parking area to its east, ensure the outcomes sought in Performance Outcomes 8.1 and 9.1 are not offended.

**Design, Appearance, Safety and Passive Surveillance**

Performance Outcome 12.5 of the Design in Urban Areas module states:

> *External materials and finishes are durable and age well to minimise ongoing maintenance requirements.*

The building is constructed of a mix of medium tone bricks, concrete, fibre cement sheeting, glass, sheet metal cladding and perforated metal screens; all of which are durable, contemporary material choices consistent with this Performance Outcome.

Performance Outcome 12.2 of the Design in Urban Areas module states:

> *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.*

As previously discussed, the building includes a 2.5-storey podium at street level to help reinforce a human scale for the building; something complementary to the heights of other buildings along Richmond Street. This elevation has been designed with large glass entrance doors and surroundings bounded by tall brick pillars on either side and second level balconies above. The brick sections either side of the glazed façade protrude 1.3m forward of the glass façade, are proposed in a natural earthen colour and include some 'hit-and-miss' brickwork on the second level which will help provide some slight visual relief. The balconies of the upper level protrude to the same extent as the brick pillars, are constructed with off white metal panel balustrades and vertical cladding above in the same colour, hence adding more materiality and visual interest to the podium façade. The building has been designed consistent with Performance Outcome 12.2 above.

Performance Outcome 12.1 of the Design in Urban Areas module states:

> *Buildings positively contribute to the character of the local area by responding to local context.*

Performance Outcome 12.3 of the Design in Urban Areas module states:

> *Buildings are design to reduce visual mass by breaking up building elevations into distinct elements.*

The extent to which Performance Outcome 12.1 is considered with the height of the building has already been discussed in the 'Height' section above. In respect of the architectural detail and materiality and how that responds to the local character, the building is considered to sufficiently satisfy this also. The material palette selected for the building includes traditional materials such as brick, concrete and metal cladding, responding to the traditional dwellings in the locality. The large expanse of glazing at the ground level is not consistent with the traditional character of the area, but the passive surveillance advantages obtained by this and the proportionately low amount of which this comprises the whole building offset this departure.

The upper storeys of the building provide some visual articulation through the design of the balconies. Each apartment's balcony is its own distinct building element meaning space is provided between balconies on the same level of the building. The balconies are designed with open balustrades 1 metre tall and angled timber floor-to-ceiling battens designed to prevent views into an adjacent apartment's balcony. This mix of open and

closed styles provides visual interest and further shadowing and articulation throughout the building's elevation to satisfy the abovementioned Performance Outcomes.

One negative aspect of the building design is the large expanse of blank walling on Levels 3 to 6 of the Richmond Street elevation. Approximately 150m$^2$ of this elevation is comprised of off-white vertical cladding, broken up only by four central windows; providing little visual interest to reduce the visual mass of the building. That being said, this area comprises approximately one-seventh of the building face, is set further back than the podium level below and is situated between balconies on both sides that wrap around the front elevation for lengths of approximately 3.2m either side. Accordingly, this aspect of the design is considered marginally acceptable.

Performance Outcome 12.8 of the Design in Urban Areas module states:

> *Building services, plant and mechanical equipment are screened from the public realm.*

All plant and services/mechanical equipment associated with this building are contained within the basement, screened from public view. The lift over-runs are sited away from the building's edge to screen them from public view too. The air conditioning units for each apartment are located on the respective balconies, sufficiently mitigated from public view to warrant satisfaction of this Performance Outcome.

Performance Outcome 1.3 of the Design in Urban Areas module states:

> *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.*

Performance Outcome 2.3 of the Design in Urban Areas module states:

> *Buildings are designed with safe, perceptible and direct access from public street frontages and vehicle parking areas.*

Performance Outcome 12.7 of the Design in Urban Areas module states:

> *Entrances to multi-storey buildings are safe, attractive, welcoming, functional and contribute to streetscape character.*

The main lobby entrance for the building is located at the front of the building, provided by clear double doors under a canopy, allowing direct access from the primary street frontage and conveying purpose, consistent with these Performance Outcomes.

Performance Outcome 2.4 of the Design in Urban Areas module states:

> *Development at street level is designed to maximise opportunities for passive surveillance of the adjacent public realm.*

Performance Outcome 2.5 of the Design in Urban Areas module states:

> *Common areas and entry points of buildings (such as the foyer areas of residential buildings), and non-residential uses at street level, maximise passive surveillance from the public realm to the inside of the building at night.*

The Richmond Street elevation, at ground level, is comprised of large expanses of glazing that provide great opportunities for two-way passive surveillance between the public realm and the lobby, gym and office areas inside the building, consistent with these Performance Outcomes. The ground level apartments will have views into Old Mill Reserve also, allowing for passive surveillance of the public reserve. Similarly, the outdoor deck associated with the café provides views over the River Torrens and proposed shared use path. Thus, the building has clearly been designed with passive surveillance in mind.

**Private Open Space, Communal Facilities and Occupant Amenity**

Performance Outcome 4.1 of the Design in Urban Areas module states:

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

Performance Outcome 18.1 of the Design in Urban Areas module states:

> *Living rooms have an external outlook to provide a high standard of amenity for occupants.*

Performance Outcome 26.1 of the Design in Urban Areas module states:

> *Ground level dwellings have a satisfactory short range visual outlook to public, communal or private open space.*

The building has been designed with all apartments having outlooks to one of the four cardinal directions to provide natural sunlight access and views consistent with a high amenity for occupants, satisfying Performance Outcome 4.1 above. The main living areas of all the apartments connect to the balconies and hence have a positive external outlook per Performance Outcome 18.1. The ground level dwellings face west towards Old Mill Reserve, and despite there being a car parking area there, views of the larger reserve will be obtainable.

Performance Outcome 18.2 of the Design in Urban Areas module states:

> *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.*

For the majority of the apartments, the bedrooms are internal to the floor plan with no external outlook from the building. The exceptions to this are the apartments on the north at all building levels and on the south elevation on the first floor only, whose bedrooms all have windows that face out of the building.

Those on the south elevation are setback at least 6m from the front property boundary and are screened behind hit-and-miss brickwork to provide protection from noise and light intrusion. Whereas those on the northern elevation have an outlook towards the River Torrens and not any vehicle areas. Thus, the design of the building satisfies Performance Outcome 18.2.

Performance Outcome 26.2 of the Design in Urban Areas module states:

> *The visual privacy of ground level dwellings within multi-level buildings is protected.*

There are six apartment dwellings on the ground level, that face west towards Old Mill Reserve. These dwellings are proposed with an FFL approximately 1.6m above the adjacent ground level in the Reserve, providing sufficient privacy for the dwellings. The balconies for these dwellings are completed with a 1.2m tall, perforated metal balustrade to assist with occupant privacy further. Hence, this Performance Outcome is considered satisfied.

Performance Outcome 27.1 of the Design in Urban Areas module states:

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

Performance Outcome 32.1 of the Design in Urban Areas module states:

> *Private open space may be substituted for communal open space which is designed to meet the recreation and amenity needs of residents.*

Performance Outcome 28.2 of the Design in Urban Areas module states:

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

Private open space provision for the apartments is detailed in the Areas Schedules in the architectural drawings for the building (see **Attachment 1.2**). By way of summary:

- The ground level studio apartments have internal floor areas of 36-38m$^2$ and balconies of 8-10m$^2$
- Studio apartments across the other five building levels have internal floor areas of 36-48m$^2$ and balconies of 7-15m$^2$
- Single bed apartments across the five upper building levels have internal floor areas of 37-52m$^2$ and balconies of 6-11m$^2$

The balcony areas proposed are considered to be suitable and proportionate to the apartment size. By way of example, the Housing Diversity Neighbourhood Zone permits a DTS dwelling to be constructed on a 300m$^2$ allotment with only 24m$^2$ private open space (8% of the site). For this development, each apartment is provided with private open space comprising at least 13% of the total floor area.

Moreover, the type of accommodation – being more geared towards shorter-term accommodation – lends itself to accommodation that has a lower need for private open space. As such, the private open space provided for each apartment is considered sufficient to satisfy Performance Outcome 27.1 above. All balconies have a minimal dimension of approximately 2 metres too, which is sufficient to accommodate outdoor seating per Performance Outcome 28.2 above.

Notwithstanding the assessment of private open space, it is worth noting that all apartments will have access to the gym on the ground level of the building, which contributes to the recreation needs of the residents per Performance Outcome 32.1 above. Additionally, while not part of the development site, the proximity of the buildings to Twelftree Reserve, Old Mill Reserve and the River Torrens Linear Park further supports the adequacy of the provision of private open space provided for each apartment within the six-storey building.

**Overlooking and Overshadowing**

Performance Outcome 16.1 of the Design in Urban Areas module states:

> *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 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 Planning and Design Code defines "direct overlooking" as:

> *…limited to an area that falls within a horizontal distance of 15 measures measured from:*
> *(i) In respect of a window, the centre line of the overlooking window and not less than 45 degree angle from the plane of that wall containing the overlooking window;*
> *(ii) In respect of a balcony, any point of the overlooking balcony.*

The upper-level window and balconies associated with this building are all more than 20 metres away from any existing dwelling south of the site on Richmond Street and will be more than 20 metres away from any future dwelling on the proposed allotments to the east. Accordingly, Performance Outcome 16.1 (above) is considered to be satisfied and no privacy treatment to the balconies or windows of the six-storey building is considered necessary.

Performance Outcome 3.1 of the Interface Between Land Uses module states:

> *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…*

The corresponding Designated Performance Feature states:

> *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.*

Performance Outcome 3.2 of the Interface Between Land Uses module states:

> *Overshadowing of the primary area of private open space…of adjacent residential land uses in:*
> *(a) A neighbourhood-type zone is minimised to maintain access to direct winter sunlight…*

The corresponding Designated Performance Feature states:

> *Development maintains 2 hours of direct sunlight between 9.00am and 3.00pm 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 of the existing ground level open space*
> *Or*
> *ii. 35m$^2$ of the existing ground level open space (with at least one of the area's dimensions measuring 2.5m).*

The Applicant has provided shadow diagrams that demonstrate that 25, 27, 29 and 31 Richmond Street will be shadowed by the development at 3pm during the winter solstice, but free from shadow at midday. Thus, at some point between 12pm and 3pm the shadow moves east and begins to shadow the north-facing windows and private open space of these dwellings. Beyond 3pm, it is reasonable to expect that 33, 35, 37 and 39 Richmond Street will be shadowed by this development also.

The extent of shadow cast by this development on residential land uses in a neighbourhood-type zone is limited to the afternoon and complies with the minimum expectations set out in DPF 3.1 and 3.2 of the Interface Between Land Uses module. As such, the corresponding Performance Outcomes are considered to be satisfied and the extent of shadowing produced by this development is considered acceptable despite it being six levels in height.

**Soft Landscaping**

Performance Outcome 3.1 of the Design in Urban Areas module states:

> *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.*

Performance Outcome 13.1 of the Design in Urban Areas module states:

> *Development facing a street provides a well landscaped area that contains a deep soil space to accommodate a tree of species and size adequate to provide shade, contribute to tree canopy targets and soften the appearance of buildings.*

Performance Outcome 13.2 of the Design in Urban Areas module states:

> *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.*

The (satisfactory) 4.5 metre setback between the building and Richmond Street provides little room for soft landscaping to be implemented as sought by these Performance Outcomes. Notwithstanding, two well-sized landscaping beds are provided in this front setback area as well as smaller landscaping beds in the western setback area.

The Applicant has provided landscaping plans (prepared by Landskap) that indicate five (5) *Ginkgo biloba* trees being planted in front of the building and two (2) more adjacent the southwest corner of the building and visible from the street. The selected trees have a potential mature height of 15m and a spread of 5m. With seven of these between the building and the Richmond Street frontage, the above Performance Outcomes will be satisfied.

Performance Outcome 7.4 of the Design in Urban Areas module states:

> *Street-level vehicle parking areas incorporate tree planting to provide shade, reduce solar heat absorption and reflection.*

Performance Outcome 7.5 of the Design in Urban Areas module states:

> *Street-level vehicle parking areas incorporate soft landscaping to improve visual appearance when viewed from within the site and from public places.*

Performance Outcome 7.6 of the Design in Urban Areas module states:

> *Vehicle parking areas and associated driveways are landscaped to provide shade and positively contribute to amenity.*

Landscaping beds have been provided around the car parking area – measuring 600mm wide on the west side of the car park and 1.6m wide on the east side. The Landskap landscaping plan indicates more *Ginkgo biloba* trees being planted along the western side and at the front of the car park, and Tuckeroo trees along the eastern side, which have a potential mature height of only 5 metres but a spread of 7 metres.

The proposed extent of landscaping is sufficient to provide shade, reduce solar heat absorption throughout the car park and improve the appearance and amenity of the car park, consistent with the above Performance Outcomes.

Appropriate conditions have been recommended to ensure all proposed landscaping on the site of the six-storey, mixed-use building is implemented and maintained. Landscaping of the public realm is subject to further detailed design, as is the proposed street lighting, and so reserved matters have been recommended that require further discussions with Council to take place during detailed design.

Performance Outcome 1.1 of the Urban Tree Canopy Overlay states:

> *Trees are planted or retained to contribute to an urban tree canopy.*

Pursuant to Practice Direction 12 and section 127(1) of the PDI Act, where a development application includes a new dwelling in an area subject to the Urban Tree Canopy Overlay, a mandatory condition applies that requires either: trees to be planted in accordance with DPF 1.1 of the Overlay, or payment made into an offset fund in lieu of planting trees.

The six-storey residential flat building involves the construction of 78 one-bedroom dwellings and so the Applicant will be required to either plant 78 small trees (per the table in DPF 1.1 of the Overlay) or pay $500 per tree not planted. The table in DPF 1.1 requires minimum soil areas to be provided for each small tree, and the applicant does not have enough room on the site for 78 trees. Accordingly, they will need to make payment of some amount to offset what they cannot plant. The mandatory condition has been recommended.

## TRAFFIC IMPACT, ACCESS AND PARKING

**Public Road Network and Residential Allotments**

Performance Outcome 1.1 of the Traffic Generating Development Overlay states:

> *Development designed to minimise its potential impact on the safety, efficiency and functional performance of the State Maintained Road network.*

Performance Outcome 1.2 of the Traffic Generating Development Overlay states:

> *Access points sited and designed to accommodate the type and volume of traffic likely to be generated by development.*

Performance Outcome 1.1 of the Traffic Generating Development Overlay states:

> *Sufficient accessible on-site queuing provided to meet the needs of the development so that queues do not impact on the State Maintained Road network.*

Because the development involves a building containing in excess of 50 dwellings – the six-storey serviced apartment building – a statutory referral to the Commissioner of Highways was required under this Overlay. The Commissioner of Highways issued a Request for Information to the Applicant requiring, among other things, forecast trip generation and turning movements at the intersection between Richmond Street and Hackney Road.

Performance Outcome 1.1 of the Transport, Access and Parking module states:

> *Development is integrated with the existing transport system and designed to minimise its potential impact on the functional performance of the transport system.*

An analysis undertaken by the Applicant's traffic engineer determined that there would an additional 14 traffic movements at this intersection during the afternoon peak hour; less than 0.5% of volumes using the intersection and less than 5% of volumes of traffic along Richmond Street. This satisfied the Commissioner of Highways that no unreasonable impact would be made on Hackney Road, consistent with these Performances Outcomes. Similarly, Council's own Senior Traffic Engineer and BE Engineering Solutions (engaged by Council to undertake an independent review) were satisfied that the volumes of traffic generated by this development will not have an unreasonable impact on the local road network.

Performance Outcome 10.1 of the Transport, Access and Parking module states:

> *Development is located and designed to ensure drivers can safely turn into and out of public road junctions.*

Performance Outcome 3.4 of the Land Division module states:

> *Road reserves provide for safe and convenient movement and parking of projected volumes of vehicles and allow for the efficient movement of service and emergency vehicles.*

Performance Outcome 3.5 of the Land Division module states:

> *Road reserves are designed to accommodate pedestrian and cycling infrastructure, street tree planting, landscaping and street furniture.*

The roads have been designed with sufficient width to cater for expected vehicle movements, accommodate on-street parking, the proposed shared use path, pedestrian footpaths, street tree plantings, waste collection and street lighting. The detailed construction designs of this is subject to further discussions between the Council and the Applicant, but the Panel can be satisfied that the road network has been designed consistent with Performance Outcomes 3.4 and 3.5 above.

With respect to access points, passenger vehicles accessing the mixed-use building site will do so via a 7-metre-wide access point on Richmond Street. This width is sufficient to accommodate simultaneous movements by a B99 vehicle consistent with the relevant Australian Standard, as demonstrated by the turn path diagrams provided by the Applicant's Traffic Engineer, MFY.

Similarly, the intersections of Richmond Street and proposed Road 201 and that of proposed Roads 201 and 202 accommodate simultaneous movements for B99 vehicles, consistent with Performance Outcome 10.1 above. Council's traffic engineer agrees and has no concerns with the future performance of the proposed roads and private car park in this respect.

Furthermore, the Applicant's traffic engineer has also provided turn path diagrams for the largest vehicle anticipated to enter this development – a 10.2m Council refuse truck. The turn path diagrams demonstrate that such a vehicle is able to safely access proposed Road 201 from Richmond Street, turn onto proposed Road 202, undertake a three-point turn in the cul-de-sac in the northwest corner of the site, and mirror the same movements to exit the site back onto Richmond Street.

Alternatively, a refuse or delivery vehicle entering the mixed-use site will need to do so using that site's access point on Richmond Street – not entering from the public road proposed to the north. This requirement will be reinforced by a condition if the application is approved.

The northern end of the car parking area associated with the mixed-use building is enclosed by retractable bollards to prevent vehicles using the private car park as a thoroughfare. This creates the cul-de-sac in the northwest corner of the proposed public road network. In other words, it is Aspen Group's intention that anybody who is not visiting / using the mixed-use building should not be accessing the private car park, which is entirely reasonable. If a service / waste vehicle was to try to enter the site from the north, they would need to temporarily stow in the cul-de-sac area, blocking the shared use path, while they wait for management (within the building) to retract the bollards (presumably via remote operation). This is an undesirable outcome and there are no practical reasons why this would need to occur as a preference to access from Richmond Street, and hence a condition preventing this from occurring is considered reasonable and serves a proper planning purpose, by minimising the interruption to pedestrian and cycle traffic. Such vehicles will then be able to exit the private car park in a northerly direction via the retractable bollards, and the turn path diagrams provided by the Applicant's engineer demonstrate this is possible.

Performance Outcome 3.7 of the Land Division module states:

> *Road reserves provide unobstructed vehicular access and egress to and from individual allotments and sites.*

The "Site Masterplan" (prepared by Landskap in **Attachment 1.1)** demonstrates indicative building footprints for the 46 residential allotments to be created. Turn path diagrams provided by the Applicant demonstrates that these allotments are all able to be safely and conveniently accessed from the proposed public road network.

Lots 23-46 will obtain access directly from proposed Roads 201 and 202. Vehicles exiting Lots 35, 36, 37 and 38 can undertake a reverse manoeuvre from within the site and onto the raised road section at the northeast corner of the site, without needing to traverse over the shared use path, which is a positive outcome sought by the Council during negotiations with the Applicant.

However, vehicles accessing Lots 33 and 34 will need to traverse the shared path for entry and exit movements. Although not ideal, the expected trip generation for these two dwellings during peak periods is low enough to support this arrangement. Furthermore, some clearance space is provided in the form of a

verge between the subject allotments and the shared path, enabling better sightlines for vehicles exiting these Lots.

Performance Outcome 33.4 of the Design in Urban Areas module states:

> *Residential driveways that service more than one dwelling…are designed to allow passenger vehicles to enter and exit and manoeuvre within the site in a safe and convenient manner.*

Although the proposed Road 200 laneway is going to be a public road, its primary function is to facilitate vehicle access for Lots 1-22 and therefore acts akin to the type of residential driveway envisaged by Performance Outcome 33.4 above. This road has a width of 7 metres, consistent with the relevant Australian Standard, which allows a B85 vehicle to enter and exit an on-site parking space in no less than a three-point turn manoeuvre. Ensuring the built-form outcome still permits such movement will be a matter for consideration at the assessment of those future development applications, but the infrastructure will be in place to ensure that there will be no barriers to safe and convenient movements (bar a very poor dwelling design).

Performance Outcome 2.1 of the Transport, Access and Parking module states:

> *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.*

The Applicant's traffic engineer's reports and RFI responses demonstrate that adequate sightlines are available at all intersections consistent with this Performance Outcome. Negotiations with the Applicant were required to ensure Lot 23 provided a suitable corner cut-off at its southwest corner to accommodate sightlines consistent with the relevant Australian Standard.

**Shared Use Path**

Performance Outcome 3.5 of the Land Division module states:

> *Road reserves are designed to accommodate pedestrian and cycling infrastructure, street tree planting, landscaping and street furniture.*

Performance Outcome 3.8 of the Land Division module states:

> *Roads, open space and thoroughfares provide safe and convenient linkages to the surrounding open space and transport network.*

A shared use path is proposed to link existing cycling infrastructure in Torrens St and Old Mill Reserve, which will require some works by the Council to link the path provided in this development with the existing paths through our Reserves. Through various rounds of negotiations with the Applicant, the shared use path has been designed to be 2.5m wide – which is consistent with DIT's active design guidelines. Administration tried to negotiate a width of 3.0m (desirable), but 2.5m has been accepted. Importantly, 500mm clearance is provided on both sides of the shared use path to allow for verges, street tree plantings, vehicle door opening clearance and street lighting, consistent with the design guidelines also. As with other roads and footpaths, the construction detail of the shared use path requires further discussions with the Council's Traffic and Infrastructure team, and this is dealt with by way of a condition on the Land Division Consent. For the purposes of Planning Consent, however, the abovementioned Performance Outcomes are considered satisfied.

**On-street Parking Provision**

Performance Outcome 3.4 of the Land Division module states:

> *Road reserves provide for safe and convenient movement and parking of projected volumes of vehicles and allow for the efficient movement of service and emergency vehicles.*

The Planning & Design Code contains no policy that indicates how many on-street car parking spaces should be provided for developments such as this. However, Designated Performance Feature 23.6 of the Design in Urban Areas module does suggest that where density increases occur, a "*minimum 0.33 on-street spaces per dwelling on the site"* shall be retained. Applying this logic to the proposed division suggests that 15 on-street parking spaces should be provided throughout the development.

As shown on the "Site Masterplan" prepared by Landskap:

- One (1) parallel parking space is provided at the southern end of proposed Road 201;
- Four (4) 90-degree parking spaces are provided at the northern end of proposed Road 201;
- Eight (8) parallel parking spaces are provided on the southern side of proposed Road 202.

To ensure refuse and emergency service vehicles can traverse through the proposed public road network, it is very likely that the eastern side of proposed Road 201 and the northern side of proposed Road 202 will need parking controls that prevent on-street parking occurring in these areas (i.e. yellow-lined). This is something the Council will consider at the detailed design stage, but for the purposes of this assessment the Panel may assume that such controls will be implemented. The Applicant has maximised the number of on-street parking spaces that can be provided for this development while still providing sufficient room for the placement of waste bins, street tree plantings and street lighting. Accordingly, Performance Outcome 3.4 above is considered to be satisfied.

**Six-Storey Mixed-Use Building and Associated Car Park**

Performance Outcome 1.3 of the Transport, Access and Parking module states:

> *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.*

Performance Outcome 6.6 of the Transport, Access and Parking module states:

> *Loading areas and designated parking spaces for service vehicles are provided within the boundary of the site.*

With respect to delivery vehicles attending the site for the café, the Applicant has indicated that these will typically occur in vans and vehicles that are able to park in one of the on-site spaces, thereby not impeding the function of the car park or vehicle movements at all. As for waste collection and the occasional delivery requiring a larger vehicle (anticipated once or twice a week), however, this is different.

Larger vehicles attending the site for waste collection or deliveries will need to stow within the aisle of the car park while they collect the waste bins from the respective enclosures, load them onto the truck, empty them and then return the bins. Colby Phillips Advisory suggest that this would normally take 3 to 6 minutes per collection, which is realistic given the greatest number of bins any collection will empty is 4 (general waste).

Each waste type (general waste, recyclables and organics) is expected to need collection once a week. Thus, for perhaps 30 minutes a week, several of the parking spaces within the car park will be unable to be used while waste collection takes place. The same might be expected for larger deliveries too.

This outcome is at odds with Performance Outcome 1.3 above because it inherently creates conflict between passenger vehicles and service vehicles. However, this conflict will only arise several times a week and management for the building should be able to coordinate collection times to occur outside of peak traffic times for the development to minimise this conflict. As such, despite being at odds with PO 1.3, the proposed collection methodology is considered acceptable.

Performance Outcome 3.2 of the Transport, Access and Parking module states:

> *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.*

Access to the basement car park is provided via a roller door at the top of a ramp on the eastern side of the building. The roller door is located at the building line, meaning there is practically no separation between the ramp and the pedestrian path that runs along the building line perpendicular to the driveway. This has the potential to cause conflict. The paving treatments demonstrated on the plans provide priority to pedestrians and so it is expected that users of the site will adhere to this and exit the basement in a slow and safe manner. Notwithstanding, the number of pedestrian movements expected along this path are very low and so the opportunity for conflict is equally expected to be very low.

The entrance to the basement, before reaching the pedestrian path and roller door, is 6 metres in length which allows a B99 vehicle to safely stow while waiting for the roller door to open without impeding the function of the car parking area or creating an impediment for pedestrians. The Applicant's traffic engineer has confirmed that the basement entrance will have a clearance height of at least 2.2 metres, as will the balance of the basement, consistent with the relevant Australian Standard. Therefore, Performance Outcome 3.2 (above) is considered to be met.

Performance Outcome 5.1 of the Transport, Access and Parking module states:

> *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.*

The corresponding Designated Performance Feature suggests that satisfaction of the rates in Table 1 of the module is sufficient to satisfy the Performance Outcome. (The site is not a designated area for the purposes of car parking and so Table 2 cannot apply).

Table 1 of this module suggests that a café should provide 0.4 spaces per seat (a plan of which has not been provided), and that the residential flat building (serviced apartments) should provide 1 space per dwelling. The nature of the building is mixed-use, and it is a common tenet of planning that car parking provisions can overlap for mixed uses where justification exists (for example, where the two uses are sufficiently linked such that they will not always attract independent visitors and/or when the two uses' peak operations occur at different times).

The proposed café has a gross leasable floor area of approximately 110m$^2$, which includes the outdoor terrace area but does not include the undefined co-working area. It is unclear what the co-working area is intended to be used for, but it is reasonable to expect that this area may be occupied by seats intended for visitors of the café as well as occupants and workers of the co-living building. As such, administration is of the view that parking provisions should be calculated based on the total floor area of these spaces, which is approximately 164m$^2$.

The Applicant's traffic engineer has assumed a seating capacity of 50 persons when justifying the parking provision. This is considered to be an underestimation noting the total floor area that can accommodate tables and chairs both within the building and on the outdoor terrace area. The Council's Outdoor Dining Policy suggests that where a standard 1m diameter table is provided, a table with 4 chairs will occupy a space of approximately 2m x 2m: 4m$^2$, or one person per 1m$^2$. This is used to assess capacities for outdoor dining areas in the Council area, which facilitates a good level of diner amenity without wasting space. Of course, different table styles and dimensions will influence this number, but the formula can be generally applied for assessment purposes.

Using this formula, the 164m$^2$ floor area that is potentially able to be used for seats for the café provides a potential capacity of about 160 persons. This accords with Table D2D18 of the National Construction Code also, which suggests a safe occupancy limit for a café is one person per 1m$^2$. Thus, using this number of seats, the site would be expected to provide 64 on-site spaces just for the café use. The suitability of this number will be discussed further below.

Table 1 of the module suggests further that the residential flat building should provide one space per dwelling, of which there are 78. Thus, Table 1 of the Transport, Access and Parking module suggests that this building should provide a total of 144 spaces to cater for the residential and commercial uses of the building. This is considered to be a gross overprovision for the reasons expressed below.

The site is provided with a total of 44 spaces, comprised of 29 at ground level and 15 in the basement. The dimensions of the car parking spaces and the aisle widths for both car parking areas are consistent with the relevant Australian Standard and Council's Senior Traffic Engineer is comfortable with the functionality of these areas.

As previously discussed, the site is located very close to a bus stop which facilitates a high frequency public transit route that travels between the CBD and Paradise Interchange. Moreover, an improved pedestrian and cycling shared use path will be provided by the development, providing an alternative active transport route both for occupants of the apartment building and visitors of the café. It is expected that most of the visitors to the café will be people travelling along the shared use path and occupants of the apartment building; hence the parking demand created by this use is lower than typical.

The apartment building is intended to operate as a form of short- to medium-term accommodation, not longer stays typical of residential tenancies. As such, the type of occupants expected are interstate travellers who need short term accommodation, workers and students – all of whom might be unlikely to use a vehicle while staying at the facility (hence why they might choose a CBD-adjacent accommodation). Aspen Group manage a similar facility in NSW and the Applicant's traffic engineer has undertaken a comparative assessment of that facility to justify the car parking provision for this site. In so doing, the Applicant's traffic engineer has forecast a parking demand of 0.2 spaces per apartment – a total demand of 16 spaces.

Furthermore, the Concept Plan for the site suggests that a pedestrian link is provided between the site and the public car park in Old Mill Reserve, indicating that this car park may be partially relied upon to support development of the site. Council's Senior Traffic Engineer has confirmed that the car park in Old Mill Reserve is currently underutilised, and the rejuvenation of the development site will likely change this.

Performance Outcome 5.1 (above) suggests that a reduced on-site parking provision may be supported where on-street parking is available and/or a mixed-use development supports the shared use of parking areas provide on-site. Both factors apply here, and the 44 spaces provided for the development is considered to be justified given the nature of the use of the apartments, the mixed-use nature of the building, and the availability of parking in Old Mill Reserve.

# OTHER CONSIDERATIONS

**Partial Demolition of Local Heritage Places**

Performance Outcome 6.2 of the Local Heritage Place Overlay states:

> *The demolition, destruction or removal of a building, portion of a building or other feature is appropriate where it does not contribute to the heritage values of the Local Heritage Place.*

The "Uniting Church" Local Heritage Place, named on the Applicant's plans as "Hackney Mission Hall", is described in its listing as "*original 1906 building fabric fronting Richmond Street including main hall and two classrooms but excluding the rear additions*".

This application seeks to demolish the non-original northern addition and lean-to, retaining the original main hall and two classrooms that comprise the important heritage fabric of this building. This work complies with Performance Outcome 6.2, as noted by both the Applicant's Heritage Consultant and Council's Heritage Advisor, and hence is supported.

The "Park Farm Barn" Local Heritage Place listing describes it as: "*whole of the building, excluding the later porch additions on the eastern elevation, lean-to additions on the western elevation and lower brick and framed structure to the north*".

This application seeks to demolish all of those excluded additions noted in the LHP listing, as well as a non-original verandah on the eastern side of the building. This work complies with Performance Outcome 6.2, as noted by both the Applicant's Heritage Consultant and Council's Heritage Advisor, and hence is supported.

Make good works will be undertaken to both buildings where required post-demolition, which is supported by Performance Outcome 7.1 below. Details of the make good works is recommended to be provided by way of a Reserved Matter.

> *Conservation works to the exterior of a Local Heritage Place (and other features identified in the extent of the listing) match original materials to be repaired and utilise traditional work methods.*

**Waste Management**

Performance Outcome 23.3 of the Design in Urban Areas module states:

> *Driveways and access points are located and designed to facilitate safe access and egress while maximising land available for… domestic waste collection…*

The 46 proposed residential allotments will naturally expect to have their waste collected by the Council (East Waste). Following some necessary re-design, the Applicant has provided details of where each of these allotments will place their bins for collection by East Waste. This includes the use of a "bin pad" at the northern end of Proposed Road 201 for Lots 35, 36 and 37 to place their bins and similar for some of the

central lots adjacent the Shared Path (see the MFY Traffic Report dated 5 August 2025 in **Attachment 1.5**). Further, Lots 38 and 39 will have to place their bins on Proposed Road 201 for collection also, due to the cul-de-sac nature of the roads at the northeast section of the development site. While slightly inconvenient for the future occupants of these Lots, this is not considered unreasonable for those occupants and thus the collection methodology is supported in principle. All other dwellings have sufficient kerb room in front of their dwellings from where waste bins can be collected.

East Waste are satisfied that they will be able to collect waste from all 46 allotments, subject to appropriate traffic controls being put in place at completion of the development (**Attachment 8**) – which will be determined at the detailed design phase. Accordingly, Performance Outcome 23.3 above is considered to be satisfied.

Performance Outcome 11.2 of the Design in Urban Areas module states:

> *Communal waste storage and collection areas are located, enclosed and designed to be screened from view from the public domain, open space and dwellings.*

The six-storey mixed-use building includes two areas for waste storage. The residential waste room is located on the eastern side of the ground floor of the building, while waste generated by the Café use has a separate storage area adjacent the café and the northern boundary of Lot 47.

The Applicant has provided a Waste Management Plan, prepared by Colby Phillips Advisory, that details the expected waste generation for both uses within this building (see **Attachment 1.5**). This advice has influenced the design of the respective waste storage areas, ensuring sufficient room is provided to accommodate the number and size of bins required to service both uses. Both waste storage areas are of sufficient size and dimension to accommodate the required bins for each land use. Further, these waste storage areas are effectively screened from the public realm and dwellings, consistent with Performance Outcome 11.2 above.

The waste disposal pathway required of occupants of the apartment building involves entering Lift 2 within the building to access the waste storage area via an airlock. Lift 2 services only the waste storage area and has been implemented to ensure that waste disposal does not interfere with the general amenity of the building by maintaining separate lifts for waste as to avoid general travel between floors. This provides a convenient disposal pathway for occupants.

**Bank Stabilisation (Geotechnical Engineering) Works**

Performance Outcome 8.5 of the Design in Urban Areas module states:

> *Development does not occur on land at risk of landslip or increase the potential for landslip or land surface instability.*

Performance Outcome 1.1 of the Water Resources Overlay states:

> *Watercourses and their beds, banks, wetlands and floodplains (1% AEP flood extent) are not damaged or modified and are retained in their natural state, except where modification is required for essential access or maintenance purposes.*

Performance Outcome 1.8 of the Water Resources Overlay states:

> *Watercourses, floodplains (1% AEP flood extent) and wetlands are protected and enhanced by stabilising watercourse banks and reducing sediments and nutrients entering the watercourse.*

Proposed Lots 35-46 back onto the River Torrens, where the crest of the existing riverbank slope meanders into and beyond the rear boundaries of the existing caravan park site. In other words, there are areas where the rear boundary of the site is beyond the crest of the existing slope. The existing slope is potentially unstable and in order for these proposed Lots to be developed, geotechnical engineering works in the form of bank stabilisation works are required.

To that end, the Applicant provided geotechnical engineering reports by WGA that detail the works proposed to be undertaken (see **Attachment 1.4**). Council separately engaged Tonkin to undertake a review of the proposed works and advise the Council on the suitability thereof and hence the suitability of the proposed allotments for residential purposes. Several queries were raised with the Applicant's engineer through this process, and the responses provided were satisfactory to both Council and Tonkin. The administration is of the view that the proposed works are appropriate and will result in allotments that will be able to be developed for residential land uses.

The works proposed involve a reconstruction of the slope to provide a slope of 1.25H:1V (approximately 40 degrees), which relocates the crest of the river bank approximately 1.8m from its current location. Hence, the rear boundaries of Lots 35-46 will be beyond the crest of the engineered slope. The slope would then be reinforced by five (5) geosynthetic grid layers that extend up to 16m into the engineered slope.

The dwellings constructed on these allotments are likely to need to be supported by piles founded in natural soils below the riverbed (approximately 20m below existing ground levels). The ultimate construction and footing design for each dwelling will depend on the dwelling construction itself, but it has been assumed they will all need piles. The Applicant's engineer was asked to quantify the cost of such a footing system to ensure that the cost was not so prohibitive that the allotments may not be considered suitable for future use; and the response was adequate – approximately $40-60k per dwelling.

The upper two layers and the bottom layer of the geosynthetic grid layers will be locally compromised by the installation of the piles for each dwelling, but both engineers are comfortable that the thin diameter of the piles and the localised nature of their penetration won't compromise the overall structural stability of the slope or the performance of the geosynthetic grid layers. Small diameter auger testing would be required following installation of the piles for each dwelling, to ensure that this remains the case.

Finally, for the engineered slope to remain stable, it was determined that any dwelling constructed on these allotments must maintain a setback of at least 2.4m from the crest of the engineered slope, and no measurable surcharge load is added within the rear setback area.

One of the LMAs executed between the Council and the developer applies to these allotments and specifically deals with the need for geotechnical engineering requirements both before and during dwelling construction. The geotechnical advice produced by WGA is annexed to the LMA, and the LMA requires any owner to:

- Ensure any dwelling maintains a rear setback of at least 2.4m;
- Not place any structures in the rear setback area that are likely to measurably increase the mass loading on the engineered slope;
- Construct a dwelling using a piled footing system to a depth of at least 20m below ground;
- Subject the first pile installed to either high dynamic strain testing or static load testing, and provide evidence of the results to the Council as soon as possible;
- Assess any localised impact that the constructed piles had on the Geogrid layers by a qualified geotechnical engineer, including confirming that the geogrid layers are not structurally compromised; and
- Not excavate any service or footing trenches through the geogrid layers.

The LMA has been designed to ensure that these allotments are suitable for use without relying on conditions on a development approval, and that future purchasers/owners are aware of the requirements for construction.

It should also be noted that these works predominantly take place on land owned by the Minister for Environment and Water, and so the developer will need to obtain their consent to undertake the work before it can be done. It is not deemed necessary that Consent is provided and evidenced to the Panel or Assessment Manager prior to a determination being made on the development application.

**Flooding Considerations and Stormwater Management**

The Code identifies that the development site is within both the Hazards (Flooding) and the Hazards (Flooding – General) Overlays. It is only current Lot 100 – to be partly comprised by proposed Lot 600 Reserve – that is within the Hazards (Flooding) Overlay, which is spatially generally limited to the River Torrens and its banks. Since this area is not proposed to be developed, the provisions of this Overlay are considered inapplicable.

Performance Outcome 2.1 of the Hazards (Flooding – General) Overlay states:

> *Development is sited, designed and constructed to prevent the entry of floodwaters where the entry of flood waters is likely to result in undue damage to or compromise ongoing activities within buildings.*

The corresponding Designated Performance Feature suggests that habitable buildings should have a finished floor level (FFL) at least 300mm above the height of the 1% AEP flood event.

The proposal plans were referred to Tonkin for comment on the proposed design contours and the FFL of the six-storey mixed use building.

Tonkin advised that the flood level in a 1% AEP event is approximately 32.2m AHD at the intersection between proposed Road 201 and Richmond Street and currently flow into the site's existing private road (in the same location).

The design contour levels for the proposed Road 201 show design spot levels of 32.00m AHD at the intersection, but 9.5 metres north of the intersection this rises to 32.20m AHD before lowering again further north. The current internal road to the caravan park has a slight fall away from Richmond Street, hence the ingress.

Tonkin raised no concerns with the design contour levels because: firstly, these levels are largely indicative at this stage and still subject to detailed design and, secondly, Council can be comfortable with allowing its road reserve to contain floodwaters in a 1% AEP storm event providing the future residential allotments remain protected. This is particularly so when the depth of the floodwaters is up to 100mm. The detailed design of the roads will ensure that the proposed residential allotments can be suitably protected from water ingress in a 1% AEP event (and in any case the future dwellings will need to have a suitable FFL). At this stage, though, the proposed design contours for the public road network are considered sufficient to mitigate against flooding of the proposed residential allotments in a 1% AEP flood event, consistent with Performance Outcome 2.1 above.

With respect to the six-storey, mixed-use building, the flood levels in a 1% AEP event are contained largely to the footpath and roadway in front of the site. The lobby for the mixed-use building has an FFL of 31.83m

AHD (approx. 200mm above the highest footpath level adjacent), to which Tonkin raised no concerns about flood risk. More importantly, the dwellings within the building are situated 1.5m above the level of the lobby, giving them an FFL of 33.33m AHD at ground level. This is more than enough to prevent ingress in a 1% AEP event, thereby satisfying Performance Outcome 2.1 above.

Finally, the car park is not expected to experience any flooding in a 1% AEP event, except perhaps a minor amount at the access point on Richmond Street. Consequently, the ramp down for the basement is not expected to be experience any ingress in a 1% AEP event except for surface catchment that would be expected from any rainfall event.

Performance Outcome 10.1 of the Land Division module states:

> *Land division creating 20 or more 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.*

Performance Outcome 10.2 of the Land Division module states:

> *Land division creating 20 or more allotments 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.*

In short, the stormwater management plan for this proposal involves all 47 proposed allotments disposing of stormwater into an underground stormwater management system contained predominantly in land to be vested in the Council. This system carries water towards the north east of the site and beyond, where it will connect into an existing pipe that runs north through Old Mill Reserve and disposes into the River Torrens.

Again, Tonkin's advice was sought on the proposal insofar as these Performance Outcomes are concerned. Council's Infrastructure team were also involved in assessing this aspect of the development. The preliminary stormwater management plan for the entire development site has been deemed suitable in principle. Tonkin have confirmed that the MUSIC modelling used by the Applicant's engineer and the accompanying calculations satisfy these Performance Outcomes. Council's Infrastructure team, and legal advice obtained by the Council, have confirmed that the use of an easement over proposed Lot 47 for the purposes of stormwater infrastructure is a reasonable outcome. This is necessary because of the design levels for the site and, specifically, that the laneway (proposed Road 200) falls from east to west. The Council has negotiated a suitable width for the easement, relative to the dimensions of the required infrastructure, with the Applicant.

Detailed design of the roads and footpaths are still required and through these the Stormwater Management Plan will need to be updated. Variables such as the construction material of the roads and the final design levels for the development will influence the Stormwater Management Plan. Because the stormwater infrastructure within the public realm is a prescribed requirement for Land Division Consent, the requirements for an updated SMP are required by way of a condition imposed on that Consent. For the purposes of Planning Consent, however, the Panel should be satisfied that the general stormwater arrangement is feasible and appropriate.

**Question of Seriously at Variance**

Having considered the development against the relevant provisions of the Planning & Design Code (version 2024.23, 19/12/2024), and the Concept Plan for the site, the proposed development is not considered seriously at variance with the relevant Desired Outcomes and Performance Outcomes of the Planning and

Design Code pursuant to section 107(2)(c) of the *Planning, Development and Infrastructure Act 2016*, for the following reasons:

- The six-storey building, while exceeding the TNV of 2 levels applicable to the site, is only 2 storeys above the 4 levels envisaged by the Concept Plan, and is the same height as the building at the Hackney Hotel site to the southeast; and hence is not seriously inconsistent with surrounding built form;
- The high residential density proposed is not seriously at odds with the types of densities contemplated in areas that are close to public transport services, public reserves and active transport routes adjacent the CBD;
- The partial demolition of the two Local Heritage Places involves the removal of non-original components of the building;
- The bank stabilisation works may be reasonable anticipated for ensuring the long-term stability of the slope and hence the long-term suitability of the proposed allotments; and
- The general road and allotment configuration is functional and generally complies with Council's standards (subject to detailed design).

**CONCLUSION**

The proposed development involves, inherently, the division of land resulting in a high residential density, new public roads and footpaths, and a six-storey, mixed-use building containing 78 apartments and a gym.

Although the proposed residential density is higher than what the relevant Zone seeks, the site's setting and proximity to the CBD justifies a higher density – as it did for the Hackney Hotel site to the southwest. The site is sandwiched between two public reserves on either side and the River Torrens to the north – providing ample open space to support a higher density outcome – and will provide an improved cycling route to support active transport methods.

In similar terms, the Hackney Hotel development has provided a built form outcome to this locality that helps justify the height of the proposed development here. The proposed six level building will not appear seriously out of character as a result of three- and six-storey development adjacent (to the southwest and northwest). In fact, the six-storey building has been designed in a manner that reinforces a human scale at ground level before 'stepping back' from the podium level to the four levels above.

Overlooking from the building has been demonstrated to be a non-issue insofar as the Planning & Design Code is concerned, and the shadow cast from the development has similarly been demonstrated to be reasonable. Private open space is provided to all 78 apartments in the form of balconies, which are individually constructed to provide visual interest. The café use at the ground level will provide important access to services and amenity value for pedestrians and cyclists using the proposed shared use path.

Car parking provision for the mixed-use building is lower than what the Code seeks for this form of development, but the only way the shortfall (against the DPF) can be supported is by adopting a novel approach to calculating the theoretical demand based on the somewhat unique nature of the use and the site's setting, and accepting that use of the car park in Old Mill Reserve is a reasonable outcome. This has been suitably justified by the Applicant's traffic engineer and Council's traffic engineer is not opposed to this outcome.

The road network proposed by the development has been determined to be suitable in principle by Council's infrastructure and traffic team – facilitating necessary vehicle movements, accommodating sufficient pedestrian and vehicle sightlines, supporting on-street parking, street tree planting and street lighting, and

accommodating waste collection for the 46 residential allotments to be created. Waste and service vehicles attending the mixed-use building will have to enter from Richmond Street to avoid unreasonable conflict with the shared path from arising, which can be controlled by conditions.

The general stormwater arrangement for the development is also suitable in principle, subject to detailed design with Council's Infrastructure Team; which should give the Panel some confidence that the required infrastructure can be put in place to support the proposed density. Indicative built form plans provided by the Applicant similarly demonstrate that the allotments are capable of accommodating the anticipated dwelling form. The partial demolition of the two Local Heritage Places involves non-heritage elements only and is hence acceptable.

Finally, the bank stabilisation works proposed to ensure the long-term stability of Lots 35-46 have been deemed suitable by both the Applicant's geotechnical engineer and an independent geotechnical engineer engaged by the Council. A Land Management Agreement applicable to these Lots will ensure that necessary geotechnical requirements are met and consistently applied to the development and management of these Lots to ensure the slope's stability is not compromised.

## RECOMMENDATION

It is recommended that the Council Assessment Panel resolve that:

### RECOMMENDATION 1

### Not Seriously At Variance

The proposed development is not seriously at variance with the relevant Desired Outcomes and Performance Outcomes of the Planning and Design Code pursuant to section 107(2)(c) of the *Planning, Development and Infrastructure Act 2016*.

### RECOMMENDATION 2

### Granting of Planning Consent

Development Application Number 24040449, by Aspen Group is granted Planning Consent subject to the following reserved matters and conditions:

**RESERVED MATTER**
**Planning Consent**

Reserved Matter 1
Details of the 'make good' works to be to undertaken to the two Local Heritage Places following the herein approved demolition works shall be provided to the reasonable satisfaction of the Assessment Manager. Such details shall include scope of works, methodologies, materials and colours to be used.

Reserved Matter 2
Landscaping is to be undertaken within the road reserves and public reserve areas in general accordance with the herein approved 'Landscape Plan A' and 'Landscape Plan B' plans (prepared by Landskap) and is to comply with Council requirements.

Detailed design of the landscaping works is to be submitted to the Council for approval prior to development approval being issued. Such documentation shall include tree species and groundcovers selections, irrigation infrastructure, any furniture proposed in the public reserve areas, surface treatments and the like.

Reserved Matter 3
Detailed design of the street lighting, including pole locations within the road reserves, shall be provided to the reasonable satisfaction of the Council prior to development approval being granted.

*Pursuant to Section 102(3) of the* Planning, Development & Infrastructure Act 2016*, the above matter(s) shall be reserved for further assessment prior to the granting of Development Approval. Resolution of the reserved matter(s) and the imposition of any additional conditions pursuant to section 127(1) of the Act is delegated to the Assessment Manager.*

**CONDITIONS**
**PLANNING CONSENT**

Condition 1
The development granted Planning Consent shall be undertaken and completed in accordance with the stamped plans and documentation, except where varied by conditions below (if any).

Condition 2
The ground floor gym of the “Co Living” building is only to be used by occupants and workers of the building and is not to be separately leased or otherwise made available to members of the public.

Condition 3
All areas nominated as landscaping or garden areas on proposed Lot 47 (the "Co-Living" building and associated car park) shall be planted in accordance with the herein approved 'Landscape Plan A' and 'Proposed Trees' plans (prepared by Landskap, undated) within the next available planting season after the occupation of the premises to the reasonable satisfaction of the Assessment Manager. Appropriate irrigation shall be installed to all landscaping areas, and such plants shall be nurtured and maintained in good health and condition at all times, with any diseased or dying plants being replaced, to the reasonable satisfaction of the Council.

Condition 4
Any service, delivery or waste vehicles required to access the "Co-Living" Building site shall do so via the Richmond Street access point only. Access from the north of the site (via retraction of the bollards) is not permitted, and this access point shall only be used for vehicle exit movements from the car park.

*Reason: to avoid impeding pedestrian and bicycle traffic along the shared use path while retraction of the bollards takes place.*

Condition 5
Either:

1. Tree(s) must be planted and/or retained in accordance with DTS/DPF 1.1 of the Urban Tree Canopy Overlay in the Planning and Design Code (as at the date of lodgement of the application). New trees must be planted within 12 months of occupation of the dwelling(s) and maintained.
2. Where provided for by any relevant off-set scheme established under section 197 of the Planning, Development and Infrastructure Act 2016 (as at the date of lodgement of the application), payment of an amount calculated in accordance with the off-set scheme may be made in lieu of planting/retaining 1 or more trees as set out in the Urban Tree Canopy Overlay in the Planning and Design Code (as at the date of lodgement of the application). Payment must be made prior to the issue of development approval.

Condition 6
All car parking spaces, driveways and manoeuvring areas shall be designed, constructed, line-marked and fitted with wheel stopping devices in accordance with the herein approved 'Undercroft Floor Plan' and 'Site Plan' (prepared by Grieve Gillett Architects, Job No. 23122, Drawing Nos DA01 and DA21, dated 18.12.24). Line marking and wheel stops shall be maintained in good condition at all times to the reasonable satisfaction of the Council.

Condition 7
All stormwater from the "Co-Living" Building and associated hard-surfaced areas (including the car park) shall be disposed of in accordance with recognised engineering practices in a manner and with materials that does not result in the entry of water onto any adjoining property or any building, and does not affect the stability of any building and in all instances the stormwater drainage system shall be directly connected into either the adjacent street kerb & water table or a Council underground pipe drainage system.

Condition 8
All external lighting associated with the "Co-Living" Building, including car parking areas and buildings, shall be located, directed and shielded and of such limited intensity that no nuisance or loss of amenity is caused to any person beyond the site to the reasonable satisfaction of the Council.

Condition 9
Driveways, car parking spaces, manoeuvring areas and landscaping areas shall not be used for the storage or display of any goods, materials or waste at any time.

Condition 10
The retractable bollards associated with the car park of the "Co-Living Building" shall be maintained in good working order and condition at all times to the reasonable satisfaction of the Council.

Condition 11
A Construction Environment Management Plan (CEMP) shall be prepared in consultation with the Department for Environment and Water and the Council.

The CEMP shall be implemented throughout the development and shall incorporate and detail (without being limited to) the following matters:

- Any necessary staging of the geotechnical and bulk earthworks required, including methodologies that ensure the stability of the slope is not compromised during works (e.g. any necessary work platforms);
- How the bank stabilisation works are to be undertaken without contaminating the River Torrens watercourse or otherwise affecting the river's performance or hydrology;
- Nuisance mitigation strategies to be employed on site during construction work, including hoarding to protect adjacent public reserves and sensitive receivers;
- Any communication methods to be employed during construction;
- Traffic management for the site, including heavy vehicle routes and access/egress arrangements;
- Site amenities, including site offices, materials storage and parking for tradespersons; and
- Dilapidation reports of existing infrastructure surrounding the development site and reinstatement of that infrastructure post-development.

Condition 12
The bank stabilisation works shall be undertaken in strict accordance with the "Technical Specification for Earthworks" detailed in Appendix E of the herein approved report prepared by WGA Consulting Engineers titled 'Adelaide Caravan Park Redevelopment – Proposed River Front Dwellings, Hackney' (Report Number WGA230955-RP-GE-0001_A, Revision A, dated 14 May 2024).

**ADVISORY NOTES**

## Planning Consent

Advisory Note 1
The Applicant is reminded of its responsibilities under the *Environment Protection Act 1993*, to not harm the environment. Specifically, paint, plaster, concrete, brick wastes and wash waters should not be discharged into the stormwater system, litter should be appropriately stored on site pending removal, excavation and site disturbance should be limited, entry/exit points to the site should be managed to prevent soil being carried off site by vehicles, sediment barriers should be used (particularly on sloping sites), and material stockpiles should all be placed on site and not on the footpath or public roads or reserves. Further information is available by contacting the EPA.

Advisory Note 2
The granting of this consent does not remove the need for the beneficiary to obtain all other consents which may be required by any other legislation. The Applicant's attention is particularly drawn to the requirements to obtain consent from the relevant landowner and any other relevant stakeholders with respect to the proposed bank stabilisation works.

Advisory Note 3
The Applicant is advised that construction noise is not allowed:

1. on any Sunday or public holiday; or
2. after 7pm or before 7am on any other day

Advisory Note 4
The Applicant is advised that any works undertaken on Council owned land (including but not limited to works relating to crossovers, driveways, footpaths, street trees and stormwater connections), or works that require the closure of the footpath and / or road to undertake works on the development site, will require the approval of the Council pursuant to the *Local Government Act 1999* prior to any works being undertaken. Further information may be obtained by contacting Council's Public Realm Compliance Officer on 8366 4513.

Advisory Note 5
The Applicant is advised that the condition of the footpath, kerbing, vehicular crossing point, street tree(s) and any other Council infrastructure located adjacent to the subject land will be inspected by the Council prior to the commencement of building work and at the completion of building work. Any damage to Council infrastructure that occurs during construction must be rectified as soon as practicable and in any event, no later than four (4) weeks after substantial completion of the building work. The Council reserves its right to recover all costs associated with remedying any damage that has not been repaired in a timely manner from the appropriate person.

Advisory Note 6
The Council has not surveyed the subject land and has, for the purpose of its assessment, assumed that all dimensions and other details provided by the Applicant are correct and accurate.

Advisory Note 7
Appeal Rights - General rights of review and appeal exist in relation to any assessment, request, direction or act of a relevant authority in relation to the determination of this application, including conditions.

Advisory Note 8
Consents issued for this Development Application will remain valid for the following periods of time:

1. Planning Consent is valid for 24 months following the date of issue, within which time Development Approval must be obtained;
2. Development Approval is valid for 24 months following the date of issue, within which time works must have substantially commenced on site;
3. Works must be substantially completed within 3 years of the date on which Development Approval is issued.

If an extension is required to any of the above-mentioned timeframes a request can be made for an extension of time by emailing the Planning Department at townhall@npsp.sa.gov.au. Whether or not an extension of time will be granted will be at the discretion of the relevant authority.

Advisory Note 9
No work can commence on this development unless a Development Approval has been obtained. If one or more Consents have been granted on this Decision Notification Form, you must not start any site works or building work or change of use of the land until you have received notification that Development Approval has been granted.

Advisory Note 10
To assist in the interpretation of the Urban Tree Canopy condition noted above, where payment into a relevant off-set scheme is not possible or chosen, tree(s) must be planted in accordance with the requirements set out below. Further guidance and information can be obtained by visiting the Landscaping and Development webpage on the Council's website (https://www.npsp.sa.gov.au/planning_and_development/landscaping-and-development) or contacting the Council's Planning Department on (08) 8366 4555.

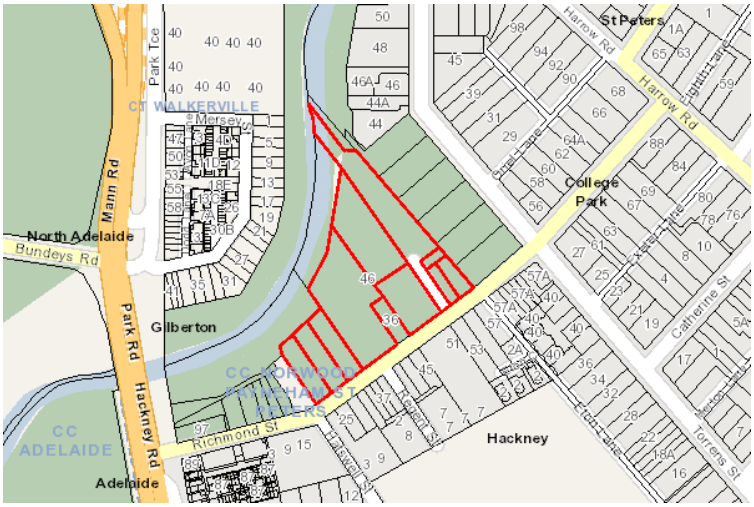
**Lot Size Per Dwelling (m2) // Tree Size and Number Required**
<450 // 1 small tree
450-800 // 1 medium tree or 2 small trees
>800 // 1 large tree or 2 medium trees or 4 small trees

**Tree Size // Mature Height (minimum) // Mature Spread (minimum) // Soil Area Around Tree Within Development Site (minimum)**
Small // 4m // 2m // 10m2 and min. dimension of 1.5m
Medium // 6m // 4m // 30m2 and min. dimension of 2m
Large // 12m // 8m // 60m2 and min. dimension of 4m

**Address:** 46 RICHMOND ST HACKNEY SA 5069

Appendix 1

To view a detailed interactive property map in SAPPA click on the map below




## Property Zoning Details

### Zone

Housing Diversity Neighbourhood
Open Space

### Overlay

Airport Building Heights (Regulated) *(All structures over 110 metres)*
Affordable Housing
Hazards (Flooding)
Heritage Adjacency
Hazards (Flooding - General)
Local Heritage Place *(6407)*
Prescribed Watercourses
Prescribed Wells Area
Regulated and Significant Tree
Stormwater Management
Traffic Generating Development
Urban Tree Canopy
Water Resources

### Local Variation (TNV)

Minimum Frontage *(Minimum frontage for a detached dwelling is 9m; semi-detached dwelling is 8m; row dwelling is 5m; group dwelling is 18m; residential flat building is 18m)*
Minimum Site Area *(Minimum site area for a detached dwelling is 330 sqm; semi-detached dwelling is 300 sqm; row dwelling is 200 sqm; group dwelling is 200 sqm)*
Concept Plan *(Concept Plan 82 - Hackney)*
Maximum Building Height (Levels) *(Maximum building height is 2 levels)*

Appendix 1

- Water tank (above ground)
- 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.

   - Temporary accommodation in an area affected by bushfire

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
   - Demolition
   - Outbuilding
   - Retaining wall
   - Shop
   - Tree-damaging activity
   - Verandah

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.

# Part 2 - Zones and Sub Zones

## Housing Diversity Neighbourhood Zone

### Assessment Provisions (AP)

Desired Outcome (DO)

| Desired Outcome | |
|---|---|
| DO 1 | Medium density housing supports a range of needs and lifestyles, located within easy reach of a diversity of services and facilities. Employment and community service uses contribute to making the neighbourhood a convenient place to live without compromising residential amenity. |

Performance Outcomes (PO) and Deemed to Satisfy (DTS) / Designated Performance Feature (DPF) Criteria

| Performance Outcome | Deemed-to-Satisfy Criteria / Designated Performance Feature |
|---|---|
| Land Use and Intensity | |
| PO 1.1<br>Diverse range of medium density housing and accommodation complemented by a range of compatible non-residential uses supporting an active, convenient, and walkable neighbourhood. | DTS/DPF 1.1<br>Development comprises one or more of the following:<br>(a) Ancillary accommodation<br>(b) Child care facility<br>(c) Consulting room<br>(d) Community facility<br>(e) Dwelling<br>(f) Educational facility<br>(g) Office |

Appendix 1

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|---|---|
| | (h) Place of Worship<br>(i) Recreation area<br>(j) Residential flat building<br>(k) Retirement facility<br>(l) Shop<br>(m) Supported accommodation. |
| PO 1.2<br>Commercial activities improve community access to services are of a scale and type to maintain residential amenity. | DTS/DPF 1.2<br>A shop, consulting room or office (or any combination thereof) satisfies any one of the following:<br>(a) it is located on the same allotment and in conjunction with a dwelling where all the following are satisfied:<br>(i) does not exceed 50m$^2$ gross leasable floor area<br>(ii) does not involve the display of goods in a window or about the dwelling or its curtilage<br>(b) it reinstates a former shop, consulting room or office in an existing building (or portion of a building) and satisfies one of the following:<br>(i) the building is a State or Local Heritage Place<br>(ii) is in conjunction with a dwelling and there is no increase in the gross leasable floor area previously used for non-residential purposes<br>(c) is located more than 500m from an Activity Centre and satisfies one of the following:<br>(i) does not exceed 100m$^2$ gross leasable floor area (individually or combined, in a single building) where the site does not have a frontage to a State Maintained Road<br>(ii) does not exceed 200m$^2$ gross leasable floor area (individually or combined, in a single building) where the site has a frontage to a State Maintained Road<br>(d) the development site abuts an Activity Centre and all the following are satisfied:<br>(i) it does not exceed 200m$^2$ gross leasable floor area (individually or combined, in a single building)<br>(ii) the proposed development will not result in a combined gross leasable floor area (existing and proposed) of all shops, consulting rooms and offices that abut the Activity Centre in this zone exceeding the lesser of the following:<br>A. 50% of the existing gross leasable floor area within the Activity Centre<br>B. 1000m$^2$. |
| PO 1.3<br>Non-residential development located and designed to improve community accessibility to services, primarily in the form of:<br>(a) small-scale commercial uses such as offices, shops and consulting rooms<br>(b) community services such as educational facilities, community centres, places of worship, child care facilities and other health and welfare services<br>(c) services and facilities ancillary to the function or operation of supported accommodation or retirement facilities<br>(d) open space and recreation facilities. | DTS/DPF 1.3<br>None are applicable. |
| PO 1.4<br>Expansion of existing community services such as educational facilities, | DTS/DPF 1.4<br>Alteration of or addition to existing educational facilities, community |

Appendix 1

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| community facilities and child care facilities in a manner which complements the scale of development envisaged by the desired outcome for the neighbourhood. | facilities or child care facilities where all the following are satisfied:<br>(a) set back at least 3m from any boundary shared with a residential land use<br>(b) building height not exceeding 1 building level<br>(c) the total floor area of the building not exceeding 150% of the total floor area prior to the addition/alteration<br>(d) off-street vehicular parking exists or will be provided in accordance with the rate(s) 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 to the nearest whole number. |
| PO 1.5<br>Non-residential development sited and designed to complement the residential character and amenity of the neighbourhood. | DTS/DPF 1.5<br>None are applicable. |
| Site Dimensions and Land Division | |
| PO 2.1<br>Allotments/sites created for residential purposes accommodate a diverse range of low to medium density housing, with higher densities closer to public open space, public transport stations and activity centres. | DTS/DPF 2.1<br>Development will not result in more than 1 dwelling on an existing allotment<br>or<br>Allotments/sites for residential purposes accord with the following:<br>(a) site areas (or allotment areas in the case of land division) are not less than the following (average site area per dwelling, including common areas, applies for group dwellings or dwellings within a residential flat building):<br>**Minimum Site Area**<br>Minimum site area for a detached dwelling is 330 sqm; semi-detached dwelling is 300 sqm; row dwelling is 200 sqm; group dwelling is 200 sqm<br>and<br>(b) site frontages (or allotment frontages in the case of land division) are not less than:<br>**Minimum Frontage**<br>Minimum frontage for a detached dwelling is 9m; semi-detached dwelling is 8m; row dwelling is 5m; group dwelling is 18m; residential flat building is 18m<br>In relation to DTS/DPF 2.1, in instances where:<br>(c) more than one value is returned in the same field, refer to the *Minimum Frontage Technical and Numeric Variation* layer or *Minimum Site Area Technical and Numeric Variation* layer in the SA planning database to determine the applicable value relevant to the site of the proposed development.<br>(d) no value is returned in DTS/DPF 2.1(a) (i.e. there is a blank field or the value is not relevant), then a net residential density of up to 70 dwellings per hectare applies.<br>(e) no value is returned in DTS/DPF 2.1(b) (i.e. there is a blank field or the value is not relevant), then there is no minimum frontage and DTS/DPF 2.1(b) is met. |
| PO 2.2<br>Development creating new allotments/sites in conjunction with retention of an existing dwelling ensures the site of the existing dwelling remains fit for purpose. | DTS/DPF 2.2<br>Where the site of a dwelling does not comprise an entire allotment:<br>(a) the balance of the allotment accords with the requirements specified in Housing Diversity Neighbourhood Zone DTS/DPF 2.1 |

Appendix 1

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| | (b) if there is an existing dwelling on the allotment that will remain on the allotment after completion of the development it will not contravene:<br>(i) private open space requirements specified in Design in Urban Areas Table 1 - Private Open Space<br>(ii) car parking requirements 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 to the nearest whole number. |
| **Building Height** | |
| PO 3.1<br>Building height is consistent with the form expressed in any relevant *Maximum Building Height (Levels) Technical and Numeric Variation layer* and *Maximum Building Height (Metres) Technical and Numeric Variation layer* or is generally low rise, or complements the height of nearby buildings. | DTS/DPF 3.1<br>Building height (excluding garages, carports and outbuildings) is no greater than:<br>(a) the following:<br>**Maximum Building Height (Levels)**<br>Maximum building height is 2 levels<br>(b) in all other cases (i.e. there are blank fields for both maximum building height (metres) and maximum building height (levels)) - 2 building levels up to a maximum height of 9m.<br>In relation to DTS/DPF 3.1, in instances where:<br>(c) 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 (Meters) Technical and Numeric Variation* layer in the SA planning database to determine the applicable value relevant to the site of the proposed development<br>(d) only one value is returned for DTS/DPF 3.1(a) (i.e. there is one blank field), then the relevant height in metres or building levels applies with no criteria for the other. |
| **Primary Street Setback** | |
| PO 4.1<br>Buildings are set back from primary street boundaries to contribute to the existing/emerging pattern of street setbacks in the streetscape. | DTS/DPF 4.1<br>Buildings setback from the primary street boundary in accordance with the following table:<br>**Development Context** \| **Minimum setback**<br>In all cases. \| 3m<br>For the purposes of **DTS/DPF 4.1:**<br>(a) the setback of an existing building on an abutting site to the street boundary that it shares with the site of the proposed building is to be measured from the closest building wall to that street boundary at its closest point to the building wall and any existing projection from the building such as a verandah, porch, balcony, awning or bay window is not taken to form part of the building for the purposes of determining its setback<br>(b) any proposed projections such as a verandah, porch, balcony, awning or bay window may encroach not more than 1.5 metres into the minimum setback prescribed in the table |
| **Secondary Street Setback** | |
| PO 5.1<br>Buildings are set back from secondary street boundaries to achieve a pattern of separation between building walls and public thoroughfares and to reinforce streetscape character. | DTS/DPF 5.1<br>Building walls (except for ancillary buildings and structures) are set back at least 900mm from the boundary of the allotment with the secondary street frontage, or if a building on any adjoining allotment is closer to the secondary street than 900mm, not less than the distance of that building from the boundary with the secondary street. |
| **Boundary Walls** | |

Appendix 1

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| PO 6.1<br>Walls on boundaries are limited in height and length to manage visual and overshadowing impacts on adjoining properties. | DTS/DPF 6.1<br>Except where the building is a dwelling and is located on a central site within a row dwelling or terrace arrangement, side boundary walls occur on only one side boundary and satisfy (a) or (b) below:<br>(a) side boundary walls adjoin or abut a boundary wall of a building on adjoining land for the same or lesser length and height<br>(b) side boundary walls do not:<br>(i) exceed 3m in wall height<br>(ii) exceed 11.5m in length<br>(iii) when combined with other walls on the boundary of the subject development site, exceed a maximum 45% of the length of the boundary<br>(iv) encroach within 3m of any other existing or proposed boundary walls on the subject land. |
| PO 6.2<br>Dwellings in a semi-detached, row or terrace arrangements maintain space between buildings consistent with a suburban streetscape character. | DTS/DPF 6.2<br>Dwelling walls in a semi-detached, row or terrace arrangement are set back at least 900mm from side boundaries shared with allotments outside the development site. |
| Side Boundary Setback | |
| PO 7.1<br>Buildings walls are set back from side boundaries to provide:<br>(a) separation between buildings in a way that complements the established character of the locality<br>(b) access to natural light and ventilation for neighbours. | DTS/DPF 7.1<br>Other than walls located on a side boundary, building walls are set back from side boundaries in accordance with the following:<br>(a) where the wall height does not exceed 3m - at least 900mm<br>(b) where the wall height exceeds 3m - at least 900mm from the boundary of the site plus a distance of 1/3 of the extent to which the height of the wall exceeds 3m from the top of the footings. |
| Rear Boundary Setback | |
| PO 8.1<br>Building walls (excluding ancillary buildings and structures) are set back from rear boundaries to provide:<br>(a) separation between buildings in a way that complements the established character of the locality<br>(b) access to natural light and ventilation for neighbours<br>(c) open space recreational opportunities<br>(d) space for landscaping and vegetation. | DTS/DPF 8.1<br>Building walls (excluding ancillary buildings and structures) are set back from the rear boundary at least:<br>(a) 3m for the first building level or 0m where the rear boundary abuts a laneway<br>(b) 5m for any second building level<br>(c) 5m plus any increase in wall height over 7m for buildings of 3 building levels and above. |
| Concept Plans | |
| PO 9.1<br>Development is compatible with the outcomes sought by any relevant Concept Plan contained within Part 12 - Concept Plans of the Planning and Design Code to support the orderly development of land through staging of development and provision of infrastructure. | DTS/DPF 9.1<br>The site of the development is wholly located outside any relevant Concept Plan boundary. The following Concept Plans are relevant:<br>**Description**<br>Concept Plan 82 - Hackney<br>In relation to DTS/DPF 9.1, in instances where:<br>(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.<br>(b) in instances where 'no value' is returned, there is no relevant concept plan and DTS/DPF 9.1 is met. |

Ancillary buildings and structures

Appendix 1

PO 10.1

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 10.1

Ancillary buildings:

(a) are ancillary to a dwelling erected on the same site

(b) have a floor area not exceeding 60m$^2$

(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 (and not including a gable end)

(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:

| 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% |
| 201-450 | 20% |
| >450 | 25% |

Appendix 1

| | |
|---|---|
| | (ii) the amount of existing soft landscaping prior to the development occurring. |
| PO 10.2<br>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 10.2<br>Ancillary buildings and structures do not result in:<br>(a) less private open space than specified in Design in Urban Areas Table 1 - Private Open Space<br>(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 10.3<br>Buildings and structures that are ancillary to an existing non-residential use do not detract from the streetscape character, appearance of buildings on the site of the development, or the amenity of neighbouring properties. | DTS/DPF 10.3<br>Non-residential ancillary buildings and structures:<br>(a) are ancillary and subordinate to an existing non-residential use on the same site<br>(b) have a floor area not exceeding the following:<br>Allotment size: ≤500m2 — Floor area: 60m2; >500m2 — 80m2<br>(c) are not constructed, added to or altered so that any part is situated:<br>(i) in front of any part of the building line of the main building to which it is ancillary<br>or<br>(ii) within 900mm of a boundary of the allotment with a secondary street (if the land has boundaries on two or more roads)<br>(d) in the case of a garage or carport, the garage or carport:<br>(i) is set back at least 5.5m from the boundary of the primary street<br>(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:<br>(i) a longer wall or structure exists on the adjacent site and is situated on the same allotment boundary<br>(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<br>(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<br>(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<br>(h) have a wall height (or post height) not exceeding 3m (and not including a gable end)<br>(i) have a roof height where no part of the roof is more than 5m above the natural ground level<br>(j) if clad in sheet metal, is pre-colour treated or painted in a non-reflective colour. |
| Advertisements | |
| PO 11.1<br>Advertisements identify the associated business activity, and do not detract from the residential character of the locality. | DTS/DPF 11.1<br>Advertisements relating to a lawful business activity associated with a residential use do not exceed 0.3m2 and mounted flush with a wall or fence. |

## Table 5 - Procedural Matters (PM) - Notification

Appendix 1

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**

Notification tables exclude the classes of development listed in Column A from notification provided that they do not fall within a corresponding exclusion prescribed in Column B.

Where a development or an element of a development falls within more than one class of development listed in Column A, it will be excluded from notification if it is excluded (in its entirety) under any of those classes of development. It need not be excluded under all applicable classes of development.

Where a development involves multiple performance assessed elements, all performance assessed elements will require notification (regardless of whether one or more elements are excluded in the applicable notification table) unless every performance assessed element of the application is excluded in the applicable notification table, in which case the application will not require notification.

A relevant authority may determine that a variation to 1 or more corresponding exclusions prescribed in Column B is minor in nature and does not require notification.

| Class of Development<br><br>(Column A) | Exceptions<br><br>(Column B) |
|---|---|
| 1. 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. All development undertaken by:<br>(a) the South Australian Housing Trust either individually or jointly with other persons or bodies<br>or<br>(b) a provider registered under the Community Housing National Law participating in a program relating to the renewal of housing endorsed by the South Australian Housing Trust. | Except development involving any of the following:<br><br>1. residential flat building(s) of 3 or more building levels<br>2. the demolition (or partial demolition) of a State or Local Heritage Place (other than an excluded building)<br>3. the demolition (or partial demolition) of a building in a Historic Area Overlay (other than an excluded building). |
| 3. Any development involving any of the following (or of any combination of any of the following):<br>(a) ancillary accommodation<br>(b) dwelling<br>(c) dwelling addition<br>(d) recreation area<br>(e) residential flat building<br>(f) retirement facility<br>(g) student accommodation<br>(h) supported accommodation. | Except development that:<br><br>1. exceeds the maximum building height specified in Housing Diversity Neighbourhood Zone 3.1<br>or<br>2. involves a building wall (or structure) that is proposed to be situated on (or abut) an allotment boundary (not being a boundary with a primary street or secondary street or an excluded boundary) and:<br>(a) the length of the proposed wall (or structure) exceeds 11.5m (other than where the proposed wall abuts an existing wall or structure of greater length on the adjoining allotment)<br>or<br>(b) the height of the proposed wall (or post height) exceeds 3m measured from the top of footings (other than where the proposed wall (or post) abuts an existing wall or structure of greater height on the adjoining allotment). |
| 4. Alteration of or addition to any development involving any of the following (or of any combination of any of the following):<br>(a) child care facility<br>(b) community facility<br>(c) educational facility. | Except development that does not satisfy Housing Diversity Neighbourhood Zone DTS/DPF 1.4. |

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| 5. Any development involving any of the following (or of any combination of any of the following):<br>(a) consulting room<br>(b) office<br>(c) shop. | Except development that:<br>1. exceeds the maximum building height specified in Housing Diversity Neighbourhood Zone 3.1<br>or<br>2. does not satisfy Housing Diversity Neighbourhood Zone DTS/DPF 1.2<br>or<br>3. involves a building wall (or structure) that is proposed to be situated on (or abut) an allotment boundary (not being a boundary with a primary street or secondary street or an excluded boundary) and:<br>(a) the length of the proposed wall (or structure) exceeds 11.5m (other than where the proposed wall abuts an existing wall or structure of greater length on the adjoining allotment) or<br>(b) the height of the proposed wall (or post height) exceeds 3m measured from the top of footings (other than where the proposed wall (or post) abuts an existing wall or structure of greater height on the adjoining allotment). |
| 6. Any development involving any of the following (or of any combination of any of the following):<br>(a) air handling unit, air conditioning system or exhaust fan<br>(b) carport<br>(c) deck<br>(d) fence<br>(e) internal building works<br>(f) land division<br>(g) outbuilding<br>(h) pergola<br>(i) private bushfire shelter<br>(j) replacement building<br>(k) retaining wall<br>(l) shade sail<br>(m) solar photovoltaic panels (roof mounted)<br>(n) swimming pool or spa pool and associated swimming pool safety features<br>(o) temporary accommodation in an area affected by bushfire<br>(p) tree damaging activity<br>(q) verandah<br>(r) water tank. | None specified. |
| 7. Any development involving any of the following (or of any combination of any of the following) within the Tunnel Protection Overlay:<br>(a) storage of materials, equipment or vehicles (whether temporary or permanent) over an area exceeding 100 square metres<br>(b) temporary stockpiling of soil, gravel, rock or other natural material over an area exceeding 100 square metres<br>(c) excavation or ground intruding activity at a depth greater than 2.5 metres below the regulated surface level. | Except where not undertaken by the Crown, a Council or an essential infrastructure provider. |
| 8. Demolition. | Except any of the following:<br>1. the demolition (or partial demolition) of a State or Local Heritage Place (other than an excluded building)<br>2. the demolition (or partial demolition) of a building in a Historic Area Overlay (other than an excluded building). |

| | |
|---|---|
| 9. Railway line. | Except where located outside of a rail corridor or rail reserve. |

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| Placement of Notices - Exemptions for Performance Assessed Development |
|---|
| None specified. |

| Placement of Notices - Exemptions for Restricted Development |
|---|
| None specified. |

# Open Space Zone

## Assessment Provisions (AP)

Desired Outcome (DO)

| Desired Outcome | |
|---|---|
| DO1 | Areas of natural and landscaped open space provide for biodiversity, tree canopy cover, urban cooling and visual relief to the built environment for the health and enjoyment of the community. |

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<br>Development is associated with or ancillary to the provision of unstructured outdoor passive and active recreation facilities. | DTS/DPF 1.1<br>Development comprises one or more of the following:<br>(a) Open space<br>(b) Outdoor sports courts<br>(c) Recreation area<br>(d) Sporting ovals and fields |
| PO 1.2<br>Buildings are limited in number and size to provide a natural, landscaped setting. | DTS/DPF 1.2<br>None are applicable. |
| PO 1.3<br>Shops including restaurants are of a scale that is subordinate to the principal open space and recreation use of the land. | DTS/DPF 1.3<br>Shop gross leasable floor area does not exceed 50m$^2$. |
| PO 1.4<br>Offices are of a scale that is subordinate to the principal open space use of the land. | DTS/DPF 1.4<br>Office gross leasable floor area does not exceed 80m$^2$. |
| Built Form and Character | |
| PO 2.1<br>Development is designed and sited to be unobtrusive and not spoil the open space character or interrupt views of natural or landscape features. | DTS/DPF 2.1<br>None are applicable. |
| PO 2.2<br>Outbuildings are of a scale that mitigates visual impacts of buildings on natural or landscape features. | DTS/DPF 2.2<br>Outbuildings have a:<br>(a) floor area that does not exceed 80m$^2$<br>(b) wall height that does not exceed 3m |

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| | (c) building height that does not exceed 5m |
| PO 2.3<br>Development is sited and designed to be compatible with the conservation and enhancement of the natural environment. | DTS/DPF 2.3<br>None are applicable. |
| Land Division | |
| PO 3.1<br>Land division supports the provision of public open space. | DTS/DPF 3.1<br>Land division is for the purposes of:<br>(a) the creation of a public road or a public reserve or<br>(b) a minor adjustment of allotment boundaries to:<br>(i) remove an anomaly in existing boundaries with respect to the location of existing buildings or structures or<br>(ii) result in the preservation of existing stands of native vegetation, habitat or biodiversity |
| Concept Plans | |
| PO 4.1<br>Development is compatible with the outcomes sought by any relevant Concept Plan contained within Part 12 - Concept Plans of the Planning and Design Code to support the orderly development of land through staging of development and provision of infrastructure. | DTS/DPF 4.1<br>The site of the development is wholly located outside any relevant Concept Plan boundary. The following Concept Plans are relevant:<br>In relation to DTS/DPF 4.1, in instances where:<br>(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.<br>(b) in instances where 'no value' is returned, there is no relevant concept plan and DTS/DPF 4.1 is met. |

## 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**

Notification tables exclude the classes of development listed in Column A from notification provided that they do not fall within a corresponding exclusion prescribed in Column B.

Where a development or an element of a development falls within more than one class of development listed in Column A, it will be excluded from notification if it is excluded (in its entirety) under any of those classes of development. It need not be excluded under all applicable classes of development.

Where a development involves multiple performance assessed elements, all performance assessed elements will require notification (regardless of whether one or more elements are excluded in the applicable notification table) unless every performance assessed element of the application is excluded in the applicable notification table, in which case the application will not require notification.

A relevant authority may determine that a variation to 1 or more corresponding exclusions prescribed in Column B is minor in nature and does not require notification.

| Class of Development<br>(Column A) | Exceptions<br>(Column B) |
|---|---|
| 1. 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. |

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|---|---|
| 2. Any development involving any of the following (or of any combination of any of the following):<br>(a) advertisement<br>(b) air handling unit, air conditioning system or exhaust fan<br>(c) carport<br>(d) deck<br>(e) fence<br>(f) internal building works<br>(g) land division<br>(h) open space<br>(i) pergola<br>(j) playground<br>(k) private bushfire shelter<br>(l) protective tree netting structure<br>(m) recreation area<br>(n) replacement building<br>(o) retaining wall<br>(p) shade sail<br>(q) solar photovoltaic panels (roof mounted)<br>(r) swimming pool or spa pool and associated swimming pool safety features<br>(s) temporary accommodation in an area affected by bushfire<br>(t) tree damaging activity<br>(u) verandah<br>(v) water tank. | None specified. |
| 3. Any development involving any of the following (or of any combination of any of the following):<br>(a) outdoor sports courts<br>(b) sporting ovals and fields | Except where the site of the development is adjacent land to a site (or land) used for residential purposes in a neighbourhood-type zone. |
| 4. Demolition. | Except any of the following:<br>1. the demolition (or partial demolition) of a State or Local Heritage Place (other than an excluded building)<br>2. the demolition (or partial demolition) of a building in a Historic Area Overlay (other than an excluded building). |
| 5. Office. | Except office that does not satisfy Open Space Zone DTS/DPF 1.4. |
| 6. Outbuilding. | Except outbuilding that does not satisfy Open Space Zone DTS/DPF 2.2. |
| 7. Railway line. | Except where located outside of a rail corridor or rail reserve. |
| 8. Shop. | Except shop that does not satisfy Open Space Zone DTS/DPF 1.3. |
| **Placement of Notices - Exemptions for Performance Assessed Development** | |
| None specified. | |
| **Placement of Notices - Exemptions for Restricted Development** | |
| None specified. | |

# Part 3 - Overlays

## Affordable Housing Overlay

Appendix 1

## Assessment Provisions (AP)

Desired Outcome (DO)

| 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<br>Development comprising 20 or more dwellings / allotments incorporates affordable housing. | DTS/DPF 1.1<br>Development results in 0-19 additional allotments / dwellings. |
| PO 1.2<br>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<br>Development comprising 20 or more dwellings / or residential allotments includes a minimum of 15% affordable housing except where:<br>(a) it can be demonstrated that any shortfall in affordable housing has been provided in a previous stage of development or<br>(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<br>Affordable housing is distributed throughout the development to avoid an overconcentration. | DTS/DPF 1.3<br>None are applicable. |
| Built Form and Character | |
| PO 2.1<br>Affordable housing is designed to complement the design and character of residential development within the locality. | DTS/DPF 2.1<br>None are applicable. |
| Affordable Housing Incentives | |
| PO 3.1<br>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<br>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<br>To support the provision of affordable housing, building heights may be increased above the maximum specified in a zone. | DTS/DPF 3.2<br>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:<br>(a) Business Neighbourhood Zone<br>(b) City Living Zone<br>(c) Established Neighbourhood Zone |

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| | (d) General Neighbourhood Zone<br>(e) Hills Neighbourhood Zone<br>(f) Housing Diversity Neighbourhood Zone<br>(g) Neighbourhood Zone<br>(h) Master Planned Neighbourhood Zone<br>(i) Master Planned Renewal Zone<br>(j) Master Planned Township Zone<br>(k) Rural Neighbourhood Zone<br>(l) Suburban Business Zone<br>(m) Suburban Neighbourhood Zone<br>(n) Township Neighbourhood Zone<br>(o) Township Zone<br>(p) Urban Renewal Neighbourhood Zone<br>(q) Waterfront Neighbourhood Zone<br><br>and up to 30% in any other zone, except where:<br><br>(a) the development is located within the Character Area Overlay or Historic Area Overlay<br>or<br>(b) other height incentives already apply to the development. |
| Movement and Car Parking | |
| PO 4.1<br>Sufficient car parking is provided to meet the needs of occupants of affordable housing. | DTS/DPF 4.1<br>Dwellings constituting affordable housing are provided with car parking in accordance with the following:<br>(a) 0.3 carparks per dwelling within a building which incorporates dwellings located above ground level within either:<br>(i) 200 metres of any section of road reserve along which a bus service operates as a high frequency public transit service(2)<br>(ii) is within 400 metres of a bus interchange(1)<br>(iii) is within 400 metres of an O-Bahn interchange(1)<br>(iv) is within 400 metres of a passenger rail station(1)<br>(v) is within 400 metres of a passenger tram station(1)<br>(vi) is within 400 metres of the Adelaide Parklands.<br><br>or<br>(b) 1 carpark per dwelling for any other dwelling.<br><br>[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 |
|---|---|---|---|
| Except where the applicant for the development is the South Australian Housing Authority (or an agent acting on behalf of the South Australian Housing Authority), residential development or land division (other than an excluded land division): | Minister responsible for administering the *South Australian Housing Trust Act 1995.* | To provide direction on the conditions required to secure the | Development of a class to which Schedule 9 clause 3 item |

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| (a) that comprises 20 or more dwellings or residential allotments and is described in the application documentation as intending to provide affordable housing<br>or<br>(b) that is described in the application documentation as intending to provide affordable housing and the applicant is seeking to access one or more of the planning concessions outlined in the Affordable Housing Overlay DTS/DPF 3.1, 3.2 or 4.1<br>or<br>(c) that is described in the application documentation as intending to include affordable housing of any number of dwellings or residential allotments | | provision of dwellings or allotments for affordable housing. | 20 of the Planning, Development and Infrastructure (General) Regulations 2017 applies. |

## Airport Building Heights (Regulated) Overlay

### Assessment Provisions (AP)

Desired Outcome (DO)

| | 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<br>Building height does not pose a hazard to the operation of a certified or registered aerodrome. | DTS/DPF 1.1<br>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.<br><br>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<br>Exhaust stacks are designed and sited to minimise plume impacts on aircraft movements associated with a certified or registered aerodrome. | DTS/DPF 1.2<br>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: | The airport-operator | To provide expert | Development of a class to |

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| | | | |
|---|---|---|---|
| (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*<br>(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.* | 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. | assessment and direction to the relevant authority on potential impacts on the safety and operation of aviation activities. | which Schedule 9 clause 3 item 1 of the *Planning, Development and Infrastructure (General) Regulations 2017* applies. |

## Hazards (Flooding) Overlay

### Assessment Provisions (AP)

Desired Outcome (DO)

| Desired Outcome | |
|---|---|
| DO 1 | Impacts on people, property, infrastructure and the environment from high flood risk are minimised by retaining areas free from development, and minimising intensification where development has occurred. |

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<br>Land division is limited to areas where the consequences to buildings and safety are low and can be readily managed or overcome. | DTS/DPF 1.1<br>None are applicable. |
| Land Use | |
| PO 2.1<br>Development sited and designed to minimise exposure of people and property to unacceptable flood risk. | DTS/DPF 2.1<br>None are applicable. |
| PO 2.2<br>Buildings housing vulnerable people, community services facilities, key infrastructure and emergency services are sited away from flood prone areas to enable uninterrupted operation of services and reduce likelihood of entrapment. | DTS/DPF 2.2<br>Child care facilities, educational facilities, retirement and supported accommodation, emergency services facilities, hospitals and prisons are not located within the Overlay area. |
| Flood Resilience | |
| PO 3.1<br>Development avoids the need for flood protection works. | DTS/DPF 3.1<br>None are applicable. |
| PO 3.2<br>Development does not cause unacceptable impacts on any adjoining property by the diversion of flood waters or an increase in flood velocity or flood level. | DTS/DPF 3.2<br>None are applicable. |
| PO 3.3<br>Development does not impede the flow of floodwaters through the allotment or the surrounding land, or cause an unacceptable loss of | DTS/DPF 3.3<br>None are applicable. |

| | |
|---|---|
| flood storage. | |
| PO 3.4<br>Development avoids frequently flooded or high velocity areas, other than where it is part of a flood mitigation scheme to reduce flood impact. | DTS/DPF 3.4<br>Other than a recreation area, development is located outside of the 5% AEP principal flow path. |
| PO 3.5<br>Buildings are sited, designed and constructed to prevent the entry of floodwaters in a 1% AEP flood event where the entry of floodwaters is likely to result in undue damage to, or compromise ongoing activities within, buildings. | DTS/DPF 3.5<br>Buildings comprise one of the following:<br>(a) a porch or portico with at least 2 open sides<br>(b) a verandah with at least 3 open sides<br>(c) a carport or outbuilding with at least 2 open sides (whichever elevations face the direction of the flow)<br>(d) any post construction with open sides<br>(e) a building with a finished floor level that is at least 300mm above the height of a 1% AEP flood event. |
| PO 3.6<br>Fences do not unreasonably impede floodwaters. | DTS/DPF 3.6<br>A post and wire fence (other than a chain mesh fence). |
| Environmental Protection | |
| PO 4.1<br>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 during a 1% AEP flood event to avoid potential environmental harm. | DTS/DPF 4.1<br>Development involving the storage or disposal of hazardous materials is wholly located outside of the 1% AEP flood plain or flow path. |
| PO 4.2<br>Development does not create or aggravate the potential for erosion or siltation or lead to the destruction of vegetation during a flood. | DTS/DPF 4.2<br>None are applicable. |
| Site Earthworks | |
| PO 5.1<br>The depth and extent of filling required to raise the finished floor level of a building does not cause unacceptable impact on any adjoining property by diversion of flood waters, an increase in flood velocity or flood level, or an unacceptable loss of flood storage. | DTS/DPF 5.1<br>None are applicable. |
| PO 5.2<br>Driveways, access tracks and parking areas are designed and constructed to minimise excavation and filling. | DTS/DPF 5.2<br>Filling for ancillary purposes:<br>(a) does not exceed 300mm above existing ground level<br>(b) is no more than 5m wide. |
| Access | |
| PO 6.1<br>Development does not occur on land:<br>(a) from which evacuation to areas not vulnerable to flood risk is not possible during a 1% AEP flood event<br>(b) which cannot be accessed by emergency services vehicles or essential utility service vehicles during a 1% AEP flood event. | DTS/DPF 6.1<br>None are applicable. |
| PO 6.2<br>Access driveways and tracks to significant development (i.e. dwellings, places of work, etc.) consist of a safe, all-weather trafficable surface that is accessible during a 1% AEP flood event. | DTS/DPF 6.2<br>None are applicable. |

Appendix 1

### 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 |

## Hazards (Flooding – General) Overlay

### Assessment Provisions (AP)

Desired Outcome (DO)

| Desired Outcome | |
|---|---|
| DO 1 | Impacts on people, property, infrastructure and the environment from general flood risk are minimised 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 |
|---|---|
| Land Use | |
| PO 1.1<br>Buildings housing vulnerable people, community services facilities, key infrastructure and emergency services are sited away from flood areas enable uninterrupted operation of services and reduce likelihood of entrapment. | DTS/DPF 1.1<br>Child care facilities, educational facilities, retirement and supported accommodation, emergency services facilities, hospitals and prisons located outside the 1% AEP flood event. |
| Flood Resilience | |
| PO 2.1<br>Development is sited, designed and constructed to prevent the entry of floodwaters where the entry of flood waters is likely to result in undue damage to or compromise ongoing activities within buildings. | DTS/DPF 2.1<br>Habitable buildings, commercial and industrial buildings, and buildings used for animal keeping incorporate a finished ground and floor level not less than:<br><br>In instances where no finished floor level value is specified, a building incorporates a finished floor level at least 300mm above the height of a 1% AEP flood event. |
| Environmental Protection | |
| PO 3.1<br>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 during a 1% AEP flood event to avoid potential environmental harm. | DTS/DPF 3.1<br>Development involving the storage or disposal of hazardous materials is wholly located outside of the 1% AEP flood plain or flow path. |

### 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 |

Appendix 1

# Heritage Adjacency Overlay

## Assessment Provisions (AP)

Desired Outcome (DO)

| 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<br>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<br>None are applicable. |
| Land Division | |
| PO 2.1<br>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<br>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 which in the opinion of the relevant authority materially affects the context within which the **State Heritage Place** is situated. | 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. |

# Local Heritage Place Overlay

Appendix 1

## Assessment Provisions (AP)

Desired Outcome (DO)

| Desired Outcome | |
|---|---|
| DO 1 | Development maintains the heritage and cultural values of Local Heritage Places through conservation, ongoing use and adaptive reuse. |

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<br>The form of new buildings and structures maintains the heritage values of the Local Heritage Place. | DTS/DPF 1.1<br>None are applicable. |
| PO 1.2<br>Massing, scale and siting of development maintains the heritage values of the Local Heritage Place. | DTS/DPF 1.2<br>None are applicable. |
| PO 1.3<br>Design and architectural detailing (including but not limited to roof pitch and form, openings, chimneys and verandahs) maintains the heritage values of the Local Heritage Place. | DTS/DPF 1.3<br>None are applicable. |
| PO 1.4<br>Development is consistent with boundary setbacks and setting. | DTS/DPF 1.4<br>None are applicable. |
| PO 1.5<br>Materials and colours are either consistent with or complement the heritage values of the Local Heritage Place. | DTS/DPF 1.5<br>None are applicable. |
| PO 1.6<br>New buildings and structures are not placed or erected between the primary or secondary street boundaries and the façade of a Local Heritage Place. | DTS/DPF 1.6<br>None are applicable. |
| PO 1.7<br>Development of a Local Heritage Place retains features contributing to its heritage value. | DTS/DPF 1.7<br>None are applicable. |
| Alterations and Additions | |
| PO 2.1<br>Alterations and additions complement the subject building and are sited to be unobtrusive, not conceal or obstruct heritage elements and detailing, or dominate the Local Heritage Place or its setting. | DTS/DPF 2.1<br>None are applicable. |
| PO 2.2<br>Adaptive reuse and revitalisation of Local Heritage Places to support their retention in a manner that respects and references the original use of the Local Heritage Place. | DTS/DPF 2.2<br>None are applicable. |
| Ancillary Development | |
| PO 3.1 | DTS/DPF 3.1 |

| | |
|---|---|
| Ancillary development, including carports, outbuildings and garages, complements the heritage values of the Local Heritage Place. | None are applicable. |
| PO 3.2<br>Ancillary development, including carports, outbuildings and garages, is located behind the building line and does not dominate the Local Heritage Place or its setting. | DTS/DPF 3.2<br>None are applicable. |
| PO 3.3<br>Advertising and advertising hoardings are designed to complement the Local Heritage Place, be unobtrusive, be below the parapet line, not conceal or obstruct heritage elements and detailing, or dominate the building or its setting. | DTS/DPF 3.3<br>None are applicable. |
| PO 3.4<br>Fencing and gates closer to a street boundary (other than a laneway) than the street elevation of the associated building are consistent with the traditional period, style and form of the Local Heritage Place. | DTS/DPF 3.4<br>None are applicable. |
| Land Division | |
| PO 4.1<br>Land division creates allotments that:<br>(a) maintain the heritage values of the Local Heritage Place, including setting<br>(b) are of a dimension to accommodate new development that reinforces and is compatible with the heritage values of the Local Heritage Place. | DTS/DPF 4.1<br>None are applicable. |
| Landscape Context and Streetscape Amenity | |
| PO 5.1<br>Individually heritage listed trees, parks, historic gardens and memorial avenues are retained unless:<br>(a) trees / plantings are, or have the potential to be, a danger to life or property<br>or<br>(b) trees / plantings are significantly diseased and their life expectancy is short. | DTS/DPF 5.1<br>None are applicable. |
| Demolition | |
| PO 6.1<br>Local Heritage Places are not demolished, destroyed or removed in total or in part unless:<br>(a) the portion of the Local Heritage Place to be demolished, destroyed or removed is excluded from the extent of listing that is of heritage value<br>or<br>(b) the structural integrity or condition of the Local Heritage Place represents an unacceptable risk to public or private safety and is irredeemably beyond repair. | DTS/DPF 6.1<br>None are applicable. |
| PO 6.2<br>The demolition, destruction or removal of a building, portion of a building or other feature or attribute is appropriate where it does not contribute to the heritage values of the Local Heritage Place. | DTS/DPF 6.2<br>None are applicable. |
| Conservation Works | |
| PO 7.1<br>Conservation works to the exterior of a Local Heritage Place (and other features identified in the extent of listing) match original materials to be repaired and utilise traditional work methods. | DTS/DPF 7.1<br>None are applicable. |

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### 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 Watercourses Overlay

### Assessment Provisions (AP)

Desired Outcome (DO)

| | Desired Outcome |
|---|---|
| DO 1 | Prescribed watercourses are protected by ensuring the taking of water from such watercourses is avoided or is undertaken in a sustainable manner that maintains the health and natural flow paths of the watercourses. |

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

| Performance Outcome | Deemed-to-Satisfy Criteria / Designated Performance Feature |
|---|---|
| PO 1.1<br>All development, but in particular development involving any of the following:<br>(a) horticulture<br>(b) activities requiring irrigation<br>(c) aquaculture<br>(d) industry<br>(e) intensive animal husbandry<br>(f) commercial forestry<br>has a lawful, sustainable and reliable water supply that does not place undue strain on prescribed watercourses. | DTS/DPF 1.1<br>Development satisfies either of the following:<br>(a) the applicant has a current water licence in which sufficient spare capacity exists to accommodate the water needs of the proposed use<br>or<br>(b) the proposal does not involve the taking of water for which a licence would be required under the *Landscape South Australia Act 2019*. |
| PO 1.2<br>Development comprising the erection, construction, modification, enlargement or removal of a dam, wall or other structure that will collect or divert surface water flowing in a prescribed watercourse is undertaken in a manner that maintains the quality and quantity of flows required to meet the needs of the environment as well as downstream users. | DTS/DPF 1.2<br>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 comprising the erection, construction, | Relevant authority under the | To provide expert assessment | Development |

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| | | | |
|---|---|---|---|
| modification, enlargement or removal of a dam, wall or other structure that will collect or divert, or collects or diverts water flowing in a prescribed watercourse. | *Landscape South Australia Act 2019* that would, if it were not for the operation of section 106(1)(e) of that Act, have the authority under that Act to grant or refuse a permit to undertake the subject development. | and direction to the relevant authority on potential impacts from development on the health, sustainability and/or natural flow paths of water resources in accordance with the provisions of the relevant water allocation plan or regional landscape plan or equivalent. | of a class to which Schedule 9 clause 3 item 12 of the Planning, Development and Infrastructure (General) Regulations 2017 applies. |
| 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 granted under the *Landscape South Australia Act 2019*:<br>(a) horticulture<br>(b) activities requiring irrigation<br>(c) aquaculture<br>(d) industry<br>(e) intensive animal husbandry<br>(f) commercial forestry. | The Chief Executive of the Department of the Minister responsible for the administration of the *Landscape South Australia Act 2019*. | To provide expert technical assessment and direction to the relevant authority on the taking of water to ensure development is undertaken sustainably. | Development of a class to which 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*. | | | |

## Prescribed Wells Area Overlay

### Assessment Provisions (AP)

Desired Outcome (DO)

| Desired Outcome | |
|---|---|
| DO 1 | Sustainable water use in prescribed wells areas. |

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

| Performance Outcome | Deemed-to-Satisfy Criteria / Designated Performance Feature |
|---|---|
| PO 1.1<br>All development, but in particular involving any of the following:<br>(a) horticulture<br>(b) activities requiring irrigation<br>(c) aquaculture<br>(d) industry<br>(e) intensive animal husbandry<br>(f) commercial forestry<br>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<br>Development satisfies either of the following:<br>(a) the applicant has a current water licence in which sufficient spare capacity exists to accommodate the water needs of the proposed use<br>or<br>(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

Appendix 1

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 granted under the *Landscape South Australia Act 2019:*<br>(a) horticulture<br>(b) activities requiring irrigation<br>(c) aquaculture<br>(d) industry<br>(e) intensive animal husbandry<br>(f) commerical forestry. | The Chief Executive of the Department of the Minister responsible for the administration of the *Landscape South Australia Act 2019*. | To provide expert technical assessment and direction to the relevant authority on the taking of water to ensure development is undertaken sustainably. | Development of a class to which 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)

| 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<br>Regulated trees are retained where they:<br>(a) make an important visual contribution to local character and amenity<br>(b) are indigenous to the local area and listed under the *National Parks and Wildlife Act 1972* as a rare or endangered native species<br>and / or<br>(c) provide an important habitat for native fauna. | DTS/DPF 1.1<br>None are applicable. |
| PO 1.2<br>Significant trees are retained where they:<br>(a) make an important contribution to the character or amenity of the local area<br>(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<br>(c) represent an important habitat for native fauna | DTS/DPF 1.2<br>None are applicable. |

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|---|---|
| (d) are part of a wildlife corridor of a remnant area of native vegetation<br>(e) are important to the maintenance of biodiversity in the local environment<br>and / or<br>(f) form a notable visual element to the landscape of the local area. | |
| PO 1.3<br>A tree damaging activity not in connection with other development satisfies (a) and (b):<br>(a) tree damaging activity is only undertaken to:<br>(i) remove a diseased tree where its life expectancy is short<br>(ii) mitigate an unacceptable risk to public or private safety due to limb drop or the like<br>(iii) rectify or prevent extensive damage to a building of value as comprising any of the following:<br>A. a Local Heritage Place<br>B. a State Heritage Place<br>C. a substantial building of value<br>and there is no reasonable alternative to rectify or prevent such damage other than to undertake a tree damaging activity<br>(iv) reduce an unacceptable hazard associated with a tree within 20m of an existing residential, tourist accommodation or other habitable building from bushfire<br>(v) treat disease or otherwise in the general interests of the health of the tree<br>and / or<br>(vi) maintain the aesthetic appearance and structural integrity of the tree<br>(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<br>None are applicable. |
| PO 1.4<br>A tree-damaging activity in connection with other development satisfies all the following:<br>(a) it accommodates the reasonable development of land in accordance with the relevant zone or subzone where such development might not otherwise be possible<br>(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<br>None are applicable. |
| Ground work affecting trees | |
| PO 2.1<br>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 their retention and health. | DTS/DPF 2.1<br>None are applicable. |
| Land Division | |
| PO 3.1<br>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<br>Land division where:<br>(a) there are no regulated or significant trees located within or adjacent to the plan of division |

Appendix 1

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|---|---|
| | or<br>(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 |

## Stormwater Management Overlay

### Assessment Provisions (AP)

Desired Outcome (DO)

| Desired Outcome | |
|---|---|
| DO 1 | Development incorporates water sensitive urban design techniques to capture and re-use stormwater. |

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

| Performance Outcome | Deemed-to-Satisfy Criteria / Designated Performance Feature |
|---|---|
| PO 1.1<br>Residential development is designed to capture and re-use stormwater to:<br>(a) maximise conservation of water resources<br>(b) manage peak stormwater runoff flows and volume to ensure the carrying capacities of downstream systems are not overloaded<br>(c) manage stormwater runoff quality. | DTS/DPF 1.1<br>Residential development comprising detached, semi-detached or row dwellings, or less than 5 group dwellings or dwellings within a residential flat building:<br>(a) includes rainwater tank storage:<br>(i) connected to at least:<br>A. in relation to a detached dwelling (not in a battle-axe arrangement), semi-detached dwelling or row dwelling, 60% of the roof area<br>B. in all other cases, 80% of the roof area<br>(ii) connected to either a toilet, laundry cold water outlets or hot water service for sites less than 200m$^2$<br>(iii) connected to one toilet and either the laundry cold water outlets or hot water service for sites of 200m$^2$ or greater<br>(iv) with a minimum total capacity in accordance with Table 1<br>(v) where detention is required, includes a 20-25 mm diameter slow release orifice at the bottom of the detention component of the tank<br>(b) incorporates dwelling roof area comprising at least 80% of the site's impervious area<br>Table 1: Rainwater Tank<br>Site size (m$^2$) \| Minimum retention volume (Litres) \| Minimum detention volume (Litres) |

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| | | |
|---|---|---|
| <200 | 1000 | 1000 |
| 200-400 | 2000 | Site perviousness <30%: 1000<br><br>Site perviousness ≥30%: N/A |
| >401 | 4000 | Site perviousness <35%: 1000<br><br>Site perviousness ≥35%: N/A |

### 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 |

## Traffic Generating Development Overlay

### Assessment Provisions (AP)

Desired Outcome (DO)

| | Desired Outcome |
|---|---|
| DO 1 | Safe and efficient operation of Urban Transport Routes and Major Urban Transport Routes for all road users. |
| DO 2 | Provision of safe and efficient access to and from urban transport routes and major urban transport routes. |

Performance Outcomes (PO) and Deemed to Satisfy (DTS) / Designated Performance Feature (DPF) Criteria

| Performance Outcome | Deemed-to-Satisfy Criteria / Designated Performance Feature |
|---|---|
| Traffic Generating Development | |
| PO 1.1<br><br>Development designed to minimise its potential impact on the safety, efficiency and functional performance of the State Maintained Road network. | DTS/DPF 1.1<br><br>Access is obtained directly from a State Maintained Road where it involves any of the following types of development:<br><br>(a) building, or buildings, containing in excess of 50 dwellings<br>(b) land division creating 50 or more additional allotments<br>(c) commercial development with a gross floor area of 10,000m2 or more<br>(d) retail development with a gross floor area of 2,000m2 or more<br>(e) a warehouse or transport depot with a gross leasable floor area of 8,000m2 or more<br>(f) industry with a gross floor area of 20,000m2 or more |

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|---|---|
| | (g) educational facilities with a capacity of 250 students or more. |
| PO 1.2<br>Access points sited and designed to accommodate the type and volume of traffic likely to be generated by development. | DTS/DPF 1.2<br>Access is obtained directly from a State Maintained Road where it involves any of the following types of development:<br>(a) building, or buildings, containing in excess of 50 dwellings<br>(b) land division creating 50 or more additional allotments<br>(c) commercial development with a gross floor area of 10,000m2 or more<br>(d) retail development with a gross floor area of 2,000m2 or more<br>(e) a warehouse or transport depot with a gross leasable floor area of 8,000m2 or more<br>(f) industry with a gross floor area of 20,000m2 or more<br>(g) educational facilities with a capacity of 250 students or more. |
| PO 1.3<br>Sufficient accessible on-site queuing provided to meet the needs of the development so that queues do not impact on the State Maintained Road network. | DTS/DPF 1.3<br>Access is obtained directly from a State Maintained Road where it involves any of the following types of development:<br>(a) building, or buildings, containing in excess of 50 dwellings<br>(b) land division creating 50 or more additional allotments<br>(c) commercial development with a gross floor area of 10,000m2 or more<br>(d) retail development with a gross floor area of 2,000m2 or more<br>(e) a warehouse or transport depot with a gross leasable floor area of 8,000m2 or more<br>(f) industry with a gross floor area of 20,000m2 or more<br>(g) educational facilities with a capacity of 250 students or more. |

## 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 |
|---|---|---|---|
| Except where all of the relevant deemed-to-satisfy criteria are met, any of the following classes of development that are proposed within 250m of a State Maintained Road:<br>(a) except where a proposed development has previously been referred under clause (b) - a building, or buildings, containing in excess of 50 dwellings<br>(b) except where a proposed development has previously been referred under clause (a) - land division creating 50 or more additional allotments<br>(c) commercial development with a gross floor area of 10,000m$^2$ or more<br>(d) retail development with a gross floor area of 2,000m$^2$ or more<br>(e) a warehouse or transport depot with a gross leasable floor area of 8,000m$^2$ or more<br>(f) industry with a gross floor area of 20,000m$^2$ or more<br>(g) educational facilities with a capacity of 250 students or more. | Commissioner of Highways. | To provide expert technical assessment and direction to the Relevant Authority on the safe and efficient operation and management of all roads relevant to the Commissioner of Highways as described in the Planning and Design Code. | Development of a class to which Schedule 9 clause 3 item 7 of the Planning, Development and Infrastructure (General) Regulations 2017 applies. |

# Urban Tree Canopy Overlay

Appendix 1

## Assessment Provisions (AP)

Desired Outcome (DO)

| Desired Outcome | |
|---|---|
| DO 1 | Residential development preserves and enhances urban tree canopy through the planting of new trees and retention of existing mature trees where practicable. |

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

| Performance Outcome | Deemed-to-Satisfy Criteria / Designated Performance Feature |
|---|---|
| PO 1.1<br>Trees are planted or retained to contribute to an urban tree canopy. | DTS/DPF 1.1<br>Tree planting is provided in accordance with the following: |

| Site size per dwelling ($m^2$) | Tree size* and number required per dwelling |
|---|---|
| <450 | 1 small tree |
| 450-800 | 1 medium tree or 2 small trees |
| >800 | 1 large tree or 2 medium trees or 4 small trees |

*refer Table 1 Tree Size

| Table 1 Tree Size | | | |
|---|---|---|---|
| Tree size | Mature height (minimum) | Mature spread (minimum) | Soil area around tree within development site (minimum) |
| Small | 4 m | 2m | $10m^2$ and min. dimension of 1.5m |
| Medium | 6 m | 4 m | $30m^2$ and min. dimension of 2m |
| Large | 12 m | 8m | $60m^2$ and min. dimension of 4m |

The discount in Column D of Table 2 discounts the number of trees required to be planted in DTS/DPF 1.1 where existing tree(s) are retained on the subject land that meet the criteria in Columns A, B and C of Table 2, and are not a species identified in Regulation 3F(4)(b) of the Planning Development and Infrastructure (General) Regulations 2017.

| Table 2 Tree Discounts | | | |
|---|---|---|---|
| Retained tree height<br><br>(Column A) | Retained tree spread<br><br>(Column B) | Retained soil area around tree within development site<br><br>(Column C) | Discount applied<br><br>(Column D) |
| 4-6m | 2-4m | $10m^2$ and min. dimension of 1.5m | 2 small trees (or 1 medium tree) |

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|---|---|---|---|
| 6-12m | 4-8m | 30m$^2$ and min. dimension of 3m | 2 medium trees (or 4 small trees) |
| >12m | >8m | 60m$^2$ and min. dimension of 6m | 2 large trees (or 4 medium trees, or 8 small trees) |

Note: In order to satisfy DTS/DPF 1.1, payment may be made in accordance with a relevant off-set scheme established by the Minister under section 197 of the Planning, Development and Infrastructure Act 2016, provided the provisions and requirements of that scheme are satisfied. For the purposes of section 102(4) of the Planning, Development and Infrastructure Act 2016, an applicant may elect for any of the matters in DTS/DPF 1.1 to be reserved.

### 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 |

## Water Resources Overlay

### Assessment Provisions (AP)

Desired Outcome (DO)

| | Desired Outcome |
|---|---|
| DO 1 | Protection of the quality of surface waters considering adverse water quality impacts associated with projected reductions in rainfall and warmer air temperatures as a result of climate change. |
| DO 2 | Maintain the conveyance function and natural flow paths of watercourses to assist in the management of flood waters and stormwater runoff. |

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

| Performance Outcome | Deemed-to-Satisfy Criteria / Designated Performance Feature |
|---|---|
| Water Catchment | |
| PO 1.1<br>Watercourses and their beds, banks, wetlands and floodplains (1% AEP flood extent) are not damaged or modified and are retained in their natural state, except where modification is required for essential access or maintenance purposes. | DTS/DPF 1.1<br>None are applicable. |
| PO 1.2 | DTS/DPF 1.2 |

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| Development avoids interfering with the existing hydrology or water regime of swamps and wetlands other than to improve the existing conditions to enhance environmental values. | None are applicable. |
| PO 1.3<br>Wetlands and low-lying areas providing habitat for native flora and fauna are not drained, except temporarily for essential management purposes to enhance environmental values. | DTS/DPF 1.3<br>None are applicable. |
| PO 1.4<br>Watercourses, areas of remnant native vegetation, or areas prone to erosion that are capable of natural regeneration are fenced off to limit stock access. | DTS/DPF 1.4<br>None are applicable. |
| PO 1.5<br>Development that increases surface water run-off includes a suitably sized strip of vegetated land on each side of a watercourse to filter runoff to:<br>(a) reduce the impacts on native aquatic ecosystems<br>(b) minimise soil loss eroding into the watercourse. | DTS/DPF 1.5<br>A strip of land 20m or more wide measured from the top of existing banks on each side of the watercourse is free from development, livestock use and revegetated with locally indigenous vegetation. |
| PO 1.6<br>Development resulting in the depositing or placing of an object or solid material in a watercourse or lake occurs only where it involves any of the following:<br>(a) the construction of an erosion control structure<br>(b) devices or structures used to extract or regulate water flowing in a watercourse<br>(c) devices used for scientific purposes<br>(d) the rehabilitation of watercourses. | DTS/DPF 1.6<br>None are applicable. |
| PO 1.7<br>Watercourses, floodplains (1% AEP flood extent) and wetlands protected and enhanced by retaining and protecting existing native vegetation. | DTS/DPF 1.7<br>None are applicable. |
| PO 1.8<br>Watercourses, floodplains (1% AEP flood extent) and wetlands are protected and enhanced by stabilising watercourse banks and reducing sediments and nutrients entering the watercourse. | DTS/DPF 1.8<br>None are applicable. |
| PO 1.9<br>Dams, water tanks and diversion drains are located and constructed to maintain the quality and quantity of flows required to meet environmental and downstream needs. | DTS/DPF 1.9<br>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 |
|---|---|---|---|
| None | None | None | None |

## Part 4 - General Development Policies

Appendix 1

# Design in Urban Areas

## Assessment Provisions (AP)

Desired Outcome (DO)

| Desired Outcome | |
|---|---|
| DO 1 | Development is:<br>(a) contextual - by considering, recognising and carefully responding to its natural surroundings or built environment and positively contributing to the character of the locality<br>(b) durable - fit for purpose, adaptable and long lasting<br>(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<br>(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 Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

| Performance Outcome | Deemed-to-Satisfy Criteria / Designated Performance Feature |
|---|---|
| All Development | |
| External Appearance | |
| PO 1.1<br>Buildings reinforce corners through changes in setback, articulation, materials, colour and massing (including height, width, bulk, roof form and slope). | DTS/DPF 1.1<br>None are applicable. |
| PO 1.2<br>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<br>None are applicable. |
| PO 1.3<br>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<br>None are applicable. |
| PO 1.4<br>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:<br>(a) positioning plant and equipment discretely, in unobtrusive locations as viewed from public roads and spaces<br>(b) screening rooftop plant and equipment from view<br>(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<br>Development does not incorporate any structures that protrude beyond the roofline. |
| PO 1.5 | DTS/DPF 1.5 |

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| 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. | None are applicable. |
| **Safety** | |
| PO 2.1<br>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<br>None are applicable. |
| PO 2.2<br>Development is designed to differentiate public, communal and private areas. | DTS/DPF 2.2<br>None are applicable. |
| PO 2.3<br>Buildings are designed with safe, perceptible and direct access from public street frontages and vehicle parking areas. | DTS/DPF 2.3<br>None are applicable. |
| PO 2.4<br>Development at street level is designed to maximise opportunities for passive surveillance of the adjacent public realm. | DTS/DPF 2.4<br>None are applicable. |
| PO 2.5<br>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<br>None are applicable. |
| **Landscaping** | |
| PO 3.1<br>Soft landscaping and tree planting are incorporated to:<br>(a) minimise heat absorption and reflection<br>(b) maximise shade and shelter<br>(c) maximise stormwater infiltration<br>(d) enhance the appearance of land and streetscapes. | DTS/DPF 3.1<br>None are applicable. |
| **Environmental Performance** | |
| PO 4.1<br>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<br>None are applicable. |
| PO 4.2<br>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<br>None are applicable. |
| PO 4.3<br>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<br>None are applicable. |
| **Water Sensitive Design** | |
| PO 5.1<br>Development is sited and designed to maintain natural hydrological systems without negatively impacting: | DTS/DPF 5.1<br>None are applicable. |

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| (a) the quantity and quality of surface water and groundwater<br>(b) the depth and directional flow of surface water and groundwater<br>(c) the quality and function of natural springs. | |
| **On-site Waste Treatment Systems** | |
| PO 6.1<br>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<br>Effluent disposal drainage areas do not:<br>(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<br>(b) use an area also used as a driveway<br>(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<br>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:<br>(a) limiting protrusion above finished ground level<br>(b) screening through appropriate planting, fencing and mounding<br>(c) limiting the width of openings and integrating them into the building structure. | DTS/DPF 7.1<br>None are applicable. |
| PO 7.2<br>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<br>None are applicable. |
| PO 7.3<br>Safe, legible, direct and accessible pedestrian connections are provided between parking areas and the development. | DTS/DPF 7.3<br>None are applicable. |
| PO 7.4<br>Street-level vehicle parking areas incorporate tree planting to provide shade, reduce solar heat absorption and reflection. | DTS/DPF 7.4<br>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<br>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<br>Vehicle parking areas comprising 10 or more car parking spaces include soft landscaping with a minimum dimension of:<br>(a) 1m along all public road frontages and allotment boundaries<br>(b) 1m between double rows of car parking spaces. |
| PO 7.6<br>Vehicle parking areas and associated driveways are landscaped to provide shade and positively contribute to amenity. | DTS/DPF 7.6<br>None are applicable. |
| PO 7.7<br>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<br>None are applicable. |
| **Earthworks and sloping land** | |

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| PO 8.1<br>Development, including any associated driveways and access tracks, minimises the need for earthworks to limit disturbance to natural topography. | DTS/DPF 8.1<br>Development does not involve any of the following:<br>(a) excavation exceeding a vertical height of 1m<br>(b) filling exceeding a vertical height of 1m<br>(c) a total combined excavation and filling vertical height of 2m or more. |
| PO 8.2<br>Driveways and access tracks designed and constructed to allow safe and convenient access on sloping land. | DTS/DPF 8.2<br>Driveways and access tracks on sloping land (with a gradient exceeding 1 in 8) satisfy (a) and (b):<br>(a) do not have a gradient exceeding 25% (1-in-4) at any point along the driveway<br>(b) are constructed with an all-weather trafficable surface. |
| PO 8.3<br>Driveways and access tracks on sloping land (with a gradient exceeding 1 in 8):<br>(a) do not contribute to the instability of embankments and cuttings<br>(b) provide level transition areas for the safe movement of people and goods to and from the development<br>(c) are designed to integrate with the natural topography of the land. | DTS/DPF 8.3<br>None are applicable. |
| PO 8.4<br>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<br>None are applicable. |
| PO 8.5<br>Development does not occur on land at risk of landslip or increase the potential for landslip or land surface instability. | DTS/DPF 8.5<br>None are applicable. |
| Fences and walls | |
| PO 9.1<br>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<br>None are applicable. |
| PO 9.2<br>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<br>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<br>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<br>Upper level windows facing side or rear boundaries shared with a residential use in a neighbourhood-type zone:<br>(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<br>(b) have sill heights greater than or equal to 1.5m above finished floor level<br>(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 | DTS/DPF 10.2 |

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| Development mitigates direct overlooking from balconies to habitable rooms and private open space of adjoining residential uses in neighbourhood type zones. | One of the following is satisfied:<br>(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<br>or<br>(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:<br>(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<br>or<br>(ii) 1.7m above finished floor level in all other cases |
| Site Facilities / Waste Storage (excluding low rise residential development) | |
| PO 11.1<br>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<br>None are applicable. |
| PO 11.2<br>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<br>None are applicable. |
| PO 11.3<br>Communal waste storage and collection areas are designed to be well ventilated and located away from habitable rooms. | DTS/DPF 11.3<br>None are applicable. |
| PO 11.4<br>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<br>None are applicable. |
| PO 11.5<br>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<br>None are applicable. |
| All Development - Medium and High Rise | |
| External Appearance | |
| PO 12.1<br>Buildings positively contribute to the character of the local area by responding to local context. | DTS/DPF 12.1<br>None are applicable. |
| PO 12.2<br>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<br>None are applicable. |
| PO 12.3<br>Buildings are designed to reduce visual mass by breaking up building elevations into distinct elements. | DTS/DPF 12.3<br>None are applicable. |
| PO 12.4<br>Boundary walls visible from public land include visually interesting treatments to break up large blank elevations. | DTS/DPF 12.4<br>None are applicable. |
| PO 12.5<br>External materials and finishes are durable and age well to minimise ongoing maintenance requirements. | DTS/DPF 12.5<br>Buildings utilise a combination of the following external materials and finishes:<br>(a) masonry<br>(b) natural stone |

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| | (c) pre-finished materials that minimise staining, discolouring or deterioration. |
| PO 12.6<br>Street-facing building elevations are designed to provide attractive, high quality and pedestrian-friendly street frontages. | DTS/DPF 12.6<br>Building street frontages incorporate:<br>(a) active uses such as shops or offices<br>(b) prominent entry areas for multi-storey buildings (where it is a common entry)<br>(c) habitable rooms of dwellings<br>(d) areas of communal public realm with public art or the like, where consistent with the zone and/or subzone provisions. |
| PO 12.7<br>Entrances to multi-storey buildings are safe, attractive, welcoming, functional and contribute to streetscape character. | DTS/DPF 12.7<br>Entrances to multi-storey buildings are:<br>(a) oriented towards the street<br>(b) clearly visible and easily identifiable from the street and vehicle parking areas<br>(c) designed to be prominent, accentuated and a welcoming feature if there are no active or occupied ground floor uses<br>(d) designed to provide shelter, a sense of personal address and transitional space around the entry<br>(e) located as close as practicable to the lift and / or lobby access to minimise the need for long access corridors<br>(f) designed to avoid the creation of potential areas of entrapment. |
| PO 12.8<br>Building services, plant and mechanical equipment are screened from the public realm. | DTS/DPF 12.8<br>None are applicable. |
| Landscaping | |
| PO 13.1<br>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<br>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<br>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<br>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 |

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|---|---|
| | Site area: The total area for development site, not average area per dwelling |

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| PO 13.3<br>Deep soil zones with access to natural light are provided to assist in maintaining vegetation health. | DTS/DPF 13.3<br>None are applicable. |
| PO 13.4<br>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<br>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<br>Development minimises detrimental micro-climatic impacts on adjacent land and buildings. | DTS/DPF 14.1<br>None are applicable. |
| PO 14.2<br>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<br>None are applicable. |
| PO 14.3<br>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:<br>(a) a podium at the base of a tall tower and aligned with the street to deflect wind away from the street<br>(b) substantial verandahs around a building to deflect downward travelling wind flows over pedestrian areas<br>(c) the placement of buildings and use of setbacks to deflect the wind at ground level<br>(d) avoiding tall shear elevations that create windy conditions at street level. | DTS/DPF 14.3<br>None are applicable. |
| Car Parking | |
| PO 15.1<br>Multi-level vehicle parking structures are designed to contribute to active street frontages and complement neighbouring buildings. | DTS/DPF 15.1<br>Multi-level vehicle parking structures within buildings:<br>(a) provide land uses such as commercial, retail or other non-car parking uses along ground floor street frontages<br>(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<br>Multi-level vehicle parking structures within buildings complement the surrounding built form in terms of height, massing and scale. | DTS/DPF 15.2<br>None are applicable. |
| Overlooking/Visual Privacy | |
| PO 16.1<br>Development mitigates direct overlooking of habitable rooms and private open spaces of adjacent residential uses in neighbourhood-type zones through measures such as: | DTS/DPF 16.1<br>None are applicable. |

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| (a) appropriate site layout and building orientation<br>(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<br>(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<br>(d) screening devices that are integrated into the building design and have minimal negative effect on residents' or neighbours' amenity. | |
| **All residential development** | |
| **Front elevations and passive surveillance** | |
| PO 17.1<br>Dwellings incorporate windows facing primary street frontages to encourage passive surveillance and make a positive contribution to the streetscape. | DTS/DPF 17.1<br>Each dwelling with a frontage to a public street:<br>(a) includes at least one window facing the primary street from a habitable room that has a minimum internal room dimension of 2.4m<br>(b) has an aggregate window area of at least 2m$^2$ facing the primary street. |
| PO 17.2<br>Dwellings incorporate entry doors within street frontages to address the street and provide a legible entry point for visitors. | DTS/DPF 17.2<br>Dwellings with a frontage to a public street have an entry door visible from the primary street boundary. |
| **Outlook and Amenity** | |
| PO 18.1<br>Living rooms have an external outlook to provide a high standard of amenity for occupants. | DTS/DPF 18.1<br>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<br>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<br>None are applicable. |
| **Ancillary Development** | |
| PO 19.1<br>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<br>Ancillary buildings (excluding ancillary accommodation):<br>(a) are ancillary to a dwelling erected on the same site<br>(b) have a floor area not exceeding 60m2<br>(c) are not constructed, added to or altered so that any part is situated:<br>(i) in front of any part of the building line of the dwelling to which it is ancillary<br>or<br>(ii) within 900mm of a boundary of the allotment with a secondary street (if the land has boundaries on two or more roads)<br>(d) in the case of a garage or carport, the garage or carport:<br>(i) is set back at least 5.5m from the boundary of the primary street<br>(ii) when facing a primary street or secondary street, has a total door / opening not exceeding:<br>A. for dwellings of single building level - 7m in width or 50% of the site frontage, whichever is the lesser<br>B. for dwellings comprising two or more building levels at the building line fronting the same public street - 7m in width |

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(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 (and not including a gable end)

(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:

| 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% |
| 201-450 | 20% |
| >450 | 25% |

  (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.

PO 19.4

DTS/DPF 19.4

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| Buildings and structures that are ancillary to an existing non-residential use do not detract from the streetscape character, appearance of buildings on the site of the development, or the amenity of neighbouring properties. | Non-residential ancillary buildings and structures<br>(a) are ancillary and subordinate to an existing non-residential use on the same site<br>(b) have a floor area not exceeding the following:<br>Allotment size: ≤500m2 — Floor area: 60m2; >500m2 — 80m2<br>(c) are not constructed, added to or altered so that any part is situated:<br>(i) in front of any part of the building line of the main building to which it is ancillary<br>or<br>(ii) within 900mm of a boundary of the allotment with a secondary street (if the land has boundaries on two or more roads)<br>(d) in the case of a garage or carport, the garage or carport:<br>(i) is set back at least 5.5m from the boundary of the primary street<br>(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:<br>(i) a longer wall or structure exists on the adjacent site and is situated on the same allotment boundary<br>(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<br>(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<br>(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<br>(h) have a wall height (or post height) not exceeding 3m (and not including a gable end)<br>(i) have a roof height where no part of the roof is more than 5m above the natural ground level<br>(j) if clad in sheet metal, is pre-colour treated or painted in a non-reflective colour. |
| PO 19.5<br>Ancillary accommodation:<br>(a) is sited and designed to not detract from the streetscape or appearance of primary residential buildings on the site or neighbouring properties<br>(b) is integrated within the site of the dwelling to which it is ancillary and incorporates shared utilities and shared open space. | DTS/DPF 19.5<br>Ancillary accommodation:<br>(a) is ancillary to a dwelling erected on the same site<br>(b) has a floor area not exceeding 70m$^2$<br>(c) is not constructed, added to, or altered so that any part is situated:<br>(i) in front of any part of the building line of the dwelling to which it is ancillary<br>or<br>(ii) within 900mm of a boundary of the allotment with a secondary street (if the land has boundaries on two or more roads)<br>(d) if situated on a boundary (not being a boundary with a primary street or secondary street), does not exceed a length of 11.5m unless:<br>(i) a longer wall or structure exists on the adjacent site and is situated on the same allotment boundary<br>and<br>(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 |

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(e) if situated on a boundary of the allotment (or 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

(f) 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

(g) has a wall height or post height not exceeding 3m above natural ground level (and not including a gable end)

(h) has a roof height where no part of the roof is more than 5m above the natural ground level

(i) if clad in sheet metal, is pre-colour treated or painted in a non-reflective colour

(j) 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:

| 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% |
| 201-450 | 20% |
| >450 | 25% |

(ii) the amount of existing soft landscaping prior to the development occurring.

(k) does not have separate connection to utilities and services (such as electricity, gas, water, telecommunications, sewerage system, wastewater system or waste control system) to those servicing the existing dwelling

(l) has unrestricted access to the private open space associated with the existing dwelling to which it is ancillary

(m) in the case of the Rural Zone, Productive Rural Landscape Zone, or Rural Horticulture Zone, is located within 20m of an existing dwelling.

## 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

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| | (c) a balcony projects from the building wall<br>(d) a verandah projects at least 1m from the building wall<br>(e) eaves of a minimum 400mm width extend along the width of the front elevation<br>(f) a minimum 30% of the width of the upper level projects forward from the lower level primary building line by at least 300mm<br>(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<br>The visual mass of larger buildings is reduced when viewed from adjoining allotments or public streets. | DTS/DPF 20.3<br>None are applicable |
| **Private Open Space** | |
| PO 21.1<br>Dwellings are provided with suitable sized areas of usable private open space to meet the needs of occupants. | DTS/DPF 21.1<br>Private open space is provided in accordance with Design in Urban Areas Table 1 - Private Open Space. |
| PO 21.2<br>Private open space is positioned to provide convenient access from internal living areas. | DTS/DPF 21.2<br>Private open space is directly accessible from a habitable room. |
| **Landscaping** | |
| PO 22.1<br>Soft landscaping is incorporated into development to:<br>(a) minimise heat absorption and reflection<br>(b) contribute shade and shelter<br>(c) provide for stormwater infiltration and biodiversity<br>(d) enhance the appearance of land and streetscapes. | DTS/DPF 22.1<br>Residential development incorporates soft landscaping with a minimum dimension of 700mm provided in accordance with (a) and (b):<br>(a) a total area for the entire development site, including any common property, as determined by the following table:<br>**Site area (or in the case of residential flat building or group dwelling(s), average site area) ($m^2$)** / **Minimum percentage of site**<br><150 / 10%<br>150-200 / 15%<br>>200-450 / 20%<br>>450 / 25%<br>(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<br>Enclosed car parking spaces are of dimensions to be functional, accessible and convenient. | DTS/DPF 23.1<br>Residential car parking spaces enclosed by fencing, walls or other structures have the following internal dimensions (separate from any waste storage area):<br>(a) single width car parking spaces:<br>(i) a minimum length of 5.4m per space<br>(ii) a minimum width of 3.0m<br>(iii) a minimum garage door width of 2.4m |

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| | (b) double width car parking spaces (side by side)<br>(i) a minimum length of 5.4m<br>(ii) a minimum width of 5.4m<br>(iii) minimum garage door width of 2.4m per space. |
| PO 23.2<br>Uncovered car parking space are of dimensions to be functional, accessible and convenient. | DTS/DPF 23.2<br>Uncovered car parking spaces have:<br>(a) a minimum length of 5.4m<br>(b) a minimum width of 2.4m<br>(c) a minimum width between the centre line of the space and any fence, wall or other obstruction of 1.5m. |
| PO 23.3<br>Driveways and access points are located and designed to facilitate safe access and egress while maximising land available for street tree planting, pedestrian movement, domestic waste collection, landscaped street frontages and on-street parking. | DTS/DPF 23.3<br>Driveways and access points satisfy (a) or (b):<br>(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<br>(b) sites with a frontage to a public road greater than 10m:<br>(i) have a maximum width of 5m measured at the property boundary and are the only access point provided on the site;<br>(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<br>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<br>Vehicle access to designated car parking spaces satisfy (a) or (b):<br>(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<br>(b) where newly proposed, is set back:<br>(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<br>(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<br>(iii) 6m or more from the tangent point of an intersection of 2 or more roads<br>(iv) outside of the marked lines or infrastructure dedicating a pedestrian crossing. |
| PO 23.5<br>Driveways are designed to enable safe and convenient vehicle movements from the public road to on-site parking spaces. | DTS/DPF 23.5<br>Driveways are designed and sited so that:<br>(a) the gradient of the driveway does not exceed a grade of 1 in 4 and includes transitions to ensure a maximum grade change of 12.5% (1 in 8) for summit changes, and 15% (1 in 6.7) for sag changes, in accordance with AS 2890.1:2004 to prevent vehicles bottoming or scraping<br>(b) the centreline of the driveway has an angle of no less than 70 degrees and no more than 110 degrees from the street boundary to which it takes its access as shown in the following diagram: |

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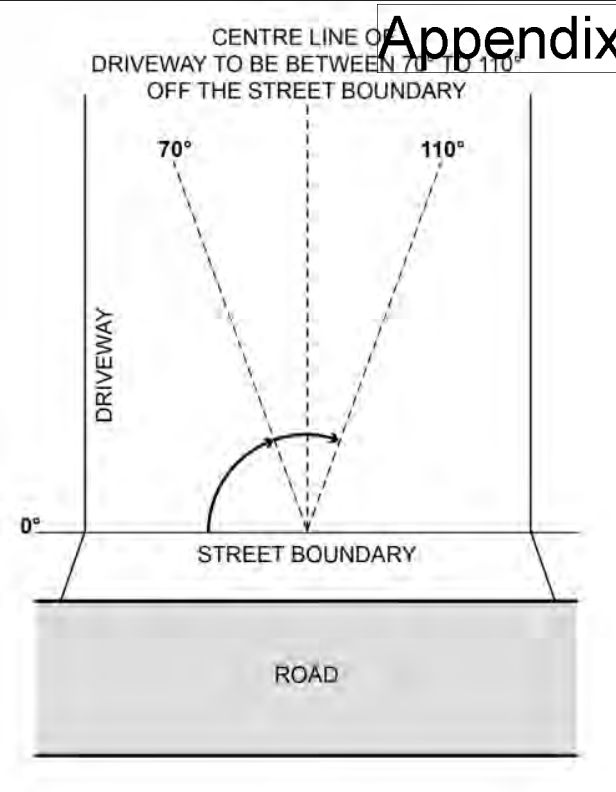


(c) if located to provide access from an alley, lane or right of way - the alley, land or right or way is at least 6.2m wide along the boundary of the allotment / site.

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| PO 23.6<br>Driveways and access points are designed and distributed to optimise the provision of on-street visitor parking. | DTS/DPF 23.6<br>Where on-street parking is available abutting the site's street frontage, on-street parking is retained in accordance with the following requirements:<br>(a) minimum 0.33 on-street spaces per dwelling on the site (rounded up to the nearest whole number)<br>(b) minimum car park length of 5.4m where a vehicle can enter or exit a space directly<br>(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<br>Provision is made for the convenient storage of waste bins in a location screened from public view. | DTS/DPF 24.1<br>Where dwellings abut both side boundaries a waste bin storage area is provided behind the building line of each dwelling that:<br>(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<br>(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<br>The sub-floor space beneath transportable buildings is enclosed to give the appearance of a permanent structure. | DTS/DPF 25.1<br>Buildings satisfy (a) or (b):<br>(a) are not transportable<br>(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) | |

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| Outlook and Visual Privacy | |
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| PO 26.1<br>Ground level dwellings have a satisfactory short range visual outlook to public, communal or private open space. | DTS/DPF 26.1<br>Buildings:<br>(a) provide a habitable room at ground or first level with a window facing toward the street<br>(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<br>The visual privacy of ground level dwellings within multi-level buildings is protected. | DTS/DPF 26.2<br>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<br>Dwellings are provided with suitable sized areas of usable private open space to meet the needs of occupants. | DTS/DPF 27.1<br>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<br>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<br>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<br>Balconies are designed, positioned and integrated into the overall architectural form and detail of the development to:<br>(a) respond to daylight, wind, and acoustic conditions to maximise comfort and provide visual privacy<br>(b) allow views and casual surveillance of the street while providing for safety and visual privacy of nearby living spaces and private outdoor areas. | DTS/DPF 28.2<br>Balconies utilise one or a combination of the following design elements:<br>(a) sun screens<br>(b) pergolas<br>(c) louvres<br>(d) green facades<br>(e) openable walls. |
| PO 28.3<br>Balconies are of sufficient size and depth to accommodate outdoor seating and promote indoor / outdoor living. | DTS/DPF 28.3<br>Balconies open directly from a habitable room and incorporate a minimum dimension of 2m. |
| PO 28.4<br>Dwellings are provided with sufficient space for storage to meet likely occupant needs. | DTS/DPF 28.4<br>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:<br>(a) studio: not less than $6m^3$<br>(b) 1 bedroom dwelling / apartment: not less than $8m^3$<br>(c) 2 bedroom dwelling / apartment: not less than $10m^3$<br>(d) 3+ bedroom dwelling / apartment: not less than $12m^3$. |
| PO 28.5<br>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<br>Light wells:<br>(a) are not used as the primary source of outlook for living rooms<br>(b) up to 18m in height have a minimum horizontal dimension of 3m, or 6m if overlooked by bedrooms<br>(c) above 18m in height have a minimum horizontal dimension of 6m, or 9m if overlooked by bedrooms. |

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| PO 28.6<br>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<br>None are applicable. |
| PO 28.7<br>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<br>None are applicable. |
| Dwelling Configuration | |
| PO 29.1<br>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<br>Buildings containing in excess of 10 dwellings provide at least one of each of the following:<br>(a) studio (where there is no separate bedroom)<br>(b) 1 bedroom dwelling / apartment with a floor area of at least $50m^2$<br>(c) 2 bedroom dwelling / apartment with a floor area of at least $65m^2$<br>(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<br>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<br>None are applicable. |
| Common Areas | |
| PO 30.1<br>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<br>Common corridor or circulation areas:<br>(a) have a minimum ceiling height of 2.7m<br>(b) provide access to no more than 8 dwellings<br>(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<br>Dwellings are of a suitable size to provide a high standard of amenity for occupants. | DTS/DPF 31.1<br>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 |

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| PO 31.2<br>The orientation and siting of buildings minimises impacts on the amenity, outlook and privacy of occupants and neighbours. | DTS/DPF 31.2<br>None are applicable. |

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| PO 31.3<br>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<br>None are applicable. |
| PO 31.4<br>Battle-axe development is appropriately sited and designed to respond to the existing neighbourhood context. | DTS/DPF 31.4<br>Dwelling sites/allotments are not in the form of a battle-axe arrangement. |
| Communal Open Space | |
| PO 32.1<br>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<br>None are applicable. |
| PO 32.2<br>Communal open space is of sufficient size and dimensions to cater for group recreation. | DTS/DPF 32.2<br>Communal open space incorporates a minimum dimension of 5 metres. |
| PO 32.3<br>Communal open space is designed and sited to:<br>(a) be conveniently accessed by the dwellings which it services<br>(b) have regard to acoustic, safety, security and wind effects. | DTS/DPF 32.3<br>None are applicable. |
| PO 32.4<br>Communal open space contains landscaping and facilities that are functional, attractive and encourage recreational use. | DTS/DPF 32.4<br>None are applicable. |
| PO 32.5<br>Communal open space is designed and sited to:<br>(a) in relation to rooftop or elevated gardens, minimise overlooking into habitable room windows or onto the useable private open space of other dwellings<br>(b) in relation to ground floor communal space, be overlooked by habitable rooms to facilitate passive surveillance. | DTS/DPF 32.5<br>None are applicable. |
| Car parking, access and manoeuvrability | |
| PO 33.1<br>Driveways and access points are designed and distributed to optimise the provision of on-street visitor parking. | DTS/DPF 33.1<br>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:<br>(a) minimum 0.33 on-street car parks per proposed dwelling (rounded up to the nearest whole number)<br>(b) minimum car park length of 5.4m where a vehicle can enter or exit a space directly<br>(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<br>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<br>Access to group dwellings or dwellings within a residential flat building is provided via a single common driveway. |
| PO 33.3<br>Residential driveways that service more than one dwelling are designed to allow safe and convenient movement. | DTS/DPF 33.3<br>Driveways that service more than 1 dwelling or a dwelling on a battle-axe site:<br>(a) have a minimum width of 3m<br>(b) for driveways servicing more than 3 dwellings:<br>(i) have a width of 5.5m or more and a length of 6m or more at the kerb of the primary street |

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| | (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<br>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<br>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<br>Dwellings are adequately separated from common driveways and manoeuvring areas. | DTS/DPF 33.5<br>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<br>Soft landscaping is provided between dwellings and common driveways to improve the outlook for occupants and appearance of common areas. | DTS/DPF 34.1<br>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<br>Battle-axe or common driveways incorporate landscaping and permeability to improve appearance and assist in stormwater management. | DTS/DPF 34.2<br>Battle-axe or common driveways satisfy (a) and (b):<br>(a) are constructed of a minimum of 50% permeable or porous material<br>(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<br>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<br>None are applicable. |
| PO 35.2<br>Provision is made for suitable external clothes drying facilities. | DTS/DPF 35.2<br>None are applicable. |
| PO 35.3<br>Provision is made for suitable household waste and recyclable material storage facilities which are:<br>(a) located away, or screened, from public view, and<br>(b) conveniently located in proximity to dwellings and the waste collection point. | DTS/DPF 35.3<br>None are applicable. |
| PO 35.4<br>Waste and recyclable material storage areas are located away from dwellings. | DTS/DPF 35.4<br>Dedicated waste and recyclable material storage areas are located at least 3m from any habitable room window. |
| PO 35.5<br>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<br>None are applicable. |
| PO 35.6<br>Services including gas and water meters are conveniently located and screened from public view. | DTS/DPF 35.6<br>None are applicable. |

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| Water sensitive urban design | |
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| PO 36.1<br>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<br>None are applicable. |
| PO 36.2<br>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<br>None are applicable. |
| **Supported Accommodation and retirement facilities** | |
| **Siting, Configuration and Design** | |
| PO 37.1<br>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<br>None are applicable. |
| PO 37.2<br>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<br>None are applicable. |
| **Movement and Access** | |
| PO 38.1<br>Development is designed to support safe and convenient access and movement for residents by providing:<br>(a) ground-level access or lifted access to all units<br>(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<br>(c) car parks with gradients no steeper than 1-in-40, and of sufficient area to provide for wheelchair manoeuvrability<br>(d) kerb ramps at pedestrian crossing points. | DTS/DPF 38.1<br>None are applicable. |
| **Communal Open Space** | |
| PO 39.1<br>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<br>None are applicable. |
| PO 39.2<br>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<br>None are applicable. |
| PO 39.3<br>Communal open space is of sufficient size and dimensions to cater for group recreation. | DTS/DPF 39.3<br>Communal open space incorporates a minimum dimension of 5 metres. |
| PO 39.4<br>Communal open space is designed and sited to:<br>(a) be conveniently accessed by the dwellings which it services<br>(b) have regard to acoustic, safety, security and wind effects. | DTS/DPF 39.4<br>None are applicable. |
| PO 39.5 | DTS/DPF 39.5 |

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| Communal open space contains landscaping and facilities that are functional, attractive and encourage recreational use. | None are applicable. |
| PO 39.6<br>Communal open space is designed and sited to:<br>(a) in relation to rooftop or elevated gardens, minimise overlooking into habitable room windows or onto the useable private open space of other dwellings<br>(b) in relation to ground floor communal space, be overlooked by habitable rooms to facilitate passive surveillance. | DTS/DPF 39.6<br>None are applicable. |
| Site Facilities / Waste Storage | |
| PO 40.1<br>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<br>None are applicable. |
| PO 40.2<br>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<br>None are applicable. |
| PO 40.3<br>Provision is made for suitable external clothes drying facilities. | DTS/DPF 40.3<br>None are applicable. |
| PO 40.4<br>Provision is made for suitable household waste and recyclable material storage facilities conveniently located away, or screened, from view. | DTS/DPF 40.4<br>None are applicable. |
| PO 40.5<br>Waste and recyclable material storage areas are located away from dwellings. | DTS/DPF 40.5<br>Dedicated waste and recyclable material storage areas are located at least 3m from any habitable room window. |
| PO 40.6<br>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<br>None are applicable. |
| PO 40.7<br>Services, including gas and water meters, are conveniently located and screened from public view. | DTS/DPF 40.7<br>None are applicable. |
| Student Accommodation | |
| PO 41.1<br>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<br>Student accommodation provides:<br>(a) a range of living options to meet a variety of accommodation needs, such as one-bedroom, two-bedroom and disability access units<br>(b) common or shared facilities to enable a more efficient use of space, including:<br>(i) shared cooking, laundry and external drying facilities<br>(ii) internal and external communal and private open space provided in accordance with Design in Urban Areas Table 1 - Private Open Space<br>(iii) common storage facilities at the rate of $8m^3$ for every 2 dwellings or students<br>(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<br>(v) bicycle parking at the rate of one space for every 2 students. |

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| PO 41.2<br>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<br>None are applicable. |
| All non-residential development | |
| Water Sensitive Design | |
| PO 42.1<br>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<br>None are applicable. |
| PO 42.2<br>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<br>None are applicable. |
| PO 42.3<br>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<br>None are applicable. |
| Wash-down and Waste Loading and Unloading | |
| PO 43.1<br>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:<br>(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<br>(b) paved with an impervious material to facilitate wastewater collection<br>(c) of sufficient size to prevent 'splash-out' or 'over-spray' of wastewater from the wash-down area<br>(d) are designed to drain wastewater to either:<br>(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<br>or<br>(ii) a holding tank and its subsequent removal off-site on a regular basis. | DTS/DPF 43.1<br>None are applicable. |
| Laneway Development | |
| Infrastructure and Access | |
| PO 44.1<br>Development with a primary street comprising a laneway, alley, lane, right of way or similar minor thoroughfare only occurs where:<br>(a) existing utility infrastructure and services are capable of accommodating the development<br>(b) the primary street can support access by emergency and regular service vehicles (such as waste collection)<br>(c) it does not require the provision or upgrading of infrastructure on public land (such as footpaths and stormwater management systems)<br>(d) safety of pedestrians or vehicle movement is maintained | DTS/DPF 44.1<br>Development with a primary street frontage that is not an alley, lane, right of way or similar public thoroughfare. |

Appendix 1

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| (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. | |
| **Decks** | |
| **Design and Siting** | |
| PO 45.1<br>Decks are designed and sited to:<br>(a) complement the associated building form<br>(b) minimise impacts on the streetscape through siting behind the building line of the principal building (unless on a significant allotment or open space)<br>(c) minimise cut and fill and overall massing when viewed from adjacent land. | DTS/DPF 45.1<br>Decks:<br>(a) where ancillary to a dwelling:<br>(i) are not constructed, added to or altered so that any part is situated:<br>A. in front of any part of the building line of the dwelling to which it is ancillary<br>or<br>B. within 900mm of a boundary of the allotment with a secondary street (if the land has boundaries on two or more roads)<br>(ii) are set back at least 900mm from side or rear allotment boundaries<br>(iii) when attached to the dwelling, has a finished floor level consistent with the finished ground floor level of the dwelling<br>(iv) where associated with a residential use, retains a total area of soft landscaping for the entire development site, including any common property, with a minimum dimension of 700mm in accordance with (A) or (B), whichever is less:<br>A. a total area is determined by the following table:<br>Site area (or in the case of residential flat building or group dwelling(s), average site area) ($m^2$) / Minimum percentage of site<br><150 / 10%<br>150-200 / 15%<br>>200-450 / 20%<br>>450 / 25%<br>B. the amount of existing soft landscaping prior to the development occurring.<br>(b) where in association with a non-residential use:<br>(i) are set back at least 2 metres from the boundary of an allotment used for residential purposes.<br>(ii) are set back at least 2 metres from a public road.<br>(iii) have a floor area not exceeding 25$m^2$<br>(c) in all cases, has a finished floor level not exceeding 1 metre above natural ground level at any point. |
| PO 45.2<br>Decks are designed and sited to minimise direct overlooking of habitable rooms and private open spaces of adjoining residential uses in neighbourhood-type zones through suitable floor levels, screening and siting taking into account the slope of the subject land, existing vegetation on the subject land, and fencing. | DTS/DPF 45.2<br>Decks with a finished floor level/s 500mm or more above natural ground level facing side or rear boundaries shared with a residential use in a neighbourhood-type zone incorporate screening with a maximum of 25% transparency/openings, permanently fixed to the outer edge of the deck not less than 1.5 m above the finished floor level/s. |

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| PO 45.3<br>Decks used for outdoor dining, entertainment or other commercial uses provide carparking in accordance with the primary use of the deck. | DTS/DPF 45.3<br>Decks used for commercial purposes do not result in less on-site car parking for the primary use of the subject land 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. |

## 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:<br>(a) Site area <301m$^2$: 24m$^2$ located behind the building line.<br>(b) Site area ≥ 301m$^2$: 60m$^2$ located behind the building line.<br>Minimum directly accessible from a living room: 16m$^2$ / 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 |

# Interface between Land Uses

Appendix 1

## Assessment Provisions (AP)

Desired Outcome (DO)

| 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)

<table>
<tr><th>Performance Outcome</th><th>Deemed-to-Satisfy Criteria / Designated Performance Feature</th></tr>
<tr><td colspan="2">General Land Use Compatibility</td></tr>
<tr><td>PO 1.1<br>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.</td><td>DTS/DPF 1.1<br>None are applicable.</td></tr>
<tr><td>PO 1.2<br>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.</td><td>DTS/DPF 1.2<br>None are applicable.</td></tr>
<tr><td colspan="2">Hours of Operation</td></tr>
<tr><td>PO 2.1<br>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:<br>(a) the nature of the development<br>(b) measures to mitigate off-site impacts<br>(c) the extent to which the development is desired in the zone<br>(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.</td><td>DTS/DPF 2.1<br>Development operating within the following hours:<br><table><tr><th>Class of Development</th><th>Hours of operation</th></tr><tr><td>Consulting room</td><td>7am to 9pm, Monday to Friday<br>8am to 5pm, Saturday</td></tr><tr><td>Office</td><td>7am to 9pm, Monday to Friday<br>8am to 5pm, Saturday</td></tr><tr><td>Shop, other than any one or combination of the following:<br>(a) restaurant<br>(b) cellar door in the Productive Rural Landscape Zone, Rural Zone or Rural Horticulture Zone</td><td>7am to 9pm, Monday to Friday<br>8am to 5pm, Saturday and Sunday</td></tr></table></td></tr>
<tr><td colspan="2">Overshadowing</td></tr>
<tr><td>PO 3.1<br>Overshadowing of habitable room windows of adjacent residential land uses in:<br>a. a neighbourhood-type zone is minimised to maintain access to</td><td>DTS/DPF 3.1<br>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.</td></tr>
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| direct winter sunlight<br>b. other zones is managed to enable access to direct winter sunlight. | |
| PO 3.2<br>Overshadowing of the primary area of private open space or communal open space of adjacent residential land uses in:<br><br>a. a neighbourhood type zone is minimised to maintain access to direct winter sunlight<br>b. other zones is managed to enable access to direct winter sunlight. | DTS/DPF 3.2<br>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:<br><br>a. for ground level private open space, the smaller of the following:<br>i. half the existing ground level open space<br>or<br>ii. 35m2 of the existing ground level open space (with at least one of the area's dimensions measuring 2.5m)<br>b. for ground level communal open space, at least half of the existing ground level open space. |
| PO 3.3<br>Development does not unduly reduce the generating capacity of adjacent rooftop solar energy facilities taking into account:<br><br>(a) the form of development contemplated in the zone<br>(b) the orientation of the solar energy facilities<br>(c) the extent to which the solar energy facilities are already overshadowed. | DTS/DPF 3.3<br>None are applicable. |
| PO 3.4<br>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<br>None are applicable. |
| Activities Generating Noise or Vibration | |
| PO 4.1<br>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<br>Noise that affects sensitive receivers achieves the relevant Environment Protection (Commercial and Industrial Noise) Policy criteria. |
| PO 4.2<br>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:<br><br>(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<br>(b) when sited outdoors, locating such areas as far as practicable from adjacent sensitive receivers and zones primarily intended to accommodate sensitive receivers<br>(c) housing plant and equipment within an enclosed structure or acoustic enclosure<br>(d) providing a suitable acoustic barrier between the plant and / or equipment and the adjacent sensitive receiver boundary or zone. | PO 4.3<br>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<br>The pump and/or filtration system ancillary to a dwelling erected on the same site is: | PO 4.4<br>External noise into bedrooms is minimised by separating or shielding these rooms from service equipment areas and fixed noise sources |

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| (a) enclosed in a solid acoustic structure located at least 5m from the nearest habitable room located on an adjoining allotment or<br>(b) located at least 12m from the nearest habitable room located on an adjoining allotment. | located on the same or an adjoining allotment. |
| DTS/DPF 4.4<br>Adjacent land is used for residential purposes. | PO 4.5<br>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<br>None are applicable. | PO 4.6<br>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<br>Development incorporating music includes noise attenuation measures that will achieve the following noise levels:<br><table><tr><th>Assessment location</th><th>Music noise level</th></tr><tr><td>Externally at the nearest existing or envisaged noise sensitive location</td><td>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)</td></tr></table> | DTS/DPF 4.2<br>None are applicable. |
| Air Quality | |
| PO 5.1<br>Development with the potential to emit harmful or nuisance-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. | DTS/DPF 5.1<br>None are applicable. |
| PO 5.2<br>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:<br>(a) incorporating appropriate treatment technology before exhaust emissions are released<br>(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<br>None are applicable. |
| Light Spill | |
| PO 6.1<br>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<br>None are applicable. |
| PO 6.2<br>External lighting is not hazardous to motorists and cyclists. | DTS/DPF 6.2<br>None are applicable. |
| Solar Reflectivity / Glare | |
| PO 7.1 | DTS/DPF 7.1 |

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| 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. | None are applicable. |
| **Electrical Interference** | |
| PO 8.1<br>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<br>The building or structure:<br>(a) is no greater than 10m in height, measured from existing ground level<br>or<br>(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<br>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<br>None are applicable. |
| PO 9.2<br>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<br>None are applicable. |
| PO 9.3<br>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<br>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<br>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<br>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<br>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<br>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:<br>(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<br>(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<br>(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<br>(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<br>(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. |

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| PO 9.6<br>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<br>None are applicable. |
| PO 9.7<br>Urban development does not prejudice existing agricultural and horticultural activities through appropriate separation and design techniques. | DTS/DPF 9.7<br>None are applicable. |
| Interface with Mines and Quarries (Rural and Remote Areas) | |
| PO 10.1<br>Sensitive receivers are separated from existing mines to minimise the adverse impacts from noise, dust and vibration. | DTS/DPF 10.1<br>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)

| Desired Outcome | |
|---|---|
| DO 1 | Land division:<br>(a) creates allotments with the appropriate dimensions and shape for their intended use<br>(b) allows efficient provision of new infrastructure and the optimum use of underutilised infrastructure<br>(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<br>(d) facilitates solar access through allotment orientation<br>(e) creates a compact urban form that supports active travel, walkability and the use of public transport<br>(f) avoids areas of high natural hazard risk. |

Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

| Performance Outcome | Deemed-to-Satisfy Criteria / Designated Performance Feature |
|---|---|
| All land division | |
| Allotment configuration | |
| PO 1.1<br>Land division creates allotments suitable for their intended use. | DTS/DPF 1.1<br>Division of land satisfies (a) or (b):<br>(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<br>(b) is proposed as part of a combined land division application with deemed-to-satisfy dwellings on the proposed allotments. |
| PO 1.2<br>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<br>None are applicable. |
| Design and Layout | |

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| PO 2.1<br>Land division results in a pattern of development that minimises the likelihood of future earthworks and retaining walls. | DTS/DPF 2.1<br>None are applicable. |
| PO 2.2<br>Land division enables the appropriate management of interface impacts between potentially conflicting land uses and/or zones. | DTS/DPF 2.2<br>None are applicable. |
| PO 2.3<br>Land division maximises the number of allotments that face public open space and public streets. | DTS/DPF 2.3<br>None are applicable. |
| PO 2.4<br>Land division is integrated with site features, adjacent land uses, the existing transport network and available infrastructure. | DTS/DPF 2.4<br>None are applicable. |
| PO 2.5<br>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<br>None are applicable. |
| PO 2.6<br>Land division results in watercourses being retained within open space and development taking place on land not subject to flooding. | DTS/DPF 2.6<br>None are applicable. |
| PO 2.7<br>Land division results in legible street patterns connected to the surrounding street network. | DTS/DPF 2.7<br>None are applicable. |
| PO 2.8<br>Land division is designed to preserve existing vegetation of value including native vegetation and regulated and significant trees. | DTS/DPF 2.8<br>None are applicable. |
| Roads and Access | |
| PO 3.1<br>Land division provides allotments with access to an all-weather public road. | DTS/DPF 3.1<br>None are applicable. |
| PO 3.2<br>Street patterns and intersections are designed to enable the safe and efficient movement of pedestrian, cycle and vehicular traffic. | DTS/DPF 3.2<br>None are applicable. |
| PO 3.3<br>Land division does not impede access to publicly owned open space and/or recreation facilities. | DTS/DPF 3.3<br>None are applicable. |
| PO 3.4<br>Road reserves provide for safe and convenient movement and parking of projected volumes of vehicles and allow for the efficient movement of service and emergency vehicles. | DTS/DPF 3.4<br>None are applicable. |
| PO 3.5<br>Road reserves are designed to accommodate pedestrian and cycling infrastructure, street tree planting, landscaping and street furniture. | DTS/DPF 3.5<br>None are applicable. |
| PO 3.6<br>Road reserves accommodate stormwater drainage and public utilities. | DTS/DPF 3.6<br>None are applicable. |
| PO 3.7<br>Road reserves provide unobstructed vehicular access and egress to and from individual allotments and sites. | DTS/DPF 3.7<br>None are applicable. |

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| PO 3.8<br>Roads, open space and thoroughfares provide safe and convenient linkages to the surrounding open space and transport network. | DTS/DPF 3.8<br>None are applicable. |
| PO 3.9<br>Public streets are designed to enable tree planting to provide shade and enhance the amenity of streetscapes. | DTS/DPF 3.9<br>None are applicable. |
| PO 3.10<br>Local streets are designed to create low-speed environments that are safe for cyclists and pedestrians. | DTS/DPF 3.10<br>None are applicable. |
| Infrastructure | |
| PO 4.1<br>Land division incorporates public utility services within road reserves or dedicated easements. | DTS/DPF 4.1<br>None are applicable. |
| PO 4.2<br>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<br>Each allotment can be connected to:<br>(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<br>or<br>(b) a form of on-site waste water treatment and disposal that meets relevant public health and environmental standards. |
| PO 4.3<br>Septic tank effluent drainage fields and other waste water disposal areas are maintained to ensure the effective operation of waste systems and minimise risks to human health and the environment. | DTS/DPF 4.3<br>Development is not built on, or encroaches within, an area that is or will be, required for a sewerage system or waste control system. |
| PO 4.4<br>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<br>None are applicable. |
| PO 4.5<br>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<br>None are applicable. |
| PO 4.6<br>Constructed wetland systems, including associated detention and retention basins, are sited and designed to function as a landscape feature. | DTS/DPF 4.6<br>None are applicable. |
| Minor Land Division (Under 20 Allotments) | |
| Open Space | |
| PO 5.1<br>Land division proposing an additional allotment under 1 hectare provides or supports the provision of open space. | DTS/DPF 5.1<br>None are applicable. |
| Solar Orientation | |
| PO 6.1<br>Land division for residential purposes facilitates solar access through allotment orientation. | DTS/DPF 6.1<br>None are applicable. |

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| **Water Sensitive Design** | |
| PO 7.1<br>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<br>None are applicable. |
| PO 7.2<br>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<br>None are applicable. |
| **Battle-Axe Development** | |
| PO 8.1<br>Battle-axe development appropriately responds to the existing neighbourhood context. | DTS/DPF 8.1<br>Allotments are not in the form of a battle-axe arrangement. |
| PO 8.2<br>Battle-axe development designed to allow safe and convenient movement. | DTS/DPF 8.2<br>The handle of a battle-axe development:<br>(a) has a minimum width of 4m<br>or<br>(b) where more than 3 allotments are proposed, a minimum width of 5.5m. |
| PO 8.3<br>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<br>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<br>Battle-axe or common driveways incorporate landscaping and permeability to improve appearance and assist in stormwater management. | DTS/DPF 8.4<br>Battle-axe or common driveways satisfy (a) and (b):<br>(a) are constructed of a minimum of 50% permeable or porous material<br>(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<br>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<br>None are applicable. |
| PO 9.2<br>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<br>None are applicable. |
| PO 9.3<br>Land allocated for active recreation has dimensions capable of accommodating a range of active recreational activities. | DTS/DPF 9.3<br>None are applicable. |
| **Water Sensitive Design** | |
| PO 10.1<br>Land division creating 20 or more 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 | DTS/DPF 10.1<br>None are applicable. |

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| systems. | |
| PO 10.2<br>Land division creating 20 or more allotments 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 10.2<br>None are applicable. |
| Solar Orientation | |
| PO 11.1<br>Land division creating 20 or more allotments for residential purposes facilitates solar access through allotment orientation and allotment dimensions. | DTS/DPF 11.1<br>None are applicable. |

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| PO 1.6<br>Maintenance of on-water infrastructure, including revetment walls, is not impaired by marinas and on-water structures. | DTS/DPF 1.6<br>None are applicable. |
| Environmental Protection | |
| PO 2.1<br>Development is sited and designed to facilitate water circulation and exchange. | DTS/DPF 2.1<br>None are applicable. |

## Open Space and Recreation

### Assessment Provisions (AP)

Desired Outcome (DO)

| 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<br>Recreation facilities are compatible with surrounding land uses and activities. | DTS/DPF 1.1<br>None are applicable. |
| PO 1.2<br>Open space areas include natural or landscaped areas using locally indigenous plant species and large trees. | DTS/DPF 1.2<br>None are applicable. |
| Design and Siting | |
| PO 2.1<br>Open space and recreation facilities address adjacent public roads to optimise pedestrian access and visibility. | DTS/DPF 2.1<br>None are applicable. |
| PO 2.2<br>Open space and recreation facilities incorporate park furniture, shaded areas and resting places. | DTS/DPF 2.2<br>None are applicable. |
| PO 2.3<br>Open space and recreation facilities link habitats, wildlife corridors and existing open spaces and recreation facilities. | DTS/DPF 2.3<br>None are applicable. |
| Pedestrians and Cyclists | |
| PO 3.1<br>Open space incorporates: | DTS/DPF 3.1<br>None are applicable. |

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|---|---|
| (a) pedestrian and cycle linkages to other open spaces, centres, schools and public transport nodes;<br>(b) safe crossing points where pedestrian routes intersect the road network;<br>(c) easily identified access points. | |
| **Usability** | |
| PO 4.1<br>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<br>None are applicable. |
| **Safety and Security** | |
| PO 5.1<br>Open space is overlooked by housing, commercial or other development to provide casual surveillance where possible. | DTS/DPF 5.1<br>None are applicable. |
| PO 5.2<br>Play equipment is located to maximise opportunities for passive surveillance. | DTS/DPF 5.2<br>None are applicable. |
| PO 5.3<br>Landscaping provided in open space and recreation facilities maximises opportunities for casual surveillance throughout the park. | DTS/DPF 5.3<br>None are applicable. |
| PO 5.4<br>Fenced parks and playgrounds have more than one entrance or exit to minimise potential entrapment. | DTS/DPF 5.4<br>None are applicable. |
| PO 5.5<br>Adequate lighting is provided around toilets, telephones, seating, litter bins, bicycle storage, car parks and other such facilities. | DTS/DPF 5.5<br>None are applicable. |
| PO 5.6<br>Pedestrian and bicycle movement after dark is focused along clearly defined, adequately lit routes with observable entries and exits. | DTS/DPF 5.6<br>None are applicable. |
| **Signage** | |
| PO 6.1<br>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<br>None are applicable. |
| **Buildings and Structures** | |
| PO 7.1<br>Buildings and car parking areas in open space areas are designed, located and of a scale to be unobtrusive. | DTS/DPF 7.1<br>None are applicable. |
| PO 7.2<br>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<br>None are applicable. |
| PO 7.3<br>Development in open space is constructed to minimise the extent of impervious surfaces. | DTS/DPF 7.3<br>None are applicable. |
| PO 7.4<br>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<br>None are applicable. |

| Landscaping | |
|---|---|
| PO 8.1<br>Open space and recreation facilities provide for the planting and retention of large trees and vegetation. | DTS/DPF 8.1<br>None are applicable. |
| PO 8.2<br>Landscaping in open space and recreation facilities provides shade and windbreaks:<br>(a) along cyclist and pedestrian routes;<br>(b) around picnic and barbecue areas;<br>(c) in car parking areas. | DTS/DPF 8.2<br>None are applicable. |
| PO 8.3<br>Landscaping in open space facilitates habitat for local fauna and facilitates biodiversity. | DTS/DPF 8.3<br>None are applicable. |
| PO 8.4<br>Landscaping including trees and other vegetation passively watered with local rainfall run-off, where practicable. | DTS/DPF 8.4<br>None are applicable. |

## Out of Activity Centre Development

### Assessment Provisions (AP)

Desired Outcome (DO)

| 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 Outcomes and Deemed to Satisfy / Designated Performance Outcome Criteria

| Performance Outcome | Deemed-to-Satisfy Criteria / Designated Performance Feature |
|---|---|
| PO 1.1<br>Non-residential development outside Activity Centres of a scale and type that does not diminish the role of Activity Centres:<br>(a) as primary locations for shopping, administrative, cultural, entertainment and community services<br>(b) as a focus for regular social and business gatherings<br>(c) in contributing to or maintaining a pattern of development that supports equitable community access to services and facilities. | DTS/DPF 1.1<br>None are applicable. |
| PO 1.2<br>Out-of-activity centre non-residential development complements Activity Centres through the provision of services and facilities:<br>(a) that support the needs of local residents and workers, particularly in underserviced locations<br>(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<br>None are applicable. |

Appendix 1

# Site Contamination

## Assessment Provisions (AP)

Desired Outcome (DO)

| 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 Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Appendix 1

| Performance Outcome | Deemed-to-Satisfy Criteria / Designated Performance Feature |
|---|---|
| PO 1.1<br>Ensure land is suitable for use when land use changes to a more sensitive use. | DTS/DPF 1.1<br>Development satisfies (a), (b), (c) or (d):<br>(a) does not involve a change in the use of land<br>(b) involves a change in the use of land that does not constitute a change to a more sensitive use<br>(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)<br>(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:<br>(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-<br>A. site contamination does not exist (or no longer exists) at the land<br>or<br>B. the land is suitable for the proposed use or range of uses (without the need for any further remediation)<br>or<br>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)<br>and<br>(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). |

Appendix 1

# Transport, Access and Parking

## Assessment Provisions (AP)

Desired Outcome (DO)

| 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<br>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<br>None are applicable. |
| PO 1.2<br>Development is designed to discourage commercial and industrial vehicle movements through residential streets and adjacent other sensitive receivers. | DTS/DPF 1.2<br>None are applicable. |
| PO 1.3<br>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<br>None are applicable. |
| PO 1.4<br>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<br>All vehicle manoeuvring occurs onsite. |
| Sightlines | |
| PO 2.1<br>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<br>None are applicable. |
| PO 2.2<br>Walls, fencing and landscaping adjacent to driveways and corner sites are designed to provide adequate sightlines between vehicles and | DTS/DPF 2.2<br>None are applicable. |

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| pedestrians. | |
| Vehicle Access | |
| PO 3.1<br>Safe and convenient access minimises impact or interruption on the operation of public roads. | DTS/DPF 3.1<br>The access is:<br>(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<br>or<br>(b) not located within 6m of an intersection of 2 or more roads or a pedestrian activated crossing. |
| PO 3.2<br>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<br>None are applicable. |
| PO 3.3<br>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<br>None are applicable. |
| PO 3.4<br>Access points are sited and designed to minimise any adverse impacts on neighbouring properties. | DTS/DPF 3.4<br>None are applicable. |
| PO 3.5<br>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. | DTS/DPF 3.5<br>Vehicle access to designated car parking spaces satisfy (a) or (b):<br>(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<br>(b) where newly proposed, is set back:<br>(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<br>(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<br>(iii) 6m or more from the tangent point of an intersection of 2 or more roads<br>(iv) outside of the marked lines or infrastructure dedicating a pedestrian crossing. |
| PO 3.6<br>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<br>Driveways and access points:<br>(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<br>(b) for sites with a frontage to a public road greater than 20m:<br>(i) a single access point no greater than 6m in width is provided<br>or<br>(ii) not more than two access points with a width of 3.5m each are provided. |
| PO 3.7<br>Access points are appropriately separated from level crossings to avoid interference and ensure their safe ongoing operation. | DTS/DPF 3.7<br>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:<br>(a) 80 km/h road - 110m |

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| | (b) 70 km/h road - 90m<br>(c) 60 km/h road - 70m<br>(d) 50km/h or less road - 50m. |
| PO 3.8<br>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<br>None are applicable. |
| PO 3.9<br>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<br>None are applicable. |
| Access for People with Disabilities | |
| PO 4.1<br>Development is sited and designed to provide safe, dignified and convenient access for people with a disability. | DTS/DPF 4.1<br>None are applicable. |
| Vehicle Parking Rates | |
| PO 5.1<br>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:<br>(a) availability of on-street car parking<br>(b) shared use of other parking areas<br>(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<br>(d) the adaptive reuse of a State or Local Heritage Place. | DTS/DPF 5.1<br>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:<br>(a) Transport, Access and Parking Table 2 - Off-Street Vehicle Parking Requirements in Designated Areas if the development is a class of development listed in Table 2 and the site is in a Designated Area<br>(b) Transport, Access and Parking Table 1 - General Off-Street Car Parking Requirements where (a) does not apply<br>(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<br>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<br>Movement between vehicle parking areas within the site can occur without the need to use a public road. |
| PO 6.2<br>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<br>None are applicable. |
| PO 6.3<br>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<br>None are applicable. |
| PO 6.4<br>Pedestrian linkages between parking areas and the development are provided and are safe and convenient. | DTS/DPF 6.4<br>None are applicable. |
| PO 6.5<br>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<br>None are applicable. |
| PO 6.6<br>Loading areas and designated parking spaces for service vehicles are | DTS/DPF 6.6<br>Loading areas and designated parking spaces are wholly located within |

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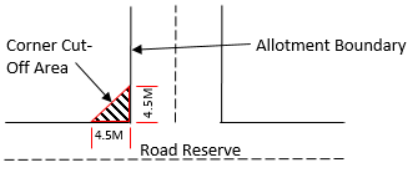
| provided within the boundary of the site. | the site. |
| PO 6.7<br>On-site visitor parking spaces are sited and designed to be accessible to all visitors at all times. | DTS/DPF 6.7<br>None are applicable. |
| **Undercroft and Below Ground Garaging and Parking of Vehicles** | |
| PO 7.1<br>Undercroft 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<br>None are applicable. |
| **Internal Roads and Parking Areas in Residential Parks and Caravan and Tourist Parks** | |
| PO 8.1<br>Internal road and vehicle parking areas are surfaced to prevent dust becoming a nuisance to park residents and occupants. | DTS/DPF 8.1<br>None are applicable. |
| PO 8.2<br>Traffic circulation and movement within the park is pedestrian friendly and promotes low speed vehicle movement. | DTS/DPF 8.2<br>None are applicable. |
| **Bicycle Parking in Designated Areas** | |
| PO 9.1<br>The provision of adequately sized on-site bicycle parking facilities encourages cycling as an active transport mode. | DTS/DPF 9.1<br>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<br>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<br>None are applicable. |
| PO 9.3<br>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<br>None are applicable. |
| **Corner Cut-Offs** | |
| PO 10.1<br>Development is located and designed to ensure drivers can safely turn into and out of public road junctions. | DTS/DPF 10.1<br>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:<br>  <br> |
| **Heavy Vehicle Parking** | |
| PO 11.1<br>Heavy vehicle parking and access is designed and sited so that the activity does not result in nuisance to adjoining neighbours as a result of dust, fumes, vibration, odour or potentially hazardous loads. | DTS/DPF 11.1<br>Heavy vehicle parking occurs in accordance with the following:<br>(a) the site is not located within a Neighbourhood-type zone (except a Rural Living Zone)<br>(b) the site is a minimum of 0.4 ha |

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| | (c) where the site is 2 ha or more, no more than 2 vehicles exceeding 3,000 kilograms each (and trailers associated) are parked on the allotment at any time<br>(d) where the site is between 0.4 ha and 2 ha, only one vehicle exceeding 3,000 kilograms (and one trailer) are to be parking on the allotment at any time<br>(e) the vehicle parking area achieves the following setbacks:<br>(i) behind the building line or 30m, whichever is greater<br>(ii) 20m from the secondary street if it is a State Maintained Road<br>(iii) 10m from the secondary street if it is a local road<br>(iv) 10m from side and rear boundaries<br>(f) parking and access areas (including internal driveways) should be sealed or have a surface that can be treated and maintained to minimise dust and mud nuisance<br>(g) does not include refrigerated trailers or vehicles<br>(h) vehicles only enter and exit the property in accordance with the following hours:<br>(i) Monday to Saturday 6:00am and 9:30pm<br>(ii) Sunday and public holidays between 9:30 am and 7:00 pm<br>(i) the handling or trans-shipment of freight is not carried out on the property. |
| PO 11.2<br>Heavy vehicle parking ensures that vehicles can enter and exit a site safely and without creating a hazard to pedestrians and other vehicular traffic. | DTS/DPF 11.2<br>Heavy vehicles:<br>(a) can enter and exit the site in a forward direction; and<br>(b) operate within the statutory mass and dimension limited for General Access Vehicles (as prescribed by the National Heavy Vehicle Regulator). |
| PO 11.3<br>Heavy vehicle parking is screened through siting behind buildings, screening, landscaping or the like to obscure views from adjoining properties and public roads. | DTS/DPF 11.3<br>None are applicable. |

## 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)<br><br>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.<br><br>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.<br><br>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.<br><br>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.<br><br>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. |

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| | 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.<br><br>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.<br><br>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.<br><br>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 facility | Dwelling with 1 or 2 bedrooms (including rooms capable of being used as a bedroom) - 1 space per dwelling.<br><br>Dwelling with 3 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling.<br><br>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.<br><br>Dwelling with 3 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling.<br><br>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 and tourist park | Parks with 100 sites or less - a minimum of 1 space per 10 sites to be used for accommodation.<br><br>Parks with more than 100 sites - a minimum of 1 space per 15 sites used for accommodation.<br><br>A minimum of 1 space for every caravan (permanently fixed to the ground) or cabin. |
| Tourist accommodation other than a caravan and tourist park | 1 car parking space per accommodation unit / guest room. |
| Commercial Uses | |
| Auction room/ depot | 1 space per 100m2 of building floor area plus an additional 2 spaces. |
| Automotive collision repair | 3 spaces per service bay. |
| Motor repair station | 3 spaces per service bay. |
| Office | For a call centre, 8 spaces per 100m2 of gross leasable floor area<br><br>In all other cases, 4 spaces per 100m2 of gross leasable floor area. |
| Retail fuel outlet | 3 spaces per 100m2 gross leasable floor area. |
| Service trade premises | 2.5 spaces per 100m2 of gross leasable floor area<br><br>1 space per 100m2 of outdoor area used for display purposes. |
| Shop (no commercial kitchen) | 5.5 spaces per 100m2 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. |

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| | 5 spaces per 100m2 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 100m2 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.<br><br>Premises with take-away service but with no seats - 12 spaces per 100m2 of total floor area plus a drive-through queue capacity of ten vehicles measured from the pick-up point.<br><br>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 | |
| Community facility | For a library, 4 spaces per 100m2 of total floor area.<br><br>For a hall/meeting hall, 0.2 spaces per seat.<br><br>In all other cases, 10 spaces per 100m2 of total floor area. |
| Educational facility | 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.<br><br>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.<br><br>For a tertiary institution - 0.4 per student based on the maximum number of students on the site at any time. |
| Place of worship | 1 space for every 3 visitor seats. |
| Child care facility | For a child care centre, 0.25 spaces per child<br><br>In all other cases, 1 per employee plus 0.25 per child (drop off/pick up bays). |
| Health Related Uses | |
| Consulting room | 4 spaces per consulting room excluding ancillary facilities. |
| Hospital | 4.5 spaces per bed for a public hospital.<br><br>1.5 spaces per bed for a private hospital. |
| Recreational and Entertainment Uses | |
| Cinema complex | 0.2 spaces per seat. |
| Concert hall / theatre | 0.2 spaces per seat. |
| Hotel | 1 space for every 2m2 of total floor area in a public bar plus 1 space for every 6m2 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 100m2 of total floor area for a Fitness Centre<br><br>4.5 spaces per 100m2 of total floor area for all other Indoor recreation facilities. |
| Industry/Employment Uses | |
| Fuel depot | 1.5 spaces per 100m2 total floor area<br><br>1 spaces per 100m2 of outdoor area used for fuel depot activity purposes. |
| Industry | 1.5 spaces per 100m2 of total floor area. |
| Store | 0.5 spaces per 100m2 of total floor area. |
| Timber yard | 1.5 spaces per 100m2 of total floor area<br><br>1 space per 100m2 of outdoor area used for display purposes. |
| Warehouse | 0.5 spaces per 100m2 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 100m2 of total building floor area. |

Appendix 1

# Part 11 - Heritage Places

## Local Heritage Places

### Norwood Payneham and St Peters

| Property Address | Description and/or Extent of Listed Place | Section 67(1) Criteria | Heritage NR |
|---|---|---|---|
| 46 Richmond Street HACKNEY | Dwelling (Former Park Farm Barn); Whole of the building, excluding the later porch additions on the eastern elevation, lean-to additions on the western elevation and lower brick and framed structure to the north. | a | 6407 |

Appendix 1

# Part 11 - Heritage Places

## Local Heritage Places

### Norwood Payneham and St Peters

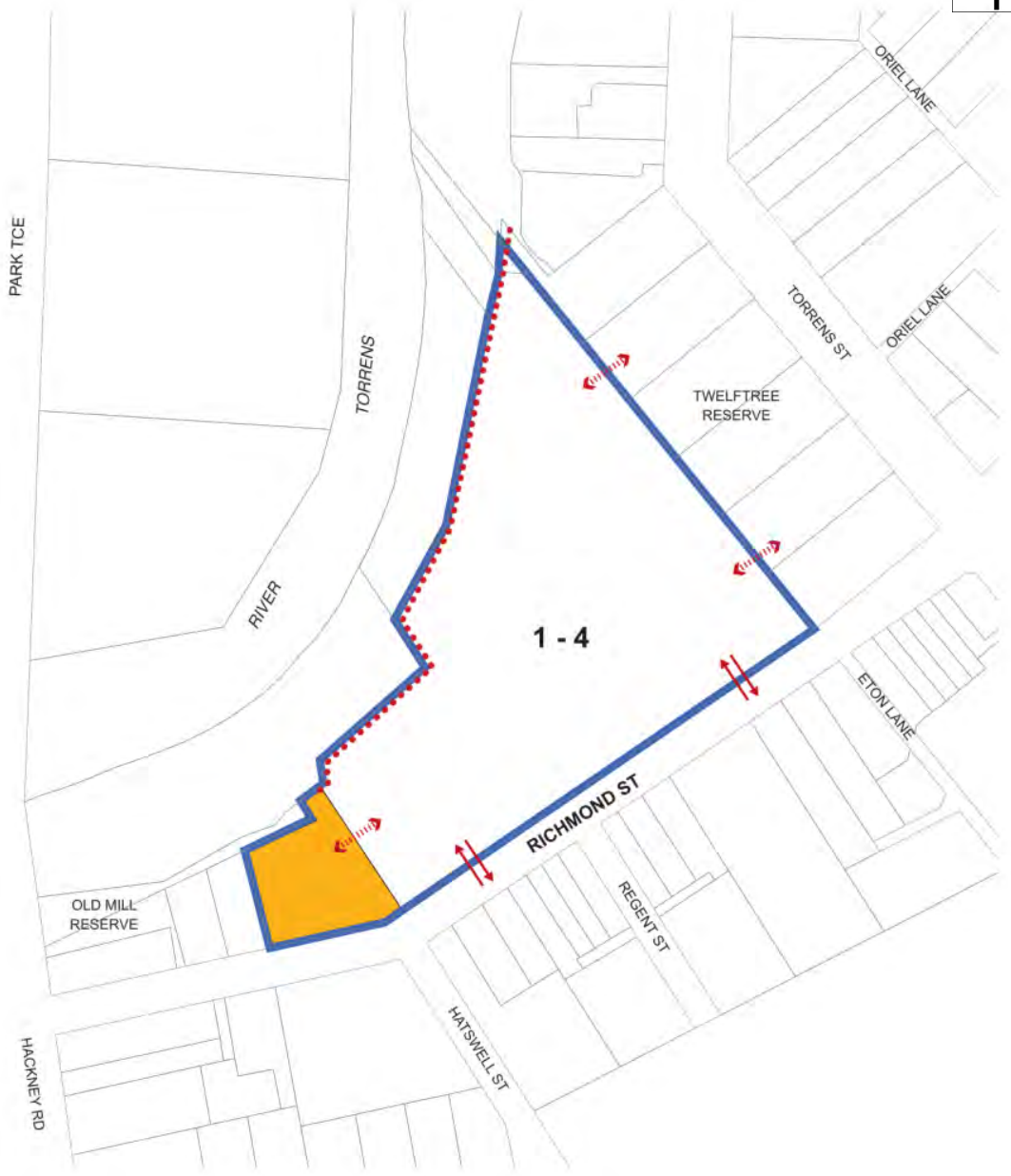
| Property Address | Description and/or Extent of Listed Place | Section 67(1) Criteria | Heritage NR |
|---|---|---|---|
| 36 Richmond Street HACKNEY | Uniting Church; Original 1906 building fabric fronting Richmond Street including main hall and two classrooms but excluding the rear additions. | a c | 6406 |

# Part 12 - Concept Plans

## Norwood Payneham St Peters

### Concept Plan 82: Hackney

Appendix 1




1 - 4 Building Height Range (Maximum building height for 24-46 Richmond Street, Hackney is 4 storeys, except dwellings fronting Richmond Street, which should not exceed 1 storey and dwellings fronting Twelftree and Old Mill Reserves, which should not exceed 2 storeys)

Concept Plan Boundary

Existing Public Car Park

Indicative Pedestrian/Cycle Path to link with the existing Linear Park Pedestrian / Cycle Path

Indicative Future Pedestrian Link

Indicative Vehicle Access

N

0 metres 25 50 75 100 125

# Concept Plan 82
## HACKNEY

# Attachment 1.1

| | |
|---|---|
| EXISTING ALLOTMENTS | 11 |
| PROPOSED ALLOTMENTS | 47 |
| TOTAL DEVELOPABLE AREA | 1.399Ha APPROX |
| RESERVE REQUIRED (12.5%) | 1749m² |
| RESERVE PROVIDED | 748m² APPROX |
| APPROX LENGTH OF NEW ROAD | 295m |

AUTHORITY FOR ELEVATIONS AUST HEIGHT DATUM
ORIGIN FOR THIS SURVEY PSM

DATA SHOWN HEREON IS APPROXIMATE ONLY AND SUBJECT TO CALCULATION FROM APPROVED OUTER BOUNDARY SURVEY DATA

VOUCHED FOR IN ACCORDANCE WITH SCHEDULE 8 (7) (3) OF THE PLANNING, DEVELOPMENT AND INFRASTRUCTURE (GENERAL) REGULATIONS 2017

21/11/2024

LICENSED SURVEYOR DATED

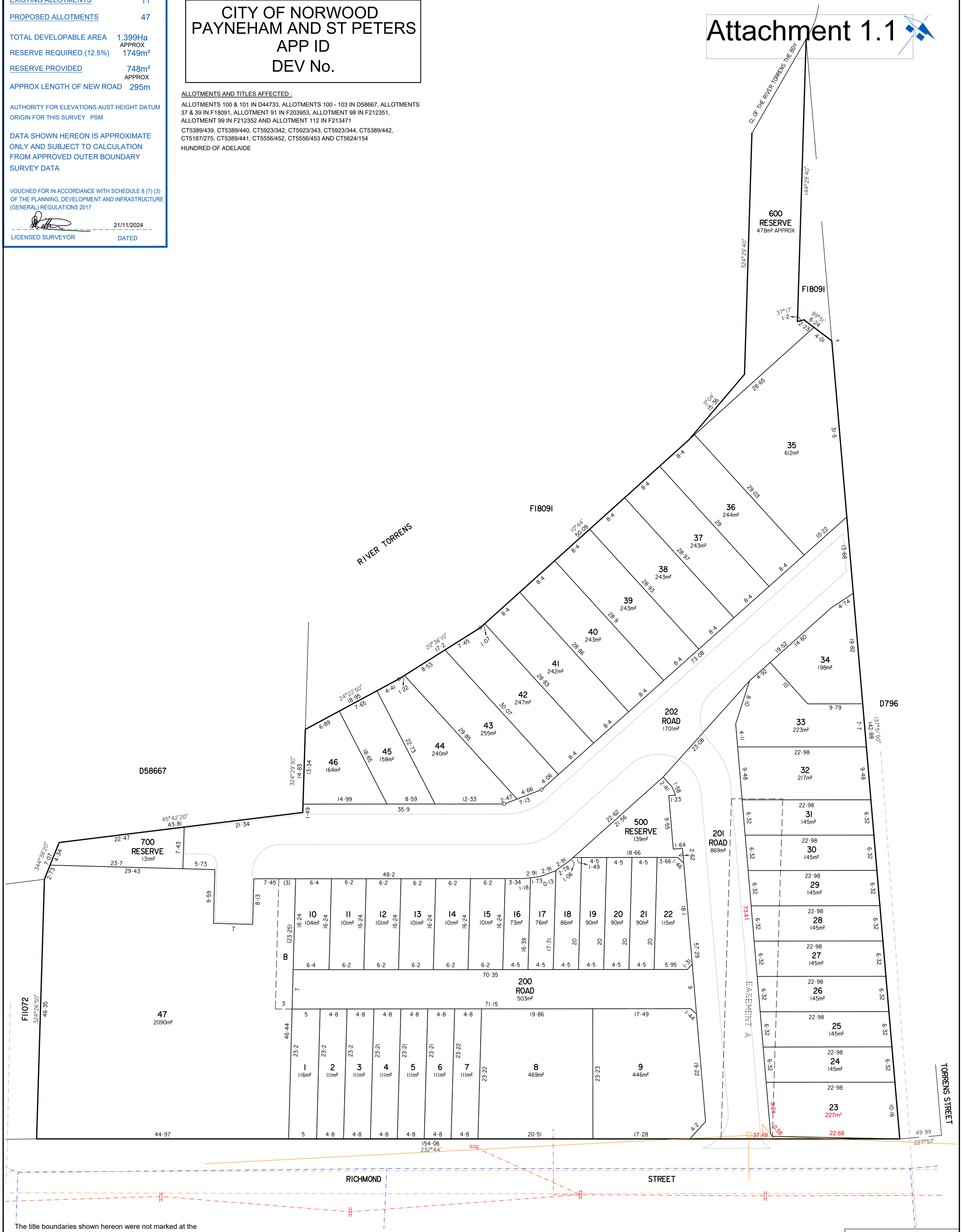
# CITY OF NORWOOD PAYNEHAM AND ST PETERS
# APP ID
# DEV No.

ALLOTMENTS AND TITLES AFFECTED :

ALLOTMENTS 100 & 101 IN D44733, ALLOTMENTS 100 - 103 IN D58667, ALLOTMENTS 37 & 39 IN F18091, ALLOTMENT 91 IN F203953, ALLOTMENT 98 IN F212351, ALLOTMENT 99 IN F212352 AND ALLOTMENT 112 IN F213471

CT5389/439, CT5389/440, CT5923/342, CT5923/343, CT5923/344, CT5389/442, CT5187/275, CT5389/441, CT5556/452, CT5556/453 AND CT5624/154

HUNDRED OF ADELAIDE




The title boundaries shown hereon were not marked at the time of survey and have been determined by plan and title dimensions only and not by field measurement. If the dimensions or description of the subject land are critical for the design of new structures or financial decisions, then we recommend that an identification survey or certified survey be undertaken.

EXISTING RIGHT(S) OF WAY OVER THE LAND MARKED A ON ALLOTMENT 100 IN D44733 TO BE EXTINGUISHED - REFER TO CT5389/439

PORTION OF ALLOTMENT 47 MARKED B IS TO BE SUBJECT TO A SERVICE EASEMENT FOR DRAINAGE PURPOSES IN FAVOUR OF THE COUNCIL FOR THE AREA

**LEGEND**
(ALL SERVICES ARE APPROXIMATE ONLY)
- WATER PIPE
- SEWER PIPE
- OVERHEAD POWER CABLE
- STOBIE POLE

ORIGINAL SIZE A1


FYFE
ADELAIDE
L2, 124 South Terrace
Adelaide SA 5000
GPO Box 2450
Adelaide SA 5001
T 61 8 8201 9600
www.fyfe.com.au


PLAN DETAILS
COUNCIL : SEE ABOVE
MAP SHEET : 6628-42-a
CT REFS : SEE ABOVE

0 7.5 15 22.5 30
SCALE METRES
SCALE 1: 300 @ A1

LEVEL DATUM : DATA FILE/S :
LEVEL AUTHORITY : SURVEYOR :
CO-ORD DATUM :

| NO. | REVISION | STAFF | CHECK | DATE |
|---|---|---|---|---|
| 5 | ADD SHT 5 ARCHITECT UNDERLAY | SR | MRP | 22/04/25 |
| 11 | AMENDED LOT 23 AT INTERSECTION | SR | MRP | 07/10/25 |
| 10 | AMEND LOT 47, ROAD 202 & EASMT B | KGH | MRP | 30/09/25 |
| 9 | AMEND 500 RESERVE FOR CARPARKS | KGH | MRP | 18/08/25 |
| 8 | ADD EASEMENT B TO LOT 47 | KGH | MRP | 07/08/25 |
| 7 | AMENDED LOT 47, ROAD | SR | MRP | 24/04/25 |

ASPEN GROUP
PROPOSED SUBDIVISION
HACKNEY - ON - TORRENS
RICHMOND STREET
HACKNEY
DRAWING : 66966-3-1-SV-PR1-R11.dwg

INSTRUCTION 66966-3
DATE 07/10/2025
SHEET 1 OF 4
REV. 11

Attachment 1.1

# RICHMOND ST. LANDSCAPE MASTERPLAN

| | |
|---|---|
| Address | 46 Richmond St, Hackney SA 5069 |
| Ref No. | 21.049 |
| Client | Aspen Group |
| Architect | GGA (Build to Rent Co-living) |
| Architect | Forum (Masterplan) |
| Traffic | MFY |
| Planning | URPS |
| Civil | WGA |
| Date | 08.08.2025 |
| Issue | Planning |

Response to Council RFI - Shared Path Amendments
02.04.2025

Additional RFI - Street Tree Plantings and Street Lighting

1. Details of tree species and planting locations, and details of street lighting locations, are provided on a site plan that can form part of the stamped documentation (and added to the description of the development).


| | |
|---|---|
| 02 | Location |
| 03 | Existing Site & Considerations |
| 04 | Existing Site |
| 05 | Landscape Approach |
| 06 | Proposed Character |
| 09 | Site Masterplan |
| 10 | Landscape Plan A |
| 11 | Landscape Plan B |
| 12 | Proposed Trees |
| 14 | Proposed Shared Path |
| 15 | Movement |
| 16 | Materials & Elements |
| 17 | Proposed Planting |


LANDSKAP

# LOCATION

Attachment 1.1

# EXISTING SITE & CONSIDERATIONS

Attachment 1.1

# EXISTING SITE

Attachment 1.1

1. Torrens Linear Trail
2. Old Mill Reserve and Carpark
3. Richmond Street
4. Twelftree Reserve

New path connection has been constructed here

# LANDSCAPE APPROACH

## Connected

- Create an integrated path network that connects into the existing trails
- Consider new connections that improve safety and amenity

## Green Streets

- Regular tree planting to provide shade
- Consider tree planting within private properties to supplement  street greening
- Consider additional trees within Richmond Street
- Permeable paving and integrated WSUD

## Pedestrianised

- Careful management of cars and parking to provide a safe pedestrian environment within the development
- Prioritise pedestrian and cyclist movement through the site

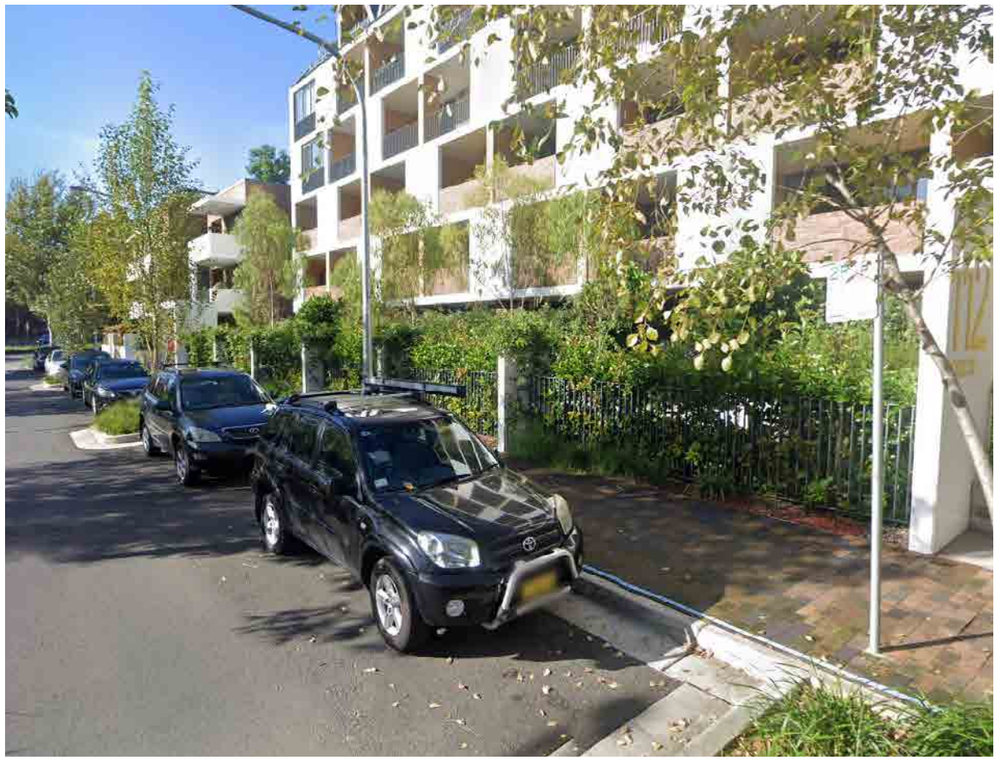
## Open & Inclusive

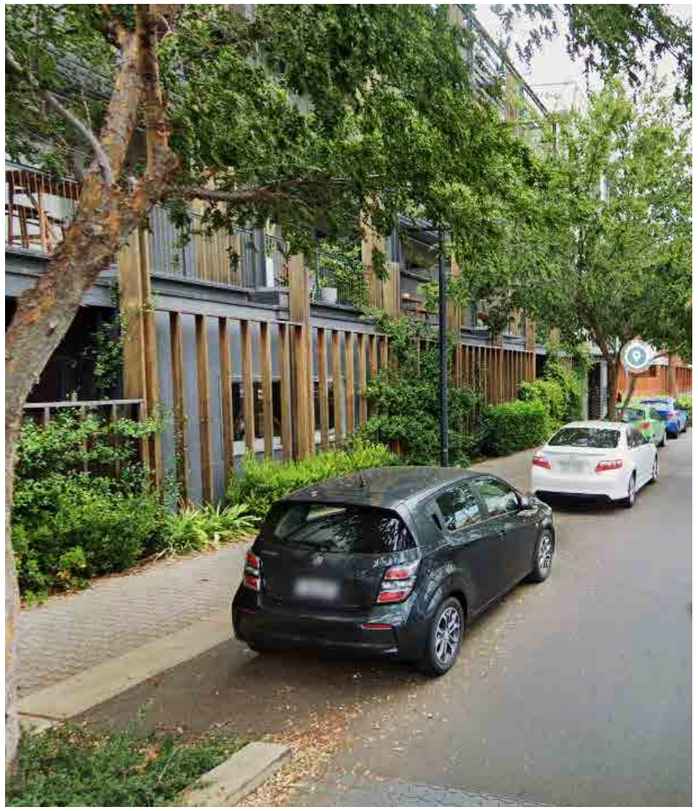
- An outward focused development with active edges
- Consider how the site amenities can spill out and engage with surrounding public realm

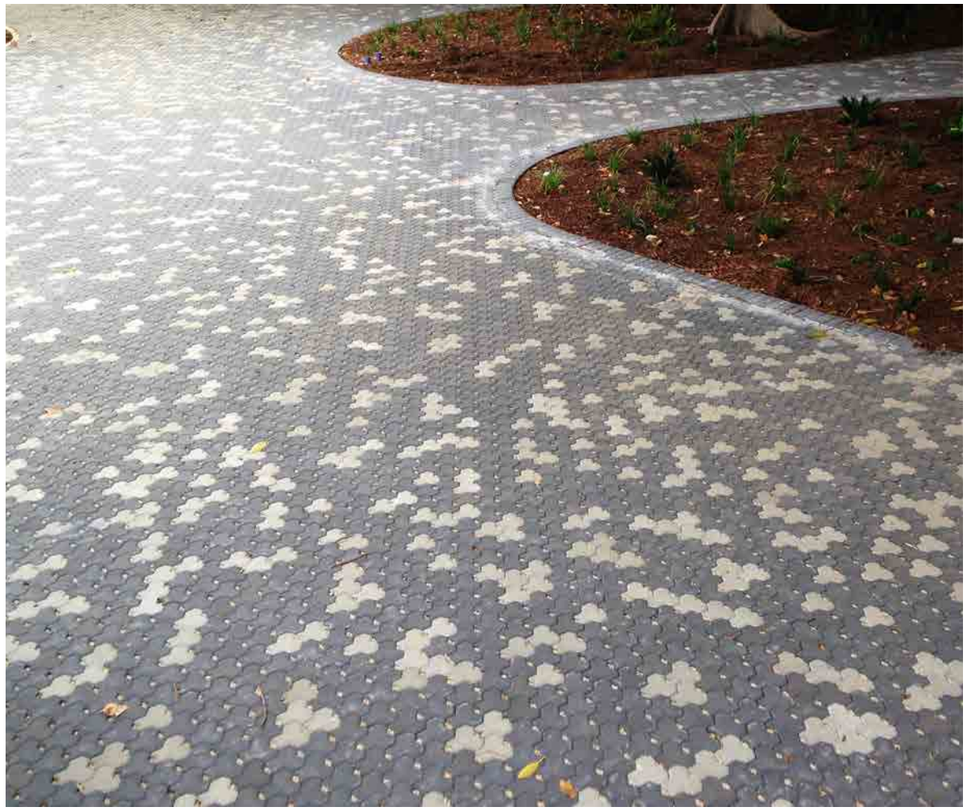
# PUBLIC REALM CHARACTER

# STREETSCAPE CHARACTER

It is noted that as per the WGA Stormwater Report, all roads and public carparking areas are to be a permeable paver. We support this outcome. This pavement will promote a slow speed pedestrianised environment as well as providing excellent growing conditions for trees.







# TOWNHOUSE CHARACTER

# SITE MASTERPLAN

Attachment 1.1

Property Boundary

*All works beyond the boundary are indicative only and subject to discussions with Council

North

1:1000 / A3

0 5 10 20 50

# LANDSCAPE PLAN A

Attachment 1.1

Indicative light poles subject to detailed lighting analysis

Designated bin zone. Refer to traffic for all nominated bin zones

Low maintenance Urban Forest: Trees within compacted sand / gravel with stone seating logs.

Additional 90 degree visitor parking

*All works beyond the boundary are indicative only and subject to discussions with Council

- Property Boundary
- Existing Tree
- New Tree
- Irrigated garden bed
- Paved threshold
- Footpath / Shared Use Path
- Compacted sand
- Possible trees for removal (subject to discussions with council)
- Permeable Pavement
- Shared Path lateral clearance

1. New path (subject to discussions with council)
2. Seating node
3. Cafe spill-out
4. Bin Refuge
5. Permanent bollards
6. Existing site entry
7. New site entry
8. Shared use path
9. Possible future public footpath

North

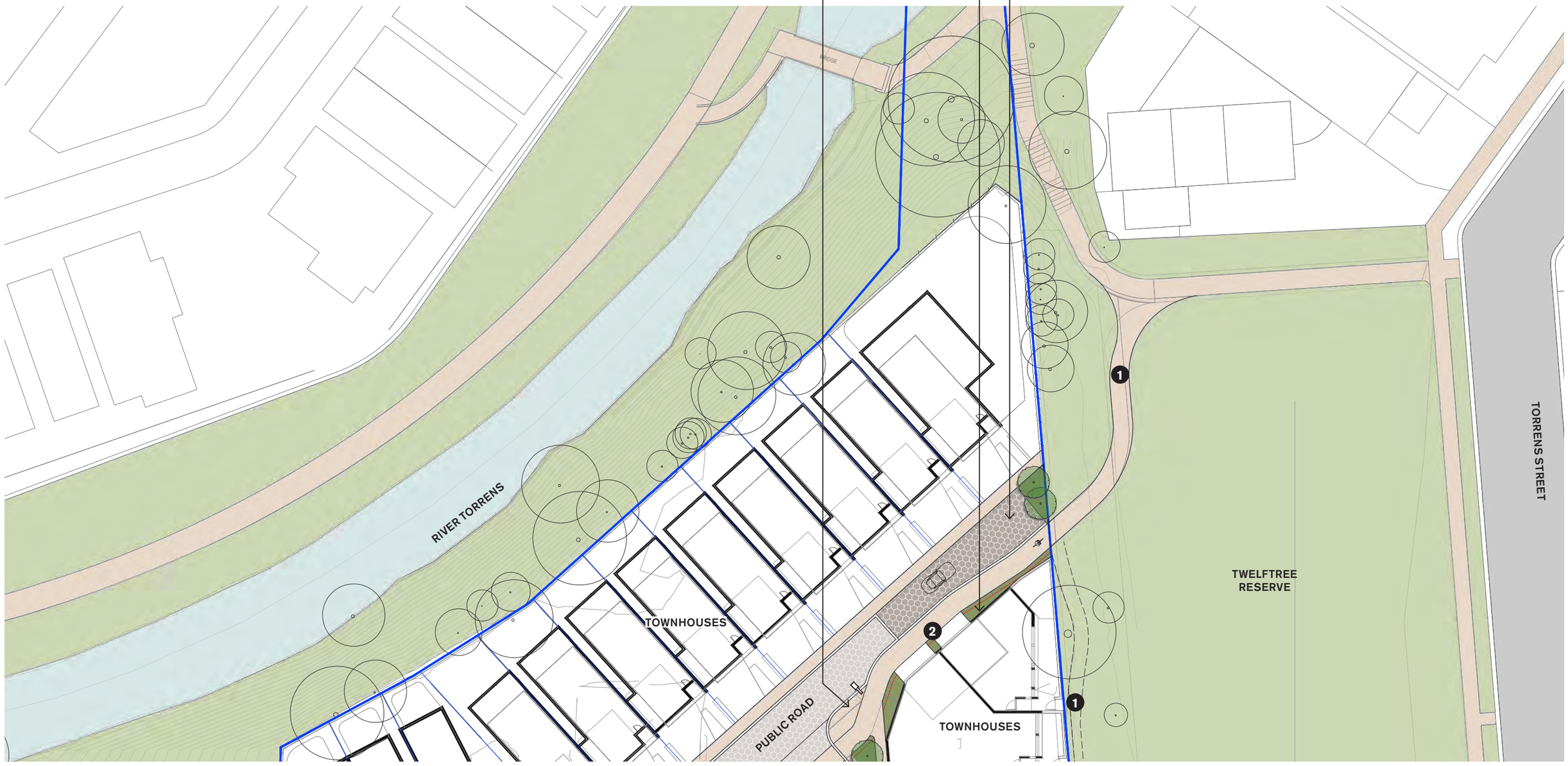
1:500 / A3

0 2.5 5 10 25

# LANDSCAPE PLAN B

Attachment 1.1

*All works beyond the boundary are indicative only and subject to discussions with Council




- Property Boundary
- Existing Tree
- New Tree
- Irrigated garden bed
- Paved threshold
- Footpath / Shared Use Path
- Compacted sand
- Possible trees for removal (subject to discussions with council)
- Permeable Pavement
- Shared Path lateral clearance
- 1 New path (subject to discussions with council)
- 2 Shared use path

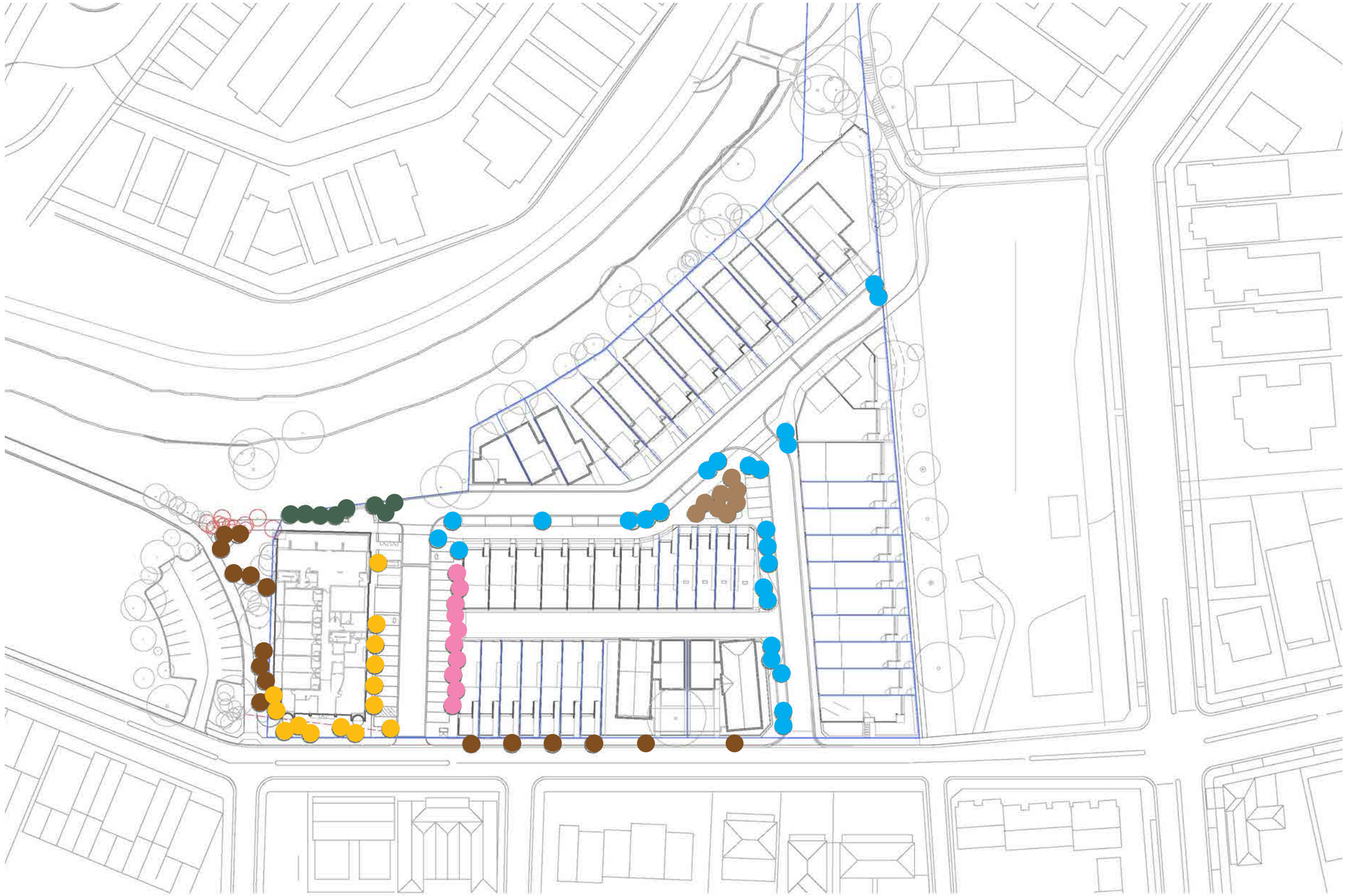
North

1:500 / A3

0 2.5 5 10 25

# PROPOSED TREES

Attachment 1.1



- Lagerstroemia ‘Natchez’
- Cupaniopsis anacardioides
- Eucalyptus leucoxylon 'Dwarf'
- Subject to discussions with Council
- Gleditsia shademaster
  Jacaranda
- Ginkgo biloba

*All works beyond the boundary are indicative only and subject to discussions with Council

All trees are subject to discussions with Council.

Minimum tree size to be 45Ltr.

All trees to be irrigated.

North

1:1000 / A3

0 5 10 20 50

# PROPOSED TREE SPECIES

Attachment 1.1

**GLEDITSIA TRIACANTHOS**

'Shademaster'

H 7m W 5m

**JACARANDA MIMOSIFOLIA**

Jacaranda

H 10m W 7m

**GINKGO BILOBA**

Fruitless Ginkgo

H 15m W 5m

**EUCALYPTUS LEUCOXYLON 'DWARF'**

'Euky Dwarf'

H 6m W 5m

**CUPANIOPSIS ANACARDIOIDES**

Tuckeroo

H 5m W 7m

**LAGERSTROEMIA 'NATCHEZ'**

Crepe Myrtle 'Natchez'

H 5m W 4m

- Lagerstroemia 'Natchez'
- Cupaniopsis anacardioides
- Eucalyptus leucoxylon 'Dwarf'
- Subject to discussions with Council
- Gleditsia shademaster
  Jacaranda
- Ginkgo biloba
  Acer freemanii

*All works beyond the boundary are indicative only and subject to discussions with Council

All trees are subject to discussions with Council.

Minimum tree size to be 45Ltr.

All trees to be irrigated.

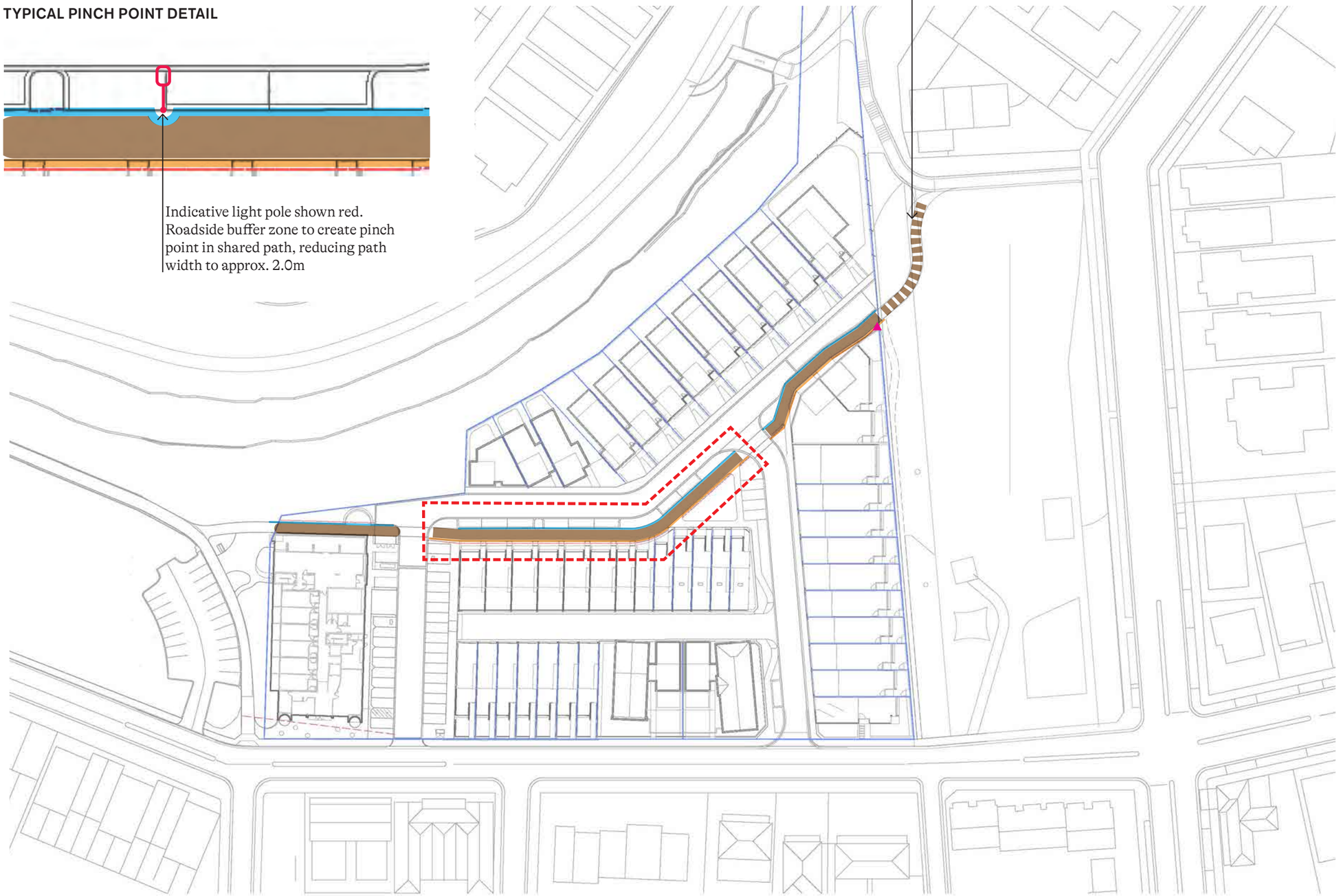
Attachment 1.1

# PROPOSED SHARED PATH

## TYPICAL PINCH POINT DETAIL



Indicative light pole shown red. Roadside buffer zone to create pinch point in shared path, reducing path width to approx. 2.0m




- 2.5m shared path, min. 2.0m at pinch points.
- 0.5m dwelling buffer
- 0.5m roadside buffer
- Speed restriction signage to shared path users
- Potential pinch point zone

### Proposed Design

- Raised shared path from road reserve to delineate pedestrian and vehicle zones
- Minimum 2.5m paved path width throughout site
- 2.0m pinch points for light poles only required where adjacent car parking. Refer pinch point zone
- Minimum 0.5m clearance either side of path from obstructions, including car door opening allowance of 500mm

### DIT Guidelines

Shared Path Requirements:

- Min. 2.4m two-way cycle path width
- 2m at isolated constrained locations

### Austroads Guidelines

Shared Path Requirements:

- 2.0-3.0m path width
- Lesser width where cycle speeds remain low

North

1:1000 / A3

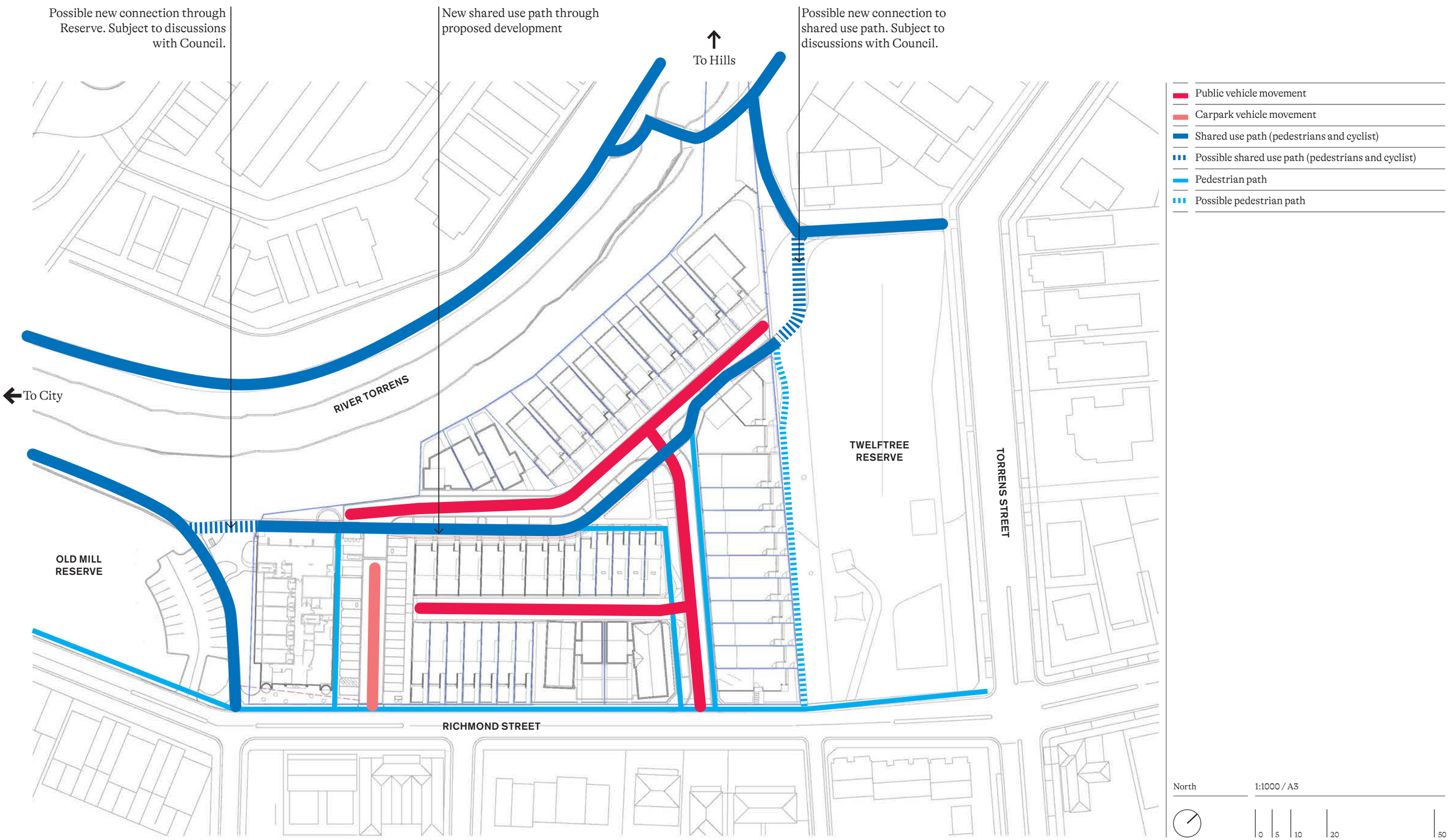
0 5 10 20 50

# PROPOSED URBAN FOREST

North

0 2.5 5 10

# SITE MOVEMENT



# MATERIALS & ELEMENTS

Attachment 1.1

↑ PERMEABLE PAVING - ROADS & CARPARKING

↑ INSITU CONCRETE - FOOTPATHS

↑ COMPACTED SAND / GRAVEL - URBAN FOREST

↑ SANDSTONE SEATING LOGS

↑ OUTDOOR FURNITURE

↑ ENTRY STEPPERS

↑ MASONRY WALLS

↑BIKE RACKS

# PROPOSED PLANTING

## GENERAL PLANTING & MAINTENANCE

1. The proposed planting mix has been designed to provide appropriate scale, greening and visual amenity for the project.
2. All new garden beds and trees within private and communal areas to have automatic irrigation.
3. Private owners will be responsible for the ongoing maintenance of gardens within their property.
4. The body corporate will be responsible for the maintenance of all common areas.
5. All planting requires frequent & ongoing irrigation.
6. Minimum 300mm new topsoil to be provided to all garden beds.
7. A detailed maintenance schedule and specification to be developed with Tender Documentation.

## STREETSCAPE SPECIES

— Lomandra Sp.
— Grevillea ‘Gin Gin Gem’
— Rhaphiolepis oriental pearl
— Dianella little jess

## URBAN FOREST SPECIES

— Austrostipa sp.
— Dianella 'Little Jess'
— Doryanthes excelsa
— Grevillea ‘Gin Gin Gem’
— Lomandra sp.
— Pennisetum ‘Nafray’
— Poa 'Kingsdale'
— Westringia sp.

Urban Design, Landscape
Architecture & Gardens

hello@landskap.com.au
landskap.com.au

LANDSKAP

Scale Bar Units in Millimetres

10 20 30 40 50 100 150 200 250 300 350 400 450 500 550 600 650 700

A1 Sheet

1 - LOCATION PLAN

1 : 1000

## DRAWING SCHEDULE

| Sheet | Name |
|---|---|
| DA00 | TITLE SHEET |
| DA01 | SITE PLAN & DEMOLITION PLAN |
| DA21 | UNDERCROFT, LOBBY & GROUND FLOOR PLAN |
| DA22 | FIRST, TYPICAL FLOOR PLAN |
| DA23 | ROOF PLAN |
| DA31 | ELEVATIONS - SHEET 1 |
| DA32 | ELEVATIONS - SHEET 2 |
| DA33 | ELEVATIONS - SHEET 3 |
| DA41 | SECTIONS - SHEET 1 |
| DA42 | SECTIONS - SHEET 2 |
| DA44 | SHADOW DIAGRAMS |
| DA81 | AREA & YIELD PLAN |

PLOT FILE DATE: 2/12/2024 10:24:39 AM PLOT FILE LOCATION: C:\Users\benv\Documents\23122_ADELAIDE CARAVAN PARK_APARTMENTS_DD_R23_benvNVQBW.rvt

Legend

Attachment 1.2

| Rev. | Date | Description | Ver. | Appr. |
|---|---|---|---|---|
| P2 | 25.11.24 | PLANNING ISSUE | BV | HW |

Drawing Status

PLANNING ISSUE

Services

LUCID CONSULTING AUSTRALIA

LUCID Consulting Australia Pty Ltd
Level 6, 80 Flinders Street, Adelaide, SA
5000 telephone: +61 8 8407 9700
email: adelaide@lucidconsulting.com.au
www.lucidconsulting.com.au

Structural

WGA

Wallbridge Gilbert Aztec
60 Wyatt Street, Adelaide S.A. 5000
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facsimile: 61 8 8232 0967
email: adelaide@wga.com.au

GRIEVE GILLETT ARCHITECTS

243 Pirie Street Adelaide
South Australia 5000

T +61 8232 3626
admin@ggarc.com.au

ggarc.com.au

Project

BUILD TO RENT - CO - LIVING

46 RICHMOND ST, HACKNEY SA 5069

Drawing Title

TITLE SHEET

Do not scale drawings. Use figured dimensions only. This drawing is to be read in conjunction with all relevant contracts, specifications, reports and drawings. Check and verify levels and dimensions on site prior to commencement of any work, preparation of shop drawings or fabrication of components. Copyright of this drawing is vested in Grieve Gillett Pty. Ltd.

Scale (at A1) 1 : 1000

| Job No. | Drawing No. | Issue |
|---|---|---|
| 23122 | DA00 | P2 |

Scale Bar Units in Millimetres

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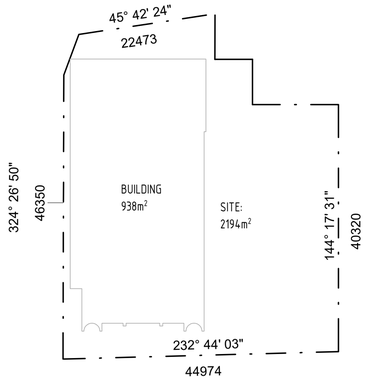
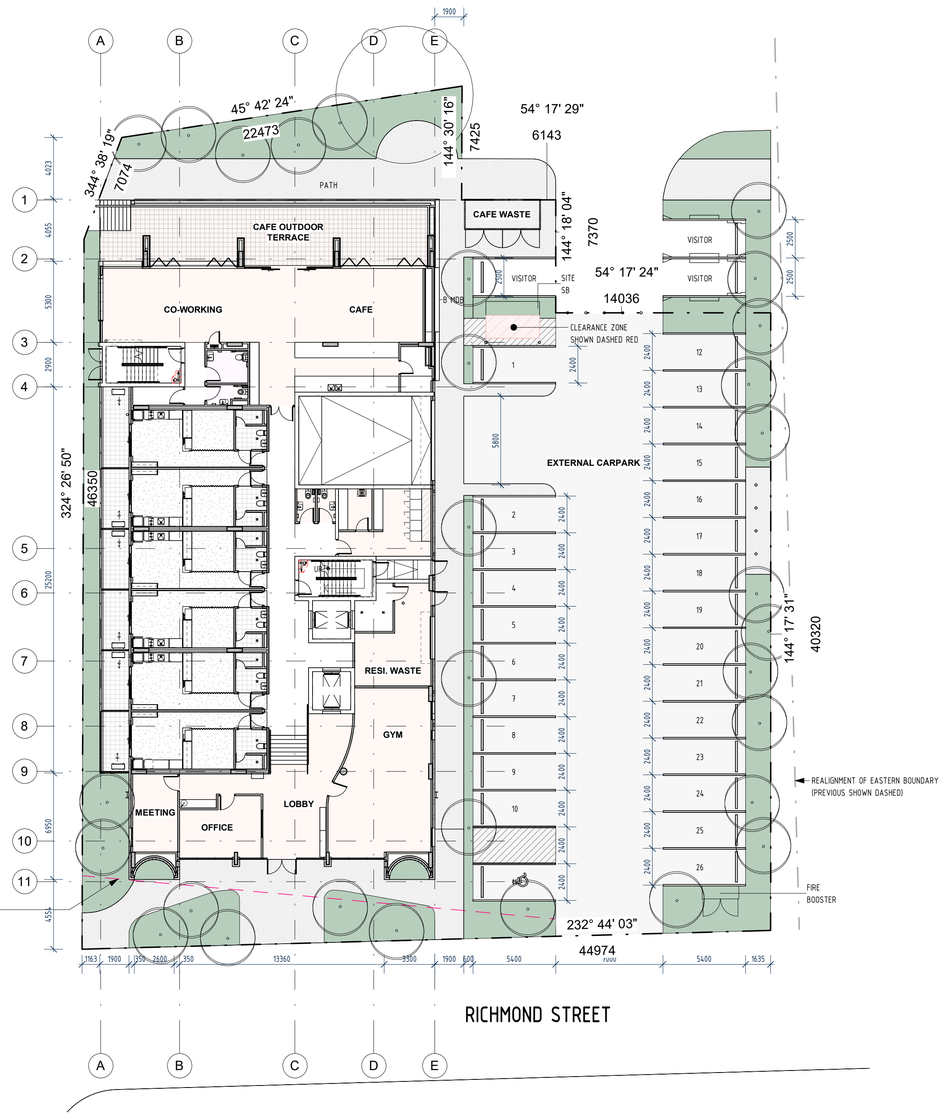
A1 Sheet



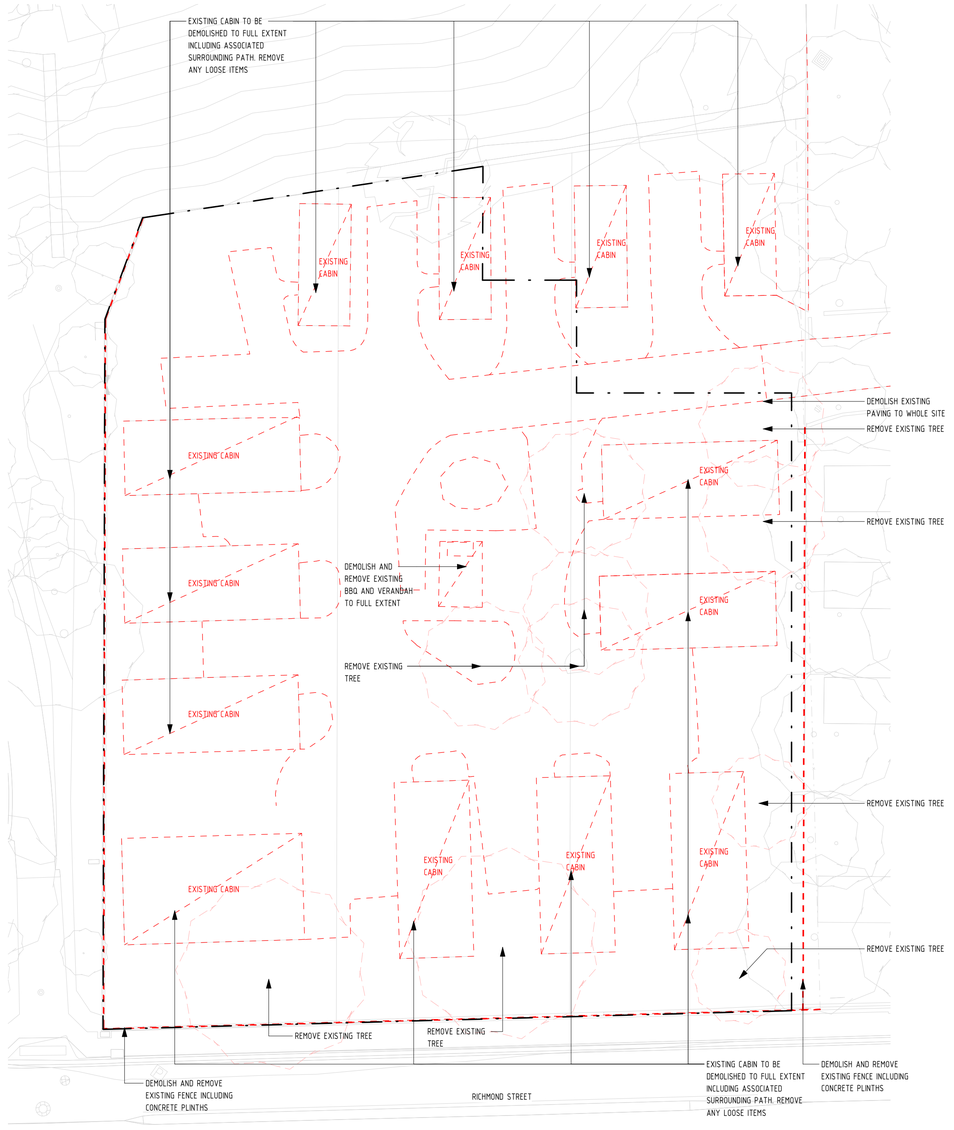

3 DA31 SITE AREA PLAN

1 : 500




- SITE PLAN

1 : 200




- SITE PLAN - DEMOLITION PLAN

1 : 200

Legend

# Attachment 1.2

| Rev. | Date | Description | Ver. | Appr. |
|---|---|---|---|---|
| P3 | 18.12.24 | PLANNING RFI | BV | HW |
| P2 | 25.11.24 | PLANNING ISSUE | BV | HW |

Drawing Status

PLANNING ISSUE


Services

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ggarc.com.au


Project

BUILD TO RENT - CO - LIVING

46 RICHMOND ST, HACKNEY SA 5069

Drawing Title

SITE PLAN & DEMOLITION PLAN

PN


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Scale (at A1)

As indicated

| Job No. | Drawing No. | Issue |
|---|---|---|
| 23122 | DA01 | P3 |

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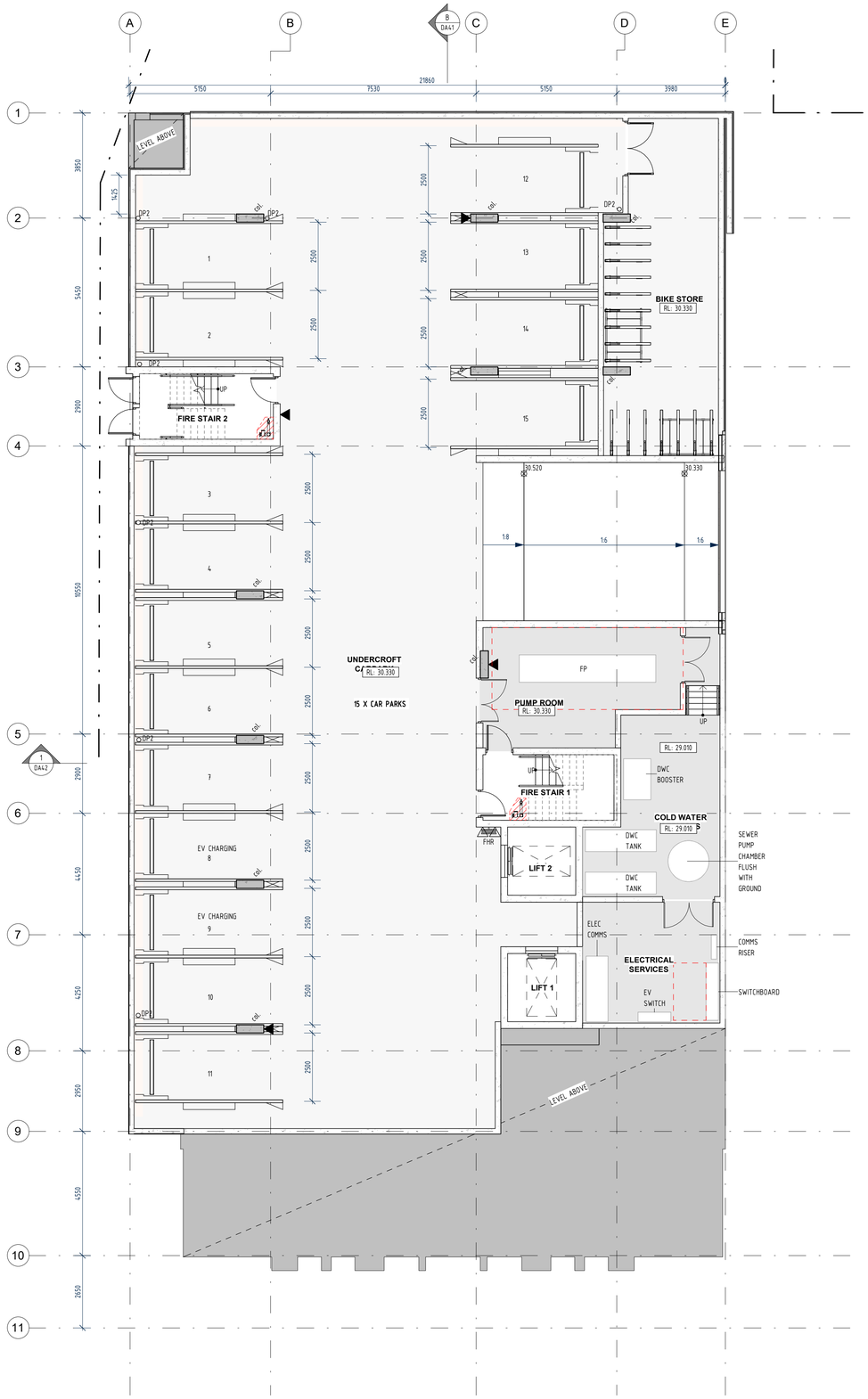
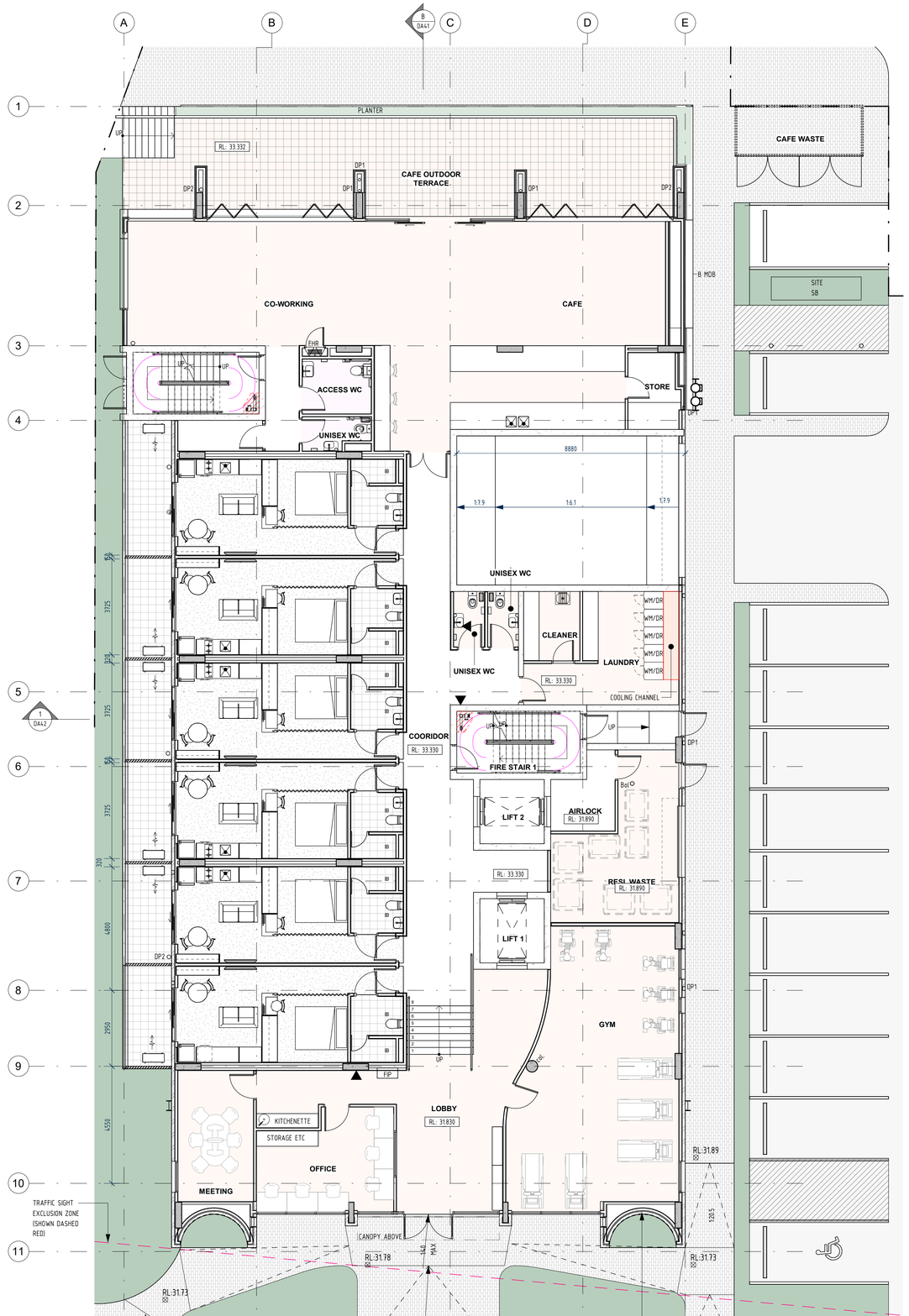
Scale Bar Units in Millimetres

A1 Sheet




1 UNDERCROFT FLOOR PLAN
1 : 100




2 LOBBY & GROUND FLOOR PLAN
1 : 100

PLOT FILE DATE: 18/12/2024 12:33:05 PM PLOT FILE LOCATION: C:\Users\benv\Documents\23122_ADELAIDE CARAVAN PARK_APARTMENTS_DD_R23_benvMVQBW.rvt

Legend

# Attachment 1.2

| Rev. | Date | Description | Ver. | Appr. |
|---|---|---|---|---|
| P3 | 18.12.24 | PLANNING RFI | BV | HW |
| P2 | 25.11.24 | PLANNING ISSUE | BV | HW |

Drawing Status: PLANNING ISSUE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Project: BUILD TO RENT - CO - LIVING

46 RICHMOND ST, HACKNEY SA 5069

Drawing Title: UNDERCROFT, LOBBY & GROUND FLOOR PLAN

PN


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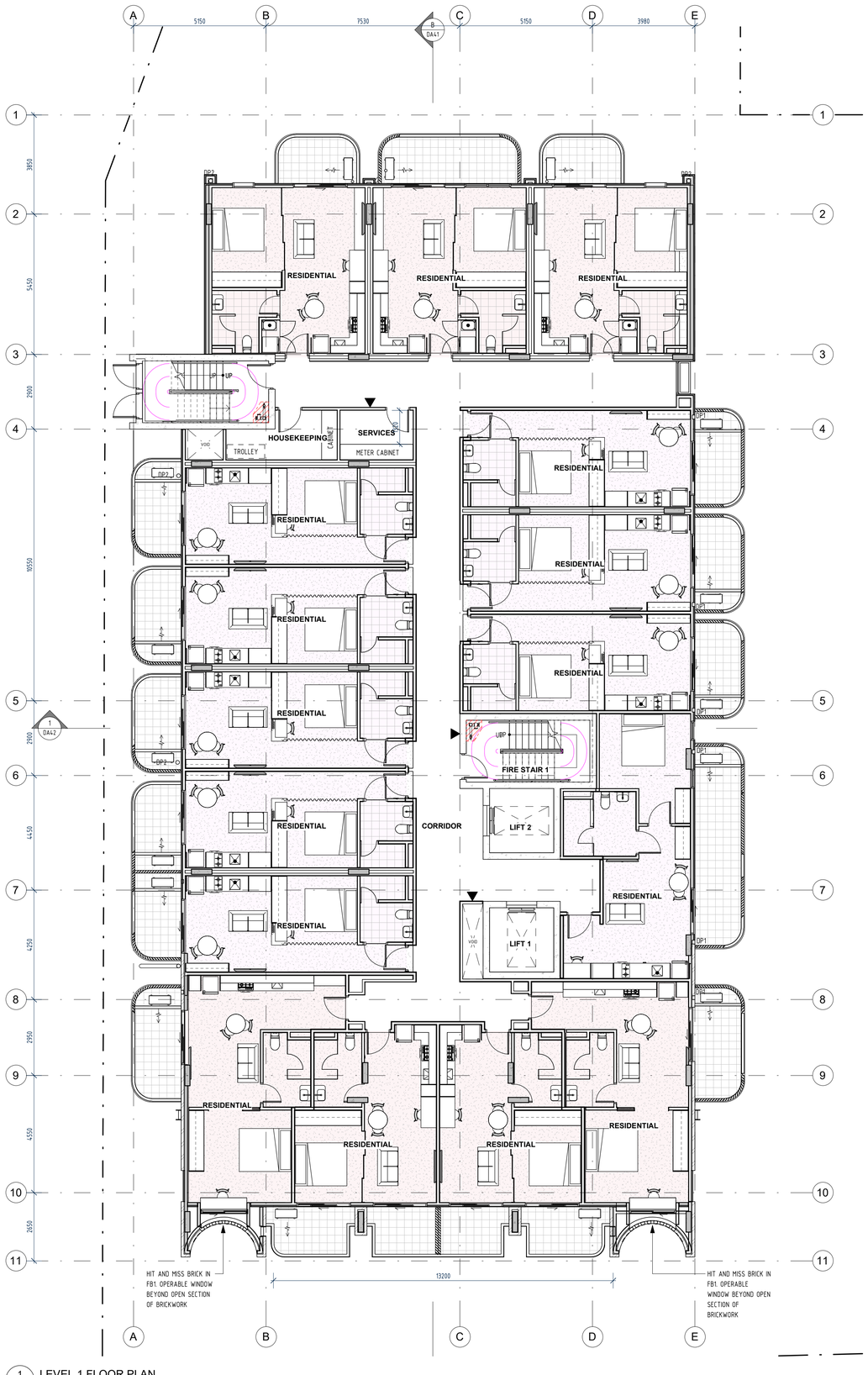
Scale (at A1): 1 : 100

| Job No. | Drawing No. | Issue |
|---|---|---|
| 23122 | DA21 | P3 |

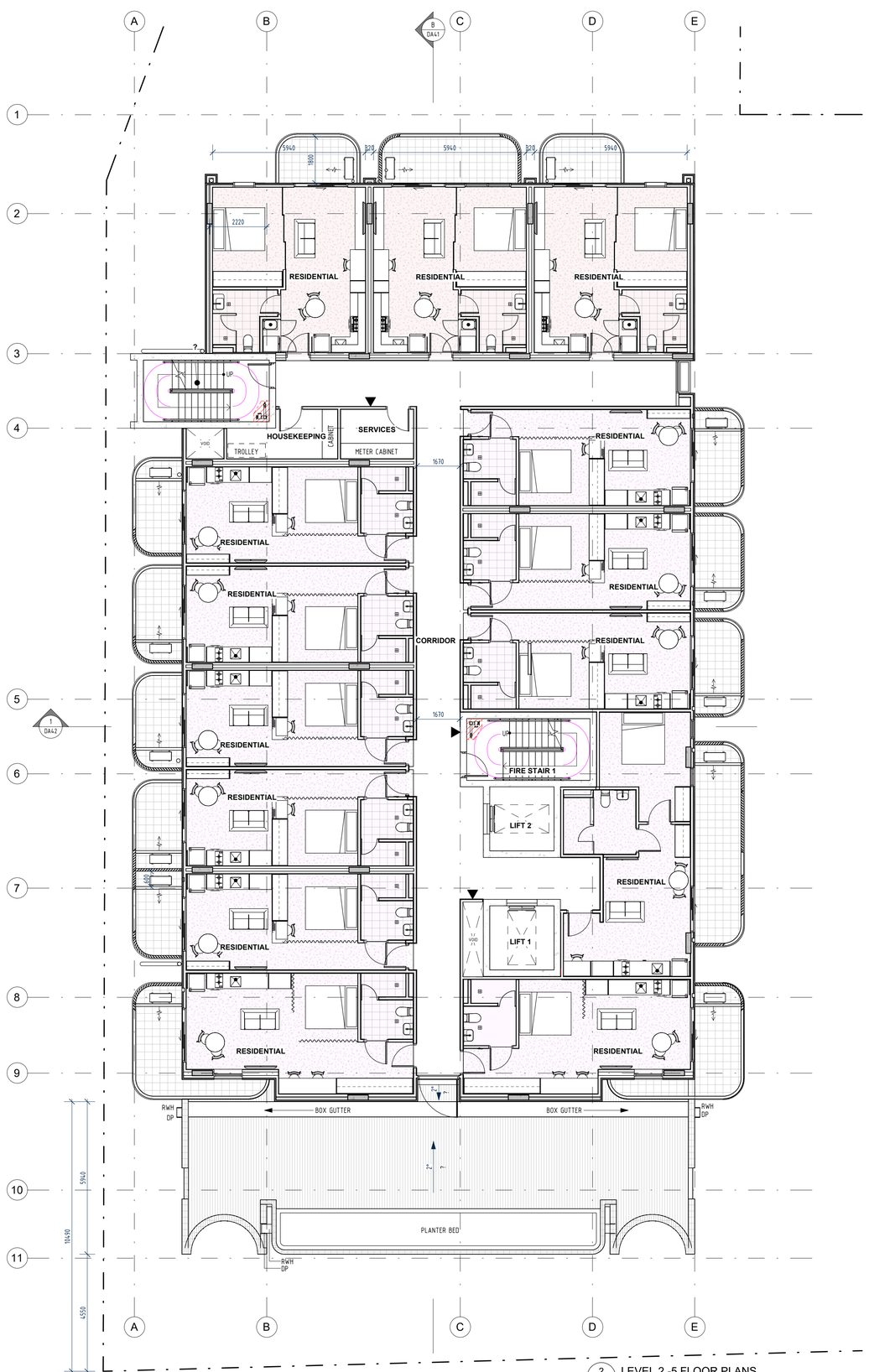
Scale Bar Units in Millimetres

10 20 30 40 50 100 150 200 250 300 350 400 450 500 550 600 650 700

A1 Sheet




1 DA31 LEVEL 1 FLOOR PLAN 1 : 100




2 DA31 LEVEL 2 -5 FLOOR PLANS 1 : 100

Legend

# Attachment 1.2

| Rev. | Date | Description | Ver. | Appr. |
|---|---|---|---|---|
| P2 | 25.11.24 | PLANNING ISSUE | BV | HW |

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Project: BUILD TO RENT - CO - LIVING

46 RICHMOND ST, HACKNEY SA 5069

Drawing Title: FIRST, TYPICAL FLOOR PLAN

PN


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Scale (at A1) 1 : 100

| Job No. | Drawing No. | Issue |
|---|---|---|
| 23122 | DA22 | P2 |

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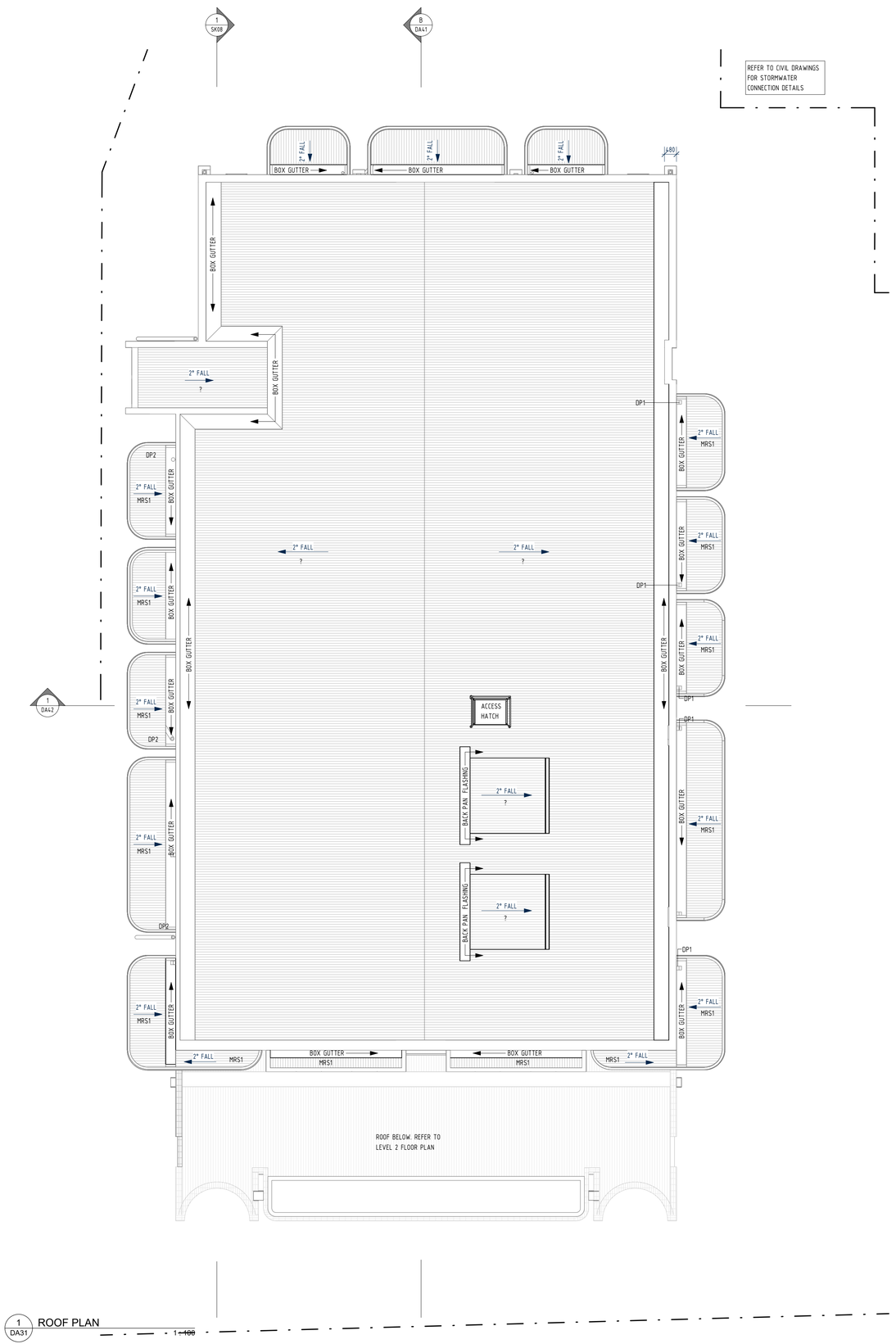
Scale Bar Units in Millimetres

10 20 30 40 50 100 150 200 250 300 350 400 450 500 550 600 650 700

A1 Sheet




1 DA31 ROOF PLAN 1 : 100

PLOT FILE DATE: 2/12/2024 10:28:39 AM PLOT FILE LOCATION: C:\Users\bmv\Documents\23122_ADELAIDE CARAVAN PARK_APARTMENTS_DD_R23_bmvNOBIM.rvt

Legend

# Attachment 1.2

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Drawing Status

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BUILD TO RENT - CO - LIVING

46 RICHMOND ST, HACKNEY SA 5069

Drawing Title

ROOF PLAN

PN


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Scale (at A1) 1 : 100

| Job No. | Drawing No. | Issue |
|---|---|---|
| 23122 | DA23 | P2 |

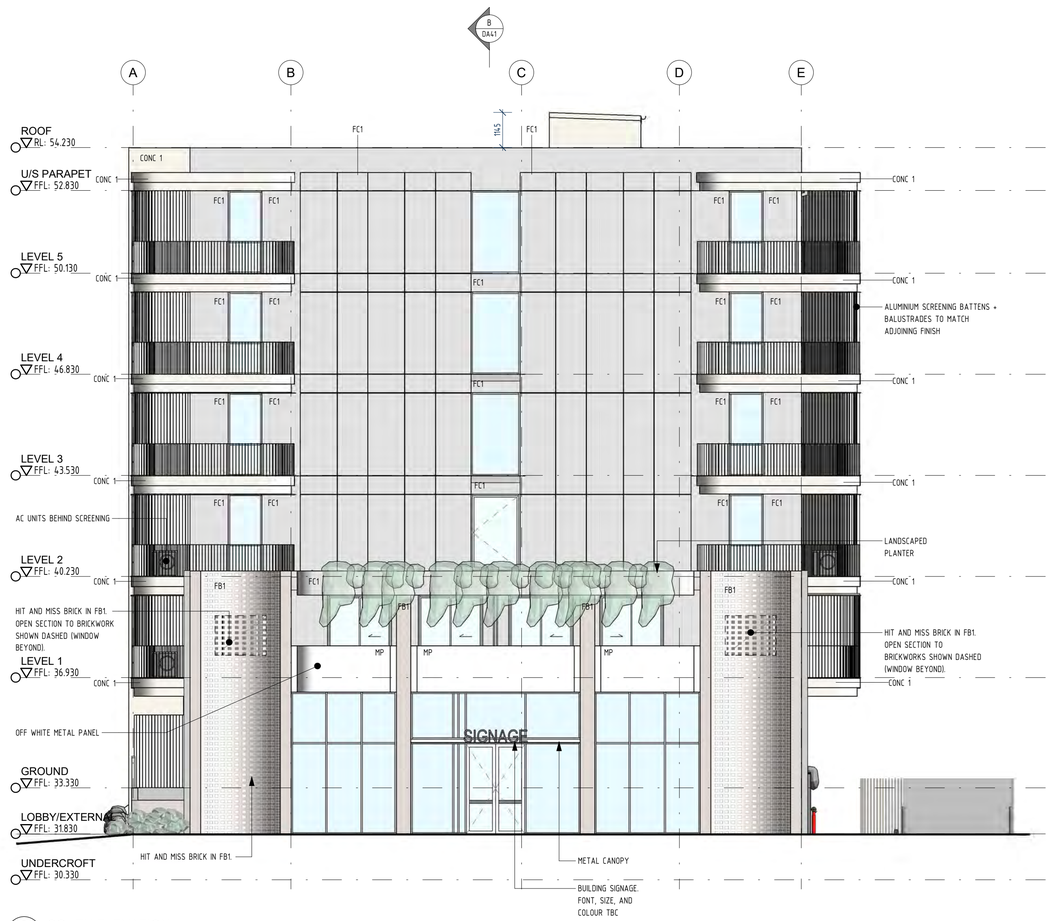
Scale Bar Units in Millimetres

10 20 30 40 50 100 150 200 250 300 350 400 450 500 550 600 650 700

A1 Sheet

1 - NORTH ELEVATION

1 : 100




2 - SOUTH ELEVATION

1 : 100

| | |
|---|---|
| CODE | FB1 |
| COLOUR | WARM MEDIUM TONED NATURAL BRICK |
| DESCRIPTION | BRICK TYPE 1 |

| | |
|---|---|
| CODE | FC1 |
| COLOUR | OFF WHITE |
| DESCRIPTION | CLADDING - VERTICAL GROOVE |



| | |
|---|---|
| CODE | FC2 |
| COLOUR | OFF WHITE |
| DESCRIPTION | CLADDING - FIBRE CEMENT SHEET |

| | |
|---|---|
| CODE | FC3 |
| COLOUR | TIMBER |
| DESCRIPTION | CLADDING - FIBRE CEMENT SHEET |

| | |
|---|---|
| CODE | PM1 |
| COLOUR | OFF WHITE |
| DESCRIPTION | PERORATED METAL SCREEN |

| | |
|---|---|
| CODE | CONC 1 |
| COLOUR | OFF WHITE |
| DESCRIPTION | CONCRETE |

- PROPOSED MATERIALITY

1 : 100

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Legend

# Attachment 1.2

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Drawing Status

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BUILD TO RENT - CO - LIVING

46 RICHMOND ST, HACKNEY SA 5069

Drawing Title

ELEVATIONS - SHEET 1


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Scale (at A1) 1 : 100

| Job No. | Drawing No. | Issue |
|---|---|---|
| 23122 | DA31 | P2 |

Scale Bar Units in Millimetres

10 20 30 40 50 100 150 200 250 300 350 400 450 500 550 600 650 700

A1 Sheet

NOTE: CLEAR GLAZING
UNLESS OTHERWISE NOTED

1 / - EAST ELEVATION

1 : 100

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Legend

Attachment 1.2

| Rev. | Date | Description | Ver. | Appr. |
|---|---|---|---|---|
| P2 | 25.11.24 | PLANNING ISSUE | BV | HW |

Drawing Status
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BUILD TO RENT - CO - LIVING

46 RICHMOND ST, HACKNEY SA 5069

Drawing Title
ELEVATIONS - SHEET 2

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Scale (at A1) 1 : 100

| Job No. | Drawing No. | Issue |
|---|---|---|
| 23122 | DA32 | P2 |

Scale Bar Units in Millimetres

A1 Sheet

NOTE: CLEAR GLAZING
UNLESS OTHERWISE NOTED

1 / - WEST ELEVATION

1 : 100

PLOT FILE DATE: 2/12/2024 10:26:50 AM PLOT FILE LOCATION: C:\Users\benn\Documents\23122_ADELAIDE CARAVAN PARK_APARTMENTS_DD_R23_bennWQBW.rvt

Legend

# Attachment 1.2

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Drawing Status: PLANNING ISSUE


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BUILD TO RENT - CO - LIVING

46 RICHMOND ST, HACKNEY SA 5069

Drawing Title
ELEVATIONS - SHEET 3


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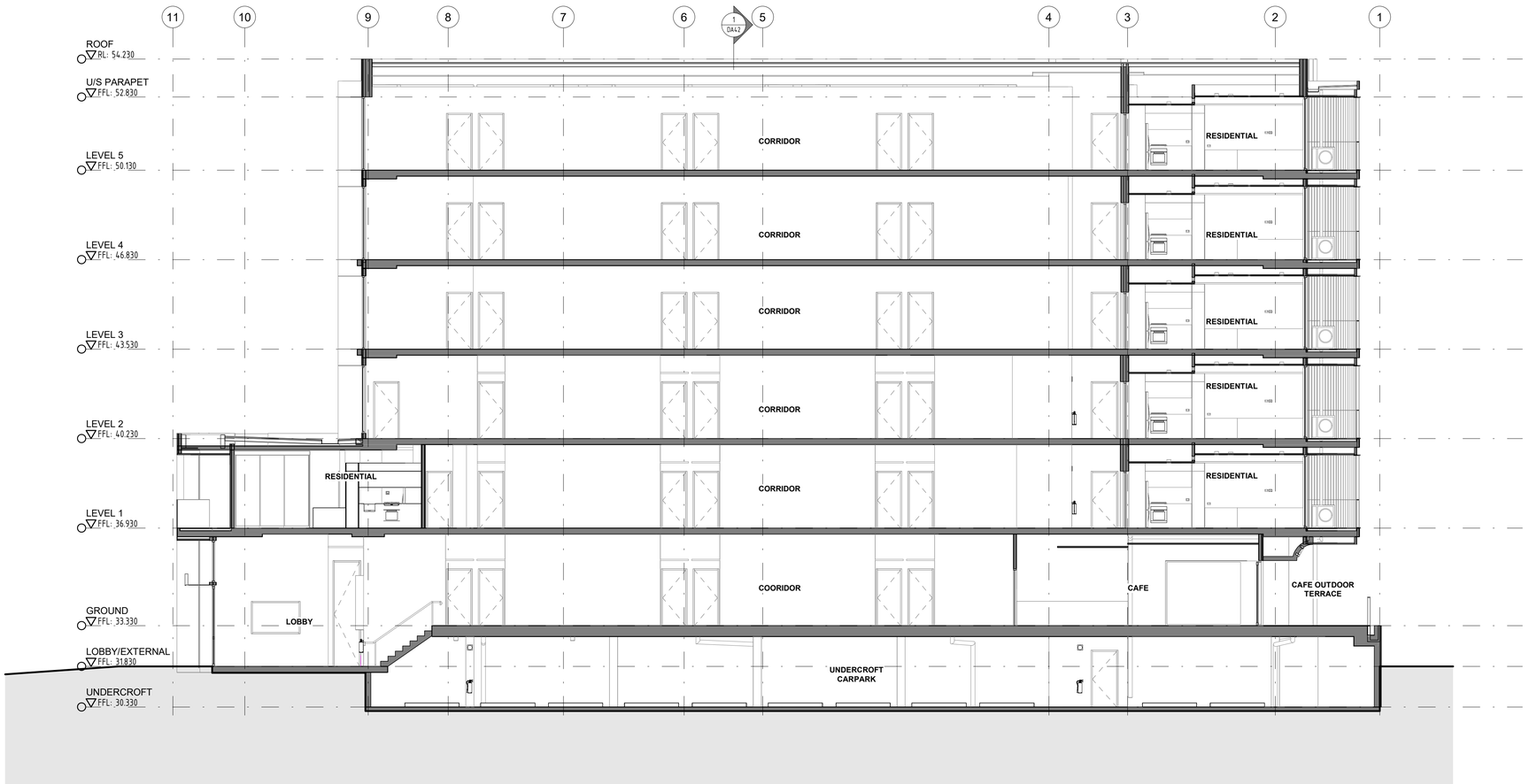
Scale (at A1): 1 : 100

| Job No. | Drawing No. | Issue |
|---|---|---|
| 23122 | DA33 | P2 |

Scale Bar Units in Millimetres

10 20 30 40 50 100 150 200 250 300 350 400 450 500 550 600 650 700

A1 Sheet




B DA21 SECTION AA

1 : 100

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46 RICHMOND ST, HACKNEY SA 5069

Drawing Title: SECTIONS - SHEET 1


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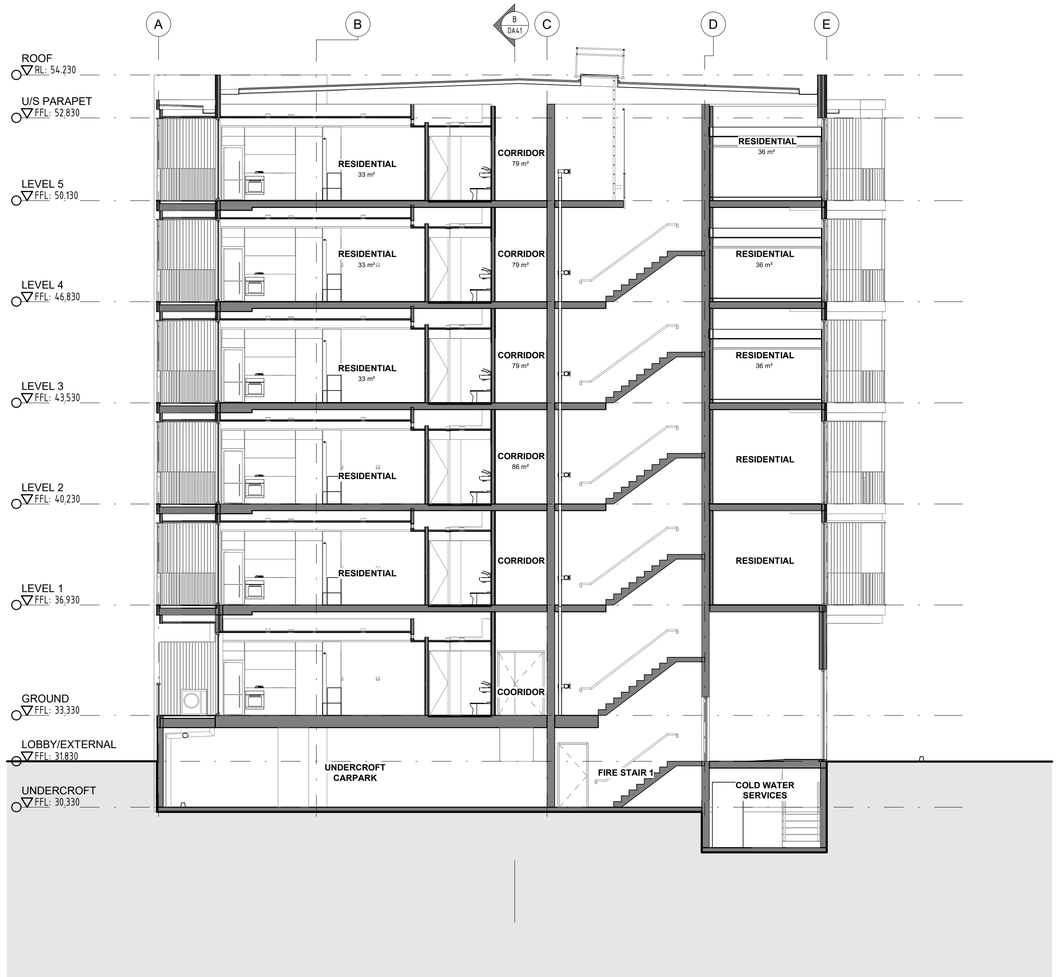
Scale (at A1): 1 : 100

| Job No. | Drawing No. | Issue |
|---|---|---|
| 23122 | DA41 | P2 |

Scale Bar Units in Millimetres

10 20 30 40 50 100 150 200 250 300 350 400 450 500 550 600 650 700

A1 Sheet




1 DA21 SECTION BB

1 : 100

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46 RICHMOND ST, HACKNEY SA 5069

Drawing Title: SECTIONS - SHEET 2


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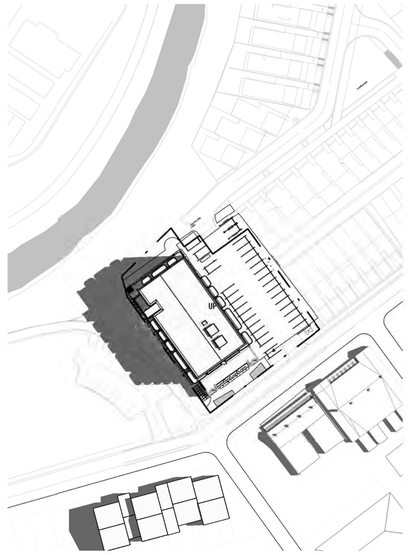
Scale (at A1): 1 : 100

| Job No. | Drawing No. | Issue |
|---|---|---|
| 23122 | DA42 | P2 |

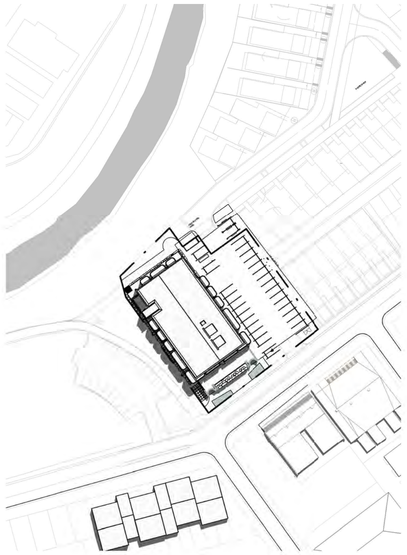
Scale Bar Units in Millimetres

10 20 30 40 50 100 150 200 250 300 350 400 450 500 550 600 650 700

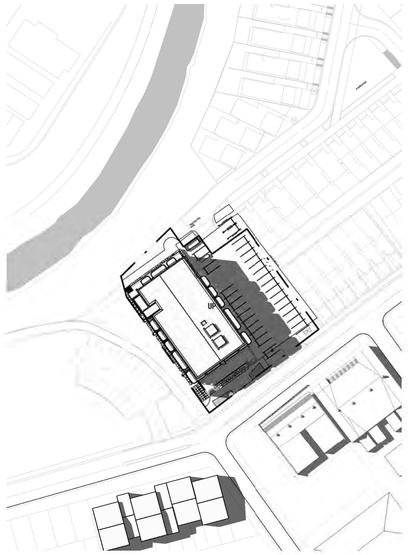
A1 Sheet



SUMMER 9.00
1 : 1000



SUMMER 12.00
1 : 1000



SUMMER 3.00
1 : 1000

WINTER 9.00
1 : 1000

WINTER 12.00
1 : 1000

WINTER 3.00
1 : 1000

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Project
BUILD TO RENT - CO - LIVING

46 RICHMOND ST, HACKNEY SA 5069

Drawing Title
SHADOW DIAGRAMS


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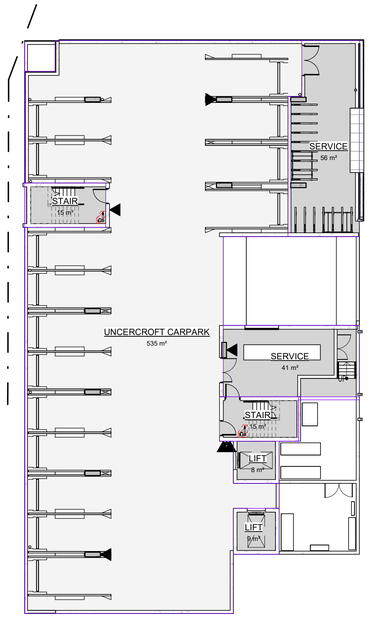
Scale (at A1)
1 : 1000

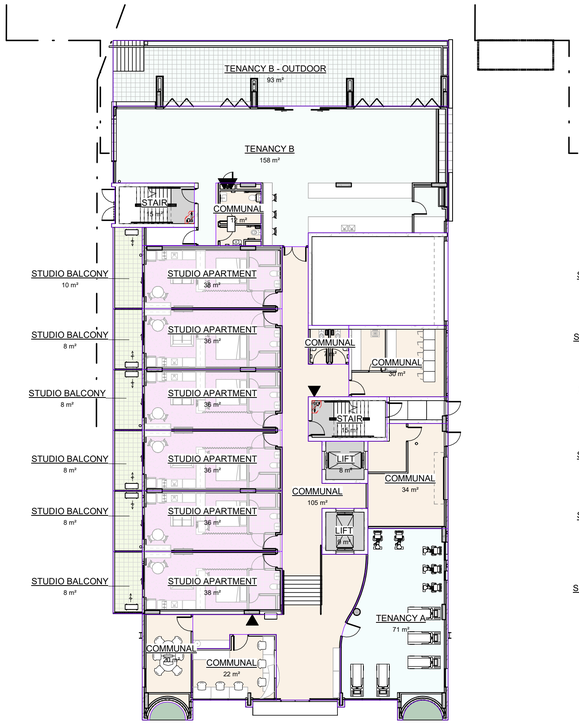
| Job No. | Drawing No. | Issue |
|---|---|---|
| 23122 | DA44 | P2 |

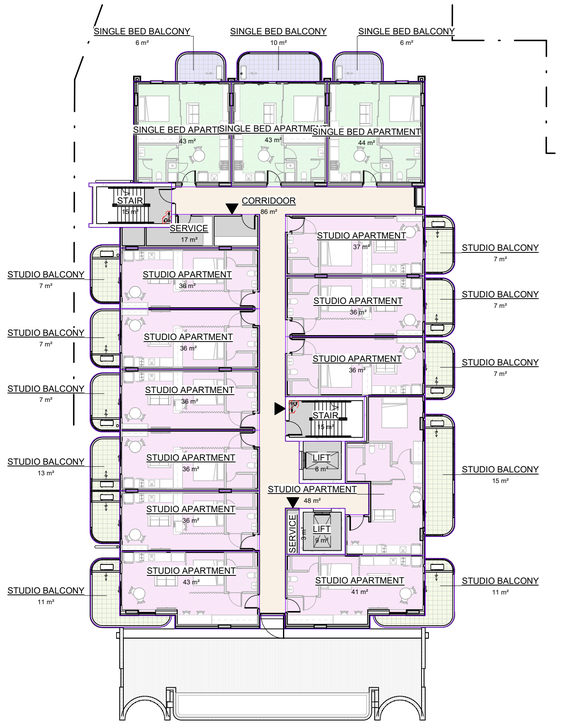
Scale Bar Units in Millimetres

10 20 30 40 50 100 150 200 250 300 350 400 450 500 550 600 650 700

A1 Sheet






2 DA31 UNDERCROFT - AREA PLAN 1 : 200

1 DA31 GROUND 1 : 200

3 DA31 LEVEL 1 1 : 200

4 DA31 LEVEL 2 - 5 (TYP) 1 : 200

**AREA SCHEDULE - UNDERCROFT**

| Count | Level | Name | Area |
|---|---|---|---|
| 1 | UNDERCROFT | LIFT | 8 m² |
| 1 | UNDERCROFT | LIFT | 9 m² |
| 1 | UNDERCROFT | SERVICE | 41 m² |
| 1 | UNDERCROFT | SERVICE | 56 m² |
| 2 | UNDERCROFT | STAIR | 15 m² |
| 1 | UNDERCROFT | UNCERCROFT CARPARK | 535 m² |

**AREA SCHEDULE -...**

| Count | Name | Area |
|---|---|---|
| 1 | COMMUNAL | 7 m² |
| 1 | COMMUNAL | 12 m² |
| 1 | COMMUNAL | 20 m² |
| 1 | COMMUNAL | 22 m² |
| 1 | COMMUNAL | 30 m² |
| 1 | COMMUNAL | 34 m² |
| 1 | COMMUNAL | 105 m² |
| 1 | LIFT | 8 m² |
| 1 | LIFT | 9 m² |
| 2 | STAIR | 30 m² |
| 4 | STUDIO APARTMENT | 145 m² |
| 2 | STUDIO APARTMENT | 75 m² |
| 5 | STUDIO BALCONY | 38 m² |
| 1 | STUDIO BALCONY | 10 m² |
| 1 | TENANCY A | 71 m² |
| 1 | TENANCY B | 158 m² |
| 1 | TENANCY B - OUTDOOR | 93 m² |
| Total Area | | 868 m² |

**AREA SCHEDULE -...**

| Count | Name | Area |
|---|---|---|
| 1 | CORRIDOOR | 90 m² |
| 1 | LIFT | 8 m² |
| 1 | LIFT | 9 m² |
| 1 | SERVICE | 3 m² |
| 1 | SERVICE | 17 m² |
| 2 | SINGLE BED APARTMENT | 74 m² |
| 2 | SINGLE BED APARTMENT | 87 m² |
| 1 | SINGLE BED APARTMENT | 44 m² |
| 1 | SINGLE BED APARTMENT | 50 m² |
| 1 | SINGLE BED APARTMENT | 52 m² |
| 2 | SINGLE BED BALCONY | 11 m² |
| 4 | SINGLE BED BALCONY | 25 m² |
| 2 | SINGLE BED BALCONY | 17 m² |
| 1 | SINGLE BED BALCONY | 10 m² |
| 2 | STAIR | 30 m² |

**AREA SCHEDULE - LEVEL 2 (TYP)**

| Count | Name | Area |
|---|---|---|
| 1 | CORRIDOOR | 86 m² |
| 1 | LIFT | 8 m² |
| 1 | LIFT | 9 m² |
| 1 | SERVICE | 3 m² |
| 1 | SERVICE | 17 m² |
| 2 | SINGLE BED APARTMENT | 87 m² |
| 1 | SINGLE BED APARTMENT | 44 m² |
| 2 | SINGLE BED BALCONY | 12 m² |
| 1 | SINGLE BED BALCONY | 10 m² |
| 2 | STAIR | 30 m² |
| 7 | STUDIO APARTMENT | 253 m² |
| 1 | STUDIO APARTMENT | 37 m² |
| 1 | STUDIO APARTMENT | 41 m² |
| 1 | STUDIO APARTMENT | 43 m² |
| 1 | STUDIO APARTMENT | 48 m² |
| 6 | STUDIO BALCONY | 43 m² |
| 2 | STUDIO BALCONY | 21 m² |
| 1 | STUDIO BALCONY | 13 m² |
| 1 | STUDIO BALCONY | 15 m² |
| Total Area | | 821 m² |

**CO - LIVING COUNT**

| LEVEL | G | 1 | 2 | 3 | 4 | 5 | TOTAL | BUILDING TOTAL |
|---|---|---|---|---|---|---|---|---|
| STUDIO | 6 | 9 | 11 | 11 | 11 | 11 | 59 | 78 |
| SINGLE BEDROOM | 0 | 7 | 3 | 3 | 3 | 3 | 19 | |

**CAR PARK COUNT**

| LEVEL | U/C | G | TOTAL | BUILDING TOTAL |
|---|---|---|---|---|
| CARPARK | 15 | 26 | 41 | 42 |
| VISITOR PARKING | 0 | 1 | 1 | |

Legend

# Attachment 1.2

| Rev. | Date | Description | Ver. | Appr. |
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Project: BUILD TO RENT - CO - LIVING

46 RICHMOND ST, HACKNEY SA 5069

Drawing Title: AREA & YIELD PLAN

PN


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| 23122 | DA81 | P2 |

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## DRAWING LIST

| NUMBER | TITLE |
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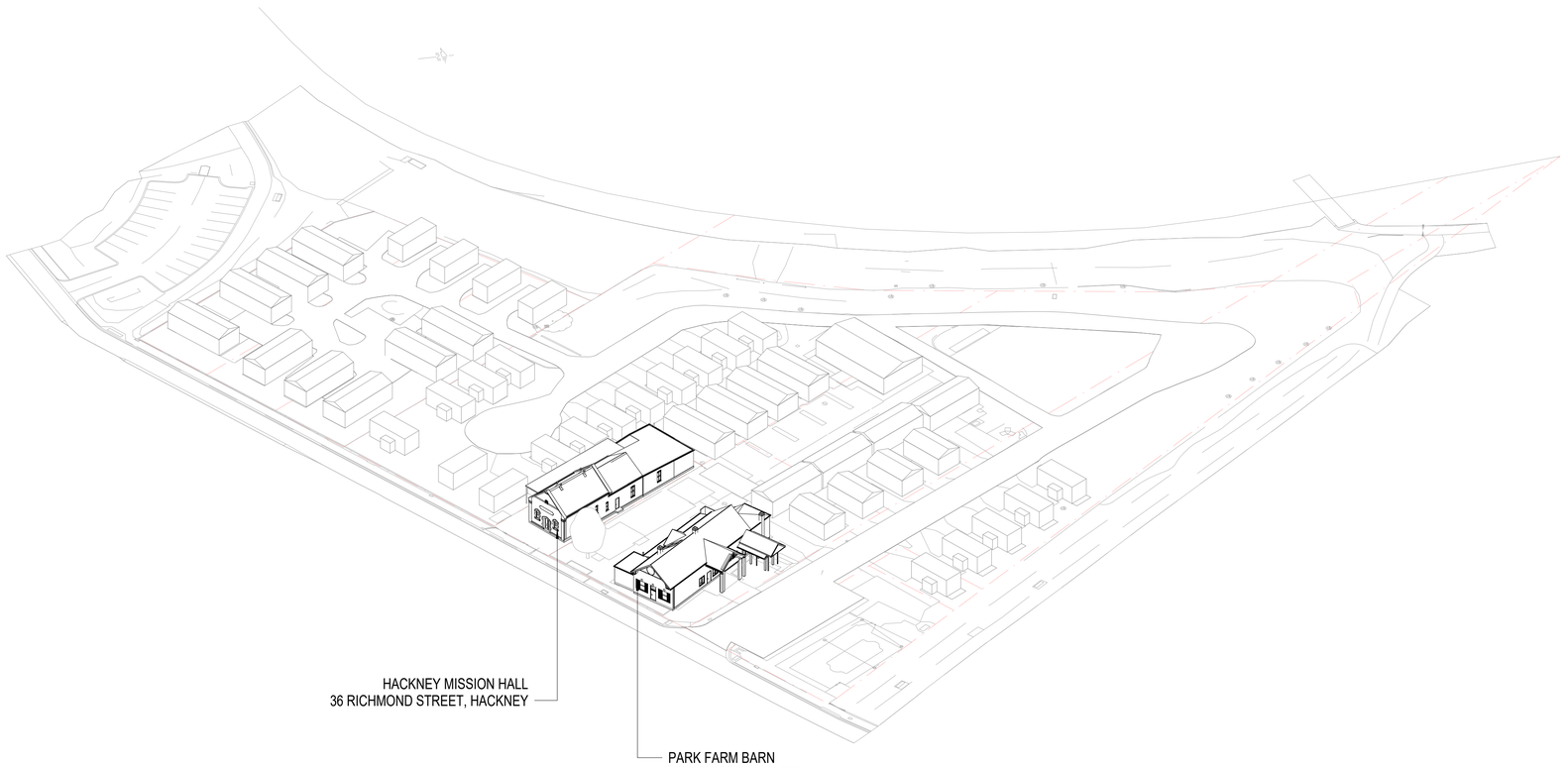
| DA000 | COVER & DRAWING LIST |
| DA001 | EXISTING SITE PLAN & SURVEY |
| DA002 | SITE PLAN 1-100 EXISTING |
| DA003 | SITE PLAN 1-100 PROPOSED |

**PLACE A - FORMER BARN**

| | |
|---|---|
| DA004 | SITE PLAN 1-100 DEMOLITION |
| DA100 | PARK FARM BARN - PROPOSED DEMOLITION FLOOR PLAN |
| DA101 | PARK FARM BARN - PROPOSED DEMOLITION ELEVATIONS |
| DA102 | PARK FARM BARN - PROPOSED DEMOLITION AXONOMETRICS |
| DA103 | PARK FARM BARN - PROPOSED BUILDING ENVELOPE PLAN |

**PLACE B - FORMER CHURCH**

| | |
|---|---|
| DA200 | HACKNEY MISSION HALL - PROPOSED DEMOLITION FLOOR PLAN |
| DA201 | HACKNEY MISSION HALL - PROPOSED DEMOLITION ELEVATIONS |
| DA202 | HACKNEY MISSION HALL - PROPOSED DEMOLITION AXONOMETRICS |
| DA204 | HACKNEY MISSION HALL - PROPOSED BUILDING ENVELOPE PLAN |

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North

Scale

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Scale
1 : 500

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Drawing Name
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North

0 1m 2m 5m 10m

Scale
1 : 100

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Client
ASPEN GROUP

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Drawing Name
SITE PLAN 1-100 EXISTING

Drawing No.
DA002



1

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North

0 1m 2m 5m 10m

Scale

1 : 100

| | |
|---|---|
| Project Name | RICHMOND STREET MASTERPLAN |
| Address | RICHMOND STREET, HACKNEY 5069 |
| Client | ASPEN GROUP |
| Date | 13.12.2024 |
| Revision | 2 |
| Status | ISSUE FOR DEVELOPMENT APPLICATION |
| Drawing Name | SITE PLAN 1-100 PROPOSED |
| Drawing No. | DA003 |



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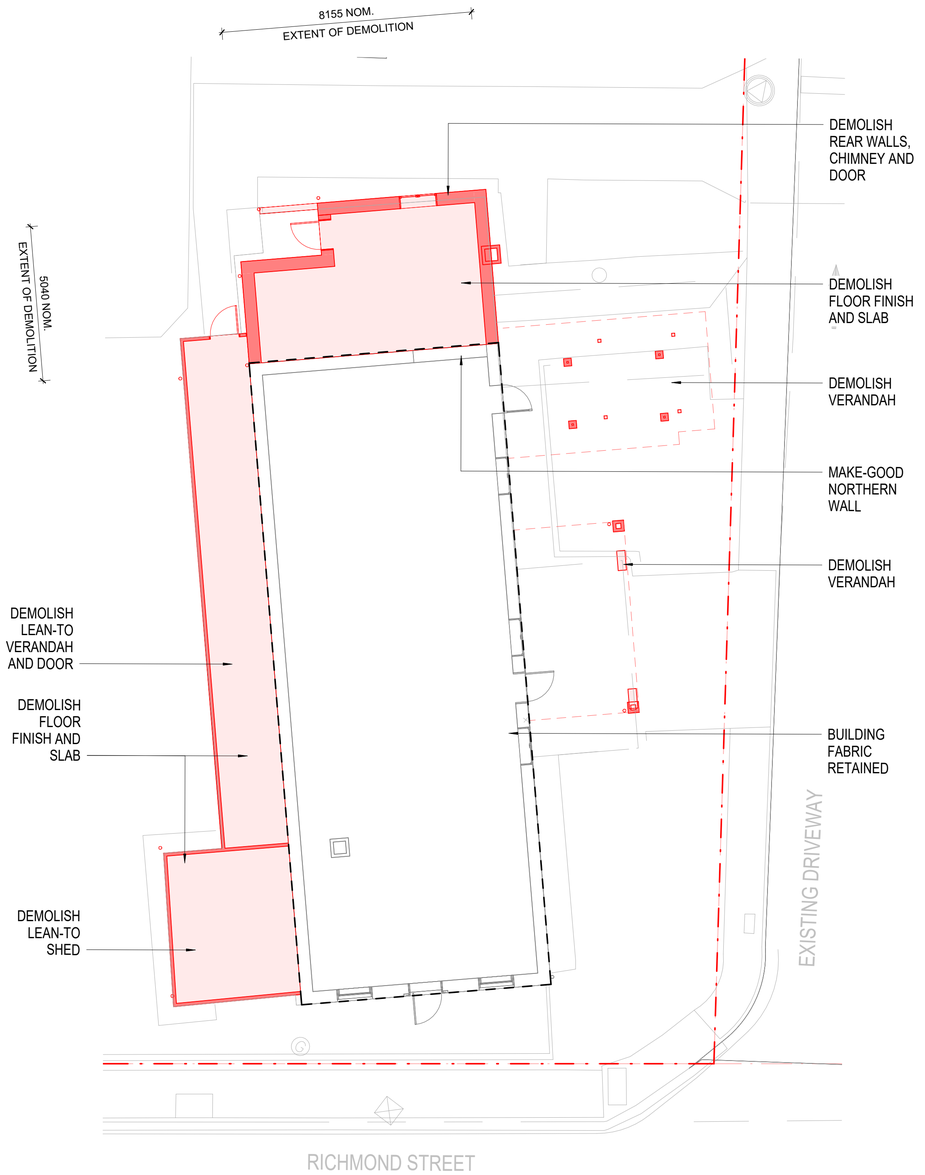


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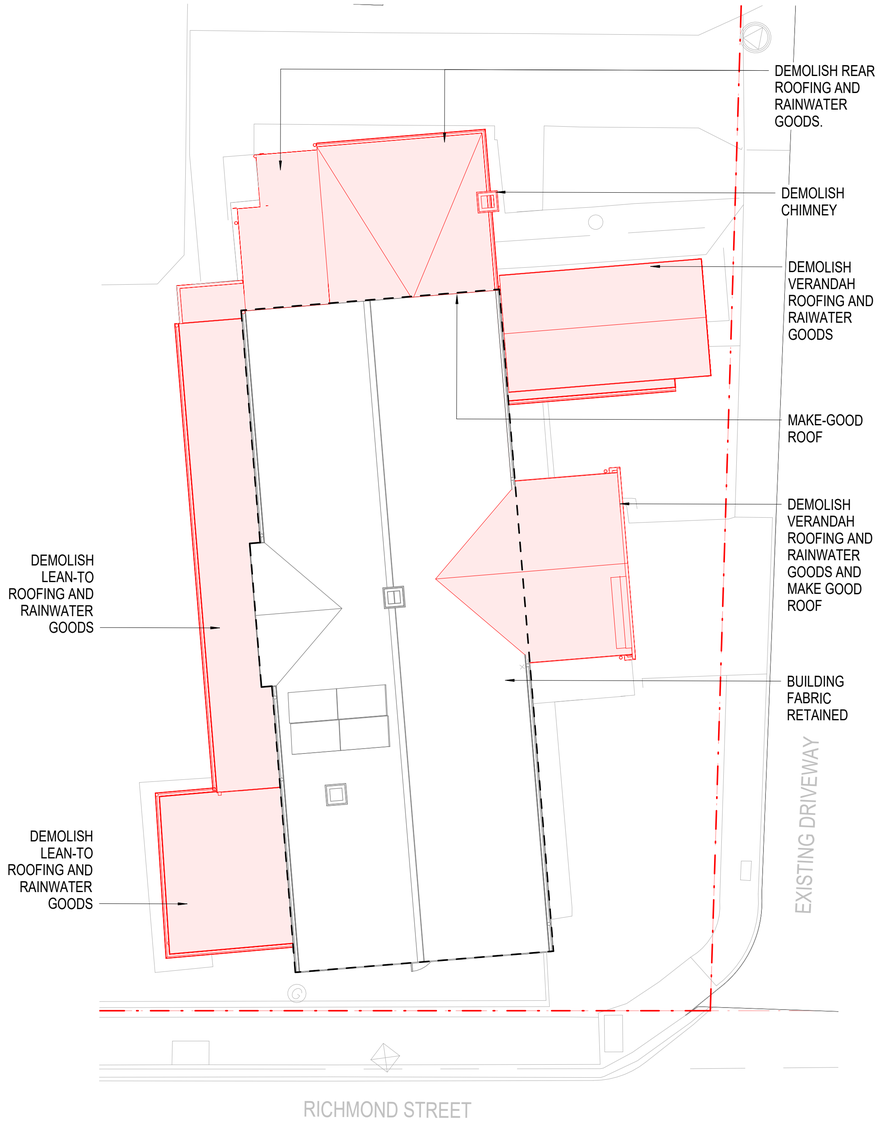


## 2 PROPOSED DEMOLITION ROOF PLAN
1 : 100

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North

0 1m 2m 5m 10m

Scale: 1 : 100

| | |
|---|---|
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| Address | RICHMOND STREET, HACKNEY 5069 |
| Client | ASPEN GROUP |
| Date | 13.12.2024 |
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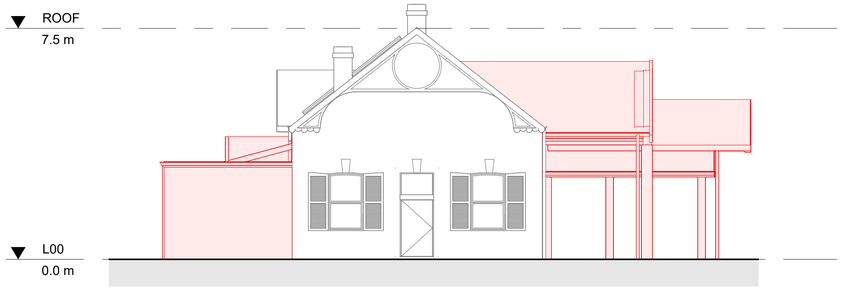
| Drawing No. | DA100 |

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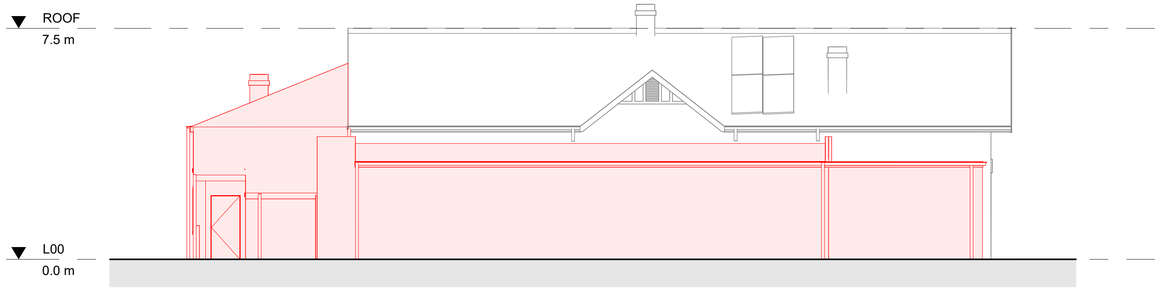


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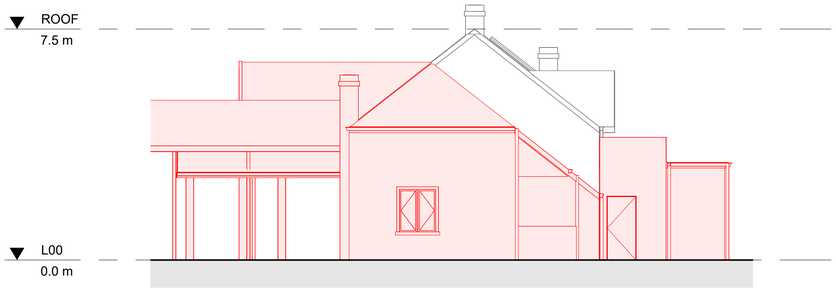


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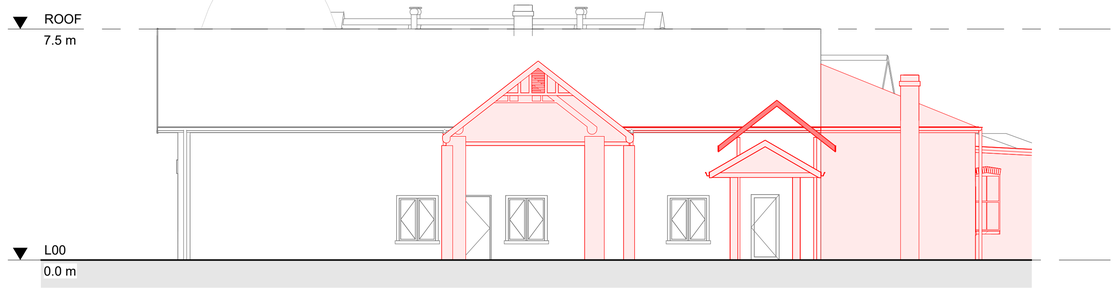


**4 PROPOSED DEMOLITION EAST ELEVATION**
1 : 100

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North

Scale
1 : 100

0 1m 2m 5m 10m

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RICHMOND STREET MASTERPLAN

Address
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Client
ASPEN GROUP

Date
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Revision
2

Status
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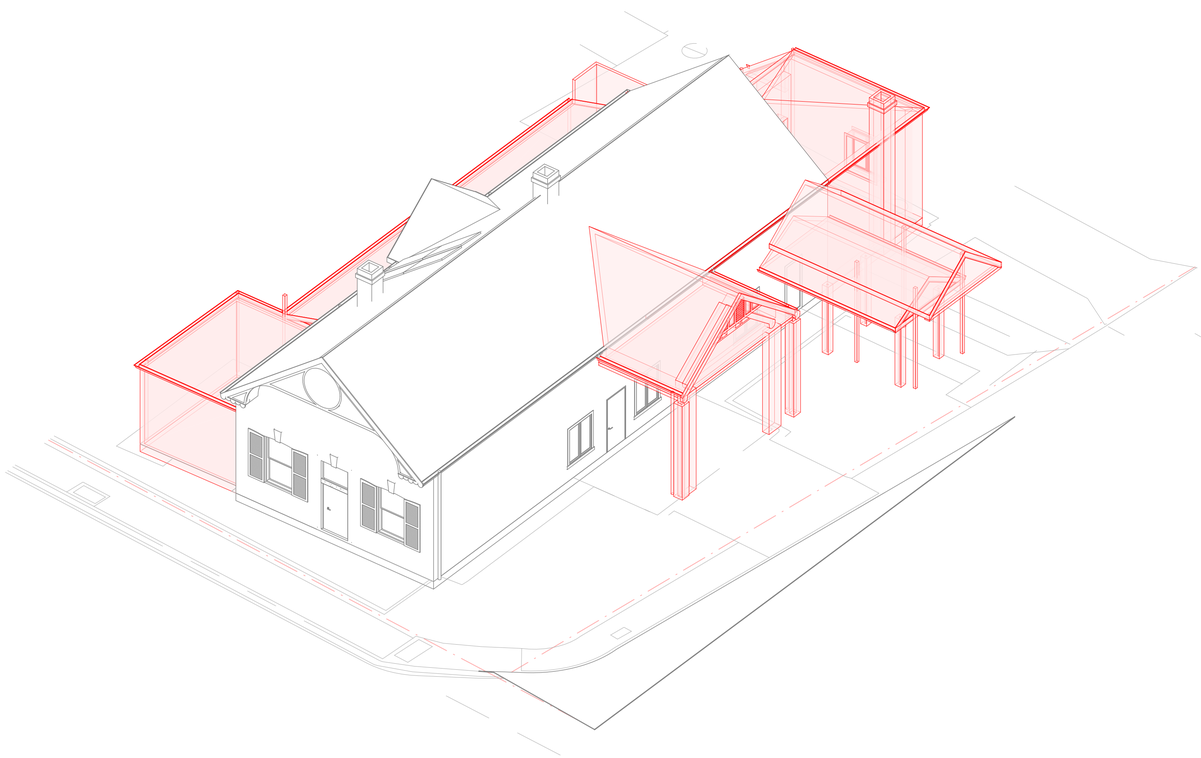
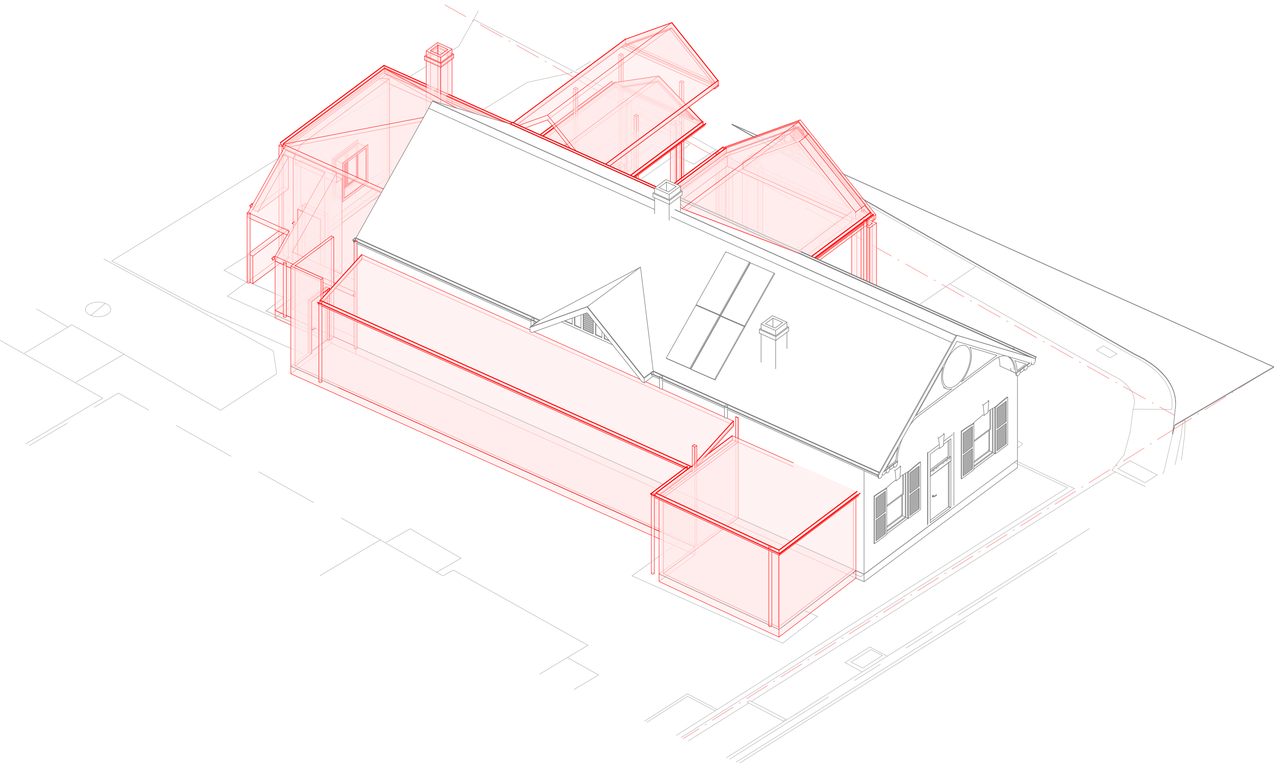
Drawing Name
PARK FARM BARN - PROPOSED DEMOLITION ELEVATIONS

Drawing No.
DA101



## 1 PROPOSED DEMOLITION SOUTH-EAST AXONOMETRIC



## 2 PROPOSED DEMOLITION SOUTH-WEST AXONOMETRIC

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North

Scale

0 1m 2m 5m 10m

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| Client | ASPEN GROUP |
| Date | 13.12.2024 |
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| Status | ISSUE FOR DEVELOPMENT APPLICATION |
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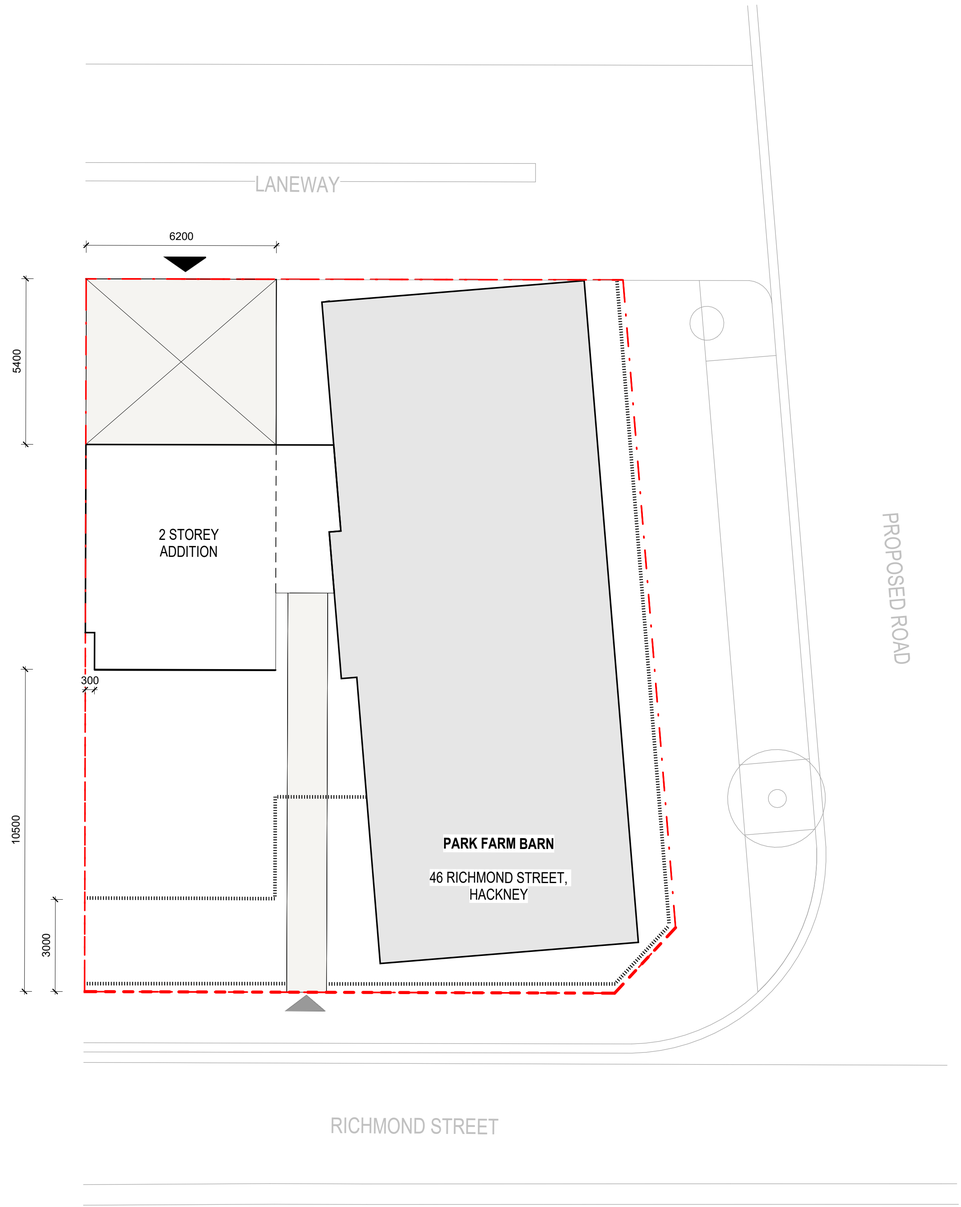
| Drawing No. | DA102 |

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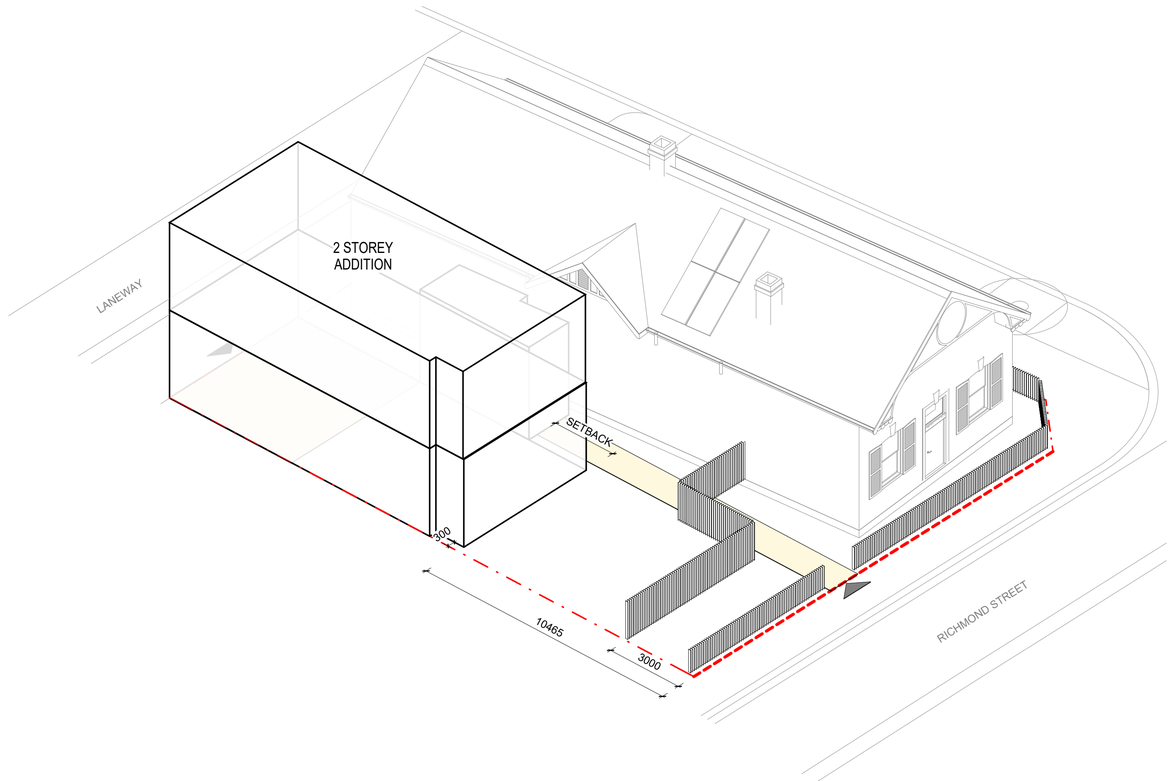


## 2 PROPOSED BUILDING ENVELOPE AXONOMETRIC

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North

0 1m 2m 5m 10m

Scale
1 : 100

| | |
|---|---|
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| Client | ASPEN GROUP |
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| Status | ISSUE FOR DEVELOPMENT APPLICATION |
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| Drawing No. | DA103 |

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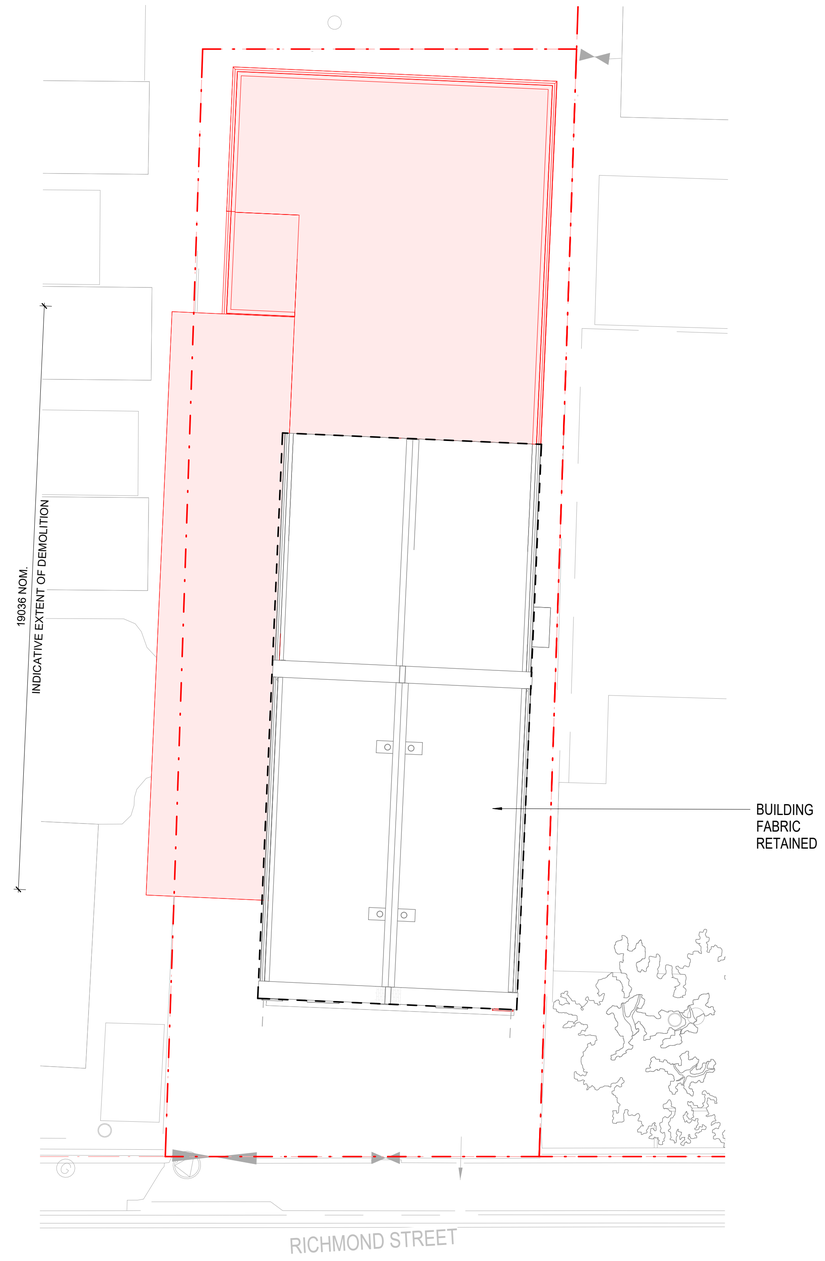


## 2 PROPOSED DEMOLITION ROOF PLAN
1 : 100

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North

0 1m 2m 5m 10m

Scale
1 : 100

| | |
|---|---|
| Project Name | RICHMOND STREET MASTERPLAN |
| Address | RICHMOND STREET, HACKNEY 5069 |
| Client | ASPEN GROUP |
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| Status | ISSUE FOR DEVELOPMENT APPLICATION |
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| Drawing No. | DA200 |



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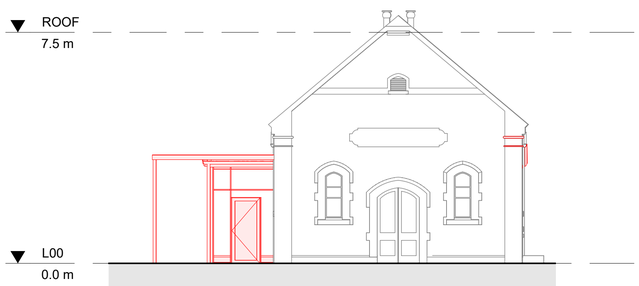
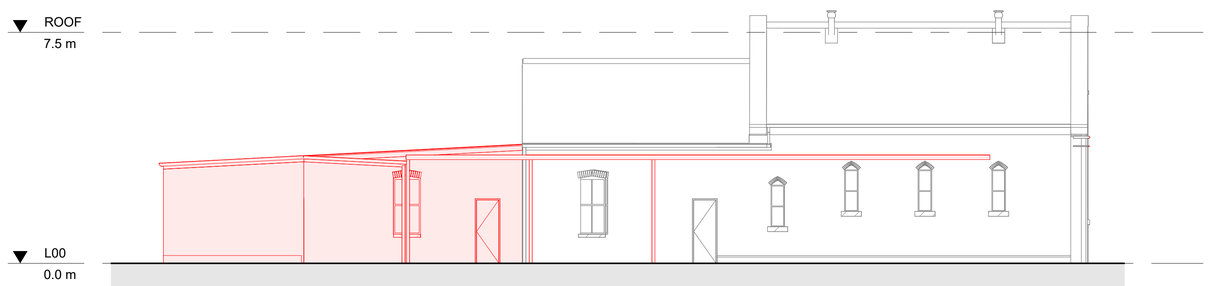



**1 PROPOSED DEMOLITION SOUTH ELEVATION**
1 : 100

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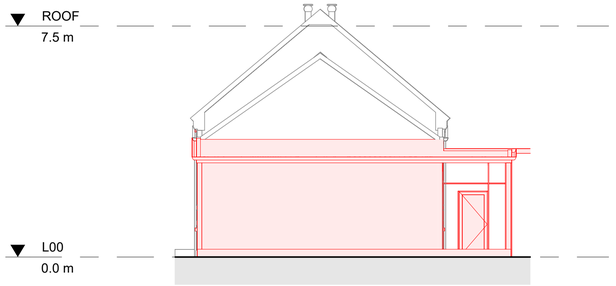


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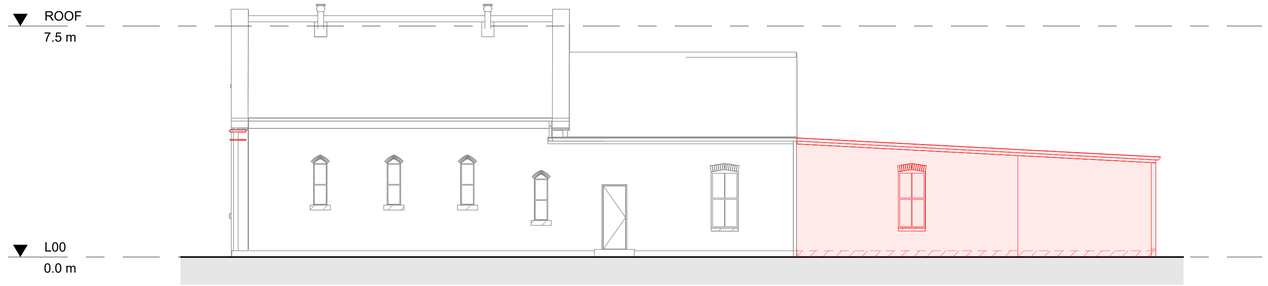


**4 PROPOSED DEMOLITION EAST ELEVATION**
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North

Scale
1 : 100

0 1m 2m 5m 10m

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Client
ASPEN GROUP

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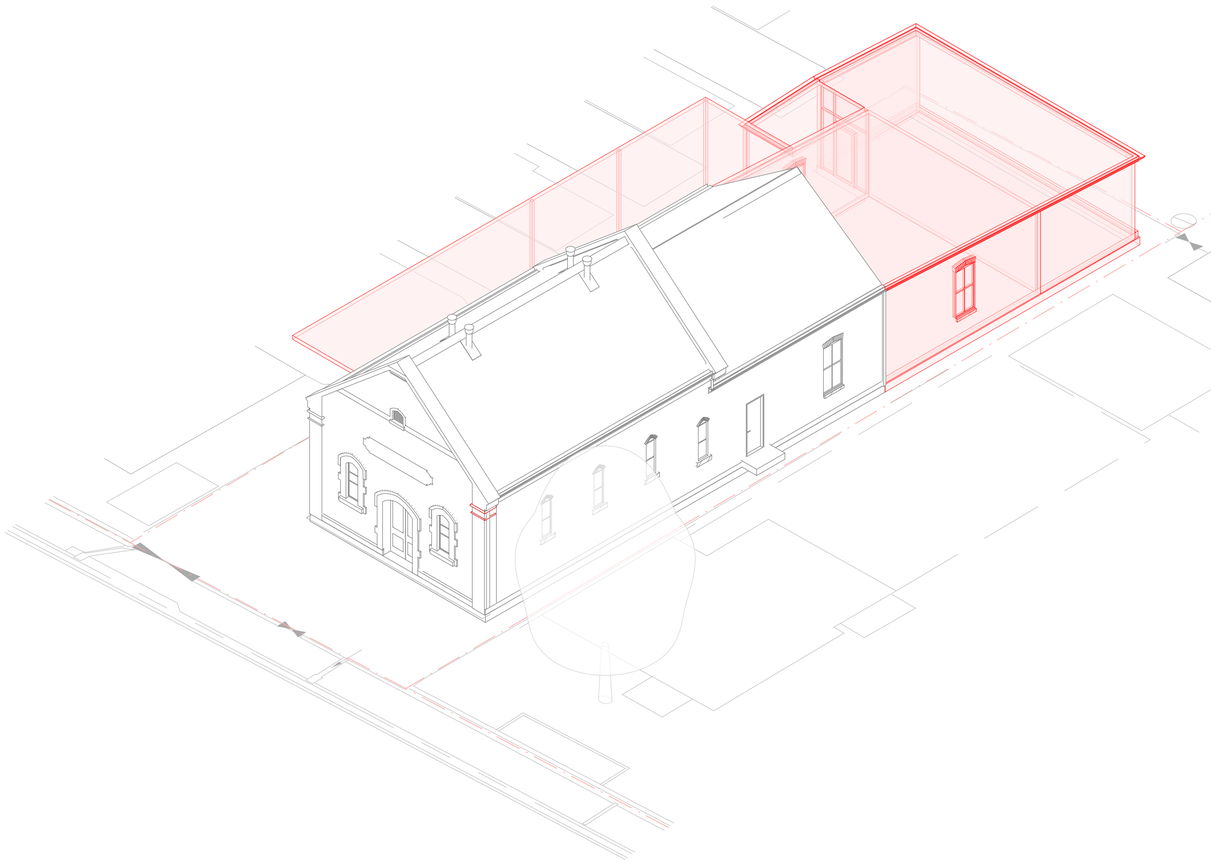
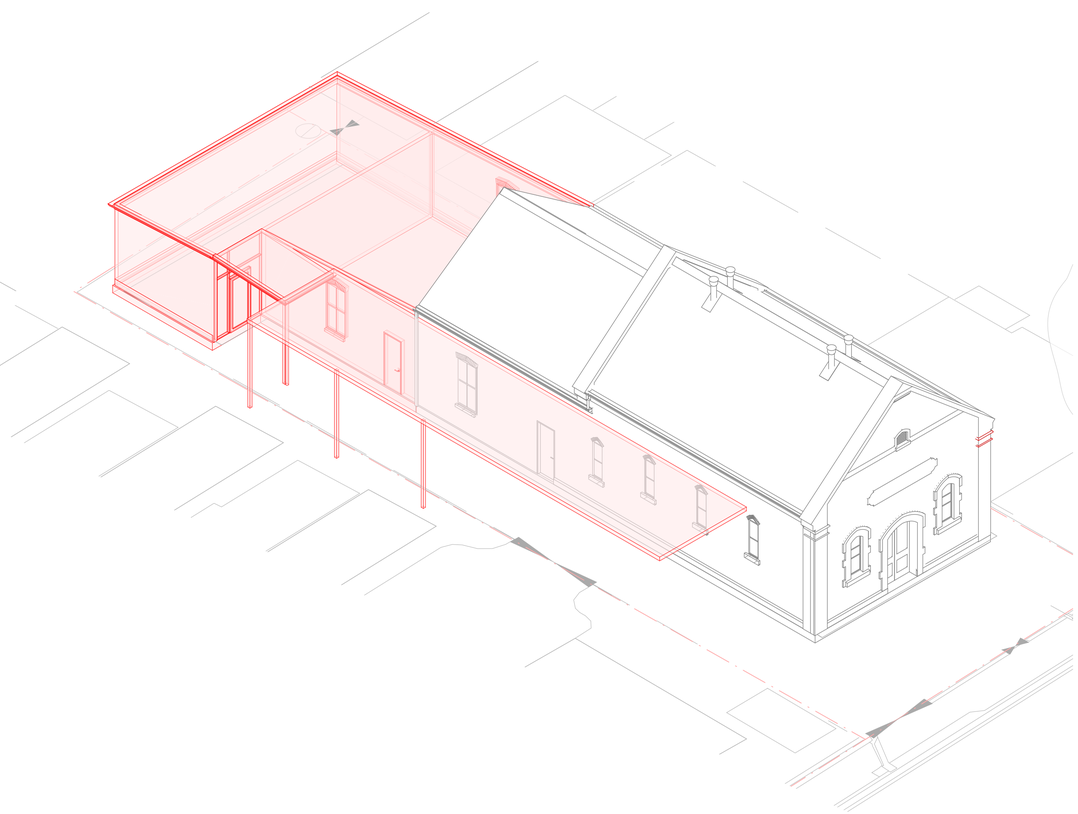
Drawing Name
HACKNEY MISSION HALL - PROPOSED DEMOLITION ELEVATIONS

Drawing No.
DA201



## 1 PROPOSED DEMOLITION SOUTH-EAST AXONOMETRIC



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North

Scale

0 1m 2m 5m 10m

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|---|---|
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| Client | ASPEN GROUP |
| Date | 13.12.2024 |
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| Status | ISSUE FOR DEVELOPMENT APPLICATION |
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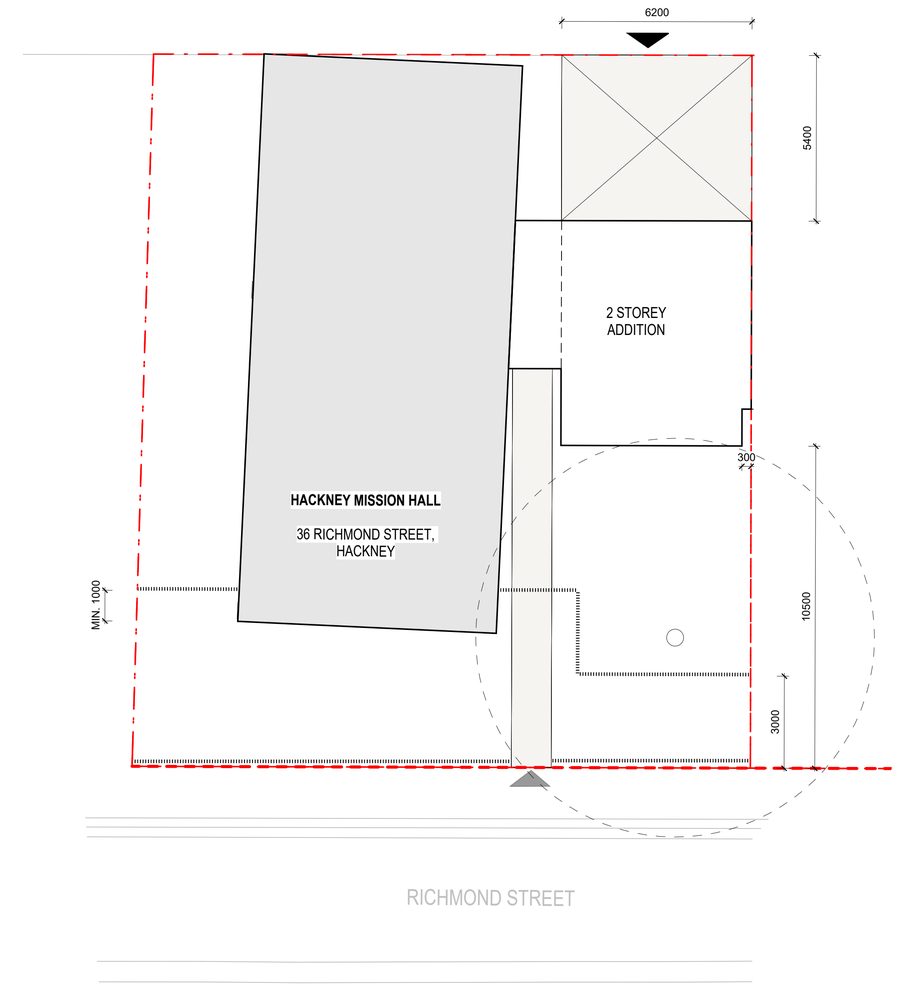
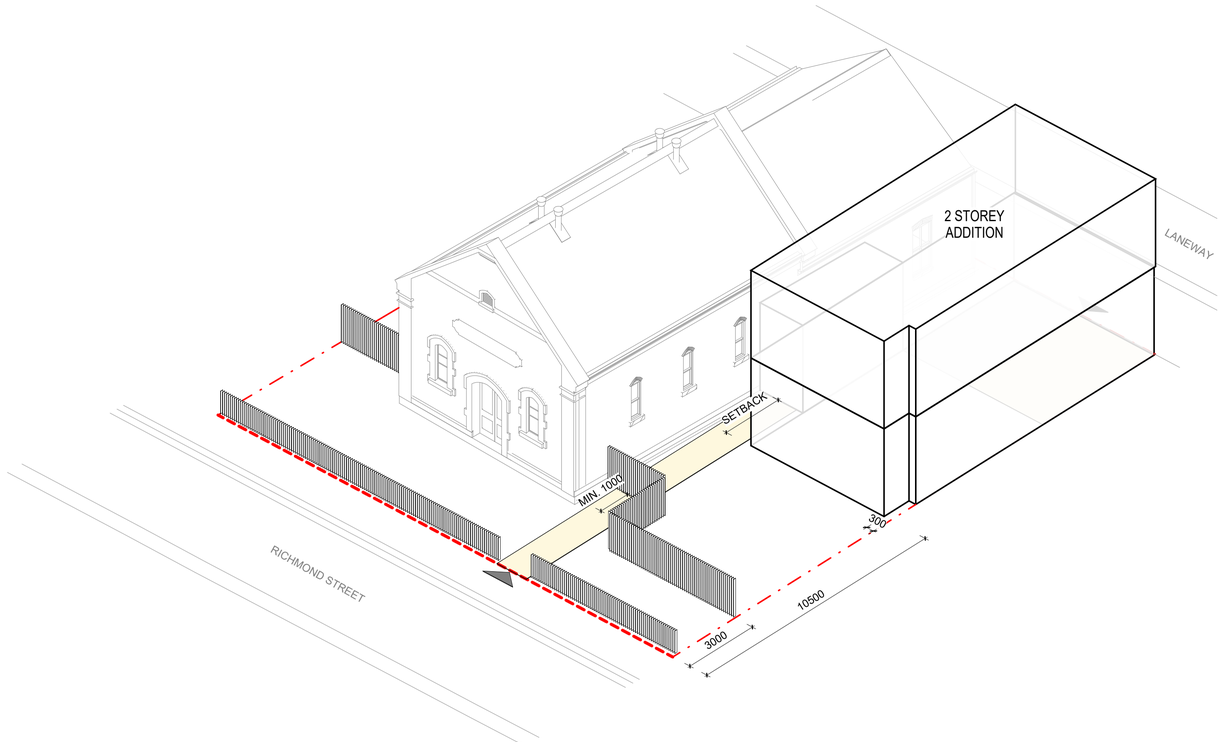
| Drawing No. | DA202 |




## 1 PROPOSED BUILDING ENVELOPE PLAN
1 : 100




## 2 PROPOSED BUILDING ENVELOPE AXONOMETRIC

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North

0 1m 2m 5m 10m

Scale
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| Project Name | RICHMOND STREET MASTERPLAN |
| Address | RICHMOND STREET, HACKNEY 5069 |
| Client | ASPEN GROUP |
| Date | 13.12.2024 |
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| Status | ISSUE FOR DEVELOPMENT APPLICATION |
| Drawing Name | HACKNEY MISSION HALL - PROPOSED BUILDING ENVELOPE PLAN |
| Drawing No. | DA204 |

Attachment 1.3

# HERITAGE IMPACT STATEMENT

## Richmond Street

## Master Plan

| Revision | Description | Issue Date | Approval |
|---|---|---|---|
| Rev 02 | Issued for Development Application | 17 December 2024 | EM |

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## PART A: CONTEXT

## 1. Introduction

Forum Studio have been engaged by Aspen Group to provide master planning, architectural design services, and heritage advice for the Richmond Street Master Plan in Hackney (Figure 1).

*Figure 1: Aerial view of Richmond Street, Hackney. The subject site is outline in black.*

### *Local Heritage Places*

The development includes alterations and additions to two Local Heritage Places (LHPs) on the subject site (Figure 2), these will be referred to as either Park Farm Barn or Hackney Mission Hall in this Heritage Impact Statement (HIS) as summarised below:

| HIS Reference | LHP Number | Address |
|---|---|---|
| Park Farm Barn | 6407 | 46 Richmond Street, Hackney |
| Hackney Mission Hall | 6406 | 36 Richmond Street, Hackney |

This HIS addresses the heritage significance of the LHPs on the subject site (Figure 3) and any impacts that may arise to these Places due to the proposed development (subject to a future Development Application).

*Previous Reports & Advice*

This HIS has evaluated prior reports that reference the subject site, including:

- Danvers Architects, *St Peters Heritage Survey*, 1984-85
- Bruce Harry & Associates, *St Peters Heritage Review*, 2002

Advice has also been sought from David Brown for the completion of this HIS.

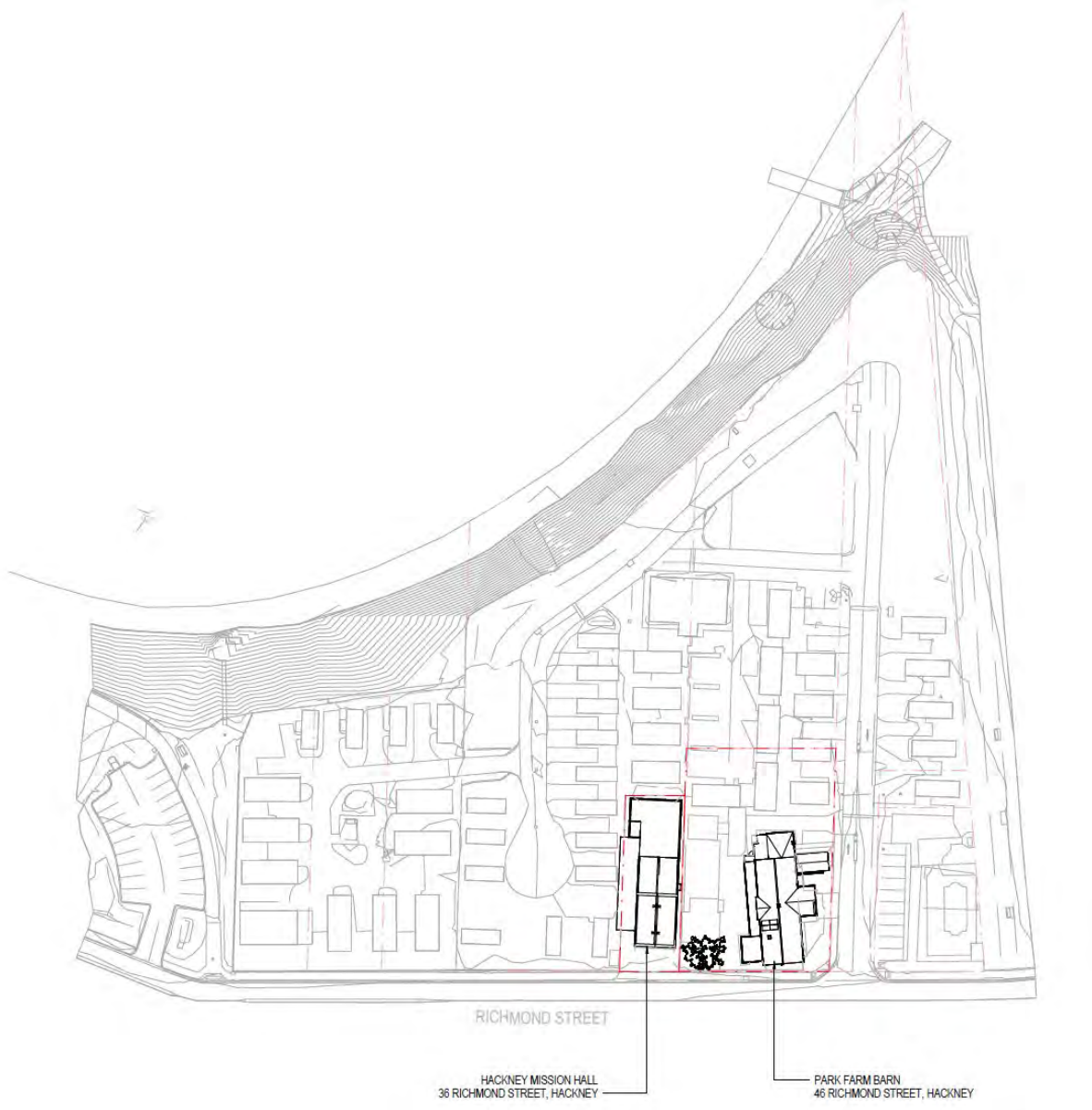


*Figure 2: Existing site plan showing the Local Heritage Places.*

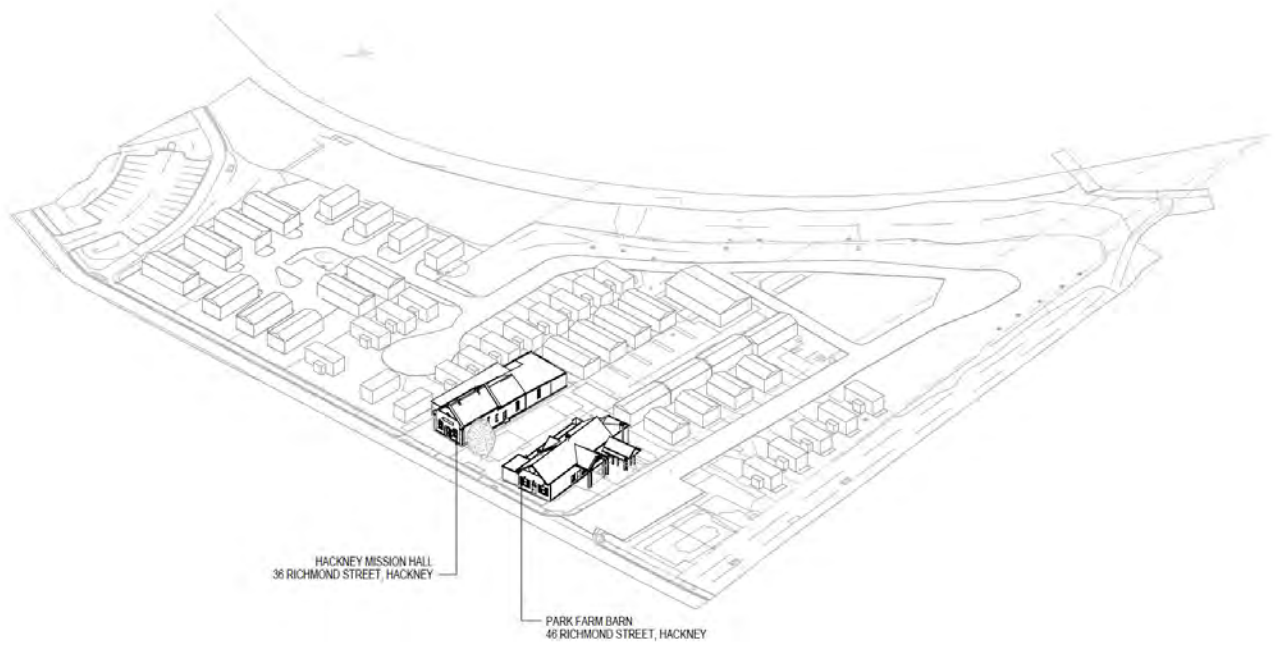


*Figure 3: South-east axonometric showing the Local Heritage Places on the subject site.*

## 2. Brief History

The suburb of Hackney is located in Adelaide's inner east in the present-day City of Norwood, Payneham and St Peters. Hackney is bordered by the River Torrens (Karrawirra Parri) to the north, the major roads of North Terrace to the south and Hackney Road to the west, and the smaller suburban streets of College Park to the east.

The original inhabitants of the Adelaide Plains were the Kaurna people. The Kaurna named the land "Tarntanya," meaning "red kangaroo place," and the landscape was characterised by open grassy plains with patches of trees and shrubs (Adelaidia 2024). This HIS provided a brief summary of the history of Hackney and the site's context following the founding of Adelaide in 1836. A more detailed history is available in Bruce Harry & Associates' 2002 *St Peters Heritage Review*.

### *Lot 256*

Hackney was one of the first areas of Adelaide to be settled beyond the parklands belt. Hackney's proximity to the River Torrens and city centre made it attractive to the original purchasers of land around Adelaide. The South Australia Company originally acquired much of present-day Hackney including a parcel of land named "Lot 256" on which the LHPs were later built (Figure 4).

*Figure 4: Plan of the District of Adelaide, 1838. Lot 256 is outlined in black.*
*Source: State Library of South Australia. BRG 14 120-17*

*Park Farm Barn*

Early development in Hackney was characterised by small, one-acre farms, orchards, and plant nurseries owing to the area's fertile terrain. Lot 256 was originally purchased by the South Australian Company for a new experimental farm called "Park Farm," which operated from 1838-1847 and tested imported plants and seeds for suitability in local conditions (Harry 2002).

Park Farm Barn was one of the first buildings on the site, along with a homestead that was demolished in 1965 (Harry 2002). The Barn is notable for its high doorway, which was tall enough for a loaded dray to pass through, and stonework of different periods. The barn was converted into a residence in the 20th century (Figure 5 and Figure 6), and later into the reception building for the Adelaide Caravan Park (Figure 7).

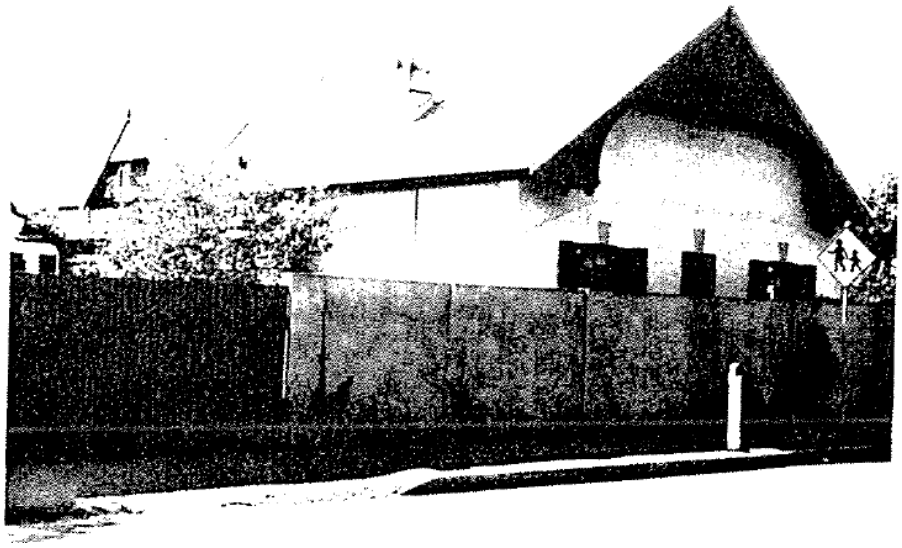

*Figure 5: Former Park Farm Barn (view from Richmond Street), 1985.*
*Source: Danvers Architects, St Peters Heritage Survey 1984-85, Item 070.*

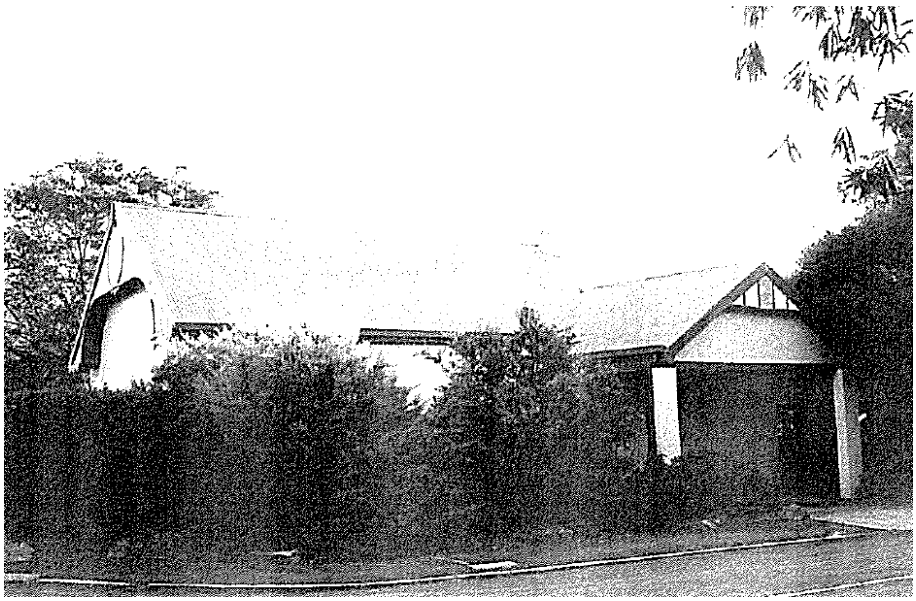

*Figure 6: Former Park Farm Barn (view from corner of Richmond Street and driveway), 2002.*
*Source: Bruce Harry & Associates, St Peters Heritage Review 2002, H28/1.*

*Figure 7: Adelaide Caravan Park reception (former Park Farm Barn), 2024.*

A more intensive subdivision of Hackney occurred during South Australia's economic boom of mid-1850 to 1864. St Peters College was established in Hackney in 1849, and new suburbs beyond the Parklands belt were created to accommodate the growing population. This suburban development was characterised by groups of stone cottages on small allotments, along narrow streets between the River Torrens and St Peters College (Harry, 2002).

### *Hackney Mission Hall*

Churches and Mission Halls provided important civic and community places in Adelaide's early suburbs. Early services in Hackney were held in a weatherboard church on Torrens Street. The Hackney Mission Hall was opened in 1906 at 36 Richmond Street formerly known as Park Street (Figure 8 and Figure 9). The Hackney Mission was the centre of community life during the Depression of the 1920's and 1930's (Harry 2002).

Uniting Church records suggest the Hackney Mission Hall continued operating as part of the Church in the 1980s but ceased operating from 1990 when it was no longer listed in the Uniting Church directories. Today the building is part of the Adelaide Caravan Park site and kept in fair condition, although not used for any explicit purpose (Figure 10).

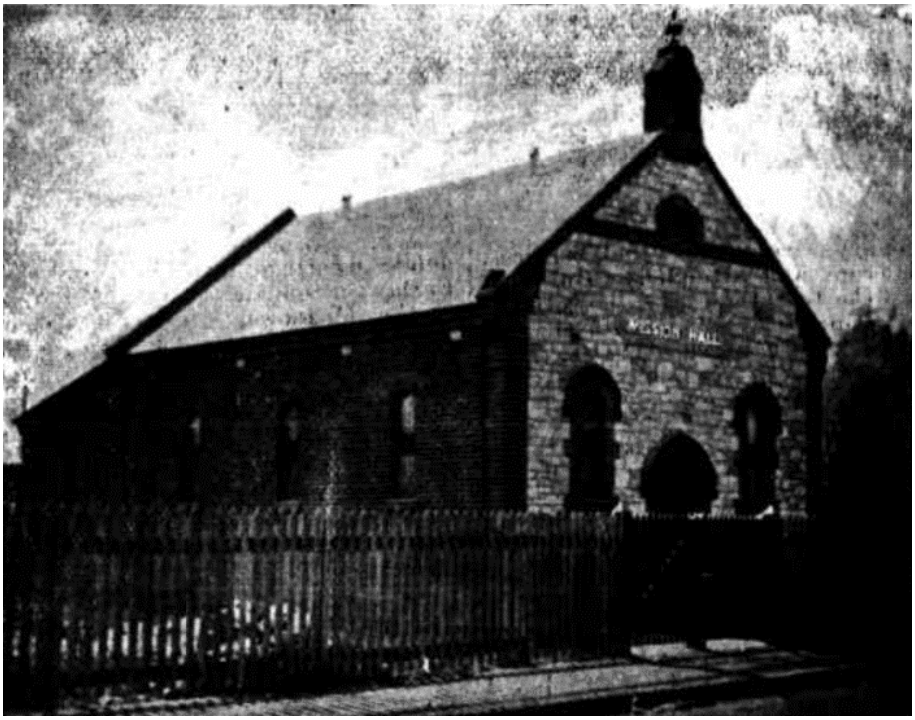


*Figure 8: The New Mission Hall, Hackney, 1906, view from Richmond Street.*
*Source: Trove. The Australian Christian Commonwealth, 27 April 1906, 13.*

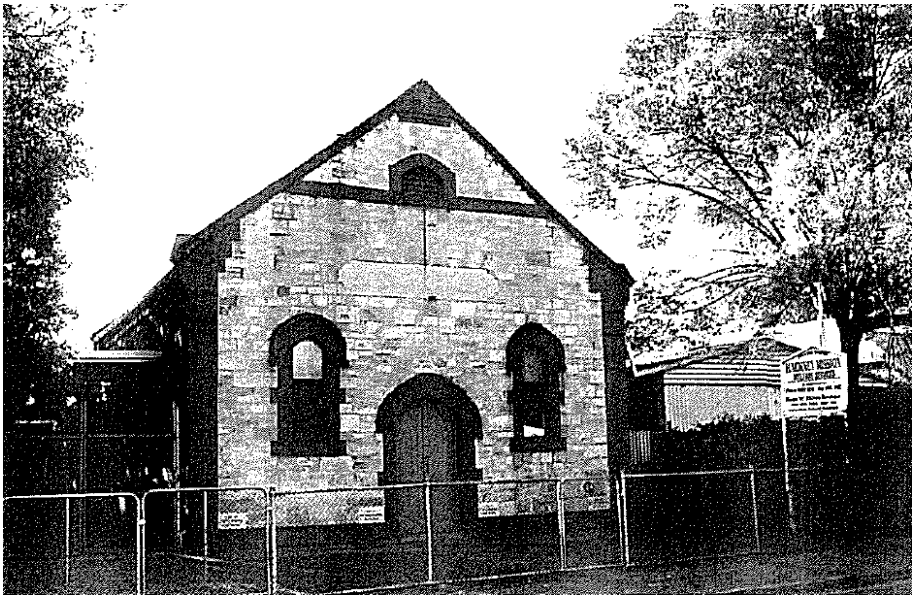

*Figure 9: Hackney Mission Hall, 2002, view from Richmond Street.*
*Source: Bruce Harry & Associates, St Peters Heritage Review 2002, H27/1.*

*Figure 1: Hackney Mission Hall, 2024, view from Richmond Street.*

## 3. Heritage Context

The Hackney Mission Hall and Park Farm Barn are in close proximity to several other local and state heritage places, and heritage overlay areas (Figure 11). The Historic Area Overlay is characterised by a mix of larger established houses and gardens and smaller detached or attached dwellings of stone. The State Heritage listed Hackney Bridge (No. 8422) is north-west of the subject site, and St Peters College (Nos. 5607, 27683, 5608) is south of the subject site.

The subject site itself and immediate surrounds along Richmond Street are subject to "Heritage Adjacency" meaning any proposed development will be assessed for impact on the heritage-listed place or area.

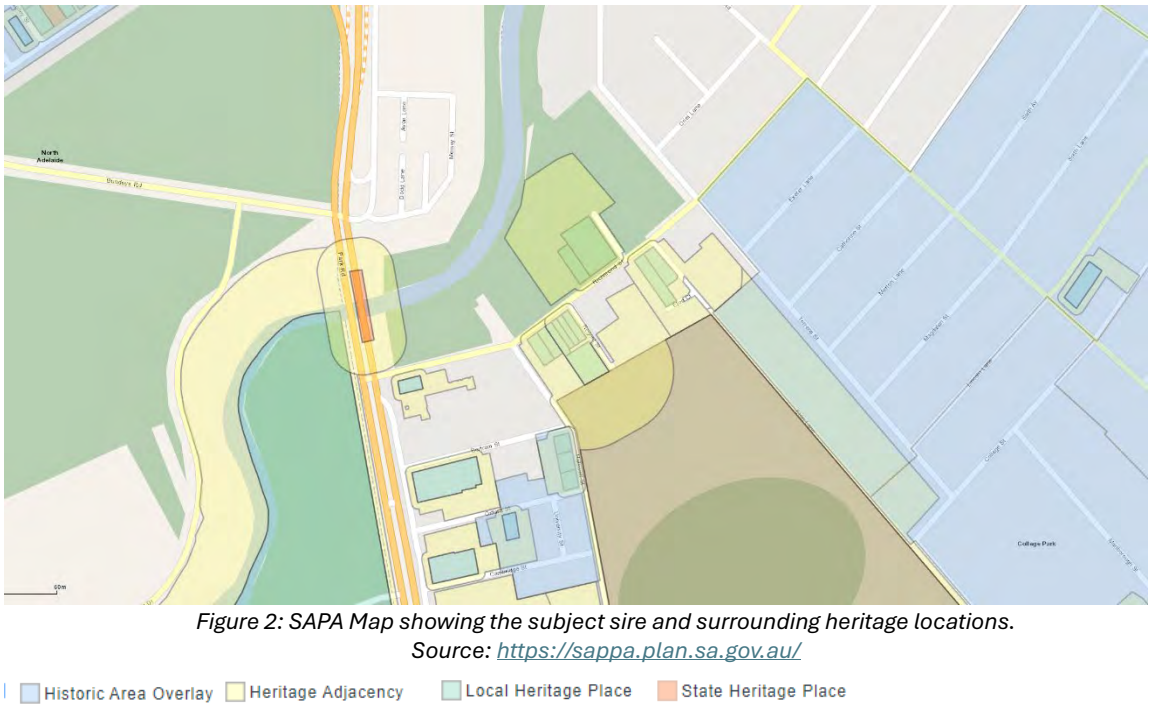


*Figure 2: SAPA Map showing the subject sire and surrounding heritage locations.*
*Source: https://sappa.plan.sa.gov.au/*

## 4. Heritage Listing

The Hackney Mission Hall and Park Farm Barn were listed as LHPs on 26 October 2006. The SA Heritage Database describes the listing for Park Farm Barn as the whole of the building. The SA Heritage Database describes the extent of the listing for the Hackney Mission Hall as the original 1906 building fabric facing Richmond Street. Both listings exclude later alternations and additions, and the interiors. The two listings are summarised in Table 1 below:

*Table 1: Summary of Local Heritage Places A and B*

| Heritage Number | Address | LGA | Details | Class | Extent of Listing | Council Reference |
|---|---|---|---|---|---|---|
| 6406 | 36 Richmond Street HACKNEY | Norwood, Payneham and St Peters | Uniting Church | Local | Original 1906 building fabric fronting Richmond Street including main hall and two classrooms but excluding the rear additions | H/27 |
| 6407 | 46 Richmond Street HACKNEY | Norwood, Payneham and St Peters | Dwelling (Former Park Farm Barn) | Local | Whole of the building, excluding the later porch additions on the eastern elevation, lean-to additions on the western elevation and lower brick and framed structure to the north. | H/28 |

In their respective listings, both LHPs are acknowledged as displaying "historical, economic or social themes that are of importance to the local area." The Hackney Mission Hall at 36 Richmond Street is additionally cited as having "played an important part in the lives of local residents."

As mentioned above, the LHPs are subject to a Heritage Adjacency Overlay. This overlay aims to address the potential impact of development on land adjacent to heritage-listed places.

Attachment 1.3

## PART B: PARK FARM BARN

**5. Park Farm Barn**

This section addresses the significance, existing conditions, and proposed works to the former Park Farm Barn at 46 Richmond Street.

*Significance*

Park Farm Barn was first identified as a building of heritage significance in Danvers Architects' 1984-85 *St Peters Heritage Survey*. Harry likewise identified the building as places of local heritage significance in Bruce Harry & Associates' 2002 *St Peters Heritage Review*.

Harry assessed Park Farm Barn against criteria for the designation of LHPs in the 1993 Development Act (Section 23: 4). The relevant criteria were:

a. it displays historical, economic or social themes that are of importance to the local area, and
d. it displays aesthetic merit and design characteristics of significance to the local area.

The survey provides the below statement of heritage value:

> "A rare, surviving element of the South Australian Company's Park Farm, established during the earliest settlement period of Hackney. The building is also of significance for its hand carved timber detailing." (Figure 12)

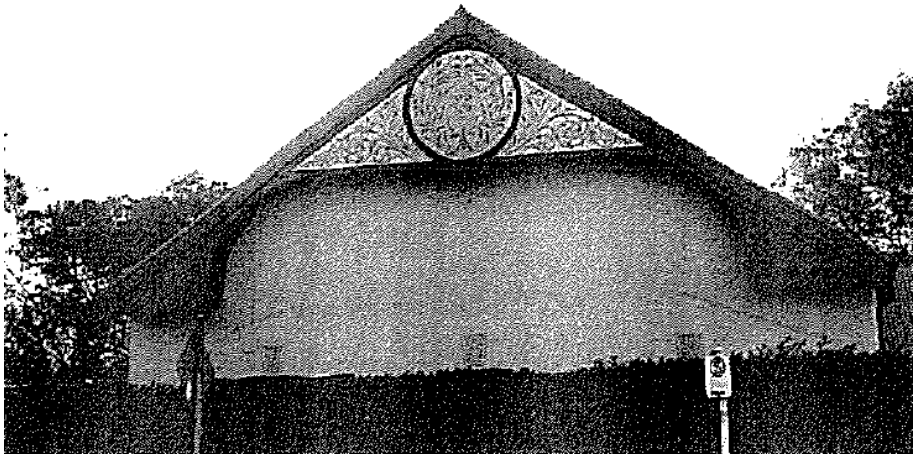

*Figure 3: View of timber detailing at gable ends.*
*Source: Bruce Harry & Associates, St Peters Heritage Review 2002, H28/3.*

It is worth noting that the above criterion "d" concerning aesthetic merit and design is no longer cited in the SA Heritage Places Database. Harry identified the external form, materials and detailing of the building as significant. Later alterations and additions, and the interiors were not identified as significant.

*Existing Conditions*

The following description of existing conditions has been extracted from Harry 2002.

> "A large single storey, gable ended building. Walls are rendered with vermiculated keystones to windows and door surrounds. Windows are multi-paned, double-hung sash windows with timber shutters. The entrance door has sidelights. A dormer window has been constructed to the rear of the roof which is clad with corrugated iron. The gable end has a decorative timber carved bargeboard with infill."

The Park Farm Barn is currently part of the Adelaide Caravan Park site and used as a manager's house, office and reception for the facility. A photographic summary of existing conditions is provided below and documented in Appendix B.

*Figure 4: South-eastern aerial photograph.*
*The roof is constructed of corrugated metal sheeting and appears to be in fair condition.*

*Figure 5: South façade of the former barn along Richmond Street as it is today.*

*Figure 6: East façade of the former barn along the site driveway.*

*Figure 7: North façade*

*Figure 8: North-western return façade.*

*Figure 9: North-eastern return façade.*

*Figure 19: West façade showing later shed, verandah and lean-to additions.*

*Proposed Works*

The main works proposed to Park Farm Barn are summarised below.

Proposed Demolition Works:

1. demolition of later alterations and additions to the east and west of the building, and the removal of non-heritage fabric;
2. demolition of northern lean-to
3. demolition of eastern gabled unenclosed entry

Indicative Proposed Works (subject to future Development Application):

4. make good to the northern exterior wall, and areas of east and west walls affected by demolition;
5. restoration of stone and masonry, including repainting and repointing;
6. updated fences and landscaping;
7. two-storey addition to the west;
8. enclosed link between the western façade and two-storey addition.

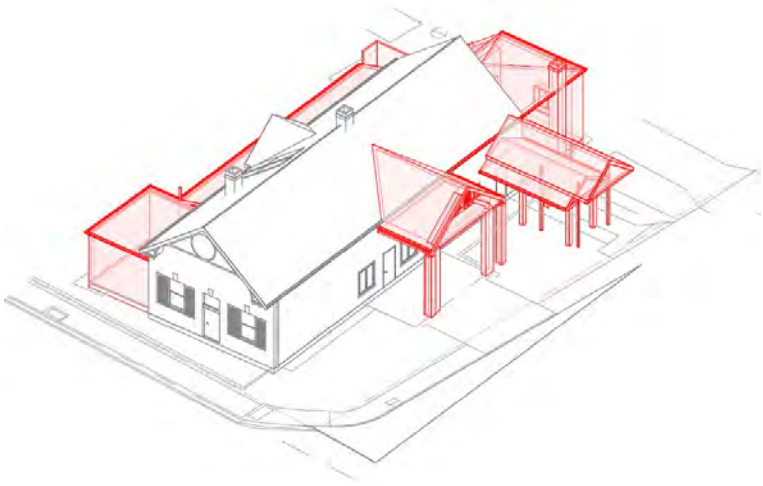

*Figure 10: South-east axonometric showing proposed demolition.*

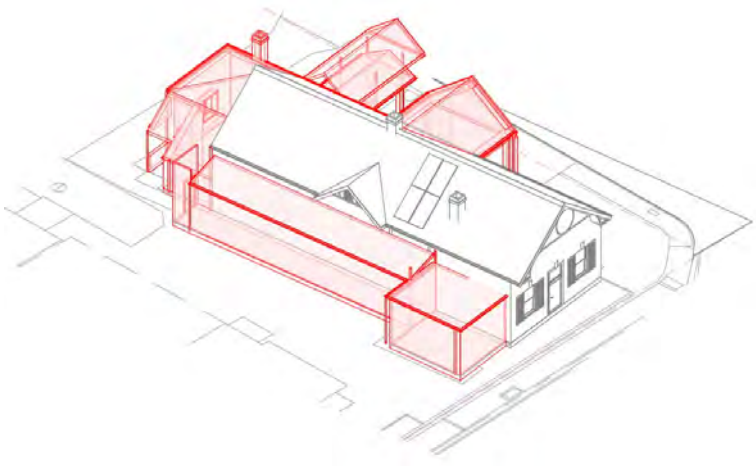

*Figure 11: South-west axonometric showing proposed demolition.*

*Figure 12: Floor plan showing proposed demolition.*

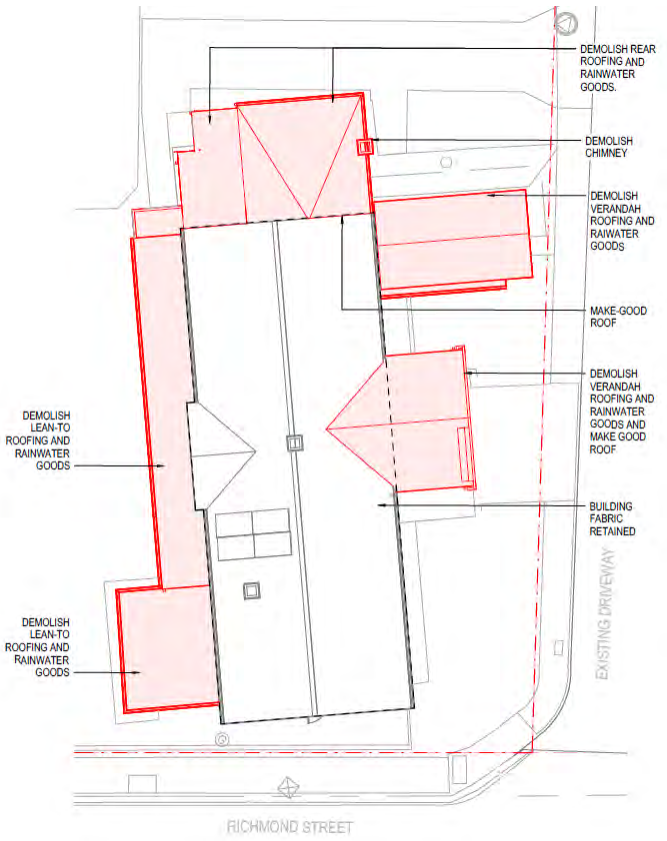


*Figure 13: Roof plan showing proposed demolition.*

*Building Envelope*

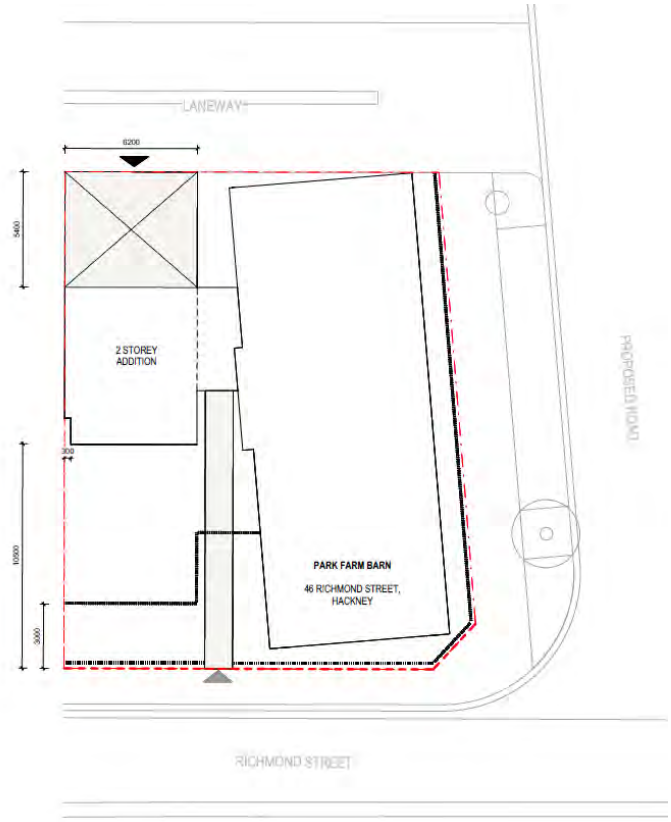


*Figure 14: Indicative proposed building envelope, 2D plan.*

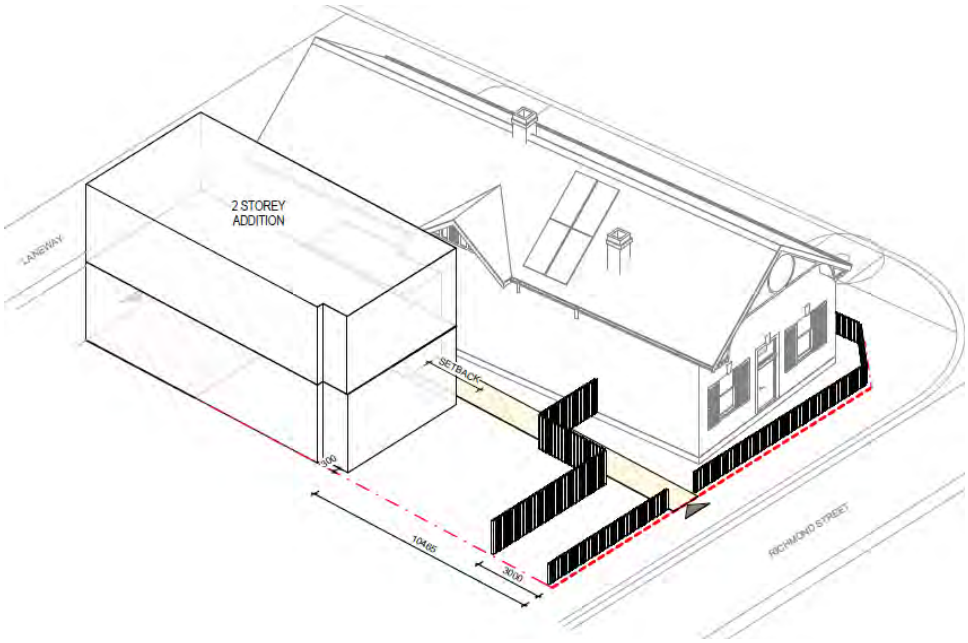


*Figure 15: Indicative proposed building envelope, 3D axonometric.*

# PART C: HACKNEY MISSION HALL

## 6. Hackney Mission Hall

This following addressed the significance, existing conditions, and proposed works to the Hackney Mission Hall at 36 Richmond Street.

*Significance*

The Hackney Mission Hall was first identified as a building of heritage significance in Danvers Architects' 1984-85 *St Peters Heritage Survey*. Harry likewise identified the building as a place of local heritage significance in Bruce Harry & Associates' 2002 *St Peters Heritage Review*.

Harry assessed the Hackney Mission Hall against criteria for the designation of LHPs in the 1993 Development Act (Section 23: 4). The relevant criteria were:

a. it displays historical, and social themes that are of importance to the local area,
c. it has played an important part in the lives of local residents, and
d. it displays aesthetic merit and design characteristics of significance to the local area.

Harry's survey provides the below statement of heritage value:

> "The Church is of heritage significance for its association with the history and development of the Uniting Church and its role in the social and religious development of the Hackney community."

Harry also cites a faded inscription visible on the front facade reading "Hackney Methodist Church," which does not appear to be present today.

It is worth noting that the above criterion "d" concerning aesthetic merit and design is no longer cited in the SA Heritage Places Database. Harry identified the external form, materials and detailing of the buildings as significant. Later alterations and additions, and the interiors were not identified as significant.

*Existing Conditions*

The below brief description of existing conditions has been extracted from Harry 2002:

> "A traditional gable fronted, small church with a sandstone, random coursed (front façade}, with brick copings, quoins, plinth, string course and window and door openings. Door, window and vent openings are pointed arches with decorative hood mouldings to windows and doors. The building contains a hall and two classrooms."

A photographic summary of existing conditions is provided below and documented in Appendix B.

*Figure 16: North-eastern aerial photograph.*
*The roof is constructed of corrugated metal sheeting and appears to be in fair condition.*

*Figure 17: South Façade of the former church along Richmond Street as it is today.*
*The sandstone façade is visible with presently white-painted brick copings, quoins, plinth and string course.*
*The window and door openings have white-painted pointed arches with decorative hood mouldings.*

*Figure 28: Partial view of western façade showing the later addition of a metal deck verandah.*

*Figure 29: Partial view of the north-west addition.*

*Figure 18: Partial view of the eastern façade*

*Proposed Works*

The main works proposed to the Hackney Mission Hall are summarised below.

Proposed Demolition Works:

1. demolition of later alterations and additions to the north and west of the building;
2. removal of non-heritage fabric;

Indicative Proposed Works (subject to future Development Application):

3. make good to the northern exterior wall;
4. restoration of stone and masonry facades, including repainting and repointing;
5. updated fences and landscaping;
6. two-storey addition to the east;
7. enclosed link between the eastern façade and two-storey addition utilising an existing opening.

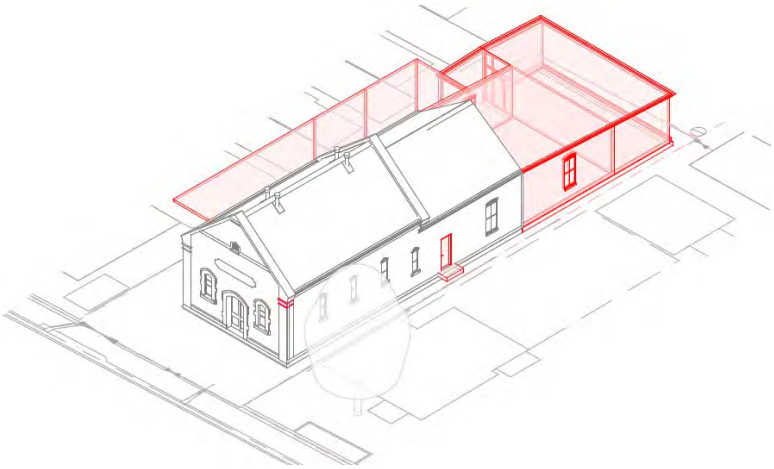

*Figure 19: South-east axonometric showing proposed demolition.*

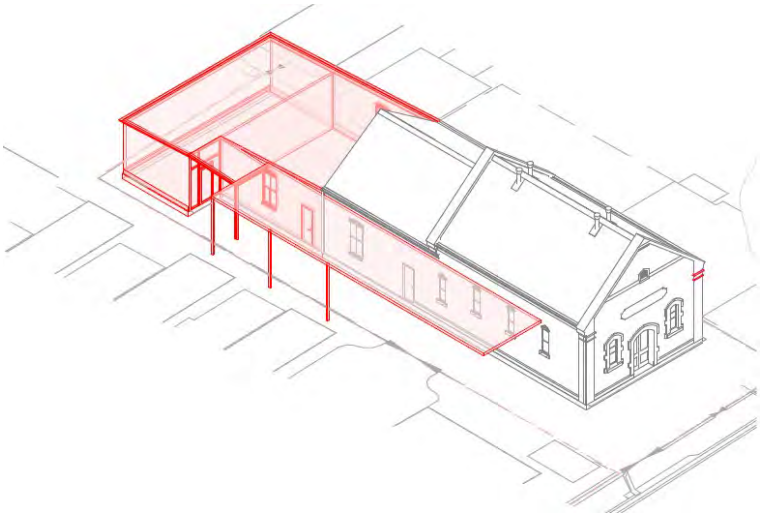

*Figure 20: South-west axonometric showing proposed demolition.*

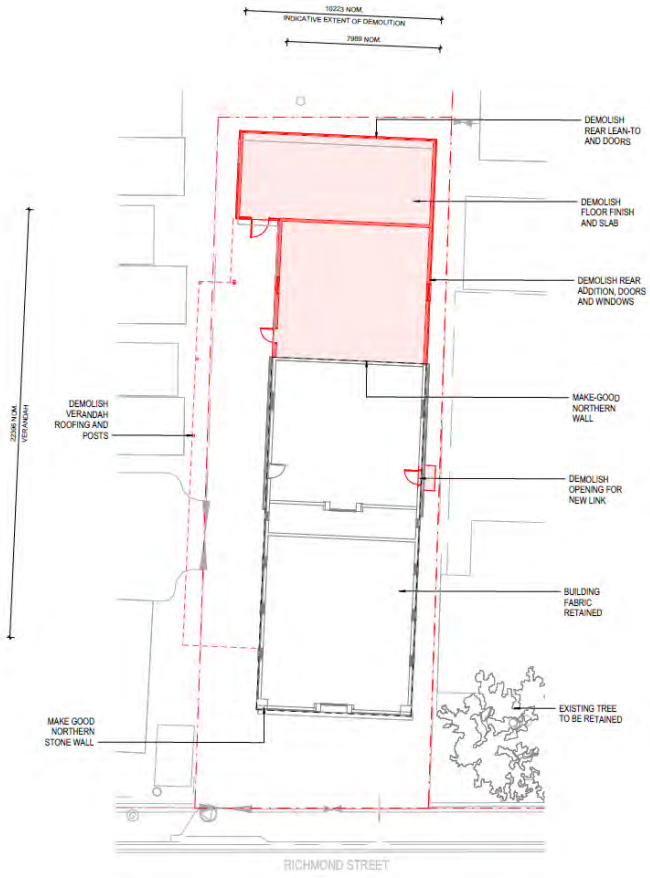


*Figure 21: Floor plan showing proposed demolition.*

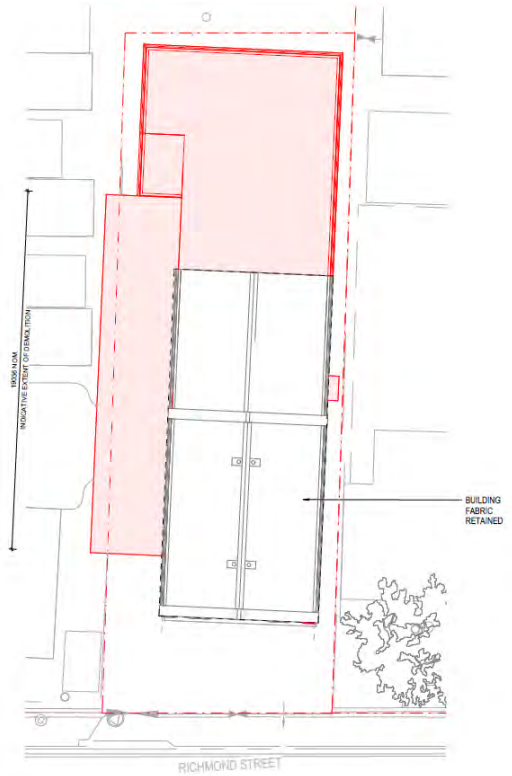


*Figure 22: Roof plan showing proposed demolition.*

*Building Envelope*

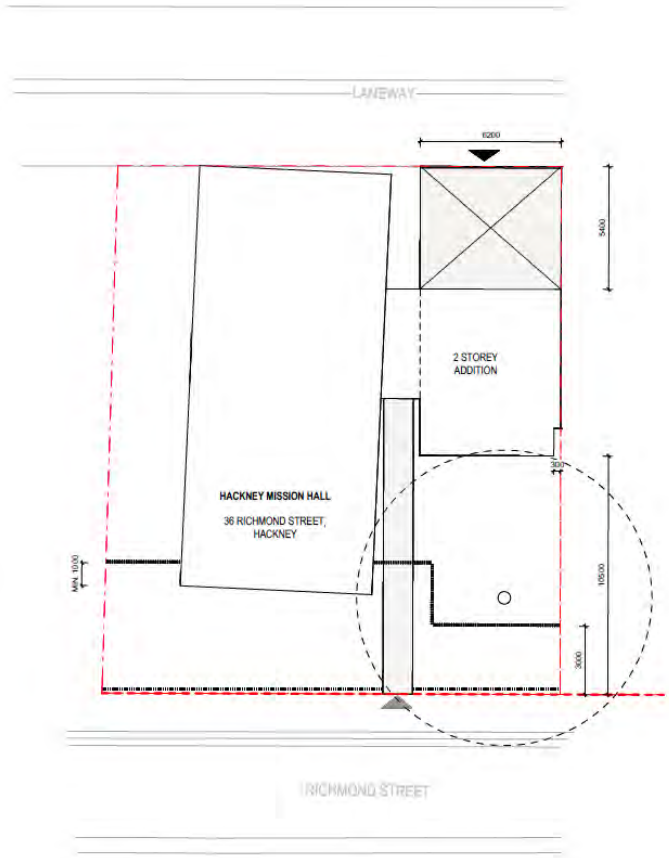


*Figure 23: Indicative proposed building envelope, 2D plan.*

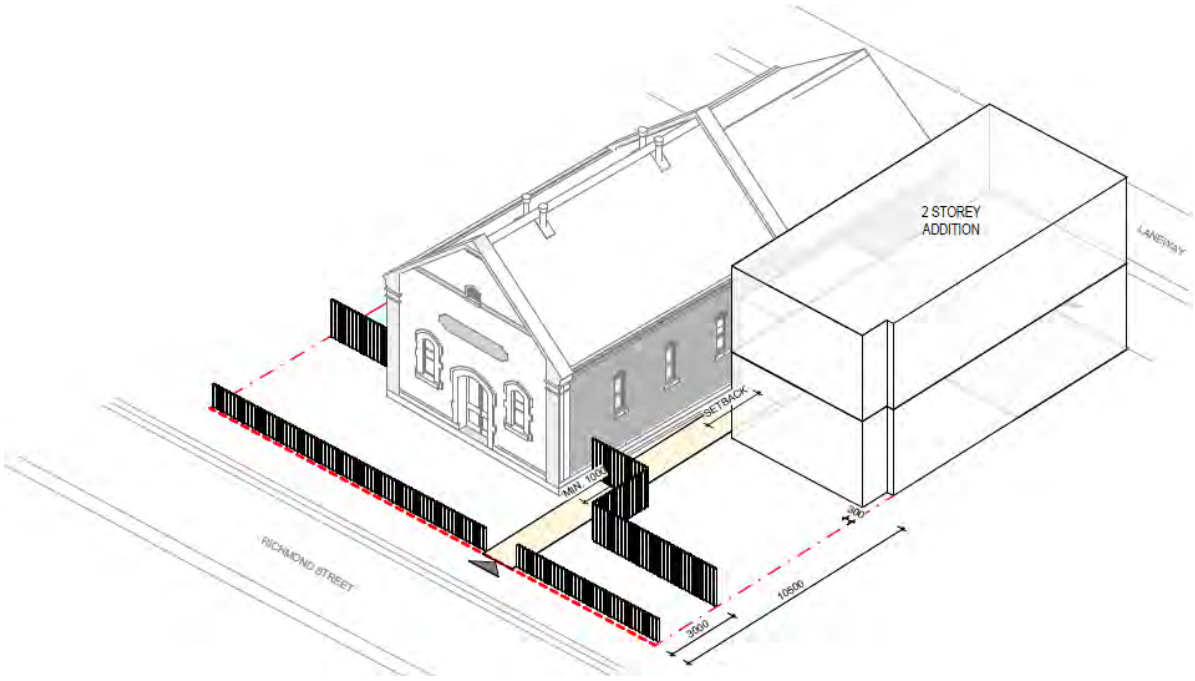


*Figure 24: Indicative proposed building envelope, 3D axonometric.*

# PART D: SUMMARY

## 7. Heritage Impact

The heritage impact of the proposed works to Park Farm Barn and the Hackney Mission Hall have been assessed with reference to the *Burra Charter* (ICOMOS, 2013). The potential impacts of the proposed works are summarised below:

*Removal of later additions*
Building fabric proposed to be removed from the LHPs is generally of a non-heritage nature, consisting mainly of non-original lean-tos, verandahs and sheds. These later additions generally face the site internally and are in poorer condition than the street-facing facades. Their removal will enhance the heritage value of the LHPs and streetscape, allowing both buildings to reflect their historical appearance.

*Restoration of heritage fabric*
The exterior fabric of the LHPs will be made good where appropriate to better reflect their original appearance. Exterior walls affected by the removal of later additions and building fabric will be made good. Stone and masonry facades will be repaired and repointed as required and painted in appropriate finishes to reflect their original appearances.

*Improved urban structure & site planning*
The lots will be replanned to establish a laneway at the rear of the properties to the north. This laneway will redirect traffic flow to the back of the site, allowing less visual disruption to the heritage streetscape. This will also allow a clearer delineation of vehicle and pedestrian spaces and connections through the site.

*New external landscaping*
The generously sized lots will be maintained and enhanced through new exterior landscaping. The existing large Ash tree between the LHPs will be retained. New landscaped gardens will be established between the dwellings and the street, along with a new fence that is lower at the street boundary allowing greater visibility and appreciation of the heritage places from the street. With taller fencing setback to be aligned to the building frontage to allow for Private Open Space.

*Reduced impact*
The indicative proposed works seek to reduce the bulk and scale of the proposed contemporary additions on the heritage Places. The contemporary additions will be limited to two storeys, be of a modest footprint, and be offset from the heritage Places. Their materiality will be recessive and of a dark to mid-grey colour or similar. Glazing will also be utilised to reduce the bulk of the mass. The materiality will be sympathetic to the heritage Places while also provide an opportunity to create more transparency to the street and garden.

*Minor reconfiguration of openings*
The indicative proposed works utilise existing openings where possible. For the Hackney Mission Hall, a link between the heritage place and new dwelling space will be established utilising an existing doorway on the eastern façade. For Park Farm Barn, a minor opening will be made in the western façade to accommodate the link between the heritage place and new dwelling space.

## 8. Conclusion

The proposed works represent a positive outcome for Park Farm Barn and the Hackney Mission Hall. The two LHPs, which are currently hidden away, will be retained and celebrated as part of the works. As outlined above, the works will minimise heritage impact through:

- removal of later additions and restoration of heritage fabric;
- improved urban structure, site planning and landscape setting;
- reduced impact of contemporary additions;
- minor reconfiguration of openings.

These works provide an opportunity for the ongoing conservation of the sites as valued heritage places in Hackney. The primary façades on Richmond Street will remain largely as they were at the time of the heritage listing in 2006 and will not be detrimentally impacted. The proposed works will have a positive impact on the heritage value and setting of the LHPs and improve the broader site for the benefit of neighbouring properties, the streetscape, and the community.

## 9. References

Adelaidia (presented by History Trust of South Australia, Arts SA, TourismSA). Kaurna People. Accessed 6 September 2024. https://adelaidia.history.sa.gov.au/subjects/kaurna-people

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SA Heritage Database. 46 Richmond Street HACKNEY. Accessed 6 September 2024. https://maps.sa.gov.au/heritagesearch/HeritageItem.aspx?p_heritageno=6407

The Uniting Church in Australia. Online Directory services. Accessed 11 September 2024. https://sa.uca.org.au/online-directory-services.

# PART E: APPENDICES

## APPENDIX A: RENDERS

*Indicative proposed render looking north from Richmond Street, Hackney.*

*Indicative proposed render looking west up Richmond Street, Hackney.*

## APPENDIX B: DRAWINGS

Attachment 1.4

# RICHMOND STREET MASTERPLAN

## RICHMOND STREET, COLLEGE PARK S.A.

## CIVIL ENGINEERING MASTER PLANNING

### DRAWING INDEX


| ROADS AND SERVICES | |
|---|---|
| WGA230955-SK-CV-0001 | SITE PLAN AND DRAWING INDEX |
| WGA230955-SK-CV-0002 | OVERALL LAYOUT PLAN |
| WGA230955-SK-CV-0003 | ROAD HIERARCHY PLAN / TYPICAL ROAD CROSS SECTIONS |
| WGA230955-SK-CV-0004 | CUT / FILL PLAN |
| WGA230955-SK-CV-0005 | STORMWATER MASTER PLAN |
| WGA230955-SK-CV-0006 | SEWER MASTER PLAN - OPTION 1 |
| WGA230955-SK-CV-0007 | SEWER MASTER PLAN - OPTION 2 |
| WGA230955-SK-CV-0008 | SEWER MASTER PLAN - OPTION 3 |
| WGA230955-SK-CV-0009 | SEWER MASTER PLAN - OPTION 4 |
| WGA230955-SK-CV-0010 | WATER MASTER PLAN |
| WGA230955-SK-CV-0011 | DEMOLITION MASTER PLAN |

KEY PLAN
SCALE: NTS

### SURVEY DATA

| | |
|---|---|
| LEVEL DATUM | AHD 3rd ORDER |
| LEVEL AUTHORITY | PSM 6628/1511, EL 32.378, 10th FEB 2000 |
| CO-ORD DATUM | PROJECT GRID |

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0 50 100mm

FOR APPROVAL
NOT FOR CONSTRUCTION

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| A | 23.08.24 | PRELIMINARY ISSUE | TDJD | FWH | RB |
| B | 17.09.24 | FOR INTERNAL COORDINATION REVIEW | TDJD | FWH | RB |
| C | 20.11.24 | MINOR AMENDMENTS | TDJD | FWH | RB |
| D | 29.11.24 | ISSUE FOR APPROVAL | TDJD | FWH | RB |
| E | 23.04.25 | ISSUE FOR APPROVAL | TDJD | FWH | RB |

WGA

RICHMOND STREET MASTERPLAN
RICHMOND STREET, COLLEGE PARK S.A.
CIVIL MASTER PLANNING
SITE PLAN & DRAWING INDEX
©

A1
DOCUMENT NUMBER
Project Number: WGA230955-SK- CV-0001
Sheet No.: E
Rev.

Design: FWH
Drawn: TDJD

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Attachment 1.4

## LEGEND:

- SITE BOUNDARY
- EXISTING STORMWATER DRAINAGE
- EXISTING ELECTRICAL
- EXISTING OVERHEAD ELECTRICAL
- EXISTING GAS MAIN
- EXISTING SEWER MAIN
- EXISTING TELSTRA
- EXISTING WATERMAIN
- DESIGN CONTOURS (0.1m)
- EXISTING CONTOURS
- NEW 150 SEWER MAIN
- NEW 150 WATER MAIN
- NEW STORMWATER PIPE (RCP)
- NEW PERFORATED PIPE
- NEW PERMEABLEPAVEMENT
- NEW FOOTPATH
- NEW PROPOSED RESIDENTIAL DWELLING
- EXISTING HERITAGE BUILDING
- 3m WIDE STORMWATER EASEMENT

## NOTES:

1. CONTOURS SHOWN ARE PRELIMINARY AND CONCEPT IN NATURE. THEY EXCLUDED DETAILED DESIGN LEVELS FOR PARKING BAYS, KERB RETURNS, VERGES ETC. AND HAVE BEEN PRODUCED TO INFORM INDICATIVE CUT/FILL VOLUMES ONLY.

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| REV. | DATE | DESCRIPTION | DRAFT | ENG. | CHKD |
|---|---|---|---|---|---|
| A | 23.08.24 | PRELIMINARY ISSUE | TDJD | FWH | RB |
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| E | 23.04.25 | ISSUE FOR APPROVAL | TDJD | FWH | RB |
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RICHMOND STREET MASTERPLAN
RICHMOND STREET, COLLEGE PARK S.A.
CIVIL MASTER PLANNING
OVERALL LAYOUT PLAN
©

A1
DOCUMENT NUMBER
Project Number WGA230955-SK- CV-0002 E
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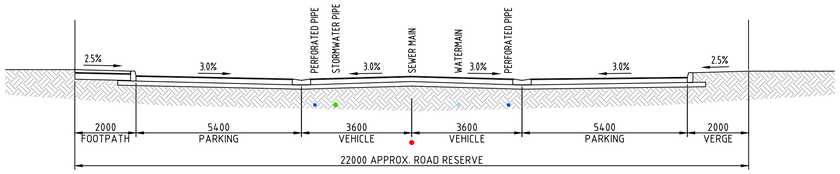


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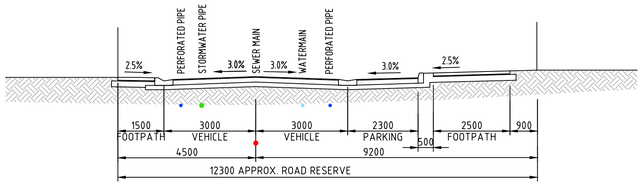


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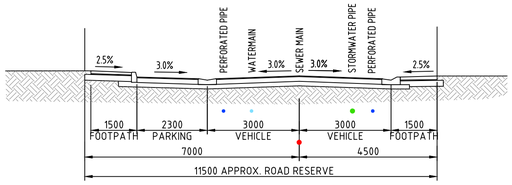


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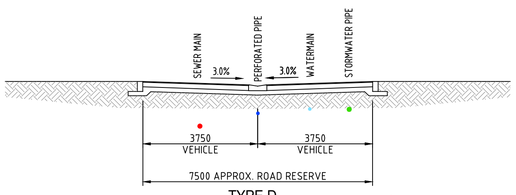


TYPE D
(LANEWAY)

RAISED DRIVEWAY

CAR PARKING BAYS

FOOTPATH

NOTE: SERVICES SHOWN ARE INDICATIVE ONLY.

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ROAD HIERACHY PLAN/TYPICAL CROSS SECTIONS ©

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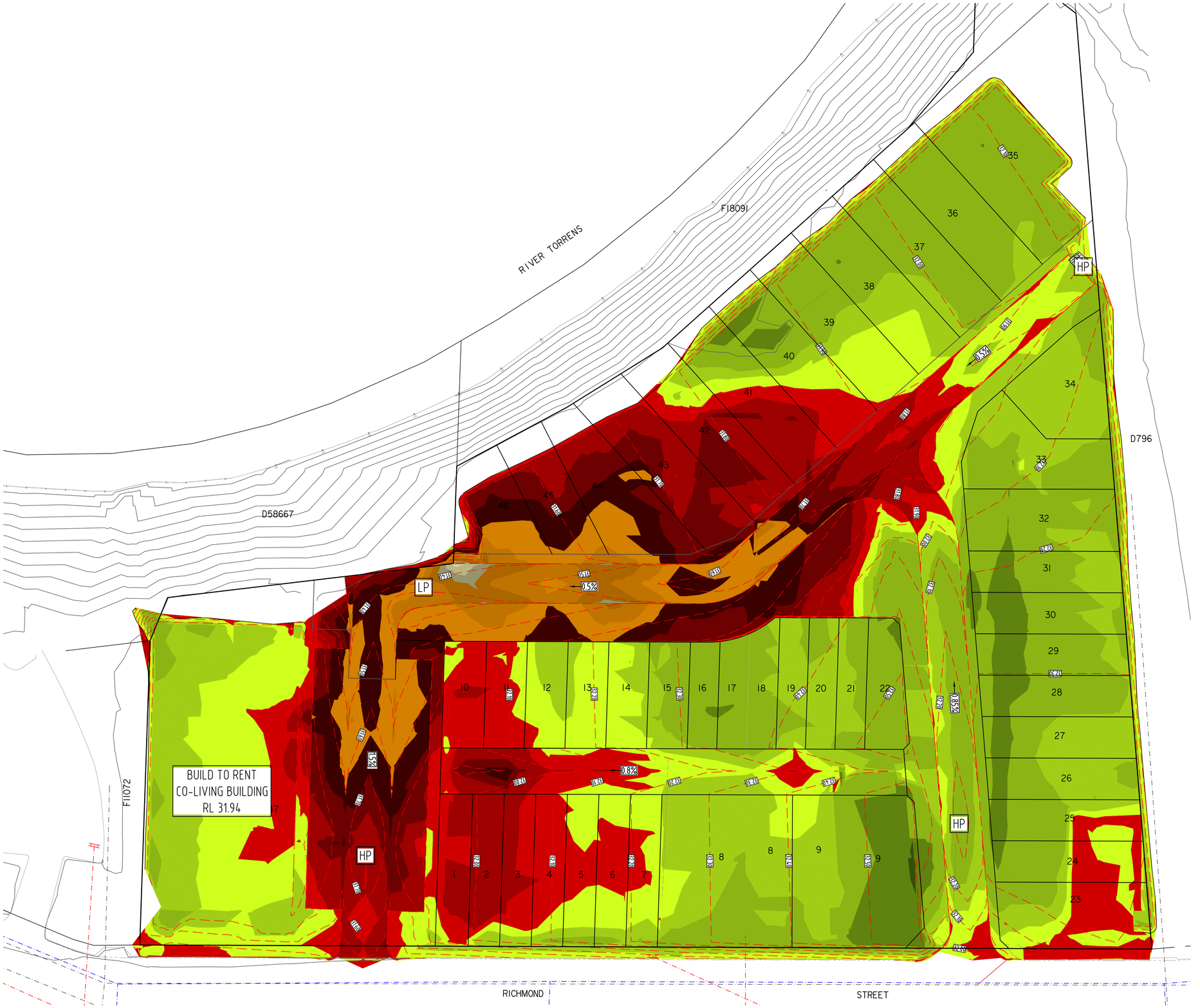


Adelaide Caravan Park Development DEPTH RANGE

| Lower_value | | Upper_value | Colour |
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| -0.70 | to | -0.80 | 2 |
| -0.60 | to | -0.70 | 2 |
| -0.50 | to | -0.60 | 2 |
| -0.40 | to | -0.50 | 2 |
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| 0.70 | to | 0.80 | 2 |
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| 0.90 | to | 1.00 | 2 |

## VOLUMES

FINISHED SURFACE LEVEL TO EXISTING SURFACE

Cut 1047m3, Fill 1594m3

**NOTES:**

1. CONTOURS SHOWN ARE PRELIMINARY AND CONCEPT IN NATURE. THEY EXCLUDED DETAILED DESIGN LEVELS FOR PARKING BAYS, KERB RETURNS, VERGES ETC. AND HAVE BEEN PRODUCED TO INFORM INDICATIVE CUT/FILL VOLUMES ONLY.

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CUT / FILL PLAN

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Attachment 1.4

## LEGEND:

- SITE BOUNDARY
- EXISTING STORMWATER DRAINAGE
- EXISTING ELECTRICAL
- EXISTING OVERHEAD ELECTRICAL
- EXISTING GAS MAIN
- EXISTING SEWER MAIN
- EXISTING TELSTRA
- EXISTING WATERMAIN
- DESIGN CONTOURS (0.1m)
- EXISTING CONTOURS
- NEW STORMWATER PIPE (RCP)
- NEW STORMWATER SIDE ENTRY PIT
- NEW STORMWATER JUNCTION BOX
- NEW PERFORATED PIPE WRAPPED IN GEOTEXTILE WITHIN PERMEABLE PAVEMENT
- NEW PERFORATED PIPE INSPECTIOBN PIT
- 3m WIDE STORMWATER EASEMENT
- NEW PERMEABLE PAVEMENT
- NEW PROPOSED RESIDENTIAL DWELLING
- EXISTING HERITAGE BUILDING

SCALE BAR (m): 5 2.5 0 5 10

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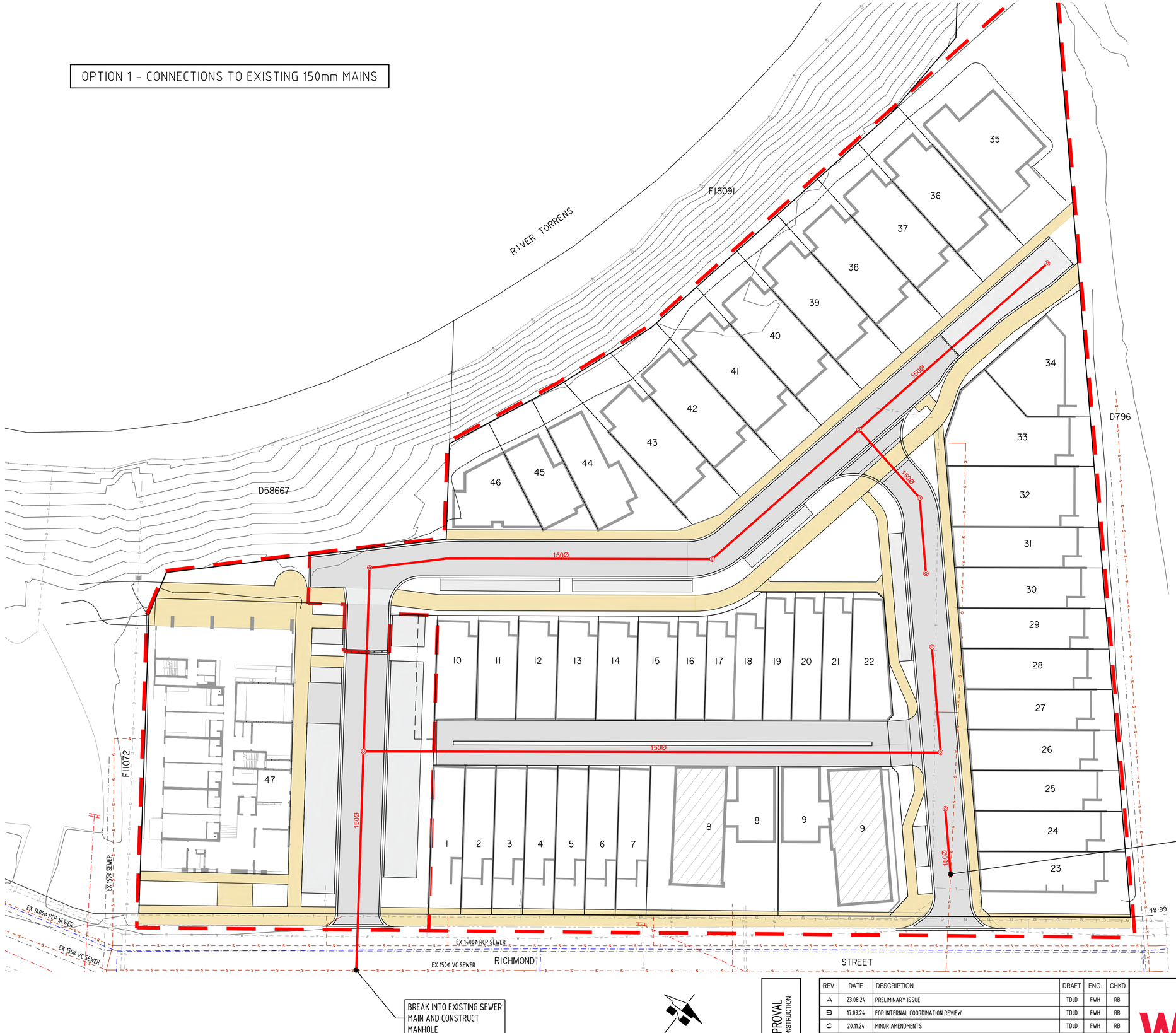
# OPTION 1 – CONNECTIONS TO EXISTING 150mm MAINS




LEGEND:

- SITE BOUNDARY
- EXISTING STORMWATER DRAINAGE
- EXISTING ELECTRICAL
- EXISTING OVERHEAD ELECTRICAL
- EXISTING GAS MAIN
- EXISTING SEWER MAIN
- EXISTING TELSTRA
- EXISTING WATERMAIN
- NEW 150 SEWER MAIN
- NEW PERMEABLE PAVEMENT
- NEW PROPOSED RESIDENTIAL DWELLING
- EXISTING HERITAGE BUILDING

SCALE BAR (m): 5 2.5 0 5 10

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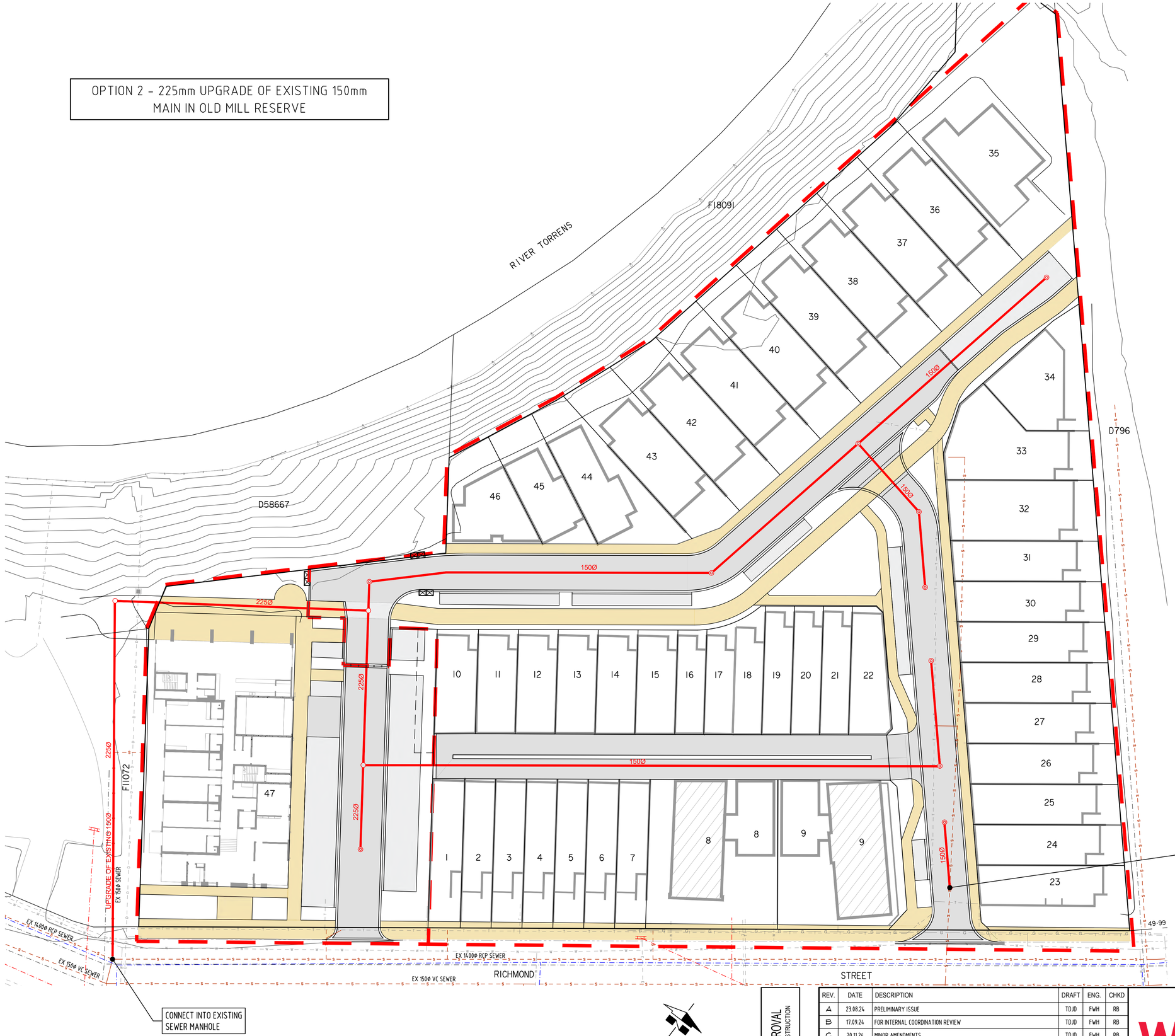
Attachment 1.4

OPTION 2 – 225mm UPGRADE OF EXISTING 150mm MAIN IN OLD MILL RESERVE




LEGEND:

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- EXISTING STORMWATER DRAINAGE
- EXISTING ELECTRICAL
- EXISTING OVERHEAD ELECTRICAL
- EXISTING GAS MAIN
- EXISTING SEWER MAIN
- EXISTING TELSTRA
- EXISTING WATERMAIN
- NEW 150 SEWER MAIN
- NEW PERMEABLE PAVEMENT
- NEW PROPOSED RESIDENTIAL DWELLING
- EXISTING HERITAGE BUILDING

SCALE BAR (m): 5 2.5 0 5 10

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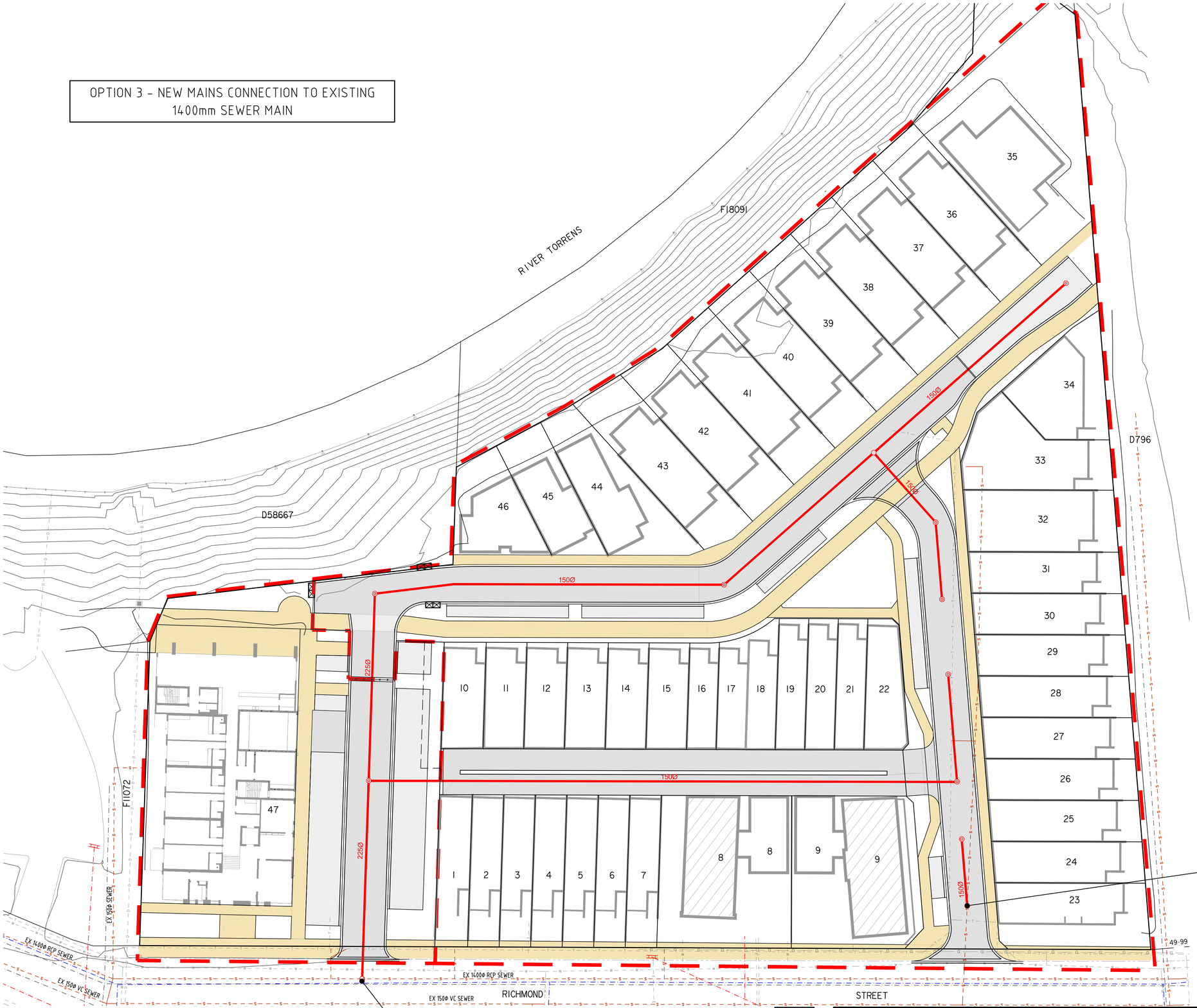
Attachment 1.4

# OPTION 3 - NEW MAINS CONNECTION TO EXISTING 1400mm SEWER MAIN




LEGEND:

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- EXISTING STORMWATER DRAINAGE
- EXISTING ELECTRICAL
- EXISTING OVERHEAD ELECTRICAL
- EXISTING GAS MAIN
- EXISTING SEWER MAIN
- EXISTING TELSTRA
- EXISTING WATERMAIN
- NEW 150 SEWER MAIN
- NEW PERMEABLE PAVEMENT
- NEW PROPOSED RESIDENTIAL DWELLING
- EXISTING HERITAGE BUILDING

SCALE BAR (m): 5 2.5 0 5 10

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Attachment 1.4

OPTION 4 - NEW 225mm MAIN IN RICHMOND STREET TO HACKNEY ROAD.

RIVER TORRENS

F18091

D58667

F11072

D796

RICHMOND STREET

150Ø

225Ø

225Ø UPGRADE TO HACKNEY ROAD

EX 1400Ø RCP SEWER

EX 150Ø VC SEWER

EX 150Ø SEWER

EX 1400Ø RCP SEWER

EX 150Ø VC SEWER

49·99

225mm UPGRADE OF EXISTING 150mm MAIN TO HACKNEY ROAD.

BREAK INTO EXISTING SEWER MAIN AND CONSTRUCT MANHOLE

BREAK INTO EXISTING SEWER MAIN AND CONSTRUCT MANHOLE

LEGEND:

- SITE BOUNDARY
- EXISTING STORMWATER DRAINAGE
- EXISTING ELECTRICAL
- EXISTING OVERHEAD ELECTRICAL
- EXISTING GAS MAIN
- EXISTING SEWER MAIN
- EXISTING TELSTRA
- EXISTING WATERMAIN
- NEW 150 SEWER MAIN
- NEW PERMEABLE PAVEMENT
- NEW PROPOSED RESIDENTIAL DWELLING
- EXISTING HERITAGE BUILDING

SCALE BAR (m) 5 2.5 0 5 10

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LEGEND:

- SITE BOUNDARY
- EXISTING STORMWATER DRAINAGE
- EXISTING ELECTRICAL
- EXISTING OVERHEAD ELECTRICAL
- EXISTING GAS MAIN
- EXISTING SEWER MAIN
- EXISTING TELSTRA
- EXISTING WATERMAIN
- NEW 150 WATER MAIN
- NEW PERMEABLEPAVEMENT
- NEW PROPOSED RESIDENTIAL DWELLING
- EXISTING HERITAGE BUILDING

RIVER TORRENS

F18091

D58667

F11072

D796

RICHMOND STREET

CONNECT INTO EXISTING WATERMAIN

CONNECT INTO EXISTING WATERMAIN

49·99

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## LEGEND:

- EXISTING ELECTRICAL
- EXISTING OVERHEAD ELECTRICAL
- EXISTING GAS MAIN
- EXISTING SEWER MAIN
- EXISTING TELSTRA
- EXISTING WATERMAIN
- EXISTING STORMWATER DRAINAGE
- EXISTING STORMWATER PITS
- EXISTING GAS PIT
- EXISTING ELECTRICAL PIT
- EXISTING SEWER PIT
- EXISTING TELSTRA PITS
- EXISTING UNKNOWN PIT
- EXISTING WATER PIT
- EXISTING BUILDING AND ASSOCIATED STRUCTURES TO BE DEMOLISHED
- EXISTING TREE TO BE REMOVED
- EXISTING SERVICES TO BE ABANDONED/REMOVED
- SITE BOUNDARY

## NOTE:

1. ALL PAVEMENTS, PAVING, KERBING, SERVICES AND ASSOCIATED PITS WITHIN DEVELOPMENT AREA TO BE REMOVED.

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Aspen Group

# Richmond Street Masterplan, Hackney

## STORMWATER MANAGEMENT PLAN

WGA230955

WGA230955-RP-CV-0001_D

30 April 2025

## Revision History

| REV | DATE | ISSUE | ORIGINATOR | CHECKER | APPROVER |
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| A | 23/08/2024 | For Client Review | ZS | FH | JLS |
| B | 21/11/2024 | For Approval - Updated Layout Plan | ZS | FH | JLS |
| C | 28/11/2024 | Final Issue for Approval | ZS | FH | JLS |
| D | 30/04/2025 | Council Comments Incorporated | ZS | FH | JLS |

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# 1 INTRODUCTION

## 1.1 Background

Wallbridge Gilbert Aztec (WGA) was engaged by Aspen Group to prepare a Stormwater Management Strategy for the proposed urban development at a site of the existing Adelaide Caravan Park in Hackney. The development is proposed on a 1.4 hectare parcel of land located 46 Richmond Street, Hackney (Refer to Figure 1). The site is bounded by Richmond Street to the south, River Torrens to the north, Old Mill Reserve to the west and Twelftree Reserve to the east. The site is currently a caravan park accommodating 40 powered sites, 45 cabins, as well as two local heritage buildings. The heritage buildings shall remain as part of the redevelopment and have been identified as a former Park Farm Barn dwelling (6407) and the former Hackney Mission Chapel (6406).

**Figure 1: Locality Plan**

The proposed development will include:

- 44 townhouses
- 2 heritage adaptive reuse homes
- Internal roadways and laneways
- Linear connected open spaces and green areas
- Pocket Park reserve/landscaped open space
- Build to Rent, Co-living Apartment Building and car park

## 1.2 Scope

This report presents the general stormwater strategy for the Development as well as the preliminary design, function, and design approach for the stormwater system. It is important to note that this report is a strategy only for Development Approval, and that detailed design of individual stormwater management elements will be undertaken during the detailed design phase.

The intent of this report is to provide the functional basis for the management of stormwater on the Development based on the following:

- Desktop review of River Torrens flood mapping and its associated requirements to protect the site from flooding.
- A general overview of the stormwater internal network drainage design and on-site detention to attenuate peak flow/discharge.
- A general overview of Water Sensitive Urban Design (WSUD) initiatives within the Development.
- Stormwater treatment/quality modelling basis and how these address statutory requirements.

The strategy presented in this report is intended to demonstrate compliance with the requirements of the City of Norwood Payneham & St Peters (Council). This is supported by calculations and a concept sketch design layout.

## 1.3 Stormwater Management Requirements and References

The following listed Authority requirements have been considered in this Strategy as relevant and have been outlined below.

### 1.3.1 Environment Protection Authority (EPA)

The EPA adopts the WSUD management approaches that essentially define their requirements, which relate to management of both stormwater quantity and quality.

The EPA's minimum requirements are as follows:

- Run-off rates should not exceed the rate of discharge from the site that existed pre-development.
- Water quality treatment reduction targets of the typical urban average annual load as follows:
  - Total Suspended Solids (TSS) 80%.
  - Total Phosphorus (TP) 60%.
  - Total Nitrogen (TN) 45%.
  - Retention of litter greater than 50mm for flows up to a 3-month Average Recurrence Interval (ARI) peak flow.
  - No visible oils for flows up to a 3-month ARI peak flow.

The EPA adopts the framework and principles associated with the ANZECC Guidelines (2000) for the management and risk associated with stormwater quality. This is a focus on a risk-based approach to minimise harm/impacts to receiving waters. EPA also adopts a WSUD management approach which essentially defines their requirements, which relate to management of both stormwater quantity and quality.

### 1.3.2 City of Norwood Payneham & St Peters

Further to the EPA requirements outlined above, there are several general Council requirements.

Formal discussions with Council were undertaken on 2 August 2024 to review the project scope and discuss the approach to stormwater management. The Council have outlined the following required stormwater management criteria:

- The detention requirements for the site are to detain the post development 1 in 100 year ARI (1% AEP) storm event, with discharge being at the pre development 1 in 5 year ARI (≈20% AEP) rate.
- The Stormwater Management Plan shall reflect the principles in the document called Water Sensitive Urban Design produced by the Department for Environment and Water (formerly Department of Environment, Water and Natural Resources).
- Regarding the finished floor levels, considering that the subject land appears to fall within the Hazards (Flooding – General) overlay on SAPPA, the requirement is that the finished floor levels are to be set 300mm above the 1% AEP flood level. Council has provided flood mapping excerpts to WGA.
- Council standard is for roads to be sealed asphalt and supported by a traditional pit and pipe stormwater network. However, will consider an alternate stormwater solution provided it achieves Councils detention and water quality requirements. This will be reviewed formally once the DA is submitted.
- The Council noted that the development backs onto the banks of the River Torrens. Performance Outcome 8.5 of the Design in Urban Areas module of the Planning & Design Code states that “Development does not occur on land at risk of landslip or increase the potential for landslip or land surface instability”. The proposed development is located within 15m of the river’s edge, and therefore close to the bank slopes associated with the river. Accordingly, the Council requests that you provide topographical surveys for both the development site and the land between the site boundary and the River Torrens. Based on a review of these surveys, the Council may then request for geotechnical investigations to be undertaken if it appears that the development has the potential to offend the abovementioned Performance Outcome.

The above criteria are used to formulate the strategy outlined in this report.

### 1.3.3 References

The stormwater management strategy is developed to encompass the design criteria in accordance with the following recognised references:

- EPA *Environment Protection Act 1993*, (Water Quality) Policy 2015 (WQ EPP 2015).
- WSUD Engineering Procedures – Stormwater (2005).
- Australian Runoff Quality, Engineers Australia (2006); and Water Sensitive Urban Design - Greater Adelaide Region Technical Manual (Dec 2010).
- AR&R (2016).

These handbooks and guidelines are considered as Australian and South Australian standards and cover all aspects of stormwater management. This includes the design for major and minor storm flow, and stormwater quality improvement. The SMP adopts the design standards, principles and practices covered by the handbooks.

# 2 STORMWATER MANAGEMENT APPROACH

## 2.1 Catchment Description

The site is located approximately 2km north east of the Adelaide CBD, bounded by Richmond Street and River Torrens. The site is currently a caravan park with a high percentage of impervious area in the southern part of the land parcel due to a number of permanent cabins and existing buildings. The total area of the site is 1.4 hectares.

## 2.2 Existing Stormwater Infrastructure

Location SA (http://location.sa.gov.au/viewer/) drainage layers were reviewed along with site survey and Before You Dig information to understand the existing stormwater infrastructure.

Existing plans show no existing underground stormwater infrastructure in Richmond Street.

There is an existing stormwater drain running along the footpath between the site western boundary and the public car park. The upstream section of the drain is a DN450 RCP pipe collecting road drainage flows via side entry pits along Hatswell Street and shallow culverts in Regent Street. The drain increases in size to DN600 RCP north of Richmond Street and discharges into River Torrens and the outfall was surveyed at 22.25m AHD invert level.

An image from Location SA is provided below (Figure 2).

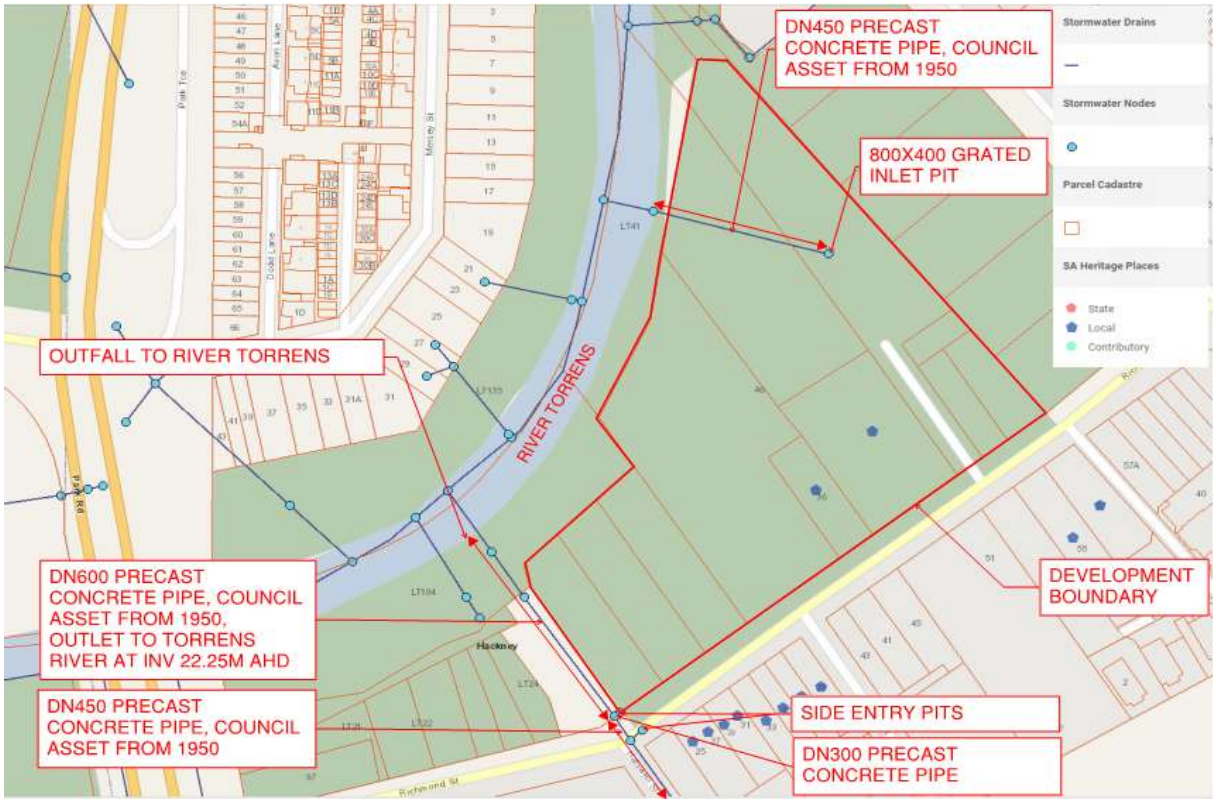


**Figure 2: Existing Drainage Outfalls; Reference: http://location.sa.gov.au/viewer/**

The existing DN450 discharge pipe was not confirmed by the engineering survey. Grated inlet pit not seen in aerial imagery.

It is worth noting that currently a few of the existing buildings drain to Richmond Street. Four connections from the street-facing buildings drain via shallow gravity drains into the existing kerb and gutter system; refer to Figure 3 and Figure 4 (images adopted from Google Street View).

**Figure 3: Existing Drains into Richmond Street Kerb and Gutter (Northern Edge, Looking East)**

**Figure 4: Existing Drains into Richmond Street Kerb and Gutter (Northern Edge, Looking West)**

Connections from heritage properties shall remain within the new development. However, one or two of the existing drains would become redundant if the new development progressed, reducing the amount of runoff entering the Council-owner drainage infrastructure.

# 3 DESIGN BASIS

## 3.1 Stormwater Management Approach

WGA has prepared a stormwater management approach as part of the Development Approval process for the redevelopment of the caravan park. WGA had engaged with the Council on 02/08/2024 to seek feedback and requirements regarding stormwater management for the new development. Refer to Appendix E for correspondence.

In discussion with Council, the stormwater management methodology aims to integrate WSUD, source control techniques and rainwater harvesting for a more holistic and sustainable outcome. Therefore, a combined storage strategy based on Rainwater Tanks (RWT) for reuse and detention, permeable pavements for detention/retention storage (and infiltration) has been considered. The proposed approach shall include:

- Each townhouse to adopt a rain tank that combines detention and retention volume; and
- Roadways in permeable block pavements (provides detention/retention and treatment).

One of the merits of the proposed stormwater management approach is that both solutions outlined above provide capacity for retention, as well as detention. The retained runoff offers opportunities for water harvesting by either re-use within residential homes (irrigation, plumbing etc) and infiltration into the soil to support vegetation growth and negate the demand for irrigation of street trees by trucks.

In addition to the above, the proposed stormwater management approach removes the need to have a traditional detention basin on site with gross pollutant trap. This removes the need for ongoing maintenance which would be undertaken by Council.

## 3.2 Detention and Retention

To satisfy Council's On-Site Detention (OSD) requirement, on site detention has been assessed and summarised in this Section. As required by the Council, OSD will limit the maximum outflow from the post-development site in a 1% Annual Exceedance Probability (AEP) event to 20% AEP pre-development case. It should be noted that 20% AEP corresponds to 4.48 ARI. Adaptation of 20% AEP pre-development flows as the base case shall ensure that OSD requirement is conservative.

### 3.2.1 Base Case – 20% AEP Pre-development – Permissible Discharge

Runoff co-efficient (C) and time of concentration (Tc) were assessed for the pre-development site. Roofed and paved areas were measured for the existing site based on the aerial photography and site inspection. The weighted runoff co-efficient was determine as 0.56 based on a weighted average. Frequency conversion factor of 0.95 was applied. We note that the site's overall co-efficient of runoff was in the order of 0.65, however an adopted lower value will provide a level of conservatism.

Time of concentration was assessed to be approximately 12min. The time of concentration of roofed areas was assumed to be five minutes, and seven minutes for the road, calculated using the kinematic wave equation for the longest path on the site for the road. In relation to the time of concentration, the existing storm runoff currently travels predominantly via two arrangements:

1. Sheeting flows concentrating into informal channels (limited formal drainage infrastructure)
2. Few properties discharge flows from roofs directly into the kerb & gutter in Richmond Street

Based on the above, a permissible maximum discharge was determined to be 107 l/s. Refer to Appendix B for stormwater calculations.

### 3.2.2 Design Case – 1% AEP Inflows

Based on the weighted runoff co-efficient and the time of concentration within the proposed drainage pipe system collecting overflow from rainwater tanks, C value was assessed to be 0.78 and Tc value to be 10min. Frequency conversion factor of 1.20 was applied.

### 3.2.3 On-Site Detention Storage

Based on the analysis of detention storage requirements for various duration storms, the maximum storage volume of 130kL shall be provided within the new development to limit the permissible discharge to the pre-development base case as per Council requirements. Refer to Appendix B for the details of the assessment.

### 3.2.4 Rainwater Tanks

The strategy calls for all 46 residential dwellings to include rainwater tanks. In line with the relevant policies within the Planning and Design Code, due to differences in sizes of allotments, retention volumes required shall vary between allotments; refer to Table 1. For the purpose of this assessment, rainwater retention volumes were assumed to be full and were excluded from the storage volume provided.

**Table 1: Design Criteria for Rainwater Tanks; Source: Planning and Design Code Part 3**

| Site size ($m^2$) | Minimum retention volume (Litres) | Minimum detention volume (Litres) |
|---|---|---|
| <200 | 1000 | 1000 |
| 200–400 | 2000 | Site perviousness <30%: 1000<br>Site perviousness ≥30%: N/A |
| >401 | 4000 | Site perviousness <35%: 1000<br>Site perviousness ≥35%: N/A |

The post-development site perviousness was estimated to be 16% (excluding permeable pavement). As such, each RWT shall require 1kL of detention storage in addition to the retention volume; see Figure 5. As a result, the RWTs will make up 46 kL of the required 130kL OSD. Each tank shall be fitted with a 20mm diameter slow-release orifice at the bottom of the detention storage. During peak storm events where tank volumes area exceeded, any excess stormwater can discharge via the RWT's emergency overflow pipe leading to proposed RCP pipe drainage network.

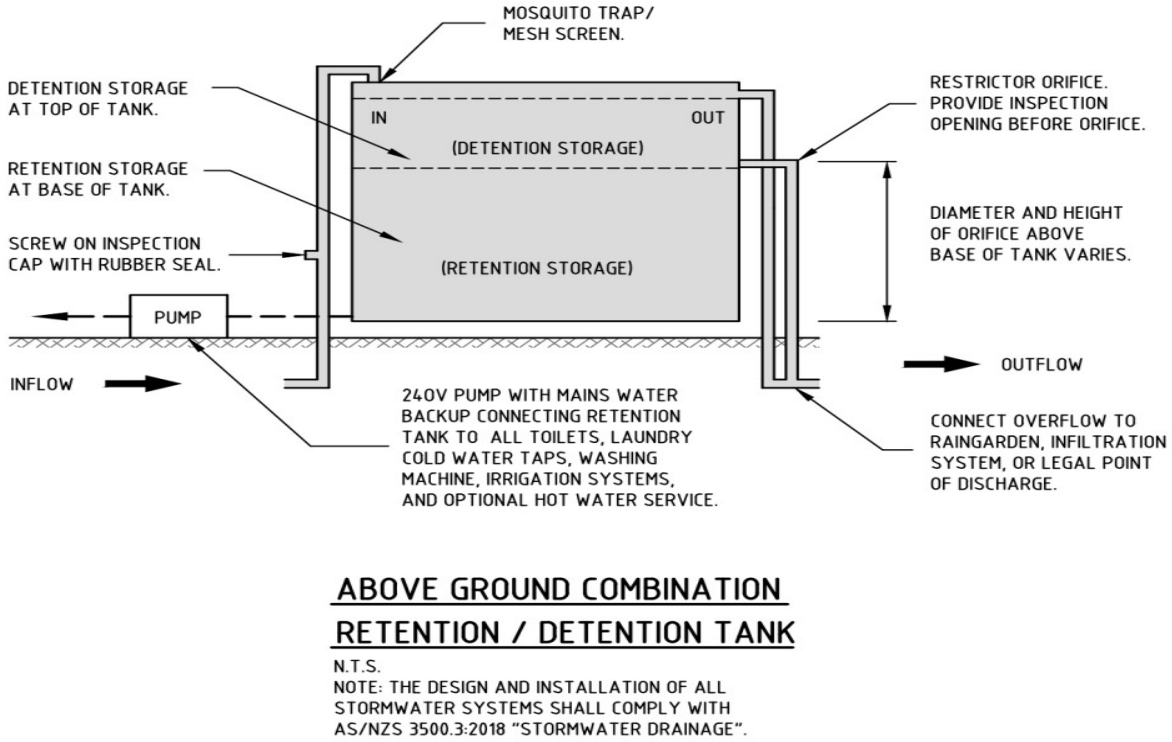


**Figure 5: Typical Above Ground OSD Tank**

### 3.2.5 Permeable Pavements

The design includes the use of permeable pavements within all of the internal roadways/laneways. Concrete block permeable paving is to be installed in the roadways as per the extent show in Appendix A. Assuming a depth of 300 mm and a void ratio of 0.2, minimum of 1402m$^2$ of permeable pavement is required to achieve 84kL of OSD (in addition to 46kL provided within RWTs). The permeable pavement shall be designed as an un-lined system that will allow for infiltration into the underlaying soils. A series of sub-surface slotted collection pipes has been included in the stormwater masterplan to ensure that the subgrade does not become overly saturated and will drain away any excess into the stormwater network (subject to detailed design, the need/extent of slotted pipes is to be confirmed). It is noted that the permeable pavement will receive direct rainfall only and no additional surface runoff from other catchments, therefore the pavement will work effectively as a retention system. Refer to Appendix A for details.

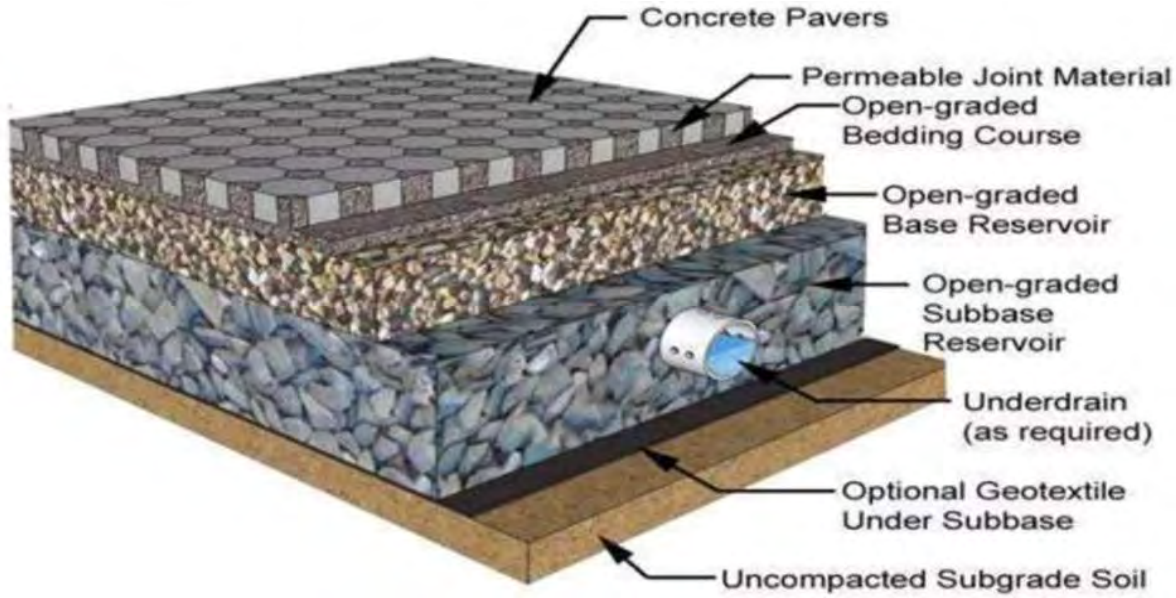


**Figure 6 Example of Permeable Pavement Profile; Source: Amusement Logics**

In relation to the geotechnical/ground conditions, it is worth noting that groundwater was not encountered during ground investigations to depths of up to 8.5m. The existing site has varying depths of uncontrolled fill which is proposed to be remediated as part of the new development. In the design of the new fill, infiltration rates from the permeable pavement shall be considered.

The infiltration into the underlying soils will achieve the following benefits:

- Stormwater treatment through the permeable pavement media.
- On site retention based on infiltration into the subgrade, therefore this in fact provides an additional buffer to the overall OSD requirement.
- Roadways will effectively become a pervious catchment (pervious areas making up approximately 48% post-development which is comparable to 47% pre-development).
- Provides passive irrigation and oxygen to support greening within the precinct by enhancing tree growth/health for the proposed plantings within the road reserves.
- The permeable pavements will utilise the eco trihex paver which is the most durable and structurally robust permeable paver available.

It is recommended that the permeable pavement area of min.1900m$^2$ is installed for the purposes of accounting for site wide OSD, assuming that some of RWT storage might become ineffective due to possible owners modifying their tank in the longer term. The maximum area available for installation of permeable paving is 2,140m$^2$.

The permeable pavement shall also reduce the runoff from Burton Street draining into the kerb and gutter in Richmond Street.

### 3.2.6 Build to Rent, Co-living Apartment Building

The roof runoff from the Co-living Apartment Building is likely to be significant due to its surface area. The large capacity stormwater tank (size TBC) has been proposed north of the building, with overflow connecting to the discharge pipe from the new site. As the demand on the supply for the tank is likely to be significant due it the high occupancy rate within the building, in reality a proportion of the retention volume within the RWT will offset the volume of roof runoff to be detained. The offset was not considered in the detention capacity assessment to ensure a conservative approach.

### 3.2.7 Stormwater Treatment

The implementation of stormwater treatment assets will assist in a WSUD strategy that facilitates opportunities for environmental enhancement within the development. The stormwater treatment assets proposed will include rainwater tanks for all dwellings and permeable paving for internal roadways.

Permeable paving will provide a degree of stormwater treatment, removal of particulates and some dissolved pollutants is achieved through filtration and absorption onto soil particles in the treatment zone or filter media.

MUSIC software has been used to simulate stormwater quality treatment and to conceptually confirm treatment train reductions meet EPA requirements. The MUSIC model uses climatic data comprising of daily rainfall intervals and evaporation data from the Adelaide Kent Town Station (Station No 023090) from 1977 to 2010. This data is used to simulate the rainfall runoff on site and the subsequent treatment performance for the development strategy. Development characteristics, site parameters and treatment node parameters that have been entered into the MUSIC model are summarised in Table 2 below. Table 2 is not intended to provide details of each node within the model; instead, it provides a general overview of the typical parameters used for the source and treatment nodes. In this case the source nodes are represented by “urban nodes”, and the treatment nodes are represented by rainwater tanks and media filtration.

**Table 2: MUSIC Model Parameters**

| NODE TYPES | PARAMETERS | | | | |
|---|---|---|---|---|---|
| **Urban (Roof)** | Soil storage capacity 30 mm | 1 mm depression storage | Typical impervious fraction 100% | Stochastically generated pollutants | Initial storage capacity % of capacity 30% |
| **Urban (Sealed road)** | Soil storage capacity 30 mm | 1 mm depression storage | Typical impervious fraction 95% | Stochastically generated pollutants | Initial storage capacity % of capacity 30% |
| **TREATMENT** | **PARAMETERS** | | | | |
| **Rainwater Tank** | Volume 3kL per Dwelling | Initial Volume 2kL per Dwelling | Reuse 20L per day per Dwelling | | |
| **Media Filtration** | Surface area 3598 m2 | Extended detention depth 100 mm | Filter area 3598m2 | Filter media depth 300mm | Infiltration loss 1 mm/hr |

The use of permeable pavers (media filtration) will provide water quality through filtering, interception and providing biological treatment, it also reduces the stormwater flow rate as it passes through the filter media. Stormwater will then infiltrate through the unlined base; any excess stormwater will be collected in the sub soil drainage network connected back to the stormwater pipe system. The geotechnical report suggests underlying soils will consist of silty clay with good infiltration capacity, MUSIC advises an infiltration value between 3.6 to 36mm/hr for silty clay however for modelling conservatism an infiltration rate of 1mm/hr has been used.

A screen output of the model showing catchment nodes and treatment systems has been graphically displayed in Appendix C.

The results of the modelling undertaken can be seen in Table 3.

**Table 3: WSUD Guidelines for the Greater Adelaide Region Water Quality Treatment Pollutant Reduction Requirements and Corresponding Model Outcomes**

| | TSS | TP | TN | GROSS POLLUTANTS |
|---|---|---|---|---|
| **Target Percentage Reduction** | 80 % | 60 % | 45 % | 90 % |
| **Site Reductions Achieved** | 90.3% | 69.1% | 49.4% | 91.4% |

The results demonstrate that the stormwater treatment proposed is adequate to meet the WSUD guideline pollutant reduction requirements for urban runoff.

### 3.2.8 Stormwater Discharge

In discussion with Council, the preference is for stormwater flows to discharge into the existing DN600 RCP drain. Runoff shall be conveyed by RWT overflow piped network and permeable pavement slotted pipe network, connecting to a new junction box on the existing gravity drain, before discharging into River Torrens. Due to the steep slope of the discharge pipe, site runoff is not likely to impact the upstream infrastructure, this will be confirmed during detailed design.

# 4 FLOOD RISK

## 4.1 Existing Flood Mapping

Existing flood map for 1% AEP event has been modelled and provided by the Council in Appendix D. Appendix D shows flood depths of up to 0.1m along the existing internal access road and around the reception building area within the proposed site.

An extent of the existing fluvial Flood Mapping overlay for 1% AEP event was assessed in WaterConnect and is shown in Figure 7. The site plan and site survey has been overlaid with the flood mapping information to determine a minimum FFL for the building levels. Based on the engineering survey and the overlay below, the estimated 1% AEP flood level is 29m AHD.

**Figure 7: River Torrens Flood Inundation Study 1999 – 1 in 100 Chance; Source: WaterConnect**

## 4.2 Site Levels

The proposed Finished Floor Levels for the buildings and allotments have been set with respect to this mapping. The habitable floor space (FFL) is to be set a minimum 300mm above the expected flood levels at the site. The site bench level (BL) is to be set 50mm minimum above flood level. The FFL is nominated as 31.40m AHD (subject to minor amendments).

The site of proposed development is therefore unaffected by flooding.

**Table 4: Summary of Flood Risk Parameters**

| FLOOD LEVEL | SITE BENCH LEVEL | FREEBOARD | FINISHED FLOOR LEVEL | FREEBOARD |
|---|---|---|---|---|
| 29m AHD | 31m AHD | 2m (>0.05m) | 31.40m AHD | 2.4m (>0.3m) |

## 4.3 Other Considerations

It is worth noting that First to Fifth Creek Floodplain Mapping 2007 study also encroaches into the proposed development area in 1 in 500 event, however the site is unaffected. Flood map of Probable Maximum Flood affects the site but was not used in setting the design levels for the site.

**Figure 8: First to Fifth Creek Floodplain Mapping 2007 Study – 1 in 500; Source: WaterConnect**

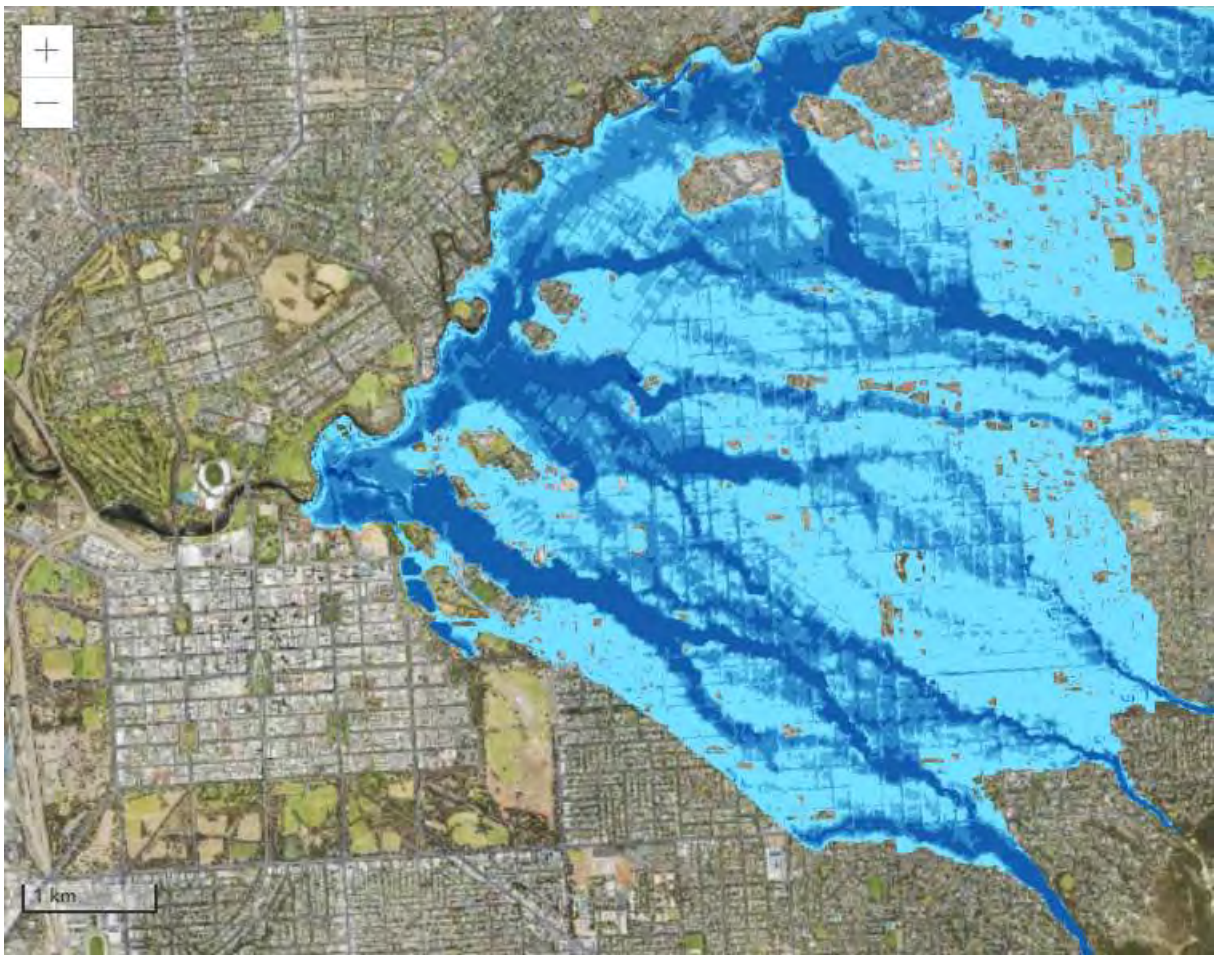


**Figure 9: First to Fifth Creek Floodplain Mapping 2007 Study – PMF; Source: WaterConnect**

# 5 SUMMARY

The stormwater management methodology adopts an integrated design including WSUD and traditional OSD. The Stormwater Masterplan provided in Appendix A outlines the proposed concept for managing stormwater runoff across the site and discharging to Council drain upstream of the River Torrens outfall to meet the OSD criteria outlined in this report.

The strategy comfortably achieves a total OSD volume of 130 kL, which is satisfactory to detain the post-development 1% AEP peak flows to the pre-development 20% AEP peak flows.

Rainwater tanks have been proposed to optimise the use of water resources by utilising roof runoff. The approach is widely used in South Australia and lessens the demand on potable water infrastructure. Capturing roof runoff for both retention and detention of flows also reduces the risk of surface and fluvial flooding.

Permeable pavements offer significant benefits to the proposed development. Infiltration into the subbase reduces the requirement for irrigation of trees adjacent to the off-street parking places. Infiltration rates of permeable pavements have been tested in Australia and found to be at serviceable levels for 8-10 years. In terms of maintenance, once evidence of clogging is observed, infiltration rates can be increased by replacing the top 10-25mm of the granular subbase (Beecham et al. 2009). Additional benefit with regard to maintenance and repair, is that pavement damage due to tree root growth tends to be reduced as roots are encourages to penetrate downward to reach infiltrated water rather than travelling alongside the pavement profile to seek moisture.

The proposed stormwater management methodology negates that requirement for both a traditional detention basin and gross pollutant trap, thus removing any maintenance requirements for Council.

Available capacity of the permeable pavement can comfortably accommodate the required detention volume.

The stormwater management methodology has reviewed the floodplain mapping for the area provided by Council and acknowledges the estimated 1% AEP flood levels around the site. The proposed finished floor levels for all habitable areas have therefore been set a minimum 300 mm above the expected 1% AEP flood level to mitigate the risk of flood waters on habitable zones and entry. The freeboard to the flood level is satisfactory due to the steep embankment along River Torrens.

Stormwater treatment in the form of permeable paving and rainwater tanks on each dwelling provides sufficient water quality treatment to meet EPA pollutant reduction target guidelines, this has been confirmed with MUSIC modelling. Furthermore, the use of concrete block permeable pavements (unlined) will allow for infiltration into the underlying soils. This approach supports the overall greening strategy for the development by providing passive irrigation to the proposed tree plantings.

The calculations and plans contained within this report have been prepared to demonstrate the philosophy behind the proposed management of stormwater runoff from this development. The information provided is preliminary and will be subject detailed design and documentation.

# APPENDIX A
# STORMWATER MASTERPLAN

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When sheet printed full size, the scale bar is 100mm.

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SCALE BAR (m) 5 2.5 0 5 10

FOR APPROVAL NOT FOR CONSTRUCTION

| REV. | DATE | DESCRIPTION | DRAFT | ENG. | CHKD |
|---|---|---|---|---|---|
| A | 23.08.24 | PRELIMINARY ISSUE | TDJD | FWH | RB |
| B | 17.09.24 | FOR INTERNAL COORDINATION REVIEW | TDJD | FWH | RB |
| C | 20.11.24 | MINOR AMENDMENTS | TDJD | FWH | RB |
| D | 29.11.24 | ISSUE FOR APPROVAL | TDJD | FWH | RB |
| E | 23.04.25 | ISSUE FOR APPROVAL | TDJD | FWH | RB |

WGA

RICHMOND STREET MASTERPLAN
RICHMOND STREET, COLLEGE PARK S.A.
CIVIL MASTER PLANNING
STORMWATER MASTER PLAN

A1 DOCUMENT NUMBER
Project Number Sheet No. Rev.
Design FWH Drawn TDJD WGA230955-SK- CV-0005 E

# APPENDIX B
# STORMWATER CALCULATIONS

**Adelaide Caravan Park - Stormwater Management Plan**
**Calculations (Whole of Catchment)**
**PRE-DEVELOPMENT**

| | |
|---|---|
| **Project:** | WGA230955 |
| **Date:** | 12/08/2024 |
| **By:** | ZS |
| **Checked By:** | GS |

r = Roofed area
i = Impervious area
p = Pervious area
C = Runoff Coefficient
T_c = Time of Concentration
I = Rainfall Intensity
n = Manning's n
S = Slope

| Catchment Latitude | Catchment Longitude |
|---|---|
| -34.9092 | 138.6146 |

## 1 Permeable runoff co-efficient

| | | |
|---|---|---|
| m | 0.975 | for 18.13% AEP |
| I60 | 25 | mm/h |
| Increase in Cp due to soil | 0.1 | Clay subgrade |

$$C_p = m\left(0.0133^{10\%} I_{60} - 0.233\right)$$

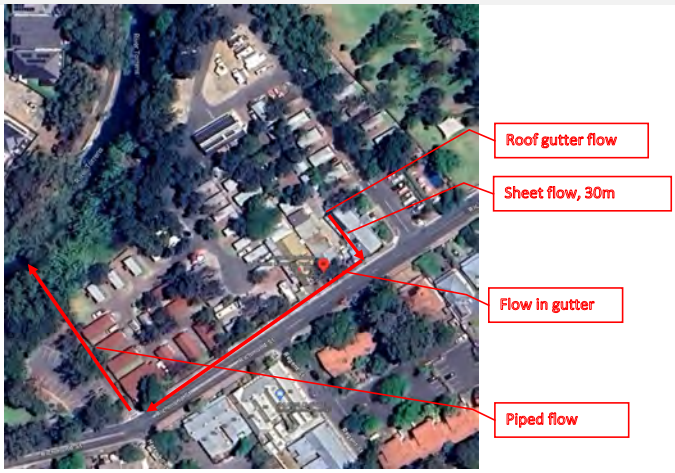
## 2 Weighted runoff co-efficient

| PRE-DEVELOPMENT | Cr<br>Roofed areas | Ci<br>Paved areas | Cp<br>Permeable areas | Total | |
|---|---|---|---|---|---|
| C (-) | 1.0 | 0.9 | 0.20 | - | AS 3500.3, Section 5.4.6 |
| Pre-development (m^2) | 5,221 | 1,000 | 7,293 | 13,514 | See "References" tab |
| | 39% | 7% | 54% | | |

Pre-Development Weighted Average C (-)
**0.56**

## 3 Time of Concentration

PRE-DEVELOPMENT

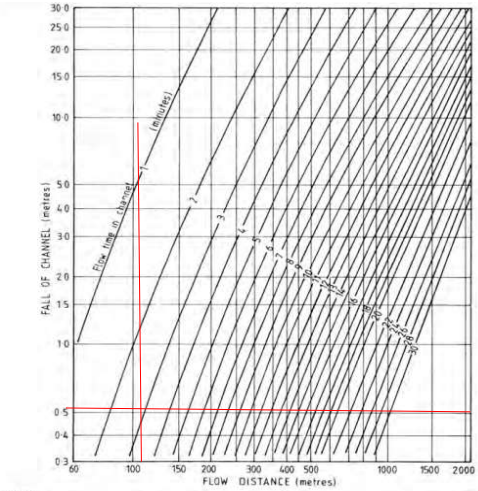



| | | | | |
|---|---|---|---|---|
| **Pre-Development Base case** | 5 year ARI discharge<br>18.13% AEP | | Requirement from Council | |
| T_c_roof | 5 | min | AS 3500.3 | |
| **Sheet flow** | Kinematic Wave Equation | | | |
| Upstream IL | 32.15 | m AHD | EGL outside reception | From survey |
| Downstream IL | 31.92 | m AHD | Invert of gutter in access track/Richmond Sreet | From survey |
| Road Length, L | 30 | m | | From survey |
| Manning's n | 0.01 | (-) | AR&R 1987, Ch. 14, Tech. Note 3; Asphalt | |
| Slope, S | 0.008 | m/m | | |
| AEP | 20 | % | Closest AEP to 5 year ARI - Limitation of the assessment | |
| Intensity, I | 109 | mm/h | BOM IFD Curves | |
| T_c_overland | 2.00 | min | Calculated | |
| CHECK: Corresponding duration | 2.00 | MIN | BOM IFD Curves | OK |

$$T_c = \frac{6.94(L \times n^*)^{0.6}}{I^{0.4} \times S^{0.3}}$$

**Channelised flow in gutter** Storm drainage design in small urban catchments (Argue 1987)

| | | | |
|---|---|---|---|
| U/S IL gutter | 31.92 | m AHD | From survey |
| U/S IL gutter | 31.36 | m AHD | From survey |
| Fall in channel | 0.56 | m | |
| Flow distance | 114 | m | |



NOTES:

1. Flow travel time (approximate) may be obtained directly from this chart for:
   - kerb-and-gutter channels
   - underground stormwater channels
   - allotment channels of all types (surface and underground)
   - drainage easement channels (surface and underground)
2. A multiplier, Δ, should be applied to values obtained directly from the chart in the following cases:
   - grassed swales, well maintained and without driveway crossings Δ = 4
   - blade-cut earth roadside channels, well maintained and without driveway crossings Δ = 2
   - natural channels Δ = 3

Ref: Country Roads Board, Victoria, 1982

Fig. 5.4 — Flow travel time in channels

ARRB SR 34, 1986

| | | |
|---|---|---|
| T_c_channelised | 3.0 | min |

**Piped flow**

| | | | |
|---|---|---|---|
| Maximum velocity | 0.8 | m/s | Assumed, flat grade of subsurface pipe |
| Pipe length | 51 | m | Pipe length from SEB to point upstream of River Torrens embankment |
| T_c_pipe | 63.8 | s | |
| | 1.1 | min | |

| | | |
|---|---|---|
| **Pre-Development T_c** | 11.1 | min |
| | **12.0** | min |
| Rainfall intensity (1%AEP) | **116** | mm/h |
| Rainfall intensity (20%AEP) | **53.9** | mm/h |

**Adelaide Caravan Park - Stormwater Management Plan**
**Calculations (Whole of Catchment)**
**POST-DEVELOPMENT**

**Project:** WGA230955
**Date:** 29/04/2025
**By:** ZS
**Checked By:** GS

r = Roofed area
i = Impervious area
p = Pervious area
C = Runoff Coefficient
T_c = Time of Concentration
I = Rainfall Intensity
n = Manning's n
S = Slope

| Catchment Latitude | Catchment Longitude |
|---|---|
| -34.9092 | 138.6146 |

## 1 Permeable runoff co-efficient

| | | |
|---|---|---|
| m | 1.2 | for 1% AEP |
| I60 | 25 | mm/h |
| Increase in Cp due to soil | 0.1 | Clay subgrade |

$$C_p = m\left(0.0133^{10\%} I_{60} - 0.233\right)$$

## 2 Weighted runoff co-efficient

| POST-DEVELOPMENT | Cr<br>Roofed areas | Ci<br>Paved areas* | Cp<br>Permeable areas | Total | |
|---|---|---|---|---|---|
| C (-) | 1.0 | 0.95 | 0.22 | - | AS 3500.3, Section 5.4.6 |
| Post-development (m^2) | 7,198 | 4,169 | 2,147 | 13,514 | See "References" tab |
| | (See in red) | (See in blue) | (See in green) | | |
| | 53% | 31% | 16% | | |

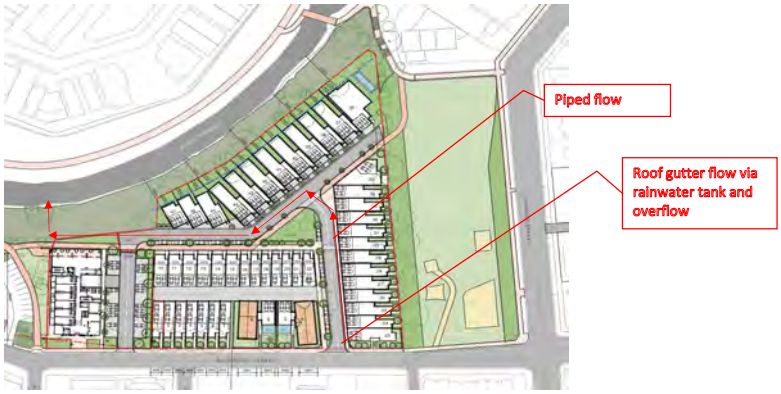
*Inpermeable in this assessment to quantify overall runoff

Post-Development Weighted Average C (-)

**0.86**

## 3 Time of Concentration

POST-DEVELOPMENT




| | | | |
|---|---|---|---|
| T_c_roof | 5 | min | AS 3500.3 |

**Piped flow**

| | | | |
|---|---|---|---|
| Maximum velocity | 0.8 | m/s | Assumed, flat grade of subsurface pipe |
| Pipe length | 238 | m | Proposed |
| T_c_pipe | 297.5 | s | |
| | 5.0 | min | |
| **Post-Development T_c** | 10.0 | min | |
| | **10.0** | min | |
| Rainfall intensity (1%AEP) | **127** | mm/h | |
| Rainfall intensity (20%AEP) | **59.3** | mm/h | |

**Adelaide Caravan Park - Stormwater Management Plan**
**Calculations**
**DETENTION STORAGE**

| | |
|---|---|
| **Project:** | WGA230955 |
| **Date:** | 29/04/2025 |
| **By:** | ZS |
| **Checked By:** | GS |

C = Runoff Coefficient
T_c = Time of Concentration
I = Rainfall Intensity
Q = Flow

| Catchment Latitude | Catchment Longitude |
|---|---|
| -34.9092 | 138.6146 |

1 **Flow assessment** Rational Method, Q = CIA/3600

**20% AEP**

**Frequency Conversion Factor, F_y (-)**
0.95 Argue 1986

| | Area (m^2) | C (-) | T_c (mins) | I (mm/h) | Q (L/s) | Q (m^3/s) | ΔQ (L/s) |
|---|---|---|---|---|---|---|---|
| **Pre-Development** | 13,514 | 0.53 | 12 | 53.9 | 107.5 | 0.108 | - |
| **Post-Development** | 13,514 | 0.82 | 10 | 59.3 | 182.0 | 0.182 | 74.5 |

**1% AEP**

**Frequency Conversion Factor, F_y (-)**
1.20 Argue 1986

| | Area (m^2) | C (-) | T_c (mins) | I (mm/h) | Q (L/s) | Q (m^3/s) | ΔQ (L/s) |
|---|---|---|---|---|---|---|---|
| **Pre-Development** | 13,514 | 0.64 | 12 | 116 | 277.6 | 0.278 | - |
| **Post-Development** | 13,514 | 0.98 | 10 | 127 | 467.7 | 0.468 | 190.1 |

2 **Detention Assessment**

| | | 1% AEP POST DEVELOPMENT INFLOW | | | 20% AEP PREDEVELOPMENT OUTFLOW | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Post-development Inflow | | | Maximum permissible Outflow | | |
| (hr) | Duration (min) | I (mm/h) | Inflow Rate (L/s) | Inflow Volume (m^3) | I (mm/h) | Outflow Rate (L/s) | Outflow volume (m3) | Max Storage (m^3) |
| | 1 | 270.0 | 994.3 | 14.0 | 126.0 | 251.3 | 3.2 | 10.8 |
| | 2 | 238.0 | 876.5 | 52.6 | 109.0 | 217.4 | 6.5 | 46.1 |
| | 3 | 212.0 | 780.7 | 70.3 | 97.7 | 194.9 | 9.7 | 60.6 |
| | 4 | 191.0 | 703.4 | 84.4 | 88.6 | 176.7 | 12.9 | 71.5 |
| | 5 | 175.0 | 644.5 | 96.7 | 81.3 | 162.2 | 16.1 | 80.5 |
| | 6 | 162.0 | 596.6 | 107.4 | 75.4 | 150.4 | 19.4 | 88.0 |
| | 7 | 151.0 | 556.1 | 116.8 | 70.4 | 140.4 | 22.6 | 94.2 |
| | 8 | 142.0 | 522.9 | 125.5 | 66.1 | 131.8 | 25.8 | 99.7 |
| | 9 | 134.0 | 493.5 | 133.2 | 62.5 | 124.7 | 29.0 | 104.2 |
| | 10 | 127.0 | 467.7 | 140.3 | 59.3 | 118.3 | 32.3 | 108.1 |
| | 11 | 121.0 | 445.6 | 147.1 | 56.4 | 112.5 | 35.5 | 111.6 |
| | 12 | 116.0 | 427.2 | 153.8 | 53.9 | 107.5 | 38.7 | 115.1 |
| | 13 | 111.0 | 408.8 | 159.4 | 51.6 | 102.9 | 41.9 | 117.5 |
| | 14 | 106.0 | 390.4 | 164.0 | 49.6 | 98.9 | 45.2 | 118.8 |
| | 15 | 103 | 379.3 | 170.7 | 47.7 | 95.1 | 48.4 | 122.3 |
| | 16 | 98.8 | 363.9 | 174.6 | 46.0 | 91.7 | 51.6 | 123.0 |
| | 17 | 92.5 | 340.7 | 173.7 | 44.5 | 88.8 | 54.8 | 118.9 |
| | 18 | 92.5 | 340.7 | 184.0 | 43.1 | 86.0 | 58.1 | 125.9 |
| | 19 | 89.7 | 330.3 | 188.3 | 41.7 | 83.2 | 61.3 | 127.0 |
| | 20 | 87.1 | 320.8 | 192.5 | 40.5 | 80.8 | 64.5 | 128.0 |
| | 25 | 76.3 | 281.0 | 210.7 | 35.5 | 70.8 | 80.6 | 130.1 |
| | 30 | 68.3 | 251.5 | 226.4 | 31.7 | 63.2 | 96.8 | 129.6 |
| | 45 | 52.9 | 194.8 | 263.0 | 24.5 | 48.9 | 145.1 | 117.9 |
| *1* | 60 | 42.8 | 157.6 | 283.7 | 20.4 | 40.7 | 193.5 | 90.2 |
| *1.5* | 90 | 33.3 | 122.6 | 331.1 | 15.6 | 31.1 | 290.3 | 40.9 |
| *2* | 120 | 27.3 | 100.5 | 361.9 | 12.8 | 25.5 | 387.0 | -25.1 |
| *3* | 180 | 20.5 | 75.5 | 407.7 | 9.75 | 19.4 | 580.5 | -172.8 |
| *4.5* | 270 | 15.2 | 56.0 | 453.4 | 7.39 | 14.7 | 870.8 | -417.3 |
| *6* | 360 | 12.3 | 45.3 | 489.2 | 6.05 | 12.1 | 1161.0 | -671.8 |
| *9* | 540 | 9.07 | 33.4 | 541.1 | 4.56 | 9.1 | 1741.5 | -1200.4 |
| *12* | 720 | 7.27 | 26.8 | 578.3 | 3.71 | 7.4 | 2322.0 | -1743.7 |
| *18* | 1080 | 5.28 | 19.4 | 630.0 | 2.77 | 5.5 | 3483.1 | -2853.0 |
| *24* | 1440 | 4.19 | 15.4 | 666.6 | 2.23 | 4.4 | 4644.1 | -3977.5 |
| *30* | 1800 | 3.49 | 12.9 | 694.0 | 1.89 | 3.8 | 5805.1 | -5111.0 |
| *36* | 2160 | 3 | 11.0 | 715.9 | 1.64 | 3.3 | 6966.1 | -6250.2 |
| *48* | 2880 | 2.35 | 8.7 | 747.7 | 1.31 | 2.6 | 9288.1 | -8540.4 |
| *72* | 4320 | 1.65 | 6.1 | 787.5 | 0.95 | 1.9 | 13932.2 | -13144.7 |
| *96* | 5760 | 1.28 | 4.7 | 814.6 | 0.75 | 1.5 | 18576.3 | -17761.7 |
| *120* | 7200 | 1.04 | 3.8 | 827.3 | 0.62 | 1.2 | 23220.4 | -22393.1 |
| *144* | 8640 | 0.882 | 3.2 | 841.9 | 0.54 | 1.1 | 27864.4 | -27022.5 |
| *168* | 10080 | 0.763 | 2.8 | 849.7 | 0.47 | 0.9 | 32508.5 | -31658.8 |
| | | | | | | | Maximum storage required | **130.12** |

**Adelaide Caravan Park - Stormwater Management Plan**
**Calculations**
**Rainwater Tanks**

| | |
|---|---|
| **Project:** | WGA230955 |
| **Date:** | 13/08/2024 |
| **By:** | ZS |
| **Checked By:** | GS |
| **Revised:** | 29/04/2025 |

| Catchment Latitude | Catchment Longitude |
|---|---|
| -34.9092 | 138.6146 |

## 1 Tank size

| Performance Outcome | Deemed-to-Satisfy Criteria / Designated Performance Feature |
|---|---|
| PO 1.1<br><br>Residential development is designed to capture and re-use stormwater to:<br>(a) maximise conservation of water resources<br>(b) manage peak stormwater runoff flows and volume to ensure the carrying capacities of downstream systems are not overloaded<br>(c) manage stormwater runoff quality. | DTS / DPF 1.1<br><br>Residential development comprising detached, semi-detached or row dwellings, or less than 5 group dwellings or dwellings within a residential flat building:<br>(a) includes rainwater tank storage:<br>(i) connected to at least:<br>A. In relation to a detached dwelling (not in a battle-axe arrangement), semi-detached dwelling or row dwelling, 60% of the roof area<br>B. In all other cases, 80% of the roof area<br>(ii) connected to either a toilet, laundry cold water outlets or hot water service for sites less than 200m$^2$<br>(iii) connected to one toilet and either the laundry cold water outlets or hot water service for sites of 200m$^2$ or greater<br>(iv) with a minimum total capacity in accordance with Table 1<br>(v) where detention is required, includes a 20-25 mm diameter slow release orifice at the bottom of the detention component of the tank<br>(b) incorporates dwelling roof area comprising at least 80% of the site's impervious area |

Table 1: Rainwater Tank

| Site size (m$^2$) | Minimum retention volume (Litres) | Minimum detention volume (Litres) |
|---|---|---|
| <200 | 1000 | 1000 |
| 200-400 | 2000 | Site perviousness <30%: 1000<br>Site perviousness ≥30%: N/A |
| >401 | 4000 | Site perviousness <35%: 1000<br>Site perviousness ≥35%: N/A |

**46**
Townhouse Dwellings

**12**
Riverfront Dwellings - 340m$^2$ NSA
**12**
Park Dwellings - 280m$^2$ NSA
**6**
6.3m Wide Townhouse - 180m$^2$ NSA
**14**
4.5m Wide Townhouse - 150m$^2$ NSA
**2**
Heritage Adaptive Reuse Homes

| | |
|---|---|
| Number of dwellings | 46 |
| Site perviousness | 16% |
| Minimum detention | 1 kL |

**Total Detention within rainwater tanks**
46 kL

**Total Retention within rainwater tanks**
68 kL

Note: Assumed tank full and retention volume not used to offset runoff

| Site Size | Number of Lots | Retention Volume (kL) |
|---|---|---|
| <200m2 | 30 | 1 |
| 200-400m2 | 13 | 2 |
| >401m2 | 3 | 4 |
| | 46 | 68 |

**Adelaide Caravan Park - Stormwater Management Plan Calculations**
**PAVEMENT**

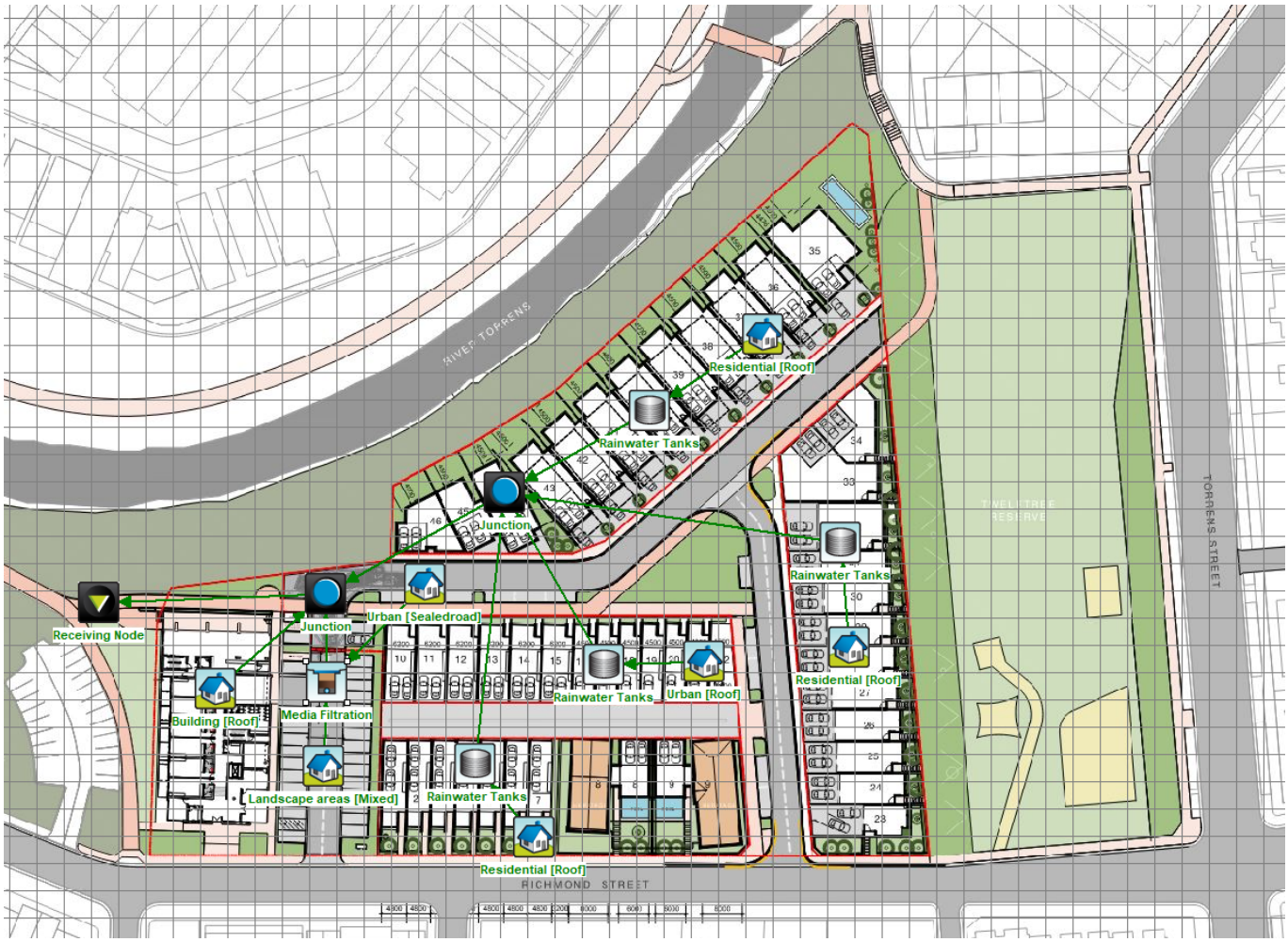
**Project:** WGA230955
**Date:** 15/08/2024
**By:** ZS
**Checked By:** GS
**Revised:** 29/04/2025

| **Catchment Latitude** | **Catchment Longitude** |
|---|---|
| -34.9092 | 138.6146 |

| | | |
|---|---|---|
| Permeable pavement area | 2,142 | m2 |
| Depth of granular layer | 0.3 | m |
| Volume of layer | 642.6 | m3 |
| Void ratio | 0.2 | |
| **Maximum Available detention volume** | 128.52 | m3 |
| | | |
| Required Detention within permeable pavement | 84.12 | m3 |
| **Minimum area required** | **1,402** | m2 |

# APPENDIX C
# MUSIC MODELLING

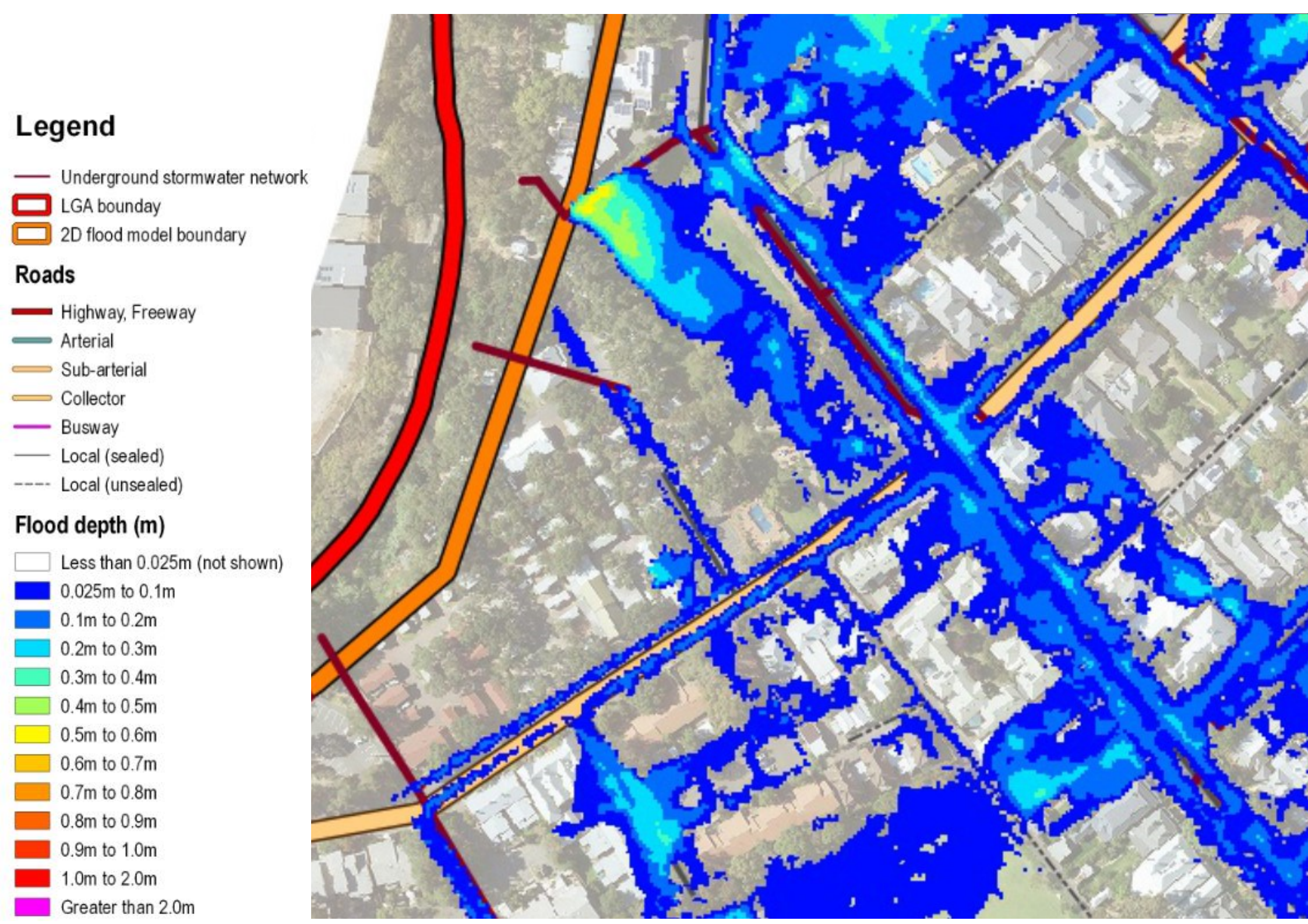
# MUSIC Modelling




Treatment Train Effectiveness - Receiving Node

| | Sources | Residual Load | % Reduction |
|---|---|---|---|
| Flow (ML/yr) | 4.43 | 2.77 | 37.6 |
| Total Suspended Solids (kg/yr) | 561 | 54.6 | 90.3 |
| Total Phosphorus (kg/yr) | 1.3 | 0.403 | 69.1 |
| Total Nitrogen (kg/yr) | 10.3 | 5.2 | 49.4 |
| Gross Pollutants (kg/yr) | 180 | 15.5 | 91.4 |

# APPENDIX D
# FLOOD MAPPING AND FFL PLAN


Legend
Underground stormwater network
LGA bounday
2D flood model boundary
Roads
Highway, Freeway
Arterial
Sub-arterial
Collector
Busway
Local (sealed)
Local (unsealed)
Flood depth (m)
Less than 0.025m (not shown)
0.025m to 0.1m
0.1m to 0.2m
0.2m to 0.3m
0.3m to 0.4m
0.4m to 0.5m
0.5m to 0.6m
0.6m to 0.7m
0.7m to 0.8m
0.8m to 0.9m
0.9m to 1.0m
1.0m to 2.0m
Greater than 2.0m

# APPENDIX E
# CORRESPONDENCE

## Fergus Hamilton

**From:** Josef Casilla
**Sent:** 30 July 2024 4:47 PM
**To:** Fergus Hamilton
**Cc:** Joe La Spina; Zuza Stone; Ryan Byrne; Geoff Parsons; Tala Aslat; 'Henry Perks | Aspen Group'
**Subject:** RE: Adelaide Caravan Park Redevelopment - Civil Engineering Master Planning Queries [Filed 07 Aug 2024 14:52]
**Attachments:** NPSP Flood Mapping Legend.JPG; Adelaide Caravan Park Redevelopment - 1% AEP Flood Mapping.PNG; SD06 - Driveway Invert.pdf; SD05 - Median Kerb.pdf; SD04 - 150 Bluestone Kerb.pdf; SD03 - 150 Bluestone Kerb & Watertable.pdf; SD02 - 150 Kerb & Watertable.pdf; SD01 - 600 Spoon Drain.pdf; R750P200 - Tree Inlet.pdf; L2 Tree Planting in Footpath A3 (B).pdf; L1 Tree Planting in Verge A3 (F).pdf; SD11 - Barrier Kerb ACTIVITY CENTRE .pdf; SD10 - Footpath Reinstatement.pdf; SD09 - Service Trench Reinstatement.pdf; SD08 - Pavement Reconstruction.pdf; SD07 - Pram Ramp.pdf; Adelaide Caravan Park Redevelopment - Stormwater Infrastructure Map.pdf

**Follow Up Flag:** Follow up
**Flag Status:** Completed

**Categories:** Filed by Mail Manager

Hi Fergus

Referring to your email below dated 24 July, please see below my responses in blue (as well as attached documents).

Happy to meet to discuss this further if required, thanks.

- *What is the requirement of the management of post development stormwater discharge (if any).* Please be advised that a Stormwater Management Plan shall be provided for the development. The detention requirements for the site are to detain the post development 1 in 100 year ARI storm event, with discharge being at the pre development 1 in 5 year ARI rate.
- *What are the requirements for stormwater treatment – we assume it will be the standard WSUD stormwater pollutant reduction targets.* The Stormwater Management Plan shall reflect the principles in the document called Water Sensitive Urban Design produced by the Department for Environment and Water (formerly Department of Environment, Water and Natural Resources).
- *Please advise minimum floor level requirements for the site, noting its adjacent to the River Torrens.* Regarding the finished floor levels, considering that the subject land appears to fall within the *Hazards (Flooding – General)* overlay on SAPPA, the requirement is that the finished floor levels are to be set 300mm above the 1% AEP flood level. I have attached excerpts of Council's flood mapping to assist you with this requirement.
- *Please advise what are Council's existing stormwater drainage assets, and a legal point of discharge for the development. We assume we can connect to the existing drainage line through the site to avoid a new outfall into the River.* Please find attached the BYD drawings for the drainage system in the area. Council requests that the discharge point of the development be to the street rather than into the River.
- *Please advise of any other specific requirements or issues that we will need to address in our stormwater management report.* None come to mind at this time.

*…we are considering the following approach:*

- *Roadways in permeable block pavements (provides detention / retention and treatment).* Council standard is for roads to be asphalt. Should the roadways that you are referring to be private property, there are no

issues from my end for it to be permeable block paving, but this will be reviewed formally once the DA is submitted.

- *Townhouses – each residence to adopt a rain tank that combines detention and retention volume.* No issues from my end with this proposal, but this will be reviewed formally once the DA is submitted.

*In addition to the stormwater related questions above, we are also looking to get some early input from Council regarding in the internal road network and typical cross sections, plus any other requirements that we need to be aware of.*

Please find attached Council standard drawings for the following assets:

- spoon drains (SD01)
- kerbing
  - concrete kerb and water table (SD02)
  - bluestone kerb and water table (SD03)
  - bluestone kerb only (SD04)
  - median kerb (SD05)
  - driveway invert (SD06)
  - barrier kerb (SD11)
- pram ramps (SD07)
- road pavement reconstruction, which also encompasses road re-sealing (SD08)
- service trench reinstatement (SD09)
- footpath reinstatement (SD10)
- tree inlet (R750P200)
- tree planting in verge (L1)
- tree planting in footpath (L2)

Additionally, the Council notes that the development backs onto the banks of the River Torrens. Performance Outcome 8.5 of the Design in Urban Areas module of the Planning & Design Code states that "Development does not occur on land at risk of landslip or increase the potential for landslip or land surface instability". We note that the proposed development is located within 15m of what appears to be the river's edge, and therefore close to the bank slopes associated with the river. Accordingly, when submitting this proposal, the Council requests that you provide topographical surveys for both the development site and the land between the site boundary(ies) and the River Torrens. Based on a review of these surveys, the Council may then request for geotechnical investigations to be undertaken if it appears that the development has the potential to offend the abovementioned Performance Outcome.

Kind regards,

Josef Casilla
**PROJECT MANAGER, ASSETS**

**City of Norwood Payneham & St Peters**
175 The Parade, Norwood SA 5067

Think before you print.

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**From:** Josef Casilla
**Sent:** Wednesday, July 24, 2024 12:44 PM
**To:** 'Fergus Hamilton'
**Cc:** Joe La Spina Zuza Stone Ryan Byrne
Geoff Parsons Tala Aslat Henry Perks | Aspen Group

**Subject:** RE: Adelaide Caravan Park Redevelopment - Civil Engineering Master Planning Queries

Hi Fergus

Thanks for the email below. Your queries look relatively straight forward. I will review your email further and provide a response soon (aiming for sometime next week).

Once you review my response, I'm happy to have a Teams meeting if required.

Kind regards,

Josef Casilla
**PROJECT MANAGER, ASSETS**

**City of Norwood Payneham & St Peters**
175 The Parade, Norwood SA 5067

**From:** Fergus Hamilton
**Sent:** Wednesday, July 24, 2024 12:04 PM
**To:** Josef Casilla
**Cc:** Joe La Spina Zuza Stone Ryan Byrne
Geoff Parsons Tala Aslat Henry Perks | Aspen Group

**Subject:** Adelaide Caravan Park Redevelopment - Civil Engineering Master Planning Queries

Good Afternoon Josef,

Your details were passed onto me as the most appropriate person at council to reach out to regarding engineering related queries.

WGA is currently preparing a stormwater management strategy report that will form part of the DA process for the redevelopment of the Adelaide Caravan Park in Hackney. We are seeking to engage with you early to ensure we comply with Council's requirements. The site proposes town housing and apartment building complex with internal public roadways and open space reserves (refer to the attached masterplan).

We seek to understand the following key inputs from Council to inform our strategy to meet the requirements of the DA approval.

- What is the requirement of the management of post development stormwater discharge (if any).
- What are the requirements for stormwater treatment – we assume it will be the standard WSUD stormwater pollutant reduction targets.
- Please advise minimum floor level requirements for the site, noting its adjacent to the River Torrens.

- Please advise what are Council's existing stormwater drainage assets, and a legal point of discharge for the development. We assume we can connect to the existing drainage line through the site to avoid a new outfall into the River.
- Please advise of any other specific requirements or issues that we will need to address in our stormwater management report.

Based on similar high density developments that WGA has recently completed and/or received approval, we would seek to adopt a similar approach to this development. Therefore, by way of a suitable strategy for the site, we are considering the following approach:

- Roadways in permeable block pavements (provides detention / retention and treatment)
- Townhouses – each residence to adopt a rain tank that combines detention and retention volume

This is for discussion, and we seek Council's thoughts in relation to this strategy.

In addition to the stormwater related questions above, we are also looking to get some early input from Council regarding in the internal road network and typical cross sections, plus any other requirements that we need to be aware of.

Are you available at a time that suits for a Teams Meeting to discuss the above?

Feel free to give me a call if you have any questions.

Kind regards,

**Fergus Hamilton | Civil Engineer**
BE Civil (Hons), MIEAust, CPEng, NER, Dip. PM
**WGA**
**Kaurna Country** 60 Wyatt Street, Adelaide SA 5000

**Australia | New Zealand**

ABN 97 617 437 724 | WGASA Pty Ltd | Disclaimer

---

**From:** Geoff Parsons
**Sent:** Tuesday, July 23, 2024 9:36 AM
**To:** Henry Perks | Aspen Group
**Cc:** Tala Aslat Josef Casilla
**Subject:** RE: ACP

Hi Henry,

Apologies for my late rely.

I understand you have made contact with Tala and she is currently putting in place the arrangements for us to meet.

In terms of an engineering contact, WGA can touch base with:

Mr Josef Casilla
Project Manager, Assets

We do though have a separate traffic team and we tend to use consultants for stormwater advice, so Josef may need to rely on other staff for assistance, but he will be a good first port of call.

Also, as the key contact for this project, it's useful if WGA cc me into all correspondence to Josef (and other Council parties) so that I can keep track and we don't lose anything in translation.

Cheers
Geoff

Kind regards,

Geoff Parsons
**MANAGER, DEVELOPMENT & REGULATORY SERVICES**

**City of Norwood Payneham & St Peters**
175 The Parade, Norwood SA 5067

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---

**From:** Henry Perks | Aspen Group
**Sent:** Tuesday, July 16, 2024 3:25 PM
**To:** Geoff Parsons
**Subject:** ACP

Hi Geoff,

I gave your office a call but understand you are off sick at the moment. Get well soon.

I called to see if I could set up a meeting for you and David Brown to run through our updated masterplan with our architects GGA and Forum to ensure largely, David is comfortable with how its looking from a historical point of view. As far as planning goes, its pretty similar to what you have already seen.

Also, I have engaged WGA to complete the engineering report for the DA. Are you able to recommend who in the engineering department they should engage with to finalise the stormwater management plan and any other key engineering issues?

Regards,
Henry

aspen
**Henry Perks**
Development Manager

FOR FURTHER INFORMATION CONTACT:

Zuza Stone
Senior Civil Engineer

WGA.COM.AU
WGANZ.CO.NZ

Aspen Group

# Adelaide Caravan Park Redevelopment - Proposed River Front Dwellings, Hackney

## GEOTECHNICAL INVESTIGATION

WGA230955

WGA230955-RP-GE-0001_A

14 May 2024

## Revision History

| REV | DATE | ISSUE | ORIGINATOR | CHECKER | APPROVER |
|---|---|---|---|---|---|
| A | 14/05/2024 | 1 | YW | RWG | RWG |
| | | | | | |
| | | | | | |
| | | | | | |

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# 1 INTRODUCTION

A geotechnical investigation has been undertaken by Wallbridge Gilbert Aztec (WGA) for the proposed River Front Dwellings at the Adelaide Caravan Park, Hackney, SA. The proposed River Front Dwellings form part of the Adelaide Caravan Park Redevelopment known as Hackney on Torrens.

The geotechnical investigation follows on from an earlier desktop geotechnical assessment at the site conducted by WGA (Reference 1) which identified the presence of up to about 8.5 m thickness of uncontrolled fill adjacent to the River Torrens. The uncontrolled fill was assessed to be potentially unstable and ground improvement works (remove the existing fill and replace the fill as controlled fill) are required prior to construction of the proposed River Front Dwellings.

The proposed River Front Dwellings are located on the northern side of the Adelaide Caravan Park adjacent to the River Torrens and comprise 12 buildings. The buildings are expected to be of 2 or 3 storey construction and supported by piles.

The location of the proposed development is shown on the site development Master Plan in Figure 1.

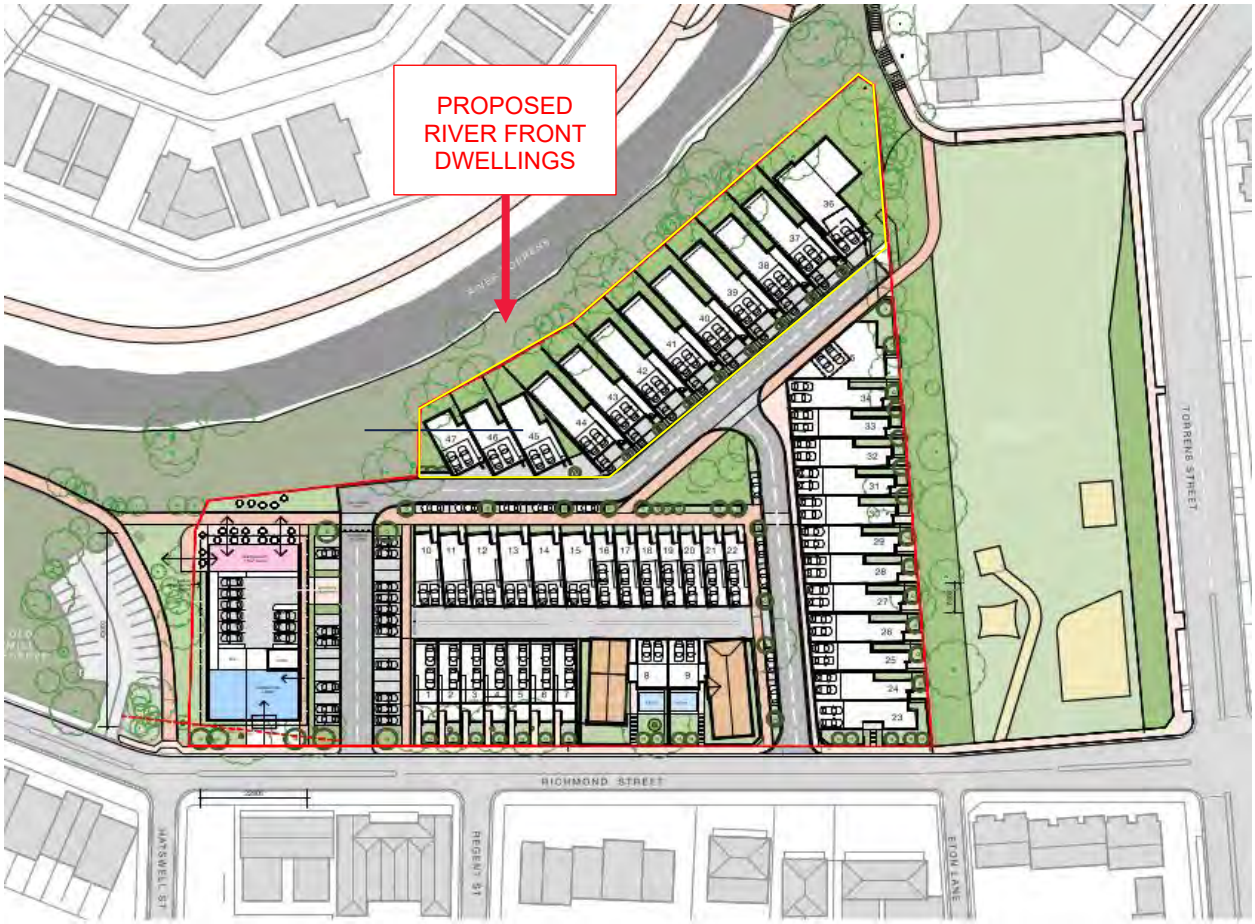



**Figure 1: Proposed Master Plan**

The geotechnical investigation was commissioned by The Aspen Group. The scope and extent of the geotechnical investigation were broadly consistent with a proposal prepared by WGA dated 21 February 2024. The aim of the investigation was to check the depth and composition of the deeper fill along the crest of the river bank and assess the nature of the underlying natural soils relevant to the design of piles.

The geotechnical investigation was conducted concurrently with investigations for the proposed Co-Living site and Townhouse development at the Adelaide Caravan Park, as shown on Figure 2. The results of these investigations are presented in separate WGA reports and have been referred to in the preparation of the report recommendations.

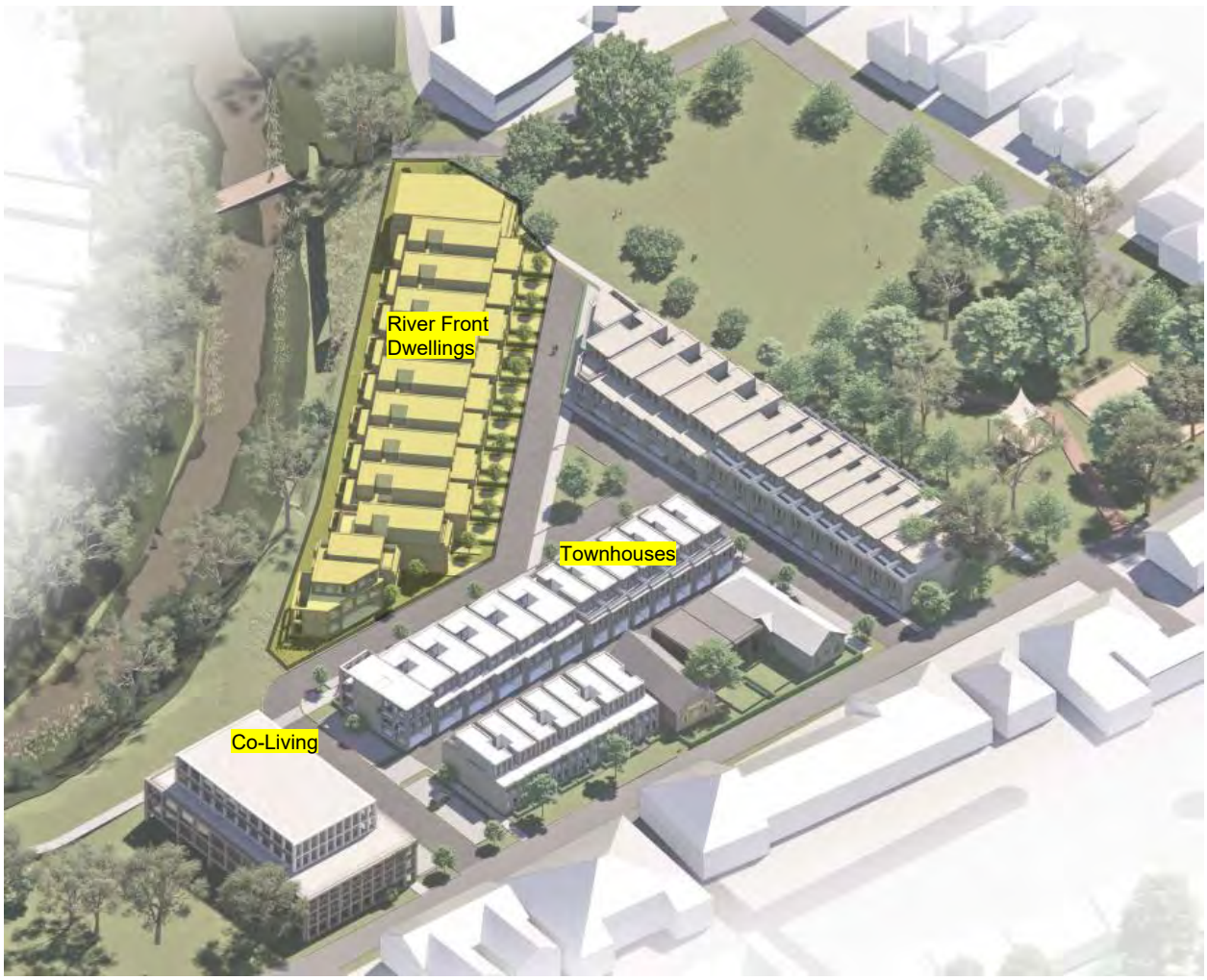



**Figure 2: Aerial Perspective of Overall Site Development**

This report outlines the geotechnical investigation undertaken and summarises the subsurface conditions encountered. Recommendations relating to the design of ground improvement works and, indicative footing requirements are presented in Section 4.

A brief Technical Specification for the proposed earthworks is presented in Appendix E.

The results of a previous geotechnical investigations (References 2 and 3) conducted by others at the site have been referred to in the preparation of the report recommendations.

# 2 OUTLINE OF THE INVESTIGATION

The field work for the geotechnical investigation was carried out between 9 April 2024 and 20 April 2024 and comprised:

- Drilling and logging 1 borehole (denoted BH19) to a depth of approximately 10 m.
- Drilling and logging 1 borehole (denoted BH20) to a depth of approximately 21 m.
- Drilling 3 boreholes (denoted BH13, BH13A and BH14) to depths ranging from about 0.6 m (refusal) to 3 m.

The locations of the boreholes are shown approximately on Figures A1 (existing site conditions) and A2 (proposed development layout) in Appendix A. The boreholes were positioned on site to provide a broad coverage of the proposed development area within the restrictions imposed by existing surface features and underground services. Boreholes BH19 and BH20 were drilled as close as practical to the crest of the river bank where the fill was expected to be deeper.

Boreholes BH19 and BH20 were drilled with a truck mounted Ezi-probe drilling rig using hollow flight augers and continuous push tube sampling (Geoprobe system). Standard Penetration Tests (SPT) were undertaken at selected depths in each borehole using a conventional drop hammer fitted with a self-tripping mechanism. The SPT data from BH19 and BH20 are presented on Figure A3 in Appendix A.

Due to access restrictions boreholes BH13, BH13A and BH14 were drilled using portable drilling equipment. This drilling method involved advancing push tubes with a hand operated jack-hammer.

The soil profile encountered in the boreholes was logged by a Geotechnical Engineer from WGA and is described on the engineering logs contained in Appendix B. Also presented in Appendix B are two explanation sheets that outline the terms and symbols used in the preparation of the logs.

# 3 SITE CONDITIONS

## 3.1 General

The Adelaide Caravan Park is located at 46 Richmond Street at Hackney, approximately 200 m east of Hackney Road. The River Torrens is located along the north-western boundary of the site.

The proposed River Front Dwellings are to be located on the northern side of the caravan park along the crest of the river bank. At the time of the investigation the area was occupied by serviced caravan/camping sites and an access road. Numerous trees of varying size were present along the crest of the river bank.

The riverbank is approximately 11 m higher than the water level in the river and is steeply sloping with a typical slope of about 45 degrees (locally ranging from about 38 to 48 degrees). The riverbank has varying vegetation cover which include ground cover plants, trees and shrubs of varying size. The vegetation largely obscures the surface condition of the riverbank. A more detailed assessment of the condition and stability of the river bank is presented in Reference 1.

The ground surface at the site was relatively flat with a surface level at the crest of the riverbank of typically around RL 31.5 m AHD.

The typical site conditions at the time of the geotechnical investigation are shown in Figure 3.

**Figure 3: General Site Conditions (Near BH19, Looking West)**

## 3.2 Regional Geology

The site is located adjacent to the River Torrens.

The Soil Association Map of the Adelaide Region (1:50 000 scale map sheet) indicates that the near surface natural soils are likely to consist of Quaternary aged alluvial soils associated with deposition along the River Torrens. The alluvium is underlain by Tertiary aged sediments.

The alluvium typically comprises an interbedded sequence of clays, sands and silts with a basal layer of gravelly soils. An excerpt from the Soil Association Map is presented in Figure 4.

Reference 3 indicates that the Quaternary alluvium is underlain by older Tertiary aged sediments, with the upper Tertiary unit likely to comprise the Blanche Point Formation. The younger Tertiary aged sediments, that typically overlie the Blanche Point Formation in the Adelaide City area, have been removed by erosion along an ancient River Torrens.

Groundwater is expected to be related to the pool level in the adjacent River Torrens, which is subject to seasonal variations.

A borehole drilled by WGA in 2016 for an apartment development on the opposite side of the river indicated the following subsurface profile:

- 0 to 9.1 m: Controlled fill;
- 9.1 to 9.8 m: Sand (alluvium), fine to coarse, medium dense;
- 9.8 to 13.2 m: Sandy gravel (alluvium), fine to coarse, dense SPT N-values of 45 and 38;
- >13.2 m: Silty clay and clay (Blanche Point Formation), low and medium plasticity, stiff to very stiff with a marked increase in strength below a depth of about 20 m.

Groundwater was encountered at depth of about 10.9 m.

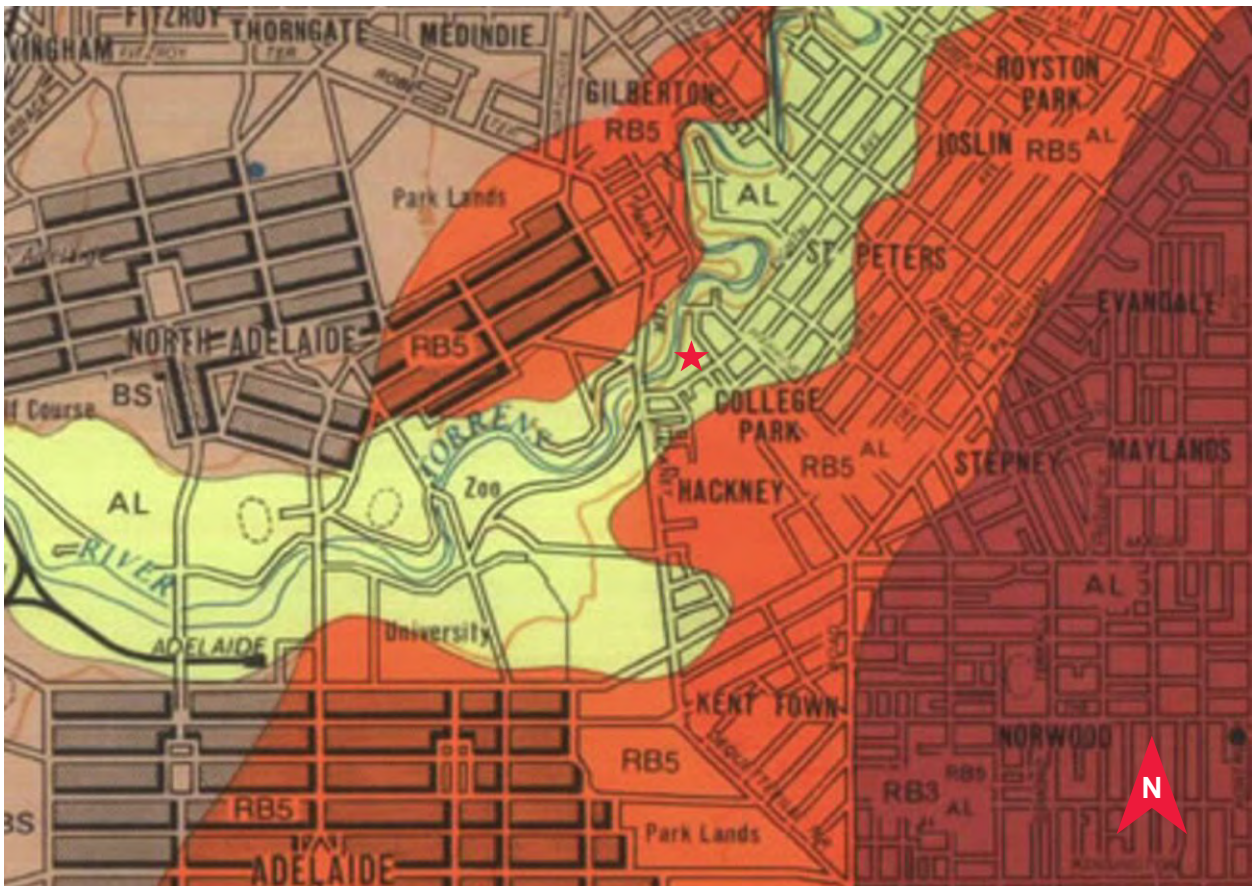



**Figure 4: Excerpt from Soil Association Map (Site Marked with Star)**

## 3.3 Previous Investigations

### 3.3.1 Scope

Two geotechnical investigations were previously undertaken at the Adelaide Caravan Park by FMG Engineering (References 2 and 3). A total of 20 boreholes were drilled at the site to depths of up to 8.5 m. Specifically:

- Reference 2 indicates that 10 boreholes were drilled at the site in 2016 to depths ranging from 1.4 m to 8.5 m;
- Reference 3 indicates that 10 boreholes were drilled at the site in 2021 to depths ranging from 1.5 m to 8.5 m.

The locations of the boreholes are shown approximately Figure 3. A total of 15 boreholes were located on the footprint of the proposed River Front Dwellings.

Laboratory testing was not undertaken as part of the earlier investigations.

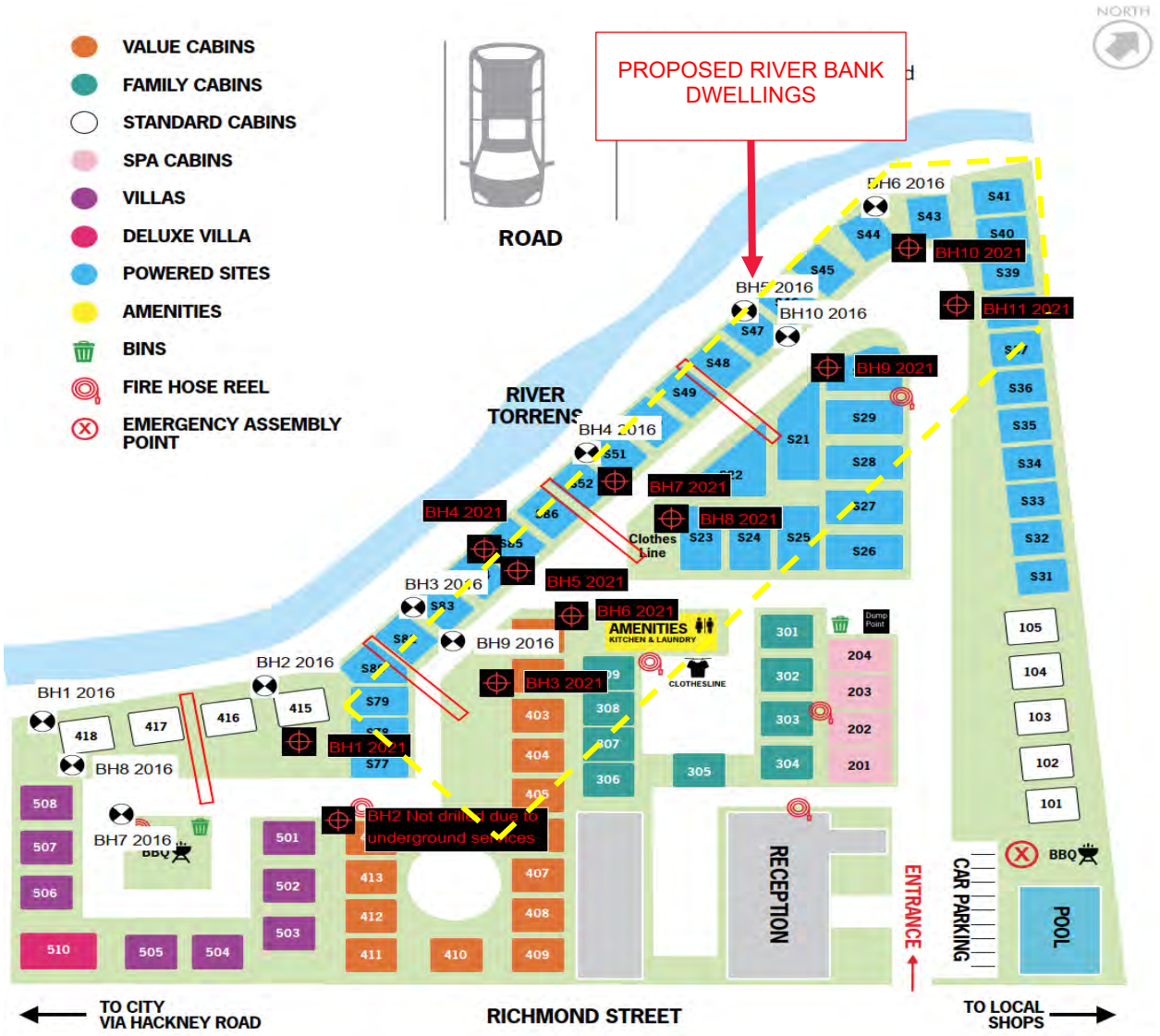



**Figure 5: Borehole Location Plan (Reference 3)**

Investigations conducted by WGA for the proposed Co-Living building to the west of the proposed River Front Dwellings included drilling 6 boreholes to a depth of up to 4 m and 1 borehole to a depth of 21 m.

Investigations by WGA for the proposed Townhouse development to the south included drilling 12 boreholes to depths of around 3 m.

### 3.3.2 Subsurface Conditions

The borehole logs presented in References 2 and 3 indicated that fill was encountered in most boreholes. The natural soils beneath the fill were consistent with the expected regional geology outlined in Section 3.2 and comprised interbedded alluvial soils over the depth ranges investigated.

The depth of fill is summarised in Table 1. Boreholes related to the Rover Front Dwellings are presented in red text.

**Table 1: Summary of Fill Depths (Reference 2 – 2016)**

| MATERIAL | BH1 | BH2 | BH3 | BH4 | BH5 | BH6 | BH7 | BH8 | BH9 | BH10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth of Fill (m) | 4.8 | 0.8 | 8 | 5.2 | 5.6 | >6.5 | 0.5 | 0.4 | 2.6 | 2.8 |
| Depth of Borehole (m) | 6.5 | 6 | 8.5 | 6.5 | 6.5 | 6.5 | 1.4 | 1.3 | 3.3 | 3.3 |

**Table 1 (cont.): Summary of Fill Depths (Reference 3 - 2021)**

| MATERIAL | BH1 | BH2 | BH3 | BH4 | BH5 | BH6 | BH7 | BH8 | BH9 | BH10 | BH11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth of Fill (m) | 0.6 | ND | 1.5 | 7.5 | 7 | 3.5 | 7 | 1.8 | 1.6 | 1.4 | 1.7 |
| Depth of Borehole (m) | 1.5 | ND | 3 | 8 | 7.5 | 5.5 | 8.5 | 3 | 2.5 | 2.4 | 3 |
| Notes: ND = Not Drilled | | | | | | | | | | | |

The variation in fill depth over the site indicates that the fill is markedly deeper along the crest of the riverbank with a marked reduction in thickness away from the crest. The boreholes drilled near to the amenities building show a fill depth of up to about 8 m along the crest, reducing to about 3.5 m near the corner of the building (the corner of the amenities building is approximately 10 m from the crest). The reported variation in fill depth supports the view that historically fill has been pushed over a steep riverbank to gain additional land.

The composition of the fill materials varied, although mainly comprised sand and gravel, and included:

- Sandy clay and clay of mainly low or medium plasticity (locally high);
- Clayey sand;
- Gravelly sand and sandy gravel, with gravel to about 70 mm in dimension.

Pockets of waste materials were present in the fill and included brick and tile fragments, glass pieces and other construction waste.

The logs report that core loss occurred in some boreholes, most probably due to the loose (uncompacted) nature of the fill.

The fill is assessed to be uncontrolled from an engineering perspective.

The natural soils below a depth of about 5 m to 6 m typically comprised fine to coarse grained sand and clayey sand, locally tending to sandy gravel at 8.4 m depth in BH7 (2021). Pockets of medium plasticity clays of firm to stiff consistency or more silty sands were evident in some boreholes (e.g. BH5, 2021). The sandy soils were reported to be in a loose to dense condition, although no in situ testing was performed to confirm this assessment.

At depths of less than 5 m to 6 m the alluvial soils were highly variable and included:

- Clayey and sandy silt;
- Sand and silty sand;
- Clay of high plasticity and stiff or very stiff consistency.

Groundwater was not encountered in the boreholes.

## 3.4 Subsurface Conditions

Descriptions of the materials encountered in the boreholes drilled during the current geotechnical investigation are summarised on the engineering logs contained in Appendix B.

The subsurface profile encountered in the boreholes was broadly consistent with the previous investigations at the caravan park and comprised, in descending order from the ground surface:

- A varying thickness of fill, up to about 8.6 m deep near to the river bank;
- Alluvium, mainly coarser gained in borehole BH19 and mainly finer grained in BH20;
- Blanche Point Formation, below a depth of about 13 m (BH20 only).

Fill was encountered in borehole BH19 to a depth of about 8.2 m and 8.6 m in BH20, consistent with the reported maximum fill depth in References 2 and 3. In boreholes BH13 and BH13A refusal was met at a depth of about 0.6 m to 0.9 m in fill and therefore the depth of fill could not be determined. In BH14 the fill was about 1 m deep.

The fill generally comprised an interbedded sequence of fine grained and coarse grained soils, with pockets of foreign material fragments including brick, ceramics and glass. The fill materials typically included:

- Finer grained soils: clay, sandy clay and gravelly clay of low and medium plasticity;
- Coarser grained soils: Sandy gravel, gravelly sand, clayey sand and sand.

In BH19, SPT N-values of 2, 5, 4, 10 and 8 were recorded in the fill, whilst in BH20 SPT N-values of 9, 11, 17, 4 and 5 were recorded. The range in SPT N-values are reflective of variations in density and gravel content.

The fill is assessed to be uncontrolled for the purposes of footing design.

In BH19 the natural soils between the base of the fill and 12 m depth (limit of borehole) comprised coarse grained alluvium which included fine to coarse grained sand, gravelly sand and sandy gravel. SPT N-values of refusal and 16 were recorded indicating a medium dense to very dense condition.

In BH20 the coarser grained alluvium was very thin. The alluvium typically comprised dark grey, low and medium plasticity silty clay with organic pockets. The clays were typically of stiff consistency, although locally firm, with SPT N -values of 4, 3 and 4. Pockets of sandy gravel were encountered between depths of about 9.8 m and 10.45 m and at 12.9 m to 13 m.

Below a depth of 13 m soils of the Blanche Point Formation were present to the limit of the investigation. The formation typically comprised greenish grey and yellow brown mottled sandy clay of medium plasticity, becoming grey and black speckled with shell fragments below depth of about 18.5 m. The clays were weakly cemented in places with nodules and were typically of stiff and very stiff consistency with SPT N-values ranging from 8 to 26.

The Blanche Point Formation was found to be of similar composition in BH18 (Co-Living site). The clay was typically only firm to stiff consistency in the upper 5 m (with SPT N-values of 5, 8 and 16 recorded) but grading very stiff and hard consistency, with high drilling resistances, below about 18.8 m. SPT refusal was met at a depth of about 19.5 m.

In BH14 the natural alluvium to a depth of 3 m comprised interbed sandy clay of low plasticity and clayey sand.

## 3.5 Groundwater

The site survey plan indicates that the pool level in the River Torrens is about RL 20.9 m, approximately 11 m below the typical ground surface level. Groundwater is therefore expected below this level.

The regional groundwater table was encountered in borehole BH19 at depth of about 9.9 m and in BH20 at a depth of about 10 m.

Groundwater was encountered in borehole BH18 drilled for the Co-Living site at a depth of about 8.5 m.

Seasonal variations in groundwater are expected, due to fluctuations in the river level. Perched groundwater could occur in more permeable soils during wet weather.

# 4 GEOTECHNICAL ASSESSMENT

## 4.1 General

It is understood that the proposed River Front Dwellings comprise twelve 2 or 3 level buildings adjacent to and overlooking the River Torrens. A basement level is not proposed.

Each dwelling is located on an allotment typically 255m$^2$ in area (about 8.5 m by 30 m in size).

Given that the soil profile beneath the proposed buildings will vary along the length (from deep fill to natural soils) it is recommended that a piled footing system is used to reduce the potential for differential settlement. At the time of reporting the construction materials and structural loads had not been finalised.

A typical cross-section through the proposed development is shown in Figure 6, which shows the following layout:

- A 4.5 m set-back from the crest of the river bank;
- A 15 m to 20 m set back from the river bank at the pool water level.

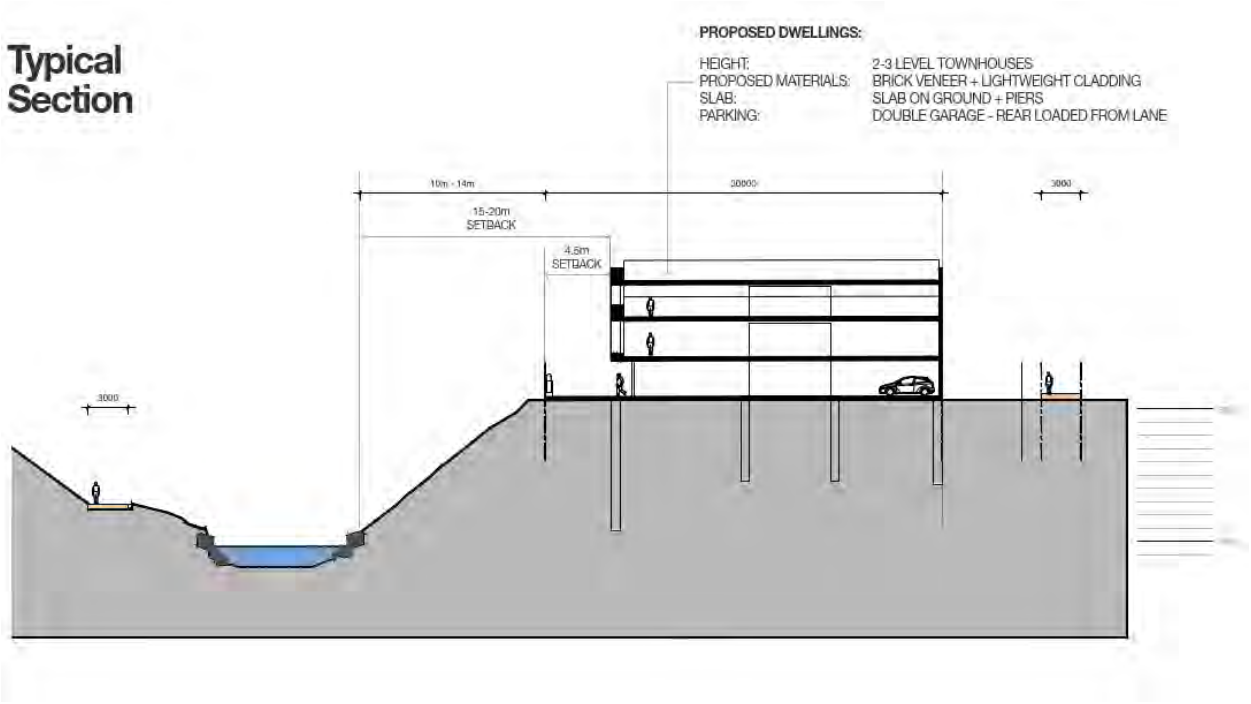



**Figure 6: Typical Cross-Section through River Front Dwellings**

## 4.2 Geotechnical Overview

The observations and analyses presented in Reference 1 indicate that the existing river bank is potentially unstable and ground improvement works are required to achieve adequate long-term stability.

The main mechanisms of slope degradation observed on site were:

- Erosion and scour at the crest due to run-off of surface water;
- Deterioration, outward leaning and collapse of a timber retaining wall at the crest;
- Shallow seated slumping of overly steep slopes, resulting in leaning of fences and retaining walls along the crest and trees on the slope. A notable slump was present to the south-west of the existing amenities/laundry building.

The results of the earlier slope stability analyses indicate:

- The failure surfaces with the lowest calculated factor of safety intersect the ground surface within about 6 m of the crest of the river bank. This is consistent with a shallow seated failure surface, as observed on site;
- The calculated factor of safety for the ground conditions modelled in the analyses ranged from about 0.86 to 1.06. A calculated factor of safety of less than 1 indicates a slope failure is likely to occur. A calculated factor of safety of around 1.5 is commonly adopted as a minimum acceptable value for engineered slopes in soils.

The analyses did not consider the beneficial effects of the existing vegetation roots or soil suction effects, which would enhance the apparent cohesion and result in a slightly higher factor of safety.

A remove and replace option was recommended in Reference 1 and this technique was previously used successfully on the residential development on the northern side of the river. The proposed methodology involves removing all of the existing uncontrolled fill and replacing with controlled fill placed under full time overview by a Geotechnical Inspection and Testing Authority (GITA). Based on the available geotechnical information, the deeper fill extends over a distance of approximately 12 m from the current crest of the river bank.

A design river bank slope of 1.25H:1V (approximately 40 degrees) was recommended previously, which results in the crest of the river bank moving back by around 1.8 m from the current location. This batter slope is considered to be the maximum batter slope where the existing fill materials are reused as controlled fill.

A slope flatter than 1.25H:1V would result in a higher calculated factor of safety but would reduce the available land for redevelopment.

The controlled fill will have more uniform and predictable geotechnical properties than the existing uncontrolled fill and will provide a stable river bank. However, whilst the controlled fill would provide improved foundation conditions for the proposed structures, the design of the footing system would need to consider:

- The potential for long-term creep type settlement of the controlled fill, particularly where the fill is deeper than about 5 m. This would lead to the potential for differential settlement to occur along the length of the building as the southern portion would be founded on natural soils (or shallow controlled fill);
- The surcharge load applied by the footing system and the proximity to the crest of the river bank. A relatively high surcharge load within about 12 m of the crest would adversely affect the long-term slope stability.

In view of the above considerations it is recommended that the proposed River Front Dwellings be supported by piles founded in natural soils below the river bed. In our opinion the use of a near surface footing system founded on deep controlled fill, such as a stiffened raft footing system, would involve a relatively high likelihood that excessive differential settlement could occur in the future which could result in distress or impair the serviceability of the structures.

A near surface footing system may be suitable for lightly loaded and flexible single storey structures.

The details for an indicative footing system are outlined in Section 4.3.

## 4.3 Proposed Footing System

### 4.3.1 General

Preliminary analyses have been undertaken to assess a conceptual footing system for the proposed dwellings. The key assumptions used in the analyses are:

- 3 storey building;
- Brick veneer, residential construction;
- Lightweight timber suspended floors.

The conceptual footing system adopted is a stiffened raft footing system supported by 10 piles. A sketch of the conceptual footing system is presented in Appendix D, whilst key details are summarised below:

- Footing beams: 350 mm wide by 650 mm deep with 4 x N16 bars top and bottom;
- Floor slab: 130 mm thick, with SL82 steel fabric top and bottom;
- Each pile has a working load of around 450 kN (Refer to Section 4.3.3 for pile design parameters).

It is emphasised that the conceptual footing design is preliminary and suitable for costing purposes only. If any of the assumptions used in the analyses vary then the footing design will need to be amended.

### 4.3.2 Pile Types and Founding Depths

Small diameter Continuous Flight Auger (CFA) piles are considered to be a suitable pile type.

Conventional uncased bored piles are considered unsuitable due to the potential for collapse of the pile shaft and any under-ream in the more sandy and gravelly soils, particularly below the groundwater table.

Driven piles (such as precast concrete or driven steel tubes) could be considered provided that the effects of noise and ground vibrations generated during pile driving on adjacent properties is thoroughly assessed. Pre-drilling of the pile locations within the controlled fill may need to be considered to reduce ground vibration.

It is recommended that CFA or driven piles are founded in the stronger Blanche Point Formation below a depth of about 18.5 m, with a nominal founding depth of around 20 m expected.

The required pile founding depth will depend on the applied axial load and the pile diameter adopted.

### 4.3.3 Pile Design Parameters for Static Loading

It is recommended that the preliminary design of CFA or driven piles be based on the geotechnical parameters presented in Table 2. The parameters are suitable for pile diameters of 900 mm or less.

It is noted that piling contractors may, on the basis of past experience, adopt less conservative geotechnical parameters based on an alternate geotechnical interpretation. The adoption of such parameters would be contingent on undertaking adequate pile load testing during the piling work to verify the design parameters and assumptions.

**Table 2: Summary of Design Parameters for CFA or Driven Piles**

| TYPICAL DEPTH RANGE (m)[1] | GENERALISED SOIL TYPE | TYPICAL SPT N-VALUE | UNDRAINED SHEAR STRENGTH, $C_U$ (kPa) | AVERAGE ULTIMATE SHAFT RESISTANCE (kPa) | ULTIMATE BASE RESISTANCE (kPa) |
|---|---|---|---|---|---|
| 0 to 1 | Footing Beam/Pile cap | - | Neglect for the purposes of pile design | | |
| **Controlled Fill/Alluvium** | | | | | |
| 1 to 8.5 (northern end) | Controlled fill | - | 80 (or angle of friction of 36 degrees) | 45 | Not Suitable |
| 1.0 to 8.5 (southern end) | Natural soils (Based on Co-Living site) | - | 90 (or angle of friction of 30 degrees) | 40 | Not suitable |
| **Lower Alluvium** | | | | | |
| 8.5 to 13 (BH20 only) | Sandy Clay, mainly stiff, gravelly interbeds | 4 | 40 to 70 | 35 | Not suitable |
| 8.5 to 13 (BH19 only) | Coarser Grained Alluvium | 16 to >50 (gravelly sand and sandy gravel) | Angle of internal friction of 34 to >36 | 85 | Not suitable – interbedded and thickness of unit varies |
| **Blanche Point Formation** | | | | | |
| 13 to 18.5 (BH20 only) | Upper Blanche Point Formation | 8 to 14 | 100 | 55 | Not suitable |
| >18.5 (BH20 only) | Lower Blanche Point Formation | >25 | >200 | 100 | 2,800 |

Notes:
1. Depth ranges are approximate only and may vary over the site.
2. The above parameters are not appropriate for bored piles and further advice sought for such piles.

In accordance with the guidelines of AS 2159-2009 "*Piling - Design and Installation*" a geotechnical strength reduction factor, $\phi_g$, must be applied to the ultimate geotechnical parameters presented in Table 2 to determine the design geotechnical strength, $R_{d,g}$, which must then be equal to or exceed the design action effect, $E_d$.

Using the guidelines of Table 4.3.2 (A) in AS 2159-2009, an average risk rating (ARR) of between 2.5 and 3 is assessed, corresponding to an overall risk category of "*low to moderate*". Based on Table 4.3.2(C) a basic geotechnical strength reduction factor, $\phi_{gb}$ of 0.52 may be adopted for a low redundancy system and 0.60 for a high redundancy system.

The adopted geotechnical strength reduction factor ($\phi_g$) for the site will depend on the type of pile testing and the percentage of piles tested during construction. For example:

- In accordance with Clause 4.3.1 in AS 2159-2009, a higher geotechnical reduction factor may be used if pile load testing (dynamic or static) to verify pile serviceability is conducted during construction.
- In accordance with Clause 8.2.4 in AS 2159-2009, if no pile testing is undertaken a geotechnical strength reduction factor ($\phi_g$) of 0.4 will need to be adopted.

Given the variations in subsurface conditions observed it is recommended that high strain dynamic pile testing (or static load testing) be conducted in accordance with AS 2159-2009 on at least 1% of the piles during construction to verify that the design geotechnical strength of the pile has been achieved. Some of these tests should be undertaken in the very early stages of the pile installation so that any required amendments to the pile length can be promptly adopted. Further advice should be sought on pile load testing if required.

For driven piles the axial capacity of each pile should be checked based on the actual pile driving resistances using a recognised pile driving formula (such as the Hiley formula). The pile driving formula should be calibrated with the results of a dynamic (PDA) test.

In order to achieve a pile working load of about 450 kN, the following piles founded at a depth of 20 m could be considered:

- 355 mm diameter steel tube section (12.7 mm wall thickness);
- 450 mm diameter Continuous Flight Auger Pile.

The immediate (elastic) settlement of a single pile at the design serviceability load of 450 kN is unlikely to exceed 10 mm. The settlement of a group of piles is expected to be larger, depending on such factors as pile size, group geometry, founding depth and applied axial load. Further advice must be sought on pile group settlements once the group geometry and applied loads are known.

The installation of piles would need to consider the presence of coarse gravel and possibly cobbles in the coarser grained alluvium which may reduce drilling rates. Piling contractors must make an allowance for such subsurface conditions in assessing suitable piling rigs and preferably large, high torque capacity piling rigs should be used.

Care must be taken when installing piles through the geogrid (upper 2 layers and basal layer) used to reinforce the controlled fill (refer to Section 4.5). Pre-drilling of driven piles may be required to penetrate the upper 2 layers.

Provision should be made for differential movement, primarily associated with shrink-swell movements, to occur between piled footings and any floor slab constructed on grade.

### 4.3.4 Site Classification to AS 2870

Based on a visual-tactile assessment, the existing fill materials and natural soils encountered in the boreholes over the upper 4 m are judged to be generally slightly to moderately reactive with respect to shrink-swell movements caused by changes in soil moisture content. Shrink-swell indices for the low and medium plasticity clays are estimated to range from about 1% to 1.5%.

Based upon the design soil suction change profile for Adelaide contained in AS 2870-2011 *"Residential slabs and footings"*, a characteristic surface movement ($y_s$) of up to about 30 mm is estimated for the site at the current ground surface level.

In accordance with a classification system presented in AS 2870-2011, a site classification of Class M-D (Moderately reactive clay sites with deep moisture changes, which can experience moderate ground movements resulting from moisture content changes) is considered appropriate for a site which experiences normal soil moisture conditions, as outlined in AS 2870-2011.

Irrespective of the site classification for shrink-swell movements, where controlled or uncontrolled fill over 0.4 m deep is present on the site the overall site classification would be Class P (Filled site).

Should future moisture content changes in the foundation soils result in soil suction values outside the suction change profile presented in AS 2870-2011 (abnormal soil moisture conditions), a larger $y_s$ value may occur. Such changes could occur adjacent to leaking water services or where soils are desiccated by tree roots.

No allowance for trees is provided in the $y_s$ values. Further advice must be sought where new trees are proposed in close proximity to the proposed buildings.

### 4.3.5 Earthquake Design

The site lies slightly to the east of the Para Fault and bedrock is expected at a depth of over 60 m. Accordingly, a site sub-soil class of $D_e$ (Deep soil) is recommended in accordance with AS 1170.4-2007 *"Structural design actions Part 4: Earthquake actions in Australia*".

The natural soils and controlled fill are not considered to be vulnerable to liquefaction during an earthquake event with a recurrence interval of 1 in 500 years.

### 4.3.6 Durability

The results of the laboratory chemical tests undertaken as part of the geotechnical investigation for the proposed Co-Living development indicate that the natural soils are typically slightly alkaline with relatively low concentrations of sulphates and chlorides.

An exposure classification of *Non-aggressive* is considered appropriate for buried concrete above the groundwater table and *Mild* for buried concrete below the groundwater table, in accordance with the guidelines of Table 6.4.2(C) in AS 2159-2009 *"Piling - Design and Installation".* For buried steel, the exposure classification would be N*on-aggressive* for soils above and below the groundwater table.

Given the presence of heterogenous fill materials with varying chemical composition, the following exposure classifications are recommended for the existing fill above the groundwater table:

- Buried concrete: *Moderate.*
- Buried steel: *Mild.*

## 4.4 Stability Analyses

Slope stability analyses were undertaken using the computer program *Slide* to quantitatively assess the stability of the existing riverbank following completion of the ground improvement works (controlled fill). Circular failure surfaces were considered.

The geotechnical parameters assigned to the controlled fill and natural soils were estimated by WGA based on the results of the geotechnical investigations and previous experience.

The assumptions used in the slope stability analyses were:

- The controlled fill was modelled as an partially saturated material with an apparent cohesion ($C_a$) of 5 kPa and an effective angle of internal friction of 36 degrees;
- A design riverbank slope of 1.25H:1V in the controlled fill;
- The riverbank was considered to be mechanically stabilised using five layers of geosynthetic grid (Secugrid 60/60 Q1, or equivalent product with an ultimate tensile strength of 60 kN/m) of varied lengths (8.5 m long for upper four layers and 16 m long for the bottom layer), with a nominal vertical spacing of about 2 m. The upper one or two layers of geogrid are likely to be locally impacted by the installation of the piles supporting the buildings, depending on the final building layout adopted;
- The water level in the river was considered to vary between RL 20.9 m AHD and RL 21.6 m AHD;
- A nominal surcharge of 2.5 kPa or 5 kPa was included on the ground surface starting from the crest of the riverbank and extending the full length of the proposed buildings. The proposed buildings were assumed to be located 2.4 m from the crest of the reconstructed river bank;
- A pseudo seismic analysis was undertaken by applying a horizontal coefficient of acceleration of 0.05 g to the ground;
- A minimum long-term factor of safety of 1.5 was typically adopted, reducing to 1.3 under earthquake loading;
- The beneficial effect of the building piles was also considered.

The results of the stability analyses, which show the slope geometry adopted, the geotechnical parameters used and the critical failure surfaces are presented in Appendix C and are summarised in Table 3.

**Table 3: Summary of Preliminary Stability Analyses**

| CASE | MINIMUM CALCULATED FACTOR OF SAFETY |
|---|---|
| Case 1: five layers of geogrids, with high water table | 1.54 |
| Case 2: five layers of geogrids, with low water table | 1.49 |
| Case 3: five layers of geogrids, with high water table, and a row of piles | 1.53 |
| Case 4: five layers of geogrids, with low water table, and seismic loading | 1.34 |

The results of the slope stability analyses indicate:

- The globally stability of the controlled fill river bank under the surcharge load imposed by the proposed piled buildings is considered adequate. The slightly reduced FOS of 1.49 for the low water table case is considered acceptable, assuming the low water table event only occurs occasionally.
- The calculated factor of safety during an earthquake event, with an annual probability of exceedance of 1/500 (10% chance of exceedance in 50 years) is approximately 1.34 which considered acceptable.
- The installation of building piles does not appreciably affect the long-term global stability of the riverbank, given the relatively wide spacing and small diameter of the piles.

The slope stability analyses do not consider the beneficial effects of any future vegetation roots or soil suction effects, which would enhance the apparent cohesion in the controlled fill and result in a slightly higher factor of safety.

A typical slide output is presented in Figure 7.

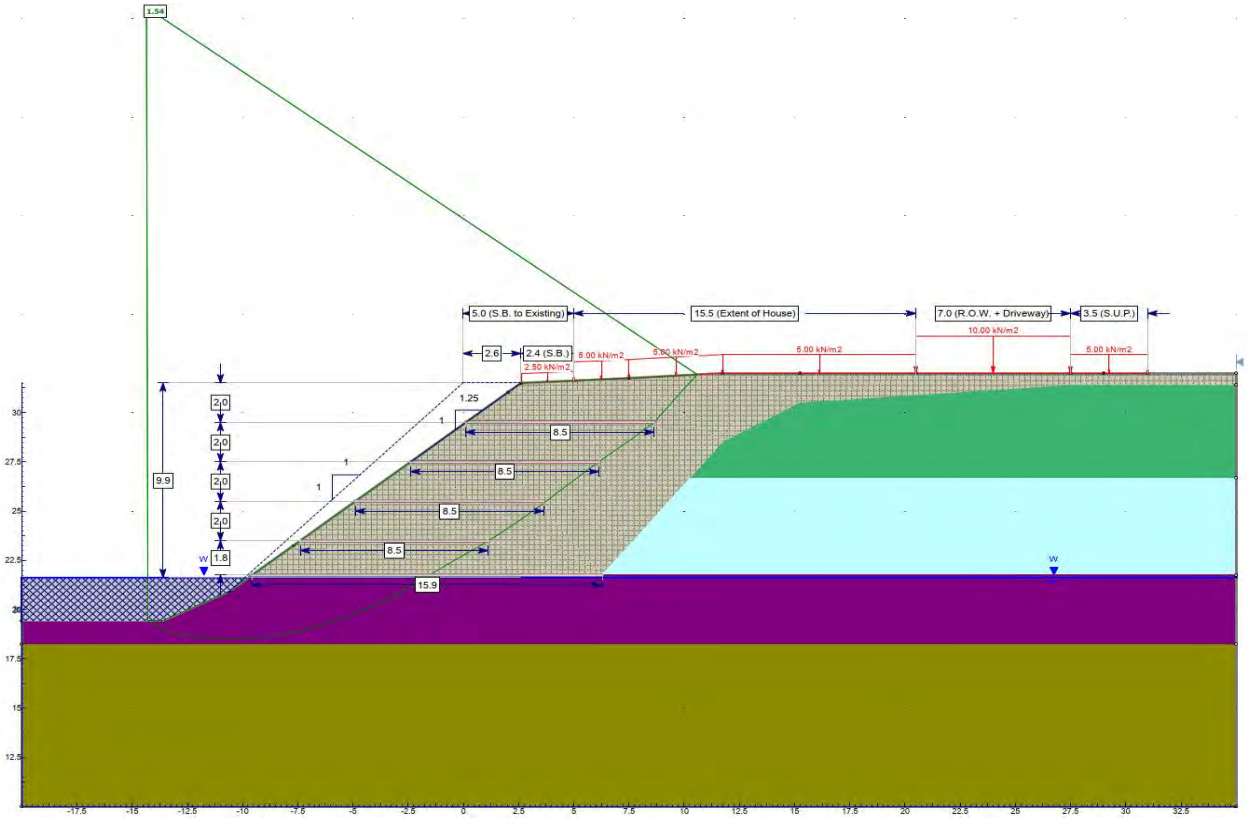



**Figure 7: Typical Slide Output**

Options which could be considered to increase the calculated factor of safety include:

- Flattening the batter slope;
- An increased number of geogrids;
- Using a imported granular pavement material for the controlled fill.

## 4.5 Earthworks

The proposed ground improvement works involves removing the existing fill and replacing the excavated soil as a controlled fill. The key considerations to be considered in the design and construction of the earthworks by prospective Contractors are:

- All of the existing fill is to be removed to expose natural soils. The depth of fill to be removed is assessed to be up to about 8.6 m, although locally deeper pockets may occur. The excavated fill may be selectively stockpiled nearby for re-use;
- The deeper fill appears to be located within a 12 m wide zone extending back from the current crest of the river bank;
- The presence of relatively weak natural soils is expected at the base of the fill, with possible groundwater seepage. A bridging layer is likely to be required at the base of the fill which could comprise a layer of 100 mm road ballast and/or a geogrid. Dewatering may be locally required;
- The need to reinforce the controlled fill with 5 layers of geogrid in order to achieve adequate stability;
- The controlled fill would need to be placed in layers and compacted to achieve a dry density ratio of at least 98% based on Standard compaction (AS 1289 5.1.1) in the upper 5 m and at least 100% Standard for fill deeper than 5 m. At the time of compaction the controlled fill shall be conditioned to within 2% of the optimum moisture content;
- The controlled fill will need to be keyed into the adjacent natural soils by the provision of horizontal benches;
- The controlled fill would need to be over-filled on the river side and subsequently trimmed back to the design batter slope;
- The controlled fill must be placed under Level 1 overview by a GITA, in accordance with the requirements of AS 3798 *"Guidelines on earthworks for commercial and residential developments"*;
- Not all of the excavated fill is suitable for re-use. Organic soils, deleterious materials and oversize particles (larger than about 100 mm in dimension) will need to be selectively removed and disposed off-site. Contractors will need to make and allowance for screening and sorting the existing fill prior to re-use;
- The compacted controlled fill is likely to occupy a smaller volume that the in situ uncontrolled fill. As a result additional fill will need to be imported to achieve the required site levels. A negative bulking factor of 10% is considered reasonable. Any imported fill shall comprise a Class 2 or 3 pavement material or Type A fill meeting DIT specifications;
- The upper 400 mm of the controlled fill shall comprise an imported pavement quality material, such as a PM3/20;
- The stability of the temporary cut batter slopes formed during excavation of the fill will need to be assessed during construction. Temporary batter slopes not exceeding about 60 degrees are expected to be required in the natural soils;
- The temporary stockpiles for the excavated fill materials will need to be located well away from the temporary cut batters to prevent the surcharge affecting the stability of the cut batter;
- Existing infrastructure, such as concrete spillways and pipework on river bank and local mass concrete at toe of river bank will need to be replaced;
- The finished batter slope of 1.25H:1V facing the river will need to be vegetated or protected with a proprietary anti-erosion mat.

A brief Technical Specification for the earthworks is presented in Appendix E.

It is estimated that the volume of fill to be removed is about 18,000 $m^3$, based on the following broad assumptions:

- The deeper fill along the crest of the river bank is contained in a strip around 125 m long which is 8.5 m deep and around 12 m wide;
- The remaining fill beyond the strip of deeper fill is around 1 m deep;
- The pre-existing river bank (prior to land reclamation) had a slope of 1H:2V.

No volume allowance has been made for the construction of temporary access ramps or benching.

It is emphasised that the above volume estimate is approximate only as there is no available survey prior to filling. It is recommended that a nominal contingency of 20% be adopted for tendering purposes.

On completion of the earthworks the controlled fill exposed in the river bank shall be covered with a proprietary anti-erosion mat (such as MacMat R) and seeded with ground cover plants.

Erosion protection works, such as a rock revetment, gabion wall or rock pitching, may be required within the existing river channel to prevent on-going erosion of the river bank and undermining of the controlled fill. The requirements for such protection are beyond the scope of this report.

Surface drainage works will also be required at the crest to manage surface water and prevent runoff flowing down the river bank.

### 4.5.1 Other Issues

The effects of construction activities, such as vibrations during compaction or pile driving, excavation works and changes in the soil moisture regime, on adjacent buildings and infrastructure must be considered. A dilapidation survey and regular monitoring of the existing structures near to the site during construction are strongly recommended.

## 4.6 Safety in Design

This report presents factual information about the subsurface conditions at the site and an assessment of how these conditions might impact on the design and construction of the proposed development from a geotechnical perspective. At the time of reporting the design and documentation of the proposed development had not been finalised and as a result Safety in Design issues have not been considered in this report. It is the responsibility of the designer to use the information contained herein to prepare a Safety in Design Report which is appropriate for the proposed development.

Specific input on geotechnical issues for the Safety in Design report can be provided as part of the detailed design phase if required.

# 5 LIMITATIONS

The recommendations contained within this report have been based on the subsurface conditions encountered in a limited number of boreholes and the judgement and opinion of WGA. To the best of our knowledge, the subsurface conditions described in this report provide a reasonable interpretation of the typical subsurface conditions likely to be encountered at the site.

It must be accepted that variations in subsurface conditions are likely to occur between the locations investigated and such variations may impact on the design recommendations provided. Under no circumstances can it be assumed that this report represents the actual subsurface conditions at all locations over the site.

Roger Grounds
for
**WALLBRIDGE GILBERT AZTEC**

## References


1. *Adelaide Caravan Park Redevelopment, Hackney. Geotechnical Review of Slope Remediation Options.* WGA report 230955-RP-GE-0001_A, dated 27 June 2023.
2. *Geotechnical Investigation, 46 Richmond Street, Hackney.* FMG Engineering Report dated 29/06/2016, Job Number S30579-247712.
3. *Geotechnical Investigation Report, Slope Stability Assessment, Adelaide Caravan Park.* FMG Engineering Report dated 24/08/2021, Job Number 276032.

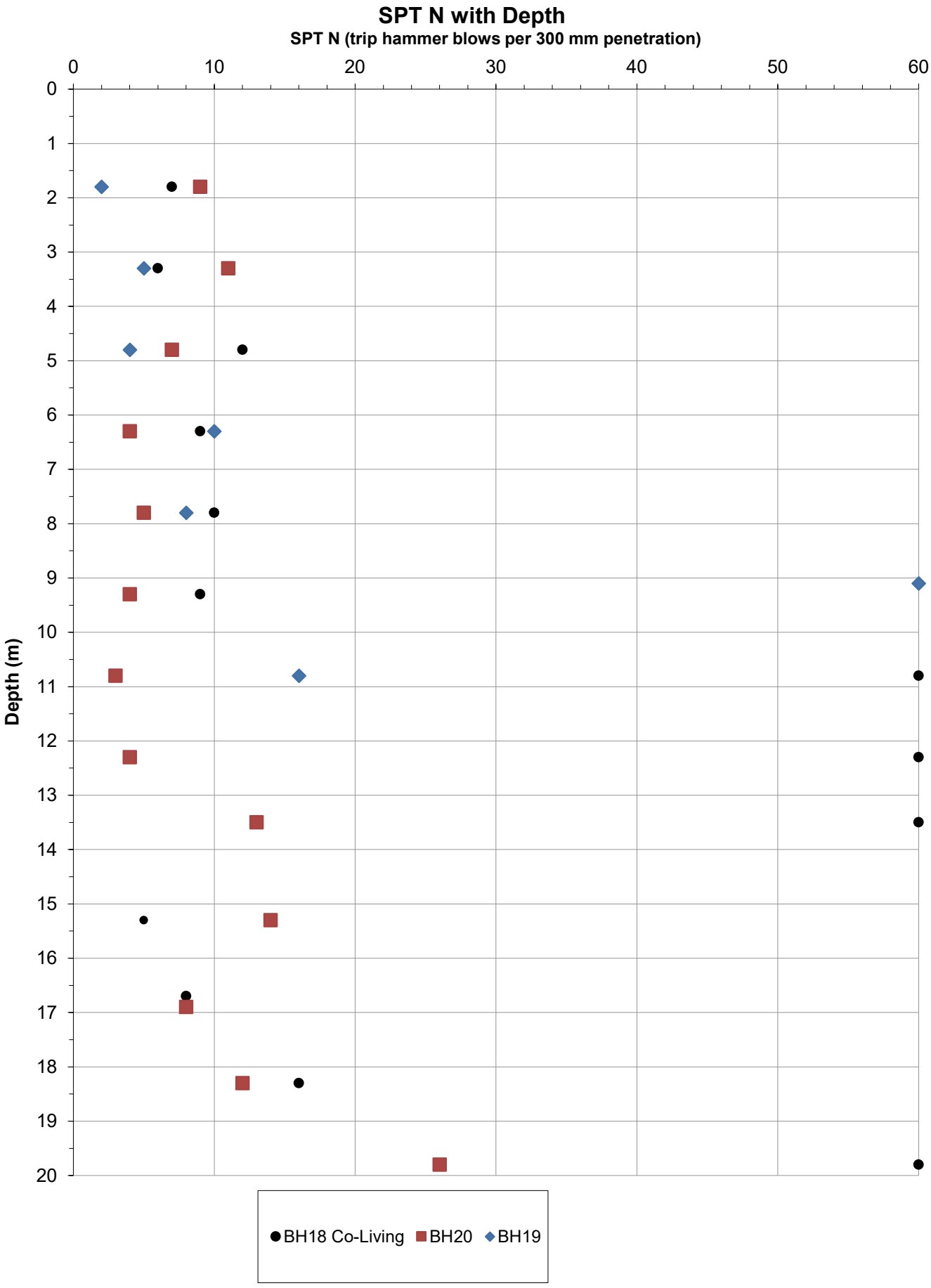
# APPENDIX A
# FIGURES

| | | | | | |
|---|---|---|---|---|---|
| Drawn by | YW | | Client: | ASPEN GROUP | |
| Approved | RWG | | Project: | ADELAIDE CARAVAN PARK REDEVELOPMENT<br>PROPOSED RIVER FRONT DWELLINGS<br>HACKNEY | |
| Date | 19/04/2024 | | Title: | BOREHOLE LOCATION PLAN | |
| Dimensions | NTS | | Project No.: | WGA230955 | Ref. FIGURE A1 |
| Original | - | | | | |

*Source: Google Earth Pro.*
*Dated April 2024.*

| | | | | | |
|---|---|---|---|---|---|
| Drawn by | YW | | Client: | ASPEN GROUP | |
| Approved | RWG | WGA | Project: | ADELAIDE CARAVAN PARK REDEVELOPMENT<br>PROPOSED RIVER FRONT DWELLINGS<br>HACKNEY | |
| Date | 19/04/2024 | | Title: | BOREHOLE LOCATION PLAN | |
| Dimensions | NTS | | Project No.: | WGA230955 | Ref. FIGURE A2 |
| Original | - | | | | |

*Source: Google Earth Pro.*
*Dated April 2024.*




Note:
N = 60 = Refusal (N > 50)

| | | | | |
|---|---|---|---|---|
| Prepared by | ZY | WGA | ASPEN GROUP<br>ADELAIDE CARAVAN REDEVELOPMENT<br>PROPOSED RIVERFRONT DWELLINGS, HACKNEY<br>SUMMARY OF STANDARD PENETRATION DATA | |
| Checked by | RWG | | | |
| Date | 19-Apr-24 | | | |
| Date tested | April 2024 | | | |
| Original Size | A4 | | WGA230955 | FIGURE A3 |

\\wga-fs01\projects\2023\230900 - 230999\230955 - Adelaide Caravan Park Redevelopment\Documents\Reports\WGA230955-RP-GE-0004_A River Front\App A - Figs\[FIGURE A3

# APPENDIX B
# RESULTS OF THE FIELD INVESTIGATION

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 9/04/2024
Date Logged: 10/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 13**
Page 1

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| 0.15 | FILL | GRAVEL, fine to coarse, angular to subangular, white, trace fine | D | | | Fill |
| | FILL | Silty CLAY, low plasticity, dark brown, with fine to coarse grained sand, trace fine to coarse gravel | <Wp | | | |
| | | At 0.25 m, pocket of gravel | | | | |
| 0.5 | | At 0.45 m, pocket of brick fragment | | | | |
| 0.6 | FILL | Clayey GRAVEL, fine to medium, subangular, pale brown and dark brown, low plasticity, with fine to coarse grained sand | M | | | |
| | | Borehole terminated at 0.6 m (Refusal) | | | | |
| 1.0 | | | | | | |
| 1.5 | | | | | | |
| 2.0 | | | | | | |
| 2.5 | | | | | | |
| 3.0 | | | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 9/04/2024
Date Logged: 10/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 13A**
Page 1

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| 0.15 | FILL | GRAVEL, fine to coarse, angular to subangular, white, trace fine | D | | | Fill |
| 0.3 | FILL | Sandy GRAVEL, fine to medium, subangular, yellow brown mottled red brown and white, fine to coarse grained, with fine | M | | | |
| 0.5 | FILL | Clayey GRAVEL, fine to medium, subangular, dark brown mottled red brown and white, low plasticity, with fine to coarse grained, trace brick fragment | M | | | |
| 0.9 | FILL | Silty CLAY, low plasticity, dark brown mottled pale brown and grey, with fine to medium grained sand, trace fine to medium gravel | <Wp | | | |
| 1.0 | | Borehole terminated at 0.9 m (Refusal) | | | | |
| 1.5 | | | | | | |
| 2.0 | | | | | | |
| 2.5 | | | | | | |
| 3.0 | | | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

| | | |
|---|---|---|
| Date Drilled: | 10/04/2024 | **Borehole No.** |
| Date Logged: | 10/04/2024 | |
| **Logged by:** | **YW** | **BH 14** |
| Drilling Method: | Push Tube | |
| Drill Rig/Mount: | Portable | Page 1 |

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**

**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| | FILL | Sandy GRAVEL, fine to coarse, angular to subangular, grey and pale brown, fine to coarse grained, with fine | D | | | Fill |
| 0.3 | | | | | | |
| | FILL | Sandy CLAY, medium plasticity, brown mottled white, fine to coarse | <Wp | | | |
| 0.5 | | grained, with fine to medium calcareous gravel | | | | |
| 0.6 | | | | | | |
| | FILL | Sandy CLAY, low plasticity, yellow brown mottled black, fine to | <Wp | | | |
| | | medium grained, trace fine to medium asphaltic concrete gravels, | | | | |
| 0.95 | | trace fine brick fragments | | | | |
| 1.0 | FILL | Sandy CLAY, low plasticity, dark brown and yellow brown, fine to | <Wp | | | |
| | | medium grained, trace fine gravel | | | | Alluvium, natural |
| | CL/SC | Sandy CLAY, low plasticity, dark brown, fin to medium grained, | <Wp | Fb | | |
| | | trace rootlet | | | | |
| 1.4 | | | | | | |
| 1.5 | SC | Clayey SAND, fine to medium grained, pale brown, low plasticity | M | L/MD | | |
| | | | | | | |
| | | | | | | |
| 1.8 | | | | | | |
| | CL/CI | Sandy CLAY, low to medium plasticity, brown and yellow brown, | <Wp | H | 600 | |
| 2.0 | | fine to coarse grained | | | | |
| | | | | | | |
| | | | | | 600 | |
| 2.25 | | | | | | |
| | SC/CL | Clayey SAND, fine to coarse grained, yellow brown and orange | M | L/MD | | |
| 2.5 | | brown, low plasticity | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 3.0 | | Borehole terminated at 3.0 m (target depth) | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 17/04/2024
Date Logged: 17/04/2024
**Logged by:** ZY
Drilling Method: Push Tube
Drill Rig/Mount: Ezi-probe

**Borehole No.**
**BH 19**
Page 1

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** WGA230955
**Location:** ADELAIDE CARAVAN REDEVELOPMENT, HACKNEY

| Depth below surface (m) | USCS Symbol | Composition of soil: Soil Description (type, plasticity, grading, colour, secondary and minor components) | Condition of soil: Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations: (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| 0.1 | FILL | Sandy GRAVEL, fine to medium grained, subangular to subrounded, grey, fine to coarse grained, trace brick fragments and rootlet | D | | | Fill |
| | FILL | Gravelly SAND, fine to coarse grained, grey brown, fine to medium | | | | |
| 0.25 | | grained, subangular to angular, trace brick fragment, trace rootlet | | | | |
| | FILL | Sandy CLAY, low plasticity, pale yellow brown, fine to medium grained, trace gravel, | <Wp | | | |
| 0.5 | | trace construction waste. At 0.25 m - 0.3 m, sandy clay, dark brown, trace rootlet | | | | |
| 0.6 | FILL | Sandy CLAY, medium plasticity, pale brown, fine to medium grained, trace rootlet, trace bitumen | | | | |
| | FILL | GRAVEL, fine to coarse grained, angular to subangular, grey, red | D | | | |
| | | brown, trace sand, with construction waste, glass fragments, brick | | | | |
| 0.95 | | fragments | | | | |
| 1.0 | FILL | Gravelly SAND, fine to coarse grained, brown, fine to medium | | | | |
| | | grained, angular to subangular, with construction waste, brick | | | | |
| | | fragments, with low to medium plasticity clay | | | | |
| 1.35 | | | | | | |
| 1.5 | FILL | Gravelly CLAY, low to medium plasticity, pale brown, fine to coarse | <Wp | | | SPT at 1.5 m |
| | | grained, angular to subangular, with brick fragments, with glass | | | | 4, 1, 1 |
| | | fragment, trace ceramic debris, with low to medium plasticity | | | | N= 2 |
| 2.0 | | | | | | |
| | FILL | CLAY, medium plasticity, brown, with fine to medium grained sand, | | | | |
| 2.5 | | with brick fragments, glass fragment, trace charcoal debris, trace | | | 600 | |
| | | gravel | | | | |
| | | | | | 600 | SPT at 3.0 m |
| | | | | | | 3, 3, 2 |
| 3.0 | | | | | 600 | N= 5 |

**Depth to Groundwater: 9.9 m** **Trees at Site: Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 17/04/2024
Date Logged: 17/04/2024
**Logged by:** ZY
Drilling Method: Push Tube
Drill Rig/Mount: Ezi-probe

**Borehole No.**
**BH 19**
Page 2

| Legend: | Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|---|
| | D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| | M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| | W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| | Wp - Plastic Limit | | St - Stiff | |
| | USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| | FILL | CLAY, as above | <Wp | | | |
| 3.5 | | | | | | |
| | FILL | Gravelly CLAY, medium plasticity, multi-colour, fine to medium grained, angular to subangular, with fine to medium grained sand, with construction debris and charcoal fragment, trace gravel | | | 400 | |
| 4.0 | | | | | | |
| | | | | | 600 | |
| 4.3 | | | | | | |
| | FILL | Gravelly SAND, fine to coarse grained, red brown, fine to medium | D | | | |
| 4.5 | | grained, subangular to angular, with brick fragments, trace clay | | | | SPT at 4.5 m |
| | FILL | Gravelly SAND, fine to coarse grained, pale yellow brown, fine to medium grained, angular to subangular, with brick fragment, trace clay | | | | 2, 2, 2<br>N= 4 |
| 5.0 | | | | | | |
| 5.5 | | | | | | |
| | | At 5.8 m, large brick fragment and crushed rock | | | | SPT at 6.0 m |
| 6.0 | | | | | | 5, 4, 6<br>N= 10 |

**Depth to Groundwater: 9.9 m** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

| | | |
|---|---|---|
| Date Drilled: | 17/04/2024 | |
| Date Logged: | 17/04/2024 | **Borehole No.** |
| **Logged by:** | **ZY** | **BH 19** |
| Drilling Method: | Push Tube | |
| Drill Rig/Mount: | Ezi-probe | Page 3 |

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**

**Location:** **ADELAIDE CARAVAN REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| | FILL | Gravelly SAND, as above | D | | | |
| 6.5 | | | | | | |
| | FILL | Sandy CLAY, medium plasticity, grey brown with red brown, fine to medium grained, trace construction waste, trace crush rock, trace gravel | >Wp | | 400 | |
| | | | | | 310 | |
| 7.0 | | At 6.9 m, large brick fragment and crushed rock | | | 420 | |
| 7.2 | | | | | 400 | |
| | FILL | Clayey SAND, fine to medium grained, dark brown, low plasticity | D-M | | | |
| 7.5 | | | | | | SPT at 7.5 m |
| | | | | | | 4, 3, 5 |
| | | | | | | N= 8 |
| | | At 7.8 m, brick fragment found | | | | |
| 8.0 | | | | | | |
| 8.2 | | | | | | |
| | SP | SAND, fine to coarse grained, pale yellow brown to pale brown | M | MD | | |
| | | mottled brown, trace fines | | | | Natural |
| 8.5 | | | | | | Coarse grained alluvium |
| 8.75 | | | | | | |
| | SP | Gravelly SAND, fine to coarse grained, pale brown, fine to medium | | D/VD | | SPT at 9.0 m |
| 9.0 | | grained, subrounded, trace fines | | | | N= R, hammer bouncing |

**Depth to Groundwater: 9.9 m** **Trees at Site:** **Yes**

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Email adelaide@wga.com.au

Date Drilled: 17/04/2024
Date Logged: 17/04/2024
**Logged by:** ZY
Drilling Method: Push Tube
Drill Rig/Mount: Ezi-probe

**Borehole No.**
**BH 19**
Page 4

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| | SP | Gravelly SAND, as above | D-M | MD | | |
| 9.5 | | | W | | | |
| | | | | | | Groundwater at 9.9 m |
| 9.9 | | | | | | |
| 10.0 | GP | Sandy GRAVEL, fine to coarse grained, subrounded to rounded, pale brown with brown, fine to coarse grained | | | | From 10.0 m - 10.3 m<br>Low drilling resistance |
| | | From 10.2 m - 10.5 m, large cobble fragment recovered | | | | SPT at 10.5 m |
| 10.5 | | | | MD | | 8, 7, 9<br>N= 16 |
| 11.0 | | | | | | |
| | SP | Gravelly SAND, fine to coarse grained, yellow brown, fine to coarse grained, subrounded to rounded, trace fines | | | | |
| 11.5 | | | | | | |
| 11.9 | | Clayey SAND, fine to medium grained, brown, low plasticity, trace gravel | | | | |
| 12.0 | SC | Borehole terminated at 12.0 m (target depth) | | | | |

**Depth to Groundwater: 9.9 m** **Trees at Site:** **Yes**

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| | | |
|---|---|---|
| Date Drilled: | 17/04/2024 | **Borehole No.** |
| Date Logged: | 17/04/2024 | |
| **Logged by:** | **YW** | **BH 20** |
| Drilling Method: | Push Tube | |
| Drill Rig/Mount: | Ezi-probe | Page 1 |

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| | FILL | Sandy GRAVEL, fine to medium, angular to subangular, pale brown | D | | | FILL |
| | | and grey, fine to coarse grained, with fine | | | | |
| 0.25 | | | | | | |
| | FILL | Clayey GRAVEL, fine to coarse, angular to subangular, dark brown | M | | | |
| 0.5 | | and grey, low plasticity, with fine to coarse grained sand | | | | |
| 0.75 | | | | | | |
| 0.9 | FILL | Sandy GRAVEL, fine to medium, subangular, pale brown and grey, | D | | | |
| 1.0 | | fine to coarse grained, with fine | | | 600 | |
| | FILL | Sandy CLAY, low plasticity, dark brown and brown mottled red brown and white, | <Wp | | | |
| 1.2 | | fine to coarse grained, with fine to coarse, angular to subangular gravel, trace fine brick fragment | | | 600 | |
| | FILL | Sandy CLAY, medium to high plasticity, brown, grey and orange | <Wp | | | |
| | | brown, fine to coarse grained, with fine to coarse, subangular | | | 600 | |
| 1.5 | | gravel, trace fine brick fragment | | | | SPT at 1.5 m |
| | | | | | | 2, 4, 5 |
| | | | | | | N= 9 |
| 2.0 | | | | | | |
| | | | ≈Wp | | 540 | |
| 2.3 | | | | | | |
| 2.4 | FILL | Silty SAND, fine to medium grained, dark brown, low plasticity, | D-M | | | |
| 2.5 | | trace fine glass fragment | | | | |
| | FILL | Clayey SAND, fine to medium grained, brown mottled white, low | D-M | | | |
| | | plasticity, trace fine to medium calcareous nodules | | | | |
| 3.0 | | | | | | |

**Depth to Groundwater: 10.0 m** **Trees at Site: Yes**

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| | | |
|---|---|---|
| Date Drilled: | 17/04/2024 | **Borehole No.** |
| Date Logged: | 17/04/2024 | |
| **Logged by:** | **YW** | **BH 20** |
| Drilling Method: | Push Tube | |
| Drill Rig/Mount: | Ezi-probe | Page 2 |

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**

**Location:** **ADELAIDE CARAVAN REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| | FILL | Clayey SAND, as above | D-M | | | SPT at 3.0 m |
| 3.2 | | | | | | 3, 4, 7 |
| | FILL | Clayey SAND, fine to coarse grained, grey mottled orange brown and yellow brown, white, low plasticity, trace fine gravel | D-M | | | N= 11 |
| 3.5 | | | | | | |
| 4.0 | | | | | | |
| 4.35 | | | | | | |
| 4.5 | FILL | SAND, fine to coarse grained, grey, mottle orange brown, white and black, with fine, trace fine to medium gravel | D-M | | | SPT at 4.5 m |
| | | | | | | 5, 7, 10 |
| 4.65 | FILL | Clayey SAND, fine to coarse grained, yellow brown and grey, low plasticity | D-M | | | N= 17 |
| | FILL | Clayey SAND, fine to coarse grained, grey mottled black, low | D-M | | | |
| 5.0 | | plasticity, trace fine charcoal fragments | | | | |
| 5.25 | | | | | | |
| | FILL | SAND, fine to coarse grained, grey mottled yellow brown and black, | D-M | | | |
| 5.5 | | with fine, with fine to medium, subangular gravel, trace fine charcoal fragments | | | | |
| 5.7 | | | | | | |
| | FILL | Sandy GRAVEL, fine to coarse, angular to subrounded, grey and | D-M | | | |
| | | white, fine to coarse grained, trace fine | | | | |
| 6.0 | | | | | | |

**Depth to Groundwater: 10.0 m** **Trees at Site:** **Yes**

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Date Logged: 17/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Ezi-probe

**Borehole No.**
**BH 20**
Page 3

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Composition of soil: Soil Description (type, plasticity, grading, colour, secondary and minor components) | Condition of soil: Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| | FILL | Sandy GRAVEL, as above | D-M | VL-L | | SPT at 6.0 m |
| | | | | | | 1, 0, 4 |
| | | | | | | N= 4 |
| | | | | | | No recovery |
| 6.5 | | | | | | |
| | | At 6.9 m, pocket of gravelly sand | | | | |
| 7.0 | | | | | | |
| 7.5 | | | | | | SPT at 7.5 m |
| | | From 7.5 m, colour changed to yellow brown | M | | | 2, 1, 4 |
| | | | | | | N= 5 |
| 8.0 | | | | | | |
| 8.5 | | At 8.5 m, pockets of clayey SAND | | | | |
| 8.6 | | | | | | |
| | CL | Silty CLAY, low plasticity, dark grey, trace fine to medium grained sand, trace decayed vegetation fragments | >Wp | St | | NATURAL |
| | | | | | 150 | Alluvium |
| 9.0 | | | | | 140 | |

**Depth to Groundwater: 10.0 m** **Trees at Site:** **Yes**

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**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Ezi-probe

**Borehole No.**
**BH 20**
Page 4

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Composition of soil: Soil Description (type, plasticity, grading, colour, secondary and minor components) | Condition of soil: Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| | CL | Sandy CLAY, as above | >Wp | F? | | SPT at 9.0 m |
| | | | | | | 0, 1, 3 |
| | | | | | | N= 4 |
| 9.5 | | | | | | |
| 9.8 | | | | | | |
| | GP | Sandy GRAVEL, fine to coarse, subangular to subrounded, dark grey | W | L/MD | | |
| 10.0 | | and white, fine to coarse grained, with fine, trace decayed | | | | |
| | | vegetation fragments | | | | |
| 10.45 | | | | | | |
| 10.5 | CL/CI | Silty CLAY, low to medium plasticity, dark grey, trace fine to medium | >Wp | F/St | 140 | SPT at 10.5 m |
| | | grained sand, trace decayed vegetation fragments | | | | 1, 1, 2 |
| | | | | | | N= 3 |
| | | | | | | Overdriven |
| | | | | | | 3 blows/150 mm |
| 11.0 | | | | | | |
| | CL/CI | Sandy CLAY, low to medium plasticity, dark grey, fine to medium | >Wp | St | | |
| | | grained, trace decayed vegetation fragments | | | 120 | |
| | | | | | 110 | |
| | | | | | 130 | |
| 11.5 | | | | | 140 | |
| | | | | | | |
| | | | | | 140 | |
| 11.85 | | | | | 190 | SPT at 12.0 m |
| | CL/CI | Silty CLAY, low to medium plasticity, dark grey, trace fine to medium | >Wp | St | 130 | 0, 2, 2 |
| 12.0 | | grained sand, trace decayed vegetation fragments | | | | N= 4 |

**Depth to Groundwater: 10.0 m** **Trees at Site:** **Yes**

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| | | |
|---|---|---|
| Date Drilled: | 17/04/2024 | |
| Date Logged: | 17/04/2024 | **Borehole No.** |
| **Logged by:** | **ZY** | **BH 20** |
| Drilling Method: | Push Tube | |
| Drill Rig/Mount: | Ezi-probe | Page 5 |

**Legend:**

| **Moisture Condition** | **Density Index - Granular** | **Consistency - Cohesive** | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| | CL/CI | Silty CLAY, as above | >Wp | F | | |
| 12.5 | | At 12.4 m, trace fine to coarse grained sand | | | | |
| | | | | | 50 | |
| | | At 12.85 m, a band of fine to coarse grained clayey sand | | | 60 | |
| 12.9 | | | | | | |
| 13.0 | GP | Sandy GRAVEL, fine to coarse grained, subangular to angular, greenish grey, fine to coarse grained | W | | | |
| | CI | Sandy CLAY, medium plasticity, green grey, mottled yellow brown | >Wp | Vst | 220 | Blanche Point Marl |
| | | speckled black, fine to medium grained, trace cemented sand | | | 130 | |
| | | fragments recovered as gravel | | | | |
| | | | | | 270 | SPT at 13.5 m |
| 13.5 | | | | | 240 | 4, 5, 8 |
| | | | | | | N= 13 |
| 14.0 | | | | | | |
| | | | | | 270 | |
| 14.5 | | | | | 250 | |
| | | | | | 270 | |
| | | | | | 220 | |
| | | | | | | SPT at 15.0 m |
| | | | | | 250 | 2, 5, 9 |
| 15.0 | | | | | | N= 14 |

**Depth to Groundwater: 10.0 m** **Trees at Site:** **Yes**

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**Logged by:** ZY
Drilling Method: Push Tube
Drill Rig/Mount: Ezi-probe

**Borehole No.**
**BH 20**
Page 6

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| | Cl | Sandy CLAY, as above | ≈Wp | Vst | | |
| 15.5 | | | | | | |
| | Cl | Sandy CLAY, medium plasticity, green grey with yellow brown, fine to medium grained, trace cemented sand recovered as gravel | | | 240 | |
| | | | | | 230 | |
| 16.0 | | | | | 220 | |
| | Cl | Sandy CLAY, medium plasticity, yellow brown mottled green grey, fine to medium grained, trace gravel | >Wp | | 230 | |
| | | At 16.4 m, cobble fragment found | | | 350 | |
| 16.5 | | | | | | SPT at 16.5 m |
| | | | | St | | 4, 3, 5 |
| | | | | | | N= 8 |
| | | 16.5 m - 17.0 m, with cherty fragments recovered as gravel | | | | |
| 17.0 | | | | | | |
| | Cl | Sandy CLAY, medium plasticity, yellow brown, mottled white and speckled black, fine to medium grained, with cherty fragments recovered as gravel | ≈Wp | | 140 | |
| | | | | | 160 | |
| 17.5 | | | | | | |
| | | At 17.8 m, cherty fragment | | | 130 | SPT at 18.0 m |
| | | | | | | 6, 4, 8 |
| 18.0 | | | | | | N= 12 |

**Depth to Groundwater: 10.0 m** **Trees at Site:** **Yes**

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Date Logged: 17/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Ezi-probe

**Borehole No.**
**BH 20**
Page 7

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| | Cl | Sandy CLAY, as above | ≈Wp | St | | |
| 18.5 | | | | | | |
| | Cl | Sandy CLAY, medium plasticity, grey, speckled black, fine to medium grained, trace shell fragments, weakly cemented | <Wp | | 140 | |
| | | | | | 120 | |
| 19.0 | | | | | 110 | |
| | | | | | 130 | |
| | | | | Vst | 250 | |
| | | | | | 290 | SPT at 19.5 m |
| 19.5 | | | | | | 5, 10, 16 |
| | | | | | | N=26 |
| 20.0 | | | | | | |
| | | Borehole terminated at 20.0 m (target depth) | | | | |
| 20.5 | | | | | | |
| 21.0 | | | | | | |

**Depth to Groundwater: 10.0 m** **Trees at Site:** **Yes**

| | | | |
|---|---|---|---|
| WGA | Client: | ASPEN GROUP | Borehole ID: BH19 |
| | Project: | ADELAIDE CARAVAN PARK REDEVELOPMENT, PROPOSED RIVER FRONT SITE, HACKNEY | Date: 17/04/2024 |
| | Title: | CORE PHOTOGRAPHS | Box No: 1/3 |
| | Job No: | WGA230955 | Depth: 0.0 m – 6.0 m |

| | | | |
|---|---|---|---|
| WGA | Client: | ASPEN GROUP | Borehole ID: BH19 |
| | Project: | ADELAIDE CARAVAN PARK REDEVELOPMENT, PROPOSED RIVER FRONT SITE, HACKNEY | Date: 17/04/2024 |
| | Title: | CORE PHOTOGRAPHS | Box No: 2/3 |
| | Job No: | WGA230955 | Depth: 6.0 m – 10.5 m |

| | | | |
|---|---|---|---|
| Client: | **ASPEN GROUP** | Borehole ID: | **BH19** |
| Project: | **ADELAIDE CARAVAN PARK REDEVELOPMENT, PROPOSED RIVER FRONT SITE, HACKNEY** | Date: | **17/04/2024** |
| Title: | **CORE PHOTOGRAPHS** | Box No: | **3/3** |
| Job No: | **WGA230955** | Depth: | **10.5 m – 12.0 m** |

| | | | |
|---|---|---|---|
| WGA | Client: | ASPEN GROUP | Borehole ID: BH20 |
| | Project: | ADELAIDE CARAVAN PARK REDEVELOPMENT, PROPOSED RIVER FRONT SITE, HACKNEY | Date: 16/04/2024 – 17/04/2024 |
| | Title: | CORE PHOTOGRAPHS | Box No: 1/4 |
| | Job No: | WGA230955 | Depth: 0.0 m – 6.0 m |

| | | | |
|---|---|---|---|
| Client: | **ASPEN GROUP** | Borehole ID: | **BH20** |
| Project: | **ADELAIDE CARAVAN PARK REDEVELOPMENT, PROPOSED RIVER FRONT SITE, HACKNEY** | Date: | **16/04/2024 – 17/04/2024** |
| Title: | **CORE PHOTOGRAPHS** | Box No: | **2/4** |
| Job No: | **WGA230955** | Depth: | **6.0 m – 12.0 m** |

| | | | |
|---|---|---|---|
| Client: | ASPEN GROUP | Borehole ID: | BH20 |
| Project: | ADELAIDE CARAVAN PARK REDEVELOPMENT, PROPOSED RIVER FRONT SITE, HACKNEY | Date: | 16/04/2024 – 17/04/2024 |
| Title: | CORE PHOTOGRAPHS | Box No: | 3/4 |
| Job No: | WGA230955 | Depth: | 12.0 m – 18.0 m |

| | | | |
|---|---|---|---|
| WGA | Client: | **ASPEN GROUP** | Borehole ID: **BH20** |
| | Project: | **ADELAIDE CARAVAN PARK REDEVELOPMENT, PROPOSED RIVER FRONT SITE, HACKNEY** | Date: **16/04/2024 – 17/04/2024** |
| | Title: | **CORE PHOTOGRAPHS** | Box No: **4/4** |
| | Job No: | **WGA230955** | Depth: **18.0 m – 20.0 m** |

WGA

# DESCRIPTION AND CLASSIFICATION OF SOILS(1) FOR ENGINEERING PURPOSES
# EXPLANATION SHEET TO ACCOMPANY ENGINEERING LOGS (SHEET 1)

## CLASSIFICATION SYMBOL & SOIL NAME

Soils are described in general accordance with the Unified Soil Classification (UCS) as shown in Table 1 on Sheet 2 using visual-tactile methods.

## PARTICLE SIZES

| NAME | FRACTION | SIZE |
|---|---|---|
| Boulders | | >200 mm |
| Cobbles | | 63 mm to 200 mm |
| Gravel | coarse | 20 mm to 63 mm |
| | medium | 6.7 mm to 20 mm |
| | fine | 2.36 mm to 6.7 mm |
| Sand | coarse | 600 µm to 2.36 mm |
| | medium | 210 µm to 600 µm |
| | fine | 75 µm to 210 µm |

## MOISTURE CONDITION

**Dry** Looks and feels dry. Cohesive soils are hard, friable or powdery. Uncemented granular soils run freely through hands.

**Moist** Soil feels cool and darkened in colour. Cohesive soils can be mounded. Granular soils tend to cohere.

**Wet** Similar to moist but with free water forming on hands when handled.

## CONSISTENCY OF COHESIVE SOILS

| TERM | UNDRAINED STRENGTH Su (kPa) | FIELD ASSESSMENT |
|---|---|---|
| **Very Soft** | ≤12 | A finger can be pushed well into the soil with little effort. |
| **Soft** | 12 to 25 | A finger can be pushed into the soil to about 25 mm depth. |
| **Firm** | 25 to 50 | The soil can be indented about 5 mm with the thumb. |
| **Stiff** | 50 to 100 | The surface of the soil can be indented with the thumb. |
| **Very Stiff** | 100 to 200 | The surface of the soil can be marked, but not indented with thumb pressure. |
| **Hard** | >200 | The surface of the soil can be marked only with the thumbnail. |
| **Friable** | Not able to be measured | Crumbles or powders when scraped by thumbnail. |

The undrained shear strength is assessed in the field using a pocket or hand penetrometer (PP). The undrained shear strength is approximately one half of the hand penetrometer reading.

## DENSITY INDEX OF GRANULAR SOILS

| TERM | DENSITY INDEX (%) |
|---|---|
| Very loose | Less than 15 |
| Loose | 15 to 35 |
| Medium Dense | 35 to 65 |
| Dense | 65 to 85 |
| Very Dense | Greater than 85 |

## MINOR COMPONENTS

| TERM | FIELD ASSESSMENT | PROPORTION OF MINOR COMPONENT IN: |
|---|---|---|
| Trace of | Presence just detectable by feel or eye. | Coarse grained soils: ≤5%<br>Fine grained soils: ≤15% |
| With some | Presence easily detected by feel or eye. | Coarse grained soils: >5 to ≤12%<br>Fine grained soils: >15 to ≤30% |

## SOIL STRUCTURE

| INCLUSIONS | | CEMENTING | |
|---|---|---|---|
| Layers | Continuous across exposure or sample. | Weakly Cemented | Easily broken up by hand in air or water. |
| Lenses | Discontinuous layers of lenticular shape. | Moderately Cemented | Effort is required to break up the soil by hand in air or water. |
| Pockets | Irregular inclusions of different material. | | |

## SOIL ORIGIN

### MATERIALS WEATHERED IN-SITU

| | |
|---|---|
| Extremely weathered material | Structure and fabric of parent rock visible. |
| Residual soil | Structure and fabric of parent rock not visible. |

### TRANSPORTED SOILS

| | |
|---|---|
| Aeolian | Deposited by wind. |
| Alluvial | Deposited by streams and rivers. |
| Colluvial | Deposited on slopes (transported downslope by gravity) |
| Fill | Placed by man. Fill may be markedly more variable between tested locations than naturally occurring soils. |
| Marine | Deposited in ocean basins, bays, beaches and estuaries. |

*Note: (1) materials found in the ground are generally described as a soil if the material can be remoulded or disintegrated by hand in the field condition or in water. Other materials are described using rock description terms.*

WGA

**Table 1: SOIL CLASSIFICATION AND FIELD IDENTIFICATION AND DESCRIPTION (SHEET 2)**

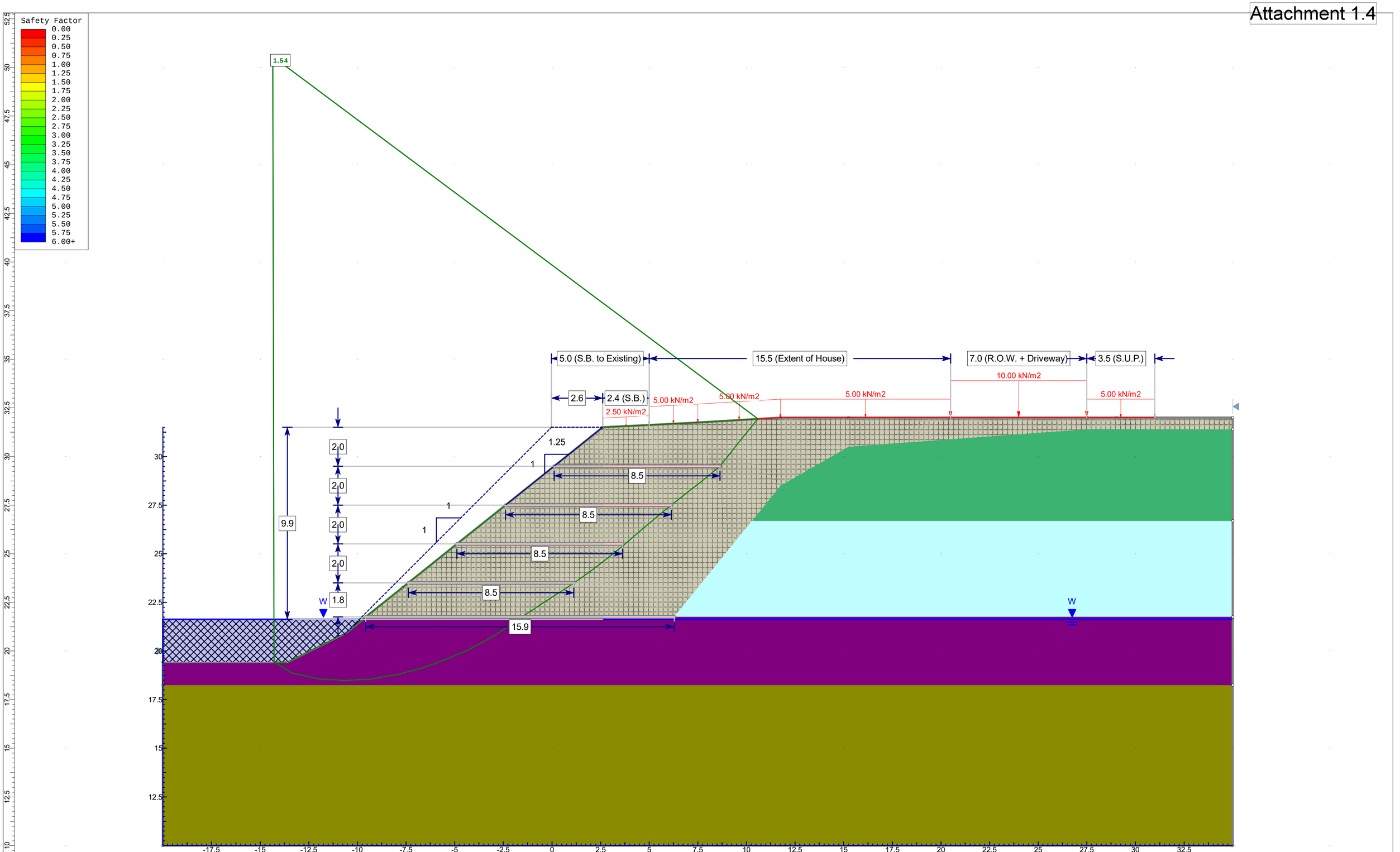
| FIELD IDENTIFICATION PROCEDURES (excluding particles larger than 60 mm and basing fractions on estimated mass) | | | | | | USC | PRIMARY NAME |
|---|---|---|---|---|---|---|---|
| COARSE GRAINED SOILS More than 65% of material less than 63 mm is larger than 0.075 mm | GRAVELS More than half of coarse fraction is larger than 2.0 mm | CLEAN GRAVELS (Little or no fines) | Wide range in grain size and substantial amounts of all intermediate particle sizes. | | | GW | GRAVEL |
| | | | Predominantly one size or a range of sizes with more intermediate sizes missing. | | | GP | GRAVEL |
| | | GRAVELS WITH FINES (Appreciable amount of fines | Non-plastic fines (for identification procedures see ML below) | | | GM | SILTY GRAVEL |
| | | | Plastic fines (for identification procedures see CL below) | | | GC | CLAYEY GRAVEL |
| | SANDS More than half of coarse fraction is smaller than 2.0 mm | CLEAN SANDS (Little or no fines) | Well graded. Wide range in grain sizes and substantial amounts of all intermediate sizes. | | | SW | SAND |
| | | | Poorly graded. Predominantly one size or a range of sizes with some intermediate sizes missing | | | SP | SAND |
| | | SANDS WITH FINES (Appreciable amount of fines) | Non-plastic fines (for identification procedures see ML Below) | | | SM | SILTY SAND |
| | | | Plastic fines (for identification procedures see CL below) | | | SC | CLAYEY SAND |
| | IDENTIFICATION PROCEDURES ON PARTICLES <0.2 mm | | | | | | |
| FINE GRAINED SOILS More than 35% of material less than 63 mm is smaller than 0.075 mm | SILTS & CLAYS Liquid limit less than or equal to 50 | **DRY STRENGTH** | **DILATANCY** | **TOUGHNESS** | | | |
| | | None to low | Quick to slow | None | | ML | SILT |
| | | Medium to high | None | Medium | | CL | CLAY |
| | | Low to medium | Slow to very slow | Low | | OL | ORGANIC SILT |
| | SILTS & CLAYS Liquid limit greater than 50 | Low to medium | Slow to very slow | Low to medium | | MH | SILT |
| | | High | None | High | | CH | CLAY |
| | | Medium to high | None | Low to medium | | OH | ORGANIC CLAY |
| HIGHLY ORGANIC SOILS | | Identified by colour, odour, spongy feel and frequently by fibrous texture. | | | | Pt | PEAT |

* Low plasticity – Liquid Limit $W_L$ Less than 35 % * Medium plasticity - $W_L$ between 35% and 50%

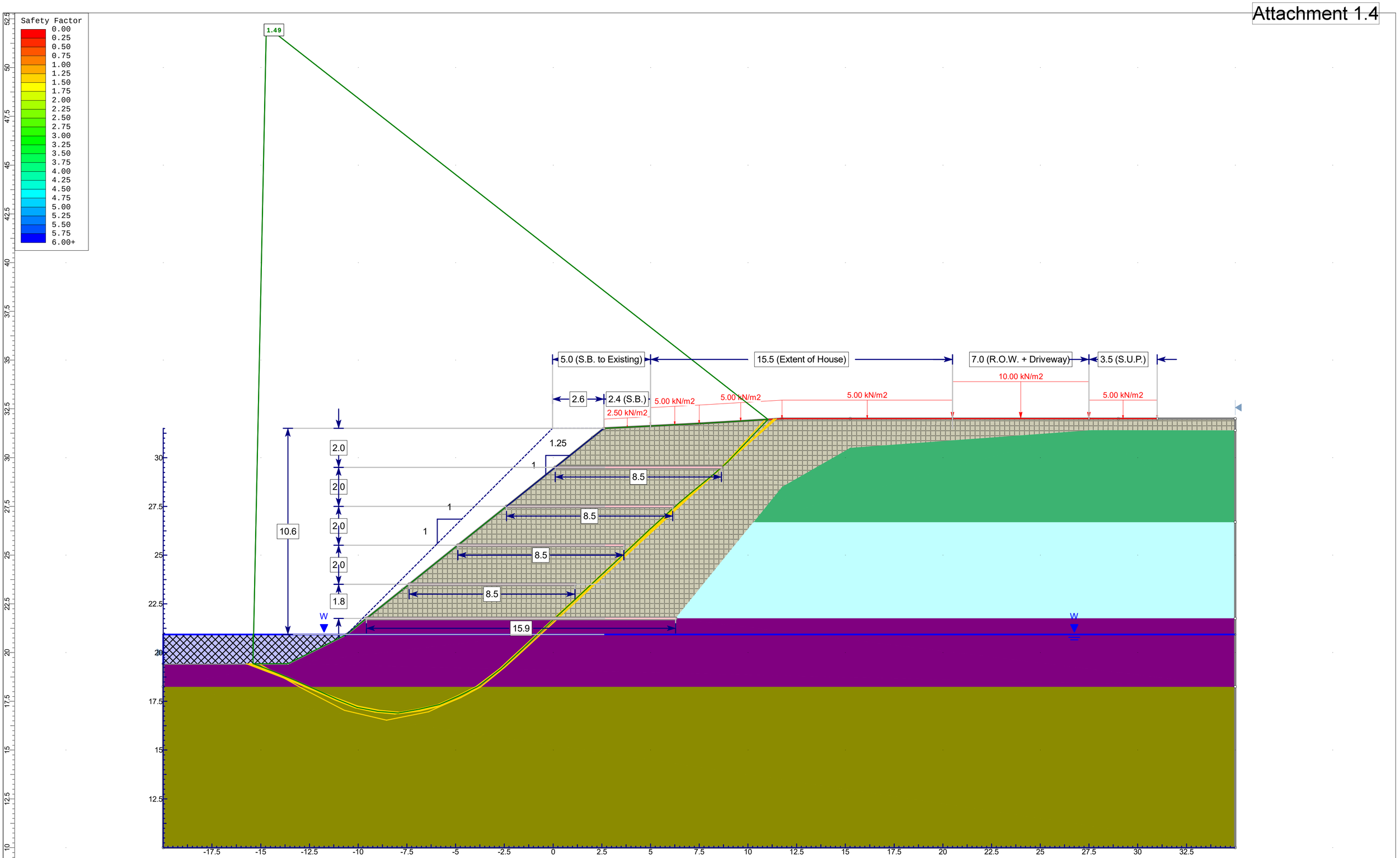
# APPENDIX C
# RESULTS OF THE STABILITY ANALYSES

| Material Name | Color | Unit Weight (kN/m3) | Sat. Unit Weight (kN/m3) | Strength Type | Cohesion (kPa) | Phi (deg) | Water Surface | Hu Type |
|---|---|---|---|---|---|---|---|---|
| Contolled Fill | | 20 | 22 | Mohr-Coulomb | 5 | 36 | Water Surface | Automatically Calculated |
| Fine-grained Alluvium (CH/CL/ML) | | 17 | 19 | Mohr-Coulomb | 5 | 27 | Water Surface | Automatically Calculated |
| Coarse-grained Alluvium 1 (SP/SC) | | 18 | 19 | Mohr-Coulomb | 0 | 34 | Water Surface | Automatically Calculated |
| Coarse-grained Alluvium 2 (GP) | | 19 | 20 | Mohr-Coulomb | 0 | 40 | Water Surface | Automatically Calculated |
| Blanche Point Formatoin | | 18 | 20 | Mohr-Coulomb | 15 | 30 | Water Surface | Automatically Calculated |

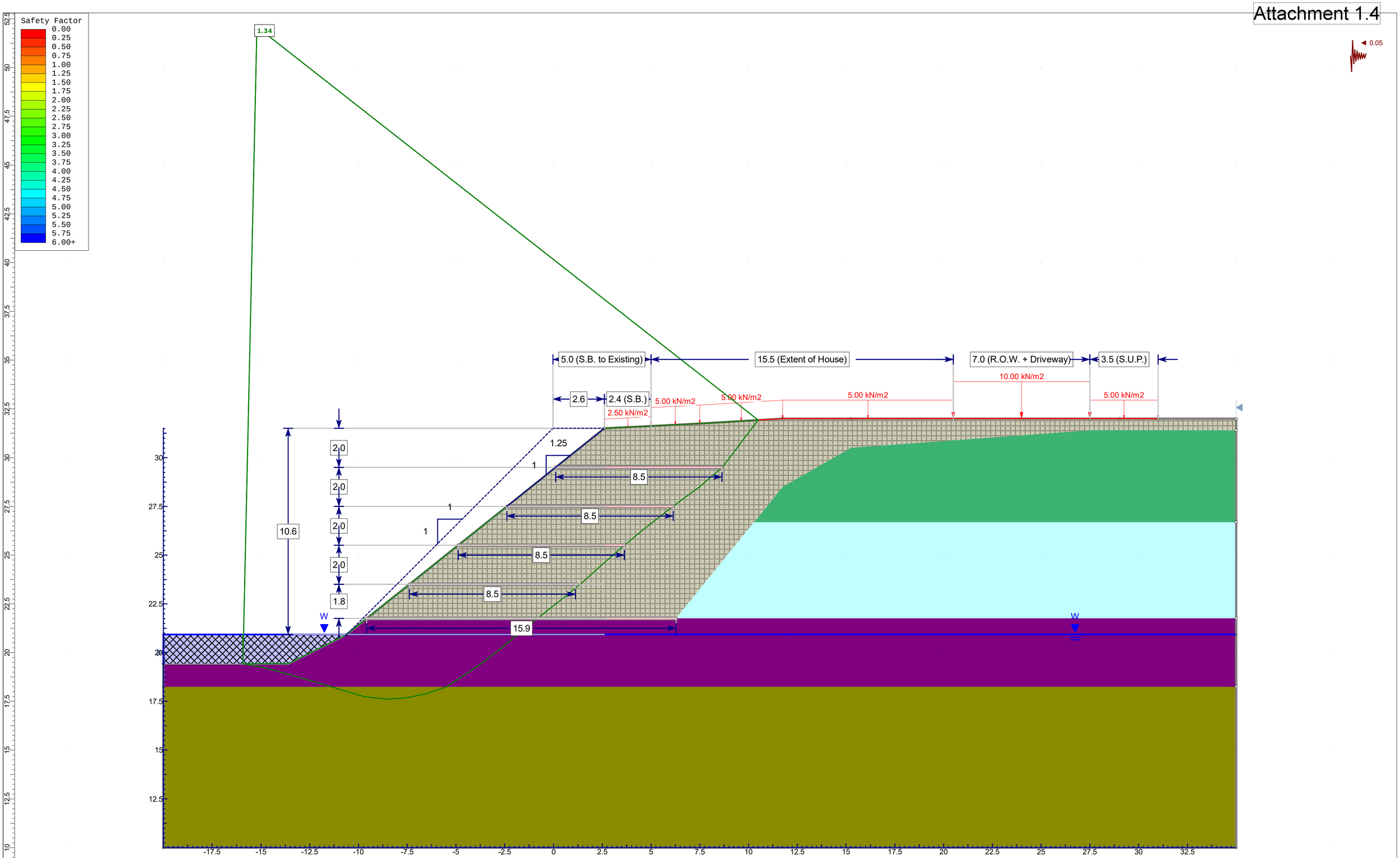
| Support Name | Color | Type | Selected Manufacturer | Force Application | Out-Of-Plane Spacing (m) | Material Dependent | Input Type | Coefficient of Interaction | Failure Mode | Force Orientation | Pile Diameter (m) | Location of Force | Force Orientation | Anchorage | Strip Coverage (%) | Allowable Tensile Strength (kN/m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Secugrid 60/ 60, No Anchorage | | Geosynthetic | Secugrid 60/ 60 Q6 | Active (Method A) | | No | Coefficient of Interaction | 0.67 | | | | | Parallel to Reinforcement | None | 100 | 37.3514 |
| Micro Pile | | Pile/Micro Pile | | Passive (Method B) | 8.5 | | | | Ito & Matsui | Parallel to surface | 0.35 | Slip Surface Intersection Point | | | | |



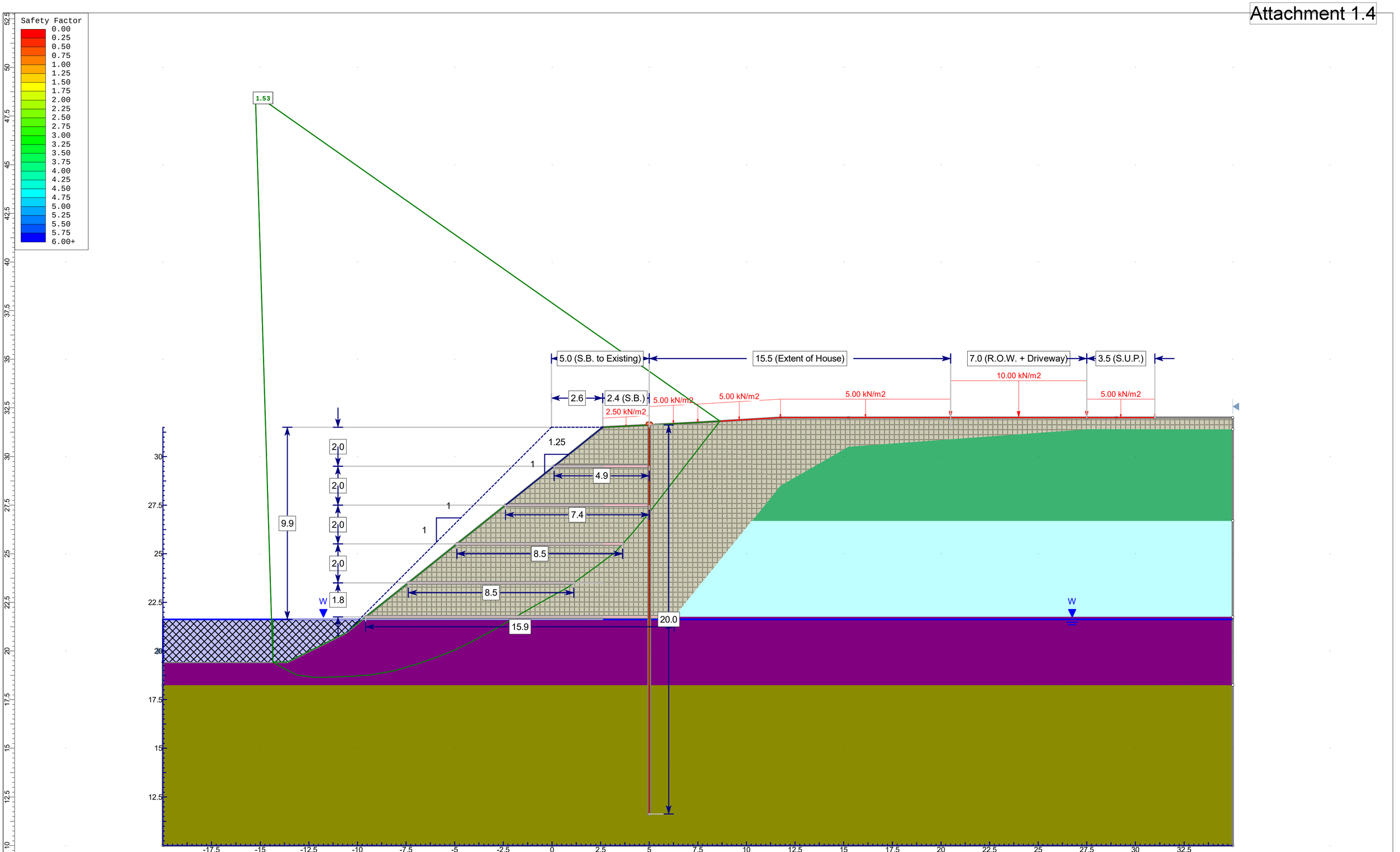

| | | | |
|---|---|---|---|
| WGA | Project | Adelaide Caravan Park Redevelopment | |
| | Group | Controlled Fill - phi'=36, c'=5, HW | Scenario: Secugrid 60/60, 8.5m *4 + 16m *1 |
| | Drawn By | YW | Company: WGA |
| SLIDEINTERPRET 9.026 | Date | 22/06/2023, 10:17:55 AM | File Name: Adelaide Caravan Park - B.slmd |




| | | | |
|---|---|---|---|
| WGA | Project | Adelaide Caravan Park Redevelopment | |
| | Group | Controlled Fill - phi'=36, c'=5, HW | Scenario: Secugrid 60/60, LW |
| | Drawn By | YW | Company: WGA |
| SLIDEINTERPRET 9.026 | Date | 9/05/2024, 9:10:32 AM | File Name: Adelaide Caravan Park - B.slmd |




| | | | |
|---|---|---|---|
| WGA | Project | Adelaide Caravan Park Redevelopment | |
| | Group | Controlled Fill - phi'=36, c'=5, HW | Scenario: Secugrid 60/60, Seismic |
| | Drawn By | YW | Company: WGA |
| SLIDEINTERPRET 9.026 | Date | 9/05/2024, 9:10:32 AM | File Name: Adelaide Caravan Park - B.slmd |

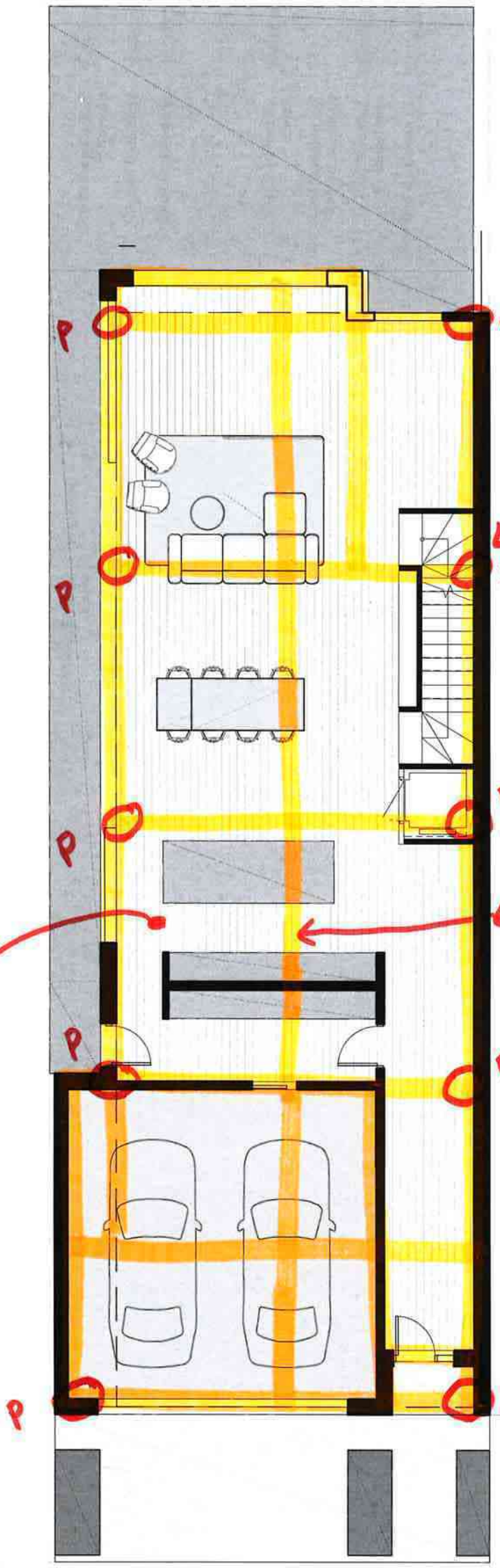



| | | | |
|---|---|---|---|
| WGA | Project | Adelaide Caravan Park Redevelopment | |
| | Group | Controlled Fill - phi'=36, c'=5, HW | Scenario: Secugrid 60/60 + Micropile - length reduction |
| | Drawn By | YW | Company: WGA |
| SLIDEINTERPRET 9.026 | Date | 22/06/2023, 10:17:55 AM | File Name: Adelaide Caravan Park - B.slmd |

# APPENDIX D
# CONCEPTUAL FOOTING DESIGN

8500

30000




SLAB ON GROUND
130 THICK
SL82 T&B

- 3 STOREY BUILDING
- BRICK VENEER
- LIGHTWEIGHT TIMBER SUSPENDED FLOORS
- RESIDENTIAL

Hackney on Torrens
Concept Footing Layout
WGA230955-SK-ST-0002
Revision A 10/5/24
Preliminary

# APPENDIX E
# TECHNICAL SPECIFICATION FOR EARTHWORKS

WGA

**PROPOSED SITE REMEDIATION: RIVER FRONT DWELLINGS, HACKNEY**
**TECHNICAL SPECIFICATION FOR BULK EARTHWORKS**

## E1. INTRODUCTION

This Technical Specification relates to the bulk earthworks associated with the remediation of the existing uncontrolled fill on the parcel of land to be developed for the River Front Development at the Adelaide Caravan Park, Hackney.

The proposed development comprises 12 residential buildings of 2 or 3 storeys in height overlooking the River Torrens.

This Technical Specification specifically excludes all subdivisional works, such as road pavements and underground services.

## E2. BACKGROUND

The existing uncontrolled fill is up to about 8.5 m deep and is to be removed and replaced as controlled fill, reinforced with layers of geogrid, in accordance with the requirements of this Technical Specification. It is assumed that the existing fill is suitable for re-use from an environmental perspective, in accordance with SA EPA guidelines.

On completion of the bulk earthworks, the controlled fill would be suitable as a founding layer for flexible and lightly loaded footings. However due to the thickness of the fill and the proximity to the steep river bank a pile footing system is required to support the proposed buildings.

Prior to construction of any footing on any allotment, the footing designer must undertake a site specific geotechnical investigation to assess:

- The nature of the controlled fill;
- The shrink-swell potential of the controlled fill (fill materials will still vary across the site and has the potential to have variable shrink/swell characteristics);
- The settlement of the controlled fill under the load applied by the building and potential long term creep movements;
- Other relevant geotechnical parameters.

## E3. SCOPE

The scope of works for this specification includes:

- Stripping of surficial organic materials;
- Excavation of the existing uncontrolled fill materials to expose the natural subgrade;
- Stockpiling the uncontrolled fill;
- Compaction of the exposed natural subgrade and undertaking remedial works as required;
- Sorting, screening and moisture conditioning of the excavated uncontrolled fill; and
- Compaction of the conditioned uncontrolled fill in layers to form a controlled fill platform, reinforced with geogrid.

The Contractor shall be responsible for:

- All survey and set-out of the works;
- The supply of all equipment and materials necessary to complete the project, including the construction of temporary works such as access ramps, temporary protection of exposed excavations and safety measures;
- All survey and set-out of the works;
- Testing and compliance monitoring of the works;
- The provision of 'as-built' information;
- The provision of all Quality Assurance documentation to ensure that the requirements of this specification are met; and
- The provision of an Environmental Management Plan and Quality Assurance documentation.

The current versions of the following standards have been used in this Technical Specification:

- AS 1289 *"Methods of testing Soils for Engineering Purposes";*
- AS 3798 *"Guidelines on Earthworks for Commercial and Residential Developments".*

## E4. TECHNICAL SPECIFICATION REQUIREMENTS

### E4.1 Site Clearing and Grubbing

Prior to commencing the bulk earthworks, the Contractor shall clear the site, including the River Bank of:

- All trees indicated for removal;
- Surface vegetation;
- Rubbish;
- Highly organic soil.

Such materials shall be disposed off-site by the Contractor.

### E4.2 Subgrade Preparation

It is envisaged that the existing uncontrolled fill materials would be removed in strips and stockpiled for re-use. It is envisaged that the main excavation to remove the fill will extend approximately 12 m from the crest of the river bank, however this would need to be confirmed during excavation. Shallower fill is present beyond the 12 m width.

Following stripping of the uncontrolled fill materials the exposed natural subgrade shall be proof-rolled with a vibrating pad foot roller of at least 10 tonnes static weight to identify any soft, wet or weak areas that may require remedial works. The proof rolling shall be observed by an experienced engineer from WGA and the Geotechnical Inspection and Testing Authority (GITA) nominated by the Contractor.

Where weak or spongy subgrade materials are encountered such materials shall be removed and replaced with a bridging layer of select coarse granular fill (such as well graded brick pieces or road ballast) which shall be tracked rolled to provide a stable surface. The nature of any remedial works shall be confirmed by WGA and the GITA during proof-rolling.

Following completion of the subgrade preparation works and prior to placing any controlled fill, the Contractor shall survey the base of the excavation.

Prior to placing the controlled fill a layer of geogrid (Secugrid 60/60 Q1) shall be placed on the stripped subgrade.

The GITA shall be responsible for preparing a written report on the subgrade preparation works undertaken, including the extent of any remedial works.

### E4.3 Temporary Batter Slopes

The Contractor is required to assess suitable batter slopes in the natural soils during excavation works. A maximum temporary batter slope of 1H:1V is envisaged.

### E4.4 Controlled Fill

#### E4.3.1 Materials

Subject to screening of oversized and potentially deleterious materials and appropriate moisture conditioning, the existing uncontrolled fill material may be re-used as controlled fill.

The existing fill material shall be screened to remove, as far as practical, all particles greater than about 100 mm in size (approximately half a brick). The occasional fragment of rock, brick or concrete up to about 150 mm in size would be permitted provided that the specified level of compaction is able to be achieved. In order to allow conventional density testing to be undertaken no more than 20% (by dry weight) of the controlled fill shall be retained on the 37.5 mm sieve.

Fill which is more coarsely graded shall be screened and blended to provide a conforming product. Where possible the more coarsely graded materials shall be placed in the deeper sections, below a depth where no future excavations are proposed.

Prior to re-use the existing fill materials must be thoroughly mixed and blended to provide, as far as practical, a uniform product. Pockets of poorly graded and bony materials are not acceptable.

The existing fill materials are likely to be in a relatively dry condition, with a moisture content possibly below the optimum moisture content for compaction purposes. As a result, significant moisture conditioning is likely to be required prior to re-use as a controlled fill. Such moisture conditioning may need to be undertaken in stockpiles.

The upper 400 mm of controlled fill shall comprise an imported quarry material meeting DIT specifications for a Class 3 pavement material (PM3/20QG).

Significant dust is expected to be generated during excavation works if conducted in the drier summer months and particular attention will need to be given to dust control during the earthworks.

#### E4.3.2 Geogrid Reinforcement

During fill placement a geogrid (Secugrid 60/60 Q1) shall be placed at the base and at 2 m vertical centres over the depth of the fill. The geogrid shall be placed in accordance with the manufacturer's specifications.

#### E4.3.3 Compaction

The controlled fill shall be placed in layers not exceeding 250 mm in loose thickness and compacted with a pad foot roller compactor of at least 10 tonnes static mass.

The controlled fill shall be compacted to achieve the following requirements:

- **Fill deeper than 5 m below the final ground surface level:** Minimum dry density ratio of 100%* based on Standard compaction (AS 1289 5.1.1). At the time of compaction the controlled fill shall be moisture conditioned to within 2% of the Standard optimum moisture content.
- **Fill shallower than 5 m below the final ground surface level:** Minimum dry density ratio of 98% based on Standard compaction (AS 1289 5.1.1). At the time of compaction the controlled fill shall be moisture conditioned to within 3% of the Standard optimum moisture content.

** Note: the more stringent moisture and density controls for the deeper layers of fill are recommended in order to reduce the potential for softening and settlement of the fill associated with any long term increase in moisture content (hydro-compression). An exception may be granted for the initial layer of controlled fill placed on the natural subgrade. For this layer a dry density ratio of not less than 98% Standard may be adopted.*

Particular attention must be given to achieving adequate compaction at the following locations:

- Near the cut batter slopes around the perimeter of the fill;
- At the interface of the deeper and shallow fill sections;
- At the interface with previously placed zones of controlled fill;
- at the exposed face of the earthworks.

This will require the controlled fill to be keyed (benched) into the cut batter slope or existing controlled fill in order to prevent the formation of a zone of inadequately compacted material. The benching shall be in accordance with the guidelines of AS 3798.

The Contractor shall nominate how adequate compaction at the exposed face will be safely achieved.

The Contractor shall ensure that large moisture content changes do not occur in the controlled fill following compaction. Controlled fill which becomes saturated or desiccated after compaction shall be removed from the works or reconditioned in situ, as directed by the GITA.

Water used for compaction shall be of potable quality. The Contractor shall make their own arrangements with the appropriate authority for supply of water.

### E4.3.4 Verification and Testing

During placement of the controlled fill, Level 1 inspection and testing shall be conducted by a Geotechnical Inspection and Testing Authority (GITA) in accordance with the requirements of AS 3798 *"Guidelines on earthworks for commercial and residential developments".*

The frequency of density testing shall be in accordance with Table 8.1 of AS 3798 for the scale of earthworks operations being undertaken. The location (northing and easting) and relative level of each density test location must be surveyed by a surveyor.

The scope of services provided by the GITA should include (but not limited to) the following:

- Inspect the stripped surface prior to commencement of fill placement and supervise proof-rolling and any remedial works;
- Inspect and verify the controlled fill material is suitable and complies with this specification;
- Supervise the fill placement and ensure that adequate compaction is achieved around the perimeter of the site and at the interface with previously placed controlled fill;
- Undertake sufficient testing to verify that the controlled fill meets the minimum specified density requirements.

The GITA shall have NATA accreditation for all tests undertaken.

On completion of the earthworks the GITA shall prepare a report which outlines the inspections, sampling and testing undertaken and provide an option that the works comply with the requirements of this Technical Specification.

The cost of all testing required to demonstrate that the works conform to the Technical Specification shall be included in the Contract Sum.

The Contractor shall ensure that the test results supplied are representative of the whole of the materials and works carried out and that all aspects of the specification requirements have been met.

In the event that the test results show that the materials or works do not meet the requirements of the specification, the Contractor shall remove and replace or make good at its own expense. Retesting shall be carried out at twice the frequency originally specified for the volume and/or area of material that has been removed and replaced or made good.

### E4.5 Batter Slope Protection

On completion of the controlled fill the exposed batter slope on the river side shall be protected with an anti-erosion mat, such as MacMatR (or similar). The matting shall be adequately anchored in accordance with the manufacturer's guidelines. Hydro-seeding of the mat shall be conducted once secured in place.

# GUIDE TO INTERPRETING YOUR **WGA GEOTECHNICAL REPORT**

This geotechnical report has been prepared by an experienced WGA Engineer. These notes have been prepared by WGA to assist the Client interpret and understand the report limitations.

## SCOPE OF SERVICES

This report has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and WGA. In some circumstances, the scope of the services may have been altered by a range of factors such as time, budget and access restrictions.

## GEOTECHNICAL INVESTIGATIONS

Geotechnical engineering is based extensively on professional judgment and opinion. It is far less precise than other engineering disciplines.

Geotechnical engineering reports are prepared to meet the specific needs of individual clients. This report was prepared expressly for the Client for the purposes indicated in the agreed scope of services. Use by any other persons for any purpose, or by the Client for a different purpose, may result in problems.

For example, a report prepared for a consulting civil engineer may not be adequate for a construction contractor or even another consulting engineer.

This report must not be used for any project other than that originally specified at the time the report was prepared, without seeking additional geotechnical advice.

## PROJECT-SPECIFIC FACTORS

This report is based on a subsurface investigation designed to meet the requirements of a specific project. The subsurface investigation was formulated based on factors which include the nature of the development, its size and configuration, the location of any existing development on the site, and the location of access roads and parking areas. Unless further geotechnical advice is obtained in writing, this report may not provide appropriate recommendations if:

- the nature of the proposed development is changed; or
- the size, configuration, location or orientation of the proposed development is modified.

The report findings cannot be applied to any other sites, including adjacent sites.

## SUBSURFACE CONDITIONS

Subsurface conditions are created by natural processes and the activity of man and may, therefore, be modified by changing natural forces or man-made influences. For example, water levels can vary with time and fill may be placed on a site. The report is based on conditions which existed at the time of subsurface exploration.

Construction operations at, or adjacent to, the site and natural events such as floods or groundwater fluctuations may also affect subsurface conditions, and thus the continuing adequacy of a geotechnical report. WGA should be kept informed of any such events and should be consulted to determine if additional investigations are necessary

## THIRD PARTY INTERPRETATION OF FINDINGS

WGA should be retained to assist other design professionals in the interpretation of relevant geotechnical findings, and to review the adequacy of plans and specifications relative to geotechnical issues. Costly problems can occur when other design professionals develop plans based on misinterpretations of a geotechnical report.

## ENGINEERING LOGS SHOULD NOT BE SEPARATED FROM THE REPORT

The report presents the findings of the geotechnical investigation and must not be copied or altered in any way.

Engineering logs and cross-sections are developed by geotechnical engineers based upon their interpretation of field logs and laboratory testing of samples. These logs and figures should not be redrawn for inclusion in other documents or separated from the report in any way.

To reduce the likelihood of misinterpretation, contractors should be given access to the complete geotechnical report prepared or authorised for use. The following publication should be referenced for further information.
*Guidelines for the Provision of Geotechnical Information in construction Contracts* (Engineers Australia, National Headquarters, Canberra 1987).

## RELIANCE ON SUPPLIED DATA

In preparing the report, WGA may have relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations. Unless otherwise stated in the report, WGA has not verified the accuracy or completeness of such data. WGA will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misinterpreted or otherwise not fully disclosed to WGA.

## LIMITATIONS OF SITE INVESTIGATIONS

In making an assessment of a site from a limited number of boreholes or test pits it is inevitable that variations will occur between test locations. Subsurface exploration identifies specific subsurface conditions only at those points from which samples have been taken. The likelihood that subsurface variations will not be detected can be reduced by increasing the frequency of test locations, although this has cost implications. The investigation program undertaken is a professional estimate of a reasonable scope of investigation required to provide a general profile of the subsurface conditions. The data derived from the site investigation program and subsequent laboratory testing are extrapolated across the site to form an inferred geotechnical model and an engineering opinion is formed about overall subsurface conditions and their likely behaviour with regard to the proposed development.

Despite subsurface exploration, the actual conditions at the site might differ from those inferred to exist, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface conditions and anomalies.

The engineering logs are the subjective interpretation of the subsurface conditions encountered at a particular location, made by experienced personnel. The interpretation may be limited by the method of investigation, and cannot always be definitive. For example, inspection of an excavation or test pit allows a greater area of the subsurface profile to be inspected than borehole investigations, however, such methods are limited by depth and site disturbance restrictions.

The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained from the subsurface exploration. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, the services of WGA should be retained through design and construction stages, to identify variances, conduct additional tests if required and recommend solutions to any problems encountered on site.

WGA

FOR FURTHER INFORMATION CONTACT:

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Senior Principal Geotechnical Engineer

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WGASA Pty Ltd
ABN: 97 617 437 724
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**ASPEN Group**
Level 18, 9 Hunter Street
Sydney NSW 2000
Attention: Henry Perks

**14 March 2025**
Project #: WGA230955
Doc. WGA230955-LT-GE-0001_C
E: henryp@aspengroup.com.au

Dear Henry,

**ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**
**RESPONSE TO GEOTECHNICAL ISSUES RAISED BY PLANSA**

## 1. INTRODUCTION

As requested, we herewith provide responses to the comments and queries raised by PlanSA in a letter dated 21 February 2025 which form part of the Planning Consent assessment for the above project.

The comments and queries relate to an earlier report prepared by WGA (Reference 1).

## 2. RESPONSES

### 2.1 Item 1: Modelling Methodology and Factor of Safety

This item essentially relates to water levels in the river and the impact on the stability of the river bank.

The water levels adopted by WGA in the slope stability analyses were assumed values only based on the limited available information provided. As such it would be prudent to undertake hydrology modelling and further slope stability analyses at the detailed design stage.

It is acknowledged that rapid draw-down conditions adversely affect slope stability and reduce the overall factor of safety. Based on the observed performance of the existing river bank it is assessed that any rapid drawn-down which has occurred in recent times along the river has not been sufficient to induce a broad scale slope failure in the lower portion of the river bank. As such we anticipate that the variation in the calculated factor of safety for the remediated river bank would be relatively small.

If necessary an additional layer of geogrid could be added, rather than altering the slope geometry.

Other pertinent points to note are:

- The normal water level in the river adjacent to the site appears to be controlled by the Adelaide City weir. Based on historical evidence, it is considered unlikely that a significant drop in water level over an extended duration would occur in the Torrens Lake;
- The normal water level in the river is within the natural soils below the controlled fill embankment. The majority of the controlled fill is therefore expected to be in an unsaturated condition;
- Any floods are expected to be of a relatively short duration (perhaps hours or up to 2 days). When compacted the controlled fill is expected to be of low permeability and hence infiltration into the controlled fill is expected to be relatively minor.

### 2.2 Item 2: Re-use of Existing Fill Material in Reinforced Zone

This item relates to the re-use of the existing site materials in the controlled fill.

It is intended that the existing fill materials excavated from the site will be re-used as controlled fill, following appropriate screening, blending, sorting and moisture conditioning.

It is acknowledged that some of the site won material may not be suitable for re-use and such materials will need to be removed and disposed of-off site. These materials include organics, oversized particles and waste materials.

It is also expected that the controlled fill will occupy a smaller volume than the uncontrolled fill in situ and therefore it is inevitable that some select imported fill materials will need to used. Such materials would include a pavement quality material or Type A fill meeting DIT specifications.

The geotechnical characteristics of the imported fill are expected to be superior to the site won fill and therefore there will be no adverse impact on the slope stability, should a larger proportion of imported fill be required.

It is considered very unlikely that all the existing fill would be unsuitable for re-use from a geotechnical perspective.

The environmental considerations for fill re-use are beyond the scope of the WGA report.

The earthworks will be conducted under Level 1 overview by a Geotechnical Inspection and Testing Authority, with additional monitoring and review by an Engineer from WGA to ensure that the technical requirements of the fill and geogrid placement are met.

### 2.3 Item 3: Slope Stability Case – Piles Installed in Fill

This item relates to the potential damage to the geogrid layers during pile installation.

It is acknowledged that the pile designs are currently preliminary only and may change once the design of the townhouses has been finalised.

The pertinent issues are:

- Only the upper 2 geogrid layers will be impacted by pile installation. Such layers are less critical to the overall slope stability compared to the lower layers. The bottom layer of geogrid is placed over the entire base of the stripped surface but the rear portion does not contribute to the overall stability (it is beyond the slope failure surface) and hence the performance of the slope is not affected if locally damaged by pile installation;
- For the case where the beneficial effect of the piles was considered in the stability analyses, the geogrid was terminated at the front face of the pile. No appreciable change to the calculated factor of safety was noted indicating that the geogrid length is not overly critical;
- Given the relatively small pile diameters and large pile spacing proposed any damage to the geogrid during pile installation is expected to be localised.

If the final pile design varies from that assumed and the slope remediation works have been constructed, further advice from WGA would need to be obtained to ensure that the slope stability is not appreciably compromised.

Excavation of footing or services trenches through the geogrid will not be permitted, although this scenario seem unlikely given that the uppermost geogrid is at a depth of 2 m.

### 2.4 Item 4 : Interface with Co-living

This item relates to the varying thicknesses of fill in the two areas and the interfacing of the remediation works.

The ground conditions at the interface of the two fill areas are expected to be variable and only able to be reliably determined during the site earthworks. As a result WGA has not prepared a generic detail.

It is intended that site specific overview will be required by WGA to ensure that there is adequate structural continuity between the two areas of fill. This would invariably require benches to be cut to key in the fill into the natural soils and geogrid to be placed across the interface.

### 2.5 Item 5: Further Investigations

This item relates to the need for further geotechnical investigations after completion of the slope remediation works and the potential impact on the geogrid.

It is envisaged that any post construction investigations would be conducted using small diameter push tubes or augers. The impact to the geogrid would be very local and under such conditions would not appreciably affect the overall slope stability.

### 2.6 Piles vs Rear Set Back

This item relates to prescribing a setback distance for the proposed townhouses from the crest of the slope such that a pile foundation will not be required.

This issue was previously considered with Aspen. It was assessed that a setback distance of around 12 m to 15 m would be required which would impact on the site development options available to Aspen. Consequently this option was not considered further.

### 2.7 Item 7: Pile Design Parameters

This issue relates the design parameters for the piles supporting the townhouses.

As noted in Item 3 above:

- The pile designs are currently preliminary only and may change once the design of the townhouses has been finalised;
- If the final pile design varies from that assumed and the slope remediation works have been constructed, further advice from WGA would need to be obtained to ensure that the slope stability is not appreciably compromised.

With respect to the pile design parameters we confirm:

- The pile shaft resistance values in the controlled fill will be confirmed by WGA once the remediation works have been completed and the nature of the controlled fill material reliably known;
- No appreciable negative shaft resistance (down-drag) is expected in the controlled fill for the degree of compaction specified. In addition, the underlying natural soils are not expected to undergo appreciable settlement given that the existing vertical overburden pressure is not expected to be appreciably different to that currently existing. It is also observed that negative skin friction on the piles (if any) would not affect the ultimate limit state (stability) assessment, but would only affect the serviceability load case assessment, which would be a matter for detailed pile design.

Should you require any further information we ask you to contact the undersigned.

Yours Sincerely

Roger Grounds
Senior Principal Geotechnical Engineer
**WALLBRIDGE GILBERT AZTEC**

**References:**

1. *Adelaide Caravan Park Redevelopment. Proposed River Front Dwellings, Hackney*. Geotechnical Investigation. WGA report WGA230955-RP-GE-0004 Rev A, dated 14 May 2024.

Aspen Group

# Adelaide Caravan Park Redevelopment, Hackney

## GEOTECHNICAL REVIEW OF SLOPE REMEDIATION OPTIONS

WGA230955

WGA230955-RP-GE-0001_A

27 June 2023

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**Appendix A** Site Survey
**Appendix B** Borehole Logs (References 1 And 2)
**Appendix C** Stability Analyses

# 1 INTRODUCTION

Wallbridge Gilbert Aztec (WGA) has undertaken a review of the slope stabilisation and ground improvement works which are proposed along the western boundary of the Adelaide Caravan Park at Hackney.

The study area is shown in Figure 1.

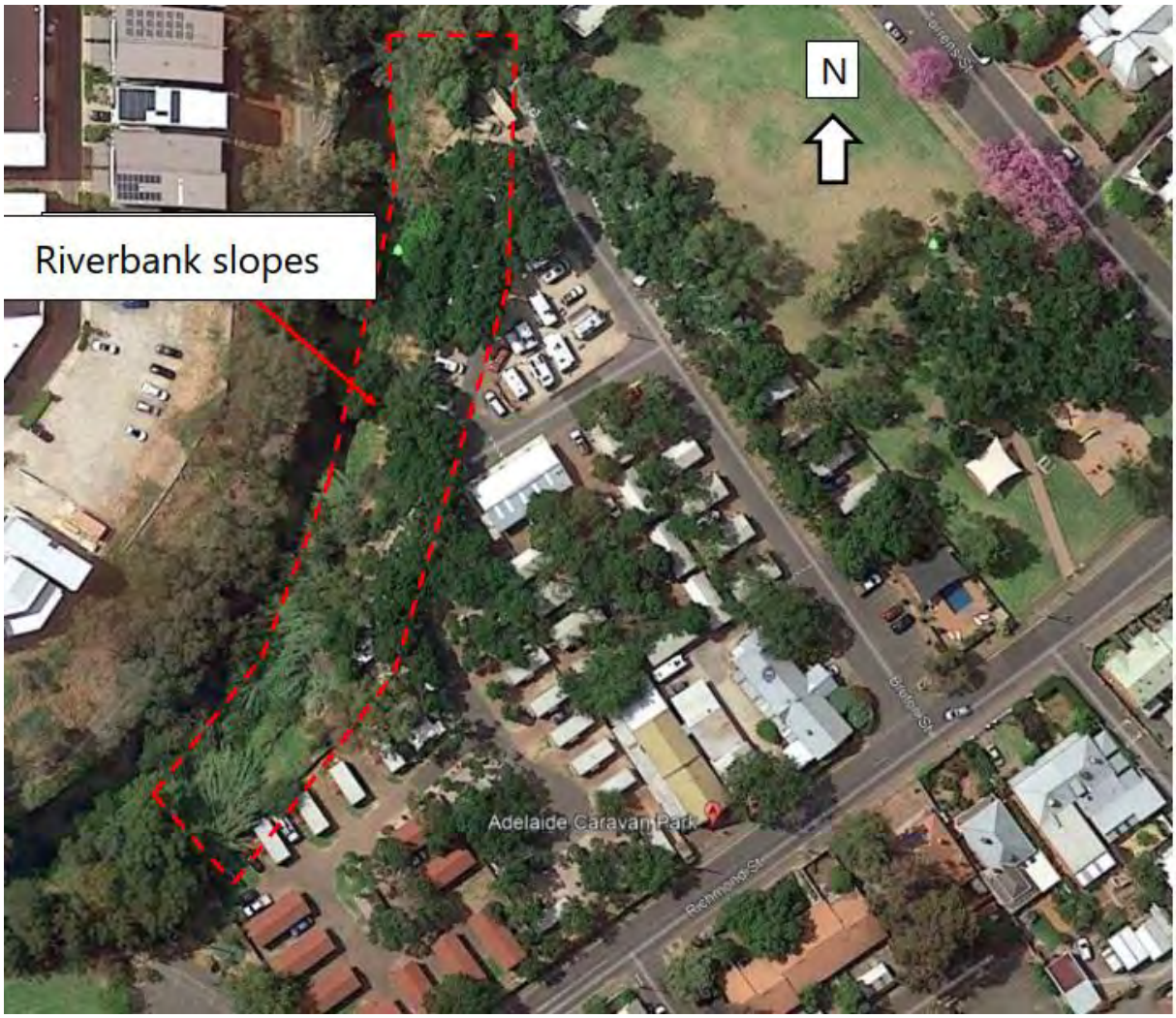



**Figure 1: Site Location and Study Area (Reference 2)**

The geotechnical assessment was commissioned by the Aspen Group. The scope and extent of the geotechnical assessment was broadly consistent with a proposal prepared by WGA dated 25 May 2023.

The geotechnical assessment undertaken is primarily a desktop review of previous geotechnical investigations and slope stability analyses undertaken at the site by FMG Engineering (References 1 and 2). WGA has not undertaken any intrusive investigations as part of this study.

As part of the assessment, a brief site walk-over was conducted by a Senior Principal Geotechnical Engineer from WGA on 25 May 2023.

This report outlines the finding of the desktop assessment and provides recommendations for slope remediation works.

# 2 BACKGROUND

The Adelaide Caravan Park is located at 46 Richmond Street at Hackney, approximately 200 m east of Hackney Road. The River Torrens is located along the western boundary of the site.

The river bank is up to about 11 m higher than the water level in the river and is steeply sloping with a typical slope of about 45 degrees (locally ranging from about 38 to 48 degrees). The river bank has varying vegetation cover including ground cover plants and trees and shrubs of varying size. At the southern end extensive bamboo is present. A timber log retaining wall less than 1 m high is present along the crest in places.

The ground surface level at the crest of the river bank is typically around RL 31.6 m AHD, with a general slope down towards the south. This area is currently used as a camping area for caravans, motor homes and tents. The closest building (laundry/amenities) is located about 12 m from the crest of the river bank.

A site survey previously undertaken by FYFE was provided by the Aspen Group and is included in Appendix A. Also shown in Appendix A are 4 section lines draw by WGA through the river bank. It is noted that the survey does not extend below the water level in the river. Site observations indicate that the water depth in the channel along the toe of the river bank is likely to be around 1.5 m to 2 m deep.

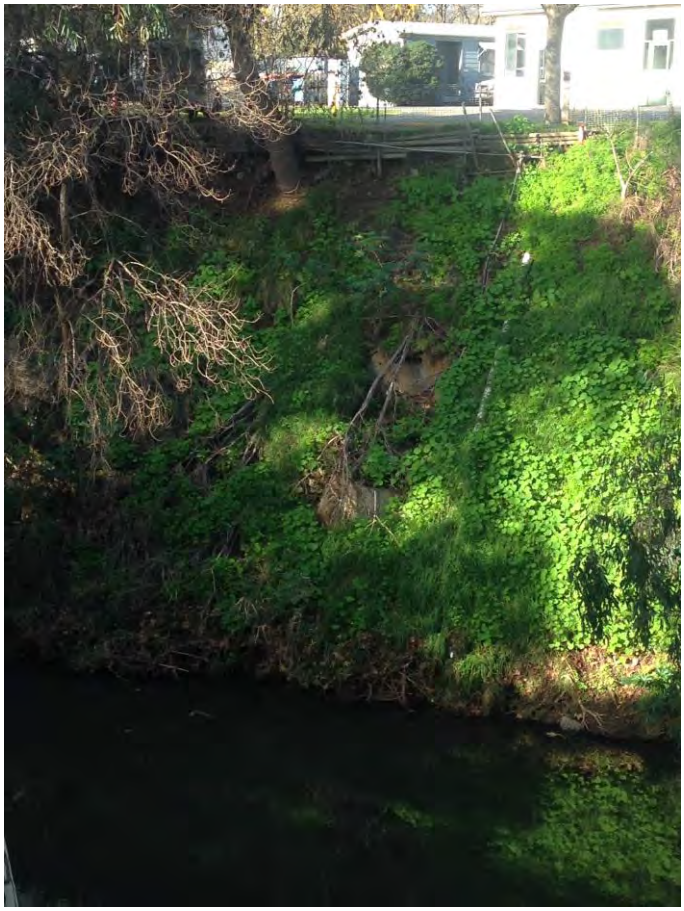
Previous borehole drilling conducted by FMG Engineering indicates that the western portion of the site is underlain by uncontrolled fill, which is up to about 8 m deep. It is assumed that the fill was placed decades ago to increase the usable site area.

The upper portion of the river bank is retained in places by a small height timber log retaining wall. In places the wall is in a poor structural condition and ad-hoc remedial works have been conducted.

Given the relatively steep slope and presence of uncontrolled fill, the river bank is potentially unstable. In addition, the existing uncontrolled fill is not suitable as a founding layer for permanent structures. As a result of these conditions remediation works are required to optimise the available site area for future redevelopment.

The general site conditions along the crest of the river bank are shown in Photograph 1, while the general conditions along the river bank (as viewed from the opposite side of the river) are shown in Photographs 2 to 4.

**Photograph 1: General View Along Crest of River Bank (Looking North)**



**Photograph 2: General View Along River Bank, Note Log Wall at Crest and Concrete Facing**

**Photograph 3: General View Along Northern Portion of River Bank**

**Photograph 4: General View of River Bank Looking Downstream**

# 3 SUBSURFACE CONDITIONS

## 3.1 Regional Geology

The site is located adjacent to the River Torrens.

The Soil Association Map of the Adelaide Region (1:50 000 scale map sheet) indicates that the near surface natural soils are likely to consist of Quaternary aged alluvial soils associated with deposition along the River Torrens. The alluvium is underlain by Tertiary aged sediments, such as the Blanche Point Formation.

The alluvium typically comprises an interbedded sequence of clays, sands and silts with a basal layer of gravelly soils. An excerpt from the Soil Association Map is presented in Figure 2.

Groundwater is expected to be related to the pool level in the adjacent River Torrens, which is subject to seasonal variations.

A borehole drilled by WGA in 2016 for an apartment development at a location on the opposite side of the river indicated the following subsurface profile:

- 0 to 9.1 m: Controlled fill;
- 9.1 to 9.8 m: Sand (alluvium), fine to coarse, medium dense;
- 9.8 to 13.2 m: Sandy gravel (alluvium), fine to coarse, dense SPT N-values of 45 and 38;
- >13.2 m: Silty clay and clay (Blanche Point Formation), low and medium plasticity, stiff to very stiff with a marked increase in strength below a depth of about 20 m.

Groundwater was encountered a depth of about 10.9 m.

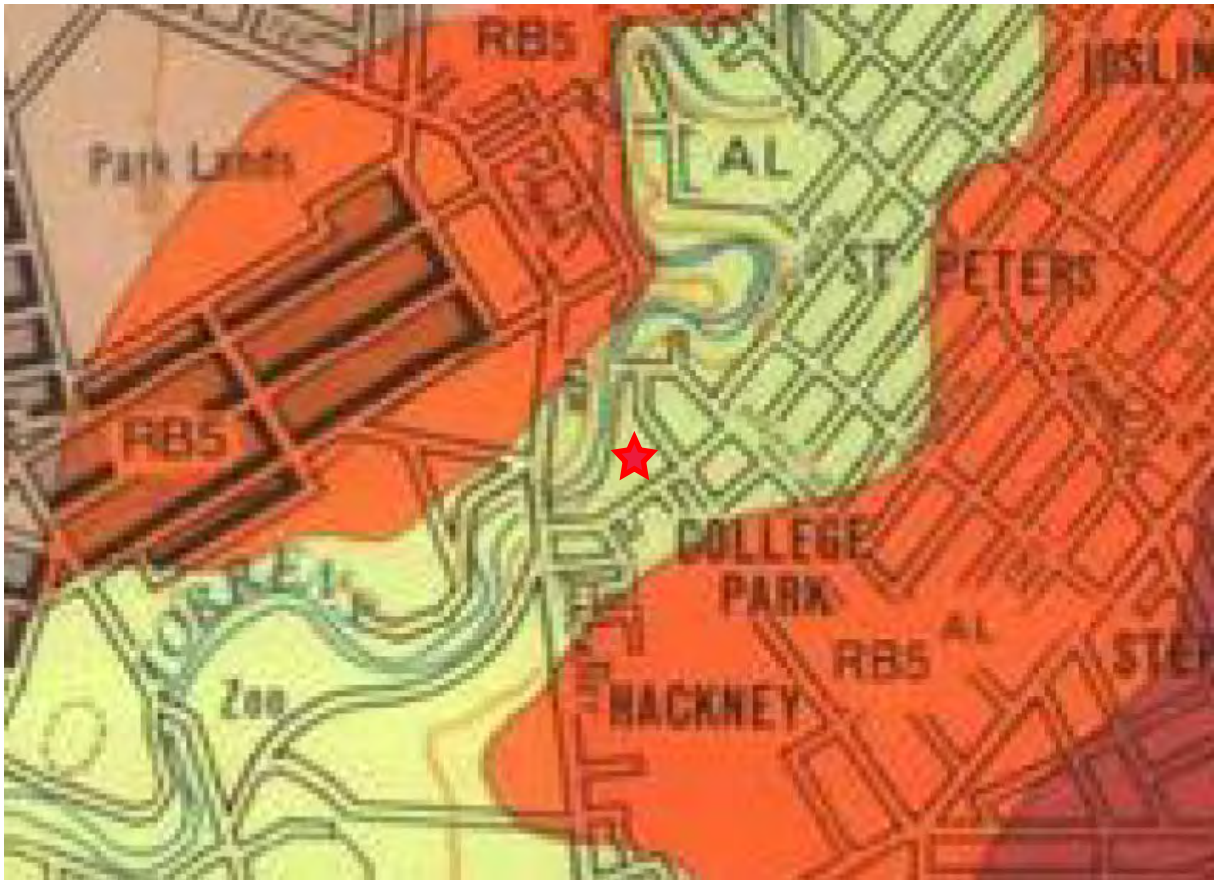



**Figure 2: Excerpt from Soil Association Map (Site Marked with Star)**

## 3.2 Previous Investigations

### 3.2.1 Scope

A geotechnical investigation was previously undertaken at the site by FMG Engineering (References 1 and 2). A total of 20 boreholes were drilled at the site to depths of up to 8.5 m. Specifically:

- Reference 1 indicates that 10 boreholes were drilled at the site in 2016 to depths ranging from 1.4 m to 8.5 m;
- Reference 2 indicates that 10 boreholes were drilled at the site in 2021 to depths ranging from 1.5 m to 8.5 m.

The locations of the boreholes are shown in Figure 3.

A copy of the borehole logs from References 1 and 2 are presented in Appendix B for reference.

Laboratory testing was not undertaken as part of the earlier investigations.

**Figure 3: Borehole Location Plan (Reference 2)**

### 3.2.2 Subsurface Conditions

The borehole logs presented in References 1 and 2 indicated that fill was encountered in most boreholes. The natural soils beneath the fill were consistent with the expected regional geology outlined in Section 3.2 and comprised interbedded alluvial soils.

The depth of fill is summarised in Table 1.

**Table 1: Depth Ranges of the Various Materials (Reference 1)**

| MATERIAL | BH1 | BH2 | BH3 | BH4 | BH5 | BH6 | BH7 | BH8 | BH9 | BH10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth of Fill (m) | 4.8 | 0.8 | 8 | 5.2 | 5.6 | >6.5 | 0.5 | 0.4 | 2.6 | 2.8 |
| Depth of Borehole (m) | 6.5 | 6 | 8.5 | 6.5 | 6.5 | 6.5 | 1.4 | 1.3 | 3.3 | 3.3 |

**Table 1 (cont): Depth Ranges of the Various Materials (Reference 2)**

| MATERIAL | BH1 | BH2 | BH3 | BH4 | BH5 | BH6 | BH7 | BH8 | BH9 | BH10 | BH11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth of Fill (m) | 0.6 | ND | 1.5 | 7.5 | 7 | 3.5 | 7 | 1.8 | 1.6 | 1.4 | 1.7 |
| Depth of Borehole (m) | 1.5 | ND | 3 | 8 | 7.5 | 5.5 | 8.5 | 3 | 2.5 | 2.4 | 3 |
| Notes: ND = Not Drilled | | | | | | | | | | | |

The variation in fill depth over the site indicates that the fill is markedly deeper along the crest of the river bank with a marked reduction in thickness away from the crest. The boreholes drilled near to the amenities building show a fill depth of up to about 8 m along the crest, reducing to about 3.5 m near the corner of the building (the corner of the amenities building is 10 m from the crest). The reported variation in fill depth supports the view that historically fill has been pushed over a steep river bank to gain additional land on the western side of the site.

The composition of the fill materials varied, although mainly comprised sand or gravel, and included:

- Sandy clay and clay of mainly low or medium plasticity (locally high);
- Clayey sand;
- Gravelly sand and sandy gravel, with gravel to about 70 mm in dimension.

Pockets of waste materials were present in the fill and included brick and tile fragments, glass pieces and other construction waste.

The logs report that core loss occurred in some boreholes, most probably due to the loose (uncompacted) nature of the fill.

The fill is assessed to be uncontrolled from an engineering perspective.

The natural soils below a depth of about 5 m to 6 m typically comprised fine to coarse grained sand and clayey sand, locally tending to sandy gravel at 8.4 m depth in BH7 (2021). Pockets of medium plasticity clays of firm to stiff consistency or more silty sands were evident in some boreholes (e.g. BH5, 2021). The sandy soils were reported to be in a loose to dense condition, although no in situ testing was performed to confirm this assessment.

At depths of less than 5 m to 6 m the alluvial soils were highly variable and included:

- Clayey and sandy silt;
- Sand and silty sand;
- Clay of high plasticity and stiff or very stiff consistency.

Groundwater was not encountered in the boreholes.

The survey plan prepared by FYFE indicates that the pool level in the River Torrens was about RL 20.9 m at the time of the investigation, approximately 10.7 m below the ground surface level. Groundwater is therefore expected below this level. Seasonal variations in groundwater are expected, due to fluctuations in the river level.

# 4 GEOTECHNICAL ASSESSMENT

## 4.1 Overview

The River Torrens is located along the western side of the Adelaide Caravan Park at Hackney and the river banks are steeply sloping (around 45 degrees). Geotechnical investigations previously undertaken at the site indicate that fill is present at the crest of the river bank to a depth of about 8 m. The depths of fill reduces to the east such that the zone of relatively deep fill is only around 12 m wide.

The composition of the fill varies but typically comprises sandy soils with pockets of hard waste, such as brick, tile and glass. The fill is reported to be in a relatively loose condition, consistent with fill which has been placed with little or no compaction. The fill is considered to be uncontrolled from an engineering perspective.

The presence of deep fill impacts on the available development options for the land. Specifically:

- The fill is unsuitable in its current condition to support permanent buildings due to the potential for future differential settlement to occur;
- The river bank is potentially unstable, due to the relatively steep slope and the uncompacted nature of the fill. Slopes of 45 degrees or more in sandy soils are commonly not considered to be stable. Future slope instability would adversely impact on the land and structures constructed thereon.

In order to optimise future development of the land remediation works are required.

The previous studies by FMG Engineering (References 1 and 2) proposed that a bulk earthworks solution be adopted in which the existing uncontrolled fill is removed and replaced as controlled fill. Such earthworks would be conducted progressively along the river bank. This option was previously adopted by WGA for the residential development along the northern side of the river bank (former Channel 7 site) which was also underlain by deep fill.

## 4.2 Stability of Existing River Bank

As noted earlier, the river bank is up to about 11 m higher than the water level in the river and is steeply sloping with a typical slope of about 45 degrees (locally ranging from about 38 to 48 degrees). The upper 8 m of the river bank comprises uncontrolled fill. The river bank has varying vegetation cover including ground cover plants and trees and shrubs of varying size.

The brief site walk-over indicated that the main mechanisms of slope degradation were:

- Erosion and scour at the crest due to run-off of surface water;
- Deterioration, outward leaning and collapse of the timber retaining wall at the crest;
- Shallow seated slumping of overly steep slopes, resulting in leaning of fences and retaining walls along the crest and trees on the slope. A notable slump was present to the south-west of the laundry building (refer to Photograph 5) and this area had been bunted-off to restrict public access.

There was no evidence of cracking in the ground surface along the crest which is a common indicator of a deeper seated slope failure.

**Photograph 5: Larger Slump near Laundry Building**

Slope stability analyses were undertaken using the computer program *Slide* to quantitatively assess the stability of the existing river bank. Both non-circular and circular failure surfaces were considered.

The geotechnical parameters assigned to the fill and natural soils were estimated by WGA based on the results of the earlier geotechnical investigations and previous experience.

Selected results of the analyses, which show the slope geometry adopted, the geotechnical parameters used and the critical failure surfaces are presented in Appendix C. Of particular relevance are:

- River bank slopes of 1H:1V (lower portion) and 1.25H:1V (upper portion) were used;
- The water in the river channel was assumed to be 1.5 m deep;
- A nominal surcharge of 2 kPa was included on the ground surface starting 3 m from the crest;
- The uncontrolled fill was modelled as an unsaturated material with an apparent cohesion ($C_a$) of between 2 kPa and 5 kPa and an effective angle of internal friction of 32 degrees.

The results of the slope stability analyses indicate:

- The failure surfaces with the lowest calculated factor of safety intersect the ground surface within about 6 m of the crest of the river bank. This is consistent with a shallow seated failure surface, as observed on site;
- The calculated factor of safety for the assumed conditions modelled ranged from about 0.86 to 1.06. A calculated factor of safety of less than 1 indicates a slope failure is likely to occur. A calculated factor of safety of around 1.5 is commonly adopted as a minimum acceptable value for engineered slopes in soils.

The analyses do not consider the beneficial effects of the existing vegetation roots or soil suction effects, which would enhance the apparent cohesion and result in a slightly higher factor of safety.

A typical slide output for an apparent cohesion ($C_a$) of 5 kPa is presented in Figure 4.

Based on the site observations and Slide analyses it is apparent that slope remedial works are necessary from a long-term stability perspective.

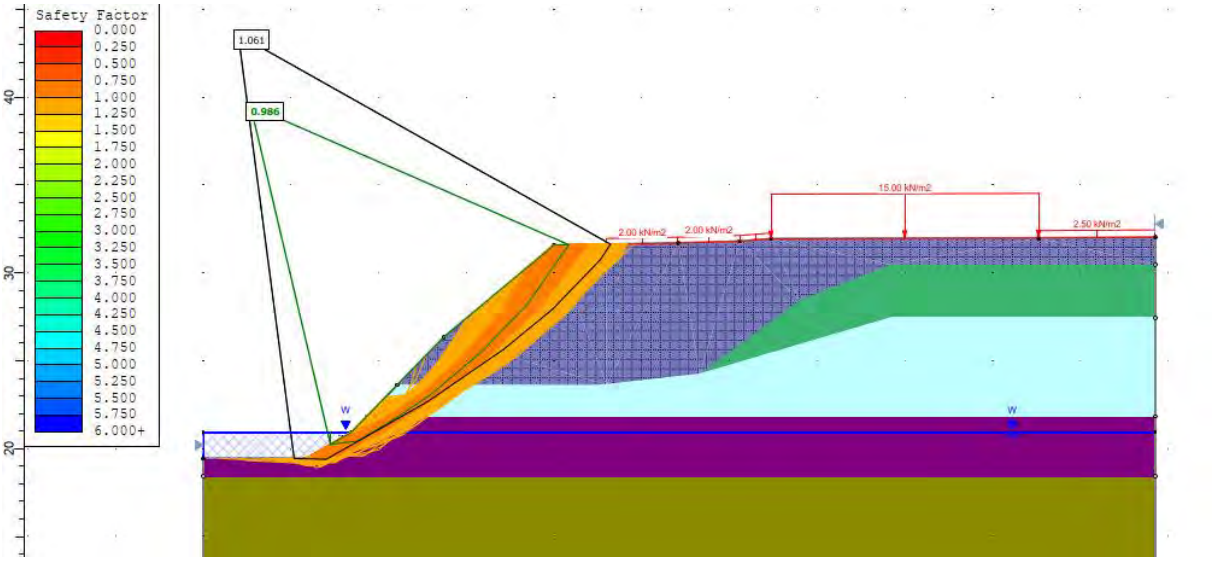



**Figure 4: Typical Slide Output (Existing Conditions)**

## 4.3 Options for Remedial Works

### 4.3.1 Short-term Strategies

Given the current condition of the river bank it is considered that there are no relatively simple remedial works which will be entirely effective in preventing future slope instability or reducing future ground settlement.

There are several short- term options which could be considered to reduce the extent of further degradation of the river bank. These options involve less intrusive and costly remedial works and include:

***Do nothing with on-going maintenance***

This option would include general maintenance work to reduce the potential for future shallow slumping of the river bank and would include:

- Planting ground cover plants in sparsely vegetated areas of the river bank, supplemented with jute matting pinned to the river bank;
- Constructing a berm of low permeability material (such as clayey loam or quarry rubble) at the crest to divert surface water well away from the crest;
- Undertaking repairs to damaged timber retaining wall or replacing the wall with a post and sleeper* retaining wall. The long-term performance of such a wall cannot be guaranteed due to the uncontrolled nature of the fill;
- Flattening the upper portion of the river bank;
- The placement of 100 mm sized ballast to reduce erosion where concentrated flows occur.

*Note:* the construction of a gravity wall, such a gabion wall along the crest is not recommended as such a wall would impose an additional surcharge load at the crest which would affect the overall stability of the river bank.*

Where the above strategy is adopted it is essential that the area along the crest of the river bank is monitored regularly for signs of cracking, settlement of additional slumping. Should such features be observed a further assessment should be conducted without delay to ensure the safety of site users.

For the above option the area at the crest of the river bank would only be suitable for temporary camping sites. Permanent buildings could not be constructed within about 12 m of the river bank.

### *Shallow Engineered Pad*

Reference 2 considered the construction of a mechanically stabilised earth (MSE) pad together with temporary treatment of the river bank to reduce erosion. The MSE pad was about 2 m deep and comprised compacted fill reinforced with layers of geogrid, as shown in Figure 5.

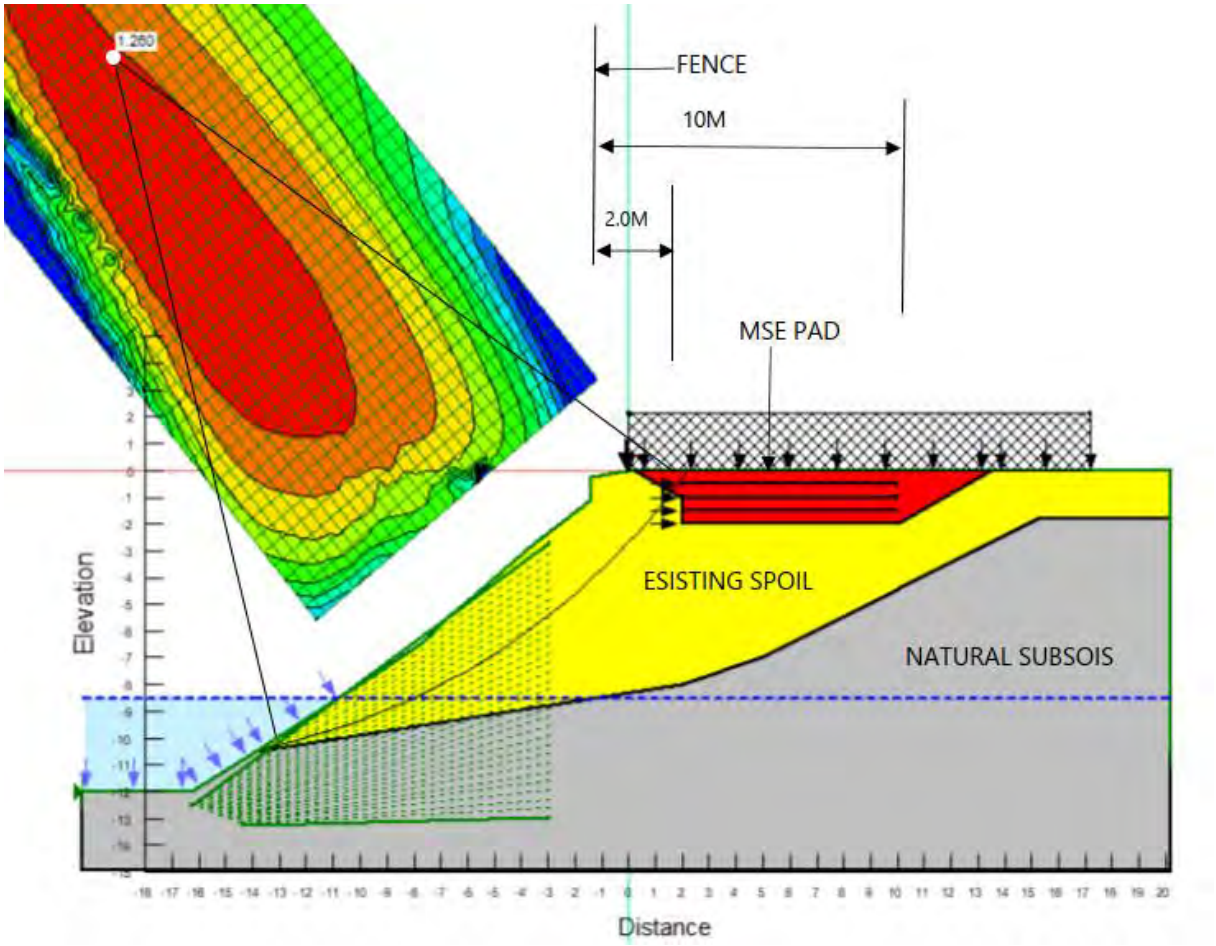



**Figure 5: Proposed MSE Pad (Reference 2)**

This option was a temporary solution to allow continued operation of the caravan park with light ground surface loadings. Whilst this solution would be effective in reducing differential ground settlement it does not:

- Provide any additional support to protect to the river bank and only marginally improves the global stability of the river bank;
- Does not eliminate future ground settlement, as the existing fill below the 2 m deep MSE pad would be liable to undergo long-term settlement.

If an MSE pad was used it is considered beneficial if the pad was extended to the crest of the river bank so that the upper steeper section currently retained by the timber log wall would be remediated.

The MSE pad is therefore only considered to be beneficial as a short to mid-term solution to allow continued operation of the camping sites along the crest of the river bank.

***Flattening the River Bank***

A more intrusive short-term option would be to use a long reach excavator to flatten the river bank to a more stable slope of around 1.5H:1V. The trimmed slope would be covered with a proprietary anti - erosion mat (such as MacMat R) and seeded with ground cover plants. The disadvantages of this option are:

- The available land is reduced. For a 10 m high river bank the crest would recede by about 5 m for 1.5H:1V batter slope;
- The beneficial effect to slope stability of the existing vegetation is lost;
- The deeper fill is liable to undergo future settlement and is therefore not able to support permanent buildings. Such buildings would need to be piled to natural ground.

***Soil Nails***

Overly steep sections of the river bank downstream at Hindmarsh have previously been stabilised with soil nails. These sections of river bank are typically in natural soils, not uncontrolled fill.

The soil nails are typically 6 to 10 m long and placed on a 1.5 m to 2 m grid, with a reinforced concrete pad at the head.

The option of soil nails to stabilise uncontrolled fill is unlikely to be entirely adequate due to the heterogeneous nature of the fill. The nails would need to extend at least 4 m into the natural soils behind the wedge of fill. It is likely that as well as the concrete pad, the remainder of the river bank would need to be protected with reinforced shotcrete to provide adequate support.

Other potential issues with this option included:

- Difficult access for machinery installing the soil nails along the existing river bank;
- Existing vegetation along the river bank would need to be removed.

### 4.3.2 Long-term Strategies

***Piled Walls***

Solutions such as a cantilevered piled retaining wall (such as sheet piles or Continuous flight auger piles) along the crest of the river bank are not considered suitable given the height of the river bank. Such piles would need to be restrained by tie rods anchored to dead-men constructed in natural ground well away from the crest which would require considerable earthworks.

In addition to the practical considerations and expensive nature of such retention works, this option does not reduce the potential for future differential settlement of the fill.

***Tiered Retaining Walls***

A system of tiered retaining walls, comprising either gravity-style walls (e.g. gabions or reinforced earth solutions) or cantilever-style walls (e.g. post and panel) could be considered in conjunction with the remove and replace earthworks solution. A tiered retaining wall solution, however, is unlikely to result in a much steeper overall slope angle than can be achieved by the earthworks solution alone, whilst the costs would be substantially higher.

As such, a tiered retaining wall solution has not been considered further.

***Ground Improvement***

Common techniques used to reduce ground settlement in deep fills include:

- In situ dynamic compaction;
- Controlled modulus columns.

In situ compaction is not considered appropriate given the depth of uncontrolled fill and the laterally unrestrained river bank.

CMCs are essentially rigid inclusions (grouted columns, similar to piles) which reinforce the fill and thereby improve its strength and stiffness, thus reducing the potential for future total and differential settlement.

The CMCs are commonly placed on a 2 m to 3 m grid pattern and extend to natural soil below the base of the fill. A load transfer platform of compacted controlled fill, possibly reinforced with a geogrid, is required on top of the CMCs to support the surface infrastructure. CMCs need to be designed and installed by a specialist contractor.

CMCs are not considered appropriate in this instance as they will not improve soils exposed in the river bank beyond the crest and are relatively expensive, particularly for a relatively small area.

### *Remove and Replace*

A remove and replace option was recommended by FMG Engineering and this technique was previously used successfully on the residential development on the western side of the river. The proposed methodology involves removing all of the existing uncontrolled fill and replacing with controlled fill placed under full time overview by a Geotechnical Inspection and Testing Authority (GITA).

Based on the available geotechnical information the proposed earthworks will extend around 12 m to 15 m from the current crest of the river bank.

The extent of the proposed remove and replace works proposed in Reference 2 are shown in Figure 5. A river bank slope of approximately 40 degrees was adopted, which results in the crest moving back by around 1.8 m from the current location. This batter slope is considered to be the maximum batter slope where site won materials used as controlled fill. If a steeper batter slope was required, options would include:

- The fill would need to be reinforced over the full height with a geogrid; or
- The fill would need to be reinforced with soil nails placed in a nominal 1.5 m by 2 m grid pattern; or
- A select imported fill, such as a Class 3 pavement material, would need to be used. The off-site disposal of the existing fill is expected to be prohibitively expensive.

In addition, an erosion resistant surface, such as shotcrete would need to be placed on the river bank.

A slope flatter than 1.25H:1V would result in a higher calculated factor of safety but would reduce the available land for redevelopment.

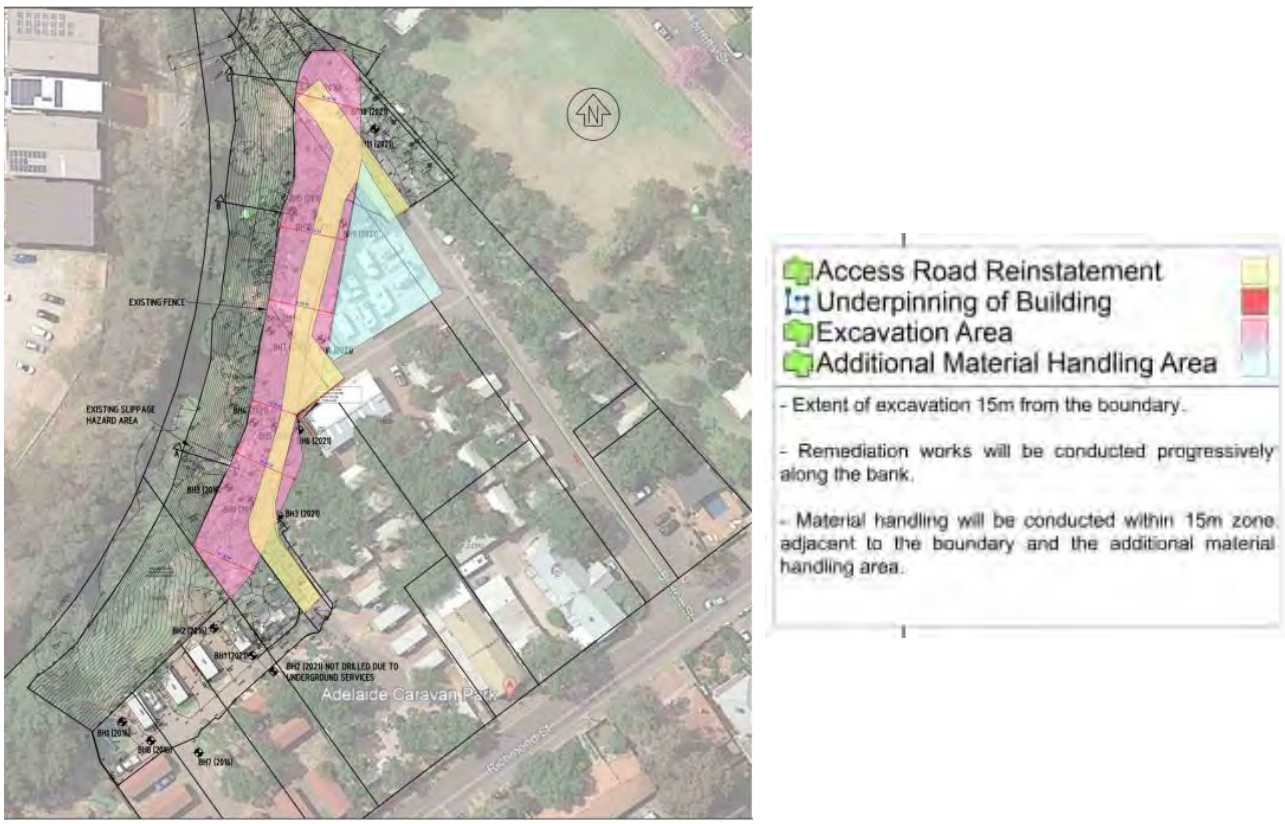



**Figure 6: Proposed Remove and Replace Option (Reference 2)**

The controlled fill will have more uniform and predictable geotechnical properties than the existing uncontrolled fill and will provide a stable river bank and provide a founding layer for permanent structures, although building footings would need to be located away from the crest.

The controlled fill would be suitable to support permanent, lightly loaded and flexible structures with footings bearing pressures of up to 100 kPa. Structures supported by near surface footings would need to be off-set at least 11 m from the crest of the reconstructed river bank.

Heavily loaded or settlement sensitive structures, or those located closer to the crest than 11 m, would need to be supported by piles founded in natural soils below the river bed.

On completion of the earthworks the controlled fill exposed in the river bank would be covered with a proprietary anti -erosion mat (such as MacMat R) and seeded with ground cover plants.

Erosion protection works, such as rock pitching or a tiered gabion wall, will be required along the river channel at the toe of the controlled fill to reduce the potential for future scour and erosion.

Surface drainage works will also be required at the crest to manage surface water and prevent runoff flowing down the river bank.

Slope stability analyses were undertaken using the computer program *Slide* to quantitatively assess the stability of the river bank following construction of the controlled fill at a slope of 1.25H:1V. Both non-circular and circular failure surfaces were considered.

Selected results of the analyses which show the slope geometry adopted, the geotechnical parameters used and the critical failure surfaces are presented in Appendix C. Of particular relevance are:

- The water in the river channel was 1.5 m deep;
- The following surcharges were applied to the ground surface at the crest of the slope: 1.2 m to 10.6 m off-set from crest – 5 kPa, >10. 6m from crest - 15 kPa (nominal building load);

- The uncontrolled fill was modelled as an unsaturated material with an apparent cohesion ($C_a$) of between 5 kPa and 10 kPa and an effective angle of internal friction (φ') of between 36 and 38 degrees;
- Sensitivity analyses were conducted to assess the slope response under earthquake loading, a lower water level in the river channel and the introduction of layers of geogrid in the upper 2 m of the controlled fill.

The results of the slope stability analyses indicate:

- The failure surfaces which intersect the proposed building area (nominally 11 m from the crest) have a calculated factor of safety of at least 1.5, which is considered adequate;
- There are various failure surfaces which intersect the ground within 11 m of the crest which have calculated factors of safety ranging between 1.2 and 1.5, depending on the geotechnical parameters used for the controlled fill material;
- Lowering the water level in the river does not appreciably alter the calculated factor of safety;
- The placement of 2 layers of high strength geogrid (Mirafi PET 400-50) in the upper 2 m of controlled fill results in a slight increase in the calculated factor of safety. The critical failure surface for this case is a shallow seated surface with a calculated factor of safety of about 1.45 which is mainly located below the geogrid reinforced fill;
- Under earthquake loading (0.05 g horizontal acceleration) the minimum calculated factor of safety is around 1.1.

A typical slide output assuming $C_a$ = 10 kPa and φ' = 38 degrees for the controlled fill is presented in Figure 7.

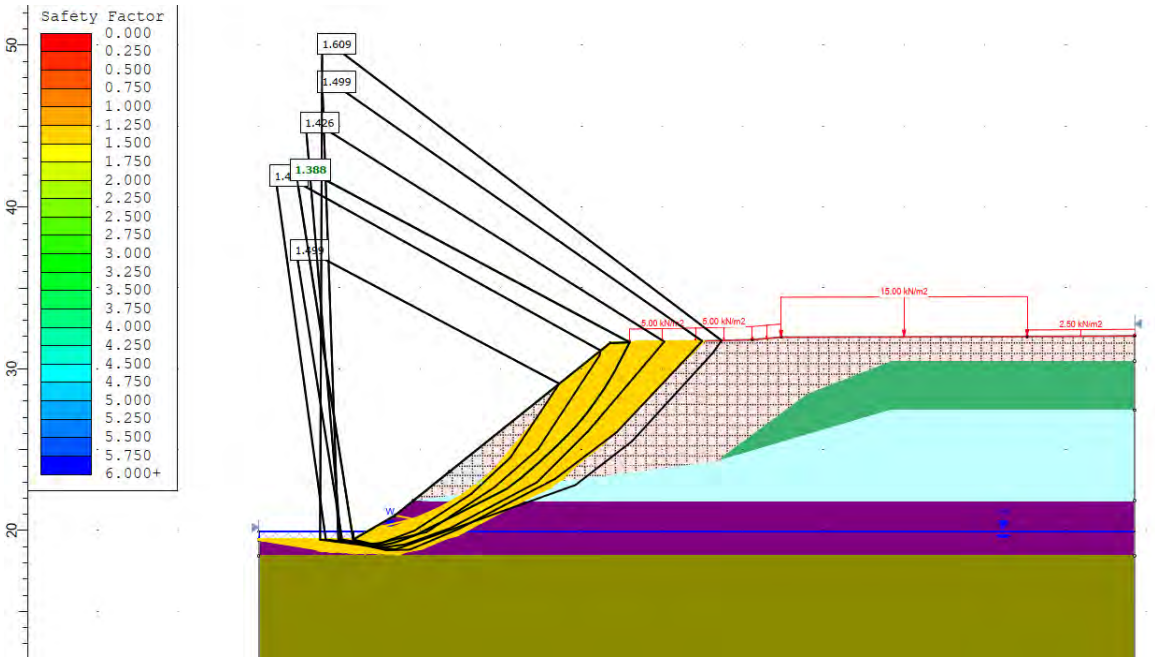



**Figure 7: Typical Slide Output (Controlled Fill Embankment)**

The effects of the high strength geogrid reinforcement (using the parameters shown in Figure 7) are shown in Figure 8.

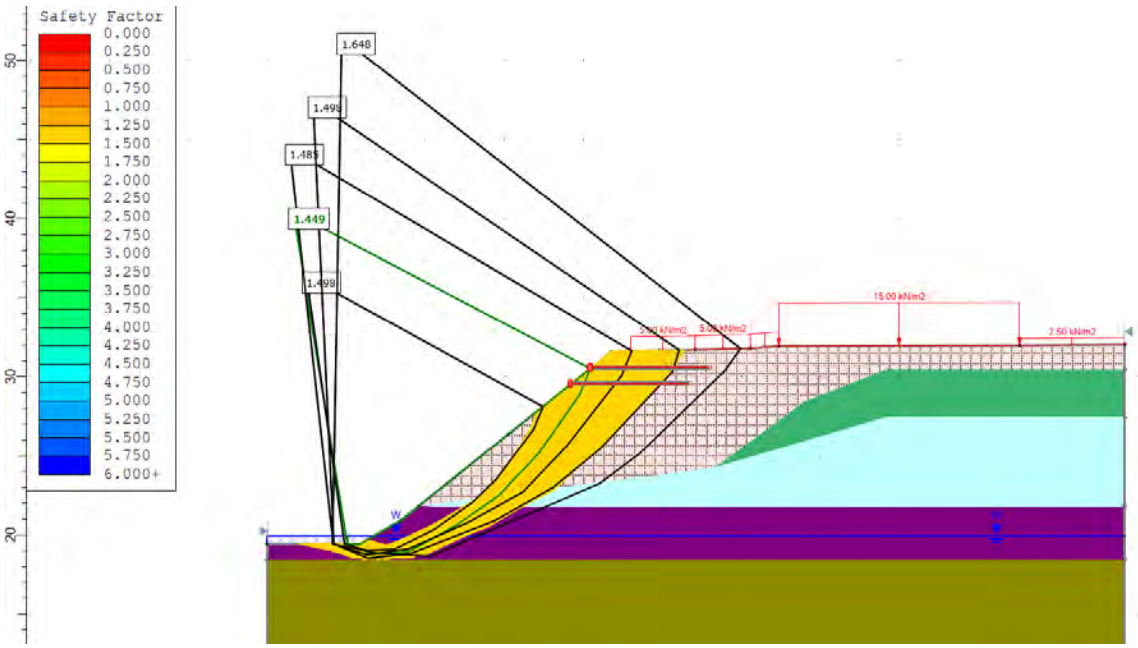



**Figure 8: Typical Slide Output (Controlled Fill Embankment with 2 Layers of Geogrid)**

Further details on key issues which need to be considered in the earthworks for the remove and replace option are presented in Section 4.4.

## 4.4 Consideration for Earthworks

For the remove and replace earthworks option outlined above, the following requirements would need to be considered:

- All of the existing uncontrolled fill is to be removed to expose natural soils;
- Temporary batter slopes not exceeding 45 degrees will be required in the natural soils;
- A bridging layer is likely to be required at the base of the fill, where weaker or overly wet natural soils are encountered. The bridging layer could comprise a layer of 100 mm road ballast and/or a geogrid;
- The controlled fill would need to be placed in layers and compacted to achieve a dry density ratio of at least 98% based on Standard compaction (AS 1289 5.1.1) in the upper 5 m and 100% Standard for fill deeper than 5 m. At the time of compaction the controlled fill shall be conditioned to within 2% of the optimum moisture content;
- The controlled fill will need to be keyed into the natural soils by the provision of horizontal benches;
- The controlled fill would need to be over-filled on the river side and subsequently trimmed back to the design batter slope;
- The controlled fill must be placed under Level 1 overview by a GITA, in accordance with the requirements of AS 3798 *"Guidelines on earthworks for commercial and residential developments"*;
- The existing fill materials are considered to be generally suitable for re-use and controlled fill subject to moisture conditioning, the removal of deleterious, organic and oversized particles. Some reduction in volume would be expected for the in-situ to compacted condition;
- The upper 400 mm of the earthworks should comprise an imported pavement quality material, such as a PM2/20;
- Concrete spillways and pipework on river bank and local mass concrete at toe of river bank will need to be replaced;
- The effects on adjacent buildings of construction activities such as vibrations during compaction, excavation works and changes in the soil moisture regime must be considered. A dilapidation survey and regular monitoring of the existing structures near to the site during construction are strongly recommended. Excavation work must not undermine existing footings of any adjacent buildings. It is envisaged that the footing of the existing laundry building will need to be underpinned prior to excavation.

## 4.5 Summary

The preceding sections have outlined various short-term and long-term remedial works which could be considered to either enhance the stability of the river bank of allow building development closer to the crest.

These options are summarised in Table 2. The remove and replace option is considered the most suitable.

Prior to construction a detailed specification would need to be prepared for the remedial works and additional survey work undertaken along the river to assess the river bank profile and the required erosion protection works.

The erosion protection works along the river channel would need to be approved by the Department of Environment and Water.

It is expected that additional investigations, design analyses and documentation will be required as part of the detailed design phase of the project. Further advice on these requirements once the concepts plans for the proposed development have been finalised.

**Table 2: Summary of Remedial works**

| OPTION | COMMENTS |
|---|---|
| **Short-term Options** | |
| On-going maintenance only ("do nothing") | Does not address long-term stability or settlement issues. Future slope instability expected.<br>Current land use remains, no permanent structures permitted within about 15 m of the crest. |
| MSE pad | Marginally improves stability of river bank<br>Long-term settlement not addressed<br>Current land use remains |
| Flattening the existing batter | Slightly improves stability of the river bank<br>Land area reduced<br>Long-term settlement not addressed<br>Current land use remains |
| Reinforcing the existing batter with soil nails | Difficult access for machinery on the existing river bank<br>Existing vegetation would need to be reinstated<br>Uncertainty regarding long-term properties of the uncontrolled fill |
| **Long-term Options** | |
| Remove and replace earthworks (1.25H:1V slope) | Slope stability and long-term settlement improved<br>Lightly loaded and flexible buildings can be founded on the controlled fill at a distance of approximately 12 m from the crest<br>Work can be undertaken by local contractors<br>Erosion protection works, such as rock pitching or a gabion wall, are required at the toe of the river bank within the river channel<br>The use of high strength geogrid reinforcement could be considered to enhance the stability of the slope<br>Soil nails would markedly improve stability however this option is relatively expensive |

| OPTION | COMMENTS |
|---|---|
| CMC platform | Reduces long term settlement<br>Does not improve local stability of river bank<br>Requires specialist contractors<br>Existing river bank may not be able to support the large piling rig required<br>Relatively expensive (relatively small area to treat) |
| Piled retention system | Piles will need to be restrained by ground anchors<br>Does not reduce future settlement<br>Constructability issues with machinery near crest of steep river bank<br>Expensive |
| Tiered retaining walls | Would achieve a similar overall slope angle as the 'remove and replace' earthworks solution, but at a much higher cost<br>Would provide a more durable river bank, which would be less vulnerable to ongoing erosion<br>Could improve access for future maintenance of vegetation |

## 4.6 Safety in Design

This report presents factual information about the subsurface conditions at the site and an assessment of how these conditions might impact on the design and construction of the proposed development from a geotechnical perspective. At the time of reporting the design and documentation of the proposed development had not been finalised and as a result Safety in Design issues have not been considered in this report. It is the responsibility of the designer to use the information contained herein to prepare a Safety in Design Report which is appropriate for the proposed development.

Specific input on geotechnical issues for the Safety in Design report can be provided as part of the detailed design phase if required.

# 5 LIMITATIONS

The recommendations contained within this report have been based on the subsurface conditions encountered during investigations by others at the site and the judgement and opinion of WGA. To the best of our knowledge, the subsurface conditions described in this report provide a reasonable interpretation of the typical subsurface conditions likely to be encountered at the site.

It is expected that additional investigations, design analyses and documentation will be required as part of the detailed design phase.

Roger Grounds

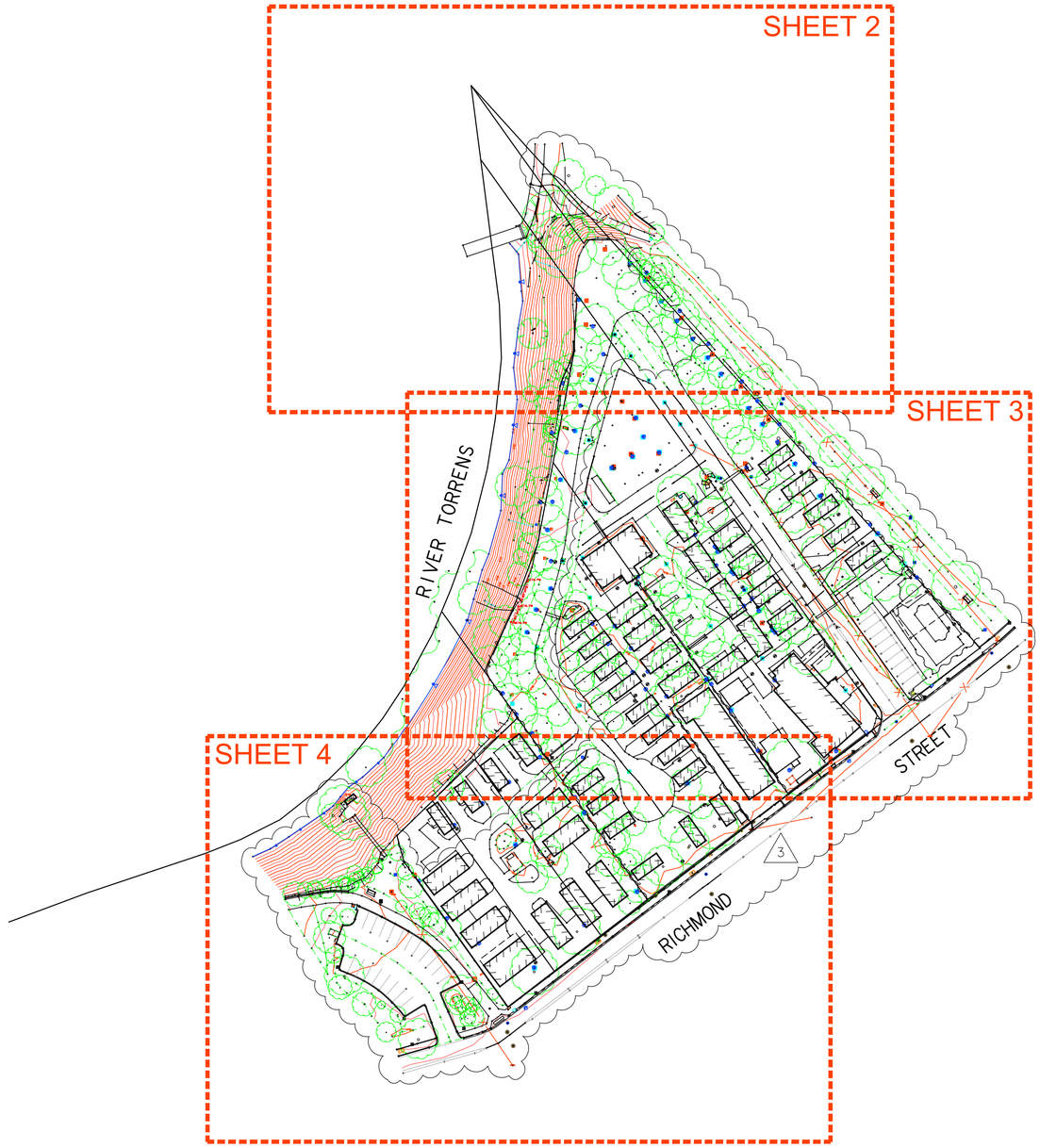
for

WALLBRIDGE GILBERT AZTEC

### References


1. *"Geotechnical Investigation, 46 Richmond Street, Hackney.* FMG Engineering Report dated 29/06/2016, Job Number S30579-247712.
2. *"Geotechnical Investigation Report, Slope Stability Assessment, Adelaide Caravan Park".* FMG Engineering Report dated 24/08/2021, Job Number 276032.

# APPENDIX A
# SITE SURVEY

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ORIGINAL SIZE A1

FYFE
ADELAIDE
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Adelaide SA 5001
T 61 8 8201 9600
www.fyfe.com.au

PLAN DETAILS

COUNCIL : THE CITY OF NORWOOD PAYNEHAM AND ST PETERS
MAP SHEET : 6628-42-a
CT REFS : CT5556/452

0 15 30 45 60 75
SCALE 1: 750

LEVEL DATUM : AHD 3rd ORDER
DATA FILE/S : 66966-2-1.CRD
LEVEL AUTHORITY : PSM 6628/1511 EL 32.378 10 FEB 2000
SURVEYOR: CXB
CO-ORD DATUM : PROJECT GRID

| NO. | REVISION | STAFF | CHECK | DATE |
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| 3 | EXTRA SURVEY ADDED | AGM | CXB | 15/10/21 |
| 2 | EXTRA SURVEY ADDED | AGM | MRP | 02/07/21 |
| 1 | RESCALED AND EXTRA SURVEY ADDED | AGM | CXB | 24/06/21 |
| 0 | PREPARED FOR INFORMATION | AGM | MRP | 16/09/20 |

ASPEN GROUP

DETAIL AND LEVEL SURVEY
HACKNEY - ADELAIDE CARAVAN PARK
HUNDRED OF ADELAIDE
HACKNEY

DRAWING 66966-2-1-SV-TO1-r3

INSTRUCTION : 66966/2/1
DATE 19/10/2021
SHEET 1 OF 4
REV. 3

Attachment 1.4

LEGEND

These standard symbols will be found in the drawing.

- TELSTRA IP
- DOMESTIC OUTLET
- TRAP GULLY
- LIGHT POLE
- LOW VOLTAGE PILLAR
- ETSA INSPECTION COVER
- STOBIE POLE
- GAS INSPECTION POINT
- GAS METER
- SEWER INSPECTION OPENING
- SEWER INSPECTION POINT
- SEWER MANHOLE
- SEWER VENT
- LITTER BIN
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- FIRE PLUG
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- STOP VALVE
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- WOODEN POLE
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- EARTH STAKE
- FLOOD LIGHT
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- IRRIGATION CONTROL UNITS
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- TRAFFIC SIGN
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- STOP VALVE PIT
- TAP
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- OVERHEAD WIRE
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- SUMP GRATED
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- LAWN
- CROWN
- GATE
- VERANDAH
- BANK TOP
- BANK BOTTOM
- LINE MARKING SOLID
- STOP LINE
- EDGE OF VEGETATION
- EDGE OF WATER
- BUILDING
- GALVANISED IRON FENCE
- FENCE
- CONTOUR (0.5m INTERVAL)
- CONTOUR INDEX (1m INTERVAL)

| | |
|---|---|
| 31.88EB | INDICATES EDGE OF BITUMEN LEVEL |
| 31.60TK | INDICATES TOP OF KERB LEVEL |
| 22.93RB | INDICATES RETAINING WALL BOTTOM LEVEL |
| 31.70EC | INDICATES EDGE OF CONCRETE LEVEL |
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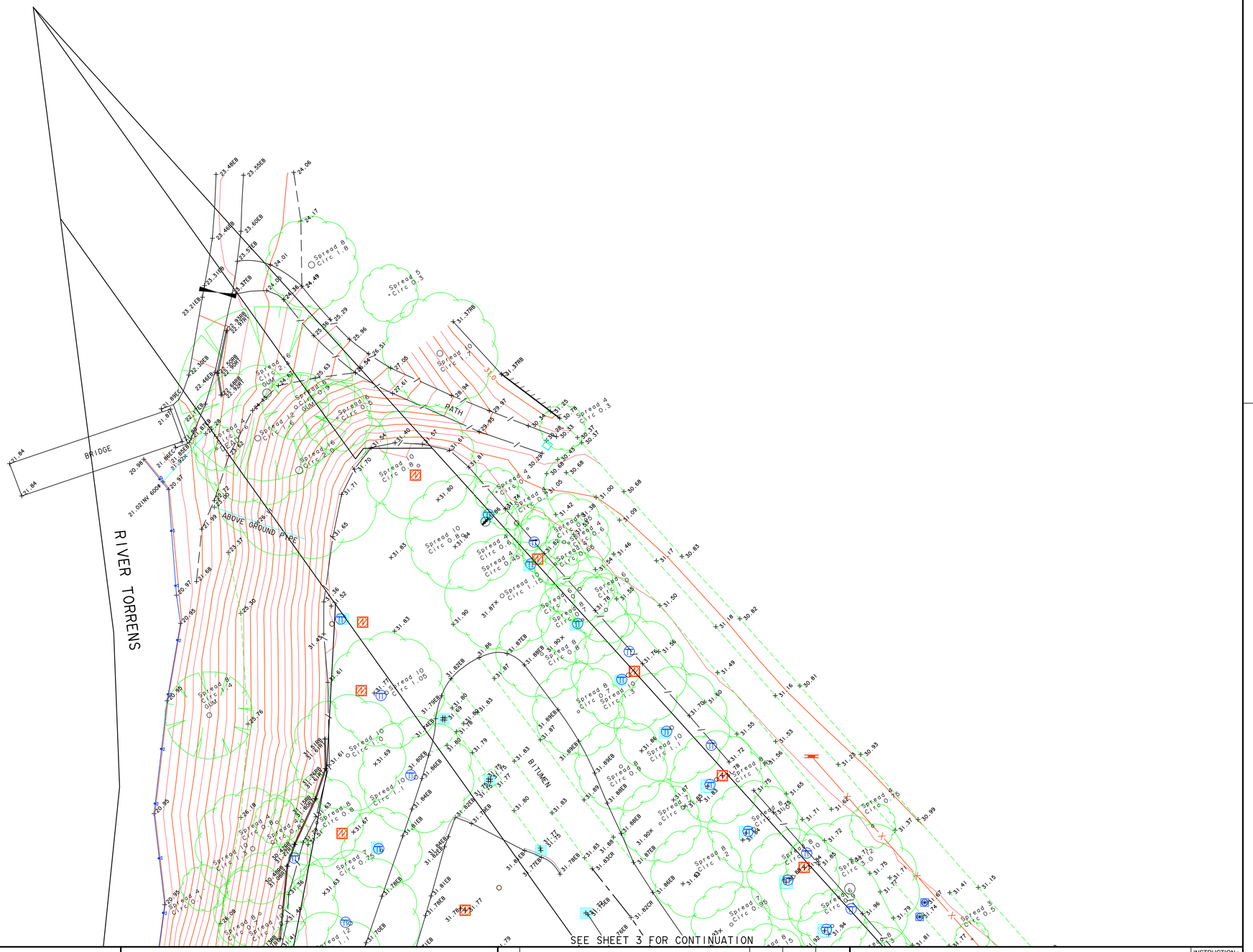


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SCALE 1: 200

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ASPEN GROUP

DETAIL AND LEVEL SURVEY
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HUNDRED OF ADELAIDE
HACKNEY

DRAWING 66966-2-1-SV-TO1-r3

INSTRUCTION : 66966/2/1
DATE 19/10/2021
SHEET 2 OF 4
REV. 2

Attachment 1.4

SEE SHEET 2 FOR CONTINUATION

RIVER TORRENS

F18091

TOP STEEL PIPE

TOP PVC PIPE

BITUMEN

CLOTHESLINE

TBM-MASONRY NAIL
IN CONCRETE FOOTING
PAINTED YELLOW
EL: 31.994m AHD

TOILET
BLOCK

F18091

F212352

F18091

METAL PIN

METAL PIN

EROSION

GRAVEL

AREA INACCESSIBLE
(DENSE RIVER REEDS)
CONTOURS APPROXIMATE

D58667

98

SHED

CARPORT

BUILDING

RECEPTION

SHED

POOL

BOOM GATE ACCESS

BOOM GATE ACCESS

SPEED HUMP

SPEED HUMP

PAVED DRIVEWAY

CABIN

STREET

RICHMOND

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SEE SHEET 4 FOR CONTINUATION

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MAP SHEET : 6628-42-a

CT REFS : CT5556/452

SEE SHEET 2 FOR PLAN LEGEND

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SCALE 1: 200

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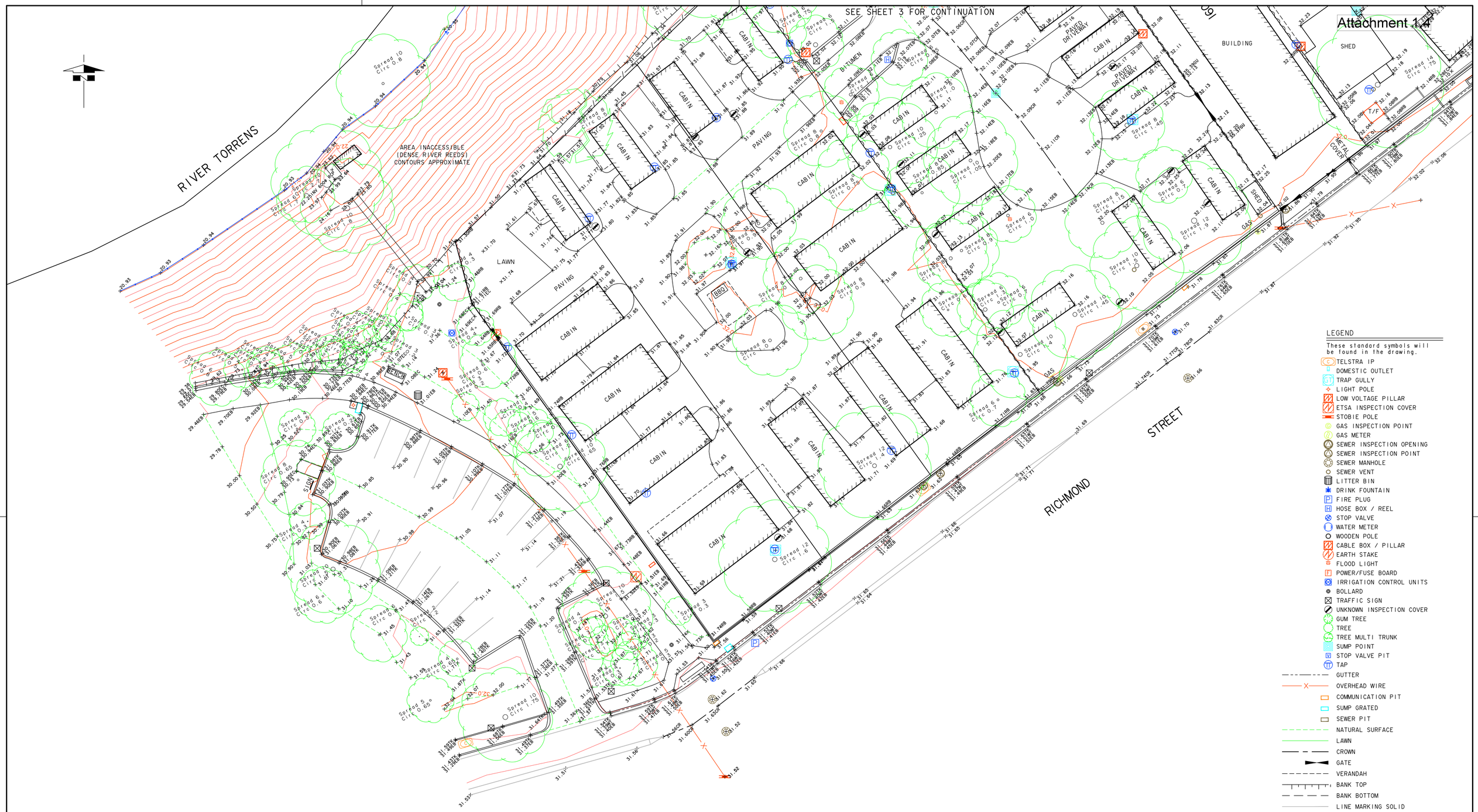
DRAWING 66966-2-1-SV-TO1-r3

INSTRUCTION : 66966/2/1

DATE 19/10/2021

SHEET 3 OF 4

REV. 3

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SCALE 1: 200

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DRAWING 66966-2-1-SV-TO1-r3

INSTRUCTION 66966/2/1

DATE 19/10/2021

SHEET 4 OF 4

REV. 3

Attachment 1.4

LAYOUT PLAN
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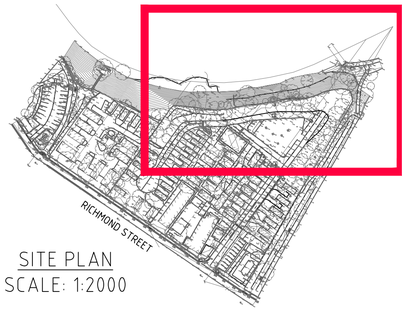


SITE PLAN
SCALE: 1:2000

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0 50 100mm

4 2 0 4 8
SCALE BAR (m)

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

| REV. | DATE | DESCRIPTION | DRAFT | ENG. | CHKD |
|---|---|---|---|---|---|
| A | | PRELIMINARY ISSUE | EJS | RG | |

WGA

ADELAIDE CARAVAN PARK
46 RICHMOND STREET
HACKNEY, SA
KEY PLAN

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A1 | DOCUMENT NUMBER | Project Number | Sheet No. | Rev.
Design RG | Drawn EJS | WGA230955-SK- CV-0001 A

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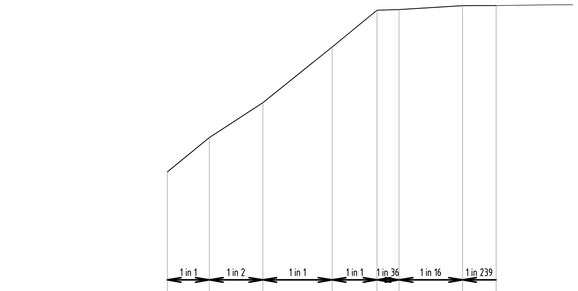
Attachment 1.4

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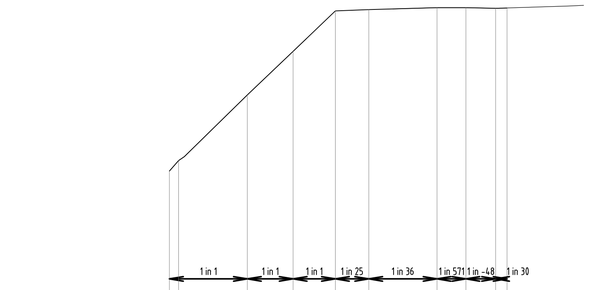
SECTION A

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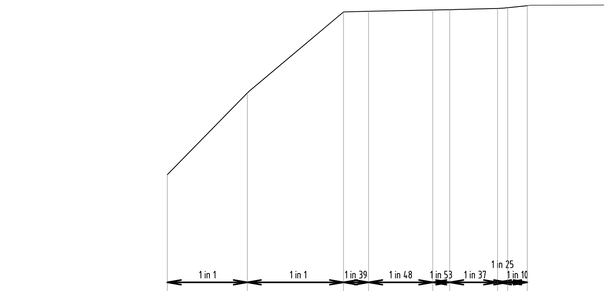
SECTION B




RL.11.900

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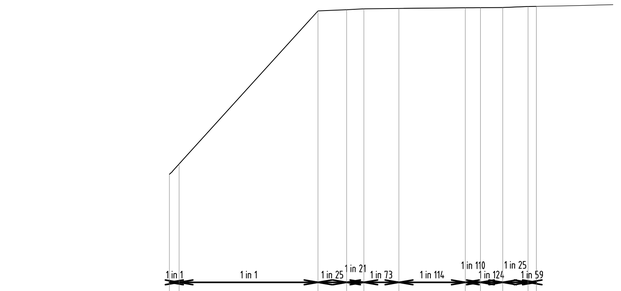
SECTION C




RL.11.900

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| CHAINAGE | 11.163 | 11.794 | 20.868 | 22.736 | 23.859 | 26.147 | 30.484 | 31.468 | 32.930 | 34.583 | 35.122 |

SECTION D

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PRELIMINARY ISSUE
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| REV. | DATE | DESCRIPTION | DRAFT | ENG. | CHKD |
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| A | | PRELIMINARY ISSUE | EJS | RG | |

WGA

ADELAIDE CARAVAN PARK
46 RICHMOND STREET
HACKNEY, SA
SECTIONS

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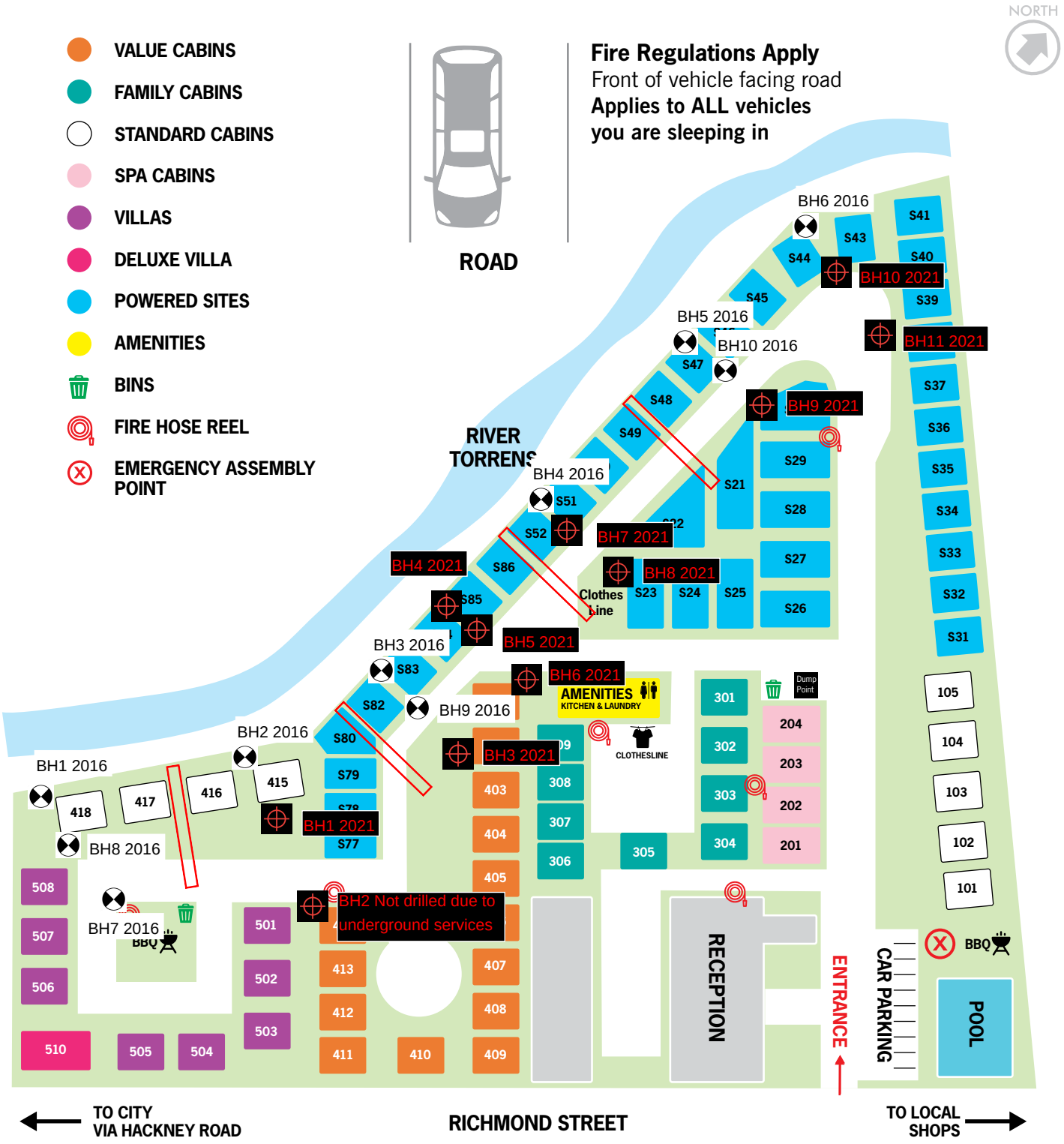
A1 | DOCUMENT NUMBER | Project Number | Sheet No. | Rev.

Design RG | Drawn EJS | WGA230955-SK- CV-0002 A

# APPENDIX B
# BOREHOLE LOGS (REFERENCES 1 AND 2)




Adelaide Caravan Park
46 Richmond Street, Hackney SA 5069
08 83631566 adelaide@aspengroup.com.au
adelaidevanpark.com.au

fmg ENGINEERING

Borehole No.: **BH1**



# Engineering Log - Borehole

Project No.: 247712/S30579

| | | | |
|---|---|---|---|
| Client: | Aspen Living Villages Pty Ltd | Commenced: | 27-06-2016 |
| Project Name: | Geotechnical Investigation | Completed: | 27-06-2016 |
| Hole Location: | 46 Richmond Road, HACKNEY | Logged By: | NB |
| Hole Position: | See Site Plan | Checked By: | BL |

| | | | | | |
|---|---|---|---|---|---|
| Drill Model and Mounting: | Rockmaster | Inclination: | -90° | RL Surface: | No survey |
| Hole Diameter: | 50 - 75 mm | Bearing: | 000° | Datum: | Operator: SPK Geodrill Pty Ltd |

| Drilling Information | | | | | | | | Soil Description | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Support | Water | Samples Tests Remarks | Recovery | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency Relative Density | Estimated Ipt | Hand Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | | Not Encountered | | | | 0.5 | | FILL | SILTY CLAY FILL: medium to high plasticity, brown red, with gravel to 5mm | M | F | 1.5% | | FILL |
| | | | | | | | | | FILL | GRAVELLY SAND FILL: medium to coarse grained, angular, black | M | D | 0% | | |
| | | | | | | | 1.0 | | FILL | GRAVELLY SAND FILL: medium to coarse grained, angular, pale brown yellow, well graded | M | D | 0% | | |
| | | | | | | | 1.5 | | FILL | GRAVELLY SAND FILL: fine to coarse grained, black red brown, with gravel to 70mm, with brick fragments, with ceramic tile fragments | M | D to L | 0% | | |
| | | | | | | | 2.0 | | | | | | | | |
| | | | | | | | 2.5 | | | | | | | | |
| | | | | | | | 3.0 | | | | | | | | 3.20: VOID in fill |
| | | | | | | | 3.5 | | FILL | CLAYEY SAND FILL: medium grained, angular, brown yellow, with brick fragments | M | F to MD | 0.5% | | |

***Method***
AS - Auger Screwing
RR - Rock Roller
WB - Washbore
PT - Pushtube

***Penetration***
No resistance ranging to refusal

***Water***
Level (Date)
Inflow
Partial Loss
Complete Loss

***Samples and Tests***
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

***Moisture Condition***
D - Dry
M - Moist
W - Wet

***Consistency/Relative Density***
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

***Support***
C - Casing

***Graphic Log/Core Loss***
Core recovered (hatching indicates material)
Core loss

***Classification Symbols and Soil Descriptions***
Based on Unified Soil Classification System

***Plastic Limit***
< PL
= PL
< PL

FMG LIB 2.01.GLB Log FMG BOREHOLE 1 S30579_247712_247712 GINT LOGS (ID 274866).GPJ <<DrawingFile>> 29-06-2016 14:32 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: FMG 2.01 2016-05-03 Prj: FMG 2.00 2015-08-20

fmg ENGINEERING

Borehole No.
**BH1**
Page 2 of 2

# Engineering Log - Borehole

Project No.: 247712/S30579

| | | | |
|---|---|---|---|
| Client: | Aspen Living Villages Pty Ltd | Commenced: | 27-06-2016 |
| Project Name: | Geotechnical Investigation | Completed: | 27-06-2016 |
| Hole Location: | 46 Richmond Road, HACKNEY | Logged By: | NB |
| Hole Position: | See Site Plan | Checked By: | BL |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Drill Model and Mounting: | Rockmaster | Inclination: | -90° | RL Surface: | No survey | | |
| Hole Diameter: | 50 - 75 mm | Bearing: | 000° | Datum: | | Operator: | SPK Geodrill Pty Ltd |

| Drilling Information | | | | | | | | Soil Description | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Support | Water | Samples Tests Remarks | Recovery | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency Relative Density | Estimated Ipt | Hand Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | | Not Encountered | | | | 4.5 | | FILL | CLAYEY SAND FILL: medium grained, angular, brown yellow, with brick fragments *(continued)* | M | F to MD | 0.5% | | FILL |
| | | | | | | | 5.0 | | SP | SAND: medium grained, angular, brown grey, poorly graded | M | D | 0% | | ALLUVIUM |
| | | | | | | | 5.5 | | | | | | | | |
| | | | | | | | 6.0 | | SP | SAND coarse grained, angular, grey, poorly graded | M | D | 0% | | |
| | | | | | | | 6.5 | | | Hole Terminated at 6.50 m<br>Target depth | | | | | |
| | | | | | | | 7.0 | | | | | | | | |
| | | | | | | | 7.5 | | | | | | | | |

***Method***
AS - Auger Screwing
RR - Rock Roller
WB - Washbore
PT - Pushtube

***Penetration***
No resistance ranging to refusal

***Water***
Level (Date)
Inflow
Partial Loss
Complete Loss

***Samples and Tests***
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

***Moisture Condition***
D - Dry
M - Moist
W - Wet

***Consistency/Relative Density***
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

***Support***
C - Casing

***Graphic Log/Core Loss***
Core recovered (hatching indicates material)
Core loss

***Classification Symbols and Soil Descriptions***
Based on Unified Soil Classification System

***Plastic Limit***
< PL
= PL
< PL

FMG LIB 2.01.GLB Log FMG BOREHOLE 1 S30579_247712_247712 GINT LOGS (ID 274866).GPJ <<DrawingFile>> 29-06-2016 14:32 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: FMG 2.01 2016-05-03 Prj: FMG 2.00 2015-08-20

fmg ENGINEERING

Borehole No.: **BH2**



# Engineering Log - Borehole

Project No.: 247712/S30579

| | | | |
|---|---|---|---|
| Client: | Aspen Living Villages Pty Ltd | Commenced: | 27-06-2016 |
| Project Name: | Geotechnical Investigation | Completed: | 27-06-2016 |
| Hole Location: | 46 Richmond Road, HACKNEY | Logged By: | NB |
| Hole Position: | See Site Plan | Checked By: | BL |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Drill Model and Mounting: | Rockmaster | Inclination: | -90° | RL Surface: | No survey | | |
| Hole Diameter: | 50 - 75 mm | Bearing: | 000° | Datum: | | Operator: | SPK Geodrill Pty Ltd |

| Drilling Information | | | | | | | | Soil Description | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Support | Water | Samples Tests Remarks | Recovery | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency Relative Density | Estimated Ipt | Hand Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | | Not Encountered | | | | 0.5 | | FILL | GRAVELLY CLAY FILL: medium plasticity, brown orange red, with gravel to 60mm | M | F to S | 1.5% | | FILL |
| | | | | | | | 1.0 | | ML | CLAYEY SILT TOPSOIL: fine grained, low plasticity, dark brown | M | MD | 0.1% | | TOPSOIL |
| | | | | | | | 1.5 | | ML | CLAYEY SANDY SILT: fine grained, low plasticity, brown, angular sand | M | D | 0.1% | | ALLUVIUM |
| | | | | | | | 2.0 | | | | | | | | |
| | | | | | | | 2.5 | | SM | SILTY SAND: fine grained, angular, brown yellow, well graded | M | D | 0% | | |
| | | | | | | | 3.0 | | SW-SM | SAND: medium grained, angular, orange, with silt | M | D | 0% | | |
| | | | | | | | | | SP | SAND: medium to coarse grained, angular, brown grey, poorly graded | M | VD to D | 0% | | |
| | | | | | | | 3.5 | | | | | | | | |

***Method***
AS - Auger Screwing
RR - Rock Roller
WB - Washbore
PT - Pushtube

***Penetration***
No resistance ranging to refusal

***Water***
Level (Date)
Inflow
Partial Loss
Complete Loss

***Samples and Tests***
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

***Moisture Condition***
D - Dry
M - Moist
W - Wet

***Consistency/Relative Density***
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

***Support***
C - Casing

***Graphic Log/Core Loss***
Core recovered (hatching indicates material)
Core loss

***Classification Symbols and Soil Descriptions***
Based on Unified Soil Classification System

***Plastic Limit***
< PL
= PL
< PL

FMG LIB 2.01.GLB Log FMG BOREHOLE 1 S30579_247712_247712 GINT LOGS (ID 274866).GPJ <<DrawingFile>> 29-06-2016 14:32 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: FMG 2.01 2016-05-03 Prj: FMG 2.00 2015-08-20

fmg ENGINEERING

Borehole No.: **BH2**



# Engineering Log - Borehole

Project No.: 247712/S30579

| | | | |
|---|---|---|---|
| Client: | Aspen Living Villages Pty Ltd | Commenced: | 27-06-2016 |
| Project Name: | Geotechnical Investigation | Completed: | 27-06-2016 |
| Hole Location: | 46 Richmond Road, HACKNEY | Logged By: | NB |
| Hole Position: | See Site Plan | Checked By: | BL |

| | | | | | |
|---|---|---|---|---|---|
| Drill Model and Mounting: | Rockmaster | Inclination: | -90° | RL Surface: | No survey |
| Hole Diameter: | 50 - 75 mm | Bearing: | 000° | Datum: | Operator: SPK Geodrill Pty Ltd |

| Drilling Information | | | | | | | | | Soil Description | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Support | Water | Samples Tests Remarks | Recovery | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency Relative Density | Estimated Ipt | Hand Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | | Not Encountered | | | | 4.5 | | SP | SAND: medium to coarse grained, angular, brown grey, poorly graded *(continued)* | M | VD to D | 0% | | ALLUVIUM |
| | | | | | | | 5.0 | | SP | SAND: medium grained, angular, orange, trace clay | M | VD | 0% | | |
| | | | | | | | | | SC | CLAYEY SAND: low plasticity, medium grained, angular, grey orange, well graded | M | VD | 0.5% | | |
| | | | | | | | 5.5 | | SP | SAND: coarse grained, angular, pale grey, with rounded gravel | M | VD | 0% | | |
| | | | | | | | 6.0 | | | Hole Terminated at 6.00 m<br>Target depth | | | | | |
| | | | | | | | 6.5 | | | | | | | | |
| | | | | | | | 7.0 | | | | | | | | |
| | | | | | | | 7.5 | | | | | | | | |

***Method***
AS - Auger Screwing
RR - Rock Roller
WB - Washbore
PT - Pushtube

***Penetration***
No resistance ranging to refusal

***Water***
Level (Date)
Inflow
Partial Loss
Complete Loss

***Samples and Tests***
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

***Moisture Condition***
D - Dry
M - Moist
W - Wet

***Consistency/Relative Density***
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

***Support***
C - Casing

***Graphic Log/Core Loss***
Core recovered (hatching indicates material)
Core loss

***Classification Symbols and Soil Descriptions***
Based on Unified Soil Classification System

***Plastic Limit***
< PL
= PL
< PL

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fmg ENGINEERING

Borehole No.: **BH3**



# Engineering Log - Borehole

Project No.: 247712/S30579

| | | | |
|---|---|---|---|
| Client: | Aspen Living Villages Pty Ltd | Commenced: | 27-06-2016 |
| Project Name: | Geotechnical Investigation | Completed: | 27-06-2016 |
| Hole Location: | 46 Richmond Road, HACKNEY | Logged By: | NB |
| Hole Position: | See Site Plan | Checked By: | BL |

| | | | | | |
|---|---|---|---|---|---|
| Drill Model and Mounting: | Rockmaster | Inclination: | -90° | RL Surface: | No survey |
| Hole Diameter: | 50 - 75 mm | Bearing: | 000° | Datum: | Operator: SPK Geodrill Pty Ltd |

| Drilling Information | | | | | | | | Soil Description | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Support | Water | Samples Tests Remarks | Recovery | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency Relative Density | Estimated Ipt | Hand Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | | Not Encountered | | | | 0.5 | | FILL | GRAVEL FILL: medium grained, angular, white | D | L | 0% | | ROAD SURFACE |
| | | | | | | | 1.0 | | FILL | SILTY CLAYEY GRAVEL FILL: yellow brown white red orange, with gravel to 70mm, with sand, with brick fragments | M to D | L | 0.5% | | FILL |
| | | | | | | | 1.5 | | | | | | | | |
| | | | | | | | 2.0 | | | | | | | | |
| | | | | | | | 2.5 | | | | | | | | |
| | | | | | | | 3.0 | | FILL | SILTY CLAY FILL: medium plasticity, brown orange, with gravel to 10mm, slight hydrocarbon odour | M | F to St | 1.5% | | 3.30: Iron nail present in FILL |
| | | | | | | | 3.5 | | | | | | | | |

**Method**
AS - Auger Screwing
RR - Rock Roller
WB - Washbore
PT - Pushtube

**Penetration**
No resistance ranging to refusal

**Water**
Level (Date)
Inflow
Partial Loss
Complete Loss

**Samples and Tests**
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

**Moisture Condition**
D - Dry
M - Moist
W - Wet

**Consistency/Relative Density**
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

**Support**
C - Casing

**Graphic Log/Core Loss**
Core recovered (hatching indicates material)
Core loss

**Classification Symbols and Soil Descriptions**
Based on Unified Soil Classification System

**Plastic Limit**
< PL
= PL
< PL

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fmg ENGINEERING

Borehole No.: **BH3**



# Engineering Log - Borehole

Project No.: 247712/S30579

| | | | |
|---|---|---|---|
| Client: | Aspen Living Villages Pty Ltd | Commenced: | 27-06-2016 |
| Project Name: | Geotechnical Investigation | Completed: | 27-06-2016 |
| Hole Location: | 46 Richmond Road, HACKNEY | Logged By: | NB |
| Hole Position: | See Site Plan | Checked By: | BL |

| | | | | | |
|---|---|---|---|---|---|
| Drill Model and Mounting: | Rockmaster | Inclination: | -90° | RL Surface: | No survey |
| Hole Diameter: | 50 - 75 mm | Bearing: | 000° | Datum: | Operator: SPK Geodrill Pty Ltd |

| Drilling Information | | | | | | | | Soil Description | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Support | Water | Samples Tests Remarks | Recovery | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency Relative Density | Estimated Ipt | Hand Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | | Not Encountered | | | | 4.5<br>5.0<br>5.5<br>6.0<br>6.5<br>7.0<br>7.5 | | FILL | SILTY CLAY FILL: medium plasticity, brown orange, with gravel to 10mm, slight hydrocarbon odour *(continued)* | M | F to St | 1.5% | | FILL<br>7.00: Slag present in FILL |
| | | | | | | | | | FILL | GRAVELLY SILT FILL: white | D | L | 0% | | |
| | | | | | | | | | FILL | CLAYEY SILTY GRAVEL FILL: fine to coarse grained, dark brown, with brick fragments | M | D | 0.5% | | |

***Method***
AS - Auger Screwing
RR - Rock Roller
WB - Washbore
PT - Pushtube

***Penetration***
No resistance ranging to refusal

***Water***
Level (Date)
Inflow
Partial Loss
Complete Loss

***Samples and Tests***
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

***Moisture Condition***
D - Dry
M - Moist
W - Wet

***Consistency/Relative Density***
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

***Support***
C - Casing

***Graphic Log/Core Loss***
Core recovered (hatching indicates material)
Core loss

***Classification Symbols and Soil Descriptions***
Based on Unified Soil Classification System

***Plastic Limit***
< PL
= PL
< PL

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fmg ENGINEERING

Borehole No.: **BH3**



# Engineering Log - Borehole

Project No.: 247712/S30579

| | | | |
|---|---|---|---|
| Client: | Aspen Living Villages Pty Ltd | Commenced: | 27-06-2016 |
| Project Name: | Geotechnical Investigation | Completed: | 27-06-2016 |
| Hole Location: | 46 Richmond Road, HACKNEY | Logged By: | NB |
| Hole Position: | See Site Plan | Checked By: | BL |

| | | | | | |
|---|---|---|---|---|---|
| Drill Model and Mounting: | Rockmaster | Inclination: | -90° | RL Surface: | No survey |
| Hole Diameter: | 50 - 75 mm | Bearing: | 000° | Datum: | Operator: SPK Geodrill Pty Ltd |

| Drilling Information | | | | | | | | | Soil Description | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Support | Water | Samples Tests Remarks | Recovery | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency Relative Density | Estimated Ipt | Hand Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | | Not Encountered | | | | | | SP | SAND: coarse grained, angular, pale brown, with rounded gravel to 30mm | D | VD | 0% | | ALLUVIUM |
| | | | | | | | 8.5 | | | Hole Terminated at 8.50 m<br>Target depth | | | | | |
| | | | | | | | 9.0 | | | | | | | | |
| | | | | | | | 9.5 | | | | | | | | |
| | | | | | | | 10.0 | | | | | | | | |
| | | | | | | | 10.5 | | | | | | | | |
| | | | | | | | 11.0 | | | | | | | | |
| | | | | | | | 11.5 | | | | | | | | |

**Method**
AS - Auger Screwing
RR - Rock Roller
WB - Washbore
PT - Pushtube

**Penetration**
No resistance ranging to refusal

**Water**
Level (Date)
Inflow
Partial Loss
Complete Loss

**Samples and Tests**
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

**Moisture Condition**
D - Dry
M - Moist
W - Wet

**Consistency/Relative Density**
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

**Support**
C - Casing

**Graphic Log/Core Loss**
Core recovered (hatching indicates material)
Core loss

**Classification Symbols and Soil Descriptions**
Based on Unified Soil Classification System

**Plastic Limit**
< PL
= PL
< PL

FMG LIB 2.01.GLB Log FMG BOREHOLE 1 S30579_247712_247712 GINT LOGS (ID 274866).GPJ <<DrawingFile>> 29-06-2016 14:32 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: FMG 2.01 2016-05-03 Prj: FMG 2.00 2015-08-20

fmg ENGINEERING

Borehole No.
**BH4**
Page 1 of 2

# Engineering Log - Borehole

Project No.: 247712/S30579

| | | | |
|---|---|---|---|
| Client: | Aspen Living Villages Pty Ltd | Commenced: | 27-06-2016 |
| Project Name: | Geotechnical Investigation | Completed: | 27-06-2016 |
| Hole Location: | 46 Richmond Road, HACKNEY | Logged By: | NB |
| Hole Position: | See Site Plan | Checked By: | BL |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Drill Model and Mounting: | Rockmaster | Inclination: | -90° | RL Surface: | No survey | | |
| Hole Diameter: | 50 - 75 mm | Bearing: | 000° | Datum: | | Operator: | SPK Geodrill Pty Ltd |

| Drilling Information | | | | | | | | Soil Description | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Support | Water | Samples Tests Remarks | Recovery | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency Relative Density | Estimated Ipt | Hand Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | | Not Encountered | | | | 0.5 | | FILL | GRAVEL FILL: medium grained, angular, white | D | L | 0% | | ROAD SURFACE |
| | | | | | | | 1.0 | | FILL | SILTY CLAYEY GRAVEL FILL: yellow brown white red orange, with gravel to 70mm, with sand, with brick fragments | M to D | F to S | 1.5% | | FILL |
| | | | | | | | 1.5 | | | | | | | | |
| | | | | | | | 2.0 | | | | | | | | |
| | | | | | | | 2.5 | | FILL | SILTY CLAY FILL: medium plasticity, brown orange, with gravel to 10mm | D | St | 1.5% | | |
| | | | | | | | 3.0 | | FILL | SILTY CLAYEY GRAVEL FILL: yellow brown white red orange, with gravel to 70mm, with sand, with brick fragments | D | D | 1.5% | | |
| | | | | | | | 3.5 | | FILL | SILTY SAND FILL: fine to medium grained, angular, brown dark brown, with gravel to 10mm | D | D | 0% | | |
| | | | | | | | | | FILL | SILTY CLAYEY GRAVEL FILL: yellow brown white red orange, with gravel to 70mm, with sand, with brick fragments | D | D | 1.5% | | |

**Method**
AS - Auger Screwing
RR - Rock Roller
WB - Washbore
PT - Pushtube

**Penetration**
No resistance ranging to refusal

**Water**
Level (Date)
Inflow
Partial Loss
Complete Loss

**Samples and Tests**
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

**Moisture Condition**
D - Dry
M - Moist
W - Wet

**Consistency/Relative Density**
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

**Support**
C - Casing

**Graphic Log/Core Loss**
Core recovered (hatching indicates material)
Core loss

**Classification Symbols and Soil Descriptions**
Based on Unified Soil Classification System

**Plastic Limit**
< PL
= PL
< PL

FMG LIB 2.01.GLB Log FMG BOREHOLE 1 S30579_247712_247712 GINT LOGS (ID 274866).GPJ <<DrawingFile>> 29-06-2016 14:32 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: FMG 2.01 2016-05-03 Prj: FMG 2.00 2015-08-20

fmg ENGINEERING

Borehole No.
**BH4**
Page 2 of 2

# Engineering Log - Borehole

Project No.: 247712/S30579

| | | | |
|---|---|---|---|
| Client: | Aspen Living Villages Pty Ltd | Commenced: | 27-06-2016 |
| Project Name: | Geotechnical Investigation | Completed: | 27-06-2016 |
| Hole Location: | 46 Richmond Road, HACKNEY | Logged By: | NB |
| Hole Position: | See Site Plan | Checked By: | BL |

| | | | | | |
|---|---|---|---|---|---|
| Drill Model and Mounting: | Rockmaster | Inclination: | -90° | RL Surface: | No survey |
| Hole Diameter: | 50 - 75 mm | Bearing: | 000° | Datum: | Operator: SPK Geodrill Pty Ltd |

| Drilling Information | | | | | | | | Soil Description | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Support | Water | Samples Tests Remarks | Recovery | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency Relative Density | Estimated Ipt | Hand Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | | Not Encountered | | | | 4.5 | | FILL | SILTY CLAYEY GRAVEL FILL: yellow brown white red orange, with gravel to 70mm, with sand, with brick fragments *(continued)* | D | D | 1.5% | | FILL |
| | | | | | | | 5.0 | | | | | | | | |
| | | | | | | | 5.5 | | CH | CLAY: high plasticity, green orange grey, trace sand | M | VSt | 5% | | ALLUVIUM |
| | | | | | | | 6.0 | | | | | | | | |
| | | | | | | | 6.5 | | | Hole Terminated at 6.50 m<br>Target depth | | | | | |
| | | | | | | | 7.0 | | | | | | | | |
| | | | | | | | 7.5 | | | | | | | | |

**Method**
AS - Auger Screwing
RR - Rock Roller
WB - Washbore
PT - Pushtube

**Penetration**
No resistance ranging to refusal

**Water**
Level (Date)
Inflow
Partial Loss
Complete Loss

**Samples and Tests**
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

**Moisture Condition**
D - Dry
M - Moist
W - Wet

**Consistency/Relative Density**
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

**Support**
C - Casing

**Graphic Log/Core Loss**
Core recovered (hatching indicates material)
Core loss

**Classification Symbols and Soil Descriptions**
Based on Unified Soil Classification System

**Plastic Limit**
< PL
= PL
< PL

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fmg ENGINEERING

Borehole No.: **BH5**



# Engineering Log - Borehole

Project No.: 247712/S30579

| | | | |
|---|---|---|---|
| Client: | Aspen Living Villages Pty Ltd | Commenced: | 27-06-2016 |
| Project Name: | Geotechnical Investigation | Completed: | 27-06-2016 |
| Hole Location: | 46 Richmond Road, HACKNEY | Logged By: | NB |
| Hole Position: | See Site Plan | Checked By: | BL |

| | | | | | |
|---|---|---|---|---|---|
| Drill Model and Mounting: | Rockmaster | Inclination: | -90° | RL Surface: | No survey |
| Hole Diameter: | 50 - 75 mm | Bearing: | 000° | Datum: | Operator: SPK Geodrill Pty Ltd |

| Drilling Information | | | | | | | | | Soil Description | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Support | Water | Samples Tests Remarks | Recovery | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency Relative Density | Estimated Ipt | Hand Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | | Not Encountered | | | | 0.0 | | FILL | GRAVEL FILL: medium grained, angular, white | D | L | 0% | | ROAD SURFACE |
| | | | | | | | | | FILL | | M | L | 1.5% | | FILL |
| | | | | | | | | | FILL | SILTY CLAYEY GRAVEL FILL: yellow brown white red orange, with gravel to 70mm, with sand, with brick fragments | | | | | |
| | | | | | | | 0.5 | | | SAND FILL: medium to coarse grained, angular, yellow grey | M | MD | 0% | | |
| | | | | | | | | | FILL | GRAVELLY SILT FILL: low plasticity, dark brown, gravel to 20mm | M to D | MD | 0% | | |
| | | | | | | | 1.0 | | FILL | SILTY CLAYEY GRAVEL FILL: yellow brown white red orange, with gravel to 70mm, with sand, with brick fragments | | | | | |
| | | | | | | | 1.5 | | | | | | | | |
| | | | | | | | 2.0 | | | | | | | | |
| | | | | | | | 2.5 | | | | D | D | 1.5% | | |
| | | | | | | | 3.0 | | | | | | | | |
| | | | | | | | 3.5 | | | | | | | | |

***Method***
AS - Auger Screwing
RR - Rock Roller
WB - Washbore
PT - Pushtube

***Penetration***
No resistance ranging to refusal

***Water***
Level (Date)
Inflow
Partial Loss
Complete Loss

***Samples and Tests***
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

***Moisture Condition***
D - Dry
M - Moist
W - Wet

***Consistency/Relative Density***
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

***Support***
C - Casing

***Graphic Log/Core Loss***
Core recovered (hatching indicates material)
Core loss

***Classification Symbols and Soil Descriptions***
Based on Unified Soil Classification System

***Plastic Limit***
< PL
= PL
< PL

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fmg ENGINEERING

Borehole No.: **BH5**



# Engineering Log - Borehole

Project No.: 247712/S30579

| | | | |
|---|---|---|---|
| Client: | Aspen Living Villages Pty Ltd | Commenced: | 27-06-2016 |
| Project Name: | Geotechnical Investigation | Completed: | 27-06-2016 |
| Hole Location: | 46 Richmond Road, HACKNEY | Logged By: | NB |
| Hole Position: | See Site Plan | Checked By: | BL |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Drill Model and Mounting: | Rockmaster | Inclination: | -90° | RL Surface: | No survey | | |
| Hole Diameter: | 50 - 75 mm | Bearing: | 000° | Datum: | | Operator: | SPK Geodrill Pty Ltd |

| Drilling Information | | | | | | | | Soil Description | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Support | Water | Samples Tests Remarks | Recovery | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency Relative Density | Estimated Ipt | Hand Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | | Not Encountered | | | | 4.5 | | FILL | SILTY CLAYEY GRAVEL FILL: yellow brown white red orange, with gravel to 70mm, with sand, with brick fragments *(continued)* | D | D | 1.5% | | FILL |
| | | | | | | | 5.0 | | FILL | SILTY CLAY FILL: medium plasticity, brown orange, with gravel to 10mm | M | St | 1.5% | | |
| | | | | | | | 5.5 | | CH | CLAY: high plasticity, green orange grey, trace sand | M | St | 5% | | ALLUVIUM |
| | | | | | | | 6.0 | | SC | CLAYEY SAND: low plasticity, brown grey red, with shale gravel to 20mm | M | St | 1.5% | | ALLUVIUM possibly FILL |
| | | | | | | | 6.5 | | | Hole Terminated at 6.50 m<br>Target depth | | | | | |
| | | | | | | | 7.0 | | | | | | | | |
| | | | | | | | 7.5 | | | | | | | | |

***Method***
AS - Auger Screwing
RR - Rock Roller
WB - Washbore
PT - Pushtube

***Penetration***
No resistance ranging to refusal

***Water***
Level (Date)
Inflow
Partial Loss
Complete Loss

***Samples and Tests***
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

***Moisture Condition***
D - Dry
M - Moist
W - Wet

***Consistency/Relative Density***
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

***Support***
C - Casing

***Graphic Log/Core Loss***
Core recovered (hatching indicates material)
Core loss

***Classification Symbols and Soil Descriptions***
Based on Unified Soil Classification System

***Plastic Limit***
< PL
= PL
< PL

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fmg ENGINEERING

Borehole No.: **BH6**



# Engineering Log - Borehole

Project No.: 247712/S30579

| | | | |
|---|---|---|---|
| Client: | Aspen Living Villages Pty Ltd | Commenced: | 27-06-2016 |
| Project Name: | Geotechnical Investigation | Completed: | 27-06-2016 |
| Hole Location: | 46 Richmond Road, HACKNEY | Logged By: | NB |
| Hole Position: | See Site Plan | Checked By: | BL |

| | | | | | |
|---|---|---|---|---|---|
| Drill Model and Mounting: | Rockmaster | Inclination: | -90° | RL Surface: | No survey |
| Hole Diameter: | 50 - 75 mm | Bearing: | 000° | Datum: | Operator: SPK Geodrill Pty Ltd |

| Drilling Information | | | | | | | | Soil Description | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Support | Water | Samples Tests Remarks | Recovery | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency Relative Density | Estimated Ipt | Hand Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | | Not Encountered | | | | 0.5 | | FILL | SANDY GRAVEL FILL: fine to coarse grained, white yellow orange, well graded | D | L | 0% | | FILL |
| | | | | | | | 1.0 | | FILL | SILTY CLAYEY GRAVEL FILL: yellow brown white red orange, with gravel to 100mm, with sand, with brick fragments | D | D | 1.5% | | |
| | | | | | | | 1.5 | | | | | | | | |
| | | | | | | | 2.0 | | | | | | | | |
| | | | | | | | 2.5 | | | | | | | | |
| | | | | | | | 3.0 | | | | | | | | |
| | | | | | | | 3.5 | | | | | | | | |

***Method***
AS - Auger Screwing
RR - Rock Roller
WB - Washbore
PT - Pushtube

***Penetration***
No resistance ranging to refusal

***Water***
Level (Date)
Inflow
Partial Loss
Complete Loss

***Samples and Tests***
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

***Moisture Condition***
D - Dry
M - Moist
W - Wet

***Consistency/Relative Density***
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

***Support***
C - Casing

***Graphic Log/Core Loss***
Core recovered (hatching indicates material)
Core loss

***Classification Symbols and Soil Descriptions***
Based on Unified Soil Classification System

***Plastic Limit***
< PL
= PL
< PL

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fmg ENGINEERING

Borehole No.: **BH6**



# Engineering Log - Borehole

Project No.: 247712/S30579

| | | | |
|---|---|---|---|
| Client: | Aspen Living Villages Pty Ltd | Commenced: | 27-06-2016 |
| Project Name: | Geotechnical Investigation | Completed: | 27-06-2016 |
| Hole Location: | 46 Richmond Road, HACKNEY | Logged By: | NB |
| Hole Position: | See Site Plan | Checked By: | BL |

| | | | | | |
|---|---|---|---|---|---|
| Drill Model and Mounting: | Rockmaster | Inclination: | -90° | RL Surface: | No survey |
| Hole Diameter: | 50 - 75 mm | Bearing: | 000° | Datum: | Operator: SPK Geodrill Pty Ltd |

| Drilling Information | | | | | | | | Soil Description | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Support | Water | Samples Tests Remarks | Recovery | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency Relative Density | Estimated Ipt | Hand Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | | Not Encountered | | | | 4.5 | | FILL | SILTY CLAYEY GRAVEL FILL: yellow brown white red orange, with gravel to 100mm, with sand, with brick fragments *(continued)* | D | D | 1.5% | | FILL |
| | | | | | | | 6.5 | | | Hole Terminated at 6.50 m Target depth | | | | | |

**Method**
AS - Auger Screwing
RR - Rock Roller
WB - Washbore
PT - Pushtube

**Penetration**
No resistance ranging to refusal

**Water**
Level (Date)
Inflow
Partial Loss
Complete Loss

**Samples and Tests**
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

**Moisture Condition**
D - Dry
M - Moist
W - Wet

**Consistency/Relative Density**
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

**Support**
C - Casing

**Graphic Log/Core Loss**
Core recovered (hatching indicates material)
Core loss

**Classification Symbols and Soil Descriptions**
Based on Unified Soil Classification System

**Plastic Limit**
< PL
= PL
< PL

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fmg ENGINEERING

Borehole No.: **BH7**



# Engineering Log - Borehole

Project No.: 247712/S30579

| | | | |
|---|---|---|---|
| Client: | Aspen Living Villages Pty Ltd | Commenced: | 27-06-2016 |
| Project Name: | Geotechnical Investigation | Completed: | 27-06-2016 |
| Hole Location: | 46 Richmond Road, HACKNEY | Logged By: | NB |
| Hole Position: | See Site Plan | Checked By: | BL |

| | | | | | |
|---|---|---|---|---|---|
| Drill Model and Mounting: | Rockmaster | Inclination: | -90° | RL Surface: | No survey |
| Hole Diameter: | 75 mm | Bearing: | 000° | Datum: | Operator: SPK Geodrill Pty Ltd |

| Drilling Information | | | | | | | | Soil Description | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Support | Water | Samples Tests Remarks | Recovery | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency Relative Density | Estimated Ipt | Hand Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | | Not Encountered | | | | 0.0 | | FILL | CLAYEY SAND TOPSOIL: low plasticity, medium grained, yellow orange brown, trace tree roots | M | D | 0.5% | | TOPSOIL |
| | | | | | | | 0.5 | | ML | SILT: low plasticity, dark brown | M to W | St | 0% | | ALLUVIUM |
| | | | | | | | 1.0 | | | | | | | | |
| | | | | | | | 1.5 | | | Hole Terminated at 1.40 m Target depth | | | | | |
| | | | | | | | 2.0 | | | | | | | | |
| | | | | | | | 2.5 | | | | | | | | |
| | | | | | | | 3.0 | | | | | | | | |
| | | | | | | | 3.5 | | | | | | | | |

**Method**
AS - Auger Screwing
RR - Rock Roller
WB - Washbore
PT - Pushtube

**Penetration**
No resistance ranging to refusal

**Water**
Level (Date)
Inflow
Partial Loss
Complete Loss

**Samples and Tests**
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

**Moisture Condition**
D - Dry
M - Moist
W - Wet

**Consistency/Relative Density**
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

**Support**
C - Casing

**Graphic Log/Core Loss**
Core recovered (hatching indicates material)
Core loss

**Classification Symbols and Soil Descriptions**
Based on Unified Soil Classification System

**Plastic Limit**
< PL
= PL
< PL

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fmg ENGINEERING

Borehole No.
**BH8**
Page 1 of 1

# Engineering Log - Borehole

Project No.: 247712/S30579

| | | | |
|---|---|---|---|
| Client: | Aspen Living Villages Pty Ltd | Commenced: | 27-06-2016 |
| Project Name: | Geotechnical Investigation | Completed: | 27-06-2016 |
| Hole Location: | 46 Richmond Road, HACKNEY | Logged By: | NB |
| Hole Position: | See Site Plan | Checked By: | BL |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Drill Model and Mounting: | Rockmaster | Inclination: | -90° | RL Surface: | No survey | | |
| Hole Diameter: | 75 mm | Bearing: | 000° | Datum: | | Operator: | SPK Geodrill Pty Ltd |

| Drilling Information | | | | | | | | | Soil Description | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Support | Water | Samples Tests Remarks | Recovery | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency Relative Density | Estimated Ipt | Hand Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | | Not Encountered | | | | 0.0 | | FILL | SILTY GRAVEL FILL: fine to coarse grained, brown orange grey, with brick fragments, with wood fragments | M | D | 0% | FILL |
| | | | | | | | 0.5 | | ML | SILT: low plasticity, dark brown | M to W | D | 0% | ALLUVIUM |
| | | | | | | | 1.0 | | | | | | | |
| | | | | | | | 1.5 | | | Hole Terminated at 1.30 m<br>Target depth | | | | |
| | | | | | | | 2.0 | | | | | | | |
| | | | | | | | 2.5 | | | | | | | |
| | | | | | | | 3.0 | | | | | | | |
| | | | | | | | 3.5 | | | | | | | |

**Method**
AS - Auger Screwing
RR - Rock Roller
WB - Washbore
PT - Pushtube

**Penetration**
No resistance ranging to refusal

**Water**
Level (Date)
Inflow
Partial Loss
Complete Loss

**Samples and Tests**
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

**Moisture Condition**
D - Dry
M - Moist
W - Wet

**Consistency/Relative Density**
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

**Support**
C - Casing

**Graphic Log/Core Loss**
Core recovered (hatching indicates material)
Core loss

**Classification Symbols and Soil Descriptions**
Based on Unified Soil Classification System

**Plastic Limit**
< PL
= PL
< PL

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fmg ENGINEERING

Borehole No.: **BH9**



# Engineering Log - Borehole

Project No.: 247712/S30579

| | | | |
|---|---|---|---|
| Client: | Aspen Living Villages Pty Ltd | Commenced: | 27-06-2016 |
| Project Name: | Geotechnical Investigation | Completed: | 27-06-2016 |
| Hole Location: | 46 Richmond Road, HACKNEY | Logged By: | NB |
| Hole Position: | See Site Plan | Checked By: | BL |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Drill Model and Mounting: | Rockmaster | Inclination: | -90° | RL Surface: | No survey | | |
| Hole Diameter: | 75 mm | Bearing: | 000° | Datum: | | Operator: | SPK Geodrill Pty Ltd |

| Drilling Information | | | | | | | | Soil Description | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Support | Water | Samples Tests Remarks | Recovery | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency Relative Density | Estimated Ipt | Hand Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | | Not Encountered | | | | 0.5 | | FILL | SANDY CLAYEY GRAVEL FILL: fine to coarse grained, grey yellow white brown orange | M | D | 0.5% | | FILL |
| | | | | | | | 1.0 | | FILL | CLAYEY SILT FILL: low plasticity, red brown, trace coarse grained sand | M | St | 0.3% | | |
| | | | | | | | 1.5 | | | | | | | | |
| | | | | | | | 2.0 | | | | | | | | |
| | | | | | | | 2.5 | | FILL | SANDY GRAVEL FILL: fine to coarse grained, brown grey | D | L | 0% | | |
| | | | | | | | 3.0 | | CH | CLAY: high plasticity, green orange grey, trace sand | M to D | VSt | 5% | | ALLUVIUM |
| | | | | | | | 3.5 | | | Hole Terminated at 3.30 m Target depth | | | | | |

***Method***
AS - Auger Screwing
RR - Rock Roller
WB - Washbore
PT - Pushtube

***Penetration***
No resistance ranging to refusal

***Water***
Level (Date)
Inflow
Partial Loss
Complete Loss

***Samples and Tests***
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

***Moisture Condition***
D - Dry
M - Moist
W - Wet

***Consistency/Relative Density***
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

***Support***
C - Casing

***Graphic Log/Core Loss***
Core recovered (hatching indicates material)
Core loss

***Classification Symbols and Soil Descriptions***
Based on Unified Soil Classification System

***Plastic Limit***
< PL
= PL
< PL

FMG LIB 2.01.GLB Log FMG BOREHOLE 1 S30579_247712_247712 GINT LOGS (ID 274866).GPJ <<DrawingFile>> 29-06-2016 14:32 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: FMG 2.01 2016-05-03 Prj: FMG 2.00 2015-08-20

fmg ENGINEERING

Borehole No.: **BH10**

Page 1 of 1

# Engineering Log - Borehole

Project No.: 247712/S30579

| | | | |
|---|---|---|---|
| Client: | Aspen Living Villages Pty Ltd | Commenced: | 27-06-2016 |
| Project Name: | Geotechnical Investigation | Completed: | 27-06-2016 |
| Hole Location: | 46 Richmond Road, HACKNEY | Logged By: | NB |
| Hole Position: | See Site Plan | Checked By: | BL |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Drill Model and Mounting: | Rockmaster | Inclination: | -90° | RL Surface: | No survey | | |
| Hole Diameter: | 75 mm | Bearing: | 000° | Datum: | | Operator: | SPK Geodrill Pty Ltd |

| Drilling Information | | | | | | | | Soil Description | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Support | Water | Samples Tests Remarks | Recovery | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency Relative Density | Estimated Ipt | Hand Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | | Not Encountered | | | | 0.5 | | FILL | SILTY CLAYEY GRAVEL FILL: yellow brown white red orange, with gravel to 70mm, with sand, with brick fragments | D | MD | 1.5% | | FILL |
| | | | | | | | 1.0 | | | | | | | | |
| | | | | | | | 1.5 | | FILL | SANDY SILTY CLAY FILL: low to medium plasticity, red brown grey yellow, trace roots, trace gravel to 10mm | D | St | 0.5% | | |
| | | | | | | | 2.0 | | | | | | | | |
| | | | | | | | 2.5 | | | | | | | | |
| | | | | | | | 3.0 | | CH | CLAY: high plasticity, green orange grey, trace sand | M | VSt | 5% | | ALLUVIUM |
| | | | | | | | 3.5 | | | Hole Terminated at 3.30 m Target depth | | | | | |

**Method**
AS - Auger Screwing
RR - Rock Roller
WB - Washbore
PT - Pushtube

**Penetration**
No resistance ranging to refusal

**Water**
Level (Date)
Inflow
Partial Loss
Complete Loss

**Samples and Tests**
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

**Moisture Condition**
D - Dry
M - Moist
W - Wet

**Consistency/Relative Density**
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

**Support**
C - Casing

**Graphic Log/Core Loss**
Core recovered (hatching indicates material)
Core loss

**Classification Symbols and Soil Descriptions**
Based on Unified Soil Classification System

**Plastic Limit**
< PL
= PL
< PL

FMG LIB 2.01.GLB Log FMG BOREHOLE 1 S30579_247712_247712 GINT LOGS (ID 274866).GPJ <<DrawingFile>> 29-06-2016 14:32 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: FMG 2.01 2016-05-03 Prj: FMG 2.00 2015-08-20

ENGINEERING

Borehole No.
**BH01**
Page 1 of 1

## Engineering Log - Borehole

Project No.: S30579/276032

| | | | |
|---|---|---|---|
| Client: | Aspen Living Village Pty Ltd | Commenced: | 09/06/2021 |
| Project Name: | 46 Richmond Street, HACKNEY, SA 5069 | Completed: | 09/06/2021 |
| Hole Location: | | Logged By: | FF |
| Hole Position: | Coordinate System MGA94 54H | Checked By: | JT |
| Drill Model: | Ezi Probe | RL Surface: | |
| Drill Operator: | WB Drilling Pty Ltd | Hole Diameter: 50mm | Datum: |

| Drilling Information | | | | | | Soil Description | | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Water | Samples Tests Remarks | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description<br>Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency / Relative Density | Estimated Ipt | Pocket Penetrometer UCS (kPa)<br>100 200 300 400 500 | Structure and Additional Observations |
| PT | | Groundwater Not Encountered | | -1 | 1 | | FILL | CLAYEY SAND: black to yelow cream; of low plasticity, trace gravel; gravel, sub-rounded to angular, up to 5mm; moist; loose. | M | L | 0.5% | | |
| | | | | | | | FILL | SANDY GRAVEL: white cream; gravel, angular, up to 40mm; dry to moist; loose; poorly graded. | D - M | L | 0% | | |
| | | | | | | | SM | SILTY SAND: grey brown; sand, fine to medium grained; dry to moist; loose. | D - M | L | 0.1% | | ALLUVIUM |
| | | | | | | | ML | SANDY SILT: brown grey; of low plasticity; moist; firm.<br>Hole Terminated at 1.50m - Target depth | M | F | 0.3% | | |
| | | | | -2 | 2 | | | | | | | | |
| | | | | -3 | 3 | | | | | | | | |
| | | | | -4 | 4 | | | | | | | | |

***Method***
PT - Push tube

***Consistency / Relative Density***
VS - Very Soft
S - Soft
F - Firm
Vst - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

***Samples and Tests***
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

***Moisture Condition***
D - Dry
M - Moist
W - Wet

***Water***
Level (Date)
Inflow
Partial Loss
Complete Loss

***Classification Symbols and Soil Descriptions***
Based on Unified Soil Classification System

***Plastic Limit***
> PL
= PL
< PL

***Penetration***
No resistance
range to refusal

*Photo*

ENGINEERING

Borehole No.
**BH03**
Page 1 of 1

## Engineering Log - Borehole

Project No.: S30579/276032

| | | | |
|---|---|---|---|
| Client: | Aspen Living Village Pty Ltd | Commenced: | 09/06/2021 |
| Project Name: | 46 Richmond Street, HACKNEY, SA 5069 | Completed: | 09/06/2021 |
| Hole Location: | | Logged By: | FF |
| Hole Position: | Coordinate System MGA94 54H | Checked By: | JT |
| Drill Model: | Ezi Probe | RL Surface: | |
| Drill Operator: | WB Drilling Pty Ltd | Datum: | |
| Hole Diameter: | 50mm | | |

| Drilling Information | | | | | | Soil Description | | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Water | Samples Tests Remarks | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description<br>Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency / Relative Density | Estimated Ipt | Pocket Penetrometer UCS (kPa)<br>100 200 300 400 500 | Structure and Additional Observations |
| PT | | Groundwater Not Encountered | | -1 | 1 | | FILL | GRAVELLY SAND: yelow cream; sand, fine to medium grained; gravel, sub-rounded to angular, up to 5mm; dry to moist; loose. | D - M | L | 0% | | |
| | | | | | | | FILL | SANDY GRAVEL: grey cream; gravel, angular, up to 50mm; dry to moist; loose; poorly graded; brick fragments found at 1.4m. | D - M | L | 0% | | |
| | | | | -2 | 2 | | CI | SILTY SANDY CLAY: brown mottled cream; of medium plasticity; dry to moist; stiff; more sandy over depth. | D - M | St | 1% | | ALLUVIUM |
| | | | | -3 | 3 | | | Hole Terminated at 3.00m - Target depth | | | | | |
| | | | | -4 | 4 | | | | | | | | |

***Method***
PT - Push tube

***Consistency / Relative Density***
VS - Very Soft
S - Soft
F - Firm
Vst - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

***Samples and Tests***
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

***Moisture Condition***
D - Dry
M - Moist
W - Wet

***Water***
Level (Date)
Inflow
Partial Loss
Complete Loss

***Classification Symbols and Soil Descriptions***
Based on Unified Soil Classification System

***Plastic Limit***
> PL
= PL
< PL

***Penetration***
No resistance
range to refusal

*Photo*

ENGINEERING

Borehole No.
**BH04**
Page 1 of 2

## Engineering Log - Borehole

Project No.: S30579/276032

| | | | |
|---|---|---|---|
| Client: | Aspen Living Village Pty Ltd | Commenced: | 09/06/2021 |
| Project Name: | 46 Richmond Street, HACKNEY, SA 5069 | Completed: | 09/06/2021 |
| Hole Location: | | Logged By: | FF |
| Hole Position: | Coordinate System MGA94 54H | Checked By: | JT |
| Drill Model: | Ezi Probe | RL Surface: | |
| Drill Operator: | WB Drilling Pty Ltd | Datum: | |
| Hole Diameter: | 50mm | | |

| Drilling Information | | | | | | Soil Description | | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Water | Samples Tests Remarks | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description<br>Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency / Relative Density | Estimated Ipt | Pocket Penetrometer UCS (kPa)<br>100 200 300 400 500 | Structure and Additional Observations |
| PT | | Groundwater Not Encountered | | -1 | 1 | | FILL | GRAVELLY SAND: grey to yellow to black to cream, trace clay; sand, fine to medium grained; gravel, sub-rounded to angular, up to 10mm; dry to moist; loose; layers of mixed materials color varies at each layer. | D - M | L | 0% | | |
| | | | | | | | FILL | SANDY CLAY: pink brown; of low plasticity; with gravel; gravel, angular, up to 10mm; dry to moist; firm to stiff; poorly graded. | D - M | F - St | 0.8% | | |
| | | | | -2 | 2 | | | | | | | | |
| | | | | -3 | 3 | | FILL | SANDY GRAVEL: color varies, trace clay / silt; gravel, sub-rounded to angular, up to 50mm; dry to moist; loose; brick fragments, lime and other construction waste encountered in different depth, sample loss under 2.5m. | D - M | L | 0% | | |
| | | | | -4 | 4 | | | | | | | | |

### Method
PT - Push tube

### Consistency / Relative Density
VS - Very Soft
S - Soft
F - Firm
Vst - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

### Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

### Moisture Condition
D - Dry
M - Moist
W - Wet

### Water
Level (Date)
Inflow
Partial Loss
Complete Loss

### Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

### Plastic Limit
> PL
= PL
< PL

### Penetration
No resistance range to refusal

*Photo*

ENGINEERING

Borehole No.
**BH04**
Page 2 of 2

## Engineering Log - Borehole

Project No.: S30579/276032

| | | | |
|---|---|---|---|
| Client: | Aspen Living Village Pty Ltd | Commenced: | 09/06/2021 |
| Project Name: | 46 Richmond Street, HACKNEY, SA 5069 | Completed: | 09/06/2021 |
| Hole Location: | | Logged By: | FF |
| Hole Position: | Coordinate System MGA94 54H | Checked By: | JT |
| Drill Model: | Ezi Probe | RL Surface: | |
| Drill Operator: | WB Drilling Pty Ltd | Datum: | |
| Hole Diameter: | 50mm | | |

| Drilling Information | | | | | | Soil Description | | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Water | Samples Tests Remarks | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description<br>Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency / Relative Density | Estimated Ipt | Pocket Penetrometer UCS (kPa) | Structure and Additional Observations |
| PT | | Groundwater Not Encountered | | -5 | 5 | | <CONT> FILL | <CONT> SANDY GRAVEL: color varies, trace clay / silt; gravel, sub-rounded to angular, up to 50mm; dry to moist; loose; brick fragments, lime and other construction waste encountered in different depth, sample loss under 2.5m. | D - M | L | 0% | 100 200 300 400 500 | |
| | | | | -6 | 6 | | | | | | | | |
| | | | | -7 | 7 | | ML | SANDY SILT: dark brown; of low plasticity; moist; firm; become sandy at base of borehole.<br><br>Hole Terminated at 8.00m - Target depth | M | F | 0.5% | | ALLUVIUM |
| | | | | -8 | 8 | | | | | | | | |

***Method***

PT - Push tube

***Consistency / Relative Density***

VS - Very Soft
S - Soft
F - Firm
Vst - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

***Samples and Tests***

U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

***Moisture Condition***

D - Dry
M - Moist
W - Wet

***Water***

Level (Date)
Inflow
Partial Loss
Complete Loss

***Classification Symbols and Soil Descriptions***

Based on Unified Soil Classification System

***Plastic Limit***

> PL
= PL
< PL

***Penetration***

No resistance
range to refusal

*Photo*

ENGINEERING

Borehole No.
**BH05**
Page 1 of 2

## Engineering Log - Borehole

Project No.: S30579/276032

| | | | |
|---|---|---|---|
| Client: | Aspen Living Village Pty Ltd | Commenced: | 09/06/2021 |
| Project Name: | 46 Richmond Street, HACKNEY, SA 5069 | Completed: | 09/06/2021 |
| Hole Location: | | Logged By: | FF |
| Hole Position: | Coordinate System MGA94 54H | Checked By: | JT |
| Drill Model: | Ezi Probe | RL Surface: | |
| Drill Operator: | WB Drilling Pty Ltd | Datum: | |
| Hole Diameter: | 50mm | | |

| Drilling Information | | | | | | Soil Description | | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Water | Samples Tests Remarks | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description<br>Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency / Relative Density | Estimated Ipt | Pocket Penetrometer UCS (kPa)<br>100 200 300 400 500 | Structure and Additional Observations |
| PT | | Groundwater Not Encountered | | -1<br>-2<br>-3<br>-4 | 1<br>2<br>3<br>4 | | FILL | GRAVELLY SAND: color various from brown to cream to grey, trace clay; sand, fine to medium grained; gravel, sub-rounded to angular, up to 10mm; dry to moist; loose; poorly graded; layers of mixed materials color varies at each layer. | D - M | L | 0% | | |
| | | | | | | | FILL | SANDY CLAY: pink brown; of low plasticity; with gravel; gravel, angular, up to 10mm; dry to moist; firm to stiff; poorly graded. | D - M | F - St | 0.8% | | |
| | | | | | | | FILL | SANDY GRAVEL: color varies, trace clay / silt; gravel, sub-rounded to angular, up to 50mm; dry to moist; loose; brick fragments, lime and other construction waste encountered in different depth, sample loss under 1.5m, may be due to void or very loose material.. | D - M | L | 0% | | |

### Method
PT - Push tube

### Consistency / Relative Density
VS - Very Soft
S - Soft
F - Firm
Vst - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

### Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

### Moisture Condition
D - Dry
M - Moist
W - Wet

### Water
Level (Date)
Inflow
Partial Loss
Complete Loss

### Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

### Plastic Limit
> PL
= PL
< PL

### Penetration
No resistance
range to refusal

Photo

ENGINEERING

Borehole No.
**BH05**
Page 2 of 2

## Engineering Log - Borehole

Project No.: S30579/276032

| | | | |
|---|---|---|---|
| Client: | Aspen Living Village Pty Ltd | Commenced: | 09/06/2021 |
| Project Name: | 46 Richmond Street, HACKNEY, SA 5069 | Completed: | 09/06/2021 |
| Hole Location: | | Logged By: | FF |
| Hole Position: | Coordinate System MGA94 54H | Checked By: | JT |
| Drill Model: | Ezi Probe | RL Surface: | |
| Drill Operator: | WB Drilling Pty Ltd | Datum: | |
| Hole Diameter: | 50mm | | |

| Drilling Information | | | | | | Soil Description | | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Water | Samples Tests Remarks | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description<br>Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency / Relative Density | Estimated Ipt | Pocket Penetrometer UCS (kPa)<br>100 200 300 400 500 | Structure and Additional Observations |
| PT | | Groundwater Not Encountered | | -5 | 5 | | <CONT> FILL | <CONT> SANDY GRAVEL: color varies, trace clay / silt; gravel, sub-rounded to angular, up to 50mm; dry to moist; loose; brick fragments, lime and other construction waste encountered in different depth, sample loss under 1.5m, may be due to void or very loose material.. | D - M | L | 0% | | |
| | | | | -6 | 6 | | FILL | SILTY SANDY CLAY: dark grey balck; of low plasticity, trace gravel; gravel, sub-rounded, up to 5mm; moist; firm; brick fragments and glass fragments were observed. | M | F | 0.8% | | |
| | | | | -7 | 7 | | Cl | SILTY SANDY CLAY: dark brown mottled cream; of medium plasticity; moist; firm to stiff; become more sandy at base of borehole.<br>Hole Terminated at 7.50m - Target depth | M | F - St | 1% | | ALLUVIUM |
| | | | | -8 | 8 | | | | | | | | |

***Method***
PT - Push tube

***Consistency / Relative Density***
VS - Very Soft
S - Soft
F - Firm
Vst - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

***Samples and Tests***
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

***Moisture Condition***
D - Dry
M - Moist
W - Wet

***Water***
Level (Date)
Inflow
Partial Loss
Complete Loss

***Classification Symbols and Soil Descriptions***
Based on Unified Soil Classification System

***Plastic Limit***
> PL
= PL
< PL

***Penetration***
No resistance
range to refusal

*Photo*

ENGINEERING

Borehole No.
**BH06**
Page 1 of 2

## Engineering Log - Borehole

Project No.: S30579/276032

| | | | |
|---|---|---|---|
| Client: | Aspen Living Village Pty Ltd | Commenced: | 09/06/2021 |
| Project Name: | 46 Richmond Street, HACKNEY, SA 5069 | Completed: | 09/06/2021 |
| Hole Location: | | Logged By: | FF |
| Hole Position: | Coordinate System MGA94 54H | Checked By: | JT |
| Drill Model: | Ezi Probe | RL Surface: | |
| Drill Operator: | WB Drilling Pty Ltd | Datum: | |
| Hole Diameter: | 50mm | | |

| Drilling Information | | | | | | Soil Description | | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Water | Samples Tests Remarks | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description<br>Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency / Relative Density | Estimated Ipt | Pocket Penetrometer UCS (kPa)<br>100 200 300 400 500 | Structure and Additional Observations |
| PT | | Groundwater Not Encountered | | | | | FILL | CLAYEY GRAVELLY SAND: black to cream; sand, fine to medium grained; gravel, sub-rounded to angular, up to 10mm; moist; loose to medium dense; poorly graded. | M | L - MD | 0% | | |
| | | | | -1 | 1 | | FILL | SANDY GRAVEL: color varies, trace clay / silt; gravel, sub-rounded to angular, up to 40mm; dry to moist; loose; brick fragments, lime and other construction waste encountered in different depth, sample loss under 1.5m, may be due to void or very loose material.. | D - M | L | 0% | | |
| | | | | -2 | 2 | | | | | | | | |
| | | | | -3 | 3 | | | | | | | | |
| | | | | | | | ML | SANDY SILT: brown; of low plasticity; moist; firm; some roots. | M | F | 0.3% | | ALLUVIUM |
| | | | | -4 | 4 | | SC-SM | CLAYEY SILTY SAND: orange grey/cream; of low plasticity; with gravel; sand, fine to medium grained; gravel, sub-rounded to angular, up to 10mm; moist; loose to medium dense. | M | L - MD | 0.5% | | |

**Method**
PT - Push tube

**Consistency / Relative Density**
VS - Very Soft
S - Soft
F - Firm
Vst - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

**Samples and Tests**
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

**Moisture Condition**
D - Dry
M - Moist
W - Wet

**Water**
Level (Date)
Inflow
Partial Loss
Complete Loss

**Classification Symbols and Soil Descriptions**
Based on Unified Soil Classification System

**Plastic Limit**
> PL
= PL
< PL

**Penetration**
No resistance
range to refusal

*Photo*

ENGINEERING

Borehole No.
**BH06**
Page 2 of 2

## Engineering Log - Borehole

Project No.: S30579/276032

Client: Aspen Living Village Pty Ltd
Project Name: 46 Richmond Street, HACKNEY, SA 5069
Hole Location:
Hole Position: Coordinate System MGA94 54H

Commenced: 09/06/2021
Completed: 09/06/2021
Logged By: FF
Checked By: JT

Drill Model: Ezi Probe
Drill Operator: WB Drilling Pty Ltd
Hole Diameter: 50mm

RL Surface:
Datum:

| Drilling Information | | | | | | Soil Description | | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Water | Samples Tests Remarks | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency / Relative Density | Estimated Ipt | Pocket Penetrometer UCS (kPa) 100 200 300 400 500 | Structure and Additional Observations |
| PT | | Groundwater Not Encountered | | -5 | 5 | | CL | SILTY SANDY CLAY: cream/grey mottled orange; of low plasticity; moist; stiff to hard; over consolidated hard sand clay was found at the base of the borehole.<br><br>Hole Terminated at 5.50m - Refusal | M | St - H | 1% | | |
| | | | | -6 | 6 | | | | | | | | |
| | | | | -7 | 7 | | | | | | | | |
| | | | | -8 | 8 | | | | | | | | |

**Method**
PT - Push tube

**Consistency / Relative Density**
VS - Very Soft
S - Soft
F - Firm
Vst - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

**Samples and Tests**
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

**Moisture Condition**
D - Dry
M - Moist
W - Wet

**Water**
Level (Date)
Inflow
Partial Loss
Complete Loss

**Classification Symbols and Soil Descriptions**
Based on Unified Soil Classification System

**Plastic Limit**
> PL
= PL
< PL

**Penetration**
No resistance
range to refusal

Photo

ENGINEERING

Borehole No.
**BH07**
Page 1 of 2

## Engineering Log - Borehole

Project No.: S30579/276032

| | | | |
|---|---|---|---|
| Client: | Aspen Living Village Pty Ltd | Commenced: | 09/06/2021 |
| Project Name: | 46 Richmond Street, HACKNEY, SA 5069 | Completed: | 09/06/2021 |
| Hole Location: | | Logged By: | FF |
| Hole Position: | Coordinate System MGA94 54H | Checked By: | JT |
| Drill Model: | Ezi Probe | RL Surface: | |
| Drill Operator: | WB Drilling Pty Ltd | Datum: | |
| Hole Diameter: | 50mm | | |

| Drilling Information | | | | | | Soil Description | | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Water | Samples Tests Remarks | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description<br>Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency / Relative Density | Estimated Ipt | Pocket Penetrometer UCS (kPa) | Structure and Additional Observations |
| PT | | Groundwater Not Encountered | | -1<br>-2<br>-3<br>-4 | 1<br>2<br>3<br>4 | | FILL | GRAVELLY SAND: black to cream, trace clay; sand, fine to medium grained; gravel, sub-rounded to angular, up to 10mm; dry to moist; loose; poorly graded. | D - M | L | 0% | 100 200 300 400 500 | |
| | | | | | | | FILL | SANDY GRAVEL: color varies, trace clay / silt; gravel, sub-rounded to angular, up to 35mm; dry to moist; loose; brick fragments, lime and other construction waste encountered in different depth. | D - M | L | 0% | | |
| | | | | | | | FILL | CLAY: cream mottled orange; of high plasticity, trace gravel; gravel, angular, up to 40mm; moist; stiff to very stiff; Hindmarsh Clay. | M | St - VSt | 5% | | |

**Method**
PT - Push tube

**Consistency / Relative Density**
VS - Very Soft
S - Soft
F - Firm
Vst - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

**Samples and Tests**
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

**Moisture Condition**
D - Dry
M - Moist
W - Wet

**Water**
Level (Date)
Inflow
Partial Loss
Complete Loss

**Classification Symbols and Soil Descriptions**
Based on Unified Soil Classification System

**Plastic Limit**
> PL
= PL
< PL

**Penetration**
No resistance
range to refusal

*Photo*

ENGINEERING

Borehole No.
**BH07**
Page 2 of 2

## Engineering Log - Borehole

Project No.: S30579/276032

| | | | |
|---|---|---|---|
| Client: | Aspen Living Village Pty Ltd | Commenced: | 09/06/2021 |
| Project Name: | 46 Richmond Street, HACKNEY, SA 5069 | Completed: | 09/06/2021 |
| Hole Location: | | Logged By: | FF |
| Hole Position: | Coordinate System MGA94 54H | Checked By: | JT |
| Drill Model: | Ezi Probe | RL Surface: | |
| Drill Operator: | WB Drilling Pty Ltd | Datum: | |
| Hole Diameter: | 50mm | | |

| Drilling Information | | | | | | Soil Description | | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Water | Samples Tests Remarks | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description<br>Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency / Relative Density | Estimated Ipt | Pocket Penetrometer UCS (kPa)<br>100 200 300 400 500 | Structure and Additional Observations |
| PT | | Groundwater Not Encountered | | -5<br>-6<br>-7<br>-8 | 5<br>6<br>7<br>8 | | FILL | CLAY: brown; of high plasticity, trace sand / gravel; gravel, angular, up to 40mm; moist; stiff to very stiff; big brick pieces . | M | St - VSt | 4% | | |
| | | | | | | | ML | SANDY SILT: dark brown; of low plasticity; moist; firm; become sandy at base of borehole. | M | F | 0.5% | | ALLUVIUM |
| | | | | | | | SP | SAND: brown cearm, trace clay; sand, medium grained; moist; loose; silty clay with organic deposits were observed at 8.4m. | M | L | 0% | | |
| | | | | | | | GP | SANDY GRAVEL: yellow cream; gravel, sub-rounded to angular, up to 40mm; moist; | M | L | 0% | | |
| | | | | | | | | Hole Terminated at 8.50m - Target depth | | | | | |

***Method***
PT - Push tube

***Consistency / Relative Density***
VS - Very Soft
S - Soft
F - Firm
Vst - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

***Samples and Tests***
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

***Moisture Condition***
D - Dry
M - Moist
W - Wet

***Water***
Level (Date)
Inflow
Partial Loss
Complete Loss

***Classification Symbols and Soil Descriptions***
Based on Unified Soil Classification System

***Plastic Limit***
> PL
= PL
< PL

***Penetration***
No resistance
range to refusal

*Photo*

ENGINEERING

Borehole No.
**BH08**
Page 1 of 1

## Engineering Log - Borehole

Project No.: S30579/276032

| | | | |
|---|---|---|---|
| Client: | Aspen Living Village Pty Ltd | Commenced: | 09/06/2021 |
| Project Name: | 46 Richmond Street, HACKNEY, SA 5069 | Completed: | 09/06/2021 |
| Hole Location: | | Logged By: | FF |
| Hole Position: | Coordinate System MGA94 54H | Checked By: | JT |
| Drill Model: | Ezi Probe | RL Surface: | |
| Drill Operator: | WB Drilling Pty Ltd | Hole Diameter: 50mm | Datum: |

| Drilling Information | | | | | | Soil Description | | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Water | Samples Tests Remarks | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description<br>Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency / Relative Density | Estimated Ipt | Pocket Penetrometer UCS (kPa)<br>100 200 300 400 500 | Structure and Additional Observations |
| PT | | Groundwater Not Encountered | | -1 | 1 | | FILL | CLAYEY SAND: black to grey/cream; of low plasticity, trace gravel; gravel, sub-rounded to angular, up to 5mm; moist; loose. | M | L | 0.5% | | |
| | | | | | | | FILL | SANDY GRAVEL: grey cream; gravel, angular, up to 40mm; dry to moist; loose; poorly graded; brick fragments. | D - M | L | 0% | | |
| | | | | | | | FILL | SILTY SANDY CLAY: pink brown; of medium to high plasticity; moist; stiff; gravelly sand with some roots from 1.0m to 1.3m. | M | St | 1.5% | | |
| | | | | -2 | 2 | | SC-SM | CLAYEY SILTY SAND: brown yellow; of low plasticity; sand, fine grained; moist; loose. | M | L | 0.3% | | ALLUVIUM |
| | | | | | | | ML | SANDY SILT: brown grey; of low plasticity; moist; firm. | M | F | 0.5% | | |
| | | | | -3 | 3 | | | Hole Terminated at 3.00m - Target depth | | | | | |
| | | | | -4 | 4 | | | | | | | | |

***Method***
PT - Push tube

***Consistency / Relative Density***
VS - Very Soft
S - Soft
F - Firm
Vst - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

***Samples and Tests***
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

***Moisture Condition***
D - Dry
M - Moist
W - Wet

***Water***
Level (Date)
Inflow
Partial Loss
Complete Loss

***Classification Symbols and Soil Descriptions***
Based on Unified Soil Classification System

***Plastic Limit***
> PL
= PL
< PL

***Penetration***
No resistance
range to refusal

*Photo*

ENGINEERING

Borehole No.
**BH09**
Page 1 of 1

## Engineering Log - Borehole

Project No.: S30579/276032

| | | | |
|---|---|---|---|
| Client: | Aspen Living Village Pty Ltd | Commenced: | 09/06/2021 |
| Project Name: | 46 Richmond Street, HACKNEY, SA 5069 | Completed: | 09/06/2021 |
| Hole Location: | | Logged By: | FF |
| Hole Position: | Coordinate System MGA94 54H | Checked By: | JT |
| Drill Model: | Ezi Probe | RL Surface: | |
| Drill Operator: | WB Drilling Pty Ltd | Datum: | |
| Hole Diameter: | 50mm | | |

| Drilling Information | | | | | | Soil Description | | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Water | Samples Tests Remarks | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description<br>Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency / Relative Density | Estimated Ipt | Pocket Penetrometer UCS (kPa)<br>100 200 300 400 500 | Structure and Additional Observations |
| PT | | Groundwater Not Encountered | | -1 | 1 | | FILL | CLAYEY SAND: black mottled cream; of low plasticity, trace gravel; gravel, sub-rounded to angular, up to 5mm; moist; loose. | M | L | 0.5% | | |
| | | | | | | | FILL | GRAVELLY SAND: grey cream; sand, medium to fine grained; gravel, sub-rounded to angular, up to 30mm; dry to moist; loose; poorly graded; brick fragments. | D - M | L | 0% | | |
| | | | | | | | FILL | CLAYEY SILTY SAND: grey brown; of low plasticity; sand, fine to medium grained; moist; loose. | M | L | 0.5% | | |
| | | | | -2 | 2 | | SC-SM | CLAYEY SILTY SAND: grey cream; of low plasticity; sand, fine grained; moist; loose. | M | L | 0.3% | | ALLUVIUM |
| | | | | | | | CI | SILTY SANDY CLAY: brown grey; of medium plasticity; moist; firm to stiff.<br>Hole Terminated at 2.50m - Target depth | M | F - St | 1% | | |
| | | | | -3 | 3 | | | | | | | | |
| | | | | -4 | 4 | | | | | | | | |

**Method**
PT - Push tube

**Consistency / Relative Density**
VS - Very Soft
S - Soft
F - Firm
Vst - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

**Samples and Tests**
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

**Moisture Condition**
D - Dry
M - Moist
W - Wet

**Water**
Level (Date)
Inflow
Partial Loss
Complete Loss

**Classification Symbols and Soil Descriptions**
Based on Unified Soil Classification System

**Plastic Limit**
> PL
= PL
< PL

**Penetration**
No resistance
range to refusal

Photo

ENGINEERING

Borehole No.
**BH10**
Page 1 of 1

## Engineering Log - Borehole

Project No.: S30579/276032

| | | | |
|---|---|---|---|
| Client: | Aspen Living Village Pty Ltd | Commenced: | 09/06/2021 |
| Project Name: | 46 Richmond Street, HACKNEY, SA 5069 | Completed: | 09/06/2021 |
| Hole Location: | | Logged By: | FF |
| Hole Position: | Coordinate System MGA94 54H | Checked By: | JT |
| Drill Model: | Ezi Probe | RL Surface: | |
| Drill Operator: | WB Drilling Pty Ltd | Datum: | |
| Hole Diameter: | 50mm | | |

| Drilling Information | | | | | | Soil Description | | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Water | Samples Tests Remarks | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description<br>Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency / Relative Density | Estimated Ipt | Pocket Penetrometer UCS (kPa)<br>100 200 300 400 500 | Structure and Additional Observations |
| PT | | Groundwater Not Encountered | | -1 | 1 | | FILL | CLAYEY SAND: black mottled cream; of low plasticity, trace gravel; gravel, sub-rounded to angular, up to 5mm; moist; loose. | M | L | 0.5% | | |
| | | | | | | | FILL | GRAVELLY SAND: grey cream; sand, medium to fine grained; gravel, sub-rounded to angular, up to 30mm; dry to moist; loose; poorly graded; brick fragments. | D - M | L | 0% | | |
| | | | | | | | FILL | CLAYEY SILTY SAND: grey brown; of low plasticity; sand, fine to medium grained; moist; loose. | M | L | 0.5% | | |
| | | | | | | | SC-SM | CLAYEY SILTY SAND: grey cream; of low plasticity; sand, fine grained; moist; loose. | M | L | 0.3% | | ALLUVIUM |
| | | | | -2 | 2 | | CI | SILTY SANDY CLAY: brown grey; of medium plasticity; moist; firm to stiff. | M | F - St | 1% | | |
| | | | | | | | | Hole Terminated at 2.40m - Target depth | | | | | |
| | | | | -3 | 3 | | | | | | | | |
| | | | | -4 | 4 | | | | | | | | |

***Method***
PT - Push tube

***Consistency / Relative Density***
VS - Very Soft
S - Soft
F - Firm
Vst - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

***Samples and Tests***
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

***Moisture Condition***
D - Dry
M - Moist
W - Wet

***Water***
Level (Date)
Inflow
Partial Loss
Complete Loss

***Classification Symbols and Soil Descriptions***
Based on Unified Soil Classification System

***Plastic Limit***
> PL
= PL
< PL

***Penetration***
No resistance
range to refusal

*Photo*

ENGINEERING

Borehole No.
**BH11**
Page 1 of 1

## Engineering Log - Borehole

Project No.: S30579/276032

Client: Aspen Living Village Pty Ltd
Project Name: 46 Richmond Street, HACKNEY, SA 5069
Hole Location:
Hole Position: Coordinate System MGA94 54H
Drill Model: Ezi Probe
Drill Operator: WB Drilling Pty Ltd Hole Diameter: 50mm

Commenced: 09/06/2021
Completed: 09/06/2021
Logged By: FF
Checked By: JT
RL Surface:
Datum:

| Drilling Information | | | | | | Soil Description | | | | | | | Observations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Method | Penetration | Water | Samples Tests Remarks | RL (m) | Depth (m) | Graphic Log | Classification Symbol | Material Description<br>Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional | Moisture Condition | Consistency / Relative Density | Estimated Ipt | Pocket Penetrometer UCS (kPa)<br>100 200 300 400 500 | Structure and Additional Observations |
| PT | | Groundwater Not Encountered | | -1 | 1 | | FILL | GRAVELLY SAND: yelow cream; sand, fine to medium grained; gravel, sub-rounded to angular, up to 5mm; dry to moist; loose. | D - M | L | 0% | | |
| | | | | | | | FILL | SANDY GRAVEL: black cream; gravel, angular, up to 50mm; dry to moist; loose; poorly graded. | D - M | L | 0% | | |
| | | | | | | | FILL | SILTY SANDY CLAY: brown mottled cream; of high plasticity; moist; stiff to very stiff. | M | St - VSt | 2.5% | | |
| | | | | | | | FILL | GRAVELLY SAND: grey cream; sand, fine to medium grained; gravel, sub-rounded to angular, up to 15mm; moist; loose. | M | L | 0% | | |
| | | | | -2 | 2 | | ML | SANDY SILT: brown; of low plasticity; moist; firm. | M | F | 1% | | ALLUVIUM |
| | | | | -3 | 3 | | | Hole Terminated at 3.00m - Target depth | | | | | |
| | | | | -4 | 4 | | | | | | | | |

***Method***
PT - Push tube

***Consistency / Relative Density***
VS - Very Soft
S - Soft
F - Firm
Vst - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

***Samples and Tests***
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
PP - Pocket Penetrometer

***Moisture Condition***
D - Dry
M - Moist
W - Wet

***Water***
Level (Date)
Inflow
Partial Loss
Complete Loss

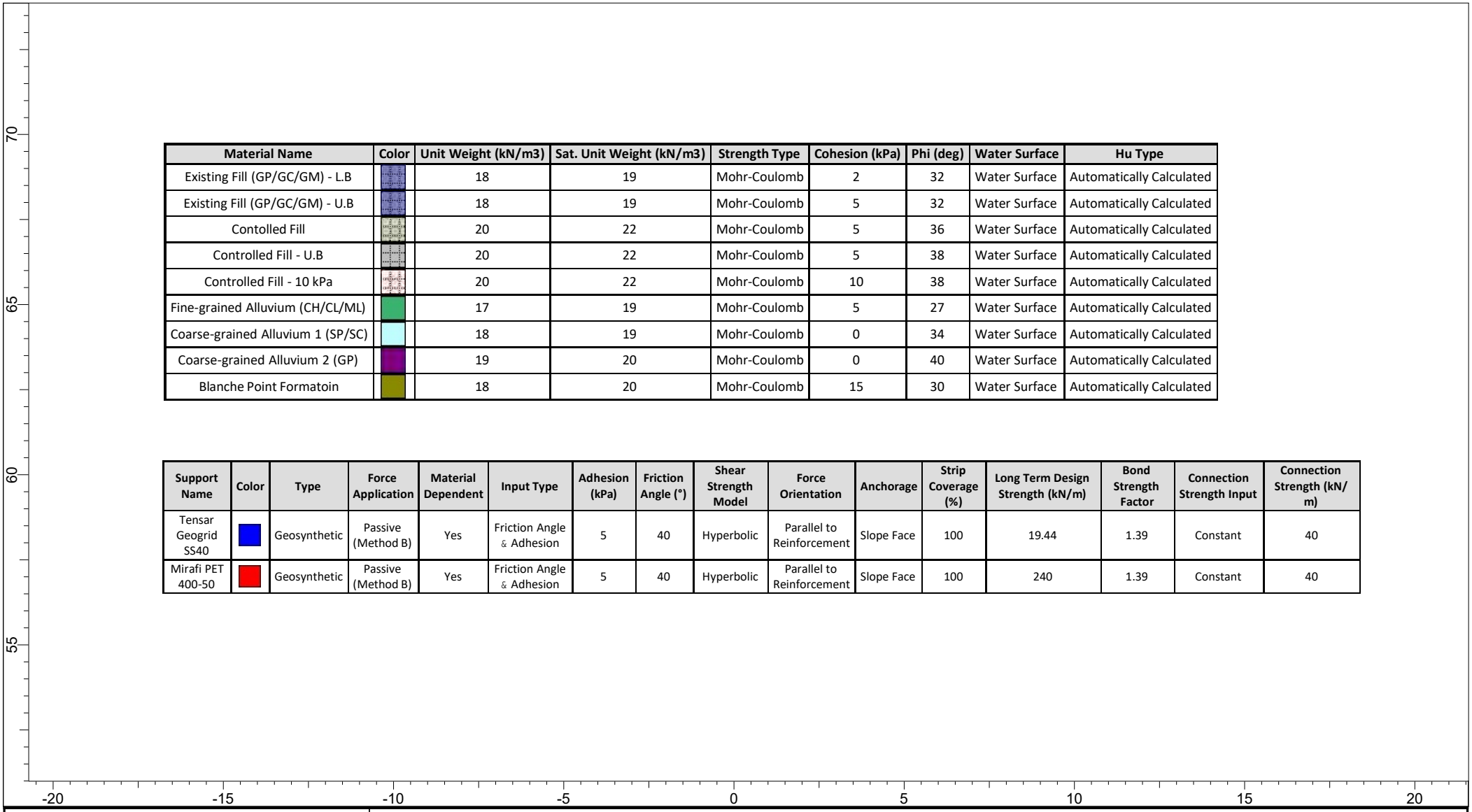
***Classification Symbols and Soil Descriptions***
Based on Unified Soil Classification System

***Plastic Limit***
> PL
= PL
< PL

***Penetration***
No resistance
range to refusal

*Photo*

# APPENDIX C
# STABILITY ANALYSES



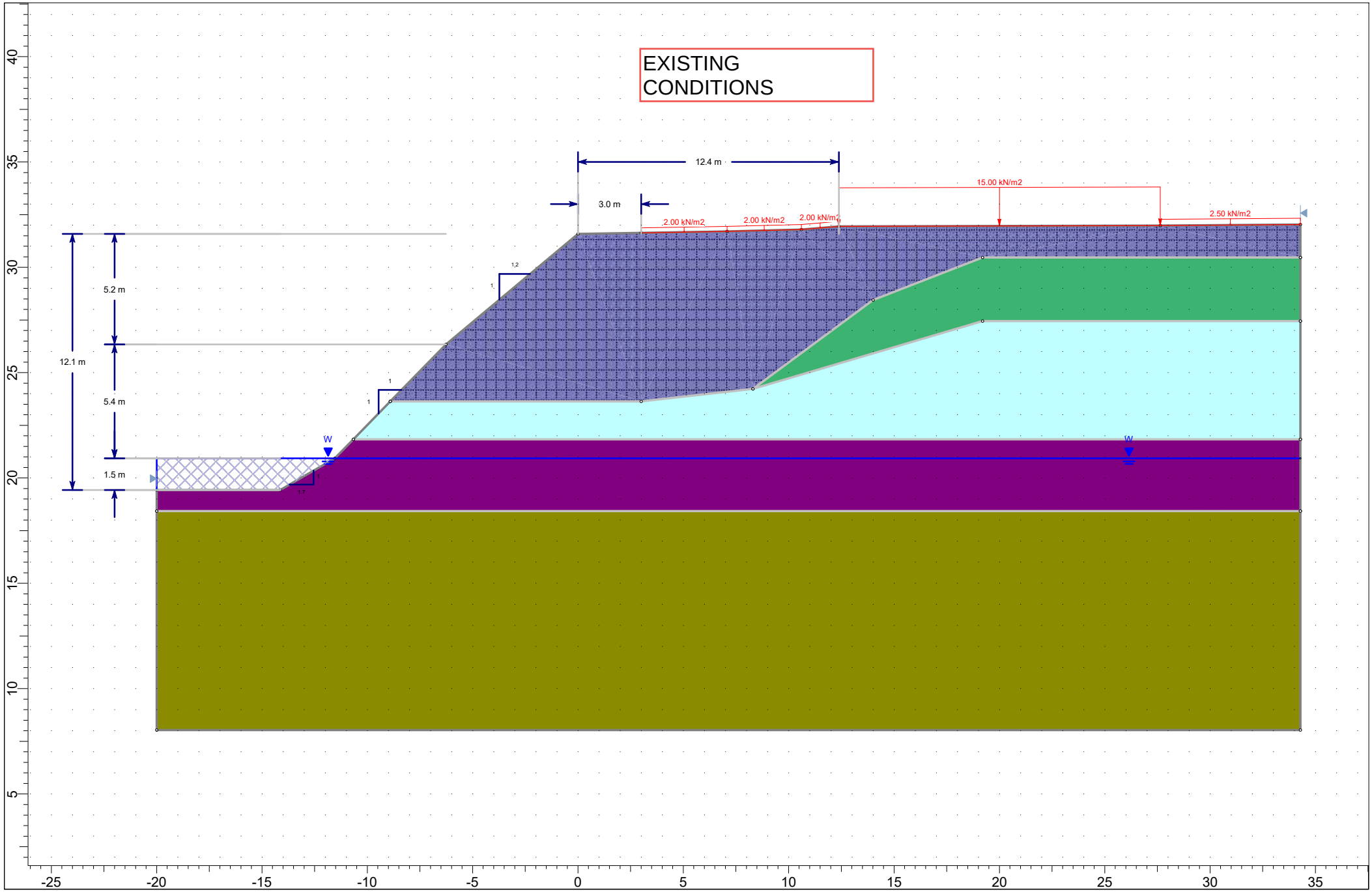

| Material Name | Color | Unit Weight (kN/m3) | Sat. Unit Weight (kN/m3) | Strength Type | Cohesion (kPa) | Phi (deg) | Water Surface | Hu Type |
|---|---|---|---|---|---|---|---|---|
| Existing Fill (GP/GC/GM) - L.B | | 18 | 19 | Mohr-Coulomb | 2 | 32 | Water Surface | Automatically Calculated |
| Existing Fill (GP/GC/GM) - U.B | | 18 | 19 | Mohr-Coulomb | 5 | 32 | Water Surface | Automatically Calculated |
| Contolled Fill | | 20 | 22 | Mohr-Coulomb | 5 | 36 | Water Surface | Automatically Calculated |
| Controlled Fill - U.B | | 20 | 22 | Mohr-Coulomb | 5 | 38 | Water Surface | Automatically Calculated |
| Controlled Fill - 10 kPa | | 20 | 22 | Mohr-Coulomb | 10 | 38 | Water Surface | Automatically Calculated |
| Fine-grained Alluvium (CH/CL/ML) | | 17 | 19 | Mohr-Coulomb | 5 | 27 | Water Surface | Automatically Calculated |
| Coarse-grained Alluvium 1 (SP/SC) | | 18 | 19 | Mohr-Coulomb | 0 | 34 | Water Surface | Automatically Calculated |
| Coarse-grained Alluvium 2 (GP) | | 19 | 20 | Mohr-Coulomb | 0 | 40 | Water Surface | Automatically Calculated |
| Blanche Point Formatoin | | 18 | 20 | Mohr-Coulomb | 15 | 30 | Water Surface | Automatically Calculated |

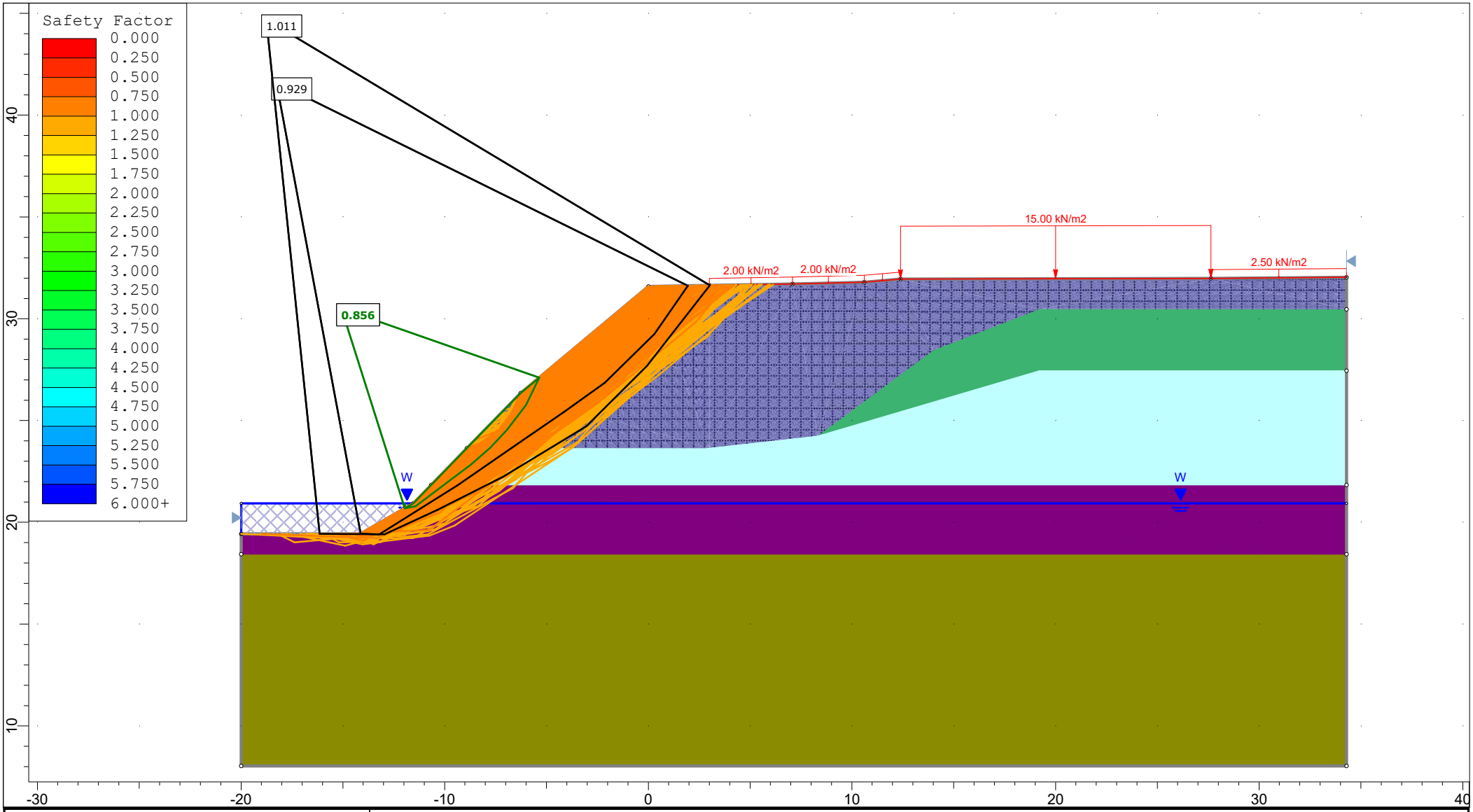
| Support Name | Color | Type | Force Application | Material Dependent | Input Type | Adhesion (kPa) | Friction Angle (°) | Shear Strength Model | Force Orientation | Anchorage | Strip Coverage (%) | Long Term Design Strength (kN/m) | Bond Strength Factor | Connection Strength Input | Connection Strength (kN/m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tensar Geogrid SS40 | | Geosynthetic | Passive (Method B) | Yes | Friction Angle & Adhesion | 5 | 40 | Hyperbolic | Parallel to Reinforcement | Slope Face | 100 | 19.44 | 1.39 | Constant | 40 |
| Mirafi PET 400-50 | | Geosynthetic | Passive (Method B) | Yes | Friction Angle & Adhesion | 5 | 40 | Hyperbolic | Parallel to Reinforcement | Slope Face | 100 | 240 | 1.39 | Constant | 40 |

WGA

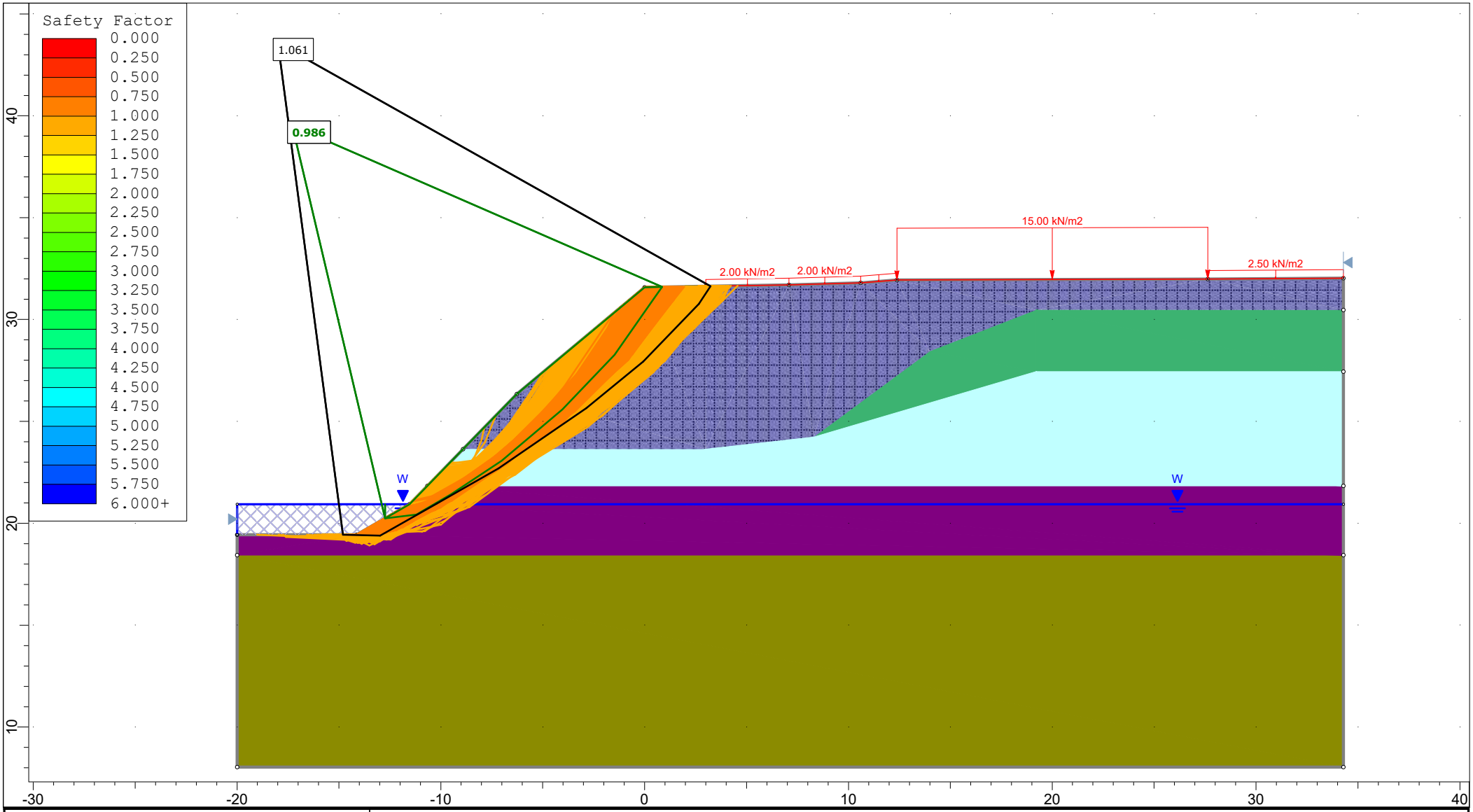
SLIDE 9.026

| | | | |
|---|---|---|---|
| *Project* | Adelaide Caravan Park Redevelopment | | |
| *Group* | Parameters Presentation | *Scenario* | Master Scenario |
| *Drawn By* | YW | *Company* | WGA |
| *Date* | 22/06/2023, 10:17:55 AM | *File Name* | Adelaide Caravan Park - A.slmd |

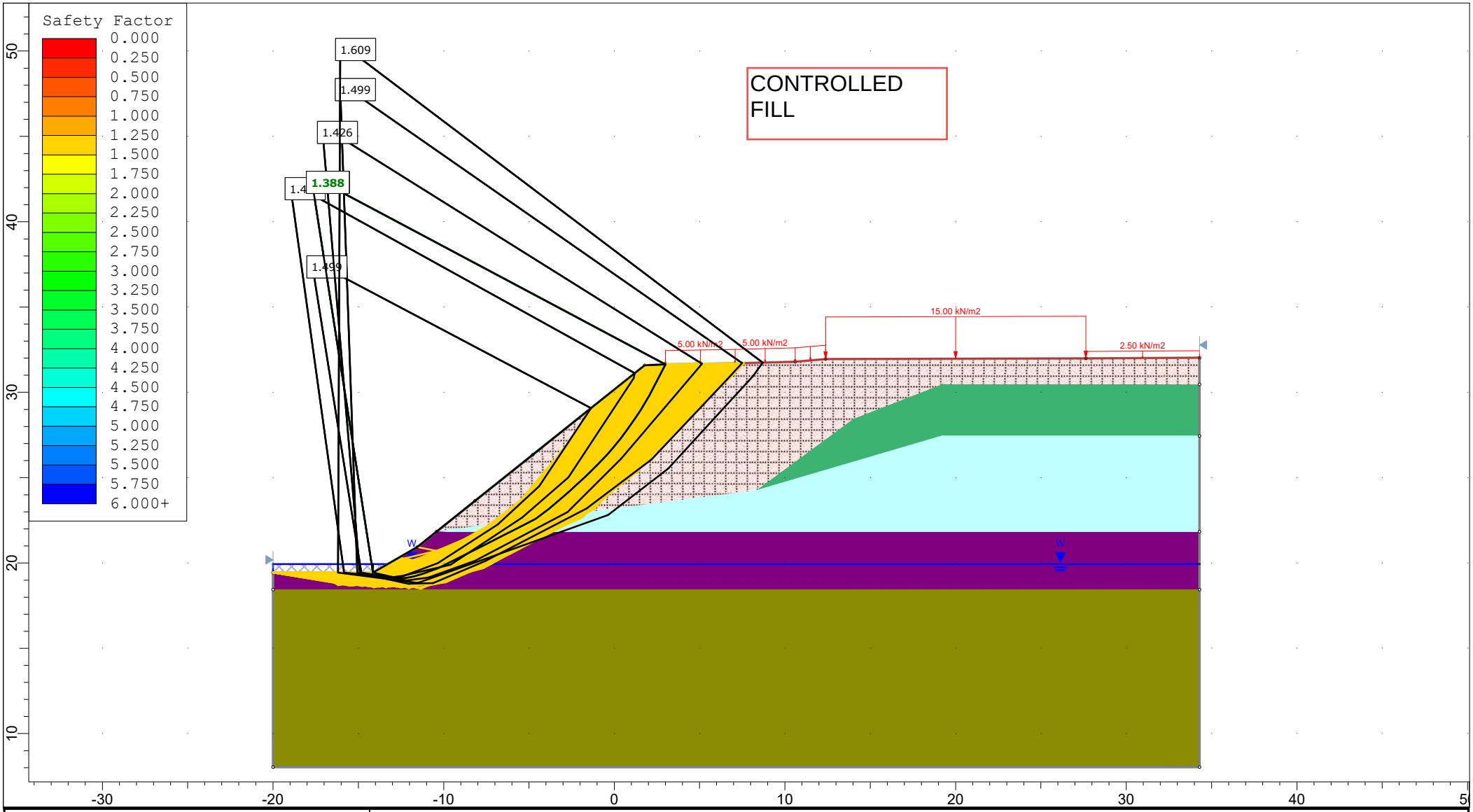

EXISTING
CONDITIONS
12.4 m
3.0 m
2.00 kN/m2
2.00 kN/m2
2.00 kN/m2
15.00 kN/m2
2.50 kN/m2
5.2 m
12.1 m
5.4 m
1.5 m
W
W
1.2
1
1
1.7
40
35
30
25
20
15
10
5
-25
-20
-15
-10
-5
0
5
10
15
20
25
30
35



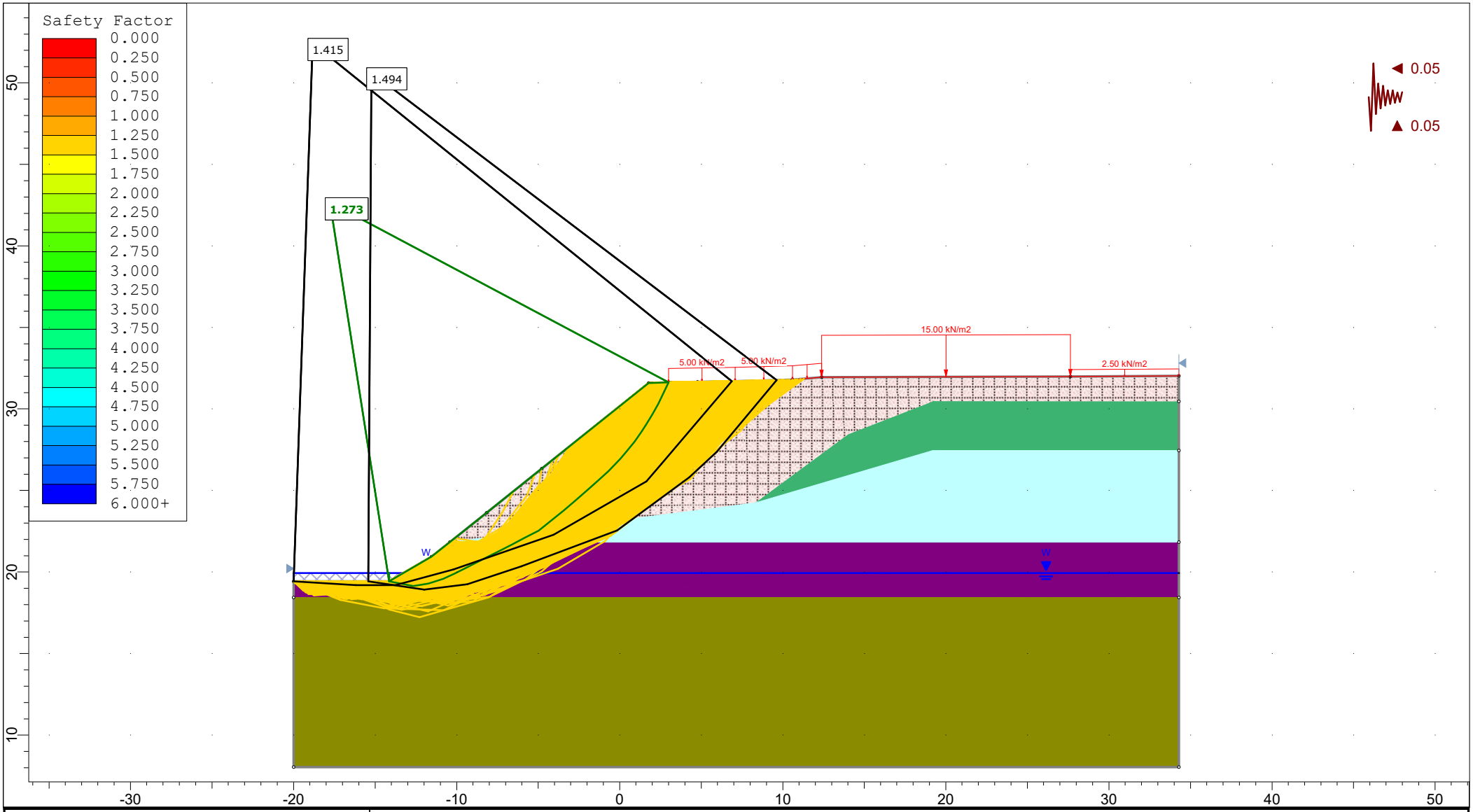

| | | | |
|---|---|---|---|
| WGA | Project | Adelaide Caravan Park Redevelopment | |
| | Group | Existing Fill | Scenario: H.W.L, c'=2 kPa |
| | Drawn By | YW | Company: WGA |
| SLIDEINTERPRET 9.026 | Date | 22/06/2023, 10:17:55 AM | File Name: Adelaide Caravan Park - A.slmd |



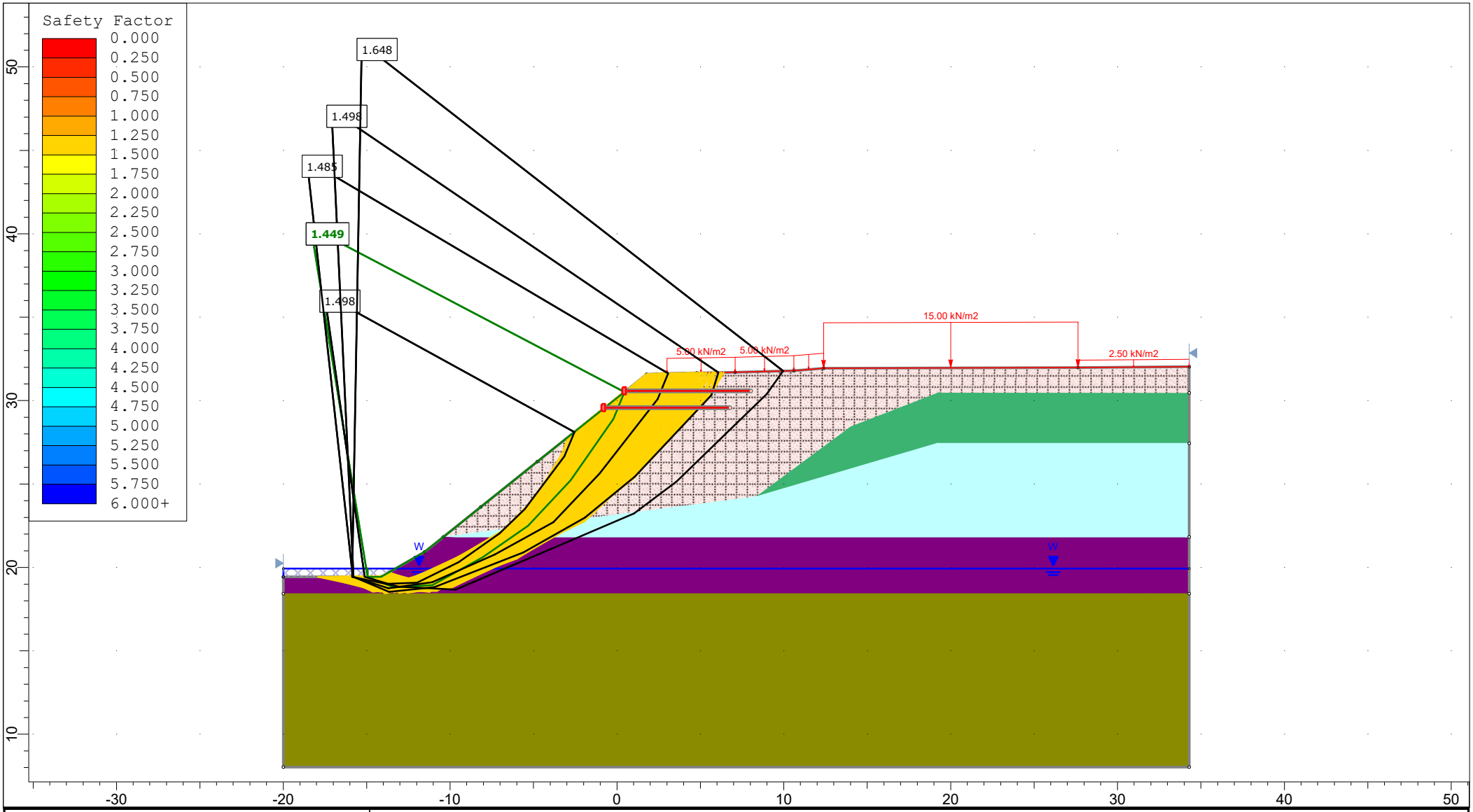

| | | | |
|---|---|---|---|
| WGA | Project | Adelaide Caravan Park Redevelopment | |
| | Group | Existing Fill | Scenario: H.W.L, c'=5 kPa |
| | Drawn By | YW | Company: WGA |
| SLIDEINTERPRET 9.026 | Date | 22/06/2023, 10:17:55 AM | File Name: Adelaide Caravan Park - A.slmd |




| | | | |
|---|---|---|---|
| WGA | Project | Adelaide Caravan Park Redevelopment | |
| | Group | Controlled Fill | Scenario: c'=10 kPa, phi=38 deg |
| | Drawn By | YW | Company: WGA |
| SLIDEINTERPRET 9.026 | Date | 22/06/2023, 10:17:55 AM | File Name: Adelaide Caravan Park - A.slmd |




| | | | |
|---|---|---|---|
| WGA | *Project* | Adelaide Caravan Park Redevelopment | |
| | *Group* | Controlled Fill | *Scenario* Seismic, a=0.05g, c'=10 kPa, phi = 38 deg |
| | *Drawn By* | YW | *Company* WGA |
| SLIDEINTERPRET 9.026 | *Date* | 22/06/2023, 10:17:55 AM | *File Name* Adelaide Caravan Park - A.slmd |

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|---|---|---|---|
| WGA | Project | Adelaide Caravan Park Redevelopment | |
| | Group | Controlled Fill | Scenario: PET 400-50 Geogrid, c'=10 kPa, phi=38 deg |
| | Drawn By | YW | Company: WGA |
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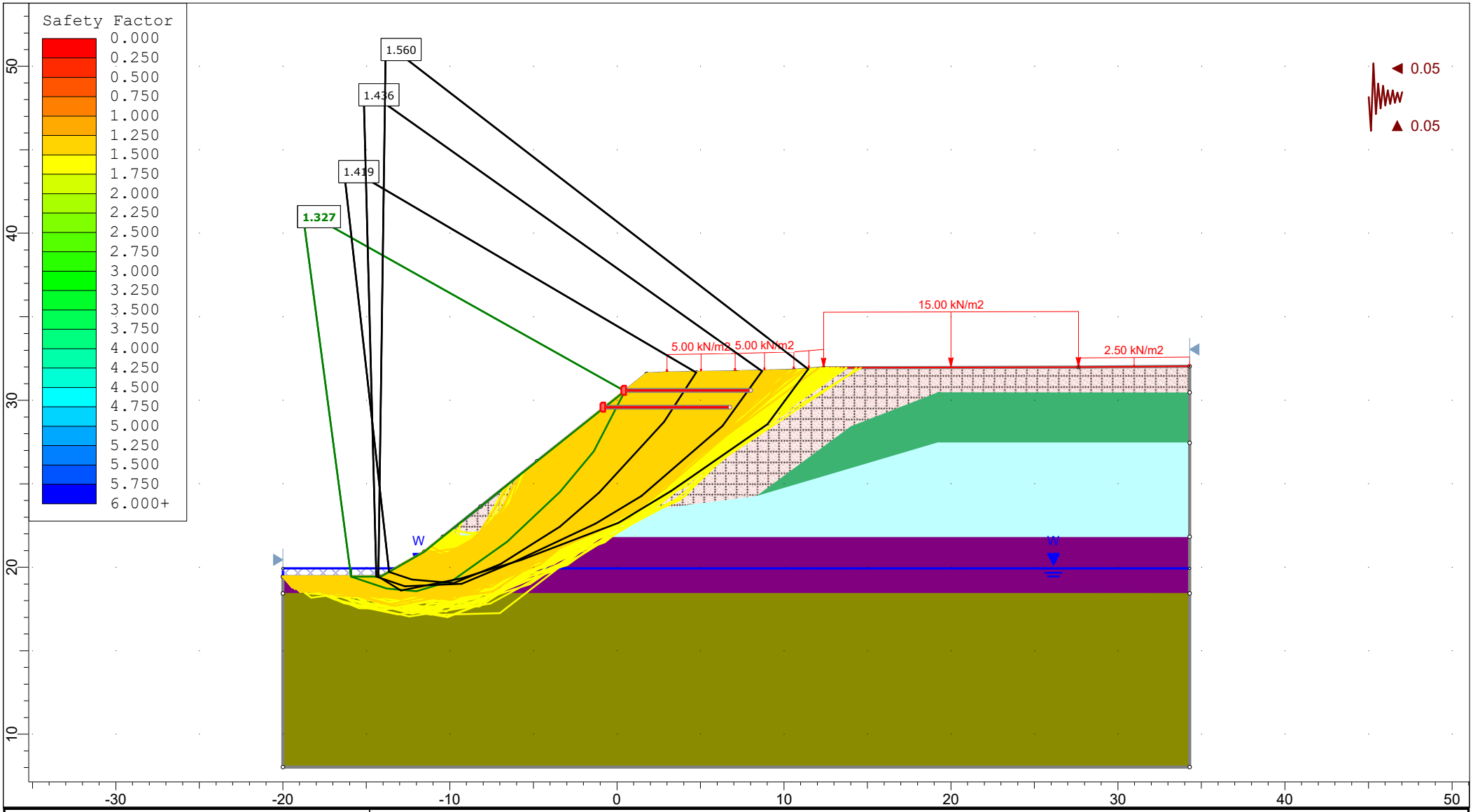


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| WGA | Project | Adelaide Caravan Park Redevelopment | |
| | Group | Controlled Fill | Scenario: Seismic, a=0.05g, PET 400-50 Geogrid, c'=10 kPa, phi=38 deg |
| | Drawn By | YW | Company: WGA |
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# GUIDE TO INTERPRETING YOUR **WGA GEOTECHNICAL REPORT**

This geotechnical report has been prepared by an experienced WGA Engineer. These notes have been prepared by WGA to assist the Client interpret and understand the report limitations.

## SCOPE OF SERVICES

This report has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and WGA. In some circumstances, the scope of the services may have been altered by a range of factors such as time, budget and access restrictions.

## GEOTECHNICAL INVESTIGATIONS

Geotechnical engineering is based extensively on professional judgment and opinion. It is far less precise than other engineering disciplines.

Geotechnical engineering reports are prepared to meet the specific needs of individual clients. This report was prepared expressly for the Client for the purposes indicated in the agreed scope of services. Use by any other persons for any purpose, or by the Client for a different purpose, may result in problems.

For example, a report prepared for a consulting civil engineer may not be adequate for a construction contractor or even another consulting engineer.

This report must not be used for any project other than that originally specified at the time the report was prepared, without seeking additional geotechnical advice.

## PROJECT-SPECIFIC FACTORS

This report is based on a subsurface investigation designed to meet the requirements of a specific project. The subsurface investigation was formulated based on factors which include the nature of the development, its size and configuration, the location of any existing development on the site, and the location of access roads and parking areas. Unless further geotechnical advice is obtained in writing, this report may not provide appropriate recommendations if:

- the nature of the proposed development is changed; or
- the size, configuration, location or orientation of the proposed development is modified.

The report findings cannot be applied to any other sites, including adjacent sites.

## SUBSURFACE CONDITIONS

Subsurface conditions are created by natural processes and the activity of man and may, therefore, be modified by changing natural forces or man-made influences. For example, water levels can vary with time and fill may be placed on a site. The report is based on conditions which existed at the time of subsurface exploration.

Construction operations at, or adjacent to, the site and natural events such as floods or groundwater fluctuations may also affect subsurface conditions, and thus the continuing adequacy of a geotechnical report. WGA should be kept informed of any such events and should be consulted to determine if additional investigations are necessary

## THIRD PARTY INTERPRETATION OF FINDINGS

WGA should be retained to assist other design professionals in the interpretation of relevant geotechnical findings, and to review the adequacy of plans and specifications relative to geotechnical issues. Costly problems can occur when other design professionals develop plans based on misinterpretations of a geotechnical report.

## ENGINEERING LOGS SHOULD NOT BE SEPARATED FROM THE REPORT

The report presents the findings of the geotechnical investigation and must not be copied or altered in any way.

Engineering logs and cross-sections are developed by geotechnical engineers based upon their interpretation of field logs and laboratory testing of samples. These logs and figures should not be redrawn for inclusion in other documents or separated from the report in any way.

To reduce the likelihood of misinterpretation, contractors should be given access to the complete geotechnical report prepared or authorised for use. The following publication should be referenced for further information.
*Guidelines for the Provision of Geotechnical Information in construction Contracts* (Engineers Australia, National Headquarters, Canberra 1987).

## RELIANCE ON SUPPLIED DATA

In preparing the report, WGA may have relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations. Unless otherwise stated in the report, WGA has not verified the accuracy or completeness of such data. WGA will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misinterpreted or otherwise not fully disclosed to WGA.

## LIMITATIONS OF SITE INVESTIGATIONS

In making an assessment of a site from a limited number of boreholes or test pits it is inevitable that variations will occur between test locations. Subsurface exploration identifies specific subsurface conditions only at those points from which samples have been taken. The likelihood that subsurface variations will not be detected can be reduced by increasing the frequency of test locations, although this has cost implications. The investigation program undertaken is a professional estimate of a reasonable scope of investigation required to provide a general profile of the subsurface conditions. The data derived from the site investigation program and subsequent laboratory testing are extrapolated across the site to form an inferred geotechnical model and an engineering opinion is formed about overall subsurface conditions and their likely behaviour with regard to the proposed development.

Despite subsurface exploration, the actual conditions at the site might differ from those inferred to exist, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface conditions and anomalies.

The engineering logs are the subjective interpretation of the subsurface conditions encountered at a particular location, made by experienced personnel. The interpretation may be limited by the method of investigation, and cannot always be definitive. For example, inspection of an excavation or test pit allows a greater area of the subsurface profile to be inspected than borehole investigations, however, such methods are limited by depth and site disturbance restrictions.

The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained from the subsurface exploration. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, the services of WGA should be retained through design and construction stages, to identify variances, conduct additional tests if required and recommend solutions to any problems encountered on site.

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Aspen Group

# Adelaide Caravan Park Redevelopment - Proposed Co-Living Site, Hackney

## GEOTECHNICAL INVESTIGATION

WGA230955

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2 May 2024

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**Appendix A** FIGURES
**Appendix B** RESULTS OF THE FIELD INVESTIGATION
**Appendix C** LABORATORY TESTING

# 1 INTRODUCTION

A geotechnical investigation has been undertaken by Wallbridge Gilbert Aztec (WGA) for the proposed Co-Living Development at the Adelaide Caravan Park, Hackney, SA.

It is understood that the proposed Co-Living Development is located on a 900 $m^2$ parcel of land on the western side of the Adelaide Caravan Park. The proposed building includes:

- Partial undercroft car parking.
- Ground floor mixed-use spaces.
- 5 levels of apartments, typically configured as Studio or 1 Bedroom properties.
- Rooftop plant.

A piled footing system is expected to be required.

External car parking is also proposed.

The location of the proposed development is presented in Figure 1.

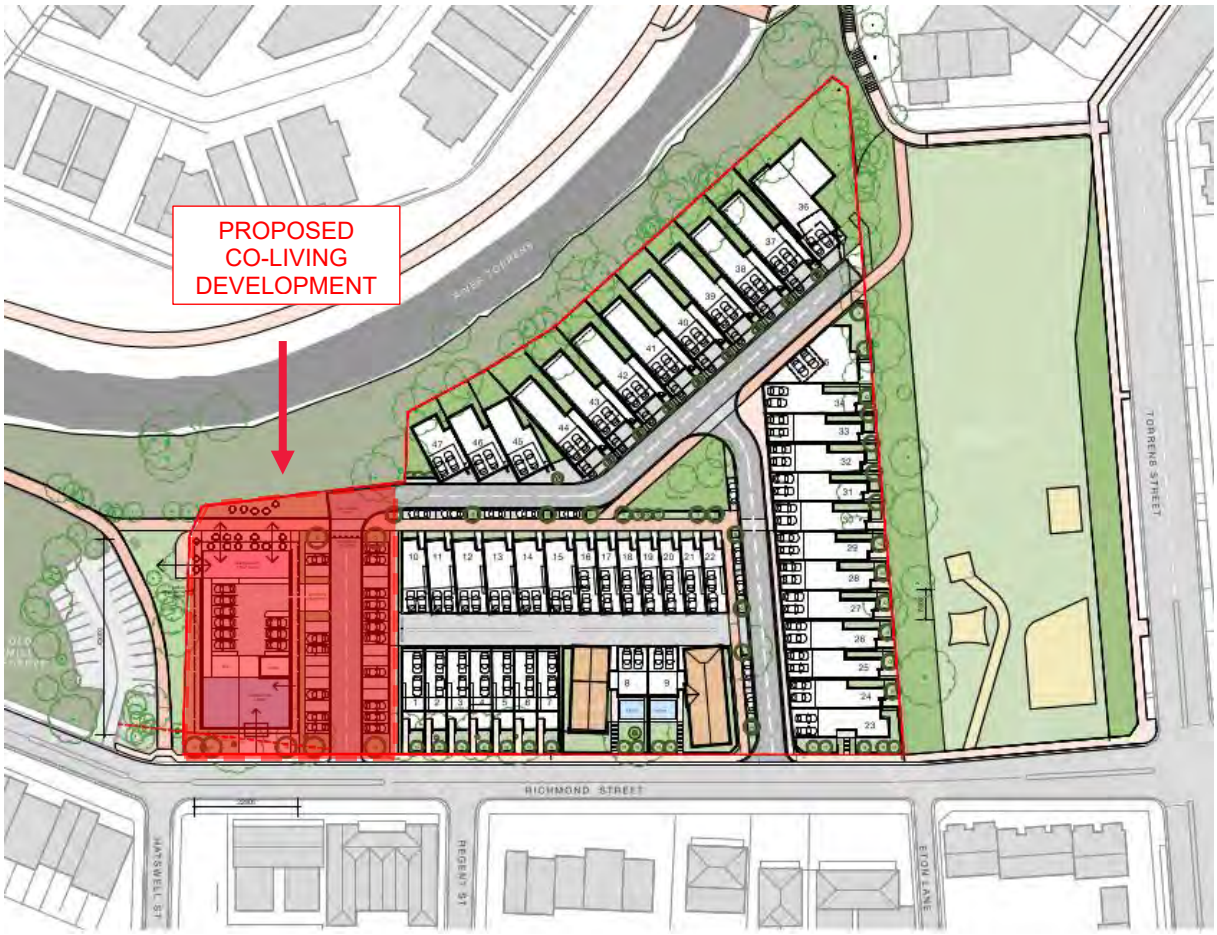


**Figure 1: Location Plan**

The geotechnical investigation was commissioned by The Aspen Group. The scope and extent of the geotechnical investigation were broadly consistent with a proposal prepared by WGA dated 21 February 2024. The geotechnical investigation was conducted concurrently with investigations for the proposed River Front Dwellings and Townhouse development at the Adelaide Caravan Park. The results of these investigations are presented in separate WGA reports and have been referred to in the preparation of the report recommendations.

This report outlines the geotechnical investigation undertaken and summarises the subsurface conditions encountered. Recommendations relating to the design of footings, pavements, retaining walls and associated earthworks are presented in Section 4.

The results of previous geotechnical investigations conducted at the site by others (References 1 and 2) have been referred to in the preparation of the report recommendations.

# 2 OUTLINE OF THE INVESTIGATION

## 2.1 Field Investigation

The field work for the geotechnical investigation was carried out between 9 and 20 April 2024 and comprised:

- Drilling and logging 1 borehole (denoted BH18) to a depth of approximately 19.8 m (practical refusal).
- Drilling and logging 7 boreholes (denoted BH1 to BH7) to a depth of approximately 3 m or 4 m.

The locations of the boreholes are shown approximately on Figures A1 (existing site conditions) and A2 (proposed development layout) in Appendix A. The boreholes were positioned on site to provide a broad coverage of the proposed development area within the restrictions imposed by existing buildings, surface features and underground services.

Borehole BH18 was drilled with a truck mounted Ezi-probe drilling rig using hollow flight augers and continuous push tube sampling (Geoprobe system). Standard Penetration Tests (SPT) were undertaken at selected depths in the borehole using a conventional drop hammer fitted with a self-tripping mechanism. The SPT data from BH18 are presented on Figure A3 in Appendix A, together with selected results from other investigations by WGA at the site.

Due to restricted access over most of the site, boreholes BH1 to BH7 were drilled with portable drilling equipment which involved advancing push tubes with a hand operated jack-hammer.

The soil profile encountered in the boreholes was logged by a Geotechnical Engineer from WGA and is described on the engineering logs contained in Appendix B. Also presented in Appendix B are two explanation sheets that outline the terms and symbols used in the preparation of the logs.

## 2.2 Laboratory Testing

The scope of laboratory testing undertaken comprised:

- Atterberg Limits and Particle Size Distribution on one soil sample.
- A durability suite, comprising acidity, chloride, sulphate and electrical conductivity on three soil samples.

An Estimated CBR value was calculated from the Atterberg Limits and Particle Size Distribution using a procedure adopted by the Department for Infrastructure and Transport (DIT).

The Estimated CBR value is considered to be empirically equivalent to a laboratory 4 day soaked CBR test in which the sample has been conditioned to the optimum moisture content and compacted to a dry density ratio of 95% based on Modified compactive effort (AS 1289 5.2.1).

The geotechnical laboratory testing was undertaken at the NATA registered Adelaide laboratory of Terra Firma Laboratories in accordance with the relevant sections of AS 1289 *"Methods of Testing Soils for Engineering Purposes"*.

The durability testing was performed at the Melbourne based laboratory of ALS Pty Ltd.

The results of the laboratory testing are presented on the test results sheets in Appendix C.

# 3 SITE CONDITIONS

## 3.1 General

The Adelaide Caravan Park is located at 46 Richmond Street, Hackney and lies approximately 200 m east of Hackney Road. The River Torrens is located along the north-western boundary of the site.

The proposed Co-Living development is located at the western end of the caravan park in an area which is currently occupied by accommodation cabins, associated access roads and lawn areas.

The riverbank at the northern end of the site is approximately 11 m higher than the water level in the river and is steeply sloping with a typical slope of about 45 degrees (locally ranging from about 38 to 48 degrees). The riverbank has varying vegetation cover which include ground cover plants, trees and shrubs of varying size and extensive bamboo in the southern portion. The vegetation largely obscures the surface condition of the riverbank.

Evidence of local instability in the riverbank was noted at the Co-Living site and included:

- Tension cracks aligned roughly parallel to the crest of the riverbank in places. The cracks were up to about 10 mm wide and located about 2 m back from the crest;
- An outward lean of the fence along the crest of the riverbank.

The ground surface at the site was relatively flat, with a slight slope down towards the north. The ground surface level at the crest of the riverbank is typically around RL 31.5 m AHD.

A site survey plan is shown in Figure 2.

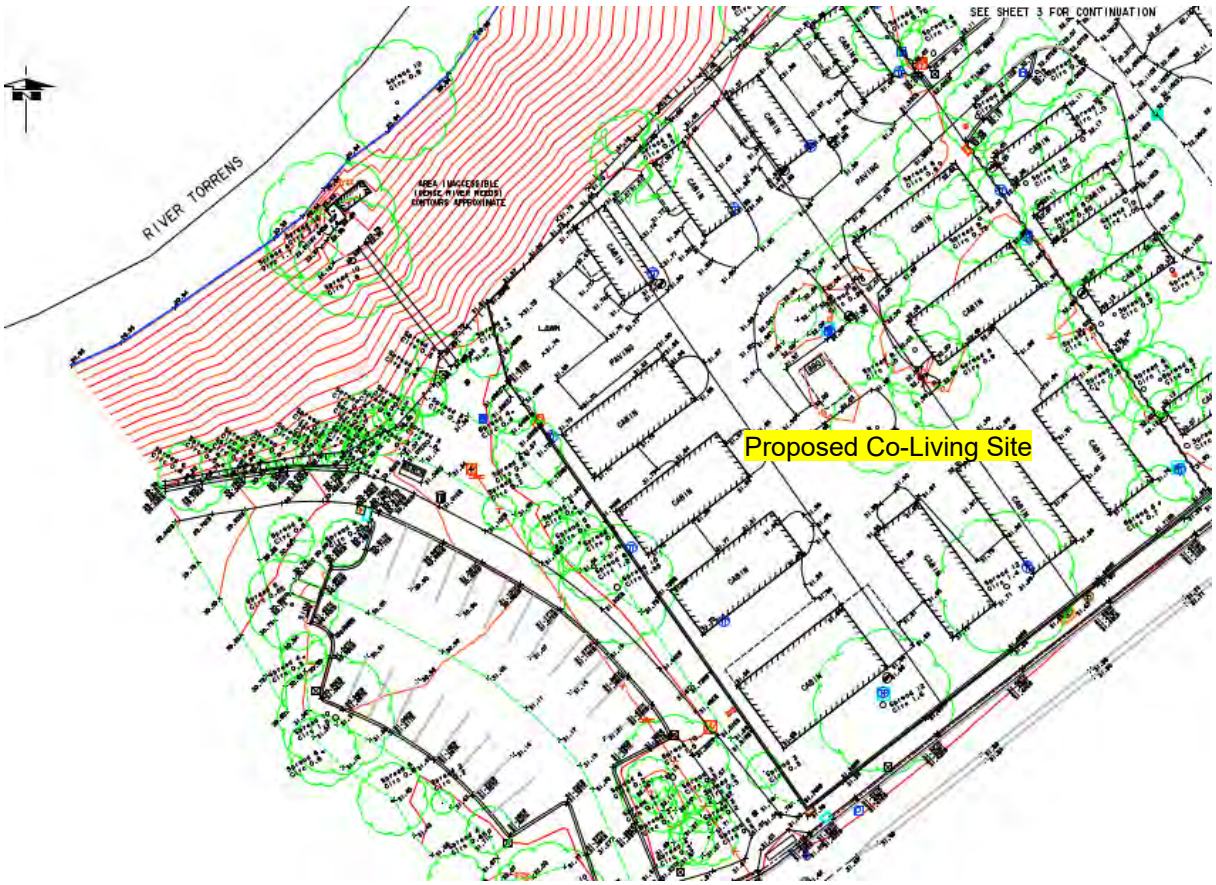


**Figure 2: Site Survey Plan**

The typical site conditions at the time of the geotechnical investigation are shown in Figure 3 and 4.

**Figure 3: General Site Conditions (Near BH5, Looking South)**

**Figure 4: Tension Cracks and Leaning Fence Near Crest of Riverbank (Near BH6, Looking North-east)**

## 3.2 Regional Geology

The site is located adjacent to the River Torrens.

The Soil Association Map of the Adelaide Region (1:50 000 scale map sheet) indicates that the near surface natural soils are likely to consist of Quaternary aged alluvial soils associated with deposition along the River Torrens. The alluvium is underlain by Tertiary aged sediments.

The alluvium typically comprises an interbedded sequence of clays, sands and silts with a basal layer of gravelly soils. An excerpt from the Soil Association Map is presented in Figure 5.

Reference 3 indicates that the Quaternary alluvium is underlain by older Tertiary aged sediments, with the upper Tertiary unit likely to comprise the Blanche Point Formation. The Tertiary aged sediments overlying the Blanche Point Formation, which are commonly encountered in the Adelaide City area, have been removed by erosion along an ancient River Torrens.

Groundwater is expected to be related to the pool level in the adjacent River Torrens, which is subject to seasonal variations.

A borehole drilled by WGA in 2016 for an apartment development on the northern (opposite) side of the river indicated the following generalised subsurface profile:

- 0 to 9.1 m: Controlled fill;
- 9.1 to 9.8 m: Sand (alluvium), fine to coarse, medium dense;
- 9.8 to 13.2 m: Sandy gravel (alluvium), fine to coarse, dense SPT N-values of 45 and 38;
- >13.2 m: Silty clay and clay (Blanche Point Formation), low and medium plasticity, stiff to very stiff consistency with a marked increase in strength below a depth of about 20 m.

Groundwater was encountered at depth of about 10.9 m.

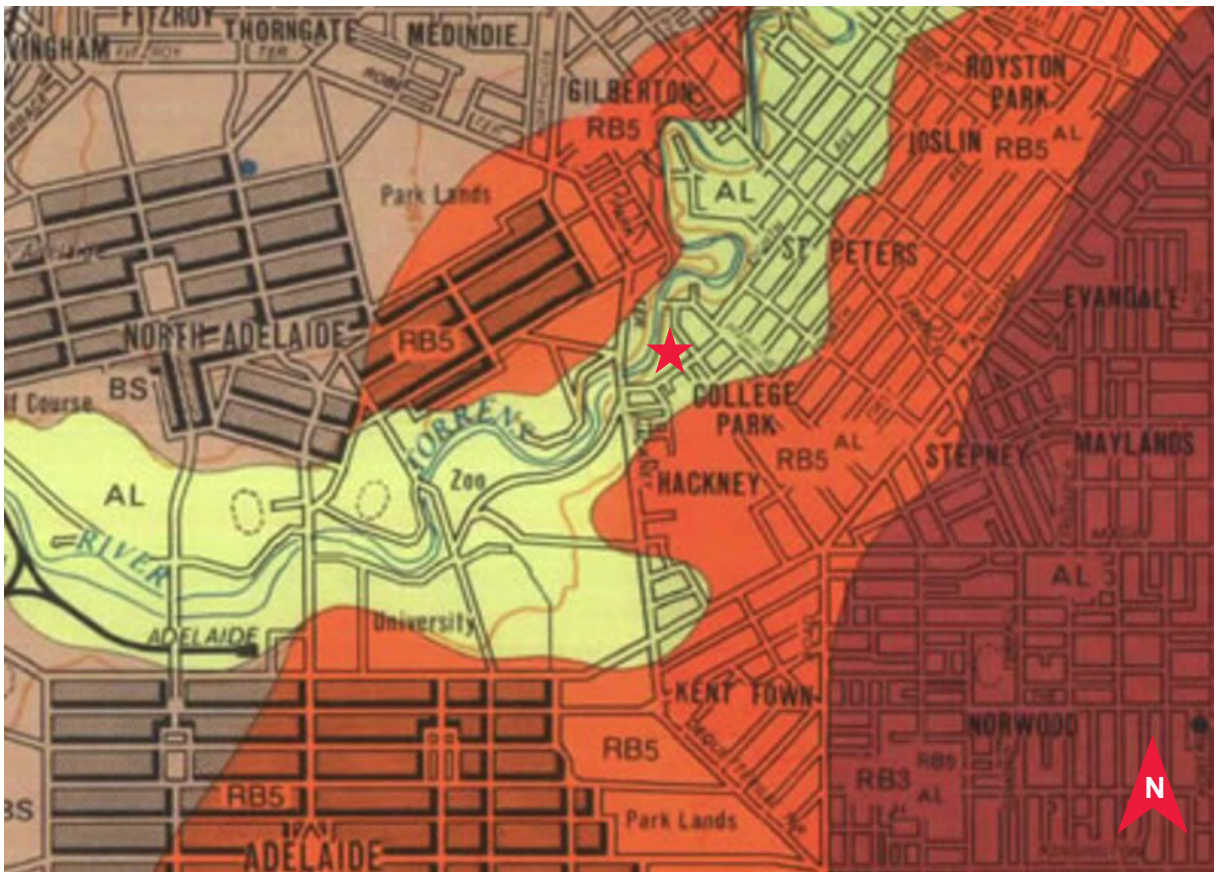


**Figure 5: Excerpt from Soil Association Map (Site Marked with Star)**

## 3.3 Previous Investigations

### 3.3.1 Scope

A geotechnical investigation was previously undertaken at the site by FMG Engineering (References 1 and 2). A total of 20 boreholes were drilled at the site to depths of up to 8.5 m. Specifically:

- Reference 1 indicates that 10 boreholes were drilled at the site in 2016 to depths ranging from 1.4 m to 8.5 m;
- Reference 2 indicates that 10 boreholes were drilled at the site in 2021 to depths ranging from 1.5 m to 8.5 m.

The locations of the boreholes are shown in Figure 6. A total of 5 boreholes were located on the footprint of the proposed Co-living development.

Laboratory testing was not undertaken as part of the earlier investigations.

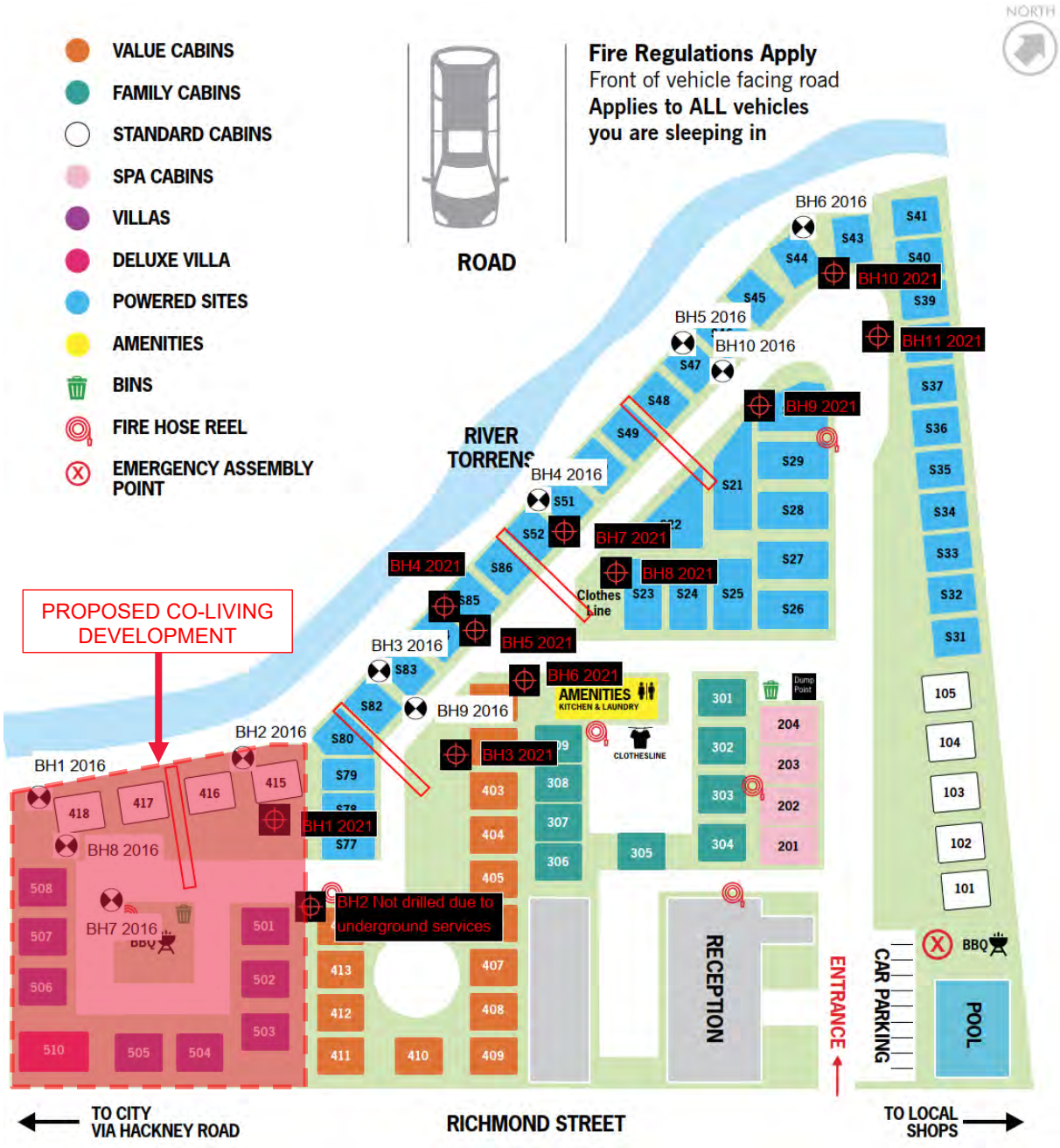


**Figure 6: Borehole Location Plan (Reference 2)**

### 3.3.2 Subsurface Conditions

The borehole logs presented in References 1 and 2 indicated that fill was encountered in most boreholes. The natural soils beneath the fill were consistent with the expected regional geology outlined in Section 3.2 and comprised interbedded alluvial soils.

The depth of fill is summarised in Table 1. Boreholes related to the proposed Co-living development are presented in red text.

**Table 1: Summary of Fill Depths (Reference 1 – 2016)**

| MATERIAL | BH1 | BH2 | BH3 | BH4 | BH5 | BH6 | BH7 | BH8 | BH9 | BH10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth of Fill (m) | 4.8 | 0.8 | 8 | 5.2 | 5.6 | >6.5 | 0.5 | 0.4 | 2.6 | 2.8 |
| Depth of Borehole (m) | 6.5 | 6 | 8.5 | 6.5 | 6.5 | 6.5 | 1.4 | 1.3 | 3.3 | 3.3 |

**Table 1 (cont.): Summary of Fill Depths (Reference 2 - 2021)**

| MATERIAL | BH1 | BH2 | BH3 | BH4 | BH5 | BH6 | BH7 | BH8 | BH9 | BH10 | BH11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth of Fill (m) | 0.6 | ND | 1.5 | 7.5 | 7 | 3.5 | 7 | 1.8 | 1.6 | 1.4 | 1.7 |
| Depth of Borehole (m) | 1.5 | ND | 3 | 8 | 7.5 | 5.5 | 8.5 | 3 | 2.5 | 2.4 | 3 |
| Notes: ND = Not Drilled | | | | | | | | | | | |

The variation in fill depth over the site indicates that the fill is markedly deeper along the crest of the riverbank with a marked reduction in thickness away from the crest. The boreholes drilled near to the amenities building show a fill depth of up to about 8 m along the crest, reducing to about 3.5 m near the corner of the building (the corner of the amenities building is 10 m from the crest). The reported variation in fill depth supports the view that historically fill has been pushed over a steep riverbank to gain additional land on the western side of the site.

The composition of the fill materials varied, although mainly comprised sand or gravel, and included:

- Sandy clay and clay of mainly low or medium plasticity (locally high);
- Clayey sand;
- Gravelly sand and sandy gravel, with gravel to about 70 mm in dimension.

Pockets of waste materials were present in the fill and included brick and tile fragments, glass pieces and other construction waste.

The logs report that core loss occurred in some boreholes, most probably due to the loose (uncompacted) nature of the fill.

The fill is assessed to be uncontrolled from an engineering perspective.

The natural soils below a depth of about 5 m to 6 m typically comprised fine to coarse grained sand and clayey sand, locally tending to sandy gravel at 8.4 m depth in BH7 (2021). Pockets of medium plasticity clays of firm to stiff consistency or more silty sands were evident in some boreholes (e.g. BH5, 2021). The sandy soils were reported to be in a loose to dense condition, although no in situ testing was performed to confirm this assessment.

At depths of less than 5 m to 6 m the alluvial soils were highly variable and included:

- Clayey and sandy silt;
- Sand and silty sand;
- Clay of high plasticity and stiff or very stiff consistency.

Groundwater was not encountered in the boreholes.

## 3.4 Subsurface Conditions

Descriptions of the materials encountered in the boreholes drilled during the current geotechnical investigation are summarised on the engineering logs contained in Appendix B.

The subsurface profile encountered in the boreholes was broadly consistent with the previous investigations at the caravan park and comprised, in descending order from the ground surface:

- A varying thickness of fill, up to about 3.1 m deep near to the river bank;
- Predominantly finer grained alluvium to around 8.4 m depth;
- Coarser grained alluvium, between depths of about 8.4 m and 13.75 m (BH18);
- Blanche Point Formation, below a depth of about 13.75 m (BH18).

Fill was encountered in each borehole to depths ranging from about 0.3 m to 3.1 m below existing ground level. Deeper pockets of fill may be encountered in areas not investigated. The fill was typically deeper along the crest of the riverbank (although shallower than encountered in Reference 1), reducing in thickness to the south.

The fill generally comprised a mixture of interbedded sandy clays and sandy gravels, with pockets of foreign material fragments including asphaltic concrete, brick and glass. Where the boreholes were drilled within lawn areas, a surficial layer of organic silty sand was generally encountered (probable imported topsoil).

The fill is assessed to be uncontrolled for the purposes of footing design.

The interpreted depth ranges of the various soil layers encountered are summarised in Table 2, whilst a brief description of the natural soil profile is summarised in Table 3.

**Table 2: Depth Ranges of the Various Materials (in Metres)**

| MATERIAL | BH1 | BH2 | BH3 | BH4 | BH5 | BH6 | BH7 | BH18 |
|---|---|---|---|---|---|---|---|---|
| Fill | 0.0 to 0.35 | 0.0 to 0.35 | 0.0 to 0.3 | 0.0 to 3.1 | 0.0 to 0.7 | 0.0 to 3.0 | 0.0 to 0.4 | 0 to 0.25 |
| Finer Grained Alluvium | 0.35 to >3.0# | 0.35 to >3.0# | 0.3 to >3.0# | 3.1 to >4.0# | 0.7 to >4.0# | 3.0 to >4.0# | 0.4 to >3.0# | 0.25 to 8.4 |
| Coarser Grained Alluvium | NE | NE | NE | NE | NE | NE | NE | 8.4 to 13.75 |
| Blanche Point Formation | NE | NE | NE | NE | NE | NE | NE | >13.75 |
| Notes: NE = Not Encountered; # Borehole Termination Depth. | | | | | | | | |

**Table 3: Summary of the Natural Soil Profile**

| MATERIAL | GENERALISED DESCRIPTION |
|---|---|
| Finer Grained Alluvium | Largely sandy clay of low or medium plasticity (tending to medium and high plasticity in BH18) or clayey sand, brown, yellow brown and grey mottled. The clays typically ranged from very stiff to hard consistency, although friable where drier or sandier. SPT N-values ranged from 7 to 12. Extending to a depth of about 5.5 m.<br>Below 5.5 m in BH18, fine to medium grained sand, medium dense, with SPT N-values of 9 and 10 was encountered. |
| Coarser Grained Alluvium | An interbedded sequence of gravelly sand/sandy gravel, sand and sandy clay of medium and high plasticity over a basal layer of sandy gravel below about 12 m depth. Gravel is mainly quartzite and sandstone. Possible cobbles in places. Medium dense to very dense, with SPTs typically meeting refusal on more gravelly soils, although as low as 9 in the finer grained soils. Clays are of stiff or very stiff consistency. |
| Blanche Point Formation | Clay, medium plasticity, greenish grey and yellow brown with black speckle, becoming grey brown below a depth of about 18 m. Weakly cemented with cemented nodules. Typically only firm to stiff consistency in the upper 5 m, with SPT N-values of 5, 8 and16 recorded. Grading very stiff and hard consistency, with high drilling resistances, below about 18.8 m. SPT refusal met at 19.5 m. |

## 3.5 Groundwater

The site survey plan indicates that the pool level in the River Torrens is about RL 20.9 m, approximately 11 m below the typical ground surface level. Groundwater is therefore expected below this level.

The regional groundwater table was encountered in borehole BH18 at depth of about 8.5 m. Groundwater was not encountered in the boreholes over the depth ranges investigated.

Seasonal variations in groundwater are expected, due to fluctuations in the river level. Perched groundwater could occur in more permeable soils during wet weather.

## 3.6 Laboratory Test Results

The results of the laboratory testing are presented in Table 4 and Table 5.

**Table 4: Summary of Laboratory Test Results**

| BOREHOLE | DEPTH RANGE (m) | ATTERBERG LIMITS (%) | | | PARTICLE SIZE DISTRIBUTION (% PASSING SIEVE) | | LABORATORY ESTIMATED CBR VALUE (%) |
|---|---|---|---|---|---|---|---|
| | | Liquid Limit | Plasticity Index | Linear Shrinkage | 2.36 mm | 0.075 mm | |
| **BH1** | 1.5 to 1.9 | 30 | 9 | 5 | 92 | 66 | 15 |

The laboratory testing indicates that the sample tested comprised low plasticity clay with fine to coarse grained sand and some fine gravel.

**Table 5: Summary of Laboratory Testing - Durability**

| BOREHOLE | DEPTH (m) | pH (UNITS) | CHLORIDE (mg/kg) | SULPHATE (mg/kg) | EC (1:5) (uS/cm) |
|---|---|---|---|---|---|
| BH18 | 2.0 to 2.2 | 9.0 | 40 | 40 | 243 |
| BH18 | 6.0 to 6.2 | 8.6 | 180 | 120 | 244 |
| BH18 | 12.0 to 12.2 | 8.0 | 70 | 60 | 132 |
| Note: EC: Electrical conductivity | | | | | |

The durability tests indicate that the soils tested are slightly alkaline with relatively low concentrations of sulphates and chlorides.

# 4 GEOTECHNICAL ASSESSMENT

## 4.1 General

It is understood that the proposed mixed-use building has a partial undercroft car park and 6 suspended levels. At the time of reporting the structural loads were not known.

From a geotechnical perspective the key issues related to the proposed development are:

- The presence of uncontrolled fill to varying depths (up to about 3.1 m near the crest of the river bank) across the site. The fill is not suitable as a founding layer for footings, floor slabs or flexible pavements due to the potential for long-term differential settlement. The existing fill should be removed and replaced as controlled fill;
- Due to the variability in the alluvium, and presence of the steep river bank, piled footings are recommended to reduce total and differential settlement of the building. Piles would need to be founded below the weaker Blanche Point Formation which extended to a depth of about 18.8 m in BH18;
- The presence of steep riverbank along the northern site boundary and deeper uncontrolled fill along the crest. It is preferable that the proposed development does not impose any additional surcharge load on the ground near the crest of the riverbank in order to reduce the potential for future slope instability. It is also recommended that the existing fill along the crest be removed and reinstated with controlled fill reinforced with layers of geogrid.

Continuous Flight Auger (CFA) piles are considered a suitable pile type, with piles founded in the stronger Blanche Point Formation below a depth of about 18.8 m. Depending on the applied structural loads, a group of piles is expected to be required beneath each column.

The design of the piles would need to consider the interbedded nature of the alluvium, markedly weaker materials within the upper portion of the Blanche Point Formation and the potential for cobbles to be present within coarse grained alluvium, which may impact on the installation of piles.

Recommendations relating to the design of piles, retaining walls, pavements and site earthworks are provided in the following sections.

## 4.2 Site Characteristics

### 4.2.1 Site Classification

Based on a visual-tactile assessment, the soils encountered in the boreholes over the upper 4 m are judged to be generally slightly to moderately reactive with respect to shrink-swell movements caused by changes in soil moisture content. Shrink-swell indices for the low and medium plasticity clays are estimated to range from about 1% to 1.5%. The sandier soils (clayey sand) are judged to be slightly less reactive with respect to shrink-swell movements.

Based upon the design soil suction change profile for Adelaide contained in AS 2870-2011 *"Residential slabs and footings"*, the characteristic surface movements ($y_s$) and site classifications presented in Table 6 are considered appropriate for the site at the current ground surface level, which experiences normal soil moisture conditions, as outlined in AS 2870-2011. For boreholes terminated at 3 m depth, it is assumed that the soil profile at 3 m depth extends to 4 m depth for the purpose of the $y_s$ calculation.

**Table 6: Summary of Shrink-Swell Movements**

| BOREHOLE | ESTIMATED $y_s$ VALUE (mm) | SITE CLASSIFICATION (AS 2870 - 2011) |
|---|---|---|
| BH4, BH6, BH7, BH18 | 25 to 40 | Class M-D (Moderately reactive clay sites with deep moisture changes, which can experience moderate ground movements resulting from moisture content changes) |
| BH1, BH2, BH3, BH5 | <20 | Class S (Slightly reactive clay sites, which may experience only slight ground movement from moisture content changes) |

Irrespective of the site classification for shrink-swell movements, where controlled or uncontrolled fill over 0.4 m deep is present on the site the overall site classification would be Class P (Filled site).

Where the proposed site levels vary by more than about 0.3 m for the current site levels a further assessment of shrink-swell movements is recommended.

Should future moisture content changes in the foundation soils result in soil suction values outside the suction change profile presented in AS 2870-2011 (abnormal soil moisture conditions), a larger $y_s$ value may occur. Such changes could occur adjacent to leaking water services or where soils are desiccated by tree roots.

No allowance for trees is provided in the $y_s$ values presented in Table 6. Where the effects of trees are to be considered, an additional maximum surface movement as a result of tree induced suction change ($y_{tmax}$) of approximately 15 mm is considered appropriate for a single tree.

### 4.2.2 Earthquake Design

The site lies slightly to the west of the Para Fault Zone and bedrock is expected at a depth of over 60 m. Accordingly, a site sub-soil class of $D_e$ (Deep soil) is recommended in accordance with AS1170.4-2007 *"Structural design actions Part 4: Earthquake actions in Australia*".

The natural soils are not considered to be vulnerable to liquefaction during an earthquake event with a recurrence interval of 1 in 500 years.

The lateral resistance provided by the uncontrolled fill should be ignored.

### 4.2.3 Durability

The results of the laboratory chemical tests (Table 5) indicate that the natural soils are typically slightly alkaline with relatively low concentrations of sulphates and chlorides.

An exposure classification of *"Non-aggressive*" is considered appropriate for buried concrete above the groundwater table and *"Mild"* for buried concrete below the groundwater table, in accordance with the guidelines of Table 6.4.2(C) in AS 2159-2009 *"Piling - Design and Installation".*

## 4.3 Pile Design

### 4.3.1 Pile Types and Founding Depths

Continuous Flight Auger (CFA) piles are considered to be a suitable a pile type. Depending on the applied structural loads, a group of piles is expected to be required beneath each column.

Conventional uncased bored piles are considered unsuitable due to the potential for collapse of the pile shaft and any under-ream in the more sandy and gravelly soils, particularly below the groundwater table.

Driven piles (such as precast concrete) are unlikely to be suitable due to the effects of noise and ground vibrations generated during pile driving on adjacent properties.

It is recommended that Continuous Flight Auger (CFA) piles are founded in the stronger Blanche Point Formation below a depth of about 18.8 m, with a nominal founding depth of 20 m expected.

The required pile founding depth will depend on the applied axial load and the pile diameter adopted. It is noted that practical refusal occurred at a depth of about 19.8 m and hence the subsurface conditions below this depth are not reliably known. Accordingly, at least 1 additional deep borehole recommended as part of the final design phase to check the subsurface conditions at depth.

### 4.3.2 Pile Design Parameters for Static Loading

It is recommended that the preliminary design of CFA piles be based on the geotechnical parameters presented in Table 7. The parameters are suitable for pile diameters of 900 mm or less.

It is noted that piling contractors may, on the basis of past experience, adopt less conservative geotechnical parameters based on an alternate geotechnical interpretation. The adoption of such parameters would be contingent on undertaking adequate pile load testing during the piling work to verify the design parameters and assumptions.

**Table 7: Summary of Design Parameters for CFA Piles**

| TYPICAL DEPTH RANGE (m)[1] | GENERALISED SOIL TYPE | TYPICAL SPT N-VALUE | UNDRAINED SHEAR STRENGTH, $C_U$ (kPa) | AVERAGE ULTIMATE SHAFT RESISTANCE (kPa) | ULTIMATE BASE RESISTANCE (kPa) |
|---|---|---|---|---|---|
| 0 to 2 | Pile cap and undercroft | - | Neglect for the purposes of pile design | | |
| 2[2] to 5.3 | Sandy Clay/Clayey Sand, stiff to hard or loose to medium dense | 6 to 12 | 90 (or angle of friction of 30 degrees) | 40 | Not suitable |
| 5.3 to 8.5 | Sand, medium dense | 10 | Angle of internal friction of 34 degrees | 60 | Not suitable |
| 8.5 to 11.1 | Coarser Grained Alluvium | 9 to >50 (gravelly sand and sand) | Angle of internal friction of 34 to >36 | 80 | Not suitable – interbedded and thickness of units varies |
| 11.1 to 12.2 | | Clay, stiff and very stiff | 100 | 55 | |
| 12.2 to 13.8 | | >50 (sandy gravel) | Angle of internal friction of >36 degrees | 95 | |
| 13.8 to 18.8 | Upper Blanche Point Formation | 5 to 16 | 80 | 45 | Not suitable |
| >18.8 | Lower Blanche Point Formation | >25 | >200 | 100 | 2,800 |

Notes:

1. Depth ranges are approximate only, based on BH18, and may vary over the site.
2. Shaft resistance must be neglected over the depth of the undercroft excavation, pile cap and uncontrolled fill.
3. The above parameters are not appropriate for bored piles and further advice sought for such piles.

In accordance with the guidelines of AS 2159-2009 "*Piling - Design and Installation*" a geotechnical strength reduction factor, $\phi_g$, must be applied to the ultimate geotechnical parameters presented in Table 7 to determine the design geotechnical strength, $R_{d,g}$, which must then be equal to or exceed the design action effect, $E_d$.

Using the guidelines of Table 4.3.2 (A) in AS 2159-2009, an average risk rating (ARR) of between 2.5 and 3 is assessed, corresponding to an overall risk category of "*low to moderate*". Based on Table 4.3.2(C) a basic geotechnical strength reduction factor, $\phi_{gb}$ of 0.52 may be adopted for a low redundancy system and 0.60 for a high redundancy system.

The adopted geotechnical strength reduction factor ($\phi_g$) for the site will depend on the type of pile testing and the percentage of piles tested during construction. For example:

- In accordance with Clause 4.3.1 in AS 2159-2009, a higher geotechnical reduction factor may be used if pile load testing (dynamic or static) to verify pile serviceability is conducted during construction.
- In accordance with Clause 8.2.4 in AS 2159-2009, if no pile testing is undertaken a geotechnical strength reduction factor ($\phi_g$) of 0.4 will need to be adopted.

Given the variations in subsurface conditions observed it is recommended that high strain dynamic pile testing (or static load testing) be conducted in accordance with AS 2159-2009 on at least 1% of the piles during construction to verify that the design geotechnical strength of the pile has been achieved. Some of these tests should be undertaken in the very early stages of the pile installation so that any required amendments to the pile length can be promptly adopted. Further advice should be sought on pile load testing if required.

The immediate (elastic) settlement of a single pile at the design serviceability load (assessed from the geotechnical parameters in Table 7) is unlikely to exceed 10 mm. The settlement of a group of piles is expected to be larger, depending on such factors as pile size, group geometry, founding depth and applied axial load. Further advice must be sought on pile group settlements once the group geometry and applied loads are known.

In order to assess the short-term lateral capacity of a single pile and pile cap it is recommended that an average undrained shear strength of 75 kPa be adopted in the natural clay below the fill. The lateral resistance provided by the fill should be neglected.

The installation of piles would need to consider the presence of coarse gravel and possibly cobbles in the coarser grained alluvium which may reduce drilling rates. Piling contractors must make an allowance for such subsurface conditions in assessing suitable piling rigs and preferably large, high torque capacity piling rigs should be used.

Provision should be made for differential movement, primarily associated with shrink-swell movements, to occur between pile caps and any floor slab constructed on grade.

## 4.4 Retaining Walls

The following geotechnical parameters are recommended for the design of conventional cantilever type retaining walls up to about 2 m high which support uncontrolled fill or natural soils, assuming a horizontal ground surface and no wall friction/adhesion:

- Coefficient of active earth pressure, $K_a$ : 0.36.
- Bulk unit weight: 19.5 kN/m$^3$.

In addition to the design earth pressures, retaining walls must cater for (as appropriate):

- An unbalanced hydrostatic pressure;
- Traffic loadings;
- Surcharge loadings (e.g. construction materials).

Adequate surface drainage must be provided to prevent infiltration of surface water behind the wall.

Retaining walls should be designed in accordance with the recommendations of AS 4678-2002 "*Earth Retaining Structures*".

For retaining walls which have significant backfill placed after construction, it is expected that the compaction induced pressures will be much greater than the active earth pressure coefficient presented above.

The compaction equipment used to compact backfill behind the wall must be carefully selected and preferably light-weight compaction equipment should be used.

The load on the retaining wall due to compaction equipment may be estimated from Figure J5 in AS 4678-2002. For select compacted granular backfill, an active coefficient, $K_a$ of 0.3 and an at rest coefficient, $K_o$ of 0.65 are recommended together with a bulk unit weight of 21 kN/m$^3$.

Further advice must be sought if piled retaining walls are to be used.

## 4.5 Pavements

A floor slab on-grade or flexible pavements must not be founded on uncontrolled fill due to the likelihood of excessive differential settlement to occur in the future. If floor slabs are founded on uncontrolled fill they should be designed as a suspended slab spanning between ground beams supported by piles.

An Estimated CBR value of 15% was assessed from the laboratory testing conducted on a selected sample of natural subgrade soil. An Estimated CBR value of 14% was obtained on a subgrade sample taken from the adjacent Townhouse development area.

Based on the results of the laboratory testing it is recommended that flexible pavements founded on natural soils be designed based on a design subgrade CBR value of 7%. The recommended design CBR value assumes that:

- All uncontrolled fill and any organic soils are stripped;
- The upper 0.2 m of subgrade is compacted to achieve a dry density ratio of at least 98% based on Standard compaction (AS 1289 5.1.1);
- The pavement is adequately drained to prevent saturation of the pavement materials and underlying subgrade.

For rigid concrete pavements on-grade, an average long-term Young's modulus value of 20 MPa is recommended for the natural soils.

It is recommended that QA/QC testing be undertaken on subgrade and pavement materials during construction.

In addition to the design traffic loading, the long-term pavement performance must also consider the effects of shrink-swell movements due to moisture content changes in the reactive subgrade soils, as outlined in Section 4.2.1. Such movements may adversely affect the riding quality and surface drainage and may result in cracking.

## 4.6 Earthworks

### 4.6.1 Site Preparation - Crest of the River Bank

Uncontrolled fill was present along the crest of the riverbank to depths of up to about 3.1 m at the borehole locations. The presence of tension cracks in the ground surface and a notable lean in the existing fence along the crest suggests that the fill is potentially unstable and on-going creep movements and slumping could continue in the future. The deeper fill appears to be located within about 10 m of the crest, but cannot be reliably assessed due to the presence of cabins.

It is therefore recommended that:

- All uncontrolled fill, organic or disturbed soils be stripped from crest of the river bank. A depth of stripping of around 3 m is expected to be required, although deeper pockets of fill may be present locally. The depth and lateral extent of stripping must be confirmed by a geotechnical engineer during the bulk earthworks;
- The excavated fill shall be replaced as controlled fill, placed in accordance with the guidelines of Section 4.6.2;
- The controlled shall be reinforced with 2 layers of geogrid (Secugrid 60/60 Q1 or equivalent), located at the base and approximate mid-height of the fill;
- The outer face (along the river bank) of the controlled fill shall have a maximum batter slope of 2H:1V. The batter slope must be vegetated to reduce the potential for future scour and erosion, or alternatively proprietary anti-erosion mats provided;
- the proposed Co-Living development should not apply any appreciable additional surcharge slope to the river bank (within a zone extending approximately 10 m from the crest) and ground surface levels should not be more than 0.3 m above existing site levels. A further assessment is required if these conditions cannot be achieved.

### 4.6.2 Site Preparation - Building Area

It is recommended that all uncontrolled fill, organic or disturbed natural soils be stripped from proposed building and pavement areas. In the southern portion of the site, a depth of stripping of generally less than 0.6 m is expected to be required below the existing ground level based on the soil profile encountered in the boreholes (deeper fill is expected near the crest of the River Bank, as outlined in Section 4.6.1).

Deeper pockets of fill and disturbed soils may be present in areas not investigated due to previous developments at the site. The depth of stripping must be confirmed by a geotechnical engineer during the bulk earthworks.

Following stripping of unsuitable materials, it is recommended that the exposed natural soils be proof rolled with a static pad foot roller of at least 10 t static weight to identify any soft, wet or weak areas which may require remedial works. The proof rolled surface shall be observed by a suitably experienced Engineer.

Following proof-rolling and remedial works, the excavation may be backfilled to the design level using controlled fill. The controlled fill may comprise clean site won fill materials or natural soils, although it is preferable that an imported quarry product or recycled pavement material with a CBR value of at least 15% is used.

Reuse of the existing topsoil, or fill with an appreciable proportion of waste or organics, as controlled fill is not recommended. These soils should be disposed off-site.

Prior to compaction, the fill shall be moisture conditioned to within 2% of the optimum moisture content and compacted in layers not exceeding 250 mm in loose thickness to achieve a dry density ratio of at least 98% based on Standard compaction (AS 1289 5.1.1).

The controlled fill should be placed under Level 1 overview, as outlined in AS 3798 *"Guidelines on earthworks for commercial and residential developments".*

In a partial undercroft nominally 2 m deep, the site preparation works would be expected to be relatively minor and of sufficient extent to adequately support construction equipment, such as piling rigs or cranes. In this regard it is recommended that following excavation to the design undercroft level, the exposed natural soils are proof rolled with a fully laden tandem axle truck. Any soft or weak areas identified during proof rolling would require further remediation. The proof rolled surface should be observed by a suitably experienced Engineer.

Following proof-rolling and completion of any remedial works, the upper 200 mm of subgrade shall be moisture conditioned and compacted to a  dry density ratio of at least 98% based on Standard compaction (AS 1289 5.1.1).

A working platform comprising imported quarry rubble or recycled rubble should be constructed on the compacted fill surface to support heavy construction equipment such as piling rigs and cranes. The thickness and design of the granular working platform would need to be assessed once the loads imposed by cranes or piling rigs are known.

The working platform must be placed in layers and compacted to achieve a dry density ratio of at least 95% based on Modified compaction (AS 1289 5.2.1). At the time of compaction the fill shall be conditioned to within 2% of the optimum moisture content.

### 4.6.3 Excavatability and Dewatering

The fill and natural soils encountered in the boreholes is expected to be generally excavatable using conventional earthmoving equipment. As noted previously, pile installation may be affected by the presence of cobbles in the coarse grained alluvium.

The groundwater table was encountered at a depth of about 8.5 m and therefore dewatering of shallow excavations for pile caps, the undercroft, services trenches and pavements is therefore unlikely to be required.

Where encountered, the control of local perched groundwater is expected to be undertaken using shallow drains connected to a pumped sump.

### 4.6.4 Batter Slopes

All excavations deeper than 1.5 m shall be appropriately battered and benched in accordance with the WHS regulations prior to personnel entering. The following temporary batter slopes are recommended:

- Uncontrolled fill: 2H:1V;
- Sandy clay/clayey sand (upper alluvium): 1.5H:1V.

Flatter slopes would be required where groundwater seepage or cohesionless sand is encountered.

Service trench excavations over 1.5 m deep should be supported by a proprietary continuous shoring system.

### 4.6.5 Trafficability

Trafficability of the fill and natural soils is likely to become poor when wetted.

### 4.6.6 Moisture Control in Footing Excavations

It is recommended that the soils exposed in the base of pile cap excavations be covered with a blinding layer of lean mix concrete to assist in reducing moisture content variations during construction.

### 4.6.7 Other Issues

The effects of construction activities, such as vibrations during compaction, excavation works and changes in the soil moisture regime, on adjacent buildings and infrastructure must be considered.

A dilapidation survey and regular monitoring of the existing structures near to the site during construction are strongly recommended.

## 4.7 Safety in Design

This report presents factual information about the subsurface conditions at the site and an assessment of how these conditions might impact on the design and construction of the proposed development from a geotechnical perspective. At the time of reporting the design and documentation of the proposed development had not been finalised and as a result Safety in Design issues have not been considered in this report. It is the responsibility of the designer to use the information contained herein to prepare a Safety in Design Report which is appropriate for the proposed development.

Specific input on geotechnical issues for the Safety in Design report can be provided as part of the detailed design phase if required.

# 5 LIMITATIONS

The recommendations contained within this report have been based on the subsurface conditions encountered in a limited number of boreholes and the judgement and opinion of WGA. To the best of our knowledge, the subsurface conditions described in this report provide a reasonable interpretation of the typical subsurface conditions likely to be encountered at the site.

It must be accepted that variations in subsurface conditions are likely to occur between the locations investigated and such variations may impact on the design recommendations provided. Under no circumstances can it be assumed that this report represents the actual subsurface conditions at all locations over the site.

It is recommended that additional deep boreholes be drilled at the site as part of the detailed design phase to more reliably assess pile design parameters.

Roger Grounds
for
**WALLBRIDGE GILBERT AZTEC**

## References


1. *"Geotechnical Investigation, 46 Richmond Street, Hackney.* FMG Engineering Report dated 29/06/2016, Job Number S30579-247712.
2. *"Geotechnical Investigation Report, Slope Stability Assessment, Adelaide Caravan Park".* FMG Engineering Report dated 24/08/2021, Job Number 276032.
3. Selby J and Lindsay JM. *"The Engineering Geology of the Adelaide City Area".* Department of Mines and Energy, Bulletin 51.

# APPENDIX A
# FIGURES

| | | | |
|---|---|---|---|
| Drawn by | YW | Client: | ASPEN GROUP |
| Approved | RWG | Project: | ADELAIDE CARAVAN PARK REDEVELOPMENT (CO-LIVING) HACKNEY, SA 5069 |
| Date | 19/04/2024 | Title: | BOREHOLE LOCATION PLAN |
| Dimensions | NTS | Project No.: | WGA230955 |
| Original | - | Ref. | FIGURE A1 |

*Source: Google Earth Pro. Dated April 2024.*

| | | | | | |
|---|---|---|---|---|---|
| Drawn by | YW | | Client: | ASPEN GROUP | |
| Approved | RWG | WGA | Project: | ADELAIDE CARAVAN PARK REDEVELOPMENT (CO-LIVING) HACKNEY, SA 5069 | |
| Date | 19/04/2024 | | Title: | BOREHOLE LOCATION PLAN | |
| Dimensions | NTS | | Project No.: | WGA230955 | Ref. FIGURE A2 |
| Original | - | | | | |

*Source: Google Earth Pro. Dated April 2024.*

# APPENDIX B
# RESULTS OF THE FIELD INVESTIGATION

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 9/04/2024
Date Logged: 9/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 1**
Page 1

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| | FILL | Silty SAND, fine to medium grained, dark brown, low plasticity, trace fine gravel, trace rootlet | D | | | Fill |
| | FILL | Sandy GRAVEL, fine to medium, angular to subangular, pale brown, | D | | | |
| 0.35 | | fine to coarse grained, with fine, trace fine brick fragments | D-M | | | |
| 0.5 | CL | Silty CLAY, low plasticity, dark brown and brown, trace fine to medium grained sand, porous structure | <Wp | H | 600 | Alluvium, natural |
| | | | | | 600 | |
| 0.8 | | | | | | |
| | CL | Silty CLAY, low plasticity, pale brown mottled white, with fine to | <Wp | H | 600 | |
| 1.0 | | medium grained sand, trace calcareous nodules | | | | |
| | | | | | 600 | |
| | | | | | 420 | |
| 1.5 | | | | | 550 | |
| | | | | | 420 | |
| 1.9 | | | | | 500 | |
| 2.0 | CL | Sandy CLAY, low plasticity, pale brown, fine to medium grained | ≈Wp | Fb | | |
| | | | >Wp | | | |
| 2.3 | | | ≈Wp | | | |
| | CL/CI | Sandy CLAY, low to medium plasticity, orange brown, fine to | ≈Wp | Vst | 380 | |
| 2.5 | | medium grained | | | | |
| 2.6 | | | | | 400 | |
| | CL/SC | Clayey SAND, fine to coarse grained, orange brown to yellow brown, | M | L/MD | | |
| | | low plasticity, trace fine to medium gravel | | | | |
| 3.0 | | Borehole terminated at 3.0 m (target depth) | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **No**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

| | | |
|---|---|---|
| Date Drilled: | 9/04/2024 | |
| Date Logged: | 9/04/2024 | **Borehole No.** |
| **Logged by:** | **YW** | **BH 2** |
| Drilling Method: | Push Tube | |
| Drill Rig/Mount: | Portable | Page 1 |

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| | FILL | Sandy GRAVEL, fine to coarse, angular to subangular, white and grey, fine to coarse grained, trace brick fragments | D | | | Fill |
| 0.35 | | | | | | |
| 0.5 | CL | CLAY, low plasticity, dark brown and brown, trace fine to medium grained sand, trace rootlet | <Wp | Fb | | Alluvium, natural |
| | | | | H | 600 | |
| | | | | Fb | | |
| | | | | H | 600 | |
| 1.0 | | | | | | |
| | CL | Sandy CLAY, low plasticity, brown mottled pale brown, fine to medium grained | <Wp | Vst | 350 | |
| | | | | Fb | | |
| | | | | H | 540 | |
| 1.5 | | | | | | |
| | | | | | 580 | |
| 1.65 | | | | | | |
| | SC/CL | Clayey SAND, fine to medium grained, yellow brown, low plasticity | M | L/MD | | |
| 2.0 | | | | | | |
| 2.2 | | | | | | |
| | CL/SC | Sandy CLAY, low plasticity, grey and yellow brown, fine to coarse grained, trace fine gravel | ≈Wp | H | 450 | |
| 2.5 | | | | | 460 | |
| | | | | | 490 | |
| | | Grading to clayey sand | | | 490 | |
| 3.0 | | Borehole terminated at 3.0 m (target depth) | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **No**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
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Email adelaide@wga.com.au

Date Drilled: 9/04/2024
Date Logged: 9/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 3**
Page 1

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| 0.1 | FILL | Silty SAND, fine to medium grained, dark brown, low plasticity, trace rootlet | D-M | | | Fill |
| 0.3 | FILL | Sandy GRAVEL, fine to coarse, angular to subangular, red brown and yellow brown, fine to coarse grained, with fine | D | | | |
| 0.5 | FILL | Silty CLAY, low plasticity, pale brown and brown, trace fine to coarse grained sand, trace fine gravel, trace fine brick fragment, trace rootlet | D | | | |
| 0.85 | | | | | | |
| 1.0 | CL | CLAY, low plasticity, dark brown, trace fine to medium grained sand, trace rootlet | <Wp | H | 600 | Alluvium, natural |
| 1.05 | CL | CLAY, low plasticity, pale brown mottle white, with fine to medium grained sand, trace calcareous nodules | <Wp | Fb | | |
| | | | | H | 600 | |
| 1.5 | SC/CL | Clayey SAND, fine to medium grained, yellow brown, mottled white, low plasticity, trace rootlet | D-M | L/MD | | |
| 2.0 | | | | | | |
| 2.2 | CL/SC | Sandy CLAY, low plasticity, yellow brown, fine to medium grained, trace rootlet | <Wp | Fb | | |
| | | | | H | 430 | |
| 2.5 | | | | | 420 | |
| 2.8 | | | | | | |
| 3.0 | SC | Clayey SAND, fine to medium grained, yellow brown, low plasticity, trace rootlet | M | L/MD | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **No**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 9/04/2024
Date Logged: 9/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 3**
Page 2

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| 3.1 | SC/CL | Clayey SAND, as above | M | | | |
| | SC | Clayey SAND, fine to medium grained, yellow brown and grey, low plasticity, trace fine to medium gravel | M | | | |
| 3.5 | | | | | | |
| 4.0 | | | | | | |
| | | Borehole terminated at 4.0 m (target depth) | | | | |
| 4.5 | | | | | | |
| 5.0 | | | | | | |
| 5.5 | | | | | | |
| 6.0 | | | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **No**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

| | | |
|---|---|---|
| Date Drilled: | 9/04/2024 | |
| Date Logged: | 9/04/2024 | **Borehole No.** |
| **Logged by:** | **YW** | **BH 4** |
| Drilling Method: | Push Tube | |
| Drill Rig/Mount: | Portable | Page 1 |

**Legend:**

| **Moisture Condition** | **Density Index - Granular** | **Consistency - Cohesive** | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| | FILL | CLAY, high plasticity, red brown mottled white, with calcareous nodules, trace fine to medium grained sand | <Wp | | | Fill |
| | | | | | 600 | |
| 0.5 | | | | | 600 | |
| 0.7 | | | | | 600 | |
| | FILL | Sandy GRAVEL, fine to coarse, angular to subangular, pale brown mottled red brown, white, and grey, fine to coarse grained, with | D-M | | | |
| 1.0 | | fine, trace fine to medium brick fragment, trace fine to medium asphaltic concrete fragments, trace rootlet | | | | |
| 1.5 | | | | | | |
| 2.0 | | | | | | |
| 2.1 | | | | | | |
| | FILL | Sandy CLAY, high plasticity, red brown mottled white, fine to coarse grained, with fine to medium, subangular gravel, trace rootlet | <Wp | | | |
| 2.5 | | | | | | |
| 3.0 | | | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 9/04/2024
Date Logged: 9/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 4**
Page 2

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| | | Composition of soil | Condition of soil | | | Structure and additional observations |
| 3.1 | FILL | Sandy CLAY, low plasticity, brown, fine to coarse grained, trace fine gravel | <Wp | Fb | | Fill |
| 3.2 | CL | CLAY, low plasticity, dark brown, with fine to medium grained sand | <Wp | H | 550 | Alluvium, natural |
| | | | | L/MD | | |
| | SC | Clayey SAND, fine to medium grained, yellow brown to grey, low | M | | | |
| 3.5 | | plasticity, trace calcareous nodules | | | | |
| 4.0 | | | | | | |
| | | Borehole terminated at 4.0 m (target depth) | | | | |
| 4.5 | | | | | | |
| 5.0 | | | | | | |
| 5.5 | | | | | | |
| 6.0 | | | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **Yes**

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South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 9/04/2024
Date Logged: 9/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 5**
Page 1

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** WGA230955
**Location:** ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| 0.05 | FILL | Silty SAND, fine to medium grained, dark brown, low plasticity, trace rootlet | M | | | Fill |
| | FILL | Silty GRAVEL, fine to coarse, angular to subangular, grey and red brown, low plasticity, with fine to coarse grained sand, trace fine to coarse brick fragments | D | | | |
| 0.5 | | | | | | |
| 0.6 | | | | | | |
| 0.7 | FILL | Clayey SAND, fine to coarse grained, pale brown mottled red brown and grey, low plasticity, trace fine gravel, trace brick fragment | D-M | Fb | | Alluvium, natural |
| 0.95 | CL | CLAY, low plasticity, dark brown and brown, with fine to medium grained sand, trace rootlet | <Wp | H | 600 | |
| 1.0 | | | | H | | |
| | CH | CLAY, high plasticity, dark brown and black, trace fine to medium grained sand | ≈Wp | | 600 | |
| 1.2 | | | | | | |
| | CL | CLAY, low plasticity, dark brown and pale brown, with fine to medium grained sand | ≈Wp | H | 570 | |
| 1.5 | | | | | 430 | |
| 1.6 | | | | | | |
| | CL | Sandy CLAY, low plasticity, yellow brown, fine to medium grained | <Wp | H | 560 | |
| 1.9 | | | | | 410 | |
| 2.0 | SC/CL | Clayey SAND, fine to medium grained, yellow brown, low plasticity fines | M | L/MD | | |
| 2.3 | | | | | | |
| | SC/CL | Clayey SAND, fine to coarse grained, yellow brown and grey, low plasticity fines | M | L/MD | | |
| 2.5 | | | | | | |
| | CL/SC | Sandy CLAY, low plasticity, grey and yellow brown, fine to coarse grained, trace rootlet | >Wp | H | 580 | |
| | | | | Vst | 320 | |
| | | | | | 470 | |
| 3.0 | | | | | 300 | |

**Depth to Groundwater: None Observed** **Trees at Site:** **No**

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South Australia 5000
Telephone 08 8223 7433
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| | | |
|---|---|---|
| Date Drilled: | 9/04/2024 | |
| Date Logged: | 9/04/2024 | **Borehole No.** |
| **Logged by:** | **YW** | **BH 5** |
| Drilling Method: | Push Tube | |
| Drill Rig/Mount: | Portable | Page 2 |

**Legend:**

| **Moisture Condition** | **Density Index - Granular** | **Consistency - Cohesive** | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**

**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| | SC | Clayey SAND, fine to coarse grained, yellow brown and grey, low plasticity | M | | | |
| 3.5 | | | | | | |
| 3.6 | | | | | | |
| | SC | Clayey SAND, fine to coarse grained, grey, low plasticity | M-W | | | |
| 4.0 | | | | | | |
| | | Borehole terminated at 4.0 m (target depth) | | | | |
| 4.5 | | | | | | |
| 5.0 | | | | | | |
| 5.5 | | | | | | |
| 6.0 | | | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **No**

WGA
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South Australia 5000
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| | | |
|---|---|---|
| Date Drilled: | 9/04/2024 | |
| Date Logged: | 9/04/2024 | **Borehole No.** |
| **Logged by:** | **YW** | **BH 6** |
| Drilling Method: | Push Tube | |
| Drill Rig/Mount: | Portable | Page 1 |

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| | FILL | Sandy CLAY, high plasticity, red brown mottled white, fine to coarse grained, with fine to coarse, angular to subangular gravel | <Wp | | | Fill |
| | | | | | 600 | |
| 0.5 | | | | | | |
| | | | | | 600 | |
| | | | | | 600 | |
| 1.0 | | | | | | |
| | | | | | 600 | |
| | | At 1.25 m, pocket of gravel | | | | |
| 1.45 | | | | | 600 | |
| 1.5 | FILL | Sandy GRAVEL, fine to medium, angular to subangular, grey and pale brown, fine to coarse grained, with fine | D | | | |
| 1.9 | | | | | | |
| 2.0 | FILL | Sandy CLAY, low plasticity, brown mottled white, fine to coarse | <Wp | | | |
| 2.1 | | grained, trace fine to medium gravel | | | | |
| | FILL | Gravelly CLAY, low plasticity, dark brown mottled red brown, fine to coarse, angular to subangular, with fine to coarse grained sand, with fine to coarse brick fragment | <Wp | | | |
| 2.5 | | | | | | |
| 2.6 | | | | | | |
| | FILL | Sandy CLAY, low plasticity, dark brown, fine to coarse grained, trace fine gravel | <Wp | | | Reworked natural |
| 3.0 | | | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **No**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 9/04/2024
Date Logged: 9/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 6**
Page 2

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| | SC | Clayey SAND, fine to coarse grained, yellow brown mottled orange brown, low plasticity | M | L/MD | | Alluvium, natural |
| 3.5 | | | | | | |
| 4.0 | | | | | | |
| | | Borehole terminated at 4.0 m (target depth) | | | | |
| 4.5 | | | | | | |
| 5.0 | | | | | | |
| 5.5 | | | | | | |
| 6.0 | | | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **No**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 9/04/2024
Date Logged: 9/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 7**
Page 1

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| 0.05 | FILL | SAND, fine to medium grained, orange brown, trace rootlet | D | | | Fill |
| 0.2 | FILL | Sandy GRAVEL, fine, subangular, white, fine to coarse grained, with fine | D | | | |
| 0.4 | FILL | GRAVEL, fine to medium, angular to subangular, grey to red brown, | D | | | |
| 0.5 | | with fine, brick fragment, trace fine | | | | Alluvium, natural |
| | CL | Silty CLAY, low plasticity, dark brown, trace fine to medium grained | <Wp | Fb | | |
| 0.7 | | sand, trace rootlet | | | | |
| | Cl | CLAY, medium plasticity, dark brown and brown, with fine to | <Wp | Fb | | |
| | | medium grained sand, trace rootlet | | H | 600 | |
| 1.0 | | | | | | |
| | | Became sandier | | Fb | | |
| 1.3 | | | | | | |
| | CL | Sandy CLAY, low plasticity, red brown mottled pale brown, fine to | <Wp | H | 600 | |
| 1.5 | | medium grained, trace calcareous nodules, trace rootlets | | | | |
| | | | | | 600 | |
| 1.9 | | | | | | |
| 2.0 | CL | CLAY, low plasticity, orange brown, with fine to medium grained | <Wp | H | | |
| | | sand | | | 470 | |
| | | | | | 470 | |
| 2.25 | | | | | | |
| | CL | Sandy CLAY, low plasticity, yellow brown and orange brown, fine to | <Wp | H | | |
| 2.5 | | medium grained | | | 500 | |
| | | | | Fb | | |
| 2.75 | | Sandy CLAY, medium plasticity, yellow brown and grey mottled | | | | |
| | Cl | orange brown, fine to medium grained | <Wp | H | 600 | |
| 3.0 | | Borehole terminated at 3.0 m (target depth) | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 18/04/2024
Date Logged: 18/04/2024
**Logged by:** ZY
Drilling Method: Push Tube/Hollow Auger
Drill Rig/Mount: Ezi-probe

**Borehole No.**
**BH 18**
Page 1

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Composition of soil: Soil Description (type, plasticity, grading, colour, secondary and minor components) | Condition of soil: Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| | FILL | Gravelly SAND, fine to coarse grained, brown, fine to medium | D | | | FILL |
| 0.15 | | grained, subangular to angular, trace fines, trace rootlet | | | | |
| 0.25 | FILL | Sandy GRAVEL, fine to medium grained, subangular to angular, pale yellow, fine to | | | | |
| | CL | medium grained, trace fines. From 0.25 m - 0.3 m, large brick fragment recovered | | Fb | | Fine-grained alluvium |
| 0.5 | | Sandy CLAY, low plasticity, pale brown, fine to medium grained, trace rootlet | Wp | | | Natural |
| | CI | Sandy CLAY, medium plasticity, brown, fine to medium grained, | Wp | Fb | | |
| | | trace rootlet, trace gravel | | | | |
| 0.75 | | | | | 600 | |
| | CI | Sandy CLAY, medium plasticity, pale brown, fine to medium grained, | <Wp | H | | |
| 1.0 | | trace rootlet | | | 600 | |
| | | | | | | |
| | | | | | | |
| | | | | | 440 | |
| | | 1.3 m - 1.5 m, slightly calcareous | | | | SPT at 1.5 m |
| 1.5 | | | | | 400 | 4, 4, 3 |
| | CI/CH | CLAY, medium to high plasticity, pale brown to brown, with fine to | <Wp | St | | N= 7 |
| | | medium grained sand | | | | |
| | | | | | | |
| | | | | | | |
| 2.0 | | | | | | |
| | CI | Sandy CLAY, medium plasticity, brown, mottled greenish grey, | >Wp | H | 460 | |
| | | speckled black, fine to medium grained | | | | |
| | | | | | 430 | |
| | | | | | | |
| 2.5 | | | | | 450 | |
| | | | | | | |
| | | | | | 550 | |
| 2.8 | | | | | | SPT at 3.0 m |
| | CI | CLAY, medium plasticity, grey brown, mottled yellow brown, trace | >Wp | H | 440 | 2, 3, 3 |
| 3.0 | | sand | | | | N= 6 |

**Depth to Groundwater: 8.5 m** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 18/04/2024
Date Logged: 18/04/2024 **Borehole No.**
**Logged by:** **ZY** **BH 18**
Drilling Method: Push Tube/Hollow Auger
Drill Rig/Mount: Ezi-probe Page 2

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| | CH | CLAY, as above | >Wp | H | | |
| 3.5 | | | | | | |
| | CI/CH | CLAY, medium to high plasticity, greenish grey mottled yellow brown | >Wp | H | 380 | |
| | | | | | 450 | |
| 4.0 | | | | | 530 | |
| | | | | Vst | 350 | |
| | | | | | 280 | SPT at 4.5 m |
| 4.5 | | | | | 350 | 3, 5, 7 |
| | | | | St to Vst | | N= 12 |
| 5.0 | | | | | | |
| | | | | H | 450 | |
| 5.3 | | | | | 420 | |
| 5.4 | SC | Clayey SAND, fine to medium grained, pale yellow brown, low plasticity | M-W | MD | | |
| 5.5 | SP | SAND, fine to medium grained, pale yellow, trace gravel, trace fines | M | MD | | |
| | | | | | | SPT at 6.0 m |
| | | | | | | 5, 4, 5 |
| 6.0 | | | | | | N= 9 |

**Depth to Groundwater: 8.5 m** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 18/04/2024
Date Logged: 18/04/2024 **Borehole No.**
**Logged by:** **ZY** **BH 18**
Drilling Method: Push Tube/Hollow Auger
Drill Rig/Mount: Ezi-probe Page 3

**Legend:**

| **Moisture Condition** | **Density Index - Granular** | **Consistency - Cohesive** | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| | SP | SAND, as above | M | MD | | |
| 6.5 | | | | | | |
| | | 6.5 m - 6.55 m, a band of grey clayey SAND | | | | |
| | | 6.8 m - 6.9 m, a band of dark grey clayey SAND | | | | |
| 7.0 | | | | | | |
| | | 7.1 m - 7.2 m, colour changed to yellow with brown | | | | |
| | | | | | | SPT at 7.5 m |
| 7.5 | | | | | | 3, 5, 5 |
| | | | | | | N= 10 |
| 8.0 | | | | | | |
| | | 8.2 m - 8.3 m, colour changed to yellow brown with orange brown | | | | |
| 8.4 | | | | | | |
| 8.5 | SP | Gravelly SAND/sandy GRAVEL, fine to coarse grained, pale brown | M-W | MD | | Coarse-grained alluvium |
| | | to brown, fine to coarse grained, subrounded to rounded, with low | | | | Groundwater at 8.5 m |
| | | plasticity fines, gravel is mainly quartzite and quartz | | | | |
| | | | | | | SPT at 9.0 m |
| | | 8.7 m - 9.0 m with cobbles | | | | 5, 4, 5 |
| 9.0 | | | | | | N= 9 |

**Depth to Groundwater: 8.5 m** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 18/04/2024
Date Logged: 18/04/2024 **Borehole No.**
**Logged by:** ZY **BH 18**
Drilling Method: Push Tube/Hollow Auger
Drill Rig/Mount: Ezi-probe Page 4

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| | SP | Gravelly SAND, as above | W | MD | | |
| | | 9.0 m - 9.5 m, coarse grained sand | | | | |
| 9.5 | | | | | | |
| 10.0 | | 10.0 m - 10.1 m, a band of grey clayey SAND | | | | |
| 10.1 | | | | | | |
| | SP | SAND, fine to medium grained, brown, trace fines, trace gravel | W | MD | | |
| | | | | | | SPT at 10.5 m |
| 10.5 | | | | | | 2, 12, 110 mm/10 blows |
| | CI | Sandy CLAY, medium plasticity, dark grey, fine to medium grained | >Wp | St | | N= R, hammer bouncing |
| 10.65 | | | | | | |
| | SP | SAND, fine to medium grained, dark grey, with low plasticity clay | W | MD | | |
| 11.0 | | At 10.9 m, coarse quartz gravel | | | | |
| 11.1 | | 11.0 m - 11.1 m, gravelly | | | | |
| | CI | Gravelly CLAY, medium plasticity, grey brown, mottled pale yellow | >Wp | St-Vst | 250 | |
| 11.3 | | brown, fine to medium grained, subrounded to rounded | | | | |
| | CI/CH | Sandy CLAY, medium to high plasticity, grey brown mottled yellow | | | 270 | |
| 11.5 | | brown, fine to coarse grained, with fine to medium grained, | | | | |
| | | subangular to subrounded gravel, trace quartz | | | 140 | |
| | | | | | | |
| | | | | | 180 | SPT at 12.0 m |
| | | | | | | 135 mm/9 blows |
| 12.0 | | At 12.0 m, large cemented sand fragment recovered | | | 270 | N= R, hammer bouncing |

**Depth to Groundwater: 8.5 m** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 18/04/2024
Date Logged: 18/04/2024 **Borehole No.**
**Logged by:** ZY **BH 18**
Drilling Method: Push Tube/Hollow Auger
Drill Rig/Mount: Ezi-probe Page 5

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| | CH | Sandy CLAY, high plasticity, greenish grey brown, fine to medium | >Wp | F | 60 | possibly disturbed |
| 12.15 | | grained, trace gravel | | | 60 | |
| | GP | Sandy GRAVEL, fine to coarse grained, subangular to subrounded, | W | VD | | |
| | | brown, fine to coarse grained, with medium plasticity clay | | | | |
| 12.5 | | | | | | |
| | | | | | | |
| | | | | | | |
| | | 12.8 m - 13.0 m, cobble fragments recovered | | | | |
| | | | | | | |
| 13.0 | | | | | | |
| | | 13.2 m - 13.3 m, a band of clayey SAND | | | | |
| | | | | | | |
| | | 13.3 m - 13.5 m, large cemented sand fragment recovered | | | | |
| | | | | | | SPT at 13.5 m |
| 13.5 | | | | | | (10 mm/8 blows |
| | | | | | | N= R, hammer bouncing |
| | | | | | | |
| 13.75 | | | | | | |
| | CI | CLAY, medium plasticity, greenish grey, speckled black, mottled | >Wp | St | 160 | |
| 14.0 | | yellow brown, with fine to medium grained sand | | | | Blanche Point Marl |
| | | | | | | From 13.75 m - 15.0 m |
| | | | | | 70 | Low drilling resistance |
| | | | | | | Poor recovery |
| | | | | | | |
| 14.5 | | | | | 180 | |
| | | | | | | Blanche Point Marl |
| | | | | | | |
| | | | | | 60 | SPT at 15.0 m |
| | | | | | | 0, 1, 3, 2 (over-driven) |
| 15.0 | | | | | | N= 5 |

**Depth to Groundwater: 8.5 m** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 18/04/2024
Date Logged: 18/04/2024
**Logged by:** ZY
Drilling Method: Push Tube/Hollow Auger
Drill Rig/Mount: Ezi-probe

**Borehole No.**
**BH 18**
Page 6

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| | Cl | CLAY, as above | >Wp | St | | |
| 15.5 | | | | | | |
| | Cl | CLAY, medium plasticity, grey brown with yellow brown, trace gravel | >Wp | St | | |
| | | | | | 170 | |
| 16.0 | | | | | | |
| | | | | | 200 | |
| | | | | | 170 | |
| | | | | | | SPT at 16.5 m |
| 16.5 | | | | | 240 | 2, 4, 4 |
| | | | | | | N= 8 |
| 17.0 | | | | | | |
| | Cl | CLAY, medium plasticity, yellow brown with grey brown, speckled | >Wp | St | 130 | |
| | | black, trace sand, trace gravel | | | | |
| | | | | | 90 | |
| 17.5 | | | | | 110 | |
| | | 17.5 m - 17.6 m, with weakly cemented sand recovered as gravel | | | | |
| | | | | | 110 | |
| | | | | | | SPT at 18.0 m |
| | | | | | 100 | 2, 9, 7 |
| 18.0 | | | | | 60 | N= 16 |

**Depth to Groundwater: 8.5 m** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 18/04/2024
Date Logged: 18/04/2024
**Logged by:** ZY
Drilling Method: Push Tube/Hollow Auger
Drill Rig/Mount: Ezi-probe

**Borehole No.**
**BH 18**
Page 7

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| | Cl | CLAY, medium plasticity, grey brown speckled black, with fine to medium grained sand, trace gravel, weakly cemented | >Wp | St | | |
| 18.5 | | | | | | |
| | | | | | 110 | |
| | | 18.7 m - 18.8 m, weakly cemented, with gravels | | | 100 | |
| 18.8 | | | | | 130 | From 18.8 m - 19.05 m |
| | Cl | Gravelly CLAY, medium plasticity, grey brown, speckled black, fine to medium grained, angular to subangular, with fine to coarse grained sand, weakly cemented | >Wp | Vst | | High drilling resistance |
| 19.0 | | | | | 340 | |
| | | | | H | | At 19.05 m, push tube refusal |
| | | | | | | Changed to auger with blank bit |
| | | | | | | From 19.05 m - 19.4 m |
| | | | | | | High drilling resistance |
| 19.5 | | | | | | with auger |
| | Cl | CLAY, medium plasticity, dark grey brown, trace sand | >Wp | H | | SPT at 19.5 m |
| | | | | | | 12, 105 mm/13 blows |
| | | 19.75 m, weakly cemented, with gravel | | | | N= R, hammer bouncing |
| 20.0 | | Borehole terminated at 19.76 m (push tube refusal) | | | | |
| 20.5 | | | | | | |
| 21.0 | | | | | | |

**Depth to Groundwater: 8.5 m** **Trees at Site:** **Yes**

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# DESCRIPTION AND CLASSIFICATION OF SOILS(1) FOR ENGINEERING PURPOSES
# EXPLANATION SHEET TO ACCOMPANY ENGINEERING LOGS (SHEET 1)

## CLASSIFICATION SYMBOL & SOIL NAME

Soils are described in general accordance with the Unified Soil Classification (UCS) as shown in Table 1 on Sheet 2 using visual-tactile methods.

## PARTICLE SIZES

| NAME | FRACTION | SIZE |
|---|---|---|
| Boulders | | >200 mm |
| Cobbles | | 63 mm to 200 mm |
| Gravel | coarse | 20 mm to 63 mm |
| | medium | 6.7 mm to 20 mm |
| | fine | 2.36 mm to 6.7 mm |
| Sand | coarse | 600 µm to 2.36 mm |
| | medium | 210 µm to 600 µm |
| | fine | 75 µm to 210 µm |

## MOISTURE CONDITION

**Dry** Looks and feels dry. Cohesive soils are hard, friable or powdery. Uncemented granular soils run freely through hands.

**Moist** Soil feels cool and darkened in colour. Cohesive soils can be mounded. Granular soils tend to cohere.

**Wet** Similar to moist but with free water forming on hands when handled.

## CONSISTENCY OF COHESIVE SOILS

| TERM | UNDRAINED STRENGTH Su (kPa) | FIELD ASSESSMENT |
|---|---|---|
| **Very Soft** | ≤12 | A finger can be pushed well into the soil with little effort. |
| **Soft** | 12 to 25 | A finger can be pushed into the soil to about 25 mm depth. |
| **Firm** | 25 to 50 | The soil can be indented about 5 mm with the thumb. |
| **Stiff** | 50 to 100 | The surface of the soil can be indented with the thumb. |
| **Very Stiff** | 100 to 200 | The surface of the soil can be marked, but not indented with thumb pressure. |
| **Hard** | >200 | The surface of the soil can be marked only with the thumbnail. |
| **Friable** | Not able to be measured | Crumbles or powders when scraped by thumbnail. |

The undrained shear strength is assessed in the field using a pocket or hand penetrometer (PP). The undrained shear strength is approximately one half of the hand penetrometer reading.

## DENSITY INDEX OF GRANULAR SOILS

| TERM | DENSITY INDEX (%) |
|---|---|
| Very loose | Less than 15 |
| Loose | 15 to 35 |
| Medium Dense | 35 to 65 |
| Dense | 65 to 85 |
| Very Dense | Greater than 85 |

## MINOR COMPONENTS

| TERM | FIELD ASSESSMENT | PROPORTION OF MINOR COMPONENT IN: |
|---|---|---|
| Trace of | Presence just detectable by feel or eye. | Coarse grained soils: ≤5%<br>Fine grained soils: ≤15% |
| With some | Presence easily detected by feel or eye. | Coarse grained soils: >5 to ≤12%<br>Fine grained soils: >15 to ≤30% |

## SOIL STRUCTURE

| INCLUSIONS | | CEMENTING | |
|---|---|---|---|
| Layers | Continuous across exposure or sample. | Weakly Cemented | Easily broken up by hand in air or water. |
| Lenses | Discontinuous layers of lenticular shape. | Moderately Cemented | Effort is required to break up the soil by hand in air or water. |
| Pockets | Irregular inclusions of different material. | | |

## SOIL ORIGIN

### MATERIALS WEATHERED IN-SITU

| | |
|---|---|
| Extremely weathered material | Structure and fabric of parent rock visible. |
| Residual soil | Structure and fabric of parent rock not visible. |

### TRANSPORTED SOILS

| | |
|---|---|
| Aeolian | Deposited by wind. |
| Alluvial | Deposited by streams and rivers. |
| Colluvial | Deposited on slopes (transported downslope by gravity) |
| Fill | Placed by man. Fill may be markedly more variable between tested locations than naturally occurring soils. |
| Marine | Deposited in ocean basins, bays, beaches and estuaries. |

*Note: (1) materials found in the ground are generally described as a soil if the material can be remoulded or disintegrated by hand in the field condition or in water. Other materials are described using rock description terms.*

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**Table 1: SOIL CLASSIFICATION AND FIELD IDENTIFICATION AND DESCRIPTION (SHEET 2)**

| FIELD IDENTIFICATION PROCEDURES (excluding particles larger than 60 mm and basing fractions on estimated mass) | | | | | | USC | PRIMARY NAME |
|---|---|---|---|---|---|---|---|
| COARSE GRAINED SOILS More than 65% of material less than 63 mm is larger than 0.075 mm | GRAVELS More than half of coarse fraction is larger than 2.0 mm | CLEAN GRAVELS (Little or no fines) | Wide range in grain size and substantial amounts of all intermediate particle sizes. | | | GW | GRAVEL |
| | | | Predominantly one size or a range of sizes with more intermediate sizes missing. | | | GP | GRAVEL |
| | | GRAVELS WITH FINES (Appreciable amount of fines | Non-plastic fines (for identification procedures see ML below) | | | GM | SILTY GRAVEL |
| | | | Plastic fines (for identification procedures see CL below) | | | GC | CLAYEY GRAVEL |
| | SANDS More than half of coarse fraction is smaller than 2.0 mm | CLEAN SANDS (Little or no fines) | Well graded. Wide range in grain sizes and substantial amounts of all intermediate sizes. | | | SW | SAND |
| | | | Poorly graded. Predominantly one size or a range of sizes with some intermediate sizes missing | | | SP | SAND |
| | | SANDS WITH FINES (Appreciable amount of fines) | Non-plastic fines (for identification procedures see ML Below) | | | SM | SILTY SAND |
| | | | Plastic fines (for identification procedures see CL below) | | | SC | CLAYEY SAND |
| | IDENTIFICATION PROCEDURES ON PARTICLES <0.2 mm | | | | | | |
| FINE GRAINED SOILS More than 35% of material less than 63 mm is smaller than 0.075 mm | SILTS & CLAYS Liquid limit less than or equal to 50 | **DRY STRENGTH** | **DILATANCY** | **TOUGHNESS** | | | |
| | | None to low | Quick to slow | None | | ML | SILT |
| | | Medium to high | None | Medium | | CL | CLAY |
| | | Low to medium | Slow to very slow | Low | | OL | ORGANIC SILT |
| | SILTS & CLAYS Liquid limit greater than 50 | Low to medium | Slow to very slow | Low to medium | | MH | SILT |
| | | High | None | High | | CH | CLAY |
| | | Medium to high | None | Low to medium | | OH | ORGANIC CLAY |
| HIGHLY ORGANIC SOILS | | Identified by colour, odour, spongy feel and frequently by fibrous texture. | | | | Pt | PEAT |

* Low plasticity – Liquid Limit $W_L$ Less than 35 % * Medium plasticity - $W_L$ between 35% and 50%

# APPENDIX C
# LABORATORY TESTING

# Material Test Report

**Report Number:** **A24238-1A**
**Issue Number:** 1
**Date Issued:** 18/04/2024
**Client:** WGASA Pty Ltd
60 Wyatt St, Adelaide SA 5000
**Contact:** Yan Wang
**Project Number:** A24238
**Project Name:** Adelaide Caravan park Redevelopment, Hackney
**Project Location:** SA
**Client Reference:** WGA230955 - WGA230955
**Work Request:** 456
**Sample Number:** A24-456A
**Date Sampled:** 09/04/2024
**Dates Tested:** 12/04/2024 - 18/04/2024
**Sampling Method:** Sampled by Client
*The results apply to the sample as received*
**Sample Location:** **BH1, Depth: 1.5-1.9m**
**Material Source:** Bore Hole

Adelaide Laboratory
Unit 3/3 Selgar Avenue Clovelly Park SA 5042
Phone: (03) 9769 5799
Email: rdingle@terrafirmalabs.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

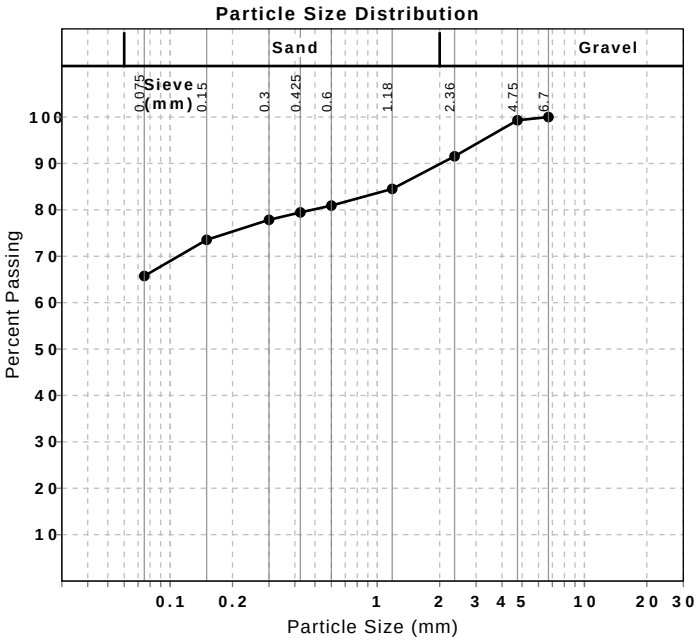
Approved Signatory: Ross Dingle
Technical Manager
NATA Accredited Laboratory Number: 15357

| Particle Size Distribution (DPTI (SA) TP134) | | | |
|---|---|---|---|
| Sieve | Passed % | Passing Limits | |
| 6.7 mm | **100** | | |
| 4.75 mm | **99** | | |
| 2.36 mm | **92** | | |
| 1.18 mm | **85** | | |
| 0.6 mm | **81** | | |
| 0.425 mm | **79** | | |
| 0.3 mm | **78** | | |
| 0.15 mm | **74** | | |
| 0.075 mm | **66** | | |

| Atterberg Limit (DPTI (SA) TP143 & TP141) | | Min | Max |
|---|---|---|---|
| Sample History | Air Dried | | |
| Preparation Method | Dry Sieve | | |
| Liquid Limit (%) | 30 | | |
| Plastic Limit (%) | 21 | | |
| **Plasticity Index (%)** | **9** | | |

| Linear Shrinkage (DPTI (SA) TP143) | | Min | Max |
|---|---|---|---|
| Linear Shrinkage (%) | **5.0** | | |
| Cracking Crumbling Curling | Cracking | | |

| Estimation of CBR from Classification Test (DPTI (SA) TP133) | | Min | Max |
|---|---|---|---|
| Lab-estimated CBR (%) | 15 | | |





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*Results relate only to the items tested/sampled.*

# Material Test Report

**Report Number:** **A24238-1A**
**Issue Number:** 1
**Date Issued:** 18/04/2024
**Client:** WGASA Pty Ltd
60 Wyatt St, Adelaide SA 5000
**Contact:** Yan Wang
**Project Number:** A24238
**Project Name:** Adelaide Caravan park Redevelopment, Hackney
**Project Location:** SA
**Client Reference:** WGA230955 - WGA230955
**Work Request:** 456
**Sample Number:** A24-456B
**Date Sampled:** 09/04/2024
**Dates Tested:** 12/04/2024 - 18/04/2024
**Sampling Method:** Sampled by Client
*The results apply to the sample as received*
**Sample Location:** **BH15, Depth: 0.6-1.0m**
**Material Source:** Bore Hole

terra firma laboratories
Adelaide Laboratory
Unit 3/3 Selgar Avenue Clovelly Park SA 5042
Phone: (03) 9769 5799
Email: rdingle@terrafirmalabs.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

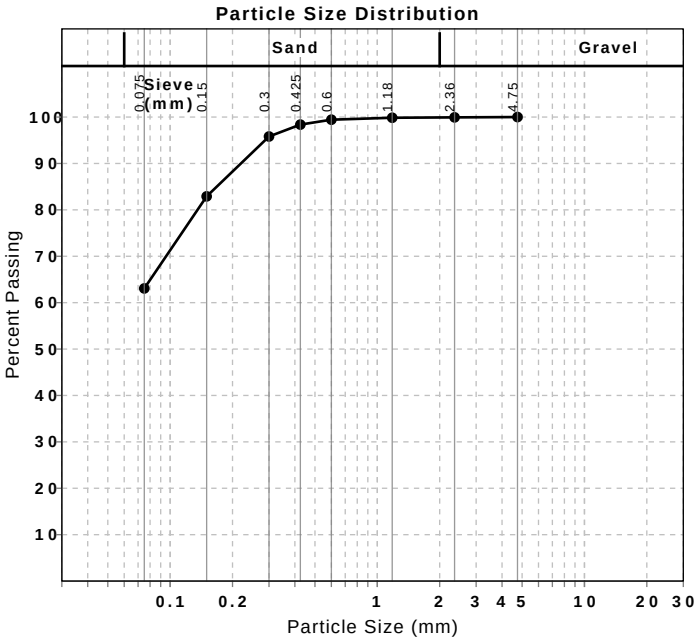
Approved Signatory: Ross Dingle
Technical Manager
NATA Accredited Laboratory Number: 15357

| Particle Size Distribution (DPTI (SA) TP134) | | | |
|---|---|---|---|
| Sieve | Passed % | Passing Limits | |
| 4.75 mm | **100** | | |
| 2.36 mm | **100** | | |
| 1.18 mm | **100** | | |
| 0.6 mm | **99** | | |
| 0.425 mm | **98** | | |
| 0.3 mm | **96** | | |
| 0.15 mm | **83** | | |
| 0.075 mm | **63** | | |

| Atterberg Limit (DPTI (SA) TP143 & TP141) | | Min | Max |
|---|---|---|---|
| Sample History | Air Dried | | |
| Preparation Method | Dry Sieve | | |
| Liquid Limit (%) | 23 | | |
| Plastic Limit (%) | 15 | | |
| **Plasticity Index (%)** | **8** | | |

| Linear Shrinkage (DPTI (SA) TP143) | | Min | Max |
|---|---|---|---|
| Linear Shrinkage (%) | **1.5** | | |
| Cracking Crumbling Curling | Cracking | | |

| Estimation of CBR from Classification Test (DPTI (SA) TP133) | | Min | Max |
|---|---|---|---|
| Lab-estimated CBR (%) | 14 | | |





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*Results relate only to the items tested/sampled.*

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **Work Order** | : **EM2406579** | Page | : 1 of 3 |
| Client | : **WGASA Pty Ltd** | Laboratory | : Environmental Division Melbourne |
| Contact | : Zyang Y. | Contact | : Customer Services EM |
| Address | : 60 WYATT ST<br>ADELAIDE SOUTH AUSTRALIA, AUSTRALIA 5000 | Address | : 4 Westall Rd Springvale VIC Australia 3171 |
| Telephone | : ---- | Telephone | : +61-3-8549 9600 |
| Project | : WGA230955 | Date Samples Received | : 24-Apr-2024 11:15 |
| Order number | : ---- | Date Analysis Commenced | : 26-Apr-2024 |
| C-O-C number | : ---- | Issue Date | : 01-May-2024 17:35 |
| Sampler | : ZY | | |
| Site | : Hackney, SA | | |
| Quote number | : EN/222 | | |
| No. of samples received | : 3 | | |
| No. of samples analysed | : 3 | | |

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

**Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.**

## *Signatories*

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

| *Signatories* | *Position* | *Accreditation Category* |
|---|---|---|
| Eric Chau | Metals Team Leader | Melbourne Inorganics, Springvale, VIC |

## General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Corrosion assessment for Concrete and Steel piles in soil per Australian Standard AS2159-2009 uses a combination of soil and groundwater data (Tables 6.4.2 C & 6.5.2 C). In the absence of groundwater data, assessment has been made against soil criteria only. Refer to AS2159-2009 section 6.4 for further interpretation of corrosion assessment. ALS is not NATA accredited for Corrosion Assessment comments
- EA167: Soil Condition A – High permeability soils (e.g. sands and gravels) which are in groundwater
- EA167: Soil Condition B – Low permeability soils (e.g. silts and clays) or all soils above groundwater
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

| | |
|---|---|
| Page | : 3 of 3 |
| Work Order | : EM2406579 |
| Client | : WGASA Pty Ltd |
| Project | : WGA230955 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Sample ID | BH18 2.0-2.2 (m) | BH18 6.0-6.2 (m) | BH18 12.0-12.2 (m) | ---- | ---- |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 23-Apr-2024 00:00 | 23-Apr-2024 00:00 | 23-Apr-2024 00:00 | ---- | ---- |
| Compound | CAS Number | LOR | Unit | EM2406579-001 | EM2406579-002 | EM2406579-003 | -------- | -------- |
| | | | | Result | Result | Result | ---- | ---- |
| **EA002: pH 1:5 (Soils)** | | | | | | | | |
| pH Value | ---- | 0.1 | pH Unit | **9.0** | **8.6** | **8.0** | **----** | **----** |
| **EA010: Conductivity (1:5)** | | | | | | | | |
| Electrical Conductivity @ 25°C | ---- | 1 | µS/cm | **243** | **244** | **132** | **----** | **----** |
| **EA055: Moisture Content (Dried @ 105-110°C)** | | | | | | | | |
| Moisture Content | ---- | 0.1 | % | **11.2** | **3.0** | **17.9** | **----** | **----** |
| **EA080: Resistivity** | | | | | | | | |
| Resistivity at 25°C | ---- | 1 | ohm cm | **4120** | **4100** | **7580** | **----** | **----** |
| **EA167: Corrosion Classification (per AS2159-2009)** | | | | | | | | |
| ø Exposure Classification - Concrete Piles Soil Condition A | ---- | - | - | **Mild** | **Mild** | **Mild** | **----** | **----** |
| ø Exposure Classification - Concrete Piles Soil Condition B | ---- | - | - | **Non Aggressive** | **Non Aggressive** | **Non Aggressive** | **----** | **----** |
| ø Exposure Classification - Steel Piles Soil Condition A | ---- | - | - | **Mild** | **Mild** | **Non Aggressive** | **----** | **----** |
| ø Exposure Classification - Steel Piles Soil Condition B | ---- | - | - | **Non Aggressive** | **Non Aggressive** | **Non Aggressive** | **----** | **----** |
| **ED040S: Soluble Major Anions** | | | | | | | | |
| Sulfate as SO4 2- | 14808-79-8 | 10 | mg/kg | **40** | **120** | **60** | **----** | **----** |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | |
| Chloride | 16887-00-6 | 10 | mg/kg | **40** | **180** | **70** | **----** | **----** |

# GUIDE TO INTERPRETING YOUR **WGA GEOTECHNICAL REPORT**

This geotechnical report has been prepared by an experienced WGA Engineer. These notes have been prepared by WGA to assist the Client interpret and understand the report limitations.

## SCOPE OF SERVICES

This report has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and WGA. In some circumstances, the scope of the services may have been altered by a range of factors such as time, budget and access restrictions.

## GEOTECHNICAL INVESTIGATIONS

Geotechnical engineering is based extensively on professional judgment and opinion. It is far less precise than other engineering disciplines.

Geotechnical engineering reports are prepared to meet the specific needs of individual clients. This report was prepared expressly for the Client for the purposes indicated in the agreed scope of services. Use by any other persons for any purpose, or by the Client for a different purpose, may result in problems.

For example, a report prepared for a consulting civil engineer may not be adequate for a construction contractor or even another consulting engineer.

This report must not be used for any project other than that originally specified at the time the report was prepared, without seeking additional geotechnical advice.

## PROJECT-SPECIFIC FACTORS

This report is based on a subsurface investigation designed to meet the requirements of a specific project. The subsurface investigation was formulated based on factors which include the nature of the development, its size and configuration, the location of any existing development on the site, and the location of access roads and parking areas. Unless further geotechnical advice is obtained in writing, this report may not provide appropriate recommendations if:

- the nature of the proposed development is changed; or
- the size, configuration, location or orientation of the proposed development is modified.

The report findings cannot be applied to any other sites, including adjacent sites.

## SUBSURFACE CONDITIONS

Subsurface conditions are created by natural processes and the activity of man and may, therefore, be modified by changing natural forces or man-made influences. For example, water levels can vary with time and fill may be placed on a site. The report is based on conditions which existed at the time of subsurface exploration.

Construction operations at, or adjacent to, the site and natural events such as floods or groundwater fluctuations may also affect subsurface conditions, and thus the continuing adequacy of a geotechnical report. WGA should be kept informed of any such events and should be consulted to determine if additional investigations are necessary

## THIRD PARTY INTERPRETATION OF FINDINGS

WGA should be retained to assist other design professionals in the interpretation of relevant geotechnical findings, and to review the adequacy of plans and specifications relative to geotechnical issues. Costly problems can occur when other design professionals develop plans based on misinterpretations of a geotechnical report.

## ENGINEERING LOGS SHOULD NOT BE SEPARATED FROM THE REPORT

The report presents the findings of the geotechnical investigation and must not be copied or altered in any way.

Engineering logs and cross-sections are developed by geotechnical engineers based upon their interpretation of field logs and laboratory testing of samples. These logs and figures should not be redrawn for inclusion in other documents or separated from the report in any way.

To reduce the likelihood of misinterpretation, contractors should be given access to the complete geotechnical report prepared or authorised for use. The following publication should be referenced for further information.
*Guidelines for the Provision of Geotechnical Information in construction Contracts* (Engineers Australia, National Headquarters, Canberra 1987).

## RELIANCE ON SUPPLIED DATA

In preparing the report, WGA may have relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations. Unless otherwise stated in the report, WGA has not verified the accuracy or completeness of such data. WGA will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misinterpreted or otherwise not fully disclosed to WGA.

## LIMITATIONS OF SITE INVESTIGATIONS

In making an assessment of a site from a limited number of boreholes or test pits it is inevitable that variations will occur between test locations. Subsurface exploration identifies specific subsurface conditions only at those points from which samples have been taken. The likelihood that subsurface variations will not be detected can be reduced by increasing the frequency of test locations, although this has cost implications. The investigation program undertaken is a professional estimate of a reasonable scope of investigation required to provide a general profile of the subsurface conditions. The data derived from the site investigation program and subsequent laboratory testing are extrapolated across the site to form an inferred geotechnical model and an engineering opinion is formed about overall subsurface conditions and their likely behaviour with regard to the proposed development.

Despite subsurface exploration, the actual conditions at the site might differ from those inferred to exist, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface conditions and anomalies.

The engineering logs are the subjective interpretation of the subsurface conditions encountered at a particular location, made by experienced personnel. The interpretation may be limited by the method of investigation, and cannot always be definitive. For example, inspection of an excavation or test pit allows a greater area of the subsurface profile to be inspected than borehole investigations, however, such methods are limited by depth and site disturbance restrictions.

The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained from the subsurface exploration. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, the services of WGA should be retained through design and construction stages, to identify variances, conduct additional tests if required and recommend solutions to any problems encountered on site.

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Aspen Group

# Adelaide Caravan Park Redevelopment - Proposed Townhouse Development, Hackney

## PRELIMINARY GEOTECHNICAL INVESTIGATION

WGA230955

WGA230955-RP-GE-0003_A

2 May 2024

## Revision History

| REV | DATE | ISSUE | ORIGINATOR | CHECKER | APPROVER |
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**Appendix A** FIGURES
**Appendix B** RESULTS OF THE FIELD INVESTIGATION
**Appendix C** LABORATORY TESTING

# 1 INTRODUCTION

A preliminary geotechnical investigation has been undertaken by Wallbridge Gilbert Aztec (WGA) for the proposed Townhouse Development at the Adelaide Caravan Park, Hackney, SA.

It is understood that the proposed Townhouse development is located on the southern and eastern sides of the Adelaide Caravan Park and comprised 34 townhouses. The buildings are expected to be of single and double storey construction and supported by a stiffened raft footing system.

The location of the proposed development is presented in Figure 1.

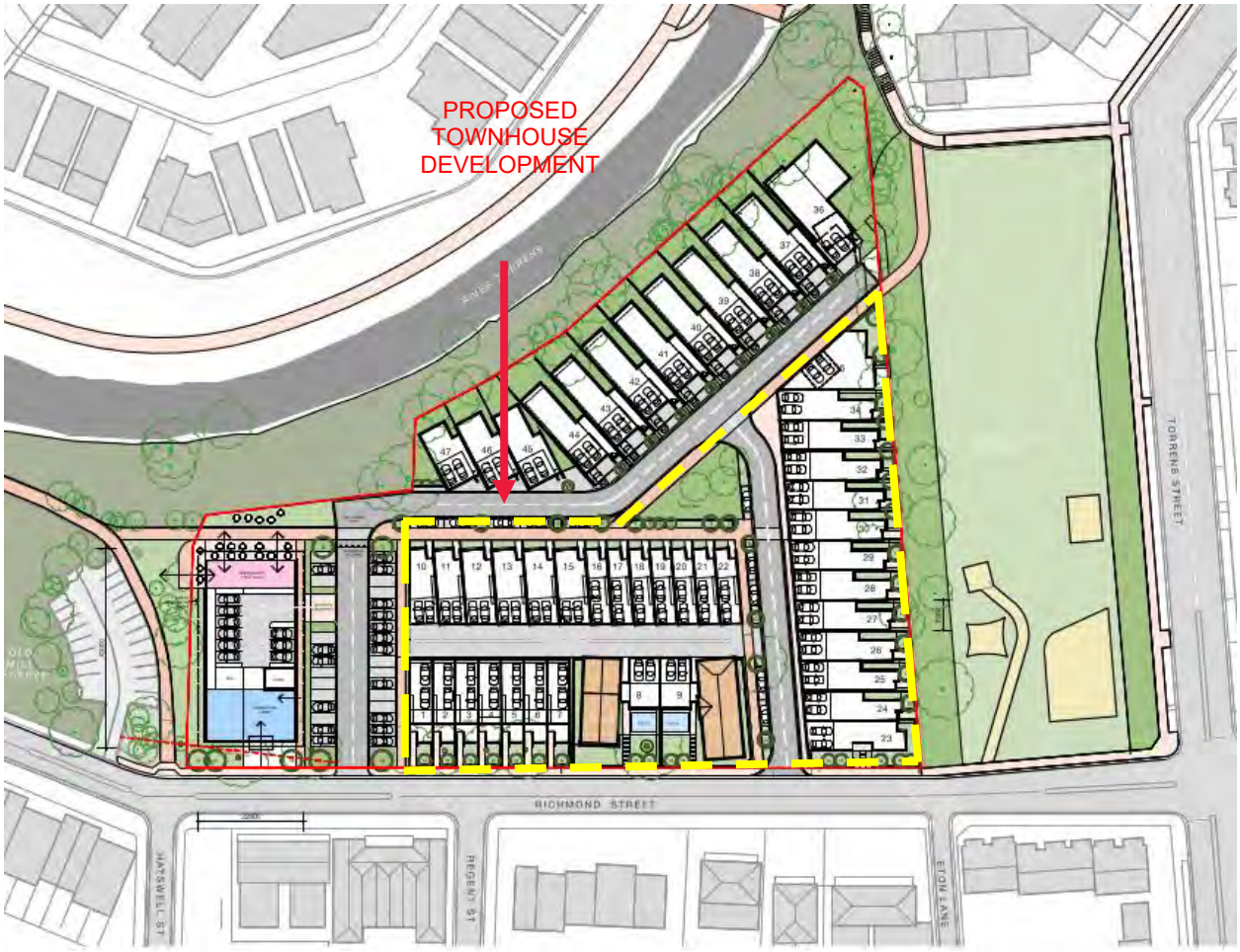



**Figure 1: Location Plan**

The preliminary geotechnical investigation was commissioned by The Aspen Group. The scope and extent of the geotechnical investigation were broadly consistent with a proposal prepared by WGA dated 21 February 2024. The geotechnical investigation was conducted concurrently with investigations for the proposed River Front Dwellings and Co-living development at the Adelaide Caravan Park. The results of these investigations are presented in separate WGA reports and have been referred to in the preparation of this report.

This report outlines the preliminary geotechnical investigation undertaken and summarises the subsurface conditions encountered. Recommendations relating to the design of footings, pavements, retaining walls and associated earthworks are presented in Section 4.

The results of a previous geotechnical investigations conducted by others at the site (References 1 and 2) have been referred to in the preparation of the report recommendations.

# 2 OUTLINE OF THE INVESTIGATION

## 2.1 Field Investigation

The field work for the preliminary geotechnical investigation was carried out between 9 April 2024 and 20 April 2024, and comprised drilling and logging 12 boreholes (denoted BH8 to BH17, BH10A and BH13A) generally to a depth of approximately 3 m. Push tube refusal was met in BH13 and BH13A at a depth of about 0.6 m to 0.9 m.

Due to restricted access, the boreholes with portable drilling equipment which involved advancing push tubes with a hand operated jack-hammer.

The locations of the boreholes are shown approximately on Figures A1 (existing site conditions) and A2 (proposed development layout) in Appendix A, together with other boreholes recently drilled for the proposed Co-living development and River Front Dwelling. The boreholes were positioned on site to provide a broad coverage of the proposed development area within the restrictions imposed by existing buildings, surface features and underground services.

The soil profile encountered in the boreholes was logged by a Geotechnical Engineer from WGA and is described on the engineering logs contained in Appendix B. Also presented in Appendix B are two explanation sheets that outline the terms and symbols used in the preparation of the logs.

## 2.2 Laboratory Testing

The scope of laboratory testing undertaken comprised an Atterberg limits and particle size distribution test on a selected soil sample.

An Estimated CBR value was calculated from the test results using a procedure adopted by the Department for Infrastructure and Transport (DIT).

The Estimated CBR value is considered to be empirically equivalent to a laboratory 4 day soaked CBR test in which the sample has been conditioned to the optimum moisture content and compacted to a dry density ratio of 95% based on Modified compactive effort (AS 1289 5.2.1).

The laboratory testing was undertaken at the NATA registered Adelaide laboratory of Terra Firma Laboratories in accordance with the relevant sections of AS 1289 *"Methods of Testing Soils for Engineering Purposes"*.

The results of the laboratory testing are presented on the test results sheet in Appendix C.

# 3 SITE CONDITIONS

## 3.1 General

The Adelaide Caravan Park is located at 46 Richmond Street at Hackney, approximately 200 m east of Hackney Road. The River Torrens is located along the north-western boundary of the caravan park.

The proposed Townhouse development is located over the southern and eastern portions of the site in an area which is currently occupied by a number of accommodation cabins, access roads and lawn areas. An existing swimming pool was located near the south-eastern corner.

The ground surface is relatively flat, with a slight slope down towards the north. The ground surface includes pavements (bituminous sealed and pavers), lawn areas and garden beds.

Numerous trees of varying size are present on the site.

The site is located to the south of the steep riverbank along the northern boundary of the site and is not appreciably impacted by the riverbank.

The typical site conditions at the time of the geotechnical investigation are shown in Figure 2.

**Figure 2: General Site Conditions (Near BH12, Looking North)**

## 3.2 Regional Geology

The site is located adjacent to the River Torrens.

The Soil Association Map of the Adelaide Region (1:50 000 scale map sheet) indicates that the near surface natural soils are likely to consist of Quaternary aged alluvial soils associated with deposition along the River Torrens. The alluvium is underlain by Tertiary aged sediments, such as the Blanche Point Formation.

The alluvium typically comprises an interbedded sequence of clays, sands and silts with a basal layer of gravelly soils. An excerpt from the Soil Association Map is presented in Figure 3.

Reference 3 indicates that the alluvium is expected to be underlain by older Tertiary aged sediments, with the upper unit likely to comprise the Blanche Point Formation. The Tertiary aged sediments commonly encountered in the Adelaide City area overlying the Blanche Point Formation have been removed by erosion along an ancient River Torrens.

Groundwater is expected to be related to the pool level in the adjacent River Torrens, which is subject to seasonal variations.

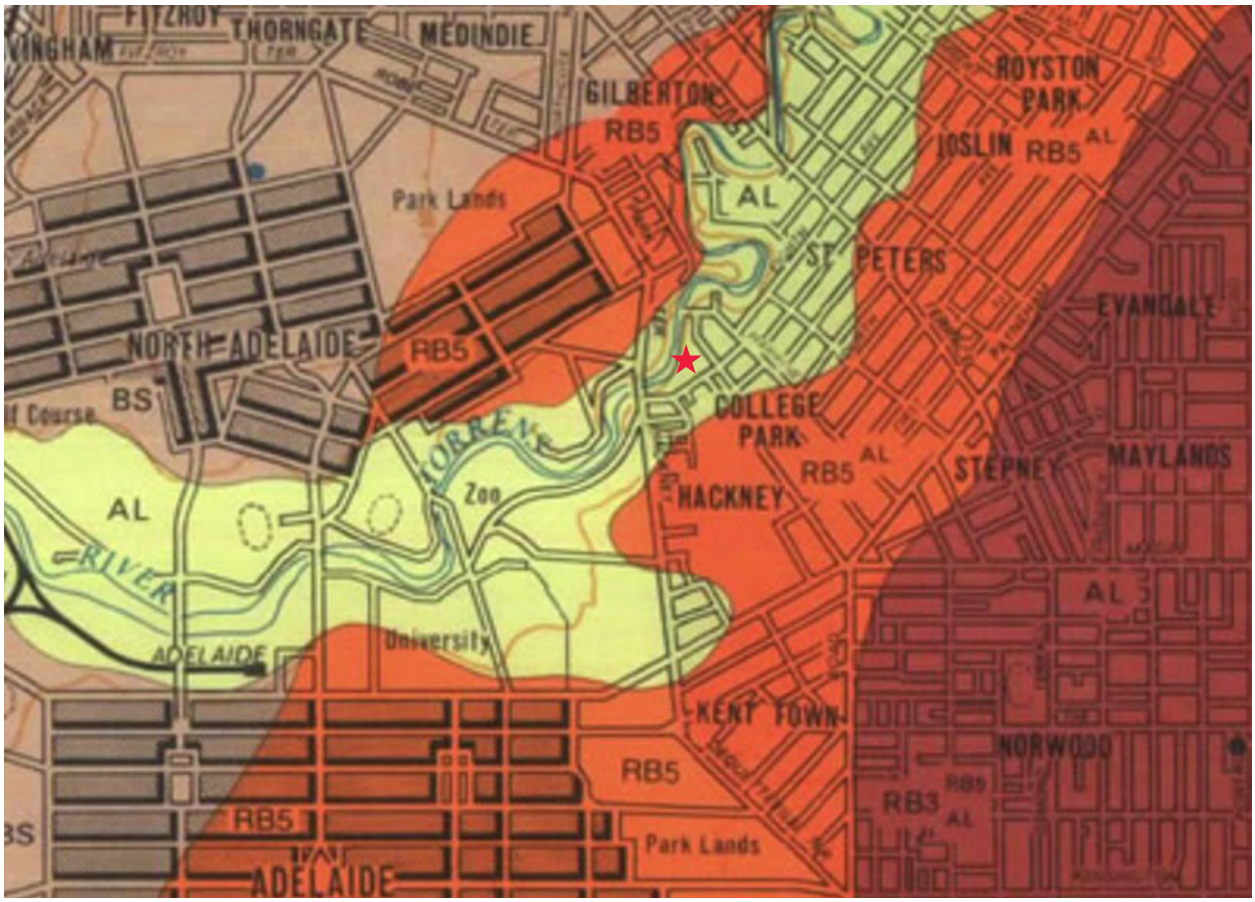



**Figure 3: Excerpt from Soil Association Map (Site Marked with Star)**

## 3.3 Previous Investigations

Previous geotechnical investigations have encountered relatively deep fill associated with past land reclamation work along the northern side of the site adjacent to the River Torrens. The fill was up to about 8.6 m deep at the locations investigated (borehole BH20 drilled by WGA in 2024).

Deep fill is not expected in the area of the proposed Townhouses, although locally fill associated with services trenches and past site developments is expected.

The subsurface profile encountered in the boreholes drilled at the site of the proposed Co-living development to the west of the Townhouses indicated the following subsurface profile, in descending order from the ground surface:

- A varying thickness of fill, up to about 3.1 m deep near the river bank but typically less than 0.5 m deep;
- Predominantly finer grained alluvium (sandy clay and clayey sand) to a depth of about 8.4 m;
- Coarser grained alluvium, between depths of about 8.4 m and 13.75 m;
- Blanche Point Formation below a depth of about 13.75 m.

The regional groundwater table was encountered in borehole BH18 at depth of about 8.5 m.

## 3.4 Subsurface Conditions

Descriptions of the materials encountered in the boreholes drilled during the current geotechnical investigation are summarised on the engineering logs contained in Appendix B.

Fill was encountered in each borehole to depths ranging from about 0.2 m to 3 m (typically 0.6 m or less) below existing ground level, as summarised in Table 1. Deeper pockets of fill may be encountered in areas not investigated.

The fill generally comprised sandy and gravelly soils with clays of low plasticity locally.

The fill is assessed to be uncontrolled for the purposes of footing and pavement design.

**Table 1: Summary of Depth of Fill**

| BOREHOLE | BH8 | BH9 | BH10 | BH10A | BH11 | BH12 | BH13 |
|---|---|---|---|---|---|---|---|
| Depth of Fill (m) | 0.0 to 0.4 | 0.0 to 0.45 | 0.0 to >3.0# | 0.0 to 0.7 | 0.0 to 0.6 | 0.0 to 0.6 | 0.0 to >0.6# |
| Notes: # Borehole Termination Depth, possibly a services trench. | | | | | | | |

**Table 1 (cont.): Depth Ranges of the Various Materials (in meters)**

| BOREHOLE | BH13A | BH14 | BH15 | BH16 | BH17 | *BH7* | *BH18* |
|---|---|---|---|---|---|---|---|
| Depth of Fill (m) | 0.0 to >0.9# | 0.0 to 1.0 | 0.0 to 0.4 | 0.0 to 0.2 | 0.0 to 0.35 | *0 to 0.4* | *0 to 0.25* |
| Notes: NE = Not Encountered; # Borehole Termination Depth.<br>BH7 and BH18 located in Co-living area to the east, refer to Figure A2 in Appendix A. | | | | | | | |

The natural soil profile encountered at the locations investigated was generally consistent with the regional geology and previous investigations nearby outlined in Sections 3.2 and 3.3 and comprised an interbedded sequence of finer grained alluvium.

The finer grained alluvium mainly comprised brown, yellow brown and grey mottled sandy and silty clay of low or medium plasticity (tending locally to medium and high plasticity) with pockets of clayey sand. The clays typically ranged from very stiff to hard consistency, although friable where drier or sandier.

The moisture content of the clays was typically less than the plastic limit in the upper 1.5 m to 2 m, grading to above the plastic limit at greater depths.

## 3.5 Groundwater

Groundwater was not encountered in any borehole over the depth ranges investigated.

The site survey plan indicates that the pool level in the River Torrens is about RL 20.9 m, approximately 11 m below the typical ground surface level. Groundwater is therefore expected below this level.

The regional groundwater table was previously encountered in borehole BH18 (drilled at the site of the proposed Co-living development) at depth of about 8.5 m and in BH19 and BH20 (drilled as part of the Riverbank development ) at a depth of about 10 m.

Seasonal variations in groundwater are expected, due to fluctuations in the river level. Perched groundwater could occur in more permeable soils during wet weather.

## 3.6 Laboratory Test Results

The results of the laboratory testing are presented in Table 2.

**Table 2: Summary of Laboratory Test Results**

| BOREHOLE | DEPTH RANGE (m) | ATTERBERG LIMITS (%) | | | PARTICLE SIZE DISTRIBUTION (% PASSING SIEVE) | | LABORATORY ESTIMATED CBR VALUE (%) |
|---|---|---|---|---|---|---|---|
| | | Liquid Limit | Plasticity Index | Linear Shrinkage | 2.36 mm | 0.075 mm | |
| **BH15** | 0.6 to 1.0 | 23 | 8 | 1.5 | 100 | 63 | 14 |

The laboratory testing indicates that the sample of natural subgrade tested comprised low plasticity sandy clay.

# 4 GEOTECHNICAL ASSESSMENT

## 4.1 General

It is understood that the proposed development comprises 34 single and double storey townhouses. A basement level is not proposed.

At the time of reporting the structural loads were not known.

From a geotechnical perspective the key issue relating to the proposed development is the presence of uncontrolled fill to varying depths (typically 0.6 m or less, but locally up to about 3 m) across the site. The fill is not suitable as a founding layer for footings, floor slabs or flexible pavements due to the potential for long-term differential settlement. It is recommended that the existing fill be removed and replaced as controlled fill. If the fill is not removed the ground floor slab would need to be designed as a suspended slab supported by the footings piered to natural ground.

Based on the results of the investigation, it is recommended that the proposed buildings be supported on a stiffened raft footing system.

Recommendations relating to the design of footings, pavements and site earthworks are provided in the following sections.

## 4.2 Site Characteristics

### 4.2.1 Site Classification

Based on a visual-tactile assessment, the soils encountered in the boreholes to a depth of 4 m are judged to be generally slightly to moderately reactive with respect to shrink-swell movements caused by changes in soil moisture content. Shrink-swell indices for the low and medium plasticity clays are estimated to range from about 1% to 1.5%. The sandier soils (clayey sand) are assessed to be less reactive with respect to shrink-swell movements.

Based upon the design soil suction change profile for Adelaide contained in AS 2870-2011 *"Residential slabs and footings"*, a characteristic surface movement ($y_s$) typically ranging from about 20 mm to 30 mm is estimated for the site at the current ground surface level.

In accordance with a classification system presented in AS 2870-2011, a site classification of Class M-D (Moderately reactive clay sites with deep moisture changes, which can experience moderate ground movements resulting from moisture content changes) is considered appropriate for a site which experiences normal soil moisture conditions, as outlined in AS 2870-2011.

Irrespective of the site classification for shrink-swell movements, where controlled or uncontrolled fill over 0.4 m deep is present on the site the overall site classification would be Class P (Filled site).

Aa further assessment of shrink-swell movements is recommended where the proposed site levels vary by more than about 0.3 m from the current ground surface level.

Should future moisture content changes in the foundation soils result in soil suction values outside the suction change profile presented in AS 2870-2011 (abnormal soil moisture conditions), a larger $y_s$ value may occur. Such changes could occur adjacent to leaking water services or where soils are desiccated by tree roots.

No allowance for trees is provided in the $y_s$ values. Given the presence of existing trees it is recommended that an allowance be made in the footing design for the effects of trees. Accordingly, an additional maximum surface movement as a result of tree induced suction change ($y_{tmax}$) of up to about 15 mm is considered appropriate for a single tree in close proximity to the footing.

Further advice must be sought where new trees are proposed in close proximity to the proposed buildings or if a group of trees needs to be considered.

### 4.2.2 Earthquake Design

The site lies slightly to the west of the Para Fault Zone and bedrock is expected at a depth of over 60 m. Accordingly, a site sub-soil class of $D_e$ (Deep soil) is recommended in accordance with AS1170.4-2007 *"Structural design actions Part 4: Earthquake actions in Australia*".

The natural soils are not considered to be vulnerable to liquefaction during an earthquake event with a recurrence interval of 1 in 500 years.

## 4.3 Stiffened Raft Footings

It is recommended that the proposed buildings be supported by a stiffened raft footing system.

It is recommended that a stiffened raft footing system be designed based upon the recommendations of AS 2870-2011 assuming a site classification of Class M-D and a tree-induced differential, centre heave, mound height ($y_m$) of 35 mm. This $y_m$ value takes into consideration the effects of the existing trees (which are expected to be removed) and is equal to $0.7y_s + y_{tmax}$.

A minimum soil swelling stiffness of 1000 kPa/m may be used in the raft design.

It is recommended that footing beams be founded on natural soils be proportioned based on a maximum allowable bearing pressure of 125 kPa, assuming a minimum embedment depth of 0.5 m.

Footings founded in controlled fill placed in accordance with the guidelines of Section 4.6.1 may be proportioned based on a maximum allowable bearing pressure of 100 kPa.

The recommended maximum allowable bearing pressures assumes a minimum footing width of 0.35 m and a concentric loading. A lower maximum allowable bearing pressure may be required for eccentrically loaded or narrower footings and further advice should be sought in this case.

Footing beams must not be founded in uncontrolled fill, topsoil, highly organic or saturated natural soils. Should such materials be encountered at the design founding level, footing beams must be deepened or mass concrete piers provided.

If floor slabs are founded on uncontrolled fill they should be designed as a suspended slab spanning between ground beams supported by footings founded on natural soils.

Care should be taken to prevent water from ponding in the base of any footing excavation during construction. The ponding of water could result in softening of the foundation soils and additional post construction settlement.

## 4.4 Pavements

Pavements must not be founded on uncontrolled fill due to the likelihood of excessive differential settlement to occur in the future which could result in cracking or adversely affect surface drainage.

A laboratory Estimated CBR value of 14% was assessed from the laboratory testing conducted on a selected sample of natural subgrade soil. An Estimated CBR value of 15% was obtained on a subgrade sample taken from the adjacent Co-Living development area.

Based on the results of the laboratory testing it is recommended that flexible pavements founded on natural soils (low and medium plasticity clay) be designed based on a design subgrade CBR value of 7%. The recommended design CBR value assumes that:

- All uncontrolled fill and any organic soils are stripped;
- The upper 0.2 m of subgrade is compacted to achieve a dry density ratio of at least 98% based on Standard compaction (AS 1289 5.1.1);
- The pavement is adequately drained to prevent saturation of the pavement materials and underlying subgrade.

For rigid concrete pavements on-grade, an average long-term Young's modulus value of 20 MPa is recommended for the natural soils.

It is recommended that QA/QC testing be undertaken on subgrade and pavement materials during construction.

In addition to the design traffic loading, the long-term pavement performance must also consider the effects of shrink-swell movements due to moisture content changes in the reactive subgrade soils, as outlined in Section 4.2.1. Such movements may adversely affect the riding quality and surface drainage and may result in cracking.

## 4.5 Retaining Walls

The following geotechnical parameters are recommended for the design of cantilever type retaining walls up to about 1.5 m high which support uncontrolled fill or natural soils, assuming a horizontal ground surface and no wall friction/adhesion:

- Coefficient of active earth pressure, $K_a$ : 0.36.
- Bulk unit weight: 19.5 kN/m$^3$.

In addition to the design earth pressures, retaining walls must cater for (as appropriate):

- An unbalanced hydrostatic pressure;
- Traffic loadings;
- Surcharge loadings (e.g. construction materials).

Adequate surface drainage must be provided to prevent infiltration of surface water behind the wall.

Retaining walls should be designed in accordance with the recommendations of AS 4678-2002 "*Earth Retaining Structures*".

For retaining walls which have significant backfill placed after construction, it is expected that the compaction induced pressures will be much greater than the earth pressure coefficient presented above.

The compaction equipment used to compact backfill behind the wall must be carefully selected and preferably light-weight compaction equipment should be used.

The load on the retaining wall due to compaction equipment may be estimated from Figure J5 in AS 4678-2002. For select compacted granular backfill, an active coefficient, $K_a$ of 0.3 and an at rest coefficient, $K_o$ of 0.65 are recommended together with a bulk unit weight of 21 kN/m$^3$.

Further advice must be sought if piled retaining walls are to be used.

## 4.6 Earthworks

### 4.6.1 Site Preparation

It is recommended that all uncontrolled fill, organic or disturbed soils be stripped from proposed building and pavement areas. A typical depth of stripping of around 0.6 m is expected to be required below the existing ground level based on the soil profile encountered in the boreholes, although deeper pockets of fill or topsoil are present locally. The depth of stripping must be confirmed by a geotechnical engineer during the bulk earthworks.

It is noted that an existing swimming pool is located in the south-eastern corner and following removal of the pool structure the resultant excavation will need to be backfilled with controlled fill.

Following stripping of unsuitable materials, it is recommended that the exposed natural soils be proof rolled with a static pad foot roller of at least 10 t static weight to identify any soft, wet or weak areas which may require remedial works. The proof rolled surface shall be observed by a suitably experienced Engineer.

Following proof-rolling and remedial works, the site may be backfilled to the design level using controlled fill. The controlled fill may comprise clean site won fill materials, although it is preferable that an imported quarry product or recycled pavement material with a CBR value of at least 15% is used, particularly in the upper 300 mm.

Reuse of the existing organic topsoil is not recommended. These soils may be used for landscaping purposes.

Prior to compaction, the controlled fill shall be moisture conditioned to within 2% of the optimum moisture content and then compacted in layers not exceeding 250 mm in loose thickness to achieve a dry density ratio of at least 98% based on Standard compaction (AS 1289 5.1.1).

It is recommended that the controlled fill be placed under Level 1 overview, as outlined in AS 3798 "*Guidelines on earthworks for commercial and residential developments*".

### 4.6.2 Excavatability and Dewatering

The fill and natural soils encountered in the boreholes are expected to be excavatable using conventional earthmoving equipment.

The groundwater table is expected below a depth of about 8 m and therefore dewatering of shallow excavations for footings, services and pavements is therefore unlikely to be required.

Where encountered, the control of shallow perched groundwater is expected to be undertaken using shallow drains connected to a pumped sump.

### 4.6.3 Batter Slopes

All excavations deeper than 1.5 m shall be appropriately battered and benched in accordance with the WHS regulations prior to personnel entering. The following temporary batter slopes are recommended:

- Uncontrolled fill: 2H:1V;
- Sandy clay/clayey sand: 1.5H:1V.

Service trench excavations over 1.5 m deep should be supported by a proprietary continuous shoring system.

### 4.6.4 Trafficability

Trafficability of the fill and natural soils is likely to become poor when wetted.

### 4.6.5 Moisture Control in Footing Excavations

Care should be taken to prevent water from ponding in the base of any footing excavation or on the stripped subgrade along pavements. The ponding of water could result in softening of the foundation soils.

### 4.6.6 Other Issues

The effects of construction activities, such as vibrations during compaction, excavation works and changes in the soil moisture regime, on adjacent buildings and infrastructure must be considered. A dilapidation survey and regular monitoring of the existing structures near to the site during construction are strongly recommended.

## 4.7 Safety in Design

This report presents factual information about the subsurface conditions at the site and an assessment of how these conditions might impact on the design and construction of the proposed development from a geotechnical perspective. At the time of reporting the design and documentation of the proposed development had not been finalised and as a result Safety in Design issues have not been considered in this report. It is the responsibility of the designer to use the information contained herein to prepare a Safety in Design Report which is appropriate for the proposed development.

Specific input on geotechnical issues for the Safety in Design report can be provided as part of the detailed design phase if required.

# 5 LIMITATIONS

The recommendations contained within this report have been based on the subsurface conditions encountered in a limited number of boreholes and the judgement and opinion of WGA. To the best of our knowledge, the subsurface conditions described in this report provide a reasonable interpretation of the typical subsurface conditions likely to be encountered at the site.

It must be accepted that variations in subsurface conditions are likely to occur between the locations investigated and such variations may impact on the design recommendations provided. Under no circumstances can it be assumed that this report represents the actual subsurface conditions at all locations over the site.

It is recommended that additional investigations be conducted once demolition of the existing infrastructure has been undertaken to more reliably assess the subsurface conditions and the check the recommendations contained in this report.

Roger Grounds
for
**WALLBRIDGE GILBERT AZTEC**

## References


1. *"Geotechnical Investigation, 46 Richmond Street, Hackney.* FMG Engineering Report dated 29/06/2016, Job Number S30579-247712.
2. *"Geotechnical Investigation Report, Slope Stability Assessment, Adelaide Caravan Park".* FMG Engineering Report dated 24/08/2021, Job Number 276032.

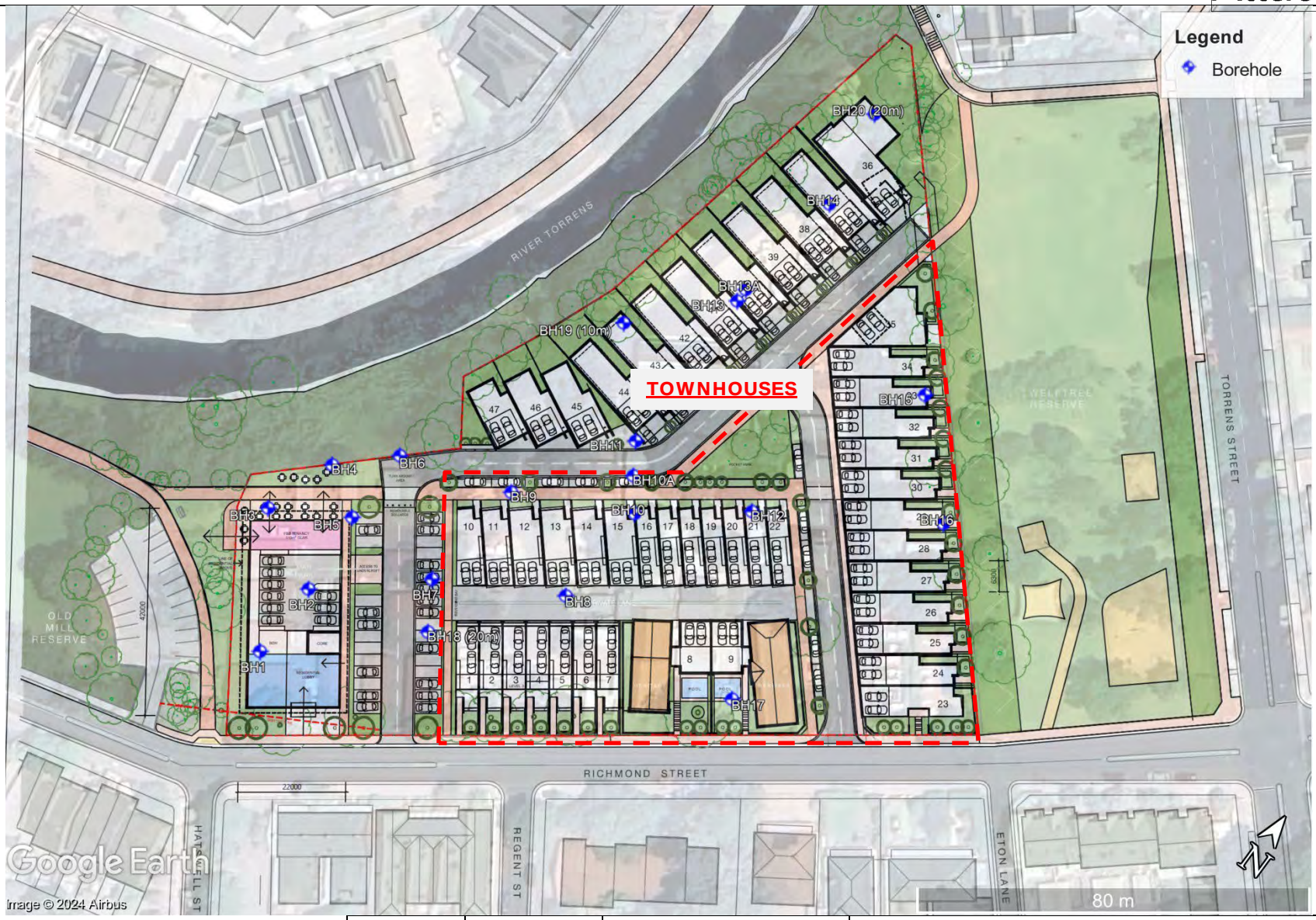
# APPENDIX A
# FIGURES

Source: Google Earth Pro.
Dated April 2024.

| | |
|---|---|
| Drawn by | YW |
| Approved | RWG |
| Date | 19/04/2024 |
| Dimensions | NTS |
| Original | - |

WGA

| | | | |
|---|---|---|---|
| Client: | ASPEN GROUP | | |
| Project: | ADELAIDE CARAVAN PARK REDEVELOPMENT<br>PROPSOED TOWNHOUSE DEVELOPMENT<br>HACKNEY | | |
| Title: | BOREHOLE LOCATION PLAN – EXISTING SITE CONDITIONS | | |
| Project No.: | WGA230955 | Ref. | FIGURE A1 |




Source: Google Earth Pro.
Dated April 2024.

| | |
|---|---|
| Drawn by | YW |
| Approved | RWG |
| Date | 19/04/2024 |
| Dimensions | NTS |
| Original | - |

WGA

| | | | |
|---|---|---|---|
| Client: | ASPEN GROUP | | |
| Project: | ADELAIDE CARAVAN PARK REDEVELOPMENT PROPOSED TOWNHOUSE DEVELOPMENT HACKNEY | | |
| Title: | BOREHOLE LOCATION PLAN SHOWING PROPOSED DEVELOPMENT | | |
| Project No.: | WGA230955 | Ref. | FIGURE A2 |

# APPENDIX B
# RESULTS OF THE FIELD INVESTIGATION

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 9/04/2024
Date Logged: 9/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 8**
Page 1

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** WGA230955
**Location:** ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| 0.05 | FILL | Silty SAND, fine to medium grained, dark brown, low plasticity, trace rootlet | D | | | Fill |
| 0.2 | FILL | Silty GRAVEL, fine to medium, subangular, low plasticity, trace fine to coarse grained sand | D | | | |
| 0.4 | FILL | Gravelly CLAY, low plasticity, dark brown mottled white and red | <Wp | | | |
| 0.5 | | brown, fine to medium, subangular, with fine to coarse grained sand | | Fb | | Alluvium, natural |
| | CL | Silty CLAY, low plasticity, dark brown, trace fine to medium grained sand | <Wp | | | |
| 1.0 | | | | H | 600 | |
| 1.05 | | | | | | |
| | CL | CLAY, low plasticity, dark brown mottled yellow brown, with fine to medium grained sand | <Wp | H | 510 | |
| 1.5 | | Became sandier | | | 540 | |
| 1.55 | | | | | | |
| | SC | Clayey SAND, fine to medium grained, yellow brown and brown, low plasticity, trace fine calcareous nodules | M | L/MD | | |
| 2.0 | | | | | | |
| 2.4 | | | | | | |
| 2.5 | CL/CI | Sandy CLAY, low to medium plasticity, grey, fine to coarse grained, trace fine gravel, trace rootlet | >Wp | Vst | 370 | |
| | | | | | 320 | |
| | | | | H | 450 | |
| 3.0 | | Borehole terminated at 3.0 m (target depth) | | | | |

**Depth to Groundwater: None Observed** **Trees at Site: Yes**

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South Australia 5000
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| | | |
|---|---|---|
| Date Drilled: | 9/04/2024 | |
| Date Logged: | 9/04/2024 | **Borehole No.** |
| **Logged by:** | **YW** | **BH 9** |
| Drilling Method: | Push Tube | |
| Drill Rig/Mount: | Portable | Page 1 |

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**

**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| | FILL | Sandy GRAVEL, fine to medium, subangular, yellow brown, fine to | D | | | Fill |
| 0.2 | | coarse grained, with fine | | | | |
| | FILL | Sandy CLAY, high plasticity, grey mottled red brown and yellow | <Wp | | | |
| 0.45 | | brown, fine to coarse grained, trace fine gravel | | | | |
| 0.5 | | | | | | Alluvium, natural |
| | CL | Silty CLAY, low plasticity, dark brown, trace fine to medium grained | <Wp | Fb | | |
| | | sand | | | | |
| 0.9 | | | | | | |
| 1.0 | CL | Silty CLAY, low plasticity, dark brown mottled pale brown, with fine | <Wp | Fb | | |
| | | to medium grained sand, trace calcareous nodules | | | | |
| 1.25 | | | | | | |
| | CL | CLAY, low plasticity, brown mottled yellow brown, with fine to | <Wp | H | 600 | |
| 1.5 | | medium grained | | | | |
| | | | | | 600 | |
| | | Became sandier | | | 550 | |
| 1.85 | | | | | 500 | |
| 2.0 | SC | Clayey SAND, fine to medium grained, yellow brown, low plasticity, | M | L/MD | | |
| | | trace calcareous nodules | | | | |
| 2.5 | | | | | | |
| 2.75 | | Clayey SAND, fine to medium grained, yellow brown and grey, low | | | | |
| | SC/CL | plasticity | M | | 390 | |
| 3.0 | | Borehole terminated at 3.0 m (target depth) | | | 410 | |

**Depth to Groundwater: None Observed** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

| | | |
|---|---|---|
| Date Drilled: | 9/04/2024 | |
| Date Logged: | 9/04/2024 | **Borehole No.** |
| **Logged by:** | **YW** | **BH 10** |
| Drilling Method: | Push Tube | |
| Drill Rig/Mount: | Portable | Page 1 |

| **Legend:** | **Moisture Condition** | **Density Index - Granular** | **Consistency - Cohesive** | |
|---|---|---|---|---|
| | D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| | M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| | W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| | Wp - Plastic Limit | | St - Stiff | |
| | USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| 0.1 | FILL | Silty SAND, fine to coarse grained, pale brown mottled white, low plasticity, trace fine gravel, trace woodchips, trace rootlet | D | | | Fill |
| 0.25 | FILL | GRAVEL, fine to medium, subangular, grey, trace fine, trace fine to medium grained sand | D | | | |
| 0.5 | FILL | Silty CLAY, low plasticity, brown mottled white, with fine to medium grained sand, trace fine to medium gravel, trace rootlet | <Wp | | | |
| 1.0 | | | | | | |
| 1.45 | | | | | | |
| 1.5 | FILL | Sandy GRAVEL, fine to medium, angular to subangular, brown, white and red brown, fine to coarse grained, with fine | D-M | | | |
| 2.0 | | | | | | |
| 2.1 | FILL | Gravelly SAND, fine to coarse grained, grey and brown, mottled white, fine to coarse, subangular, with fine | D-M | | | |
| 2.5 | | | | | | |
| 2.7 | FILL | Sandy GRAVEL, fine to medium, subangular, grey, white and red brown, fine to coarse grained, with fine | D-M | | | |
| 3.0 | | Borehole terminated at 3.0 m (target depth) | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **Yes**

WGA
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South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 10/04/2024
Date Logged: 10/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 10A**
Page 1

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number: WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| 0.05 | FILL | Silty SAND, fine to medium grained, dark brown, low plasticity, trace rootlet | M | | | Fill |
| 0.2 | FILL | Sandy GRAVEL, fine to medium, subrounded, grey and white, fine to coarse grained, trace fine | D-M | | | |
| 0.3 | FILL | Clayey GRAVEL, fine to coarse, subangular, pale brown and white, medium plasticity | D-M | | | |
| 0.5 | FILL | Sandy GRAVEL, fine to coarse, angular to subangular, orange brown, grey and dark brown, fine to coarse grained, with fine | M | | | |
| 0.55 | | | | | | |
| 0.7 | FILL | Silty CLAY, low plasticity, dark brown, with fine to medium grained sand, trace fine to medium gravel | <Wp | | | Reworked natural<br>Alluvium, natural |
| 0.9 | CL | Silty CLAY, low plasticity, dark brown, with fine to medium grained sand | <Wp | Fb | | |
| 1.0 | | | | | 600 | |
| | CL | Silty CLAY, low plasticity, dark brown mottled yellow brown, with fine to medium grained sand | <Wp | H | | |
| | | | | | 600 | |
| | | | ≈Wp | | 550 | |
| 1.5 | | | | | 420 | |
| 1.6 | | | | | | |
| | CL/SC | Sandy CLAY, low plasticity, brown and yellow brown, fine to medium grained | <Wp | H | 600 | |
| | | | | | 580 | |
| 2.0 | | | | | | |
| 2.1 | | | | | | |
| | SC/CL | Clayey SAND, fine to medium grained, yellow brown mottled white, low plasticity, trace fine calcareous nodules | M | L/MD | | |
| 2.5 | | | | | | |
| 3.0 | | Borehole terminated at 3.0 m (target depth) | | | | |

**Depth to Groundwater: None Observed** **Trees at Site: Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 9/04/2024
Date Logged: 10/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 11**
Page 1

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| 0.1 | FILL | Silty SAND, fine to medium grained, grey and dark brown, low plasticity, trace rootlet | D | | | Fill |
| 0.35 | FILL | Sandy CLAY, high plasticity, red brown mottled white, fine to coarse grained, trace fine to medium calcareous gravel | <Wp | | 600 | |
| 0.5 | FILL | Sandy GRAVEL, fine to coarse, angular to subangular, white and yellow brown, fine to coarse grained, with fine | D | | | |
| 0.6 | FILL | Clayey GRAVEL, fine to medium, subangular, dark brown mottled white and yellow, low plasticity, trace fine to coarse grained sand | M | H | 600 | Alluvium, natural |
| | CL | Silty CLAY, low plasticity, dark brown, with fine to medium grained sand, trace rootlet | <Wp | | 600 | |
| 1.0 | CL | Silty CLAY, low plasticity, dark brown and brown, with fine to medium grained sand | <Wp | H | 600 | |
| | | | | | 450 | |
| 1.5 | | | | | 520 | |
| | | | | | 400 | |
| 1.9 | | | | | | |
| 2.0 | CL | Sandy CLAY, low plasticity, yellow brown and brown, fine to medium grained, trace rootlet | >Wp | Vst | 430 | |
| | | | | | 380 | |
| | | | | | 370 | |
| 2.5 | | | | | 340 | |
| 2.75 | | | | | | |
| | CL/SC | Sandy CLAY, low plasticity, yellow brown mottled grey, fine to medium grained | >Wp | H | 420 | |
| 3.0 | | Borehole terminated at 3.0 m (target depth) | | | 440 | |

**Depth to Groundwater: None Observed** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 9/04/2024
Date Logged: 10/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 12**
Page 1

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| 0.05 | FILL | Silty SAND, fine to medium grained, dark brown, low plasticity, trace rootlet | D | | | Fill |
| 0.25 | FILL | GRAVEL, fine to medium, subangular, white, trace fine to medium grained sand, trace fine | D | | | |
| 0.5 | FILL | Sandy GRAVEL, fine to coarse, angular to subangular, dark brown and grey mottled white, fine to coarse grained, with fine | D-M | | | |
| 0.6 | FILL | Sandy CLAY, low plasticity, yellow brown, fine to medium grained, trace rootlet | <Wp | | | Alluvium, natural |
| | CL | Silty CLAY, low plasticity, dark brown, with fine to medium grained sand, trace rootlet | <Wp | Fb | | |
| 1.0 | | | | | | |
| | | | | H | | |
| 1.35 | | | | | | |
| | CI | Silty CLAY, medium plasticity, brown mottled white, with fine to | <Wp | H | 600 | |
| 1.5 | | medium grained sand, trace calcareous nodules, trace rootlet | | | | |
| | | | | | 600 | |
| 1.7 | | | | | | |
| | CL/CI | CLAY, low to medium plasticity, pale brown and yellow brown | <Wp | Fb | | |
| | | mottled white, with fine to medium grained sand, trace calcareous | | | | |
| 2.0 | | nodules, trace rootlet | | | | |
| 2.2 | | | | | | |
| | CL | Sandy CLAY, low plasticity, yellow brown mottled white, fine to | <Wp | Fb | | |
| | | medium grained, trace calcareous nodules, trace rootlet | | | | |
| 2.5 | | | | H | 600 | |
| 2.65 | | | | | 600 | |
| | CL | Sandy CLAY, low plasticity, yellow brown mottled white, fine to | <Wp | H | | |
| | | medium grained, trace fine calcareous nodules | | | 600 | |
| 3.0 | | Borehole terminated at 3.0 m (target depth) | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 9/04/2024
Date Logged: 10/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 13**
Page 1

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| 0.15 | FILL | GRAVEL, fine to coarse, angular to subangular, white, trace fine | D | | | Fill |
| | FILL | Silty CLAY, low plasticity, dark brown, with fine to coarse grained sand, trace fine to coarse gravel | <Wp | | | |
| | | At 0.25 m, pocket of gravel | | | | |
| 0.5 | | At 0.45 m, pocket of brick fragment | | | | |
| 0.6 | FILL | Clayey GRAVEL, fine to medium, subangular, pale brown and dark brown, low plasticity, with fine to coarse grained sand | M | | | |
| | | Borehole terminated at 0.6 m (Refusal) | | | | |
| 1.0 | | | | | | |
| 1.5 | | | | | | |
| 2.0 | | | | | | |
| 2.5 | | | | | | |
| 3.0 | | | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 9/04/2024
Date Logged: 10/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 13A**
Page 1

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| Depth below surface (m) | USCS Symbol | Composition of soil: Soil Description (type, plasticity, grading, colour, secondary and minor components) | Condition of soil: Moisture Condition | Condition of soil: Consistency or Density Index | Condition of soil: Hand Penetrometer Reading (kPa) | Structure and additional observations (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
|---|---|---|---|---|---|---|
| 0.15 | FILL | GRAVEL, fine to coarse, angular to subangular, white, trace fine | D | | | Fill |
| 0.3 | FILL | Sandy GRAVEL, fine to medium, subangular, yellow brown mottled red brown and white, fine to coarse grained, with fine | M | | | |
| 0.5 | FILL | Clayey GRAVEL, fine to medium, subangular, dark brown mottled red brown and white, low plasticity, with fine to coarse grained, trace brick fragment | M | | | |
| 0.9 | FILL | Silty CLAY, low plasticity, dark brown mottled pale brown and grey, with fine to medium grained sand, trace fine to medium gravel | <Wp | | | |
| 1.0 | | Borehole terminated at 0.9 m (Refusal) | | | | |
| 1.5 | | | | | | |
| 2.0 | | | | | | |
| 2.5 | | | | | | |
| 3.0 | | | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

| | | |
|---|---|---|
| Date Drilled: | 10/04/2024 | **Borehole No.** |
| Date Logged: | 10/04/2024 | |
| **Logged by:** | **YW** | **BH 14** |
| Drilling Method: | Push Tube | |
| Drill Rig/Mount: | Portable | Page 1 |

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**

**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| | FILL | Sandy GRAVEL, fine to coarse, angular to subangular, grey and pale brown, fine to coarse grained, with fine | D | | | Fill |
| 0.3 | | | | | | |
| | FILL | Sandy CLAY, medium plasticity, brown mottled white, fine to coarse | <Wp | | | |
| 0.5 | | grained, with fine to medium calcareous gravel | | | | |
| 0.6 | | | | | | |
| | FILL | Sandy CLAY, low plasticity, yellow brown mottled black, fine to | <Wp | | | |
| | | medium grained, trace fine to medium asphaltic concrete gravels, | | | | |
| 0.95 | | trace fine brick fragments | | | | |
| 1.0 | FILL | Sandy CLAY, low plasticity, dark brown and yellow brown, fine to | <Wp | | | |
| | | medium grained, trace fine gravel | | | | Alluvium, natural |
| | CL/SC | Sandy CLAY, low plasticity, dark brown, fin to medium grained, | <Wp | Fb | | |
| | | trace rootlet | | | | |
| 1.4 | | | | | | |
| 1.5 | SC | Clayey SAND, fine to medium grained, pale brown, low plasticity | M | L/MD | | |
| | | | | | | |
| | | | | | | |
| 1.8 | | | | | | |
| | CL/CI | Sandy CLAY, low to medium plasticity, brown and yellow brown, | <Wp | H | 600 | |
| 2.0 | | fine to coarse grained | | | | |
| | | | | | | |
| | | | | | 600 | |
| 2.25 | | | | | | |
| | SC/CL | Clayey SAND, fine to coarse grained, yellow brown and orange | M | L/MD | | |
| 2.5 | | brown, low plasticity | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 3.0 | | Borehole terminated at 3.0 m (target depth) | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 9/04/2024
Date Logged: 10/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 15**
Page 1

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| | FILL | Silty GRAVEL, fine to medium, angular to subangular, grey and | D | | | Fill |
| 0.15 | | yellow brown, low plasticity, with fine to coarse grained sand, trace rootlet | | | | |
| | FILL | Silty CLAY, low plasticity, dark brown, trace fine to medium grained | <Wp | | | |
| 0.4 | | sand, trace fine to coarse gravel, trace rootlet | | | | |
| 0.5 | CL | Silty CLAY, low plasticity, dark brown, trace fine to medium grained | <Wp | Fb | | Alluvium, natural |
| 0.6 | | sand | | | | |
| | CL/CI | CLAY, low to medium plasticity, yellow brown and dark brown | <Wp | Fb | | |
| | | mottled orange brown, with fine to medium grained sand, trace | | | | |
| | | calcareous nodules, trace rootlet | | | | |
| 1.0 | | | | H | 600 | |
| | | | | Fb | | |
| 1.5 | | | | H | 600 | |
| 1.6 | | | | | | |
| | CL | Sandy CLAY, low plasticity, yellow brown mottled white, fine to | <Wp | H | 600 | |
| | | medium grained, trace calcareous nodules, trace rootlet | | | | |
| | | | | | 600 | |
| 2.0 | | | | | | |
| 2.05 | | | | Fb | | |
| | CL/SC | Sandy CLAY, low plasticity, yellow brown, fine to medium grained, | <Wp | H | | |
| | | trace rootlet | | Fb | | |
| | | At 2.25 m, pockets organic matter | | | | |
| 2.5 | | | | Vst-H | 290 | |
| | | | | | 410 | |
| 2.8 | | | | | | |
| | SC | Clayey SAND, fine to medium grained, yellow brown, low plasticity | M | L/MD | | |
| 3.0 | | Borehole terminated at 3.0 m (target depth) | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 10/04/2024
Date Logged: 10/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 16**
Page 1

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| | FILL | Sandy CLAY, low plasticity, dark brown, fine to medium, trace | <Wp | | | Fill |
| 0.2 | | rootlet, trace fine brick fragment | | | 600 | |
| | CL | Silty CLAY, low plasticity, pale brown, with fine to medium grained | <Wp | Fb | | Alluvium, natural |
| | | sand, trace rootlet | | | | |
| 0.5 | | | | | | |
| | CL | Silty CLAY, low plasticity, orange brown, yellow brown and dark | <Wp | H | 600 | |
| | | brown, with fine to medium grained sand, trace rootlet | | | | |
| | | | | | 600 | |
| | | | | | | |
| 1.0 | | | | | 600 | |
| | CL | Sandy CLAY, low plasticity, yellow brown mottled white, fine to | <Wp | Fb | | |
| | | medium grained, trace calcareous nodules, trace rootlet | | | | |
| 1.35 | | | | | | |
| | CL/SC | Sandy CLAY, low plasticity, orange brown and yellow brown, fine to | <Wp | Fb | | |
| 1.5 | | medium grained, trace rootlet | | | | |
| | | | | | | |
| | | | | | | |
| 1.8 | | | | | | |
| | CL | Sandy CLAY, low plasticity, yellow brown and brown mottled white, | <Wp | H | 600 | |
| 2.0 | | fine to medium grained, trace calcareous nodules | | | | |
| | CI/CH | Sandy CLAY, medium to high plasticity, green brown and yellow | ≈Wp | H | 600 | |
| | | brown, orange brown, fine to medium grained, trace rootlet | | | | |
| | | | | | 600 | |
| | | | | | | |
| 2.5 | | | | | 600 | |
| | | | | | | |
| | | | | | 600 | |
| | | | | | | |
| | | | | | 600 | |
| 3.0 | | Borehole terminated at 3.0 m (target depth) | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **Yes**

WGA
60 Wyatt Street, Adelaide
South Australia 5000
Telephone 08 8223 7433
Email adelaide@wga.com.au

Date Drilled: 10/04/2024
Date Logged: 10/04/2024
**Logged by:** YW
Drilling Method: Push Tube
Drill Rig/Mount: Portable

**Borehole No.**
**BH 17**
Page 1

**Legend:**

| Moisture Condition | Density Index - Granular | Consistency - Cohesive | |
|---|---|---|---|
| D - Dry | VL/L - Very Loose/Loose | VS - Very Soft | Vst-Very Stiff |
| M - Moist | MD- Medium Dense | S - Soft | H - Hard |
| W - Wet | D/VD- Dense/Very Dense | F - Firm | Fb - Friable |
| Wp - Plastic Limit | | St - Stiff | |
| USCS: Unified Soil Classification System | | ↓GW = Groundwater | |

**Project Number:** **WGA230955**
**Location:** **ADELAIDE CARAVAN PARK REDEVELOPMENT, HACKNEY**

| | | Composition of soil | Condition of soil | | | Structure and additional observations |
|---|---|---|---|---|---|---|
| Depth below surface (m) | USCS Symbol | Soil Description (type, plasticity, grading, colour, secondary and minor components) | Moisture Condition | Consistency or Density Index | Hand Penetrometer Reading (kPa) | (e.g. soil origin, defects, cementing, likely $I_{pt}$ (%)) |
| | FILL | Sandy GRAVEL, fine to coarse, angular to subangular, grey and | D | | | Fill |
| | | yellow brown, fine to coarse grained, trace fine | | | | |
| | | | D-M | | | |
| 0.35 | | | | | | |
| 0.5 | CL | Silty CLAY, low plasticity, dark brown, trace fine to medium grained | <Wp | Fb | | Alluvium, natural |
| | | sand | | | | |
| | | | | | | |
| | | | | | | |
| 0.9 | | | | | | |
| 1.0 | CL | Silty CLAY, low plasticity, brown mottled yellow brown, with fine to | ≈Wp | H | 440 | |
| | | medium grained sand | | | | |
| | | | | | 390 | |
| 1.3 | | | >Wp | Vst | 370 | |
| | CL/CI | Sandy CLAY, low to medium plasticity, dark brown and pale brown, | >Wp | H | 500 | |
| 1.5 | | fine to medium grained, trace calcareous nodules | | | 570 | |
| | | | | Fb | | |
| | | | | | | |
| | | | | H | 460 | |
| 1.85 | | | | | | |
| 2.0 | CL/SC | Sandy CLAY, low plasticity, orange brown and yellow brown, fine to | >Wp | Vst | 370 | |
| | | coarse grained, trace fine gravel | | Fb | | |
| | | | | Vst | 280 | |
| 2.3 | | | | Fb | | |
| | SC | Clayey SAND, fine to coarse grained, yellow brown and orange | M | L/MD | | |
| 2.5 | | brown, low plasticity, trace fine gravel | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 3.0 | | Borehole terminated at 3.0 m (target depth) | | | | |

**Depth to Groundwater: None Observed** **Trees at Site:** **Yes**

WGA

# DESCRIPTION AND CLASSIFICATION OF SOILS(1) FOR ENGINEERING PURPOSES
# EXPLANATION SHEET TO ACCOMPANY ENGINEERING LOGS (SHEET 1)

## CLASSIFICATION SYMBOL & SOIL NAME

Soils are described in general accordance with the Unified Soil Classification (UCS) as shown in Table 1 on Sheet 2 using visual-tactile methods.

## PARTICLE SIZES

| NAME | FRACTION | SIZE |
|---|---|---|
| Boulders | | >200 mm |
| Cobbles | | 63 mm to 200 mm |
| Gravel | coarse | 20 mm to 63 mm |
| | medium | 6.7 mm to 20 mm |
| | fine | 2.36 mm to 6.7 mm |
| Sand | coarse | 600 µm to 2.36 mm |
| | medium | 210 µm to 600 µm |
| | fine | 75 µm to 210 µm |

## MOISTURE CONDITION

**Dry** Looks and feels dry. Cohesive soils are hard, friable or powdery. Uncemented granular soils run freely through hands.

**Moist** Soil feels cool and darkened in colour. Cohesive soils can be mounded. Granular soils tend to cohere.

**Wet** Similar to moist but with free water forming on hands when handled.

## CONSISTENCY OF COHESIVE SOILS

| TERM | UNDRAINED STRENGTH Su (kPa) | FIELD ASSESSMENT |
|---|---|---|
| **Very Soft** | ≤12 | A finger can be pushed well into the soil with little effort. |
| **Soft** | 12 to 25 | A finger can be pushed into the soil to about 25 mm depth. |
| **Firm** | 25 to 50 | The soil can be indented about 5 mm with the thumb. |
| **Stiff** | 50 to 100 | The surface of the soil can be indented with the thumb. |
| **Very Stiff** | 100 to 200 | The surface of the soil can be marked, but not indented with thumb pressure. |
| **Hard** | >200 | The surface of the soil can be marked only with the thumbnail. |
| **Friable** | Not able to be measured | Crumbles or powders when scraped by thumbnail. |

The undrained shear strength is assessed in the field using a pocket or hand penetrometer (PP). The undrained shear strength is approximately one half of the hand penetrometer reading.

## DENSITY INDEX OF GRANULAR SOILS

| TERM | DENSITY INDEX (%) |
|---|---|
| Very loose | Less than 15 |
| Loose | 15 to 35 |
| Medium Dense | 35 to 65 |
| Dense | 65 to 85 |
| Very Dense | Greater than 85 |

## MINOR COMPONENTS

| TERM | FIELD ASSESSMENT | PROPORTION OF MINOR COMPONENT IN: |
|---|---|---|
| Trace of | Presence just detectable by feel or eye. | Coarse grained soils: ≤5%<br>Fine grained soils: ≤15% |
| With some | Presence easily detected by feel or eye. | Coarse grained soils: >5 to ≤12%<br>Fine grained soils: >15 to ≤30% |

## SOIL STRUCTURE

| INCLUSIONS | | CEMENTING | |
|---|---|---|---|
| Layers | Continuous across exposure or sample. | Weakly Cemented | Easily broken up by hand in air or water. |
| Lenses | Discontinuous layers of lenticular shape. | Moderately Cemented | Effort is required to break up the soil by hand in air or water. |
| Pockets | Irregular inclusions of different material. | | |

## SOIL ORIGIN

### MATERIALS WEATHERED IN-SITU

| | |
|---|---|
| Extremely weathered material | Structure and fabric of parent rock visible. |
| Residual soil | Structure and fabric of parent rock not visible. |

### TRANSPORTED SOILS

| | |
|---|---|
| Aeolian | Deposited by wind. |
| Alluvial | Deposited by streams and rivers. |
| Colluvial | Deposited on slopes (transported downslope by gravity) |
| Fill | Placed by man. Fill may be markedly more variable between tested locations than naturally occurring soils. |
| Marine | Deposited in ocean basins, bays, beaches and estuaries. |

*Note: (1) materials found in the ground are generally described as a soil if the material can be remoulded or disintegrated by hand in the field condition or in water. Other materials are described using rock description terms.*

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**Table 1: SOIL CLASSIFICATION AND FIELD IDENTIFICATION AND DESCRIPTION (SHEET 2)**

| FIELD IDENTIFICATION PROCEDURES (excluding particles larger than 60 mm and basing fractions on estimated mass) | | | | | | USC | PRIMARY NAME |
|---|---|---|---|---|---|---|---|
| COARSE GRAINED SOILS More than 65% of material less than 63 mm is larger than 0.075 mm | GRAVELS More than half of coarse fraction is larger than 2.0 mm | CLEAN GRAVELS (Little or no fines) | Wide range in grain size and substantial amounts of all intermediate particle sizes. | | | GW | GRAVEL |
| | | | Predominantly one size or a range of sizes with more intermediate sizes missing. | | | GP | GRAVEL |
| | | GRAVELS WITH FINES (Appreciable amount of fines | Non-plastic fines (for identification procedures see ML below) | | | GM | SILTY GRAVEL |
| | | | Plastic fines (for identification procedures see CL below) | | | GC | CLAYEY GRAVEL |
| | SANDS More than half of coarse fraction is smaller than 2.0 mm | CLEAN SANDS (Little or no fines) | Well graded. Wide range in grain sizes and substantial amounts of all intermediate sizes. | | | SW | SAND |
| | | | Poorly graded. Predominantly one size or a range of sizes with some intermediate sizes missing | | | SP | SAND |
| | | SANDS WITH FINES (Appreciable amount of fines) | Non-plastic fines (for identification procedures see ML Below) | | | SM | SILTY SAND |
| | | | Plastic fines (for identification procedures see CL below) | | | SC | CLAYEY SAND |
| | IDENTIFICATION PROCEDURES ON PARTICLES <0.2 mm | | | | | | |
| FINE GRAINED SOILS More than 35% of material less than 63 mm is smaller than 0.075 mm | SILTS & CLAYS Liquid limit less than or equal to 50 | **DRY STRENGTH** | **DILATANCY** | **TOUGHNESS** | | | |
| | | None to low | Quick to slow | None | | ML | SILT |
| | | Medium to high | None | Medium | | CL | CLAY |
| | | Low to medium | Slow to very slow | Low | | OL | ORGANIC SILT |
| | SILTS & CLAYS Liquid limit greater than 50 | Low to medium | Slow to very slow | Low to medium | | MH | SILT |
| | | High | None | High | | CH | CLAY |
| | | Medium to high | None | Low to medium | | OH | ORGANIC CLAY |
| HIGHLY ORGANIC SOILS | | Identified by colour, odour, spongy feel and frequently by fibrous texture. | | | | Pt | PEAT |

* Low plasticity – Liquid Limit $W_L$ Less than 35 % * Medium plasticity - $W_L$ between 35% and 50%

# APPENDIX C
# LABORATORY TESTING

# Material Test Report

**Report Number:** **A24238-1A**
**Issue Number:** 1
**Date Issued:** 18/04/2024
**Client:** WGASA Pty Ltd
60 Wyatt St, Adelaide SA 5000
**Contact:** Yan Wang
**Project Number:** A24238
**Project Name:** Adelaide Caravan park Redevelopment, Hackney
**Project Location:** SA
**Client Reference:** WGA230955 - WGA230955
**Work Request:** 456
**Sample Number:** A24-456A
**Date Sampled:** 09/04/2024
**Dates Tested:** 12/04/2024 - 18/04/2024
**Sampling Method:** Sampled by Client
*The results apply to the sample as received*
**Sample Location:** **BH1, Depth: 1.5-1.9m**
**Material Source:** Bore Hole

terra firma laboratories
Adelaide Laboratory
Unit 3/3 Selgar Avenue Clovelly Park SA 5042
Phone: (03) 9769 5799
Email: rdingle@terrafirmalabs.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

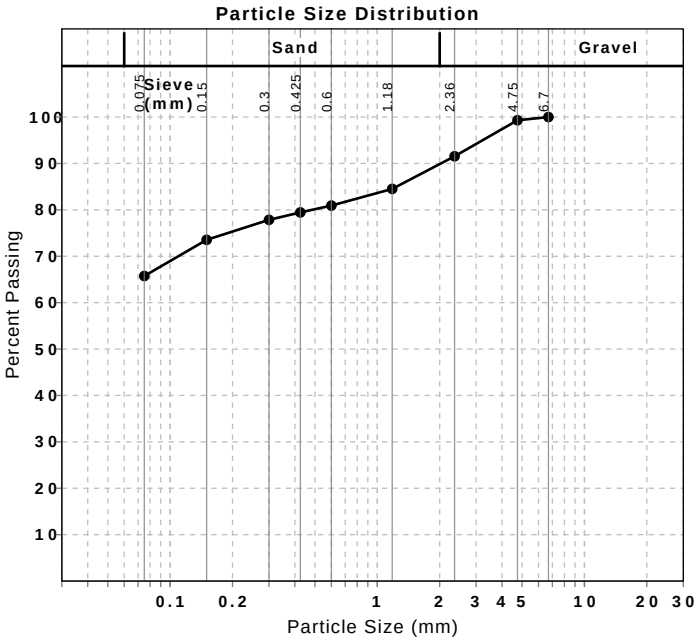
Approved Signatory: Ross Dingle
Technical Manager
NATA Accredited Laboratory Number: 15357

| Particle Size Distribution (DPTI (SA) TP134) | | | |
|---|---|---|---|
| Sieve | Passed % | Passing Limits | |
| 6.7 mm | **100** | | |
| 4.75 mm | **99** | | |
| 2.36 mm | **92** | | |
| 1.18 mm | **85** | | |
| 0.6 mm | **81** | | |
| 0.425 mm | **79** | | |
| 0.3 mm | **78** | | |
| 0.15 mm | **74** | | |
| 0.075 mm | **66** | | |

| Atterberg Limit (DPTI (SA) TP143 & TP141) | | Min | Max |
|---|---|---|---|
| Sample History | Air Dried | | |
| Preparation Method | Dry Sieve | | |
| Liquid Limit (%) | 30 | | |
| Plastic Limit (%) | 21 | | |
| **Plasticity Index (%)** | **9** | | |

| Linear Shrinkage (DPTI (SA) TP143) | | Min | Max |
|---|---|---|---|
| Linear Shrinkage (%) | **5.0** | | |
| Cracking Crumbling Curling | Cracking | | |

| Estimation of CBR from Classification Test (DPTI (SA) TP133) | | Min | Max |
|---|---|---|---|
| Lab-estimated CBR (%) | 15 | | |





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*Results relate only to the items tested/sampled.*

# Material Test Report

**Report Number:** **A24238-1A**
**Issue Number:** 1
**Date Issued:** 18/04/2024
**Client:** WGASA Pty Ltd
60 Wyatt St, Adelaide SA 5000
**Contact:** Yan Wang
**Project Number:** A24238
**Project Name:** Adelaide Caravan park Redevelopment, Hackney
**Project Location:** SA
**Client Reference:** WGA230955 - WGA230955
**Work Request:** 456
**Sample Number:** A24-456B
**Date Sampled:** 09/04/2024
**Dates Tested:** 12/04/2024 - 18/04/2024
**Sampling Method:** Sampled by Client
*The results apply to the sample as received*
**Sample Location:** **BH15, Depth: 0.6-1.0m**
**Material Source:** Bore Hole

terra firma laboratories
Adelaide Laboratory
Unit 3/3 Selgar Avenue Clovelly Park SA 5042
Phone: (03) 9769 5799
Email: rdingle@terrafirmalabs.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

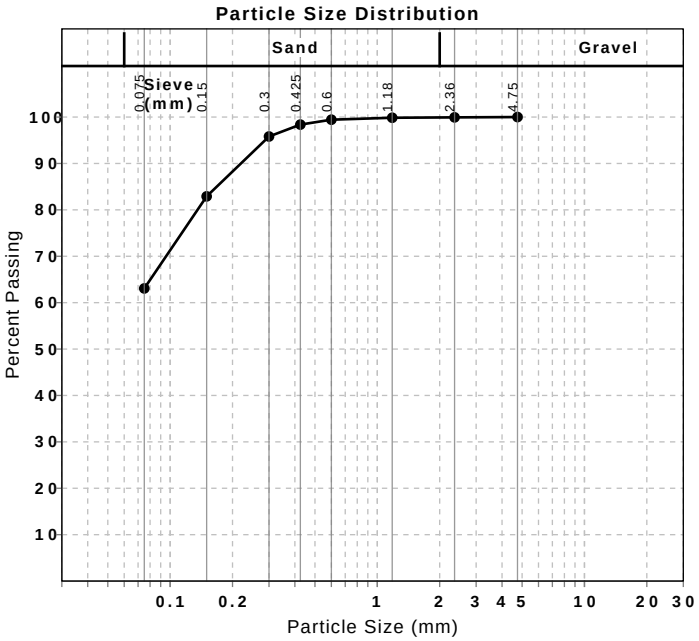
Approved Signatory: Ross Dingle
Technical Manager
NATA Accredited Laboratory Number: 15357

| Particle Size Distribution (DPTI (SA) TP134) | | | |
|---|---|---|---|
| Sieve | Passed % | Passing Limits | |
| 4.75 mm | **100** | | |
| 2.36 mm | **100** | | |
| 1.18 mm | **100** | | |
| 0.6 mm | **99** | | |
| 0.425 mm | **98** | | |
| 0.3 mm | **96** | | |
| 0.15 mm | **83** | | |
| 0.075 mm | **63** | | |

| Atterberg Limit (DPTI (SA) TP143 & TP141) | | Min | Max |
|---|---|---|---|
| Sample History | Air Dried | | |
| Preparation Method | Dry Sieve | | |
| Liquid Limit (%) | 23 | | |
| Plastic Limit (%) | 15 | | |
| **Plasticity Index (%)** | **8** | | |

| Linear Shrinkage (DPTI (SA) TP143) | | Min | Max |
|---|---|---|---|
| Linear Shrinkage (%) | **1.5** | | |
| Cracking Crumbling Curling | Cracking | | |

| Estimation of CBR from Classification Test (DPTI (SA) TP133) | | Min | Max |
|---|---|---|---|
| Lab-estimated CBR (%) | 14 | | |





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*Results relate only to the items tested/sampled.*

# GUIDE TO INTERPRETING YOUR **WGA GEOTECHNICAL REPORT**

This geotechnical report has been prepared by an experienced WGA Engineer. These notes have been prepared by WGA to assist the Client interpret and understand the report limitations.

## SCOPE OF SERVICES

This report has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and WGA. In some circumstances, the scope of the services may have been altered by a range of factors such as time, budget and access restrictions.

## GEOTECHNICAL INVESTIGATIONS

Geotechnical engineering is based extensively on professional judgment and opinion. It is far less precise than other engineering disciplines.

Geotechnical engineering reports are prepared to meet the specific needs of individual clients. This report was prepared expressly for the Client for the purposes indicated in the agreed scope of services. Use by any other persons for any purpose, or by the Client for a different purpose, may result in problems.

For example, a report prepared for a consulting civil engineer may not be adequate for a construction contractor or even another consulting engineer.

This report must not be used for any project other than that originally specified at the time the report was prepared, without seeking additional geotechnical advice.

## PROJECT-SPECIFIC FACTORS

This report is based on a subsurface investigation designed to meet the requirements of a specific project. The subsurface investigation was formulated based on factors which include the nature of the development, its size and configuration, the location of any existing development on the site, and the location of access roads and parking areas. Unless further geotechnical advice is obtained in writing, this report may not provide appropriate recommendations if:

- the nature of the proposed development is changed; or
- the size, configuration, location or orientation of the proposed development is modified.

The report findings cannot be applied to any other sites, including adjacent sites.

## SUBSURFACE CONDITIONS

Subsurface conditions are created by natural processes and the activity of man and may, therefore, be modified by changing natural forces or man-made influences. For example, water levels can vary with time and fill may be placed on a site. The report is based on conditions which existed at the time of subsurface exploration.

Construction operations at, or adjacent to, the site and natural events such as floods or groundwater fluctuations may also affect subsurface conditions, and thus the continuing adequacy of a geotechnical report. WGA should be kept informed of any such events and should be consulted to determine if additional investigations are necessary

## THIRD PARTY INTERPRETATION OF FINDINGS

WGA should be retained to assist other design professionals in the interpretation of relevant geotechnical findings, and to review the adequacy of plans and specifications relative to geotechnical issues. Costly problems can occur when other design professionals develop plans based on misinterpretations of a geotechnical report.

## ENGINEERING LOGS SHOULD NOT BE SEPARATED FROM THE REPORT

The report presents the findings of the geotechnical investigation and must not be copied or altered in any way.

Engineering logs and cross-sections are developed by geotechnical engineers based upon their interpretation of field logs and laboratory testing of samples. These logs and figures should not be redrawn for inclusion in other documents or separated from the report in any way.

To reduce the likelihood of misinterpretation, contractors should be given access to the complete geotechnical report prepared or authorised for use. The following publication should be referenced for further information.
*Guidelines for the Provision of Geotechnical Information in construction Contracts* (Engineers Australia, National Headquarters, Canberra 1987).

## RELIANCE ON SUPPLIED DATA

In preparing the report, WGA may have relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations. Unless otherwise stated in the report, WGA has not verified the accuracy or completeness of such data. WGA will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misinterpreted or otherwise not fully disclosed to WGA.

## LIMITATIONS OF SITE INVESTIGATIONS

In making an assessment of a site from a limited number of boreholes or test pits it is inevitable that variations will occur between test locations. Subsurface exploration identifies specific subsurface conditions only at those points from which samples have been taken. The likelihood that subsurface variations will not be detected can be reduced by increasing the frequency of test locations, although this has cost implications. The investigation program undertaken is a professional estimate of a reasonable scope of investigation required to provide a general profile of the subsurface conditions. The data derived from the site investigation program and subsequent laboratory testing are extrapolated across the site to form an inferred geotechnical model and an engineering opinion is formed about overall subsurface conditions and their likely behaviour with regard to the proposed development.

Despite subsurface exploration, the actual conditions at the site might differ from those inferred to exist, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface conditions and anomalies.

The engineering logs are the subjective interpretation of the subsurface conditions encountered at a particular location, made by experienced personnel. The interpretation may be limited by the method of investigation, and cannot always be definitive. For example, inspection of an excavation or test pit allows a greater area of the subsurface profile to be inspected than borehole investigations, however, such methods are limited by depth and site disturbance restrictions.

The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained from the subsurface exploration. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, the services of WGA should be retained through design and construction stages, to identify variances, conduct additional tests if required and recommend solutions to any problems encountered on site.

WGA

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24ADL-0922
6 DECEMBER 2024

# Planning Report

## 46 Richmond Street, Hackney

ASPEN GROUP

URPS

# Planning Report

6 December 2024

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| V4 | 4/12/24 | M.Asser | M.Rolfe | Final version |

We acknowledge the Kaurna People as the Traditional Custodians of the land on which we work and pay respect to their Elders past, present and emerging.

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# Executive Summary

| | |
|---|---|
| **Applicant and Owner:** | Aspen Group Ltd (Aspen Group) |
| **Property Location:** | 46 Richmond Street, Hackney |
| **Site Area:** | 1.399ha |
| **Council and Relevant Authority:** | The City of Norwood Payneham and St Peters |
| **Planning and Design Code:** | Version 2024.21 – 21 November 2024 |
| **Zone and Policy Area:** | Housing Diversity Neighbourhood Zone<br>Open Space Zone |
| **Current Land Uses:** | Caravan and Tourist Park |
| **Description of Use/Development:** | Land division creating 47 allotments, open space reserves (3), public roads and associated civil works, car parking and landscaping.<br>Construction of a 6 storey residential flat building (build-to-rent co-living building) comprising 78 dwellings and ground floor shop (café). |

# 1. Introduction

URPS has been engaged by Aspen Group to prepare this planning report in relation to the proposed development at 46 Richmond Street, Hackney.

The report provides an overview of the subject land and locality, details of the proposed development and an assessment against the relevant provisions of the Planning and Design Code (the Code).

This Planning Report is accompanied by:

- Certificate of Titles.
- Richmond Street Master Plan prepared by Forum.
- Build-to-Rent Co-living building development plans prepared by Grieve Gillett Architects.
- Stormwater Management Plan prepared by WGA.
- Civil Engineering Master Planning documents prepared by WGA.
- Traffic and Parking Report prepared by MFY Pty Ltd.
- Waste Management Plan for the Build-to-Rent Co-living Building prepared by Colby Phillips Advisory.
- Heritage Impact Statement and Works Plans prepared by Forum.
- Landscape Strategy (Richmond St. Masterplan) prepared by Landskap.
- Plan of Subdivision prepared by FYFE.
- Services Infrastructure Report prepared by WGA.
- Geotechnical Investigations prepared by WGA.
- Arboricultural Site Survey prepared by Dean Nicolle of Calyptra Pty Ltd.
- Preliminary Site Investigation prepared by GAMA Consulting.

## 2. Background

Aspen Group is an ASX listed leading provider of quality accommodation across three sectors – residential, retirement and park communities. Aspen Group provides diverse residential accommodation on competitive terms and has over 5,000 dwellings or sites around Australia.

The site has operated as a Caravan and Tourist Park for a considerable period of time and contains 45 cabins/villas and 40 powered camping sites. The park provides accommodation for tourists as well as supporting several occupants using the short-term accommodation on a temporary basis. Aspen Group has continued to operate and manage the Adelaide Caravan Park at the site since purchasing the land in recent years.

Aspen Group believes the site is ideally located to provide diverse residential accommodation close to the Adelaide CBD, existing medium density residential developments and an abundance of public services, infrastructure and open space. Aspen Group purchased the site with future redevelopment in mind, supported by the existing Zoning of the site.

Preliminary advice has been sought from staff at the City of Norwood, Payneham & St Peters Council on the key objectives, policy guidance and scope of the project. This has aided in the development of concept plans through to the final development plans which form the basis of this application.

# 3. Site and Locality

## 3.1 Subject Land

The subject land is located at 46 Richmond Street, Hackney and comprises the following 11 allotments:

| No. | Allotment | Plan | Certificate of Title |
|---|---|---|---|
| 1 | *100* | *D44733* | *CT5389/439* |
| 2 | *101* | *D44733* | *CT5389/440* |
| 3 | *101* | *D58667* | *CT5923/342* |
| 4 | *102* | *D58667* | *CT5923/343* |
| 5 | *103* | *D58667* | *CT5923/344* |
| 6 | *37* | *F18091* | *CT5389/442* |
| 7 | *39* | *F18091* | *CT5187/275* |
| 8 | *91* | *F203953* | *CT5389/441* |
| 9 | *98* | *F212351* | *CT5556/452* |
| 10 | *99* | *F212352* | *CT5556/453* |
| 11 | *112* | *F213471* | *CT5624/154* |

The subject land has a total area of 1.399 hectares and a 154m frontage to Richmond Street. Richmond Street borders the site to the south while all remaining boundaries of the subject land adjoin public open space. This includes Twelftree Reserve to the east, the River Torrens/Karrawirra Parri waterway reserve to the north and the public car park servicing Old Mill Reserve and the River Torrens Linear Park path to the west.

The majority of the site is in the Housing Diversity Neighbourhood Zone. This northern portion of Lot 100 is in the Open Space Zone (see **Figure 1** below). This portion of Lot 100 includes the bank of the River Torrens/Karrawirra Parri and extends to the centreline of the river.

The subject land is currently used as a Caravan and Tourist Park and contains 45 cabins/villas, 40 powered camping sites and associated office, amenities buildings, recreation areas and internal accessways. The land features scattered vegetation and significant extent of hard surfacing.

The Caravan and Tourist Park is identified as the Adelaide Caravan Park and is managed by Aspen Group. The caravan park is accessible via an existing crossover to Richmond Street.

With the exception of Lot 37 and 91, all allotments share a boundary frontage with Richmond Street. Lots 37 and 91 are subject to existing rights of way over a southern portion of Lot 100. This provides each allotment with legal access to Richmond Street.

The land is generally flat with a steep embankment to the River Torrens/Karrawirra Parri to the north of the land and within the northern portion of Lot 100.

The subject land also comprises two Local Heritage Places (LHP's). The LHP's are within Lot 39 F18091 and Lot 99 F212352 and both have frontages to Richmond Street.

Part 11 – Heritage Places of the Code provides the following details of the Local Heritage Place listings:

| Local Heritage Place ID | Address | Description |
|---|---|---|
| *6406* | *36 Richmond Street, Hackney*<br>*(Lot 39 F18091)* | *Uniting Church; Original 1906 building fabric fronting Richmond Street including main hall and two classrooms but excluding the rear additions.* |
| *6407* | *46 Richmond Street, Hackney*<br>*(Lot 99 F212352)* | *Dwelling (Former Park Farm Barn); Whole of the building, excluding the later porch additions on the eastern elevation, lean-to additions on the western elevation and lower brick and framed structure to the north.* |

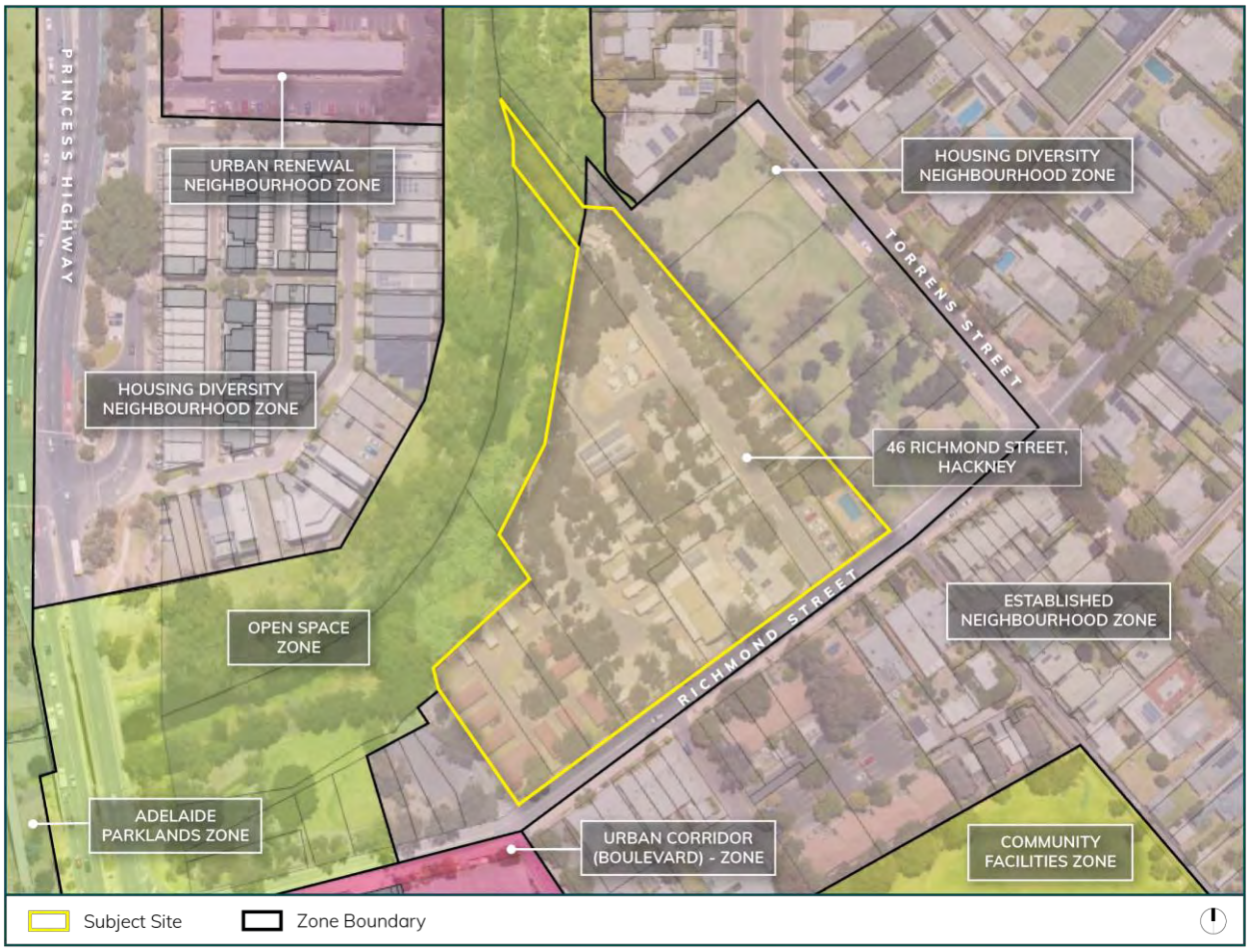


**Figure 1: The subject land and Zoning**

## 3.2 Locality

The locality is varied in terms of land uses, density and levels of amenity. There is residential development of varying density and heights, state and locally significant public open space and some non-residential development (see Figure 2 below).

The northern boundaries of the subject land adjoin the River Torrens/Karrawirra Parri. This land has a moderate amenity level with a natural landscape which has not been actively maintained. The southern bank of the river is overgrown with weed and invasive species. There is limited access between the subject land or adjacent public open space and the bank. This is evidenced by the current lack of connection between the River Torrens Linear Park path along the portion of the riverbank adjoining the subject land.

The northern bank of the River Torrens/Karrawirra Parri features a higher amenity level with a highly treed natural landscape, shared pedestrian/bicycle path and active management of the watercourse environment.

The northern side of the River Torrens/Karrawirra Parri is developed with low to medium density townhouses of up to 3 storeys.

East of the subject land is the Council-managed Twelftree Reserve. The popular reserve includes playground facilities, walking paths and grassed recreation areas. The reserve includes many established trees, particularly in the southern portion of the reserve. Adjacent the reserve is an existing shop (café) which is visible from the subject land.

Land south of Richmond Street between Torrens Street and Hatswell Street includes low-rise, low-density dwellings with setbacks to the street varying between 3m and 10m. Dwellings have primary frontages to Richmond Street which vary in width from 5.2m to 11m. Dwellings feature a mix of architectural details including hipped and gable roofs, bluestone, sandstone and brick facades. There are two clusters of Local Heritage Places which includes:

- Row dwellings comprising four dwellings between 25-31 Richmond Street, Hackney.
- Row dwelling comprising four dwellings between 33-39 Richmond Street, Hackney.
- Attached dwellings at 55 and 57 Richmond Street, Hackney.

West of Hatswell Street, diagonally adjacent the subject land, features multi-storey dwellings comprised as semi-detached and residential flat buildings. Some of these frontages to Richmond Street are between 4.3m and 5.5m wide. These buildings are between 2 and 6 storeys and have minimal setbacks to Richmond Street. This means the height of these buildings are very prominent in the locality.

Immediately west of the subject land is a public car park which services the Council-managed Old Mill Reserve and River Torrens Linear Park path which connects the locality with the Adelaide Parklands, North Adelaide and Adelaide CBD.

**Figure 2: Locality Plan**

# 4. Proposed Development

## 4.1 Development Summary

The proposal is for the re-development of the subject land to accommodate medium-density housing. The proposal comprises:

- A change in use from a Caravan and Tourist Park to Residential Flat Building and Shop.
- Land Division creating a total of 47 allotments for residential uses and 3 open space reserves.
- Construction of a 6-storey Residential Flat Building (Build-to-Rent Co-living Building) comprising:
  - 78 Build-to-Rent Co-living dwellings.
  - Under-croft car park with 15 spaces.
  - Open-air car park with 29 spaces (including 3 visitor spaces for the Shop).
  - Communal facilities including gym, co-working space, office, meeting room and laundry.
  - 158m$^2$ Shop (Café) at the ground floor with 93m$^2$ external terrace.
- Construction of public roads, car parking and associated infrastructure, civil and landscaping works.
- Construction of a shared pedestrian/bicycle public path.
- Partial demolition and alterations of two Local Heritage Places.
- Associated earthworks, landscaping and fencing.

The proposal is identified as the Richmond Street Masterplan. The master plan has been prepared by Forum, see **Figure 3** below.

For the purposes of this report the proposal has been split into the following three components:

- Build-to-Rent Co-living building.
- Townhouse Land Division.
- Public realm (proposed public roads, open space and shared pathway).

**Figure 3: Site masterplan prepared by Forum**

## 4.2 Build-to-Rent Co-living Design

The Residential Flat Building (Build-to-Rent Co-living building) with associated car parking and landscaping will be developed within Lot 47. The Build-to-Rent Co-living building has been designed by Grieve Gillett Architects (GGA).

The building has a primary frontage to Richmond Street. There is an existing public car park and shared access path with linkage to the River Torrens Linear Park path to the west of the proposed building. The north-east corner of the building adjoins a proposed public road, open space reserve and the open-air car park is adjacent to the eastern facade.

The Residential Flat Building (Build-to-Rent Co-living building) features:

- An under-croft car park with 15 car parking spaces, bicycle storage and service areas, accessible via the shared car park.

- Ground floor with 6 studio apartments, shared gym, laundry, office and co-working areas and lobby entry from Richmond Street.
- 158m$^2$ Shop at ground level with 93m$^2$ outdoor terrace and frontage to the shared pathway and River Torrens Linear Park path.
- First floor with 9 studio apartments and 7 one-bedroom apartments.
- Floors 2-5 with 3 one-bedroom apartments and 11 studio apartments.

The ground and first floor of the Residential Flat Building (Build-to-Rent Co-living building) is setback a minimum of 4.55m from Richmond Street. Levels 2-5 are setback 5.49m from the lower levels and 10.49m from the boundary with Richmond Street.

The Residential Flat Building has a maximum building height of 6-storeys and 23.6m. Its height takes precedent from the the 6-storey Botaniq development diagonally opposite the site.

**Figure 4: Perspective imagery of the proposed Residential Flat Building (Build-to-Rent Co-living building) prepared by Forum – view from Richmond Street**

**Figure 5: Perspective imagery of the proposed Build-to-Rent Co-living building prepared by Forum – view from River Torrens**

## 4.3 Townhouse Land Division

The application proposes the creation of 47 residential allotments. One allotment comprises the Residential Flat Building (Build-to-Rent Co-living building) and 46 allotments are to be developed as townhouses. These 46 allotments vary in size between 612m$^2$ and 78m$^2$ and all have boundaries fronting public roads to provide passive surveillance and a suitable presentation to the street.

The variation in allotment areas and frontage widths provides a diverse residential form and density desired by the Zone.

The land division is currently proposed to be delivered in one stage.

Forum has prepared a master plan for the land division which illustrates that each allotment is fit-for-purpose, accommodating sufficient off-street car parking, street setbacks, activated frontages and indicative building envelopes.

This also illustrates that future development can be undertaken through varied dwelling types including a range of detached, semi-detached, row dwellings and/or residential flat buildings.

3D perspectives show how a contemporary, tiered form and increased setbacks to the periphery of the site, including Richmond Street and Twelftree Reserve could achieve an appropriate built form outcome for the site.

## 4.4 Public Realm

Vehicular access to the subject site will be provided via two intersections with Richmond Street, one new and one existing. The access points have been designed to facilitate simultaneous vehicle movements (ingress and egress).

The proposal includes the creation and construction of public roads labelled as Lot 200, 201 and 202 on the plan of subdivision. Lot 200 is a public laneway and services Lots 1-22.

All public roads have been designed to Council's specifications and each new allotment shares a boundary with these public roads to provide legal access.

Further details on the proposed access and traffic management is provided in the Traffic and Parking Report prepared by MFY.

The plan of subdivision also includes three open space reserves and a shared pedestrian/bicycle path is to be constriction through the site within the road and open space reserves.

The shared pathway provides connection with the existing River Torrens Linear Park shared pedestrian/bicycle path to the east and west of the site.

## 4.5 Site Management and Operation

With expertise as a leading provider of residential and lifestyle accommodation in Australia, Aspen Group will continue to own and manage the Residential Flat Building (Build-to-Rent Co-living building) following construction. Aspen currently operate a number of Build-To-Rent Co-living buildings, under the CoVE brand, in Newcastle, Brisbane and Perth and will bring this experience to the project.

Aspen Group has provided the following summary:

*"A relatively new concept to Adelaide, Build-to-Rent Co-living provides a unique style of accommodation, allowing residents their own private space while enjoying a community feel with shared communal areas. Residents will have the option to meet new people or join in on community events with other residents. They can use the gym or laundry on the ground floor then go to the café overlooking the active transport shared path and River Torrens. Each accommodation style (studio or 1 bed unit) will come furnished and rooms can be rented for both short and long term purposes.*

*Aspen will be the owner and operator of the Build-to-Rent Co-living Building. This will create many jobs at the site for on-site facility managers, cleaners, landscaping and head office staff. Furthermore, the proposed café will employ many other service and wait staff."*

The occupation of the dwellings within the Residential Flat Building (Build-to-Rent Co-living building) will be a mix of short and longer-term tenancies. The dwellings may be rented on a day-to-day, week-to-week or on a short-term lease basis. Unlike tourist accommodation land uses, this accommodation type is such that the occupation term or occupant type is not restricted. Occupants can continue to rent the accommodation for longer stays through successive rental terms.

This means the Residential Flat Building (Build-to-Rent Co-living building) operates in a similar way to serviced apartments or the existing caravan and tourist park. It will provide varied and amenable accommodation options for students, tourists, workers and other occupants on a short-term or temporary basis.

As part of the operation and management of the Residential Flat Building (Build-to-Rent Co-living building), Aspen Group will manage:

- Accommodation bookings and tenancies.
- Operation of common areas, facilities and services.
- Vehicle parking allocation.
- Noise abatement.
- Waste management on site (with Council collection).
- Landscaping and site maintenance.

# 5. Procedural Matters

## 5.1 Planning and Design Code

The majority of the subject site is in the Housing Diversity Neighbourhood Zone.

A portion of land comprising Lot 41 F18091 and the northern portions of Lot 40 F18091 and Lot 100 D44733 are within the Open Space Zone. The subject site is not in a Sub Zone.

The following Overlays in the Code apply to the site:

- Affordable Housing Overlay.
- Airport Building Heights (Regulated) Overlay.
- Hazards (Flooding) Overlay.
- Hazards (Flooding – General) Overlay.
- Heritage Adjacency Overlay.
- Local Heritage Place Overlay (Lot 39 F18091 and Lot 99 F212352).
- Prescribed Watercourses Overlay.
- Prescribed Wells Area Overlay.
- Regulated and Significant Tree Overlay.
- Stormwater Management Overlay.
- Traffic Generating Development Overlay.
- Urban Tree Canopy Overlay..
- Water Resources Overlay

The site is also subject to Concept Plan 82 – Hackney identified within Part 12 – Concept Plans, Norwood Payneham St Peters in the Code.

## 5.2 Assessment Pathway

The proposed development is subject to the Performance Assessed pathway as designated in the Housing Diversity Neighbourhood Zone and Open Space Zone.

The City of Norwood, Payneham and St Peters is the relevant authority and will assess the application on its merits against the relevant provisions of the Code.

## 5.3 Notification

Table 5 – Procedural Matters (PM) – Notification of the Housing Diversity Neighbourhood Zone excludes classes of development (Column A) from notification provided they do not fall within the corresponding exceptions (prescribed in Column B).

Development of a Residential Flat Building which exceeds the maximum building height specified in DPF 3.1 of the Housing Diversity Neighbourhood Zone requires public notification. The proposed height of the Residential Flat Building (Build-to-Rent Co-living building) exceeds 2 levels and therefore does not satisfy DPF 3.1 of the Zone.

In addition, the proposed partial demolition of a Local Heritage Place requires public notification.

This means that the entire development application is subject to public notification.

## 5.4 Referrals

The proposed development will be referred to:

- The Commissioner of Highways.
- The Environment Protection Authority (EPA).

### *5.4.1 Commissioner of Highways*

Procedural Matters (PM) – Referrals of the Traffic Generating Development Overlay provides that development of a building, or buildings, containing in excess of 50 dwellings within 250 metres of a State Maintained Road must be referred to the Commissioner of Highways.

The purpose of this referral is "to provide expert technical assessment and direction to the Relevant Authority on the safe and efficient operation and management of all roads relevant to the Commissioner of Highways as described in the Planning and Design Code."

The proposed development will be referred to the Commissioner and a Traffic and Parking Report has been prepared by MFY Pty Ltd.

### *5.4.2 Environmental Protection Authority*

Practice Direction 14 – Site contamination Assessment 2021 provides Table 1 – Land Use Sensitivity Hierarchy Table to identify relevant levels of land use sensitivity. Tourist Accommodation is listed as Item 4 in the table and Residential class 1 land use is listed as Item 1.

This means the proposed land use is a more sensitive land use than the existing use as a Caravan and Tourist Park. Similarly, the proposed use is a sensitive use as defined by Practice Direction 14.

Part 9.1 (Part 9 – Referrals) of the Code establishes that a referral to the Environmental Protection Authority (EPA) for a change in use to a more sensitive use is only required where site contamination exists or may exist as a result of a class 1 activity or class 2 activity on the land.

The Preliminary Site Investigation prepared by GAMA Consulting confirms that no potentially contaminating activities have been undertaken on the site to the intensity which would meet the definition of a class 1 or 2 activity in Practice Direction 14.

This means the application does not require referral to the EPA.

## 5.5 Approach to Assessment

Part 1 of the Code sets out the correct approach to Performance Assessment. This part is explicit that:

*"Designated performance features*

*In order to assist a relevant authority to interpret the performance outcomes, in some cases the policy includes a standard outcome which will generally meet the corresponding performance outcome (a designated performance feature or DPF). A DPF provides a guide to a relevant authority as to what is generally considered to satisfy the corresponding performance outcome but does not need to necessarily be satisfied to meet the performance outcome,* and does not derogate from the discretion to determine that the outcome is met in another way, *or from the need to assess development on its merits against all relevant policies".*

(underlining added)

In assessing this proposal under the Performance Assessed Pathway, Council need not strictly apply the quantitative DPFs and can reasonably assess the proposal on its performance against the relevant policies.

Recent judgements of the ERD Court have also expanded upon this. In summary:

- Designated Performance Features (DPFs) simply represent one way to satisfy the corresponding Performance Outcome (PO), but not the only way.
- There can be variation from DPF policies.
- A DPF is not the same as a complying standard or a Principle of Development Control under the previous planning system.
- A departure from a DPF is, in itself, not a reason to refuse a development.
- The proposal will ultimately succeed or fail depending on how it is assessed against the relevant Performance Outcomes.

This approach has been applied in the assessment of the application that follows.

# 6. Planning Assessment

## 6.1 Land Use

The Zone provides the following provisions relevant to land use:

***PO 1.1*** ***Diverse range of medium density housing and accommodation complemented by a range of compatible non-residential uses supporting an active, convenient, and walkable neighbourhood.***

***DPF 1.1*** ***Development comprises one or more of the following:...***

***(e) Dwelling...***

***(j) Residential Flat Building...***

***(l) Shop...(Underlining added)***

Part 7 – Land Use Definitions of the Code provides the following relevant definitions:

| Land Use | Definition |
|---|---|
| *Dwelling* | *Means a building or part of a building used as a self-contained residence.* |
| *Residential Flat Building* | *Means a single building in which there are 2 or more dwellings.* |
| *Shop* | *Means:*<br>*(a) premises used primarily for the sale by retail, rental or display of goods, foodstuffs, merchandise or materials; or*<br>*(b) a personal or domestic services establishment.* |

The proposed land uses are defined as a Residential Flat Building (Build-to-Rent Co-living building) and a Shop.

Both land uses are clearly anticipated in DPF 1.1 of the Zone. They satisfy PO 1.1 by providing diverse housing and accommodation, as well as a compatible non-residential use.

## 6.2 Residential Density

Performance Outcome 1.1 of the Housing Diversity Neighbourhood Zone quoted in the previous section of this report anticipates “medium density housing”.

Part 8 – Administrative Terms and Definitions of the Code provides the following relevant definition:

| Term | Definition |
|---|---|
| *Medium net residential density* | *Means 35 to 70 dwelling units per hectare.* |
| *Net residential density* | *Is calculated by dividing the total number of dwellings by the area of residential land that they occupy (excluding other land uses, roads, public open space and services) and expressed as dwelling units per hectare (du/ha)* |

Areas occupied by *"other land uses, roads, public open space and services"* must be subtracted to determine a net residential density value as expressed by the Code.

It is common practice for 30% of each hectare to be dedicated to "o*ther land uses, roads, public open space and services".*

The 78 dwellings within the Residential Flat Building and 46 residential allotments are proposed across the 13,990m$^2$ site. This equates to a gross density of 113 dwellings per hectare (13,990m$^2$ divided by 124).

The formula to convert this to a per hectare net density figure is as follows:

10,000m$^2$/(13,990m$^2$ + 30%) x 124 dwellings = 68.2 dwellings per hectare.

On this basis, the proposal achieves a net residential density that satisfies PO 1.1.

**Figure 6: Density perspective image prepared by Forum**

The Zone also provides the following provisions relevant to land division and site areas:

***PO 2.1*** ***Allotments/sites created for residential purposes accommodate a diverse range of low to medium density housing, with higher densities closer to public open space, public transport stations and activity centres.***

***DPF 2.1*** ***Allotments/sites for residential purposes accord with the following:***

***(a) site areas (or allotment areas in the case of land division) are not less than the following (average site area per dwelling, including common areas, applies for group dwellings or dwellings within a residential flat building):***

| Minimum Site Area | |
|---|---|
| Detached dwelling | 330 sqm |
| Semi-detached dwelling | 300 sqm |
| Row dwelling | 200 sqm |
| Group dwelling | 200 sqm |

***(b) site frontages (or allotment frontages in the case of land division) are not less than:***

| Minimum Frontage | |
|---|---|
| Detached dwelling | 9m |
| Semi-detached dwelling | 8m |
| Row dwelling | 5m |
| Group dwelling | 18m |
| Residential flat building | 18m |

***(Underlining added)***

The Residential Flat Building (Build-to-Rent Co-living building) provides a site frontage of 44.97m to Richmond Street. This satisfies DPF 2.1(b).

DPF 2.1(a) does not include a minimum site area for dwellings in a Residential Flat Building. This should not be interpreted to mean that Residential Flat Buildings are discouraged. Residential Flat Buildings are expressly anticipated in DPF 1.1 as previously quoted. The absence of a minimum site area guideline for dwellings in a Residential Flat Buildings simply provides desired flexibility for this type of development.

The higher density Residential Flat Building (Build-to-Rent Co-living building) is also located adjacent to existing and proposed areas of public open space as anticipated in PO 2.1 quoted above.

The 46 townhouse allotments have site areas between 612m$^2$ and 78m$^2$ and frontages between 20.51m and 4.5m.

The proposed townhouse allotments satisfy PO 2.1 despite some variation from the site area and frontage guidelines in DPF 2.1 because:

- The proposed allotments vary in size between 612m$^2$ and 78m$^2$. The nature of this variation means that there will be a diverse range of housing developed on the land.
- "Medium net residential density" is defined by the Code as 35 to 70 dwellings per hectare. Applying the same equation as earlier, a net density of 35 to 70 dwellings equates to lot areas of 100m$^2$ to 200m$^2$. Low net residential density is defined by the Code as less than 35 dwellings per hectare or lot areas greater than 200m$^2$.

  85% of the site provides low to medium density as anticipated by PO 2.1. This is distributed as follows:

  – 50% of the lots are medium density with lot sizes between 100m$^2$ and 200m$^2$.

  – 35% of the lots are low density with lot sizes greater than 200m$^2$.

## 6.3 Non-Residential Intensity

The Zone provides the following provisions relating to non-residential development:

***PO 1.2*** ***Commercial activities improve community access to services are of a scale and type to maintain residential amenity.***

***DPF 1.2*** ***A shop, consulting room or office (or any combination thereof) satisfies any one of the following:***

***...***

***(a) is located more than 500m from an Activity Centre and satisfies one of the following:***

***(i) does not exceed 100m$^2$ gross leasable floor area (individually or combined, in a single building) where the site does not have a frontage to a State Maintained Road...***

***PO 1.3*** ***Non-residential development located and designed to improve community accessibility to services, primarily in the form of:***

***(a) small-scale commercial uses such as offices, shops and consulting rooms...***

***PO 1.5*** ***Non-residential development sited and designed to complement the residential character and amenity of the neighbourhood.***

***(Underlining added)***

The proposal includes a Shop at the ground floor of the Residential Flat Building (Build-to-Rent Co-living building). It has a gross leasable floor area of 251m$^2$ (inclusive of an outdoor terrace area). The Shop will operate as a café and will be managed by Aspen Group.

Despite having a gross leasable floor area exceeding 100m$^2$, this non-residential land use satisfies PO 1.2, PO 1.3 and PO 1.5 because:

- The proposed commercial activity provides improved access to small-scale non-residential services while maintaining/enhance the residential amenity of the neighbourhood.
- The proposed Shop will operate as a café, representing a small-scale commercial use in the form anticipated by PO 1.3.

- The Shop is orientated to face the public open space and shared pathway on the northern side of the Residential Flat Building (Build-to-Rent Co-living building). The café is primarily intended to be accessed from the public realm. This provides direct community access to the non-residential use while retaining high residential amenity within the locality.

## 6.4 Building Height

The Zone provides the following provisions relevant to building height:

***PO 3.1*** ***Building height is consistent with the form expressed in any relevant* Maximum Building Height (Levels) Technical and Numeric Variation layer *and* Maximum Building Height (Metres) Technical and Numeric Variation layer *or is generally low rise, or complements the height of nearby buildings.***

***DPF 3.1*** ***Building height (excluding garages, carports and outbuildings) is no greater than:***

***Maximum building height is 2 levels... (Underlining added)***

PO 3.1 provides flexibility in building heights. Buildings can be 2 levels as identified in the relevant TNV Layer, or be "low rise" (2 levels as defined in the Code), or complement the height of nearby dwellings.

The site is also identified in Concept Plan 82: Hackney under Part 12 of the Code (see Figure 7 below). This provides a "building height range" of 1 to 4 storeys.

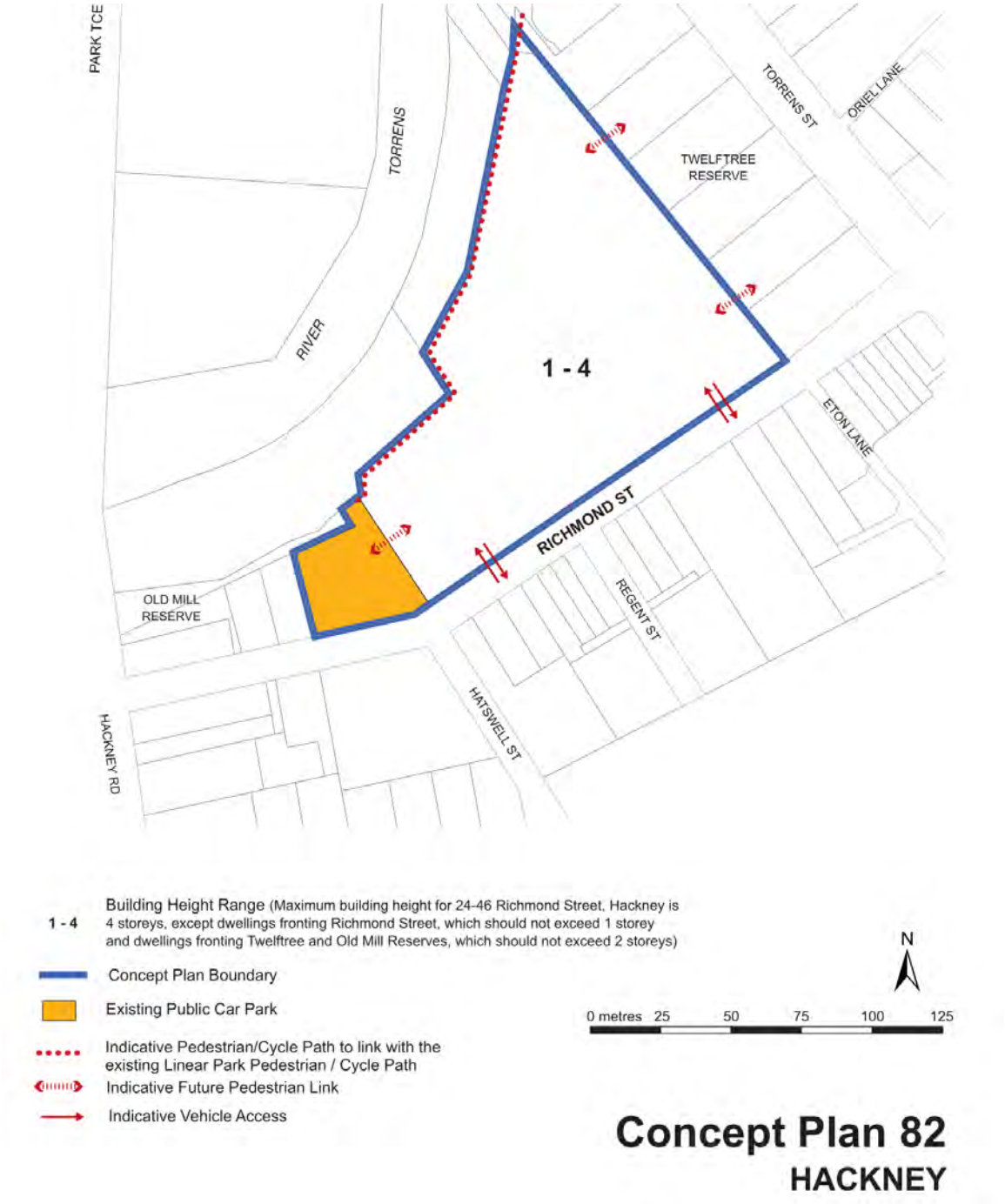


**Figure 7: Concept Plan 82**

The Concept Plan provides guidance on the application of building height ranges across the site by stating:

> ***Maximum building height for 24-46 Richmond Street, Hackney is 4 storeys, except dwellings fronting Richmond Street, which should not exceed 1 storey and dwellings fronting Twelftree and Old Mill Reserves, which should not exceed 2 storeys.***

The Zone seeks the following where Concept Plans apply:

***PO 9.1*** ***Development is compatible with the outcomes sought by any relevant Concept Plan contained within Part 12 - Concept Plans of the Planning and Design Code to support the orderly development of land through staging of development and provision of infrastructure.***

The application proposes a Residential Flat Building (Build-to-Rent Co-living building) of 6 levels/storeys. This building height complements the height of nearby buildings and is compatible with the outcomes sought by Concept Plan 82 as follows:

- The proposed 6 level Residential Flat Building (Build-to-Rent Co-living building) has been sited on the western extent of the site diagonally opposite the Botaniq development (Hackney Hotel redevelopment site) that is 6 levels. Both represent mid-rise development as defined by the Code.
- The Residential Flat Building (Build-to-Rent Co-living building) provides a two-level podium to Richmond Street with increased setback to the upper-levels. This is compatible with the outcomes sought by Concept Plan 82 which seeks a progressive building height increase towards the interior of the subject land.

**Figure 8: Perspective imagery showing complementary height of nearby buildings along Richmond Street**

**Figure 9: Aerial perspective showing the height of the Built-to-Rent Co-living building is complementary of the nearby Botaniq apartments**

## 6.5 Affordable Housing

The Affordable Housing Overlay provides the following provisions:

**PO 1.1** **Development comprising 20 or more dwellings / allotments incorporates affordable housing.**

**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.**

**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.***

***(Underlining added)***

Aspen Group does not intend to provide "affordable housing" as defined in the Code. This variation from the Code provisions quoted above is justified for the following reasons.

The dwellings within the Residential Flat Building (Build-to-Rent Co-living building) provide varied accommodation options for students, tourists, workers and others through a mix of short and longer-term tenancies. The dwellings have compact floor plans, as well as shared facilities such as a laundry. This is anticipated to be more affordable than many other types of residential accommodation.

The 78 dwellings in the Residential Flat Building (Build-to-Rent Co-living building) represent 63% of the dwellings that will be developed across the site.

This provides a different housing model, suited to a range of incomes including households with low to moderate incomes as anticipated in PO 1.2.

## 6.6 Built Form and Design

The Design in Urban Areas General Development Policy provides the following provisions (no underlining has been used given the relevance of all provisions):

**PO 12.1** **Buildings positively contribute to the character of the local area by responding to local context.**

**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.**

**PO 12.3** **Buildings are designed to reduce visual mass by breaking up building elevations into distinct elements.**

**PO 12.4** **Boundary walls visible from public land include visually interesting treatments to break up large blank elevations.**

**PO 12.7** **Entrances to multi-storey buildings are safe, attractive, welcoming, functional and contribute to streetscape character.**

**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 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 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.***

The Build-to-Rent Co-living building has been designed by GGA to respond to the unique context of the locality. It is a high-quality architectural design for the following reasons.

The building takes references from the sandstone, bluestone and brick façade materials existing in the locality. There is careful contrast between softer materials such as rendered walls and more textured

materials such as brick. The colour palette is complementary to existing nearby buildings and natural features.

The design includes lots of variation in external materials and finishes. External glazing and varied cladding types are balanced with the articulated balcony projections on each façade.

The building has also been designed to facilitate a low-rise presentation to Richmond Street through increased setbacks to levels 2-5.

The proposal provides an appropriate built form and design detailing because:

- The building design positively responds to its context and draws on the scale and materiality of adjacent development to satisfy PO 12.1.
- The design features increased architectural detailing and a mix of external materials at the lower levels to reinforce a human scale and grounded streetscape presentation to Richmond Street to satisfy PO 12.2.
- Massing has been designed to step-away from the southern interface with adjacent residential uses. This is achieved by providing an increased setback as the building height increases, with levels 2-5 setback a further 6m from the lower levels to satisfy PO 12.3.
- The building features horizontal façade elements and articulation to reduce visual massing and verticality to also satisfy PO 12.3.
- The building has been designed to provide a prominent, safe and functional primary entrance to the Build-to-Rent Co-living building from Richmond Street to satisfy PO 12.7.
- The design also features a welcoming and active frontage to the shared pathway and River Torrens Linear Park path extension to the north of the building. This creates an effective transition between the existing River Torrens Linear Park path and shared path connection through the site.
- The building features a podium-like ground and first level, balcony projections on all facades and varied setbacks to minimise the impacts of wind to street level to satisfy PO 14.3.

## 6.7 Dwelling Configuration and Amenity

The Design in Urban Areas General Development Policy provides the following provisions:

***PO 27.1*** ***Dwellings are provided with suitable sized areas of usable private open space to meet the needs of occupants.***

***DPF 27.1*** ***Private open space provided in accordance with Design in Urban Areas Table 1 - Private Open Space.***

| Table 1 – Private Open Space | |
|---|---|
| Dwellings at ground level | 15m$^2$ / minimum dimension 3m |
| Dwellings above ground level: | |

| Table 1 – Private Open Space | |
|---|---|
| Studio | 4m² / minimum dimension 1.8m |
| One bedroom dwelling | 8m² / minimum dimension 2.1m |

***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.***

***PO 31.1*** ***Dwellings are of a suitable size to provide 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 | 35m² |
| One bedroom | 50m² |

Ground level studio apartments have been designed to include 8m² balconies (above ground level) with a minimum dimension of 1.8m to satisfy DPF 27.1. Studio apartments on levels 1-5 are also provided with balconies between 7m² and 15m² to satisfy DPF 27.1.

Nine one-bedroom apartments are provided with balconies with areas in excess of 8m² to satisfy the area guidance of DPF 27.1. The ten remaining one-bedroom apartments include balconies with total floor areas of 6m². All one-bedroom balconies have a minimum dimension of 1.8m.

All apartments within the Residential Flat Building (Build-to-Rent Co-living building) include internal storage areas of varying size.

All studio apartments have been designed with internal floor areas greater than 35m² to satisfy DPF 31.1. While the one-bedroom apartments feature internal floor areas between 37m² and 52m².

The proposed development satisfies PO 27.1, PO 28.4 and PO 31.1 despite some variations to the corresponding DPF's because:

- Only 13% of the dwellings in the Residential Flat Building have balconies/Private Open Space that are smaller in area than the DPF guideline.
- In addition to private open space areas, the development includes internal recreational facilities such as a gymnasium and a café.
- The Residential Flat Building has excellent access to several areas of Public Open Space including the immediately adjoining Old Mill Reserve and River Torrens Linear Park, as well as the nearby Twelftree

Reserve, Adelaide Park Lands and new Public Open Space within the proposed land division. This provides significant outdoor amenity/recreation opportunities for residents.

- The dwellings in the Residential Flat Building (Build-to-Rent Co-living building) are of a size and include sufficient storage spaces to meet the needs of likely occupants, noting that the building includes communal facilities such as laundry, gym, co-working spaces and shared bicycle and waste storage areas that reduce the need for such facilities within each dwelling.

## 6.8 Interface Impacts

### *6.8.1 Overshadowing*

The Interface between Land Uses General Development Policy seeks the following:

***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.***

***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.***

***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.***

***(Underlining added)***

Development plans prepared by GGA include shadow diagrams which demonstrate the extent of overshadowing from the Residential Flat Building (Build-to-Rent Co-living building) at 21 June (i.e. the worst-case scenario).

The diagrams show that between 9am and 3pm overshadowing of habitable room windows or private open space of adjacent residential land is negligible and acceptable. This satisfies PO 3.1 and 3.2.

### *6.8.2 Overlooking*

The Design in Urban Areas General Development Policy provides the following provision relevant to medium-rise development:

***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.***

***(Underlining added)***

Part 8 of the Code provides the following definition:

| Term | Definition |
|---|---|
| *Direct Overlooking* | *In relation to direct overlooking from a window, is limited to an area that falls within a horizontal distance of 15 metres measured from the centre line of the overlooking window and not less than 45 degree angle from the plane of that wall containing the overlooking window.*<br>*In relation to direct overlooking from a deck, balcony or terrace, is limited to an area that falls within a horizontal distance of 15 metres measured from any point of the overlooking deck, balcony or terrace.* |

There are existing residential land uses on the southern side of Richmond Street. These include single and two-storey semi-detached dwellings and multi-storey apartments.

The Residential Flat Building (Build-to-Rent Co-living building) includes south-facing balconies and habitable windows which are setback a minimum of 6m from the Richmond Street boundary.

Richmond Street provides further separation between the building and existing residential land uses.

This means that the habitable room windows and private open space of adjacent residential land uses is more than 15 metres from the proposed Residential Flat Building (Build-to-Rent Co-living building) to sufficiently prevent direct overlooking and satisfy PO 16.1.

## 6.9 Local Heritage Places

### *6.9.1 Partial Demolition and Works*

Lot 39 F18091 and Lot 99 F212352 are subject to the Local Heritage Overlay. Each allotment contains a Local Heritage Place (LHP) being the former Uniting Church building and Former Park Farm Barn.

The Overlay provides the following provisions which consider demolition, alterations and additions to LHP's:

***PO 2.1*** ***Alterations and additions complement the subject building and are sited to be unobtrusive, not conceal or obstruct heritage elements and detailing, or dominate the Local Heritage Place or its setting.***

***PO 6.1*** ***Local Heritage Places are not demolished, destroyed or removed in total or in part unless:***

***(c) the portion of the Local Heritage Place to be demolished, destroyed or removed is excluded from the extent of listing that is of heritage value***
***or***
***(d) the structural integrity or condition of the Local Heritage Place represents an unacceptable risk to public or private safety and is irredeemably beyond repair.***

***PO 6.2*** ***The demolition, destruction or removal of a building, portion of a building or other feature or attribute is appropriate where it does not contribute to the heritage values of the Local Heritage Place.***

***(Underlining added)***

The proposed development includes the partial demolition of non-original fabric and minor alterations to the former Uniting Church building and Former Park Farm Barn.

Forum has prepared a Heritage Impact Statement as well as plans and schematic details of the proposed works to each LHP. These documents have been informed by preliminary engagement with Council's Heritage Architect David Brown.

The proposed partial demolition and minor alterations will be completed in anticipation of future development within the respective residential allotments (Lot 8 and 9).

The proposed works included in this application satisfy the relevant provisions of the Local Heritage Overlay because:

- The extent of demolition relates only to buildings or structures which do not form part of the LHP listings. These are later additions to the LHP's which do not contribute to the heritage values of each place.
- The partial demolition has been informed by a thorough assessment of the nature and value of the LHP's and associated listings.
- Proposed minor alterations and repairs associated with the partial demolition works are contained to the side and rear of the LHP's to be unobtrusive and will not conceal or obstruct the LHP's or their setting.

### *6.9.2 Land Division*

The Local Heritage Overlay provides the following provision relevant to land division:

***PO 4.1*** ***Land division creates allotments that:***

***(a) maintain the heritage values of the Local Heritage Place, including setting***
***(b) are of a dimension to accommodate new development that reinforces and is compatible with the heritage values of the Local Heritage Place.***
***(Underlining added)***

The Heritage Adjacency Overlay applies to the allotments which adjoin Lot 39 and 99. The Overlay provides the following provision relevant to land division adjacent to a LHP:

***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.***

***(Underlining added)***

The proposal seeks to establish Lot 8 and 9 to maintain the existing LHP buildings and enable future adaptive re-use and development on each allotment.

- Lot 8 will contain the former Uniting Church building, have a total site area of 469m$^2$ and preserve a 20.51 metre-wide primary frontage to Richmond Street.
- Lot 9 will contain the Former Park Farm Barn building, have a total site area of 427m2 and provide a 17.28 metre-wide primary frontage to Richmond Street.

Both allotments would remain subject to the Local Heritage Place Overlay following the proposed land division.

The land division seeks to create a further 7 residential allotments (Lot 1-7) to the west of the LHP's with frontage to Richmond Street. These lots have a frontage width of 4.8m.

The LHP's are separated from additional allotments to the east by the public road. This maintains the visibility of the LHP's from Richmond Street.

Allotments adjoining Lot 8 and 9 would remain subject to the Heritage Adjacency Overlay following the creation of the new allotments.

The proposed land division creates allotments which satisfy PO 4.1 and PO 2.1 listed above because:

- Lot 8 and 9 maintain generous, primary frontages to Richmond Street. This preserves the setting and streetscape presentation of each LHP.
- The rear boundary of each allotment adjoins a shared laneway to provide respectful separation between the LHP's and new development internal of the site.
- The land division maintains the setting of the LHP's through a complementary orientation and rhythm of allotments fronting Richmond Street.
- The size and dimension of the new allotments can accommodate new development which is sympathetic and compatible with the heritage value of each LHP. The land division provides opportunities for new development that is sited and scaled to not unduly dominate or encroach on the LHP's or their setting within Richmond Street and the surrounding locality.
- The Richmond Street Master Plan prepared by Forum shows that the creation of allotments adjacent to LHP's are of a size and dimension that enables new buildings to be sited and setback from allotment boundaries so that they do not dominate, encroach or unduly impact on the setting of the LHP's.

### *6.9.3 Future Development*

The proposal does not include the development of new buildings adjoining or adjacent to the LHP's. Indicative plans for the re-development within Lot 8 and 9 have been provided by Forum, including schematic plans of potential development along the Richmond Street interface (see **Figure 10 and 11** below). This has been prepared to illustrate the manner in which the proposed allotments can be developed in accordance with the Code to provide an appropriate built form and character.

Future development would be subject to lodgement of separate Development Applications.

These applications would be assessed against the relevant provisions of the Local Heritage Overlay and Heritage Adjacency Overlays which would continue to apply to relevant portions of the subject land.

Council would be the relevant authority for the assessment of these future applications. New development would need to show how it responds appropriately to the relevant provisions of these Overlays and other parts of the Code.

Any adaptive reuse of the LHP's would also require assessment via future applications against relevant and extensive provision of the Code.

The provisions of the Code which apply to the land would continue to provide the planning guidance and enforcement to ensure future development on the proposed allotments and of the LHPs is appropriate.

**Figure 10: Perspective image showing potential future development sympathetic to the Local Heritage Places**

**Figure 11: Streetscape perspective showing allotments support siting and setbacks of new buildings that do not dominate, encroach or unduly impact on the setting of the Place**

## 6.10 Concept Plan

The site is subject to Concept Plan 82: Hackney (shown in Figure 7 above) and the Housing Diversity Neighbourhood Zone provides the following policy guidance on its consideration:

***PO 9.1*** ***Development is compatible with the outcomes sought by any relevant Concept Plan contained within Part 12 - Concept Plans of the Planning and Design Code to support the orderly development of land through staging of development and provision of infrastructure.***

***(Underlining added)***

In addition to the building height guidance discussed above, the Concept Plan provides indicative locations for:

- Pedestrian/Cycle Path to link with the existing River Torrens Linear Park Pedestrian/Cycle Path.
- Future pedestrian links.
- Vehicle access points.

The proposed development supports the orderly development of land and satisfies PO 9.1 because:

- The shared pedestrian and bicycle path provides an east-west connection through the subject land. While the Concept Plan does not directly anticipate whether this should be a publicly accessible path, the proposal has been designed to provide this publicly accessible linkage through the subject land. This provides public benefit beyond that sought by Concept Plan 82.
- The shared path is linked with the existing River Torrens Linear Park path at the eastern and western boundaries of the site as sought by Concept Plan 82.
- The proposal provides multiple pedestrian links between the subject land and external land, including pedestrian linkages to Twelftree Reserve, Richmond Street and land to the west of the site as sought by the outcomes of Concept Plan 82.
- The development provides two vehicular access points to/from Richmond Street which are compatible with the vehicle access outcomes sought by Concept Plan 82.

## 6.11 Traffic, Access and Parking

### *6.11.1 Transport and Access*

The land is subject to the Traffic Generating Development Overlay which seeks (no underlining has been used given the relevance of all provisions):

***PO 1.1*** ***Development designed to minimise its potential impact on the safety, efficiency and functional performance of the State Maintained Road network.***

***PO 1.2*** ***Access points sited and designed to accommodate the type and volume of traffic likely to be generated by development.***

In addition, the Transport, Access and Parking General Development Policy provides the following relevant provisions:

***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.***

***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.***

***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 3.8*** ***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.***

***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.***

Hackney Road is a State Maintained Road and is approximately 130m west of the subject land.

The proposed development is to be serviced by two access points from Richmond Street as anticipated by Concept Plan 82. Both access points provide simultaneous entry and exit.

One access point provides privatised access to Lot 47 and the associated Residential Flat Building (Build-to-Rent Co-living building). The second access point will provide access to the 46 residential allotments via public roads vested with Council.

MFY has prepared a Traffic and Parking Report. The report concludes that the proposal satisfies the relevant provisions of the Code because:

- The development has been designed to minimise impacts to the existing road network including State Maintained Roads.
- Access points have been sited and designed to accommodate the anticipated type and volume of traffic generated by the development and land division.
- The development of public roads have been designed in accordance with the relevant Austroads and Council-lead guidelines.
- The proposed internal roads, access points and pedestrian and shared path network have been designed to provide safe and efficient access with suitable sightlines.
- Access points, internal roads and car parking spaces have been designed to allow adequate movement and manoeuvrability within the subject land.
- The integrated under-croft car park has been designed to enable safe entry and exit and minimises conflict with pedestrians and cyclists.

### *6.11.2 Car Parking – Residential Flat Building*

The Code anticipates development that provides sufficient on-site car parking via the following provisions:

***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 2 - Off-Street Vehicle Parking Requirements in Designated Areas if the development is a class of development listed in Table 2 and the site is in a Designated Area***
- ***(b) Transport, Access and Parking Table 1 - General Off-Street Car Parking Requirements where (a) does not apply***
- ***(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.***

***(Underlining added)***

**Table 1 – General Off-Street Car Parking Requirements provides the following varied parking rates for land uses defined by the Code:**

| Class of Development | Car Parking Rate |
|---|---|
| *Residential Flat Building* | *Dwelling with 1 or 2 bedrooms (including rooms capable of being used as a bedroom) - 1 space per dwelling.*<br><br>*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.*<br>*0.33 spaces per dwelling for visitor parking where development involves 3 or more dwellings.* |
| *Supported accommodation* | *0.3 spaces per bed.* |
| *Student accommodation* | *0.3 spaces per bed.* |
| *Workers' accommodation* | *0.5 spaces per bed plus 0.2 spaces per bed for visitor parking.* |
| *Tourist accommodation (other than a Caravan and Tourist Park)* | *1 car parking space per accommodation unit / guest room.* |
| *Shop (no commercial kitchen)* | *5.5 spaces per 100m2 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.*<br><br>*5 spaces per 100m2 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.* |
| *Dwellings constituting affordable housing (provided by DPF 4.1 of the Affordable Housing Overlay)* | *0.3 carparks per dwelling within a building which incorporates dwellings located above ground level within either:*<br>*(a) 200 metres of any section of road reserve along which a bus service operates as a high frequency public transit service(2)*<br>*(b) is within 400 metres of a bus interchange(1)*<br>*(c) is within 400 metres of an O-Bahn interchange(1)*<br>*(d) is within 400 metres of a passenger rail station(1)*<br>*(e) is within 400 metres of a passenger tram station(1)*<br>*(f) is within 400 metres of the Adelaide Parklands.*<br>*(Underlining added)* |

The Built to Rent Co-living building is not constrained to a singular development class. Its nature is such that it will provide accommodation to students, workers', tourists and residents alike. It will also provide dwellings/accommodation for rent at an affordable price point.

MFY's Traffic and Parking Report accepts that the dwellings/apartments within the Built to Rent Co-living building reflect the type developed for affordable housing projects. Further, MFY's car parking assessment considers an evidence-based assessment of sufficient car parking rates informed by Aspen Group's existing Co-living buildings within Australia.

MFY observed the car parking demand of the existing Co-living building CoVE Cooks Hill in Newcastle, NSW. This identified a maximum parking demand of 0.2 spaces per dwelling.

Importantly, this car parking demand is similar to the car parking rates established for student accommodation, workers' accommodation, tourist accommodation and affordable housing by the Code.

A total of 41 car parking spaces are provided for the 78 dwellings in the Residential Flat Building (Build-to-Rent Co-living building). This equates to an on-site car parking rate of 0.53 spaces per dwelling.

In addition, a total of 3 dedicated spaces are provided within the open-air car park to service the Shop (café) at the ground floor of the Residential Flat Building (Build-to-Rent Co-living building). This has total floor area of 251m$^2$, inclusive of the outdoor terrace.

MFY's report also observes the provision of bicycle parking within the under-croft of the building as well as the anticipated bicycle visitation to the café fronting the extended Liner Trail and shared pathway.

MFY's Traffic and Parking report provides that the development will provide sufficient on-site car parking to service the Residential Flat Building (Build-to-Rent Co-living building) and integrated commercial use to satisfy the relevant provisions of the Code.

### *6.11.3 Car Parking – Land Division*

With respect to the future development of dwellings within the 46 proposed allotments (which does not form part of this assessment) the Code generally provides the following rate for dwellings:

| Car Parking Rate |
| --- |
| *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.* |

The Richmond Street Master Plan prepared by Forum illustrates that each allotment is capable of being serviced by two on-site car parking spaces with safe and efficient access to public roads. This means that the proposed allotments are fit-for-purpose and future development of dwelling will satisfy the car parking provisions of the Code.

## 6.12 Waste Management

The Design in Urban Areas General Development Policy provides the following provisions relevant to the development of the mixed-use building incorporating a Residential Flat Build with Shop (no underlining has been used given the relevance of all provisions):

***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.***

***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.***

***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.***

***PO 11.3*** ***Communal waste storage and collection areas are designed to be well ventilated and located away from habitable rooms.***

***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.***

***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.***

***PO 35.3*** ***Provision is made for suitable household waste and recyclable material storage facilities which are:***

***(g) located away, or screened, from public view, and***
***(h) conveniently located in proximity to dwellings and the waste collection point.***

***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.***

As shown on development plans prepared by GGA, the development incorporates dedicated waste storage areas for the residential and non-residential uses of the Residential Flat Building (Build-to-Rent Co-living building). In addition, a Waste Management Plan has been prepared by Colby Phillips and MFY's Traffic and Parking Report provides an assessment of the safe and convenient access, egress and movement of private waste collection vehicles for the Residential Flat Building (Build-to-Rent Co-living building).

Private waste collection vehicles will access the site in a forward direction via Richmond Street and the Council managed roads labelled Lot 201 and 202 on the proposed plan of subdivision. The vehicle will then enter Lot 47 in a forward direction from the Council managed public road. Waste collection will occur within the open-air car park servicing the Residential Flat Building (Build-to-Rent Co-living building), in proximity to the waste storage areas. The vehicle will then exit Lot 47 to Richmond Street in a forward direction.

The proposed on-site waste management strategies satisfy the provisions listed above because:

- The negative visual impact of waste storage areas has been minimised through an integrated waste storage area for residential waste within the building and a dedicated and concealed waste storage area for the café to satisfy PO 1.5 and PO 11.1.

- The waste collection areas are screened from public view, well-ventilated with external access doors and located away from habitable rooms to satisfy PO 11.2, PO 11.3 and PO 35.3.
- Waste collection areas are sufficient in size to provide separated collection of general household, food waste and recycling to satisfy PO 11.5.
- The development has been designed to provide safe and efficient forward manoeuvrers for on-site, private waste collection to satisfy PO 11.4 and PO 35.5.

In addition to the assessment of the Residential Flat Building (Build-to-Rent Co-living building), the supporting documentation confirms that each townhouse allotment proposed within the land division can be sufficiently serviced by Council waste collection. This includes an assessment of the safe and convenient access, egress and movement of Council waste collection vehicles and bin presentation plan details within MFY's Traffic and Parking Report.

## 6.13 Public Open Space

Open space contributions are controlled by Section 198 of the *Planning, Development and Infrastructure Act 2016* (the Act) which states:

***198 – Open space contribution scheme***

***(1) Where an application for a development authorisation provides for the division of land into more than 20 allotments, and 1 or more allotments is less than 1 hectare in area—***

***(a) the council in whose area the land is situated; or***

***(b) if the land is not situated within the area of a council—the Commission,***

***may require—***

***(c) that up to 12.5% in area of the relevant area be vested in the council or the Crown (as the case requires) to be held as open space; or***

***(d) that the applicant make the contribution prescribed by the regulations in accordance with the requirements of this section; or***

***(e) that land be vested in the council or the Crown under paragraph (c) and that the applicant make a contribution determined in accordance with subsection (8),***

***according to the determination and specification of the council or the Commission and, in so acting, the council or the Commission must have regard to any relevant provision of the Planning and Design Code that designates any land as open space and, in the case of a council, must not take any action that is at variance with the Planning and Design Code without the concurrence of the Commission.***

***(Underlining added)***

The Act establishes that Council may (not must) require an open space contribution in accordance with (1)(c), (d) or (e). The Council can apply discretion in seeking an alternative outcome. It also establishes that Council must have regard to relevant provisions of the Code that designates land as open space e.g. the Open Space Zone.

The subject land comprises 11 existing allotments. The proposed land division involves the creation of 36 new allotments. The land division has been designed to include the provision of public open space to be vested with Council. This includes:

### Reserve 500

A 279m$^2$ parcel central to the subject land. This reserve is to be developed as an urban forest as detailed in Landskap's Richmond St. Masterplan. The urban forest will be established with large canopy trees and dense understory that require minimal maintenance.

The reserve is a focal point for the land division. Dwellings will front the reserve providing an active streetscape so that there are high levels of passive surveillance of the public open space.

The reserve also acts as a way-finding element along the shared pedestrian/bicycle path. Its can been seen from the shared pedestrian/bicycle path in Twelftree Reserve and Old Mill Reserve. This signals to users of the shared pedestrian/bicycle path that they remain on the linear park corridor.

### Reserve 600

A 478m$^2$ parcel which extends from the upper-bank of the River Torrens to the centreline of the river. This land is in the Open Space Zone. The Desired Outcome of this Zone seeks:

***DO 1*** ***Areas of natural and landscaped open space provide for biodiversity, tree canopy cover, urban cooling and visual relief to the built environment for the health and enjoyment of the community.***

The creation and vesting of this reserve returns the river corridor to the care and control of the public. This ensures the management of the regionally significant watercourse is better co-ordinated.

This also supports the designation of the land as open space by the Code as required by section 198 of the PDI Act (see above).

### Reserve 700

A 131m$^2$ parcel to the north of the Residential Flat Building (Build-to-Rent Co-living building). This reserve provides a direct connection between the existing River Torrens Linear Park path and the western boundary of the site.

The reserve will be developed with the shared pedestrian/bicycle path, lookout to the River Torrens and break-out space, as well as landscaping. Landskap's Richmond St. Masterplan includes canopy trees to fringe the upper-bank of the River Torrens and an attractive transitional entrance to the subject land.

The reserve provides public open space with direct connection to the facilities offered by the café at the ground level of the Residential Flat Building (Build-to-Rent Co-living building).

### Shared pedestrian/bicycle path

In addition to the reserves above, approximately 300m$^2$ of land will be developed as a shared pedestrian/bicycle path. This shared path will provide connectivity through the site and function as an extension of the River Torrens Linear Park path. The path is not a footpath. Instead, Aspen Group is developing this as a shared path which is public open space in accordance with the following definition:

***Australia Road Rules Regulation 242***

> ***(2) A "shared path" is an area open to the public (except a separated footpath) that is designated for, or has as one of its main uses, use by both the riders of bicycles and pedestrians, and includes a***

***length of path for use by both bicycles and pedestrians beginning at a shared path sign or shared path road marking and ending at the nearest of the following:***

***(a) an end shared path sign or end shared path road marking;***
***(b) a no bicycles sign or no bicycles road marking;***
***(c) a bicycle path sign or bicycle path road marking;***
***(d) a road (except a road-related area);***
***(e) the end of the path.***

***(Underlining added)***

The provision of a pedestrian/bicycle path with link to the existing River Torrens Linear Park path is also an outcome sought by Concept Plan 82 in the Code.

Landskap's Richmond St. Masterplan includes details for the pavement treatment, street furniture and landscaping associated with shared path.

The total area of public open space to be provided is 1,188m$^2$. This equates to 8.5% of the subject land. We contend that the cost of developing these public open spaces should be deducted from any financial open space contribution requirements.

## 6.14 Open Space and Landscaping

The Design in Urban Areas General Development Policy provides the following with respect to 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.***

***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, pedestrian movement, domestic waste collection, landscaped street frontages and on-street parking.***

***PO 34.1*** ***Soft landscaping is provided between dwellings and common driveways to improve the outlook for occupants and appearance of common areas.***

Further, the Open Space and Recreation General Development Policy provides the following with respect to the development of open space areas:

***PO 1.2*** ***Open space areas include natural or landscaped areas using locally indigenous plant species and large trees.***

***PO 2.1*** ***Open space and recreation facilities address adjacent public roads to optimise pedestrian access and visibility.***

***PO 2.2*** ***Open space and recreation facilities incorporate park furniture, shaded areas and resting places.***

***PO 2.3*** ***Open space and recreation facilities link habitats, wildlife corridors and existing open spaces and recreation facilities.***

***PO 5.1*** ***Open space is overlooked by housing, commercial or other development to provide casual surveillance where possible.***

***PO 8.1*** ***Open space and recreation facilities provide for the planting and retention of large trees and vegetation.***

***(Underlining added)***

Landskap has prepared the Richmond St. Masterplan for the subject land. This provides a detailed landscaping strategy for the Residential Flat Building (Build-to-Rent Co-living building) development, public open space areas, shared path and public roads, see Figure 12 below.

The landscaping strategy satisfies the above provisions because:

- Deep soil plantings and canopy trees are included along the street frontage of the Residential Flat Building (Build-to-Rent Co-living building) to soften the appearance of the building.
- The planting schedule includes significant street tree planting along Richmond Street and new public roads.
- The landscaping masterplan incorporates landscaping along the shared pedestrian/bicycle path and around the exterior of the Residential Flat Building (Build-to-Rent Co-living building). This contributes to increased shade and shelter within the subject land and enhances the appearance of the development from streetscapes and the public realm.
- Open space areas will include both natural and landscaped areas with large trees. This includes some retention of trees and natural riverbank vegetation.
- Open space is adjacent to proposed public roads and incorporates park furniture, shaded areas and function as resting places along the shared pedestrian/bicycle path.
- The open space areas link existing open space and recreational facilities, including the River Torrens Linear Park path.
- Open space will be overlooked by housing and commercial development to provide a high-level of casual surveillance.

**Figure 12: Landscape Masterplan**

## 6.15 Flooding and Stormwater Management

### *6.15.1 Flooding*

The Hazards (Flooding – General) Overlay provides the following relevant provisions:

***PO 2.1*** ***Development is sited, designed and constructed to prevent the entry of floodwaters where the entry of flood waters is likely to result in undue damage to or compromise ongoing activities within buildings.***

***DPF 2.1*** ***Habitable buildings, commercial and industrial buildings, and buildings used for animal keeping incorporate a finished ground and floor level not less than:***

***In instances where no finished floor level value is specified, a building incorporates a finished floor level at least 300mm above the height of a 1% AEP flood event.***

***(Underlining added)***

A Stormwater Management Plan (SMP) has been prepared by WGA. This plan provides details of the existing flood map for 1% AEP event provided by Council in preliminary engagement. Based on the engineering survey and overlay of flood mapping the estimated 1% AEP flood level is 29m AHD.

The proposal provides finished floor level of 33.33 to the ground level of the Residential Flat Building (Build-to-Rent Co-living building) building which contains habitable rooms. This is a minimum 300mm above the expected flood levels at the site.

The topography of the site and proposed bench levels provided satisfy PO 2.1. The development also incorporates a suitable ground floor finished floor level for the Residential Flat Building (Build-to-Rent Co-living building) to satisfy PO 2.1.

### *6.15.2 Stormwater Management*

The Stormwater Management Overlay provides the following relevant provisions:

***PO 1.1*** ***Residential development is designed to capture and re-use stormwater to:***

***(a)*** ***maximise conservation of water resources***

***(b)*** ***manage peak stormwater runoff flows and volume to ensure the carrying capacities of downstream systems are not overloaded***

***(c)*** ***manage stormwater runoff quality.***

***(Underlining added)***

The SMP prepared by WGA details how stormwater will be appropriately managed from the site to satisfy the provisions above and has been prepared following preliminary engagement with Council's engineers. In summary, the SMP proposes:

- An integrated design with Water Sensitive Urban Design (WSUD) and traditional On-Site Detention (OSD) methods.
- Post-development detention of 1% AEP peak flows to pre-development 20% AEP peak flows.

- As requested by Council, stormwater discharge point to a Council drain asset upstream of the River Torrens.
- Road design comprises permeable paving to provide suitable detention/retention storage and infiltration.
- Avoidance of a traditional detention basin with gross pollutant trap removes on-going maintenance implications for Council.
- Large capacity stormwater detention tank proposed to the north of the Residential Flat Building (Build-to-Rent Co-living building) with overflow connecting to the discharge pipe.

## 6.16 Earthworks

The Water Resources Overlay guides the protection and natural function of watercourses. The River Torrens flows to the north of the subject land, with a portion of Lot 100 including title to the middle of the River.

The overlay provides the following provisions with respect to works within proximity to a watercourse:

***PO 1.1*** ***Watercourses and their beds, banks, wetlands and floodplains (1% AEP flood extent) are not damaged or modified and are retained in their natural state, except where modification is required for essential access or maintenance purposes.***

***PO 1.8*** ***Watercourses, floodplains (1% AEP flood extent) and wetlands are protected and enhanced by stabilising watercourse banks and reducing sediments and nutrients entering the watercourse.***

***(Underlining added)***

In addition, the Design in Urban Areas General Development Policy provides the following:

***PO 8.1*** ***Development, including any associated driveways and access tracks, minimises the need for earthworks to limit disturbance to natural topography.***

***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.***

***(Underlining added)***

The development includes both earthworks and site works within the subject land. This includes works to provide appropriate bench levels for the proposed 47 allotments and associated roads and open space areas. This will also include works to remediate the site through removal of uncontrolled fill identified along the crest of the River Torrens riverbank and replacement with controlled fill.

These proposed geotechnical works are outlined in WGA's Geotechnical Review documents.

The proposed works will result in modifications to the River Torrens riverbank which is essential for maintenance purposes. The works will also include stabilisation works to protect and enhance the watercourse banks satisfying PO 1.1 and 1.8 above.

WGA has prepared a Civil Plans including a Cut/Fill Plan which provides an estimated total cut of 1,016m$^3$ and fill of 1,619m$^3$ across the subject land to provide the proposed finished surface levels. The plan confirms the expected vertical extent of cut and fill to achieve the finished surface level.

In addition, excavation to a depth of 1.61m below the finished surface level is proposed for the under-croft car parking of the Residential Flat Building (Build-to-Rent Co-living building).

While the proposal seeks variations to the guidance of DPF 8.1 the proposal satisfies PO 8.1 because the proposal has been designed to minimise the extent of earthworks required across the site and seeks to preserve the natural topography of the site following remediation and stabilisation works.

## 6.17 Regulated and Significant Trees

The site is subject to the Regulated and Significant Tree Overlay under the Code.

Dean Nicolle of Calyptra Pty Ltd provided Aspen Group with an arboricultural site analysis dated 6 October 2021 which confirmed that the site contained no Regulated or Significant Trees. Mr Nicolle's site analysis also confirmed that most trees on site are the *Fraxinus angustifolia* species.

Since then legislative changes in South Australia have amended the definitions of Regulated and Significant Trees. Mr Nicolle has undertaken a further aboricultural site inspection and survey in light of these changes.

Mr Nicolle's site survey dated 7 November 2024 confirms that the site does not contain Regulated or Significant Trees as defined under the Act, acknowledging that *Fraxinus angustifolia* remains listed as an exempt species under regulation 3F(4)(b) of the Planning, Development and Infrastructure (General) Regulations 2017.

## 6.18 Site Contamination

The proposed residential land uses are more sensitive uses than the existing use of the land as a Caravan and Tourist Park. As a result, the provisions of the General Development Policies – Site Contamination must be considered and assessment is informed by *Practice Direction 14 – Site Contamination Assessment 2021*.

The General Development Policies section of the Code entitled "Site Contamination" includes the following relevant provisions:

***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).***

***(Underlining added)***

GAMA Consulting have been engaged to prepare a Preliminary Site Investigation (PSI) Report. As a result of these investigations GAMA Consulting considers the site suitable for the proposed residential land uses.

The Site Contamination Declaration Form submitted with the application confirms GAMA Consulting's assessment that:

- A potentially contaminating activity is not known to have occurred on the subject land, and
- A class 1 activity is not known to have occurred on adjacent land.

The application will be referred to the EPA during assessment.

# 7. Conclusion

The proposed land division and development satisfies the relevant Planning and Design Code policies because:

1. The proposed use and development of a Residential Flat Building (Build-to-Rent Co-living building) with ground floor Shop (café) is wholly consistent with the land uses anticipated by the Housing Diversity Neighbourhood Zone.
2. The proposal represents medium density housing supporting a range of needs and lifestyles sought by the Zone.
3. The non-residential land use (café) is of a scale which will improve community access to services without detrimental amenity impacts.
4. The allotments are fit-for-purpose with sizes and dimensions to accommodate a range of medium density housing.
5. The 6 storey Residential Flat Building (Build-to-Rent Co-living building) complements the height of nearby buildings.
6. The proposal is compatible with the outcomes sought by Concept Plan 82.
7. The dwellings in the Residential Flat Building (Build-to-Rent Co-living building) provides a different housing model, suited to a range of incomes including households with low to moderate incomes.
8. The proposal provides an appropriate built-form, design detailing and high level of amenity for occupants.
9. The proposed land division maintains the value and setting of the Local Heritage Places, and partial demolition of non-original fabric is appropriate.
10. The provision of car parking satisfies the anticipated demand of the land uses and have been designed in accordance with relevant standards. In addition, access arrangements including the provision of public roads provide safe and efficient access as supported by MFY.
11. The development provides an appropriate waste management strategy which includes a combination of private and Council collection.
12. The development includes the provision of sufficient and functional public open space to be vested with Council and significant landscaping provisions.
13. The proposal responds to flooding risks and stormwater will be managed to a sufficient level.
14. The proposal does not involve the removal of regulated or significant trees and a Preliminary Site Investigation has determined the site is suitable for the proposed residential uses.

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12 May 2025

Kieran Fairbrother
Senior Urban Planner
City of Norwood Payneham & St Peters
175 The Parade
Norwood SA 5067

*Submitted via PlanSA Portal*

Dear Kieran

## Response to RFI – Application ID 24040449

URPS continues to act on behalf of Aspen Group for the above Development Application.

This letter responds to your request for information (RFI) dated 17 January 2025.

The following additional and updated documentation accompanies this written response:

- Plan of Division prepared by FYFE.
- Richmond Street Master Plan documents prepared by Forum.
- Landscape Strategy prepared by Landskap.
- Stormwater Management Plan prepared by WGA.
- Response to geotechnical comments prepared by WGA.
- Response to traffic and parking comments prepared by MFY.

### Response to Information

You have requested additional information on the following matters:

- Land Division
- Civil Works (Roads and Footpaths)
- Civil Works (Stormwater)

- Traffic & Car Parking
- Open Space
- Waste Management
- Geotechnical Works

### Land Division

1. FYFE have prepared an updated plan of division which incorporates two parking spaces within Lot 47. These parking spaces remain accessible via the proposed public road.
2. While we do note that the proposed laneway at the rear of the LHP's provides separation, there is no requirement to consider fire rating requirements for torrens title allotments under section 102 of the Act.

### Civil Works (Roads and Footpaths)

1. Landskap, MFY and FYFE have worked collectively to provide renewed details for the shared path. It is noted that this is to be a controlled, low-speed environment and will operate as a local access path, providing new connection to link existing shared paths.

   The path has been designed to comply with Austroads Guidelines, providing a minimum width of 2.5m with 0.5m clearance areas established on both sides of the path.

   Street trees have been located outside of these clearance areas and the continuous path treatment across new roads further supports the low-speed environment the shared path is located within.

2. MFY have considered comments with respect to waste collection and Council's request for a vehicle turnaround area in the northeast corner of the site.

   In response, the proposal now includes a raised, low-speed zone and bin presentation area opposite Lot 39.

3. Landskap have revised their Landscape Strategy to include more appropriate street trees following Council's feedback.

   Street trees and lighting detail will be included on civil plans as part of further detailed design stages. This can otherwise be dealt with as condition of consent.

4. WGA have provided updated cross sections to respond to this request. They continue to be shown on the Road Hierarchy Plan.

5. Pram ramps will be included as part of detailed design stages.

### Civil Works (Stormwater)

WGA have considered Council's feedback and request and prepared an updated Stormwater Management Plan.

### Traffic & Car Parking

MFY have provided a detailed response to Council's request.

Further we confirm the following:

- The open-air car park associated with the co-living building will be managed much like the existing on-site car park associated with the caravan park. The co-living building will be actively managed with staff/caretakers on site. Accommodation within the co-living building will be offered with the optional provision of an on-site car parking space. This will again be managed as part of the operation of the co-living building by Aspen Group.
- Based on engagement with structural engineers, the basement has allowed for a 400mm thick ground slab, incorporating the transfer beams within this depth. This provides a clearance height of 2.6m to underside of the beams.

  Lighting design has not yet been finalised, however fixtures can be accommodated within the voids between the underside of the beams and the slab.

  Downpipes have been located around the building perimeter, penetrating the slab in positions aligned with car bonnet zones.

  As a result, primary circulation areas will maintain a maximum clearance height of 2.6m.
- As Council have assumed, access to the basement will be controlled via the roller door and relevant access swipe point. This will operate much like the boom gates which secure the existing caravan park.

### Open Space

The development includes three public open space reserves. This includes Reserve 500 located central within the development and adjacent to the connecting shared use path within the boundary of new public roads.

As shown on the updated plan of division prepared by FYFE, Reserve 500 has reduced in size as a result of improvements to the shared path requested by Council.

We note that final open space contribution outcomes will be confirmed as part of further discussions with Council.

### Waste Management

We confirm that the 'clearance zone' shown on the site plan provides clearance to the site switchboard as well as the waste collection pathway for the café.

The residential waste collection is proposed within the car parking area to preserve on-site parking. Movement of bins between the residential waste area and collection point is a flat, 20m distance. Colby Phillips has provided a detailed Waste Management Plan as part of the application. This outlines the varied collection methods for the commercial and residential uses within Lot 47.

### Geotechnical Works

WGA have prepared a detailed response to Council's comments regarding geotechnical investigations. This includes a response to comments contained in the RFI letter dated 17 January 2025 and subsequent request letter dated 21 February 2025.

WGA have also provided Aspen Group with the following estimated cost for footing/piling works per allotment:

*"Cost per CFA pile is estimated to be around $4-6k. With 10 piles per lots, that's approx. $40-60k per lot."*

## Conclusion

We trust that this additional information enables you to recommence the assessment of this application and proceed with public notification as a priority.

Please call me on 8333 7999 if you have any questions.

Yours Sincerely

**Matilda Asser**
Consultant

**Calyptra Pty Ltd**
*trading as*
# Dean Nicolle
OAM, BAppSc Natural Resource Management, BSc Botany (Hons), PhD

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Arboriculture - Botany - Ecology - Eucalypt Research

7th November 2024

Henry Perks
Development Manager
**Aspen Group**

M: 0404 089 748
E: henryp@aspengroup.com.au

**Re: Adelaide Caravan Park - Site survey for significant or regulated trees**

Dear Henry,

On the 7th of November 2024 I inspected all trees on the subject site at Adelaide Caravan Park (within the yellow polygon in Figure 1).

I found no regulated nor significant trees, as defined by the *Planning, Development and Infrastructure (General) (Regulated and Significant Trees) Amendment Regulations 2024* under the *PDI Act 2016*, on the subject site.

Note that most of the trees on the site are of the species *Fraxinus angustifolia* (including cultivars of that species), which is listed as an exempt species from the *PDI Act 2016* under Regulation 3F(4)(b), regardless of their trunk circumference (unless specifically listed in certain LGAs).

*Figure 1. Aerial image of the subject site. The survey area is defined by the yellow polygon. Note that there are no regulated trees (as defined by the* Planning, Development and Infrastructure (General) (Regulated and Significant Trees) Amendment Regulations 2024 *under the* PDI Act 2016*) within the survey area.*

I thank you for the opportunity to provide this arboricultural advice. If you require further information or clarification please contact me for assistance.

Dean Nicolle
OAM, BAppSc Natural Resource Management, BSc Botany (Hons), Ph.D

# 46 Richmond Street, Hackney

# Waste Management Plan

## Date: 3 December 2024

**Prepared for:**

Aspen Group

**Colby Phillips Advisory Pty Ltd**

Suite 117, 147 Pirie Street

Adelaide, SA 5000

info@colbyphillips.com.au

| *Rev.* | *Date* | *Description* | *Doc No./Name* | *Originator* | *Approved* |
|---|---|---|---|---|---|
| 0 | 02 Dec 2024 | For lodgement | WMP | JPH | JPH |
| 1 | 03 Dec 2024 | Updated drawing set | WMP | JPH | JPH |
| | | | | | |
| | | | | | |

Distribution List

| | |
|---|---|
| Henry Parks | Aspen Group |
| Ben Van Loggem | Grieve Gillett Architects |
| Heather Wasley | Grieve Gillett Architects |

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# 1 INTRODUCTION

This document presents a waste management plan (WMP) for the proposed Mixed-Use Development at 46 Richmond Street, Hackney (the "Development"). The Development comprises of Build to Rent / Co-Living dwellings and Commercial Tenancy (Café / Co-working space). The Project architect is Grieve Gillett Architects.

The WMP explains how the Development can manage waste effectively to achieve regulatory requirements and desired design and operating objectives, including those recommended by the South Australian Better Practice Guide (State Guidelines) (Zero Waste SA, 2014), and the South Australia Planning and Design Code (Plan SA, 2024). The WMP should be read in conjunction with other planning approval documentation for the Development referenced herein.

The objectives of the waste management plan are to:

- Demonstrate how waste can be effectively managed on site
- Ensure that tenants are provided with suitable space to conveniently separate and store recoverable wastes from landfill
- Encourage education of waste system users to maximise diversion of waste from landfill
- Provide a cost-effective waste management system

# 2 DEVELOPMENT DESCRIPTION

The Development is at 46 Richmond Street, Hackney. The development is in the City of Norwood Payneham St Peters Council (Council). Figure 2-1 shows an overview of the site including key features of the waste system.

The project drawings are 23122-DA01 to DA81 – Issue P2 dated 25 November 2024. The Development is a mixed use, multi-storey building with frontage onto and vehicle access via Richmond Street.

Table 2-1 gives the proposed Development Metrics. In summary, the Development would comprise:

- *Build to Rent / Co-Living dwellings - (Levels Ground - 5)*
  - *1-bedroom Apartments*
- *Commercial tenancy (Ground Level)*
  - *Light Café / Co-working (140m$^2$)*

Table 2-1 includes the recommended Waste Resource Generation Rate (WRGR) classifications (for each land use) based on the State Guideline (Zero Waste SA, 2014), which are used to estimate waste and recycling volumes to assess waste storage required for the site.

**Table 2-1:** Summary of land uses for the Development, their Land Use Type (as defined in the State Guideline) and relevant Development Metric.

| Land Use | Description | Site Location | Land Use Type | Dev. Metric(s) | |
|---|---|---|---|---|---|
| Build to Rent | Apartments | Levels Ground - 5 | High Density Residential Dwelling | 78 | Dwellings |
| | | | | 78 | Bedrooms |
| Commercial | Café / Co-Working | Ground | Light Café<br>Office and Consulting Rooms | 251 | m$^2$ GFA |

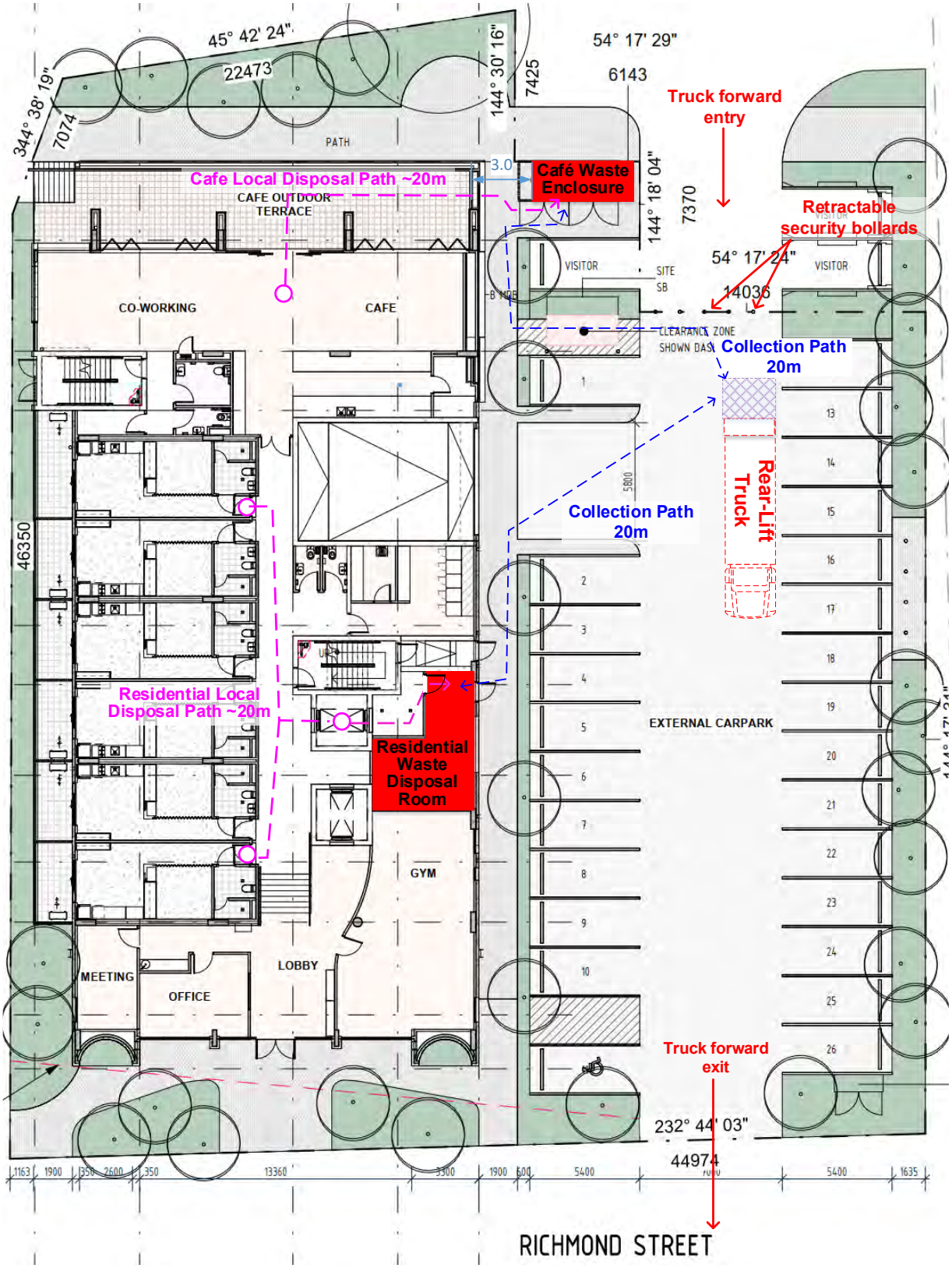



**Figure 2-1:** Site Overview, including transfer pathways

# 3 DESIGN ASSUMPTIONS

## 3.1 Waste & Recycling Service Provision

Table 3-1 outlines the recommended waste services by land use per Table 2-1. The different waste service classifications listed in Table 3-1 are explained below.

- ***Routine Services*** **–** These require on-site waste storage and routine and regular collections, and would include services for general waste, dry (comingled) recyclables and food waste.
- ***At-call services*** **–** These involve non-frequent collections, such as Hard waste and are organised and provided on an as-needed basis.
- ***Maintenance services*** **–** Some waste items (e.g. lighting in common areas or commercial tenancies, sanitary waste in public/common toilets) would be removed and disposed of (off-site) by the contractor providing the related maintenance service (and hence on-site waste storage is not usually needed or provided).
- ***External Services*** **–** These are where waste items (e.g. printer cartridges, batteries, lighting) that can be dropped off by tenants/residents at external locations (e.g. Officeworks, waste depot) (and thus, separate on-site waste storage is not usually needed or provided).

All waste for this site would be collected by a private waste collection contractor.

## 3.2 Waste & Recycling Volumes

Table 3-2 estimates expected waste and recycling volumes for the Development (in Litres/week). These estimates are based on recommended Waste Resource Generation Rates (WRGRs) in the South Australian Better Practice Guide (SABPG) – Waste Management in Residential or Mixed-Use Developments (Zero Waste SA, 2014).

The values shown in Table 3-2 represent peak occupancy when the apartment is full.

**Table 3-1**: Expected or recommended waste & recycling services for the Development

| Service Type | Build to Rent | Commercial | |
|---|---|---|---|
| | **High Density Residential Dwellings** | **Light Café** | ***Co-working space*** |
| ***Routine (regularly scheduled)*** | General Waste<br>Mixed Recycling<br>Food Organics | General Waste<br>Mixed Recycling<br>Food Organics<br>Recycled deposit containers (OPTION) | General Waste<br>Mixed Recycling/ Cardboard<br>Food Organics |
| ***At-call (as needed)*** | Hard/E-waste | | |
| ***Maintenance (waste removed by contractor)*** | Sanitary (in-room or public toilets)<br>Lighting (where applicable) | | |
| ***External (by tenant off-site)*** | Printer Cartridges<br>Batteries | | |

**Table 3-2**: Estimated waste & recycling volumes (Litres/week) for Development

| Waste/Recycling Service | Build to Rent | Commercial |
|---|---|---|
| | High Density Residential Dwellings | Café* & Co-working space |
| | *L/week* | *L/week* |
| General Waste | 2,340 | 1,710 |
| Mixed Recycling | 1,950 | 910 |
| Recycled Deposit Container | | 230 |
| Food / Garden Organics | 780 | 1,140 |
| TOTAL | 5,070 | 3,990 |

* Derated Café WRGRs from State Guideline: General waste = -50%, Recycling = -50%, Food Waste = -75%, 65% active area

# 4 WASTE MANAGEMENT SYSTEM

## 4.1 Waste Storage Areas

Waste storage is split into 2 areas:

1. Dwelling Waste Room
    a. All dwellings would share skip bins.
    b. Bins would be provided in the Disposal Room with capacity for holding 1 week of waste.
    c. Residents would dispose of waste directly into the bins.
2. Commercial Waste Room
    a. The café and co-working tenancies would share a set of skip bins.
    b. These would be stored in a separate area to the residential skip bins.
    c. Tenants/ staff would dispose waste into the bins.

An overview of storage areas is shown in Figure 2-1 (page 4). Detail is provided in Figure 4-2, Figure 4-4, and the following sections.

Table 4-1 (page 7) gives a schedule of recommended bin storages in each of these waste storage areas for routine Services (based on estimated waste volumes in Table 3-2) and includes for each land use and service:

- *Number and type of bins;*
- *Collection frequency (expected or proposed); and*
- *Service provider.*

**Table 4-1**: Waste storage and bin schedule for Routine Services, including collection frequency and collection service provider. *The type and size of bins for some commercial services may be refined in consultation with the commercial waste contractor when the building becomes operational.*

| Use | Local Disposal Location | Routine Service | Estimated Waste/Recycling Volumes (L/wk) | Collection Frequency (Events/wk) | Provider | Max. Bins/Items Stored & Collected (per Event) | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | *No.* | *Size (L)* | *Type* |
| **Build to Rent** | Ground Level Residential Waste Room | General Waste | 2,340 | 1 | Private Rear Lift | 3 | 1,100 | Skip |
| | | Mixed Recycling | 1,950 | 1 | | 2 | 1,100 | Skip |
| | | Food / Garden Organics | 780 | 1 | | 2 | 660 | Skip |
| **Commercial** | Ground Level Commercial Waste Room | General Waste | 1,710 | 2* | | 1 | 1,100 | Skip |
| | | Mixed Recycling | 910 | 1 | | 1 | 1,100 | Skip |
| | | Recycled Deposit Container | 230 | 1 | | 1 | 240 | MGB |
| | | Food Organics | 1,140 | 2* | | 1 | 660 | Skip |

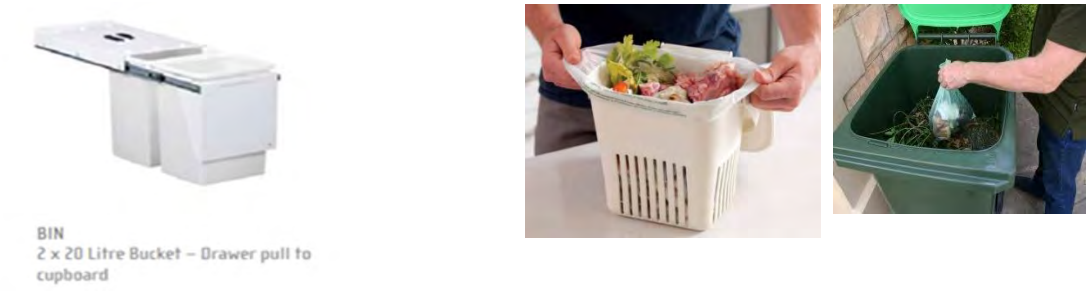
** Some cafés of this size may only need weekly collection of General Waste and Food Waste*

## 4.2 Build to Rent dwellings

### 4.2.1 User Storage

Residents would be provided with suitable kitchen bins with handles to enable easy carriage from their dwellings to their Local Disposal Area, e.g. Figure 4-1 below:

a) *General waste bin – at least 20L in size (bag lined)*
b) *Co-mingled recycling waste bin - at least 20L in size*
c) *Food organics bin (compostable bag lined)*




*(a)* *(b)*

**Figure 4-1**: Examples of suitable waste and recycling kitchen bins: (a) General waste & recycling - 2×20L Buckets with carry-handles in pull-out drawer; and (b): Bench-top food waste kitchen caddy.

### 4.2.2 Local Disposal and Waste Storage

Residents would dispose of General Waste, Recycling and Organic Waste into shared skip bins provided in the Waste Room.

The disposal path distance from any residence on Levels Ground to 5 is between 15 – 35m where the single lift is used (see Figure 2-1 and Figure 4-3 for disposal paths).

The Waste Area at the Ground Level is internal to the building which ensures that bins are screened from public view.

Space in the Waste Disposal Room area is provided for:

- o 3 x 1,100L General Waste skips.
- o 2 x 1,100L Mixed Recycling skips.
- o 2 x 660L Organics / Food Waste skips.

This will provide up to 1 week's storage time. The room should have mechanical ventilation to remove odours. The ventilation should extract to atmosphere, with location selected to avoid impact on tenants, customers, and residents.

### 4.2.3 Collection

## 4.3 General Waste and Recycling

- Collection of all apartment waste would be carried out by Private contractors. For general waste, mixed recycling and organics, a rear-lift service would be used. For other wastes (e.g. container deposit), specialist contractors will determine the lift method (typically rear-lift or rear tailgate lift).

- The bins could be collected directly from the Waste Room by the waste contractor (pull-in / pull-out service). The collection distance is around 30m with a flat transfer path.
- The truck enters the site from the north via a new public road, in a forward direction. See Figure 2-1.
- Access to the development is from the north of the site, via a carpark and through a set of retractable / motorised bollards.
- The Contractor stops the truck in the carpark, collects bins from the bin room and returns them to the bin room, once emptied.
- The truck leaves the site in a forward direction onto Richmond Street.
- Collections would normally be 3 to 6 minutes per collection.
- Up to 1 collection per week for each service is expected.

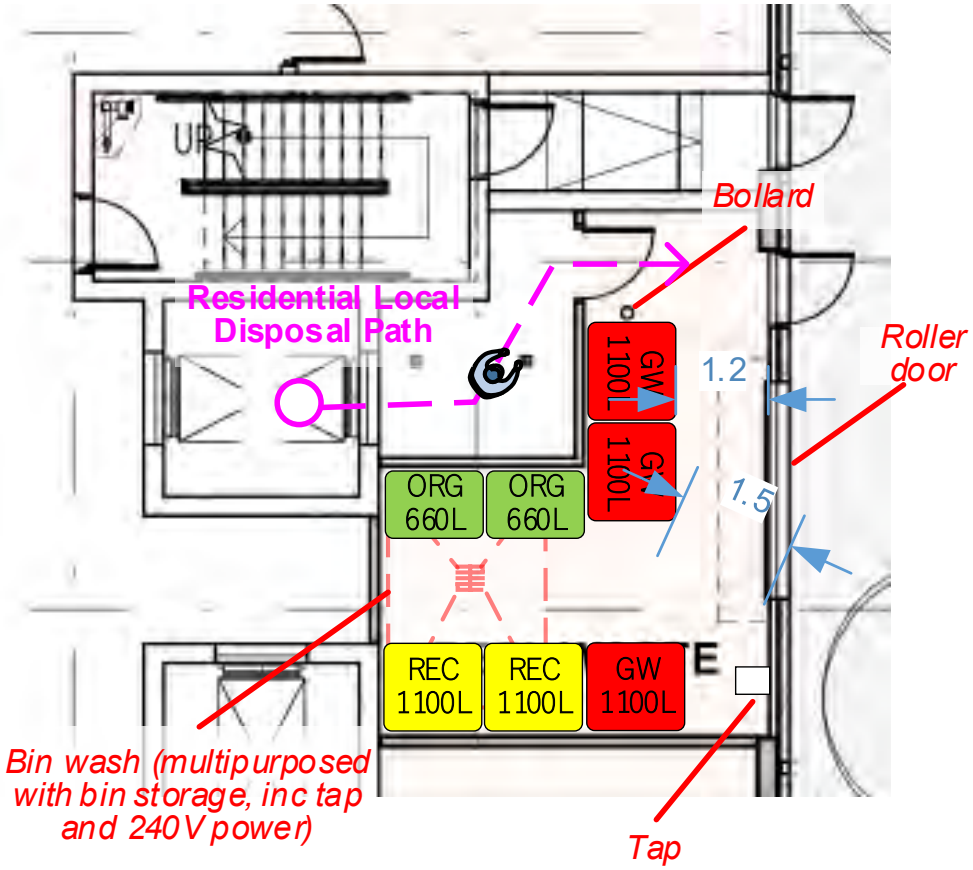



**Figure 4-2:** Apartment Waste Storage Area, showing location and proposed layout of bins and bin wash area. Red = General Waste / Landfill, Yellow = Mixed Recycling, Green = Organics / Food Waste

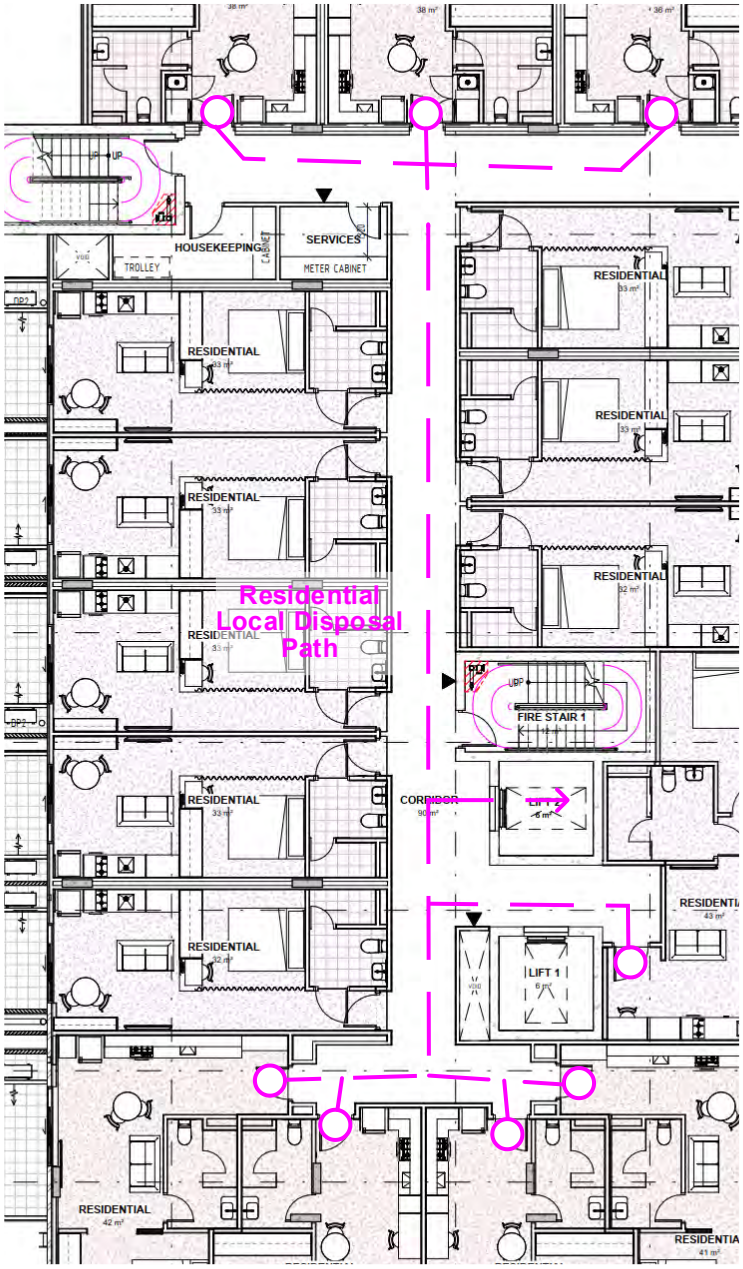



**Figure 4-3**: Example of typical floor plan with resident disposal paths

### 4.3.1 Hard waste

- Management would organise for private hard/e-waste collections as needed.
- The waste contractor delivering the services would temporarily park adjacent to the residential waste disposal room and collect hard waste from this room.
- The Building User Manual(s) at the Development would advise on availability and/or organizing Hard waste collection services.

## 4.4 Commercial Tenancies

### 4.4.1 User Storage

- The cafe / co-working tenancy would have bins located in-tenancy for disposal of their waste and recycling.

- The types and sizes of the bins would be decided during tenancy fit out as they depend on type of commercial activity and services elected by the tenant.

### 4.4.2 Local Disposal and Waste Storage area

- A bin storage enclosure is provided for the disposal of all wastes generated in the commercial tenancy (café / co-working space) (see Figure 4-4).
- This area would serve the waste requirements of the tenancies, where cleaners or staff would collect waste and recycling from each tenancy and dispose of it in the bins provided in this area.
- Disposal distance is approximately 20m.
- Space in the commercial waste room is provided for:
    - o 1 x 1,100 L General Waste Skip Bin.
    - o 1 x 1,100 L Mixed Recycling / Cardboard Skip Bin.
    - o 1 x 660L Food Waste Skip Bin.
    - o 1 x 240L Recycled Deposit Container MGB.
- Table 4-1 (page 7) gives a list of bin types and numbers to service the assumed tenancy configuration in Table 3-1.

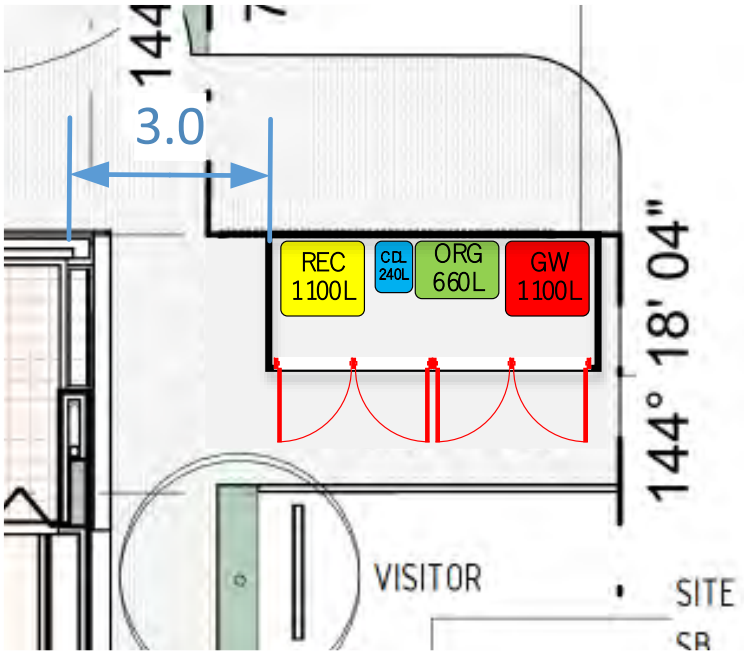



**Figure 4-4**: Café Waste Storage Area, showing location and proposed layout of bins. Red = General Waste / Landfill, Yellow = Mixed Recycling / Cardboard, Green = Organics / Food Waste, Blue = CDL (10c deposit containers)

### 4.4.3 Collection

- Collection of all Commercial waste would be carried out by Private contractors. For general waste, mixed recycling and organics, a rear-lift service would be used. For other wastes (e.g. container deposit), specialist contractors will determine the lift method (typically rear-lift or rear tailgate lift).
- The bins could be collected directly from the Residential Waste Room by the waste contractor (pull-in / pull-out service). The collection distance is around 20m with a flat transfer path.

- The truck enters the site from the north via a new public road, in a forward direction. See Figure 2-1.
- Access to the development is from the north of the site, via a carpark and through a set of the retractable / motorised bollards.
- The Contractor stops the truck in the, collects bins from the bin enclosure and returns them to the bin enclosure, once emptied.
- The truck leaves the site in a forward direction onto Richmond Road.
- Collections would normally be 3 to 6 minutes per collection.
- Up to 6 collections per week in total across all services are expected.

#### 4.4.4 Hard waste

- Tenants would organise for private hard/e-waste collection direct from the tenancy as needed.
- The waste contractor delivering the services would temporarily park adjacent to the residential waste disposal room and collect hard waste from the tenancy.
- The Building User Manual(s) for commercial tenants at the Development would advise on availability and/or organizing Hard waste collection services.

### 4.5 Maintenance Services

Waste would be generated by some maintenance services or activities in the building and commercial tenancies at the site (e.g. lighting, repair work, cleaning of commercial toilets, etc.). These maintenance-generated waste materials would be handled and disposed of by the contractor undertaking these services. Dedicated on-site storage for these waste materials is therefore not needed.

### 4.6 External

Residents and commercial tenants would be able to dispose of smaller waste items, such as E-waste, printer cartridges, batteries and lighting, to publicly available external drop off points (e.g. supermarkets, Office works, telco retail stores, etc.), which accept these materials.

The Building User Manual(s) at the Development will include advice on external drop-off points for these waste items, which may include reference to Council advice available at their Web site.

### 4.7 Bin cleaning (& On-site Bin Wash Area)

A dedicated on-site bin cleaning area would be provided in the Apartment Bin storage area – see Figure 4-2.

- This bin wash area would require grading to a sewer drain with basket screen to remove gross solids, tiles or epoxy coating to water-proof adjacent walls and flooring, standard cold-water supply faucet and commercial-grade electrical power supply (if pressure washer system is to be used), plus bunds and screens for use during bin wash events.
- Bin washing activity for residential bins and access by commercial tenants would be managed by the Building/Facilities Manager.
- Bin washing would be timed to occur immediately after bins are emptied.

Alternatively, bin cleaning at the Development could be outsourced to an external contractor (e.g. http://binforce.com.au/).

- These external contractors generally have self-contained bin washing systems on back of ute or truck that enable them to clean bins on site – e.g. Figure 4-5 below.
- Some service providers will remove bins from site, replacing them with an empty spare, clean the bins, then return them to site.

**Figure 4-5**: On-site bin wash system for rear-lift trucks on back of ute. Source: http://binforce.com.au/

## 4.8 Transfer pathways

There are several transfer pathways for the waste systems at the Development, which were described in earlier in Section 4. The following is provided as a guide for sizing and designing these transfer pathways.

- *Transfer pathways –*
  - *User disposal – prefer less than 50m each way and free of steps, no grades greater than 1:15, and cater for mobility impaired users.*
  - *Local disposal points to central storage – enough width to accommodate relevant bins or waste loads being transferred, free of steps, no grades greater than 1:12*
  - *Collection – less than 30m with no steps or grades greater than 1:10*
- *Corridor widths –*
  - *240L MGBs or smaller bins / loads – min. 1,000 mm (1,200mm preferred)*
  - *660L skip bins – min. 1,200mm (1,400mm preferred)*
  - *1,100L skip skips and/or other waste loads – min. 1,500mm (1,600mm preferred)*
- *Doors –*
  - *Local disposal access – 800mm*
  - *Transfer pathways– Appropriate to the size of bin to be transported, e.g.*
    - *240L MGB (or smaller) – min. 800mm*
    - *660L skip – min. 900mm (1,200mm preferred)*
    - *1,100L skip – min 1,400mm*
- *Floors – Hard surfaces where bins and skips are to be carted*
- *Lifts – All lifts should be sized to a minimum of 1400mm if they are needed for transfer of 1,100L skip bins.*

Based on current plans, these requirements for transfer pathways in the Development appear to be generally satisfied. All relevant transfer pathways should be reviewed and confirmed at detailed design stage to ensure they are appropriate, including with Council for their residential collection services.

## 4.9 Collection & Traffic

Refer to the Traffic Engineer's report to show movement / parking of waste vehicles in the carpark.

## 4.10 Management & Communication

### 4.10.1 Responsibilities

Table 4-2 summarises the responsibilities of different parties / stakeholders for proposed waste management and operational activities at the Development. In summary:

- ***Residents*** – The Building / Facilities Manager would be responsible for managing the waste system, but residents would play an important role in managing their local disposal activities and Council (at its discretion) may provide support with resident engagement and education to help drive good waste management outcomes.
- ***Commercial tenancies*** – The Building / Facilities Manager would manage the waste system, including ensuring that good waste management outcomes by tenants were achieved.

**Table 4-2**: Management & operational responsibilities for the waste systems at the Development

| Waste System | Activity | Responsible party |
|---|---|---|
| ***Build to Rent dwellings*** | *Local Disposal & External Disposal* | Residents |
| | *Waste Storage Areas, Hygiene, Odour Management & Cleaning* | Building Manager & their property management staff |
| | *Collection services – Waste & Recycling* | Private Contractor(s) |
| | *Management* | Building Manager |
| | *Education, Training & Engagement (Residents)* | Building Manager |
| ***Commercial tenancies*** | *Local Disposal, Hard Waste & External Disposal* | Tenants |
| | *Waste Storage Areas, Hygiene, Odour Management & Cleaning* | Tenants, Building Manager |
| | *Collection services – Waste & Recycling* | Private Contractor(s) |
| | *Management* | Building Manager |
| | *Education, Training & Engagement (tenants)* | Building Manager |

### 4.10.2 Implementation & Communication

*4.10.2.1 Residential*

To successfully implement this WMP, the following should be put in place.

- ***Mandated responsibilities for apartment residents –*** Obligations for residents/guests to properly access, operate and use the waste systems provided should be written into any short term rental agreement.

- ***Resident/Guest Induction –*** Should include first-day guidance on how to correctly use the waste systems, including obligations for correctly using the bins provided.
- ***Building User Manual*** – Multi-lingual advice and instructions on waste management and using the waste systems should be included in the Building User Manual(s) developed for residents, including contact information for further information, questions and issues.
- ***Emergency Response &/or Property Management Plan(s) –*** Should include response measures (or contingencies) for:
    - *Collection services suspended or not available;*
    - *Incorrect use by residents of the waste systems; and*
    - *Illegal dumping on-site.*

*4.10.2.2 Commercial tenants*

Like the residential system above, the following should be put in place for the commercial system:

- ***Community/Strata title arrangements for commercial property owners –*** Obligations for the commercial tenants and/or property owners to properly access, operate and use the waste systems would be written into any tenancy agreement and the Community/Strata plan lodged with the Lands Titles Office.
- ***Site Management System / Manual*** – Advice and instructions on waste management and using the waste systems should be provided for tenants, including contact information for further information, questions and issues.
- ***Tenant Induction –*** Should include guidance on how to correctly use waste /recycling bins as well as the site approach to waste and recycling.
- ***Emergency Response or Site Management Plan(s) –*** Should include response measures (or contingencies) for:
    - *Waste collection services suspended or not available;*
    - *Incorrect use by tenants of the waste systems;*
    - *Illegal dumping on-site; and*
    - *Poor waste management outcomes (including cleanliness, odour and/or low diversion).*

## 4.11 Other Waste System Design or Management Issues

The following would be considered and/or implemented for waste systems at the Development. More details for some of these items can be resolved at detailed design stage with the waste contractor.

1) **Bins** – These would comply with Australian Standard for Mobile Waste Containers (AS 4213). Bins may be supplied by the Private Collection Contractor.
2) **Signage** –
    - Appropriate signage in all Local Disposal and Waste Storage Areas should be used to ensure correct disposal of waste and recycling.
    - This signage should conform to the signage requirements of Council and/or the State Guideline (Zero Waste SA, 2014).
    - Council may provide templates for signs.
3) **Vermin, hygiene & odour management (inc. ventilation)**
    - ***Inspection & Cleaning*** –

- An inspection and cleaning regime would be developed and implemented by the Building / Facilities Manager for waste systems at the Development, including ensuring that surfaces and floors around disposal areas, transfer pathways and waste storage areas are kept clean and hygienic and free of loose waste and recycling materials.
    - *Where putrescible general waste or food waste is being stored, Local Disposal and Waste Storage areas should be graded to a sewer drain with tiling or epoxy coating to floors and adjacent walls to waterproof the area and for cleaning.*

o ***Odour Control*** –

- All Waste Storage Areas –
    - *Where putrescible general waste or food waste is being stored, these areas would be mechanically or naturally ventilated for control of odours.*
    - *The extraction vent discharge location would be selected to avoid impact on residents, tenants and/or neighbours.*
    - *It should be a requirement for food waste bins in Waste Storage areas that lids are closed after use.*

4) **Access & security** –

o All Waste Storage Areas (residential and commercial) in the Building should be secure and only accessible by key or fob or access code.

- *This key or fob or access codes would be provided to residents, tenants, property management staff and/or waste contractor(s) collecting from these areas.*
- *CCTV is recommended to monitor waste disposal practices in all Waste Storage Areas.*

## 5 PLANNING & DESIGN CODE OBJECTIVES

The applicable General Development Policies relating to Waste are provided in the following table. The third column states how these policies have been addressed in the proposed design.

| **Design in Urban Areas** | | |
|---|---|---|
| PO 1.5<br>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<br>None are applicable | Response:<br>Bin storage is in an enclosed room within the building (apartment waste) and a screened enclosure at the rear of the development (café waste). |

| | | |
|---|---|---|
| PO 11.1<br>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<br>None are applicable | Response:<br>Collection systems are provided for source-separated landfill, recycling, and food waste for both Apartment and Commercial disposal.<br><br>A bin wash area/system is to be included in the Apartment Bin Room. |
| PO 11.2<br>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<br>None are applicable | Response:<br>Apartment bins are to be stored in an enclosed ventilated room at Ground Level.<br><br>Café waste is stored in a screened enclosure at the rear of the site. |
| PO 11.3<br>Communal waste storage and collection areas are designed to be well ventilated and located away from habitable rooms. | DTS/DPF 11.3<br>None are applicable | Response:<br>Apartment bins are to be stored in an enclosed room with mechanical ventilation.<br><br>Café bins are stored in a screened / open air enclosure, more than 3m from the café deck. |
| PO 11.4<br>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<br>None are applicable | Response:<br>All waste will be collected via a rear lift trucks that would enter the site in a forward direction (from the new public road to the north) and temporarily park in the carpark.<br><br>Collection distance for the Private collection contractor is around 20m from the apartment and café waste storage.<br><br>Collections should be completed within 3 to 6 minutes per service.<br><br>The trucks would exit the site in a forward direction onto Richmond Street. |
| PO 11.5<br>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<br>None are applicable | Response:<br>Space is allowed for sorting and collection of a variety of wastes.<br><br>Food waste can be separated into dedicated bins for collection and composting offsite. |
| PO 35.3<br>Provision is made for suitable household waste and recyclable | DTS/DPF 35.3<br>None are applicable | Response:<br>3-bins system is to be stored in enclosed rooms at Ground Level. |

| | | |
|---|---|---|
| material storage facilities which are:<br>a) located away, or screened, from public view, and<br>b) conveniently located in proximity to dwellings and the waste collection point. | | Disposal room is located adjacent to the lifts accessible by residents for waste disposal. |
| PO 35.4<br>Waste and recyclable material storage areas are located away from dwellings. | DTS/DPF 35.4<br>Dedicated waste and recyclable material storage areas are located at least 3m from any habitable room window. | Response:<br>Bins are in an enclosed ventilated room more than 3m from any habitable room. |
| PO 35.5<br>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<br>None are applicable | Response:<br>Waste collection is proposed to be onsite. The waste truck will park in the carpark. The truck will enter and exit the site in a forward direction. |
| PO 43.1<br>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:<br>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<br>b) paved with an impervious material to facilitate wastewater collection<br>c) of sufficient size to prevent 'splash-out' or 'over-spray' of wastewater from the wash-down area<br>d) are designed to drain wastewater to either:<br>a. 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<br>b. a holding tank and its subsequent removal off-site on a regular basis | DTS/DPF 43.1<br>None are applicable | Response:<br>Bin wash is to be provided within the enclosed Apartment Bin Room, with washdown graded to a suitable basket screen prior to sewer disposal. No rainwater can enter the sewer from the bin wash. |

# 6 REFERENCES

Plan SA. (2024). *South Australia Planning and Design Code.*

Zero Waste SA. (2014). South Australian Better Practice Guide – Waste Management in Residential or Mixed Use Developments.

Attachment 1.5

Aspen Group

# RICHMOND STREET MASTERPLAN

# TRAFFIC AND PARKING REPORT

December 2024

21-0177

Traffic • Parking • Transport

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# 1.0 INTRODUCTION

This report relates to the proposed residential development on the site currently occupied by the Adelaide Caravan Park at 46 Richmond Street, Hackney. It considers the traffic and parking requirements for two applications, namely:

- a land division which will include the creation of residential allotments, a larger allotment and a road network; and
- a "build-to-rent" co-living apartment complex.

This report includes a review of the traffic and parking requirements for the proposal, including the road and access design, pedestrian and cyclist connectivity and parking requirements. Reference has been made to relevant Australian Standards when reviewing best practice design for the proposal.

The assessment has been based on Fyfe's Proposed Subdivision Plan 66966-3-1-SV-PR1-R2, dated 26 November 2024, and Grieve Gillet Architects' Set of Plans 23122 DA00 P1, dated 25 November 2024.

# 2.0 SUBJECT SITE

Adelaide Caravan Park has frontage to Richmond Street along its southern boundary. It is bounded by the River Torrens to the north, Twelftree Reserve to the east and Old Mill Reserve to the west.

The caravan park consists of 45 cabins and 40 powered sites, two of which are heritage listed. Access to the site is provided via an access point on Richmond Street which permits all turning movements. Access to the cabins is provided via a series of driveways.

## 2.1 ROAD NETWORK

Richmond Street is in the care and control of the City of Norwood Payneham and St Peters. The road includes a two-way two-lane carriageway with footpaths on both sides of the road. The urban default speed limit of 50 km/h is applicable to the road.

Richmond Street forms intersections with Hatswell Street, Eton Street, Eton Lane and Torrens Street adjacent to the subject site. Connectivity to the arterial road network is provided via an intersection with Hackney Road to the west of the site.

Unrestricted on-street parking is available adjacent to the site on Richmond Street on the southern side of the road as well as on Regent Street (with exception of Thursday to Sunday where it is restricted between 10 pm and 7 am). Public parking is also provided at the Old Mill Reserve which permits 2 hour parking.

## 2.2 PEDESTRIAN/CYCLIST ROUTES

Pedestrian paths providing access to the reserves are located along the boundaries of the subject site and includes the River Torrens Linear Trail which bounds the site along its northern side.

## 2.3 EXISTING TRAFFIC GENERATION

The RMS Guide to Traffic Generating Developments does not specify a rate for caravan parks. However, data of traffic movements at the Goolwa Caravan Park have identified the following traffic generation rates:

- am peak hour: 0.19 trips per site; and
- pm peak hour: 0.28 trips per site.

Based on these rates, the existing caravan park could generate in the order of 15 trips in the am peak hour and 25 trips in the pm peak hour.

# 3.0 THE PROPOSAL

There are two proposals which are considered in this traffic assessment, namely:

- a land division of the subject site to create 46 individual residential allotments and one larger allotment, and
- a "build-to-rent" co-living apartment complex on the larger allotment.

The apartment building will include:

- 78 studio and one-bedroom apartments; and
- a café and co-working space with a total floor area of 250 $m^2$.

Figure 1 identifies a plan illustrating both applications.

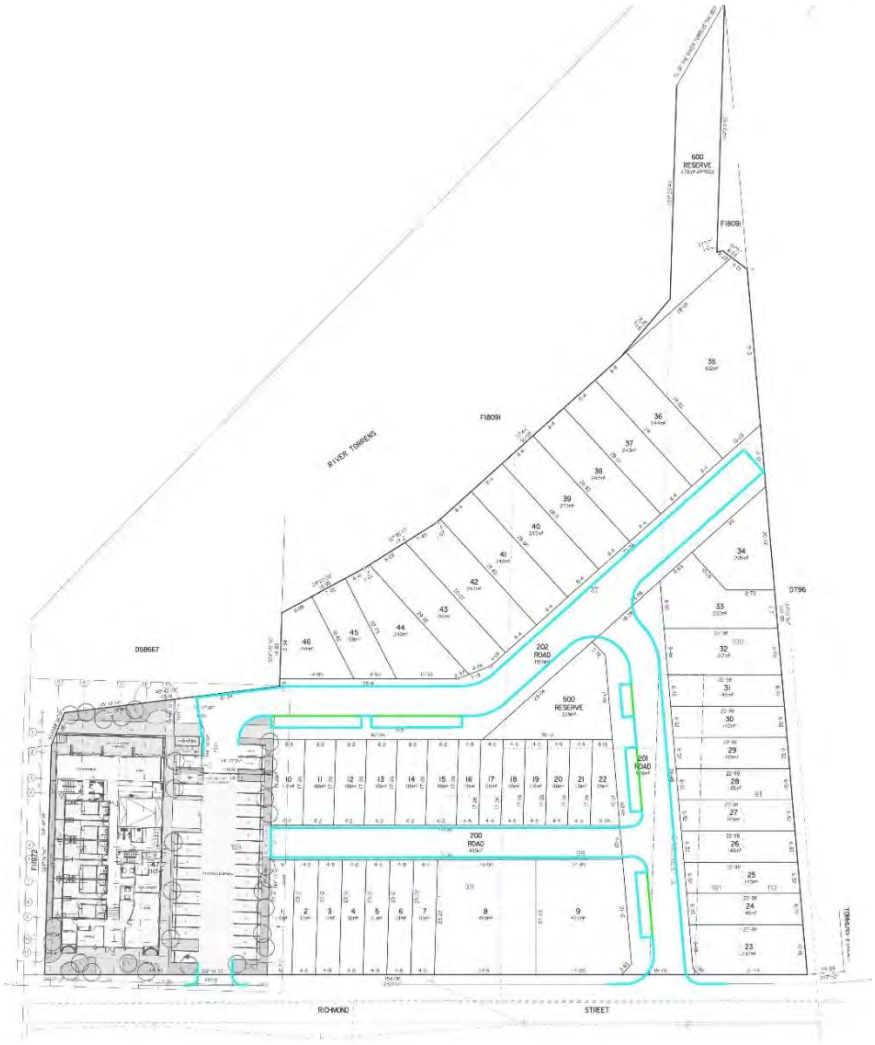


***Figure 1: Proposed land division and co-living apartments***

## 3.1 LAND DIVISION

The proposed land division will result in the creation of two residential streets and a laneway. The proposed roads will be accessed via a new intersection with Richmond Street. The existing access point and driveways will be removed.

The proposed intersection will be designed in accordance with Austroads Guide to Road Design – *Part 4A: Unsignalised and Signalised Intersections (AGRD04A)* and will provide Safe Intersection Sight Distance (SISD) as illustrated in Figure 2.

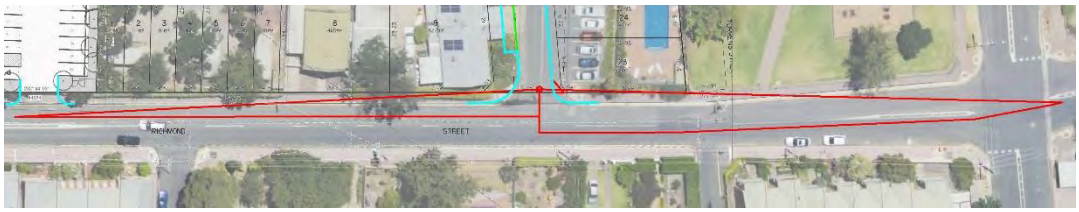

***Figure 2: SISD at proposed intersection***

The intersection will accommodate simultaneous turning movements, as illustrated in Figure 3.

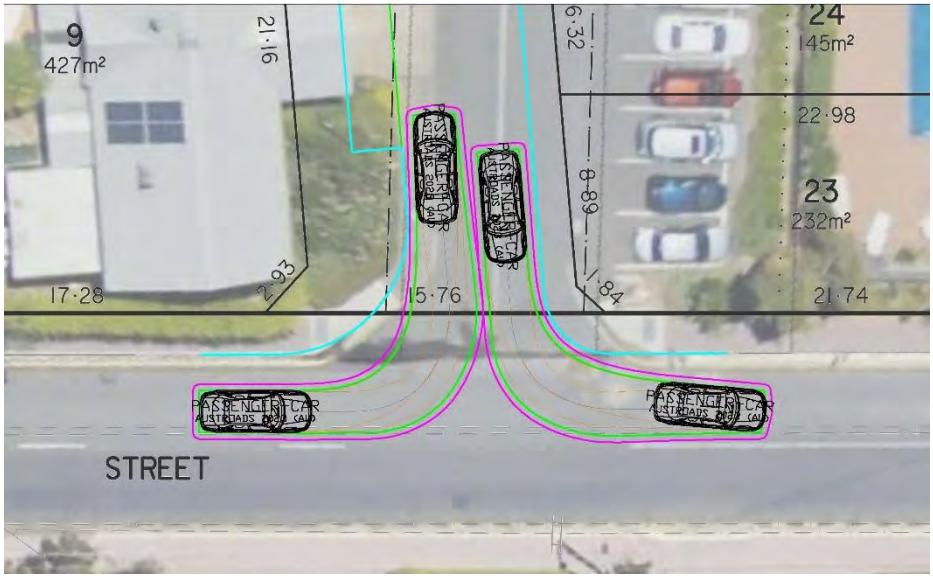


***Figure 3: Simultaneous movements at intersection***

The proposed residential streets will typically have a road reserve width of 12.3 m with a carriageway width of 6.0 m and will include an indented parking bay on one side of the road. Footpaths/shared paths will be provided on either side of the road. Figure 4 identifies the proposed cross-section of the streets.

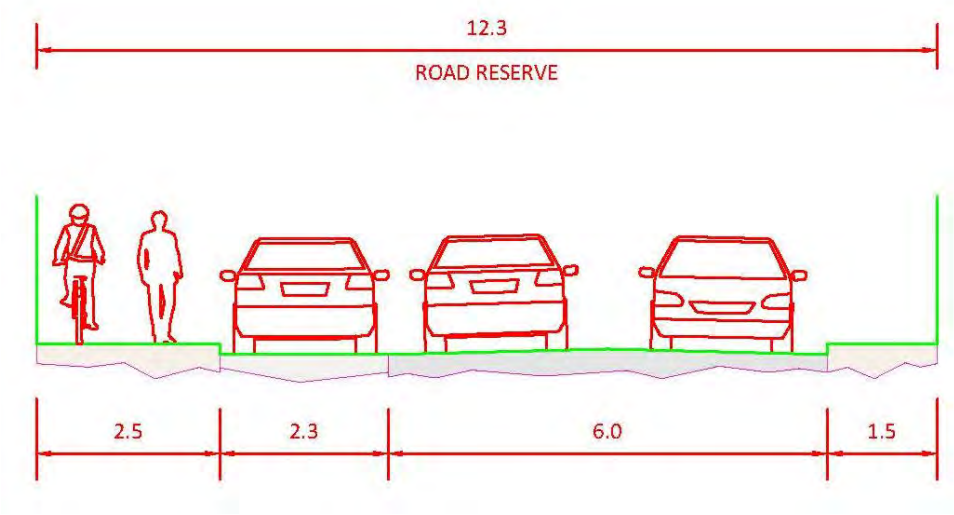


***Figure 4: Cross section of 12.3 m wide road***

Where indented parking is not proposed, the road reserve will narrow to a 10 m width, maintaining a 6 m wide carriageway. Figure 5 identifies the cross-section of this portion of the road.

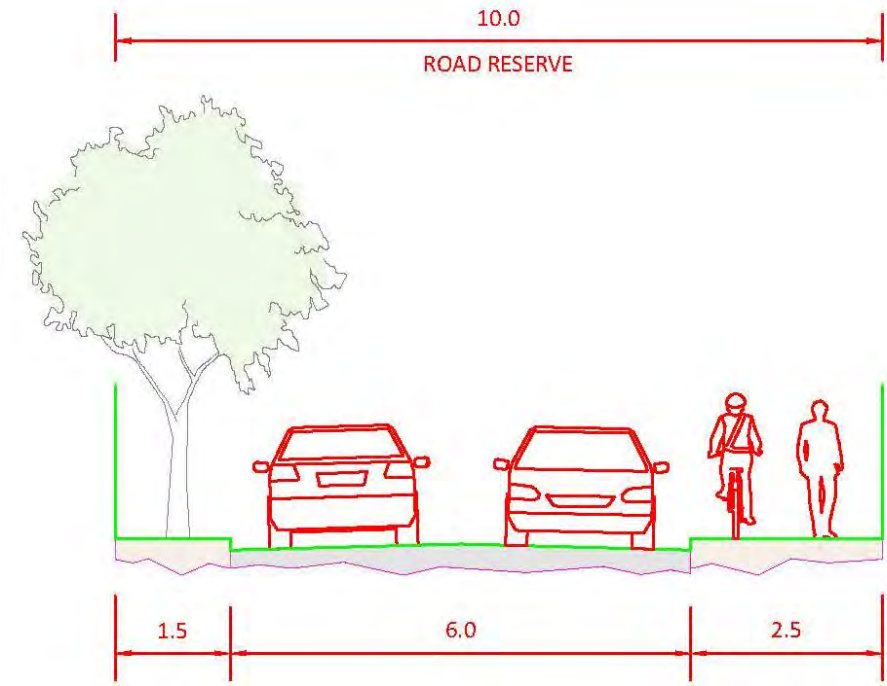


***Figure 5: Concept cross-section of 10 m wide road***

The proposed roads will form a t-intersection which will be designed in accordance with *AGRD-04A* and will provide sufficient SISD as illustrated in Figure 6.

***Figure 6: SISD at internal intersection***

The intersection will cater for simultaneous movements, as illustrated in Figure 7.

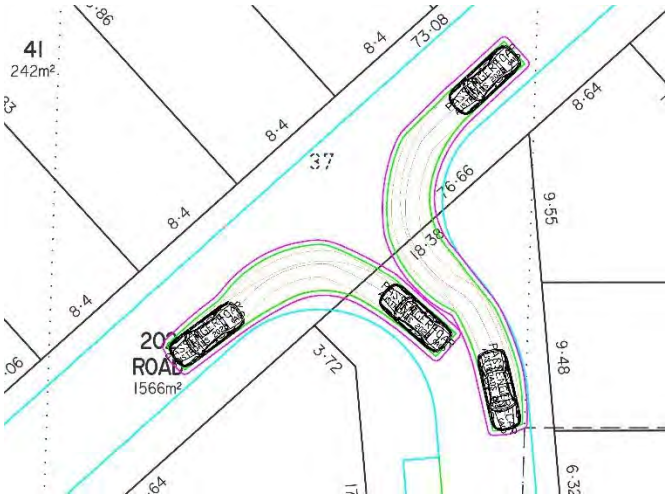


***Figure 7: Simultaneous movements at internal intersection***

A laneway will also be created to provide rear access to adjacent allotments which front the proposed reserve. It will have a width of 7 m and will provide a 6 m carriageway. Figure 8 illustrates the proposed cross-section of the laneway.

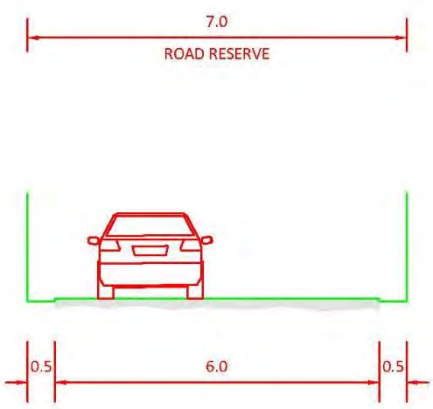


***Figure 8: Concept cross-section of laneway***

The laneway will form an intersection with the residential street, which will be designed to provide SISD, as illustrated in Figure 9.

***Figure 9: SISD at intersection with laneway***

The intersection will cater for simultaneous movements, as illustrated in Figure 10.

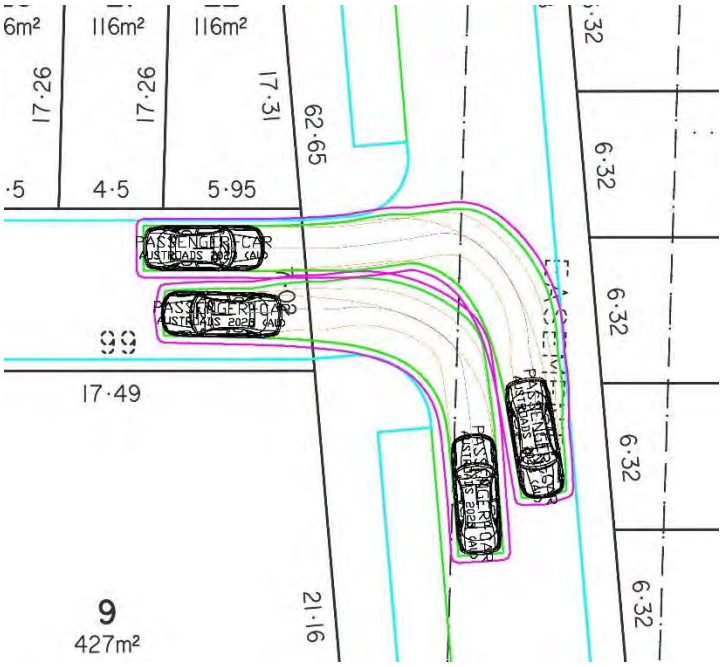


***Figure: 10 Simultaneous movements at laneway intersection***

The road network will include dead-end sections at the western and eastern ends. A cul-de-sac will be constructed at the western end of the road network to allow for vehicles to turn around, as illustrated in Figure 11.

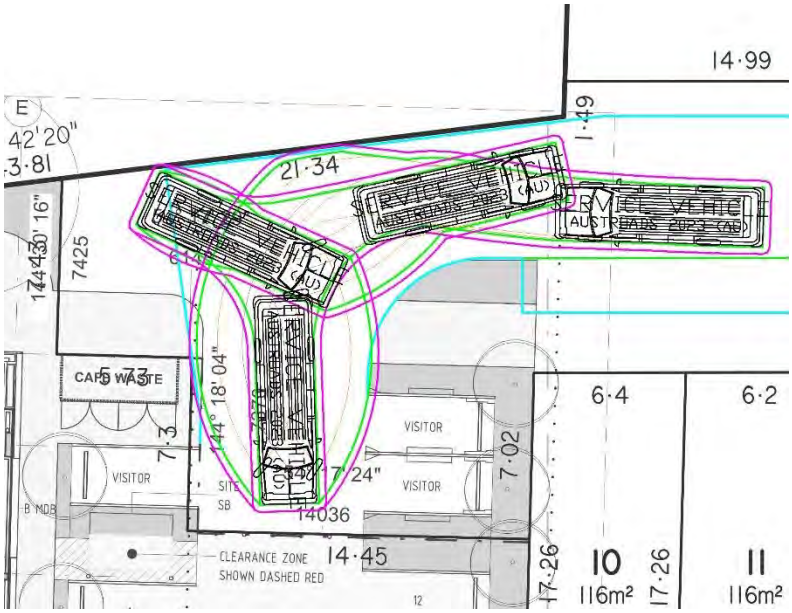


***Figure 11: Swept path of 8.8 Medium Rigid Vehicle turning around in cul-de-sac***

## 3.2 RESIDENTIAL ACCESS

Access for dwellings will be provided via individual driveways, which will be located outside of the prohibited access zones identified in *Figure 3.1 of the Australian/New Zealand Standard Parking Facilities Part 1: Off-street car parking (AS/NZS 2890.1:2004)*. Figure 12 illustrates the future access points adjacent the proposed intersections complying with these criteria.

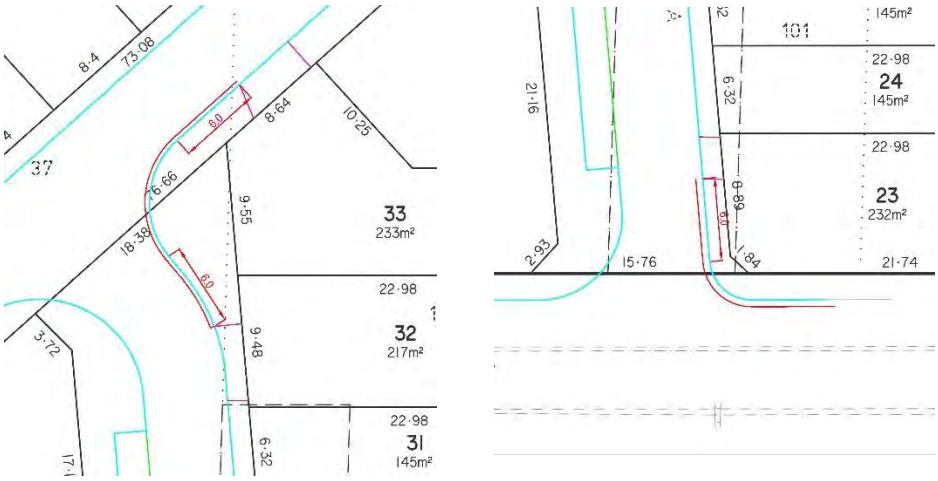


***Figure 12: Dwellings access points located outside prohibited access zones***

Allotments located adjacent the dead-ends in the road network will be provided with sufficient manoeuvring area for access, as illustrated in Figure 13.

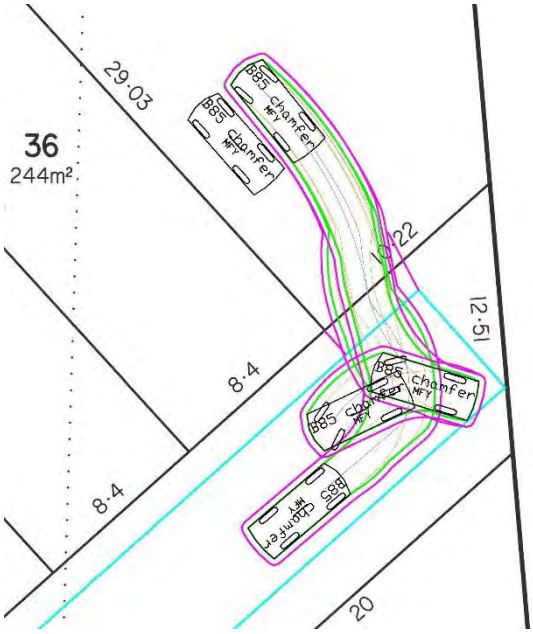


***Figure 13: Swept paths of vehicles accessing allotments adjacent dead ends***

## 3.3 REFUSE COLLECTION

The proposed roads will cater for access by Council's refuse vehicle. Refuse vehicles will access the site via Richmond Street, traverse the site, and turnaround around within the cul-de-sac, as illustrated in Figure 14.

***Figure 14: Swept path of 8.8 m refuse vehicle traversing the site***

Allotments 33-40 located at the northern portion of the site will be required to locate bins adjacent the proposed path of the refuse vehicle. Figure 15 identifies how these bins could be located throughout the site.

***Figure 15: Potential location of bins***

## 3.4 CAR PARKING

The proposed residential allotments will provide two off-street car parking spaces which will cater for the resident parking requirements. Additionally, the proposed indented on-street parking bays will provide 12 parking spaces which, in conjunction with the existing on-street parking demand adjacent the site, will cater for visitor parking.

## 3.5 PEDESTRIAN/CYCLIST CONNECTIVITY

The location of the site presents an opportunity for connections to the River Torrens and the adjacent reserves. The proposed road reserves will include footpaths on both sides of the road, including a 2.5 m wide shared path which will form the extension of the River Torrens Linear Trail. The road layout has been designed to maximise the continuity of the shared path, minimising the number of road crossing points required.

The traffic volumes on the roads will be low and will have a low-speed environment, ensuring that a high level of amenity for pedestrians and cyclists will be provided, which will encourage the adoption of active transport within the land division.

# 4.0 BUILD-TO-RENT CO-LIVING BUILDING

The larger allotment is proposed to be developed as a "build-to-rent" co-living apartment complex, which will provide 78 studio and one-bedroom units for short and long-term renting purposes. The apartment development will include communal facilities for use by residents, as well as a public café and co-working space with a floor area of 250 $m^2$. It will provide car parking at grade adjacent the facility as well as within an under croft parking level.

## 4.1 ACCESS

Access for residents and visitors of the apartments will be via a new crossover on Richmond Street. The access point will be designed in accordance with the Australian/New Zealand Standard *Parking facilities Part 1: Off-street car parking (AS/NZS 2890.1:2004)*, and will provide sufficient sight distance, as identified in figure 16.

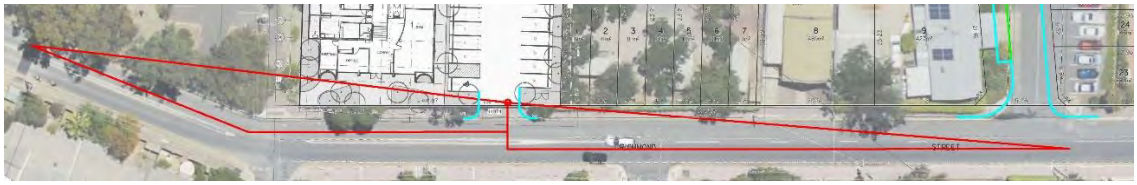

***Figure 16: Sight distance at apartment access***

The access will accommodate simultaneous entering and exiting movements, as illustrated in Figure 17.

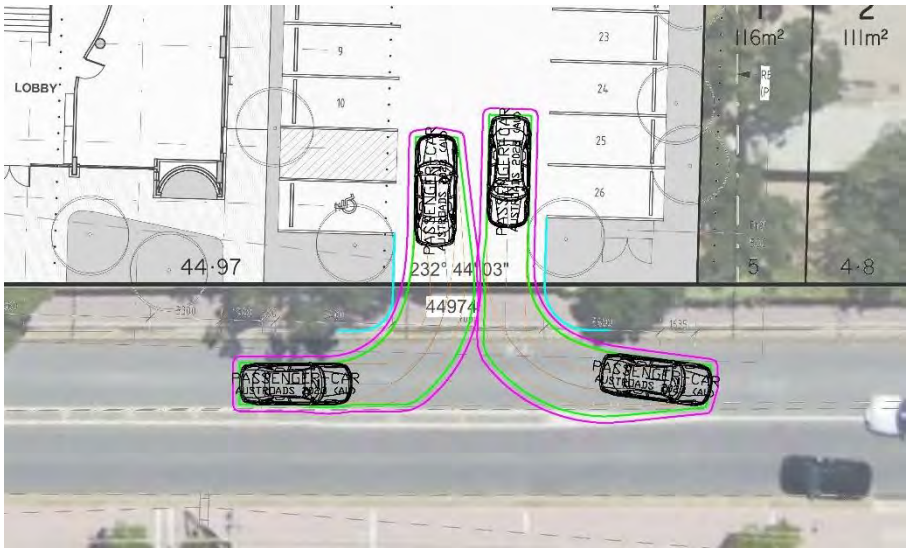


***Figure 17: Simultaneous movements at apartment access point***

Visitor access for the café will be provided via the proposed public roads. The northern portion of the car park will be allocated for visitor use and will connect to the adjacent cul-de-sac.

The interface between the private and public car parking areas will be controlled with removable bollards.

## 4.2 CAR PARKING

The proposed car park will be designed in accordance with the *AS/NZS 2890.1:2004*, in that:

- parking spaces will be 5.4 m long;
- resident parking spaces will be 2.4 m wide;
- visitor parking spaces will be 2.6 m wide;
- parking aisles will be 6.2 m wide and will include 1.0 m extensions at the dead-ends;
- a minimum 300 mm clearance will be provided to adjacent obstructions; and
- columns will be located clear of the vehicle design envelope identified in Figure 5.2 of AS/NZS 2890.1:2004.

One parking space will be allocated for use by people with a disability and will be provided in accordance with the Australian Standard *Parking facilities Part 6: Off-street parking for people with disabilities* in that the space will be 2.4 m wide and 5.4 m long with a similarly sized adjacent shared area.

The parking levels will be connected via a ramp, which will be designed in accordance with the *AS/NZS 2890.1:2004*, in that it will have a maximum grade of 1:6 and will have appropriate transitions to ensure sufficient vertical clearance is provided beneath vehicles. A minimum head height clearance of 2.2 m will be maintained within the car park and ramp.

The ramp will be designed with a minimum width of 5.8 m. The connections between the ramp and the parking aisles will accommodate simultaneous turning movements, as illustrated in Figure 18.

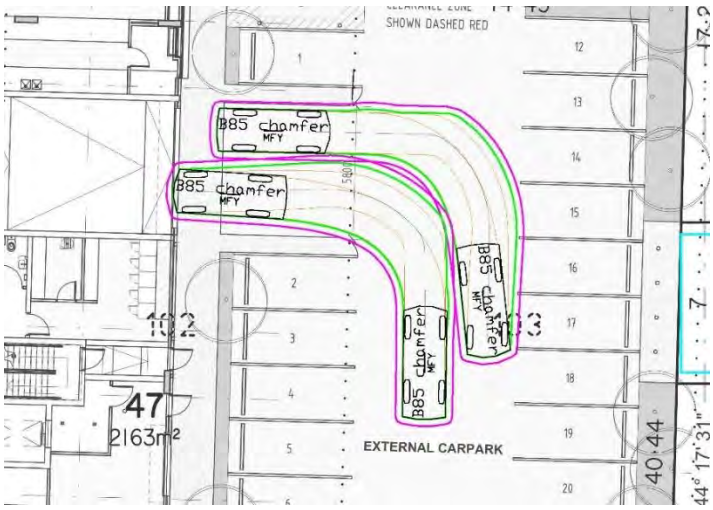


***Figure 18: Simultaneous movements at ramp connections***

## 4.3 REFUSE COLLECTION

Refuse collection for the apartment development will occur within the at-grade car park by a private contractor. Refuse vehicles will be able to enter the site via Richmond Street and exit via the new public road, or vice-versa, which will allow for these vehicles to travel in a forward direction at all times within the development. Such an operation will require the contractor to remove the bollards during collection times. Figure 19 illustrates a refuse vehicle accessing the site from either direction.

***Figure 19: Swept path of 10.2 m refuse vehicle accessing the development***

## 4.4 PARKING ASSESSMENT

### 4.4.1 CAR PARKING

The PDC identifies a car parking provision of one space per dwelling with one to two bedrooms in a residential flat building plus 0.33 spaces per dwelling for visitor parking. Based on these rates, the proposal would require 104 spaces associated with the apartment resident and visitor parking.

However, the nature of the proposal will result in apartments which reflect the type developed for affordable housing projects and it is therefore anticipated that the resident parking demand would be lower than a typical apartment building and more akin to one developed for affordable housing. The PDC identifies a parking provision rate of 0.3 spaces per affordable housing dwelling which would equate to a provision of 23 spaces for the subject apartments.

To verify the suitability of a reduced parking rate for the proposal, observations of the parking demand were undertaken at an existing co-living residential facility with 50 units in Cooks Hill, NSW. The number of vehicles parked at the site were observed for a period of four weeks during the month of September 2024 and identified a maximum parking demand of 0.2 spaces per dwelling. The survey results provide evidence that the type of apartments proposed will generate parking akin to an affordable housing project.

The proposal will provide 41 privately accessed parking spaces which exceeds the requirement applicable to affordable housing and will sufficiently cater for the anticipated demand.

The PDC identifies a parking provision rate of 0.4 spaces per seat for a café. Assuming the proposed café could accommodate in the order of 50 seats, this would equate to a parking requirement for 20 spaces. However, the café is anticipated to be primarily visited by residents of the development (particularly given the co-working space component of the facility), as well as pedestrians and cyclists on the River Torrens Linear Trail. Accordingly, there will be a reduced car parking demand generated by this component of the proposal when compared to most cafes. The proposal will provide three publicly accessible spaces within the car park which will cater for the anticipated staff parking demand. In the event that additional visitors were to drive to the site, parking could be accommodated for within the on-street parking on the adjacent roads within the land division and on Richmond Street or in the existing public car park in Old Mill Reserve.

### 4.4.2 BICYCLE PARKING

The PDC does not identify bicycle parking requirements for development outside of Designated Areas. Nonetheless, if the Designated Area requirements were to be considered, the PDC identifies the following bicycle parking provision requirements for a residential flat building in a Designated Area:

- one space for every four dwellings for residents; and
- one space for every ten dwellings for visitors.

The above rates equate to a bicycle parking provision of 20 spaces for residents and 8 spaces for visitors. Resident bicycle parking will be accommodated within a secure storage facility in the under croft car park and will accommodate 24 spaces. Visitor bicycle parking could be readily accommodated by the provision of bicycle rails adjacent the building.

# 5.0 TRAFFIC ASSESSMENT

The following peak hour traffic generation rates provided in the RMS *Guide to Traffic Generating Developments* are widely used in assessing developments of this nature and have been accepted by a number of assessing authorities including the Department for Infrastructure and Transport:

- 0.65 trips per townhouse; and
- 0.4 trips per dwelling for smaller units and flats, which would be applicable to the build-to-rent apartments.

There will be minimal traffic generated by the café during the commuter peak hours. Based on the above rates, the proposal will generate in the order of 60 trips in the am and pm peak hours. The volumes will be distributed between the new public road and the private driveway, providing an even distribution of traffic throughout the site.

The forecast traffic volumes equate to an increase in traffic of 45 trips in the am peak hour and 35 trips in the pm peak hour from the existing situation. Such an increase is low and will be negligible to the nature and function of Richmond Street and the surrounding road network.

# 6.0 SUMMARY

The proposed residential development will provide for a mix of residential type uses, with the potential for alternative dwelling types within the land division and the co-living facility, as well as catering for a high amenity shared path connection through the site.

The dwellings will be provided safe and convenient access via Richmond Street through a residential street network and, in the case of the co-living apartments, via a crossover to Richmond Street. The car park will be designed in accordance with the relevant Australian Standards and will provide sufficient car parking to accommodate the forecast demand.

Traffic volumes associated with the development will be low and the design will be fit for purpose in creating a low speed environment, thus minimising any impact associated with traffic movements at the site and on the adjacent road network.

MM/21-0177

20 March 2025

Ms. Matilda Asser
URPS
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ADELAIDE, SA 5000

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MFY Pty Ltd
ABN 79 102 630 759

Dear Matilda,

**APPLICATION ID 24040449: 46 RICHMOND STREET, HACKNEY**
**RESPONSE TO REQUEST FOR INFORMATION**

I am in receipt of correspondence from the Department for Infrastructure and Transport (DIT) which requests additional information in relation to a proposed land division and apartment development at the above site. As requested, I have reviewed the request from DIT and provide the following additional information to assist with the assessment of the proposal.

In its correspondence, DIT has provided the following commentary:

> *The subject land abuts Richmond Street and is located approximately 130 metres east of Hackney Road. At this location Hackney Road carries 48,900 vehicles per day (4% commercial vehicles) and has a posted speed limit of 60km/h. DIT has reviewed the referral material which includes a MFY Traffic and Parking Report (ref 21-0177 dated 3/12/24) which forecasts an increase of 45 trips in the am peak and 35 trips in pm peak via Richmond Street. The Traffic Report has also undertaken a review of the proposed access points to Richmond Street (including design and sightlines) as well as a parking review and requirements for a refuse collection vehicle to service the development. However, the report does not include any operational review of the adjacent Hackney Road/Richmond Street intersection.*

The above information requires some clarification. The MFY report does not identify an increase of *45 trips in the am peak and 35 trips in the pm peak via Richmond Street.* The report identifies an anticipated generation of these trip volumes as a result of the proposed development. This is not the same as a predicted increase.

The subject site is currently operated as Adelaide Caravan Park. It has 45 on-site cabins and 40 powered caravan sites. Parking for each facility is provided on-site.

The TfNSW *Guide to Transport Impact Assessment* is used by technical practitioners when assessing predicted traffic volumes as it provides guidance in respect to the generation rates likely to be associated with a particular land use based on empirical data (which is the most accurate and effective method on which to base anticipated traffic generation). This Guide, however, does not include rates for a caravan park.

MFY has previously collected empirical data of traffic movements entering and exiting the Goolwa Caravan Park and have identified the following traffic generation rates:

- am peak hour: 0.19 trips per site; and
- pm peak hour: 0.28 trips per site.

Based on the above rates, the existing site would generate in the order of 15 trips during the morning peak hour and 25 trips during the afternoon peak hour. Accordingly, the anticipated increase on the road is forecast to be 30 trips during the am peak hour and ten trips during the pm peak hour.

DIT subsequently requested that the following additional information be provided:

> *1. Provide latest turn counts entering and leaving Richmond Street at Hackney Road/Richmond Street intersection. DIT turn counts for through traffic volume on Hackney Rd at Hackney Rd/Bundeys Rd intersection is available from DIT turning movement survey website.*
> *2. Provide forecasted trip distribution due to proposed development and ultimate trip distribution (existing + forecast).*
> *3. Provide right turn storage length assessment for AM and PM peak periods (during school terms) at the Hackney Road/Richmond Street intersection, as per DIT SIDRA guidelines.*
> *4. Please provide site observations evidence if any changes to the default SIDRA values are used in the above assessment.*

Figure 1 illustrates the peak hour 2015 turning count data obtained from DIT for the Hackney Road/Richmond Street intersection.

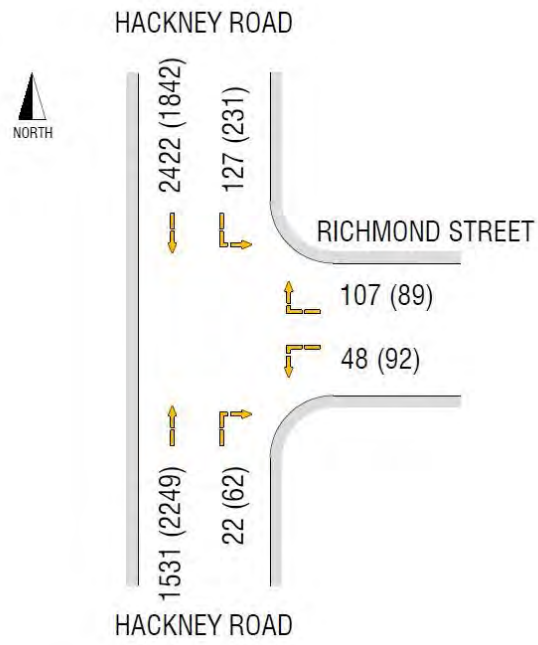
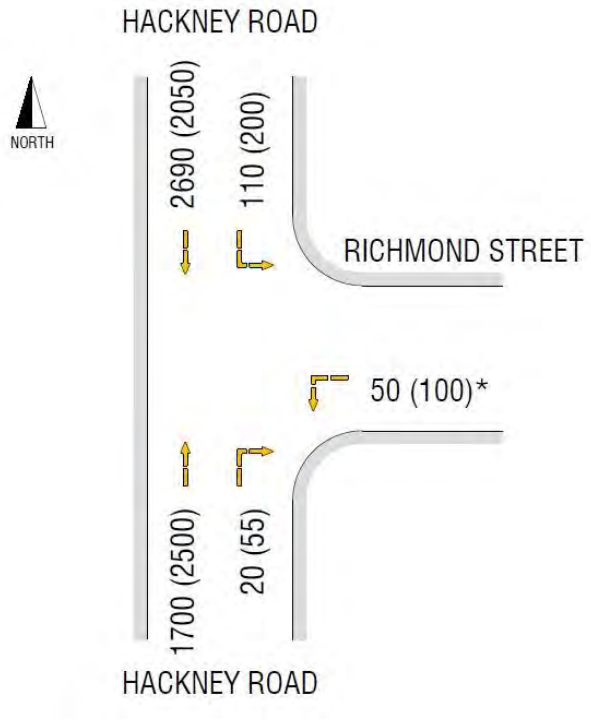



***Figure 1: 2015 peak hour turning movements Hackney Road/Richmond Street intersection***

A review of more recent data collected by DIT at the Hackney Road/Bundeys Road intersection identified that there was an increase in volumes on Hackney Road of approximately 11% between 2015 and 2023. Further, data provided by Council for Richmond Street identified a decrease in traffic volumes (by approximately 15%) which would suggest the O'Bahn tunnel project has impacted the volumes turning at the intersection. This is not surprising given the prohibition of the right turn movement from Richmond Street to Hackney Road which was implemented as part of that project.

Figure 2 illustrates the forecast peak hour turning volumes at the Hackney Road/Richmond Street intersection applying the above variations.




* volumes not reduced

***Figure 2: Estimated peak hour turning movements at the Hackney Road/Richmond Street intersection***

It is forecast that there would be an additional 30 trips during the am peak ten trips during the pm peak on Richmond Street following completion of the proposed development. These would be expected to be distributed as follows:

- 80% of trips departing and 20% arriving during the morning peak hour;
- 30% of trips departing and 70% arriving during the afternoon peak hour;
- 70% of trips travelling to the site via Hackney Road and Richmond Street, with 30% using alternate routes; and
- 40% of trips travelling from the site will use the Hackney Road/Richmond Street intersection, with 60% using alternate routes.

Based on the above, if is forecast that there will be 14 additional traffic movements at the Hackney Road/Richmond Street intersection during the morning peak hour and six additional traffic movements during the afternoon peak hour. Such volumes are less than 5% of traffic volumes on Richmond Street and less than 0.5% of volumes using the intersection. There will, therefore, be no perceived variation in the functionality or operation of the intersection.

It is therefore considered that SIDRA modelling is not required to demonstrate that there will be negligible impact at the intersection.

In addition to the above, while it is not specified in the correspondence, it is understood that DIT wish to ensure that the proposed development will not result in an increase in the right turn queue such that it extends beyond the storage capacity of the channelised turn lane. During the peak commuter periods it is forecast that the proposed development could generate two additional right turn movements from Hackney Road to Richmond Street during the am peak hour and three additional movements during the pm peak hour.

In order to assess any impact on the queuing storage within the channelised right turn lane, observations of the existing queue were completed on Friday 14th March during the afternoon peak hour (when the highest eastbound movement was recorded in Richmond Street). The results of these observations identified that the queue did not exceed three vehicles within the lane.

The right turn lane has a capacity for twelve vehicles to store in a queue. Accordingly, even in the unlikely event that the additional vehicles were all to require storage simultaneously (which based on random arrival and queuing theory parameters will never occur), there would be ample storage to accommodate the additional traffic associated with the proposed development.

Yours sincerely,
**MFY PTY LTD**

**MELISSA MELLEN**
Director

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MLM/21-0177

9 May 2025

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Ms Matilda Asser
URPS
27 Halifax Street
ADELAIDE SA 5000

Dear Matilda,

**APPLICATION ID: 24040449: PROPOSED LAND DIVISION AND SIX STOREY MIXED USE BUILDING, 46 RICHMOND STREET HACKNEY - REQUEST FOR INFORMATION**

I am in receipt of a request for information from the City of Norwood Payneham and St Peters in relation to the above development. On receipt of the request a meeting was held with Council to clarify the matters raised as they relate to traffic and parking.

Further to the meeting, additional data were collected and modifications made to the design with a view to responding to the matters raised by Council. The following additional information is provided to assist Council with its assessment of the proposal. For clarity the matter raised by Council has been replicated followed by a response.

**A. LAND DIVISION**

1. *Two (2) of the car parking spaces north of the Co-Living Building car park that are labelled "visitor" parks are intended to be used in association with the café. Notwithstanding their association with the café, the Council have no interest in taking ownership of these two car parking spaces.*

   *The allotment boundary of proposed allotment 47 should therefore be amended to include these 2 carparking spaces. Please note, the public road section between these 3 visitor spaces should remain as a public road as proposed.*

   The plan of division has been updated to ensure that these spaces remain within the boundary of the mixed use site.

**B. CIVIL WORKS (Roads and Footpaths)**

1. *The shared path that is proposed to link Twelftree Reserve to Old Mill Reserve is less than desirable and should ideally be 3.0m in width (currently 2.5m), while maintaining a minimum lateral clearance of 0.5m on each side from any tree plantings, light poles,*

*potential front fences, etc. Accordingly, you are requested to amend your proposed plan of division and civil engineering plans such that the shared path link between the two Reserves provides:*

- *A 3-metre-wide carriageway for pedestrians and cyclists (or justification for a 2.5m width);*
- *Minimum 0.5m lateral clearance on the 'dwellings' side of the shared path (or justification for less); and*
- *Sufficient lateral clearance on the road side of the shared path to allow for car door openings from the indented on-street car parking spaces; and*
- *Minimum 0.5m lateral clearance on the road side of the shared path from any street tree plantings and light poles; and*
- *Sufficient room for regular street tree plantings and street light poles.*

The creation of the shared path within the development is proposed in order to improve an existing deficiency where the linear trail along the River Torrens terminates and riders are forced to navigate to Richmond Street to ride around the subject allotment. While they will be required to use the path within the subject development area, the path will provide for a continuous connection for the trail.

The site is constrained in respect to width and existing seeks to develop a low speed environment for all road users. The updated plan has sought to provide an improved outcome for cyclists and achieve best practice standards for these road users.

The Department for Infrastructure and Transport (DIT) Active Travel Design Guide identifies a desirable 3.5m width for two-way shared path, with a minimum recommended width of 2.4m and 2.0m tolerable at isolated constrained locations (such as light poles).

By way of comparison, Austroads Guide to Road Design Part 13 identifies a desirable minimum of 2.5m in width for a local access path, with a range of 2.0m to 3.0m expected for such facilities. Regional path dimensions are typically 0.5m higher than a local access path.

The modified path design will vary in width such that a 2.5m minimum is achieved but that it is wider where possible. In addition, the following has been demonstrated in the design:

- At least 0.5m clearance to all dwellings;
- Clearance to adjacent parking spaces to allow for door opening;
- Space for street trees as illustrated in the plan;
- A continuous footpath treatment across the intersection;
- Bin pads for storage of bins off the path while waiting for collection; and

- Additional areas where light poles could be accommodated.

2. *No turnaround area has been provided for waste and other large vehicles in the northeast corner of the site, which is an unacceptable outcome in our view. The suggestion that residents of Lots 33-40 place their bins outside of proposed Lot 500 Reserve and Lot 32 is impractical and unenforceable, and alternatively Council is not willing to support waste collection that requires a waste truck to drive to the northeastern end of this road to collect waste and then reverse approximately 40m to turnaround and exit.*

   *Accordingly, you are requested to amend the proposed plan of division to provide a hammerhead/cul-de-sac turnaround facility at the north east end of the development site. It is Council's preference that this facility is provided.*

   The construction of a turning area in the north-east corner would for all intents and purposes result in the majority of the length of the driveway access being a turning area (that is there would be almost no road length remaining) and would result in the loss of a dwelling.

   The developer is seeking to provide an innovative solution that would not result in a large area of road which would bisect the desire line of the shared path, reduce amenity for residents and be inconsistent with the design intent of the development. While the requirement for a safe and convenient solution for waste collection is understood, the holistic road safety environment is equally important and it will be beneficial to enable collection to occur without requiring a large turning area.

   In order to facilitate an alternate collection arrangement, the following treatments are proposed:

   - Development of a raised shared driveway which will provide for low speed access to dwelling at the eastern end;
   - Installation of the continuous footpath to reduce speed at the intersection and prioritise movements for vulnerable road users; and
   - Installation of a bin pad which will accommodate bins for the dwellings that are accessed via the raised shared driveway.

   The above design will provide for refuse to be collected from all dwellings when the waste collection vehicle enters the land division, turns using the facility at the western end and then exits the land division.

4 *With respect to the 'Road Hierarchy Plan/Typical Cross Sections' Plan (prepared by WGA):*
*a. The cross sections for the Type B and Type C roads are different, and these each encompass*
*different sections of the east-west road. It is therefore not clear if a pedestrian path is being provided on the northern side of the east-west road (i.e. in front of Lots 35-46).*

*Please confirm and amend the plan and cross sections accordingly (Note: if a footpath is being provided it needs to be minimum 1.5m width);*

*b. Similarly, the verge widths for the Type B and Type C roads are different in the cross sections. Please confirm what verge width is being provided on the northern side of the east-west road and ensure the cross sections are consistent with the width to be provided;*

*c. The cross section of the Type C road is inconsistent with the Plan, in respect of the north-south public road that intersects with Richmond Street (eastern access) in that:*
*i. The cross section does not show a footpath or indented car parking on the western side, which is shown on the plan; and*
*ii. The cross section shows a 2.5m wide footpath on the eastern side, whereas the plan indicates the footpath to be 1.5m wide.*

*Please amend the plans/cross-sections accordingly to ensure consistency*.

Figure 1 illustrates the updated cross sections for Type A, Type B and Type C roads based on the amended plan.

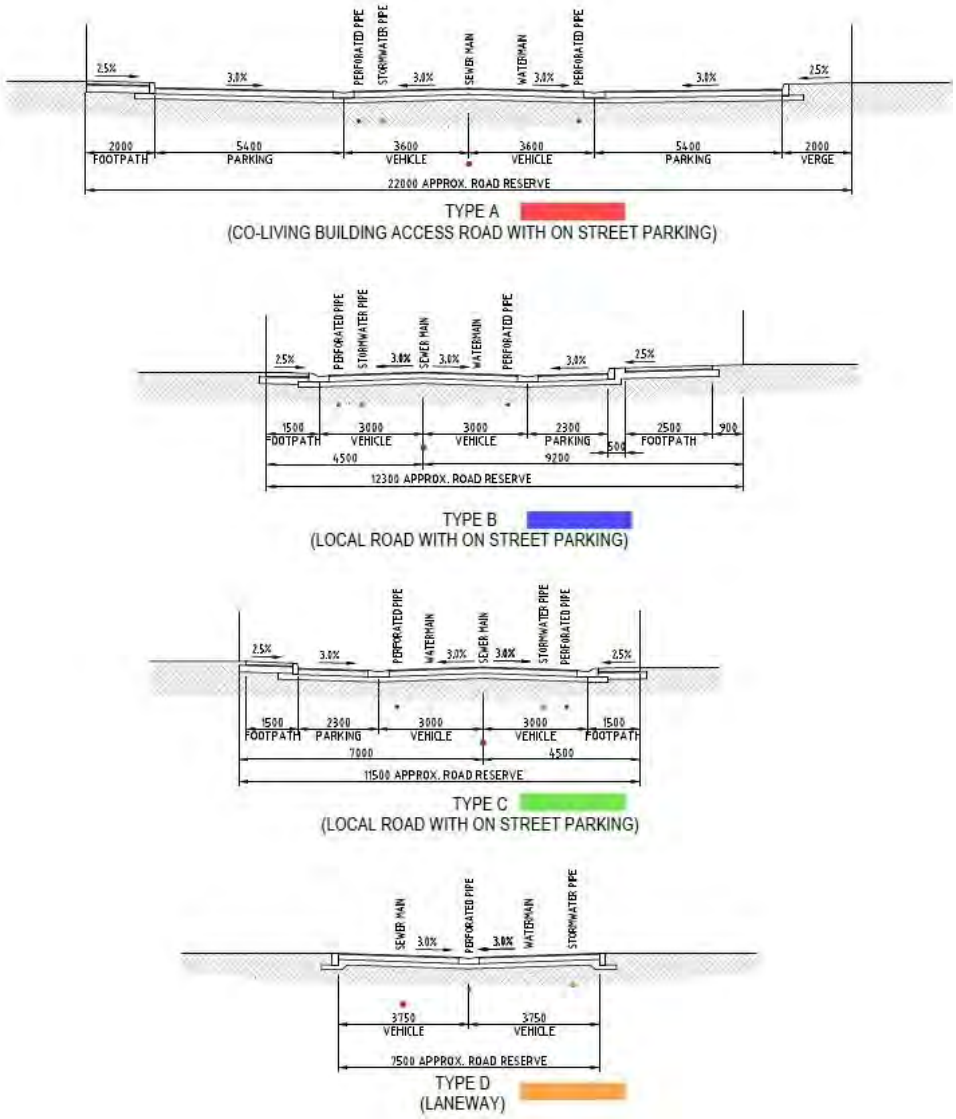


***Figure 1: Updated Road Cross Sections***

## D TRAFFIC AND CAR PARKING

*Please provide an updated Traffic and Parking Report that addresses the following:*
*a. A review of what impact the additional traffic generated by the proposed development will have on the surrounding road network;*

The MFY report identifies an anticipated trip generation of 45 trips associated with the development in the am peak and 35 trips in the pm peak. Such vehicles will access the site via Richmond Street.

The subject site is currently operated as Adelaide Caravan Park. It has 45 on-site cabins and 40 powered caravan sites. Parking for each facility is provided on-site.

The TfNSW Guide to Transport Impact Assessment is used by technical practitioners when assessing predicted traffic volumes as it provides guidance in respect to the generation rates likely to be

associated with a particular land use based on empirical data (which is the most accurate and effective method on which to base anticipated traffic generation). This Guide, however, does not include rates for a caravan park.

MFY has previously collected empirical data of traffic movements entering and exiting the Goolwa Caravan Park and have identified the following traffic generation rates:

- am peak hour: 0.19 trips per site; and
- pm peak hour: 0.28 trips per site.

Based on the above rates, the existing site would generate in the order of 15 trips during the morning peak hour and 25 trips during the afternoon peak hour. Accordingly, the anticipated increase on the road is forecast to be 30 trips during the am peak hour and ten trips during the pm peak hour.

The above trips will not all distribute in the same direction. The following distribution is anticipated:

- 80% of trips departing and 20% arriving during the morning peak hour;
- 30% of trips departing and 70% arriving during the afternoon peak hour;
- 70% of trips travelling to the site via Hackney Road and Richmond Street, with 30% using alternate routes; and
- 40% of trips travelling from the site will use the Hackney Road/Richmond Street intersection, with 60% using alternate routes.

Adopting the above distribution will result in 14 trips west of the development (to/from Hackney Road) and 16 trips using alternate routes during the am peak and six trips to the west and four trips using alternate routes during the pm peak hour. Such a volume is less than 5% of the volume of traffic using Richmond Street and hence there will be no measurable impact on the adjacent street network.

Of note is that the volume of traffic on Richmond Street has decreased by approximately 15% since the O'Bahn tunnel project was implemented and hence the volume following this development will still be less than was previously experienced on this road.

In regard to daily traffic volume, the development would generate approximately 100 additional trips per day between Hackney Road and the subject site and 100 additional trips in other directions. The daily increase will therefore be low and will have a negligible impact on the adjacent road network.

*b. The impact of the driveways of Lots 33 and 34 on the use of the shared use path*;

The plan has been updated to provide clearance to the shared path adjacent lots 33 and 34.

c. *Justification for the use of retractable bollards at the northern end of the private road, and*

*specifically:*
*i. why the private road cannot be permanently closed off (e.g. upright kerbing) or remain permanently open;*
*ii. the conflict created between vehicle turnaround and the shared use path;*
*iii. how this will impact on emergency vehicle access, with justification; and*
*iv. how this will impact on service and delivery vehicle access, with justification;*
*v. how the bollards are intended to be retracted (e.g. automatically or manually), and how any delay in access may impact the public road and/or adjacent car parking spaces;*

*For your own awareness, it is our view that the use of bollards is not a practical or ideal outcome, and this area should either be left open for continuous traffic flow or permanently closed by upright kerb or similar). However, we are open to considering any justification you might provide for the use of bollards (and noting that they are to remain in the ownership of Allotment 47*
*d. Emergency service vehicle access to the development;*

The bollards are proposed to ensure that drivers do not use the private car park as a cut-through route to and from the proposed public road but to enable refuse and delivery vehicles to enter and exit the mixed use site in a forward direction.

It is not clear what Council's concern is in relation to the proposed bollards. Bollards are a common mechanism used to restrict access to specific vehicles. Drop down bollards (or similar) are readily managed and can be locked with the building manager or security holding the key.

In regard to the specific concerns, I provide the following responses:

i. The opening is required to facilitate entry and exit for service and refuse vehicles in a forward direction. There is no ability to provide for such vehicles to turn on site.
ii. The bollards do not have any impact on the proposed shared use path. The turning area is not related to the proposed bollard installation and is a requirement by Council at the end of the public road. If Council is inferring that the road should connect to Richmond Street, this scenario would result in conflicts within the mixed-use car park. Further, it would be neither appropriate or safe to have public access or a public road bisecting the car park.
iii. There will be no impact to emergency services. They will access the site via Richmond Street as would be the case with any other development of this nature. There could be a benefit for emergency services as unlike if there was a fenced boundary, access would be available at both ends by removal of the bollards.
iv. It doesn't impact on service and delivery vehicles but rather provides for them (service vehicles are the reason for the bollards).
v. The bollards will be retracted by the site manager. There will be no impact on the public road as the vehicles will enter via Richmond Street, unload (or load waste) within the car park and then exit through the bollards after servicing the site. The site manager will have time to retract the bollards while the deliveries or waste collection are occurring.

e. *Delivery and other service vehicle access for the Co-Living Building, and whether they are intended to enter/exit the site using the public roads (like the 10.2m refuse vehicle).*
*If not, turn path movement diagrams will need to be provided showing entry/exit from within the car parking area associated with the Co-Living Building, and the report should address the potential conflict between passenger vehicles and pedestrians and service/delivery vehicles;*

As detailed above, the service vehicles will access the site comparable to the waste collection vehicle. Vehicles will stop for a short period within the aisle while unloading. While this will temporarily obstruct the car park aisle, it will only be for a short period and given the low volumes anticipated from the site there will be minimal delay for residents or visitors. Maintaining vehicle movements in a forward direction rather than turning them is beneficial for all road users and will minimise the potential for pedestrian conflict on the site.

*f. How waste collection and the loading/unloading of other vehicles will impact the use of the Co-Living Building car park, noting that no dedicated loading area has been provided on site – and justification of such arrangement*;

Vehicles will stop for a short period within the aisle while collecting refuse. While this will temporarily obstruct the car park aisle, it will only be for a short period and given the low volumes anticipated from the site there will be minimal delay for residents or visitors. Refuse collection can be scheduled to occur outside of peak commuter periods if required.

*g. How the development will manage the private open-air car park to ensure spaces are utilised for visitors/residents of the complex. Without active management/deterrence, there is the risk that CBD workers may use this area for long-term parking and commute into the CBD. Please provide detail on the management of this area and justification thereof*;

The Planning and Design Code does not identify a requirement relating to the management of private car parks. This matter is a risk for any development within close proximity to the CBD and management of the parking spaces are a matter for the land owner. That said, data collected within the public car park adjacent to the site identified many vacancies. If the subject site has a risk it would be expected that this issue would have been demonstrated within the existing car park.

*h. Confirmation that a B99 vehicle has been used for the 'simultaneous movement' turn path templates. If not, the turn path templates will need to be updated with B99 vehicles;*

Yes a B99 vehicle has been used for the simultaneous movement turn paths.

*i Figure 10 in the existing report shows a conflict between the turn path movements at the 'laneway intersection'. Similarly, Figure 17 shows a conflict between vehicles at the intersection For the private road/carpark associated with the Co-Living Building. No conflicts should occur at these intersections, so the allotment dimensions (e.g. corner cutoffs), access point widths and/or turn path templates may need to be reconsidered to avoid these conflicts;*

There are no conflicts in either Figure 10 or Figure 17 in the report. It would appear that Council has misinterpreted the turn paths. The magenta line is the clearance line which can be shared between the vehicles. The magenta line central to the turn path does not overlap the edge of vehicle on both sides and hence the clearance is maintained.

*j.Turn path diagrams need to be provided for:*
*i. Access to proposed allotments 23, 32 and 33, which all have indicative access points outside of, but very close to, the prohibited access zones (see Figure 12 of the existing report);*

Figure 2 illustrates the above paths.

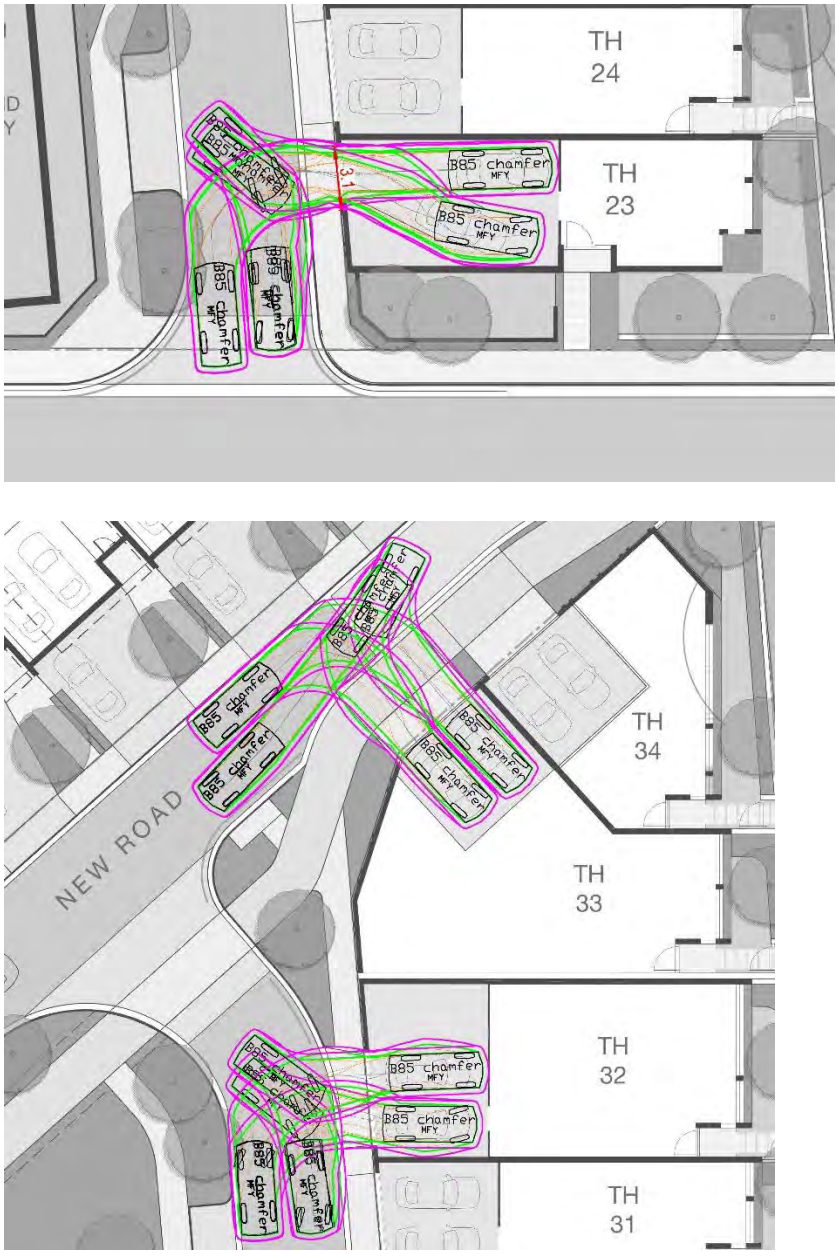


***Figure 2: Turn paths to driveways***

*ii. Access to car parking spaces numbered 26 and 11 (accessible space) that are associated with the Co-Living Building, noting their proximity to the road intersection;*
*iii. Access to the three "visitor" spaces located adjacent (north of) the Co-Living Building carpark;*

Figure 3 illustrates the above turn paths, albeit AS/NZS2890.1:2004 indicates that use of turn paths to demonstrate access to parking spaces is not an appropriate use of the path.

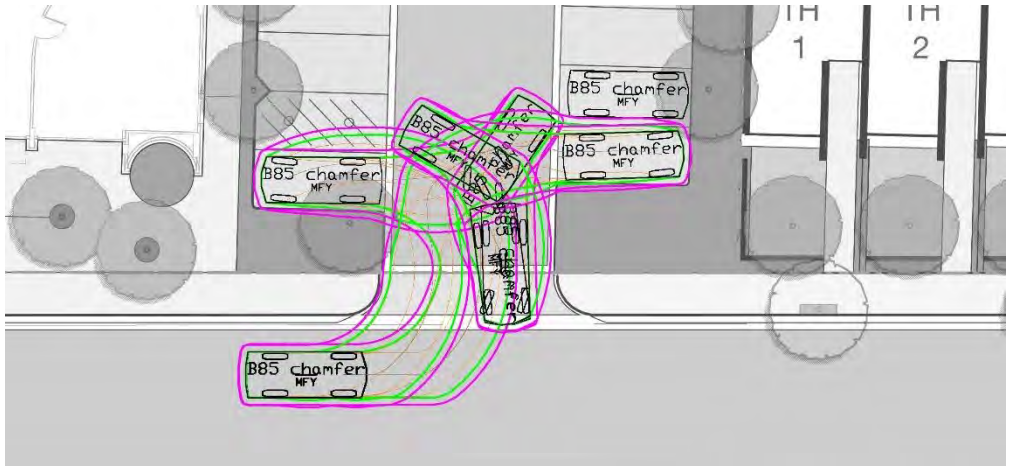

***Figure 3: Turn paths to parking spaces***

*iv. A 10.2m refuse vehicle at all proposed road intersections*
*(Note: Figure 19 in the existing report shows the refuse vehicle entering/exiting the Co-Living Building site via the proposed public roads. Accordingly, it needs to be demonstrated that the proposed public roads are able to accommodate a 10.2m long vehicle).*

Figure 4 illustrates the turn paths of a 10.2m refuse vehicle.

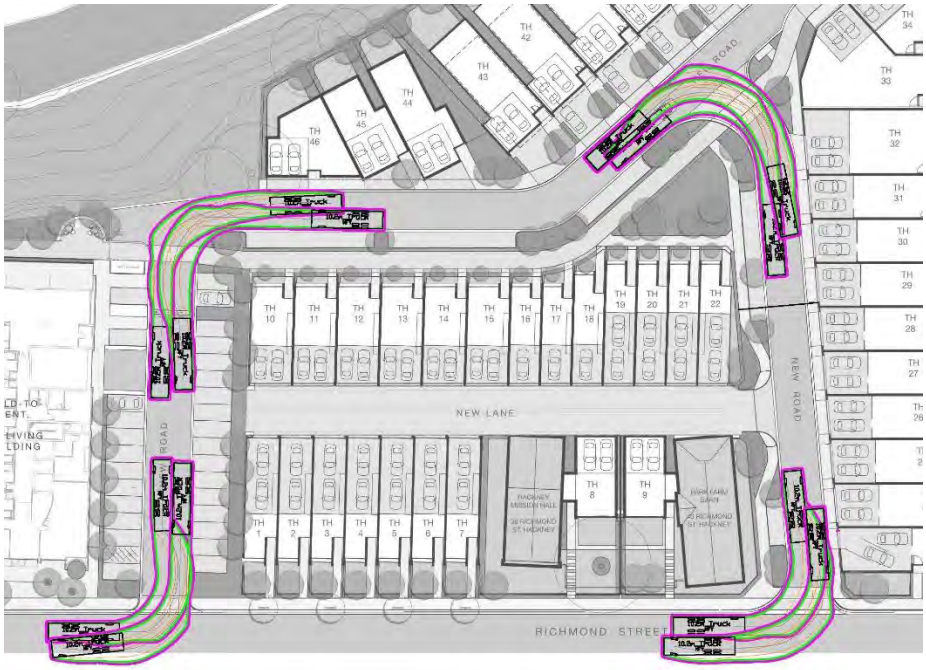


***Figure 4: 10.2 refuse vehicle turn path***

*2. The SISD shown in Figure 2 of the existing report does not appear to comply with Austroads requirements in that the sightlines intersect the boundary of proposed allotment 23 and possibly allotment 9. Accordingly, the corner cut-off provided for allotment 23 and allotment 9 will need to be increased to better facilitate safe sight distances at this intersection.*

Figure 5 illustrates the sight distance requirements are met at the intersection.

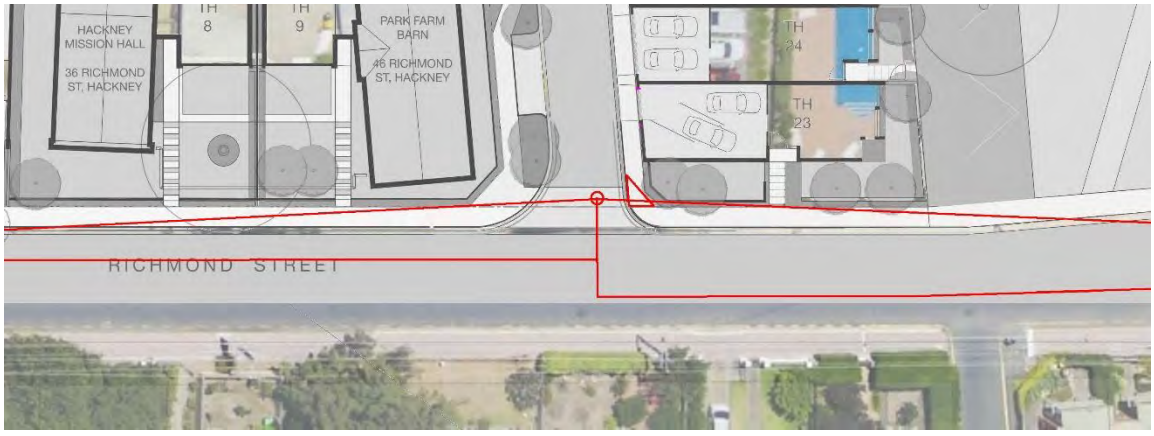


***Figure 5: Sight distance requirements at proposed intersection***

3. The SISD shown in Figure 16 of the existing report shows permanent obstruction within the sightline triangles (existing trees in Old Mill Reserve) due to the road curve. Please provide justification on the suitability of this access location with this in mind.

The sight triangle in Figure 16 represents the distance a driver can see clear of the tree trunks (obviously the canopy is not an obstruction). This sight distance was determined on-site.

*4. Pedestrian sightlines at the Type D laneway and footpath interface do not comply with AS2890.1 and*
*need to be provided to improve pedestrian safety. Please provide corner cut-offs accordingly*.

Pedestrian sight distance criteria are met at the laneway, as illustrated in Figure 6.

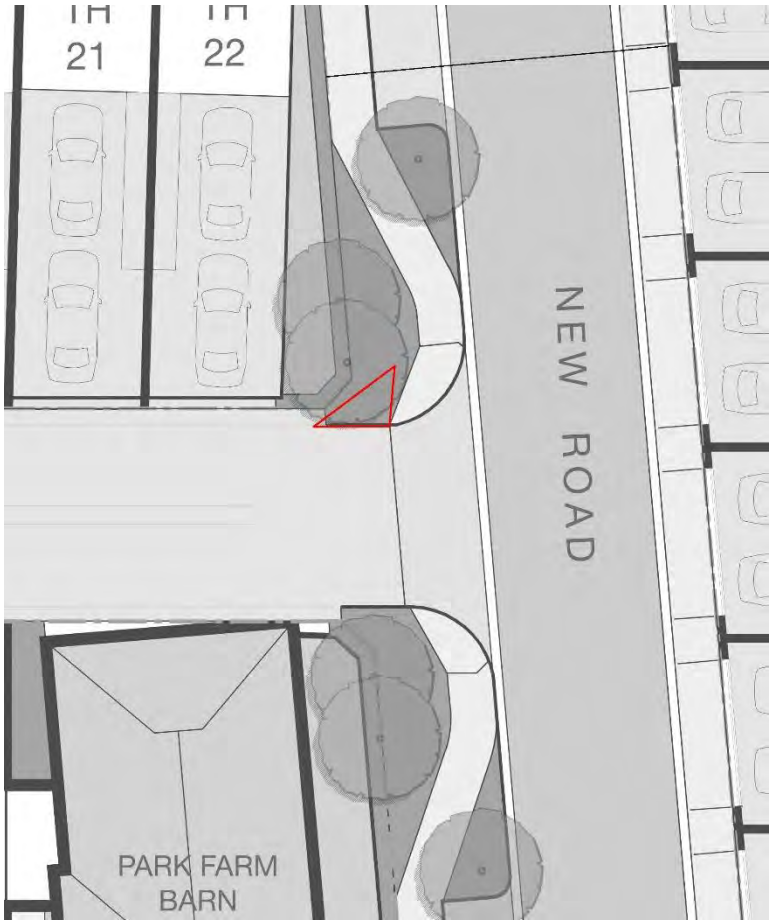


***Figure 6: Pedestrian sight distance criteria at laneway intersection***

*5. It is Council's preference that a continuous footpath is provided over the laneway that services dwellings 1-22 and the western-most access point for the private road. Accordingly, please amend the plans to show this detail, and ensure the updated Traffic and Parking Report comments on how traffic movements may be affected by this traffic-calming treatment (if at all). Note: this treatment may also affect the SMP for the development*.

The updated plans have not included a continuous footpath as the verge width limited the ramp grades to and from the lane for a turning vehicle. The developer would be pleased to work with Council in detailed design to develop a solution to Council's satisfaction, noting the DIT design criteria for these treatments.

In regard to traffic management, there would be negligible impact to traffic in either scenario because the lane will only provide access for residents.

*6. You are requested to provide better justification for the car parking shortfall provided within the development, using a more relevant example to South Australian conditions and public transport and/or active transport availability.*

The site used to provide a comparative parking assessment was selected because it is more comparable than any example in South Australia. The site was the most relevant existing facility for the following reasons:

- The property is comparable in size in that it is a 50 room co-living building;
- rooms are comparable in that they are 20 – 25m$^{2,}$ fully self contained units;
- The property is located close to the city and university;
- The property is used for medium term rentals (average stay of 7months); and
- Occupants are a mix of students, professionals and contractors

While there may be a comparable facility in Bowden, the parking requirements in Bowden are subject to specific requirements in the Planning and Design Code which are lower than that required for many other development sites. Accordingly, any data collected at these existing sites would not represent a comparable example it is not clear which parking applies to the subject site. What is clear is that the lower theoretical parking rate for affordable housing was applied to single bedroom apartments.

The comparative site used in the survey records CCTV footage of the car park and hence has an accurate record of the demand for the proposed housing type. Further, residents of the proposed facility will have close access to the O'Bahn and are within walking distance of the Universities across Botanic Park (comparable walking distance to students in North Adelaide/Bowden) which is comparable with the surveyed site.

By way of example, The Planning and Design Code identifies the following parking requirement rates for developments (excluding tourist accommodation) in the Urban Neighbourhood zone in Bowden and Brompton. These rates include the following:

- 0.3 spaces per affordable unit;
- 0.75 spaces per dwelling including detached, residential flat building, row and semi-detached; and
- three spaces per 100 m$^2$ of gross leasable floor area for non-residential developments or 1.5 spaces per 100 m$^2$ of gross leasable floor area above ground level other than shops.

The subject development proposes residential apartments which are comparable with the design criteria adopted for affordable housing in that they are small single bedroom apartments.

Accordingly, if the dwellings were to be constructed in an area where the affordable housing overlay was applicable, they would satisfy the criteria for affordable housing and parking would therefore be assessed on the basis of 0.3 spaces per dwelling for the residential component of the apartment building. The commercial component (café) would be assessed at a rate of three spaces/100m$^2$ of gross leasable floor area, which would equate to a parking demand for eight spaces

Based on the above, there is potential for a single bedroom apartment with comparable characteristics to those constructed in Bowden to generate parking in accordance with the requirements for affordance housing (notwithstanding that the zoning does not provide a parking rate for affordable housing). On this basis, there would be a requirement for 23 parking spaces for the residences and eight parking spaces for the proposed café. This would result in a requirement for 31 parking spaces.

If the Bowden rate for a single bedroom apartment was to be applied to the subject site, rather than the affordable housing rate, there would be a requirement for the following parking space provision:

- 59 parking spaces for the residential component of the site; and
- Eight parking spaces for the café.

This would result in a total of 67 parking spaces if the peak residential and café demand was to coincide. In reality the café demand will occur during the day when there is limited demand for the apartments. There is therefore an opportunity for visitors to the café to park in spaces that have been vacated by residents vehicles during the day. This is consistent with PO 5.1 of the Transport Access and Parking Provisions of the Planning and Design Code.

The proposal does not seek to provide apartments which will be used in the long term. Rather, the market for the facility is medium term housing which will be used by contractors or professionals who are, say, based in Adelaide for a contract position or potentially a University student on an exchange for a semester. The average length of stay at the Cooks Hill site is seven months which is what is envisaged for the subject apartments.

The short to medium term nature of occupation is the reason for the much lower vehicle ownership rate and the reason that the proximity to the CBD is important for this type of facility. Unless they have driven to Adelaide, residents are unlikely to purchase a vehicle for this period but hiring a vehicle would be a significant cost. Accordingly, this unique facility generates a much lower demand which is why it is important to compare a like for like facility (as is recommended in the TfNSW Guide to Traffic Generating Developments and Austroads traffic assessment guidelines) and why the site chosen is much more relevant than any site in Adelaide. Of note is that the assessment would have been simpler if an apartment site in Bowden was chosen to assess but less accurate.

*In particular, the application proposes the following shortfalls:*

*a. The Planning & Design Code suggests that for every 3 dwellings there should be 1 on-street parking space provided. The application proposes 11 indented spaces where 15 should be provided – a shortfall of 4 on-street spaces;*

The Planning and Design Code identifies that where available on-street parking should be provided at a rate of one space per three dwellings amended plans include 12 indented parking spaces on the street. This provision relates to the assessment of dwellings where it is envisaged that all visitor parking will occur on the street for those dwellings.

In this instance, nine dwellings will have adequate area within the driveway to accommodate parking for a visitor. These dwellings, therefore, will not rely on parking on the street for visitor parking. There will, therefore, be 37 dwellings which would potentially generate visitor parking on the street which would require 12 parking spaces. Accordingly, I am of the view that the proposed on-street parking will satisfy the requirements for visitor parking for these residents.

The proposal does include a café. The location of the café is such that it will be used by many cyclists and pedestrians using the linear trail along the Torrens. It will also be used by residents within the apartments and the future dwellings within the site. The parking demand for the café will therefore be significantly lower than the rate in the PDC.

In addition to the anticipated use of the café by users of alternate transport modes, parking would also be available in the existing Old Mill Reserve car park. Observations of this car park during the week commencing 8th March 2025 identified that approximately half of the spaces were occupied (albeit it was observed that vehicles of tradespeople engaged at the construction site opposite were parking in the car park). It would be appropriate that visitors to the café utilise this car park if the spaces on the subject site were fully utilised.

*b. The Planning & Design Code suggests that a residential flat building should be providing one onsite parking space for each one-bedroom dwelling. The application proposes 41 spaces where there are 78 dwellings – a shortfall of 37 spaces; and*
*c. The Planning & Design Code suggests that a café (shop with a kitchen) should provide 0.4 spaces per seat. It is not clear how many seats are proposed, but a floor area of approximately 120m$^2$ could be capable of holding many seats. The application proposes 3 spaces for staff only and none for visitors, with the existing traffic report suggesting visitors can use the on-street car parking spaces. This represents a significant estimated shortfall of between 20-40 spaces (depending on the number of seats provided for the café).*

*For your own awareness, our initial assessment is that the development is severely underserviced in respect of car parking (both on-street and for the Co-Living/Café building). Therefore, relevant and sufficient justification needs to be provided for us to consider supporting such a large shortfall.*

As discussed above the nature of the proposed facility is comparable to the existing facility in Newcastle. Based on best practice traffic engineering assessment, which recommends completing

a comparative assessment with a similar facility, it is more appropriate to apply findings at this site than consider less comparable sites, even if the facility is not based in Adelaide.

The residential component of the development is forecast to require a parking demand equal to 0.2 spaces per apartment. The proposed parking provision exceeds this rate and is consistent with the rate applied to affordable housing development. While not within the applicable overlay, the size of the apartments will be consistent with that typically applied to affordable housing developments.

In addition, parking will be available in the Old Mill Reserve car park and shared parking of the café and residences will be available, given the complementary peak parking periods, consistent with PO5.1of the Traffic, Access and Parking provisions of the PDC.

*7. With respect to the indented on-street parking:*
*a. The parking spaces should be located 10m from any intersection to ensure sight distances from roads/laneways are not reduced;*

Figure 7 illustrates that the sight lines will not be obstructed by the spaces. Typically the 10m set-back requirement would be applied where spaces are not indented.

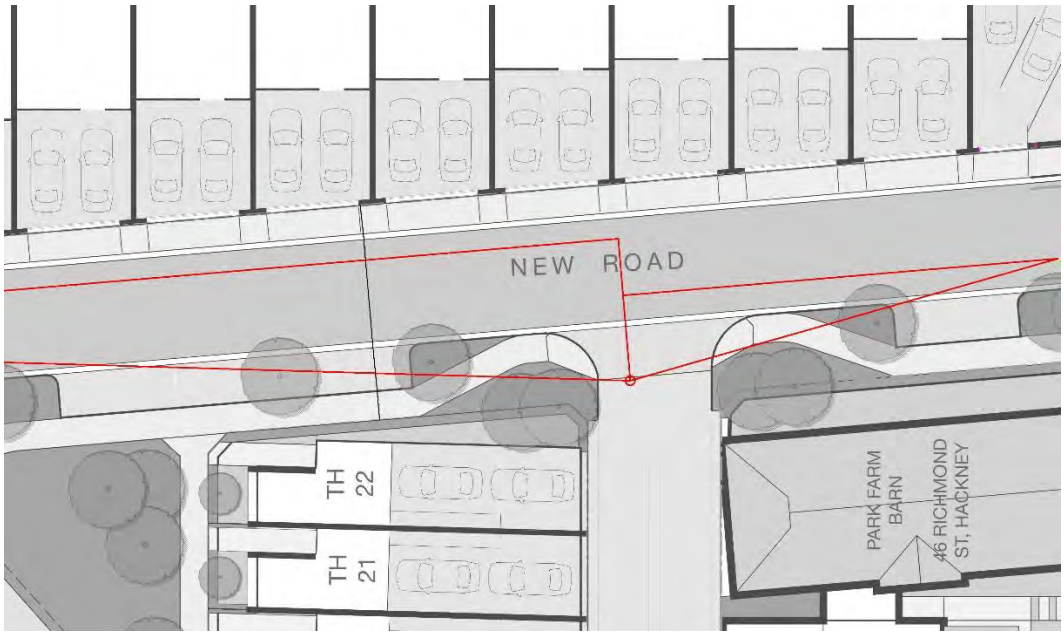


***Figure 7: Sight distance adjacent parking spaces***

*b. The parking spaces should be joined together where practicable (balanced with street tree plantings);*

The parking spaces are proposed in groups to maximum spaces while still providing street trees.

*c. The parking spaces should be tapered at either end to facilitate ease of access.*

The parking spaces comply with AS2890.5:2022 for a parallel space with an end obstruction. If the ends are tapered there will be less space for trees due to the limited area available.

*8. With respect to the basement carparking associated with the Co-Living Building, please provide:*

*a. Confirmation of the clearance height for the basement, and whether this clearance will be provided throughout the whole basement (noting other infrastructure that may exist such as light fixtures, fire sprinklers, etc)*

The clearance height in the basement will exceed the minimum requirement of 2.2m in AS/NZS2890.1:2004.

*b. Details on how the roller door is intended to operate and potential conflict with pedestrians and other footpath users will be resolved. (For example, will it operate similar to a boom gate whereby a visitor needs to scan a pass/ticket – and if so, where will the scanner be placed?)*

The roller door will be operated by remote control access or similar. The current proposal does not include a control mechanism in the car park. Notwithstanding this, such a mechanism could be installed within the access on the approach to the roller door, as illustrated in Figure 8.

***Figure 8: Potential future access control equipment***

It is not clear what the concern relating to pedestrians is. Irrespective as to how the roller door is opened, a driver will be required to cross the footpath to enter the site, as is the case at any crossover. Further, a vehicle stopped at the mechanism will neither obstruct the footpath or the pedestrian route within the car park.

*9. Car parking spaces number 11 and 12 in the basement of the Co-Living Building do not meet the Australian Standard in that, being adjacent a blind aisle, they should be 300mm wider to facilitate safer and more convenient access movements. Please amend accordingly.*

AS/NZS2890.1:2004 does not specify a requirement for an additional 300mm width adjacent a blind aisle. The Standard does specify a 300mm clearance from any solid object (such as a wall) and requires a 1.0m extension at the end of a blind aisle. The proposed plan includes 300mm clearance to all solid objects and a 1.0m extension to both blind aisles.

In summary, the traffic and parking solution for the site seeks to develop an outcome which is consistent with relevant Standards while having regard to the design constraints for the site. The improvement to connectivity for cyclists in the public realm is a significant benefit for the project and the environment will result in a high amenity for residents and road users.

The parking assessment has had regard to an existing comparable facility to ensure that the assessment accurately reflects the anticipated demand. Such an approach is best practice in respect to assessing parking requirements and traffic generation and identifies that the anticipated parking demand for the proposed land use will be met on-site.

Yours sincerely,
**MFY PTY LTD**

**MELISSA MELLEN**
Director

BUSINESS WOMEN'S AWARDS
2010 NATIONAL WINNER
2010 TELSTRA SOUTH AUSTRALIAN BUSINESS WOMAN OF THE YEAR

MLM/21-0177

5 August 2025

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Dear Matilda,

**APPLICATION ID: 24040449: PROPOSED LAND DIVISION AND SIX STOREY MIXED USE BUILDING, 46 RICHMOND STREET HACKNEY - REQUEST FOR INFORMATION**

I am in receipt of a further request for information from the City of Norwood Payneham and St Peters in relation to the above development. I have therefore provided the following additional information in response to Council's queries. For clarity the matter raised by Council has been replicated followed by a response.

*2. With respect to waste collection for Lots 33–39, it is still not clear how bin collection is intended to operate at this location. More information is required on waste collection at this location including:*
*a. Swept paths at the intersection showing intended movements*
*b. Which side of the road bins will be collected from (i.e. just one or both)*
*c. Where the bins will be located for all these allotments*
*d. The size of the proposed bin pad, including details of how many dwellings' bins this is intended to accommodate*

The proposal will include two bin pad locations adjacent the corner to provide a dedicated position for bins associated with Lots 33 to 39. In order for there to be no confusion in relation to the intended bin collection locations, separate figures have been prepared which show the location of the bin presented for collection for each dwelling and the turn path of the refuse vehicle on approach to the bins.

Figure 1 illustrates the bin collection location for Lot 33.

***Figure 1: Bin collection location for Lot 33, including refuse vehicle turn path on approach***

Figure 2 illustrates the bin collection location for Lot 34.

***Figure 2: Bin collection location for Lot 34, including refuse vehicle turn path on approach***

Figure 3 illustrates the bin collection location for Lot 35.

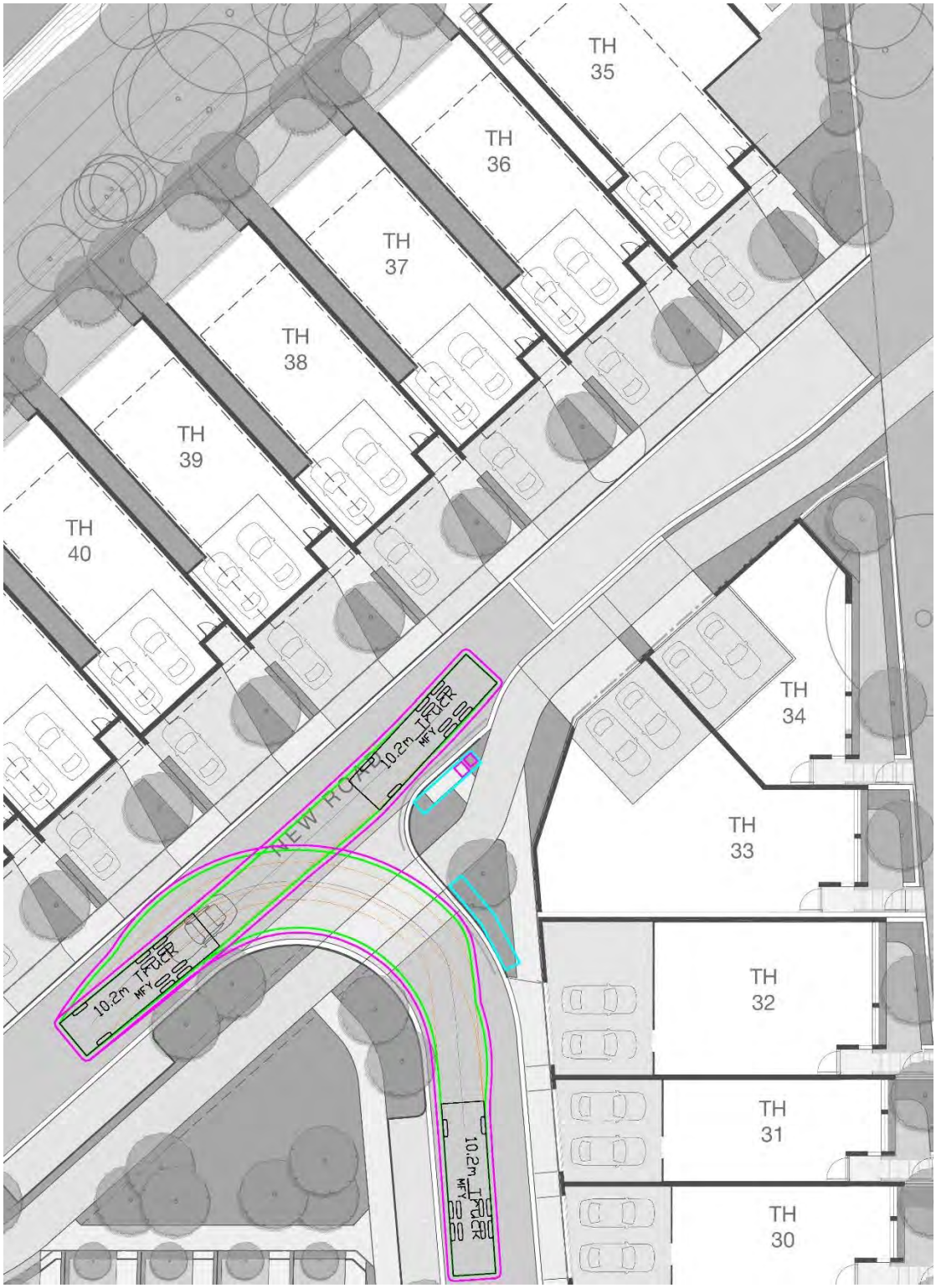


***Figure 3: Bin collection location for Lot 35, including refuse vehicle turn path on approach***

Figure 4 illustrates the bin collection location for Lot 36.

***Figure 4: Bin collection location for Lot 36, including refuse vehicle turn path on approach***

Figure 5 illustrates the bin collection location for Lot 37.

***Figure 5: Bin collection location for Lot 37, including refuse vehicle turn path on approach***

Figure 6 illustrates the bin collection location for Lot 38.

***Figure 6: Bin collection location for Lot 38, including refuse vehicle turn path on approach***

Figure 7 illustrates the bin collection location for Lot 39.

***Figure 7: Bin collection location for Lot 39, including refuse vehicle turn path on approach***

*3. Further, the raised driveway in this section of the development (northeast corner) cannot be supported at this stage due to the potential conflicts with the shared use path; unless cross-sections can be provided detailing that no conflict exists and clear delineation between the two can still be achieved with necessary clearances etc required for the shared path (as per previous correspondence and discussions).*

The raised driveway has been designed as a driveway access where the paved section is road related area such that it is not part of the road but rather a shared driveway. The 'driveway' has been deliberately narrowed to provide for a low speed environment and to provide for sightlines and separation between reversing vehicle from Lots 33 and 34 and the shared path. In effect the principles of a shared zone have been applied to the design such that the speed of vehicles will be low such that it mitigates the risk of pedestrians and cyclists using the same space.

The shared driveway will provide access for 33 to 38 (that is six dwellings). The forecast traffic generation for the six dwellings will generate 42 trips per day or four trips during the peak hours. The would equate to three exit trips and one entry trip during the peak morning hour and vice versa during the afternoon peak hour.

Australian/New Zealand Standard, Parking Facilities, Part 1: Off-Street Parking recommends that passing areas on driveways should be provided every 30 metres where the peak hour volume exceeds 30 vehicles per hour. Notwithstanding that the section of shared driveway does not exceed 30m in length, the forecast volumes are well below 30 vehicles/hour.

Further, as the subject extended driveway is a dead-end, the only drivers accessing this area will be those turning to and from their independent driveways and there will not be additional vehicles travelling along the road. There will also be no parking provided within the subject area for visitors. Accordingly, there will be very low volumes

Figure 8 illustrates the proposed cross section of the raised driveway area. While the cross section will vary depending on the location examined (due to the constant variation in width of the raised section adjacent the driveway taper), the cross section illustrated is at the entry to the ramp where the trafficable area is narrower.

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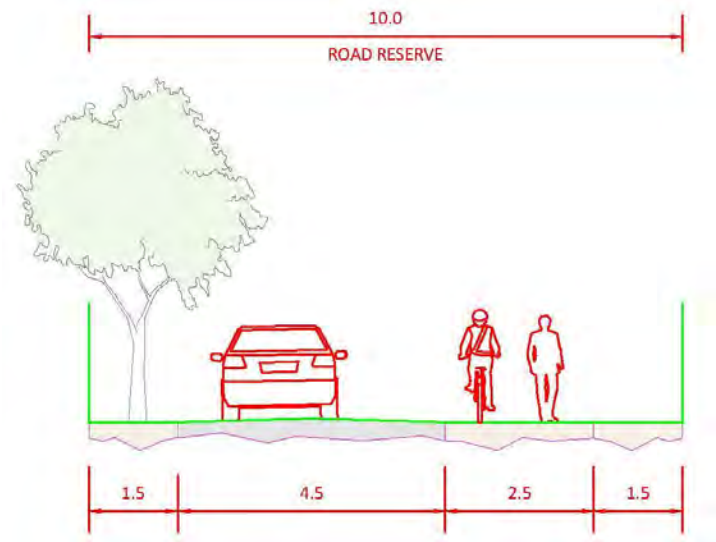


***Figure 8: Proposed cross section of raised shared driveway***

*4. If the raised driveway section is still proposed (i.e. you can justify there being no conflict with the shared use path), then turn path diagrams will need to be provided for B85 vehicles entering and exiting each garage space within Lots 35-38, showing that vehicles can make these movements without encroaching onto the shared path, noting the reduced width of the road.*

Figure 9 illustrates the turn path of a vehicle being driven to and from Lot 35.

***Figure 9: Turn path of B85 vehicle accessing Lot 35***

Figure 10 illustrates the turn path of a vehicle being driven to and from Lot 36.

***Figure 10: Turn path of B85 vehicle accessing Lot 36***

Figure 11 illustrates the turn path of a vehicle being driven to and from Lot 37.

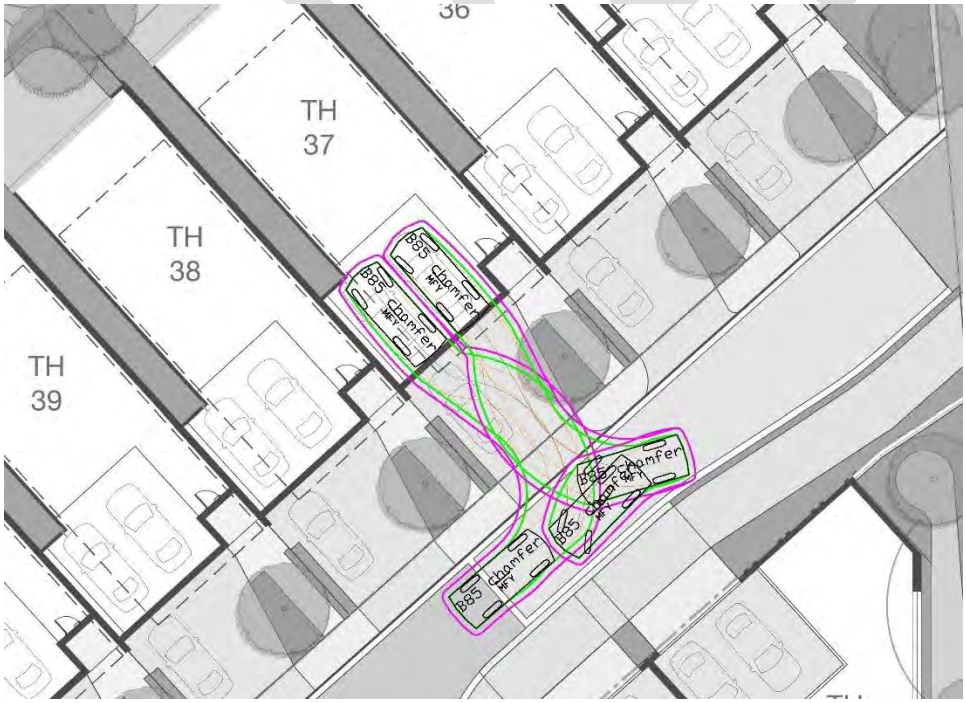


***Figure 11: Turn path of B85 vehicle accessing Lot 37***

Figure 12 illustrates the turn path of a vehicle being driven to and from Lot 38.

***Figure 12: Turn path of B85 vehicle accessing Lot 38***

*5. Turn path diagrams also need to be provided for vehicles exiting the garages of Lots 44 and 45, noting their angle to the road*.

The angle of the driveways is not greater than 70° and is therefore consistent with AS/NZS2890.1:2004. Nonetheless, Figure 13 illustrates the access to Lot 44.

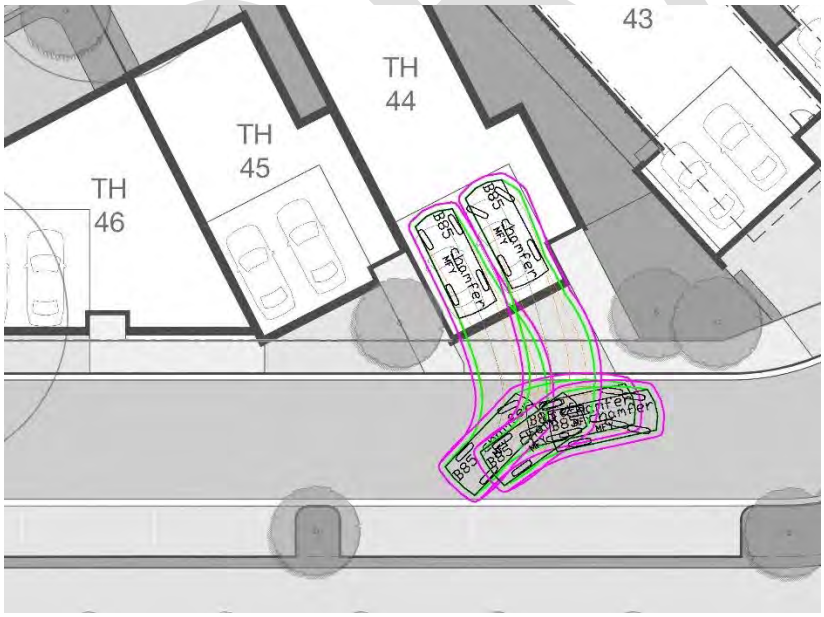


***Figure 13: Turn path of vehicle accessing Lot 44***

Figure 14 illustrates the access to Lot 45.

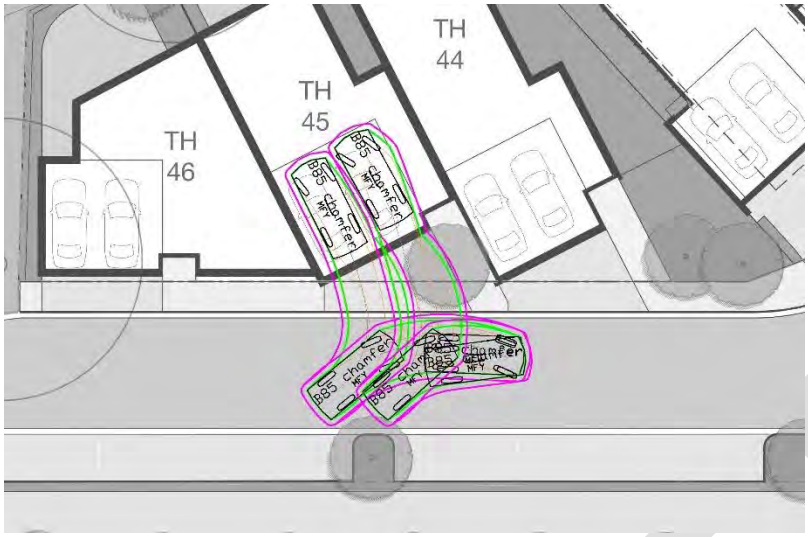


***Figure 14: Turn path of vehicle accessing Lot 45.***

It can be seen on the above figures that access to and from the allotments does not impact on the indented parking and that safe and convenient access will be provided to and from each dwelling.

6. Bin collection location for Lots 10-22 and Lots 23-32 need to be confirmed and justified noting: a. For Lots 10-22, Council will not collect waste from the laneway and indented parking spaces and the shared path proposed in front of these dwellings restrict potential bin locations; and
b. For Lots 23-32, each dwelling's frontage to the proposed public road is comprised entirely by the indicative double garage, meaning any bins placed on the east side of this public road will block a parking space on each dwelling site (and across the road you have the same problem re indented parking spaces).

Figure 15 illustrates the bin locations for Lots 10 to 22 and modified right angle parking spaces. The design of these spaces will satisfy the requirements for on-street parking, as documented in *Australian Standard Parking Facilities Part 5:On-Street Parking (AS2890.5:2022).*

***Figure 15: Bin locations for Lots 10 to 22.***

Figure 16 illustrates the bin locations for Lots 23 to 32.

***Figure 16: Bin locations for Lots 23 to 32.***

*7. Turn paths shown for 10.2m service vehicle from/onto Richmond Street are to be clarified/confirmed. The Richmond Street width is not shown, and it is therefore unclear whether the turn paths are contained entirely within the road carriageway.*

Figure 17 illustrates the turn path of the refuse vehicle to and from the western Richmond Street access.

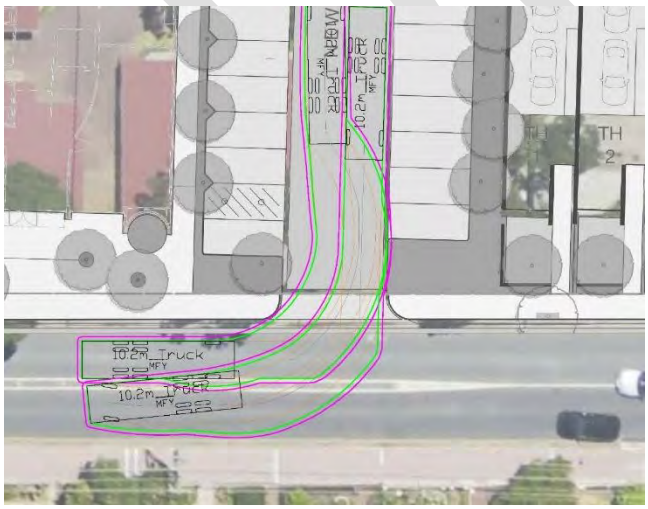


***Figure 17: Turn path of refuse vehicle at proposed western access to Richmond Street.***

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Figure 18 illustrates the turn path of the refuse vehicle to and from the eastern Richmond Street access.

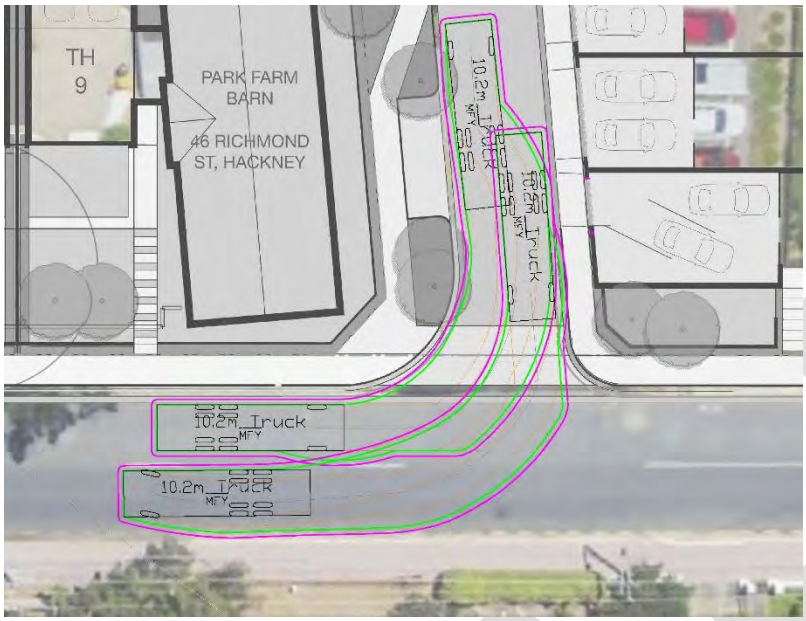



***Figure 18: Refuse vehicle turning movements at eastern crossover***

The above figures which are superimposed on an aerial image confirm the turn paths occur within the existing road pavement.

*8. Turn path diagrams also need to be provided for a 10.2m refuse vehicle in the western turnaround area– only turning movements for an 8.8m long vehicle have been provided but Council's waste trucks are larger than this*.

Figure 19 illustrates an adjust cul-de-sac design to facilitate the turning movements of a 10.2m long rigid vehicle.

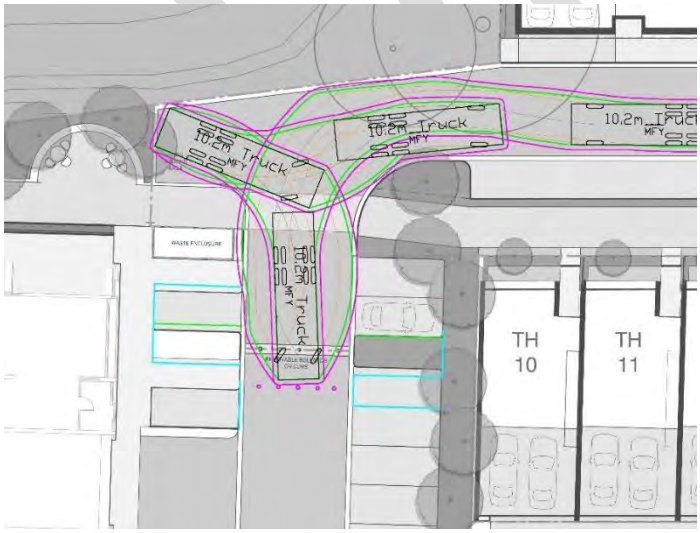



***Figure 19: Adjusted design of turning area to accommodate a 10.2m long vehicle***

*9. Sightlines have not been considered at the western turnaround intersection, and there is an on-street car parking space provided within 10m of this intersection. Please review intersection sightlines at this intersection for vehicles exiting the Co-Living site via the retractable bollards.*

This section of road is not an intersection. In the event the bollards are removed to facilitate egress movements for commercial vehicles, there are no through movements in either direction (because drivers are either turning in the cul-de-sac or turning the corner between the cul-de-sac and the car park). Hence the requirement for sight distance is Stopping Sight Distance. Figure 20 illustrates that Stopping Sight Distance will be met for drivers approaching the cul-de-sac in both directions.

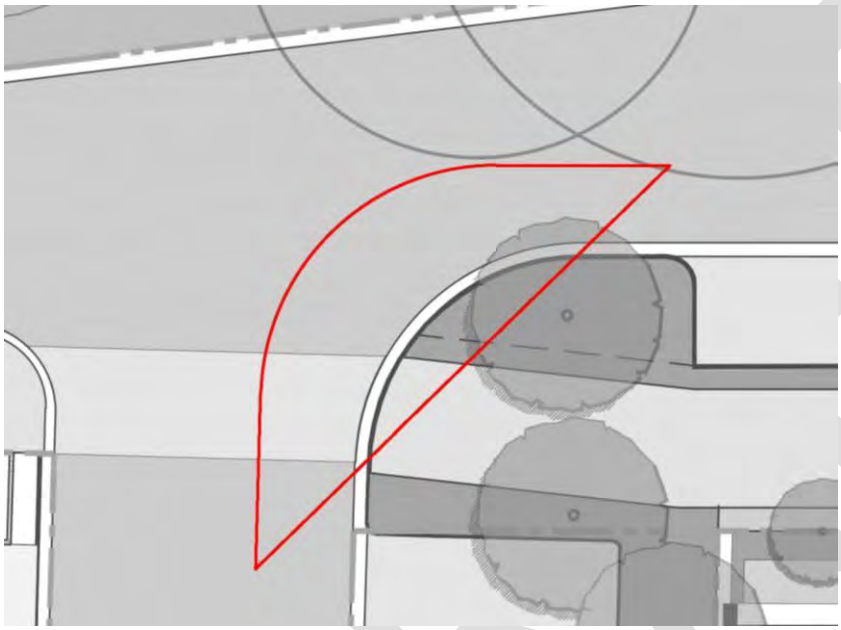


***Figure 18: Stopping Sight Distance for drivers approaching cul-de-sac***

*10. Vehicle sightlines at the intersection with Richmond Street still show conflict with the property boundary of Lot 23, as highlighted below. Sightlines have tried to be justified by using an indicative fence line rather than the allotment boundary, which is insufficient. The Lot boundary needs to be adjusted to provide adequate sightlines.*

There is no requirement in the Australian Standard or Austroads Guidelines that sight distance must be met outside the property boundary when assessing sight distance at a driveway (contrary to this Figure 3.3. assumes that the boundary will be retained and specifies areas to be kept clear). The proposal identifies area that must be kept clear above driver eye height and hence sight distance will be maintained for this proposal. A condition to this effect could be applied if Council is concerned that there would be an additional fence erected exactly on the boundary in front of the proposed masonry wall (fence) illustrated on the plan.

*11. The traffic report did not address how the loading/unloading of service vehicles (other than waste collection) will impact the use of the Co-Living Building car park. Please provide details of the largest service vehicle anticipated for this site; where loading/unloading will occur (noting no*

*dedicated loading area has been provided); and how this will impact car parking spaces and vehicle movements within the Co-Living Building car park; with justification for the proposed arrangement*.

The delivery vehicles for the proposed café will occur in vehicles smaller than the refuse vehicle which is why the turn paths were not replicated. Most deliveries will occur in vans and these vehicles will park on the parking spaces as deliveries will typically occur between 9:00am and 11:00am on weekdays (as is the case at most similar tenancies) when there will be minimal parking demand for other users.

There could be an occasional demand for a larger vehicle (Small Rigid Vehicle or Medium Rigid Vehicle) but such deliveries would occur infrequently (possibly two per week) and would park in the aisle in the same arrangement as the refuse vehicle. Given the anticipated delivery times and the low frequency these vehicles will have minimal impact.

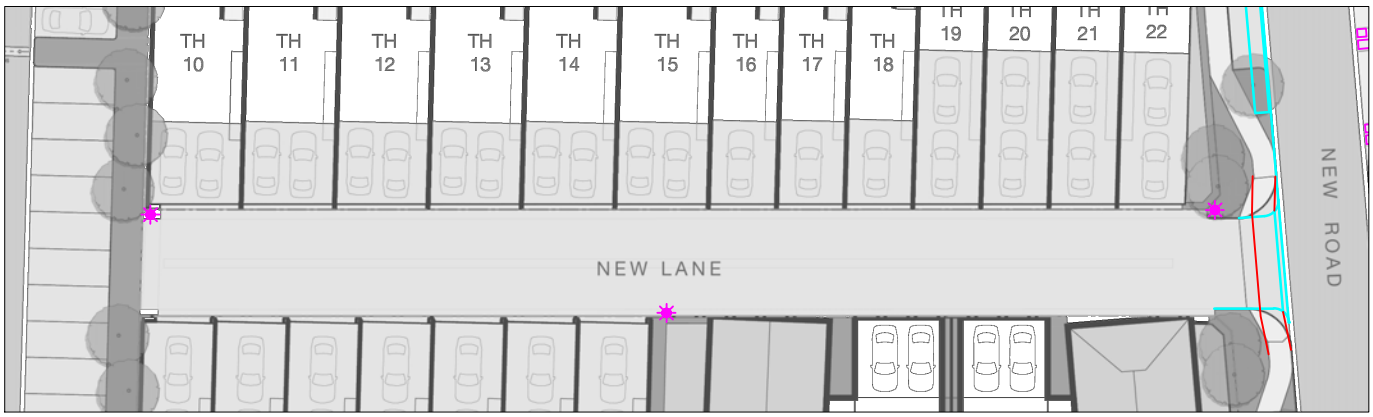
I trust the above clarifies Council's further queries in relation to this proposal.

Yours sincerely,
**MFY PTY LTD**

**MELISSA MELLEN**
Director

DRAFT

BUSINESS WOMEN'S AWARDS
2010 NATIONAL WINNER
2010 TELSTRA SOUTH AUSTRALIAN BUSINESS WOMAN OF THE YEAR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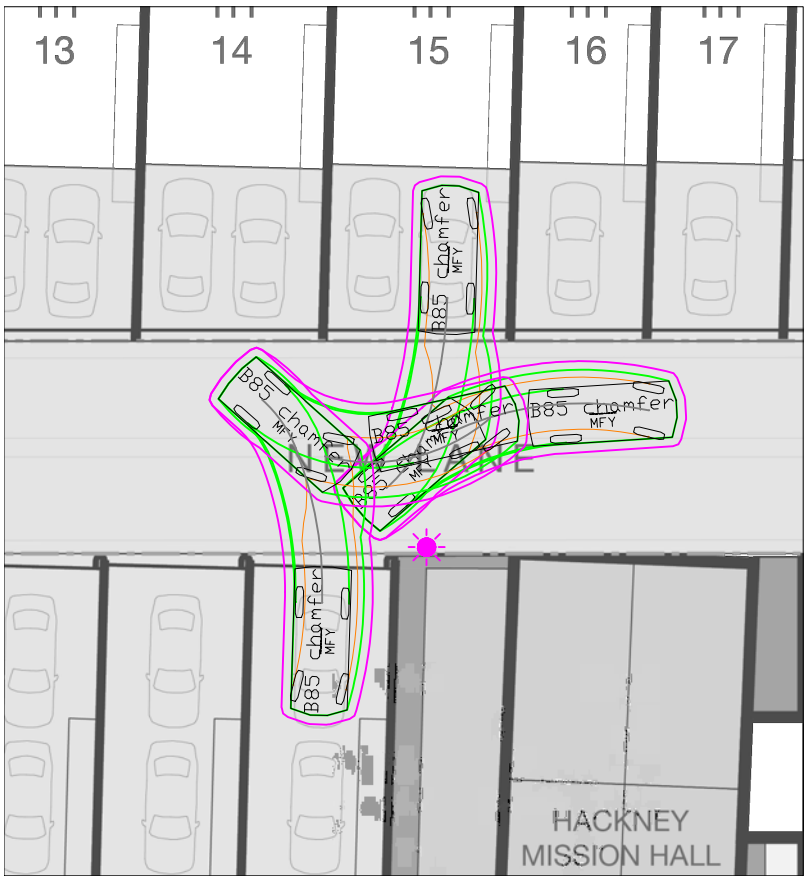
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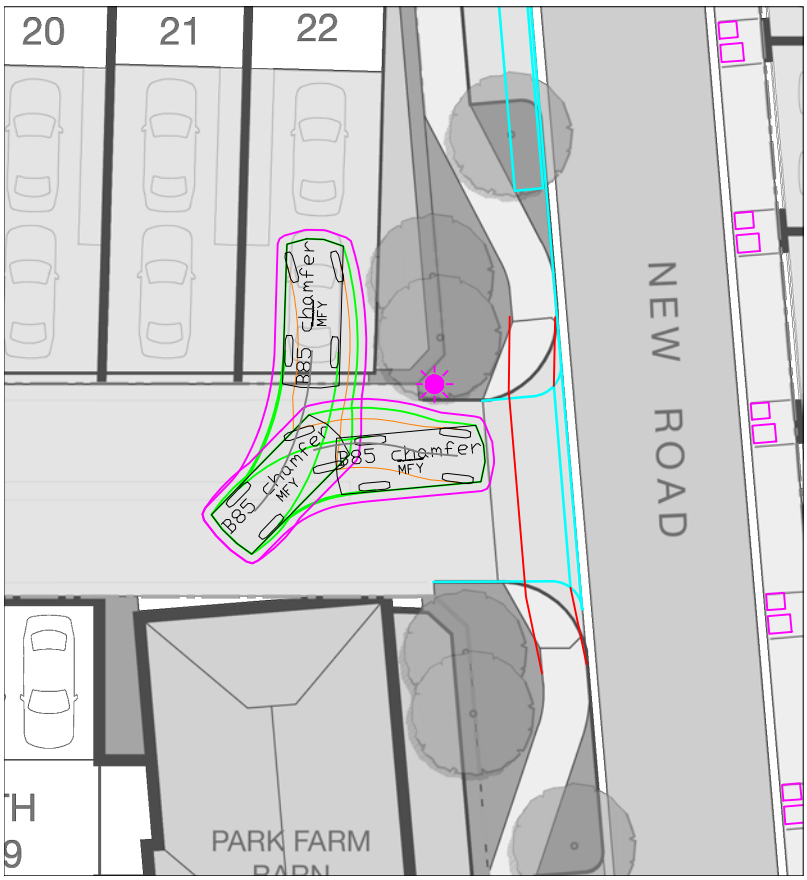
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NEW ROAD
PARK FARM

DEVELOPMENT APPLICATION

RICHMOND STREET MASTER PLAN

# Richmond Street Master Plan

MASTER PLAN - URBAN DESIGN REPORT

ISSUE FOR DEVELOPMENT APPLICATION
REV 03 - 1 MAY 2025

PREPARED FOR:

aspen

PREPARED BY:

FORUM

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DOCUMENT
CONTROL:

NAME:
**RICHMOND STREET**
**MASTER PLAN**
**URBAN DESIGN REPORT**

PREPARED FOR:
DEVELOPMENT APPLICATION

DATE:
1 MAY 2025

REVISION:
REVISION 03


FORUM

# 1.0 Introduction

# 1.1 Executive Summary

## The Richmond Street Master Plan reimagines the Adelaide Caravan Park site as a vibrant, connected neighbourhood that enhances its locality.

By embracing the River Torrens, revitalising the public realm, and increasing housing supply, the plan creates a welcoming, accessible precinct that respects its historical identity and strengthens ties to the city centre.

# 1.1 Executive Summary

RICHMOND STREET MASTER PLAN FEATURES;

## 46 DWELLINGS

New 2-3 level residential dwellings located in four distinct precincts. Including the adaptive re-use of two Local Heritage Places.

## PUBLIC CONNECTION

A new integrated path network that connects into the existing trails, and completes the missing piece of the River Torrens Linear Park Trail.

## PUBLIC OPEN SPACE

Three new pieces of Public open space are provided as part of the masterplan, including a central Urban Forest.

## 78 APARTMENTS

Located in a new 6 Level Build-To-Rent Co-Living building Including a Cafe, and on-site car parking.

NOTE: Refer to Application by Grieve Gillett Architects for information on this proposal.

## 2 LOCAL HERITAGE PLACES

Two Local Heritage Places, are retained and celebrated as part of the masterplan. They will be re-purposed and expanded to each form a new residential dwelling.

# 1.2
# Summary of Changes

The application seeks to transform the current Adelaide Caravan Park into a vibrant new community

EXISTING CONDITIONS

## 85 Sites

Comprising of:

45 SHORT STAY CABINS, 40 POWERED CARAVAN SITES AND 2 LOCAL HERITAGE BUILDINGS USED FOR OFFICE AND ACCOMMODATION

PROPOSED MASTER PLAN

## 78 Apartments

Comprised of:

6 LEVEL BUILD-TO-RENT, CO-LIVING BUILDING

## 46 Dwellings

Comprised of:

2-3 LEVEL RESIDENTIAL DWELLINGS

# 1.2
# Summary of Changes

The Richmond Street Master Plan reimagines the Adelaide Caravan Park site as a vibrant, connected neighbourhood that enhances its locality.

EXISTING CONDITIONS

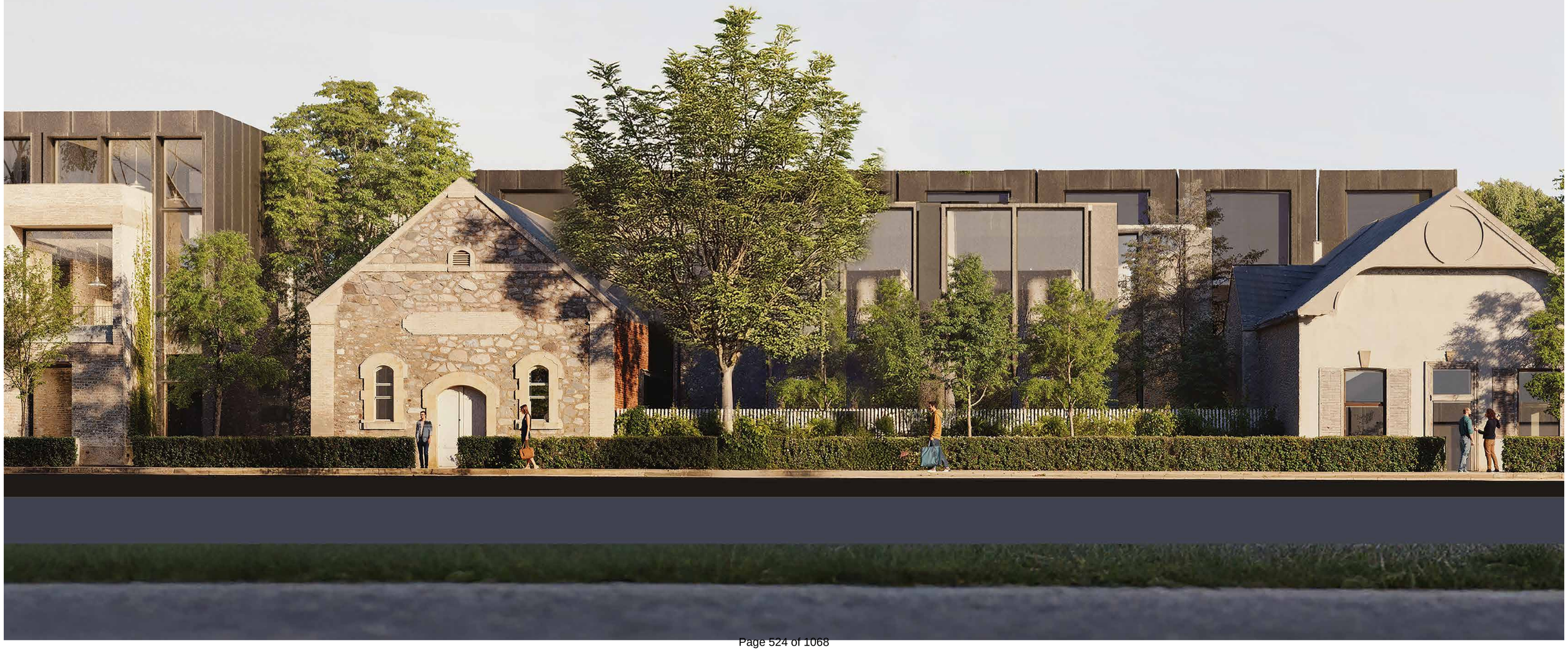
PROPOSED MASTERPLAN

# 1.3
# Master Plan Vision

Artist's Impression of Richmond Street looking towards the proposed new residential dwellings.

# 1.3
# Master Plan Vision

Artist's Impression of Richmond Street looking towards the
Local Heritage Places and proposed new residential dwellings.



# 1.5
# Master Plan Vision

Artist's Impression of Twelftree Reserve looking towards the proposed new residential dwellings.

# 1.3 Master Plan Vision

Artist's Impression of Richmond Street looking towards the proposed Build-To-Rent Co-Living building.

# 2.0
# The Site

# 2.1 Site Location

HACKNEY-ON-TORRENS, VIEW TOWARDS ADELAIDE CBD

# 2.1
# Site Location

## METROPOLITAN CONTEXT

The Site is located in the inner north-eastern suburbs of Adelaide, in an interconnected and vibrant area that provides a healthy, exciting lifestyle for its residents

Positioned just 2.5 kilometers from the city's central business district. This proximity provides residents with easy access to Adelaide's bustling core while enjoying a peaceful, residential atmosphere.

The suburb is ideally situated near public transport routes and a range of amenities and facilities.  It is close to the Adelaide Botanic Garden and the expansive Adelaide Park Lands, offering ample green spaces and recreational opportunities.

Walking and Cycling to and from the site is very convenient using the River Torrens Linear Park Walking and Cycling Trail.

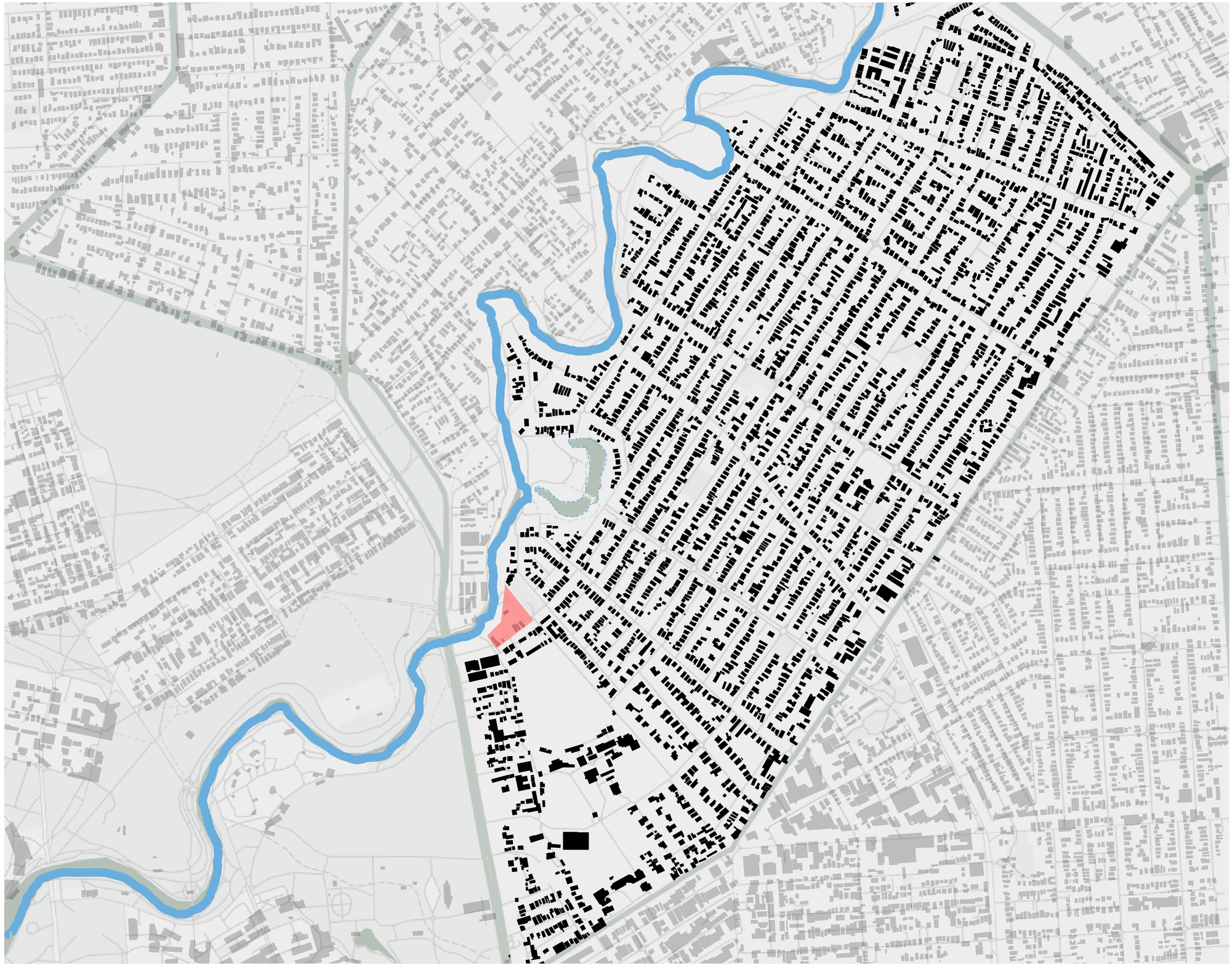
# 2.1
# Site Location

## LOCAL CONTEXT

The Site is well-served by public transport enhancing connectivity.

The intersection of Hackney Road and North Terrace facilitates efficient travel to key areas, with frequent bus services linking residents to the Adelaide CBD, North Adelaide, Royal Adelaide Hospital, University of Adelaide, and Adelaide Oval.

The area is also well-connected by bicycle and pedestrian paths, with the nearby River Torrens Linear Park Trail offering a scenic route for cycling and walking that links residents to both the CBD and beyond.



# 2.1
# Site Location

## EXISTING CONTEXT

The Site's strategic location, combined with its extensive transport links and proximity to recreational spaces, makes it an appealing and appropriate choice for urban renewal.

## FORMER CHANNEL 7 SITE DEVELOPMENT

The multi-building precinct features; (approx.)

23 River Fronting Dwellings
22 Park Road Townhouses
60 Apartment Dwellings

## HACKNEY HOTEL DEVELOPMENT

The multi-building precinct features;

6 level apartment building with 27 Apartments

4 level, 72 Room Hotel

15 x 3 level townhouses

5 retail tenancies,

# 2.2 Site Description

EXISTING SITE PHOTO, VIEW TOWARDS NORTH ADELAIDE

# 2.2 Site Description

EXISTING SITE CONDITIONS AND SATELLITE AERIAL PHOTOGRAPH

# 2.2 Site Description

EXISTING SITE SURVEY

# 2.2 Site Description

## EXISTING SITE SURVEY

The total site is 1.399ha in area

# 2.3 Existing Conditions

## 3D REPRESENTATION OF EXISTING SITE

The site is currently occupied by the Adelaide Caravan Park.

Comprising of 85 Residential accommodation sites. Including;

- 45 short stay cabins and
- 40 powered caravan sites
- Swimming Pool
- Amenities, Kitchen and Laundry building
- Local Heritage Place, the 'Park Farm Barn' used as a Manager's Residence, Office and Administration Building
- Local Heritage Place 'Hackney Mission Chapel' used for retail / accommodation

## LOCAL HERITAGE PLACES

Two Local Heritage Places, are located on The Site, and will be retained and celebrated as part of the master plan. They will be re-purposed and expanded to each form a new residential dwelling.

- 'Hackney Mission Chapel'
- 'Park Farm Barn'

# 2.3 Existing Conditions

Two Existing Local Heritage buildings are located on the site. They are both proposed to be retained.

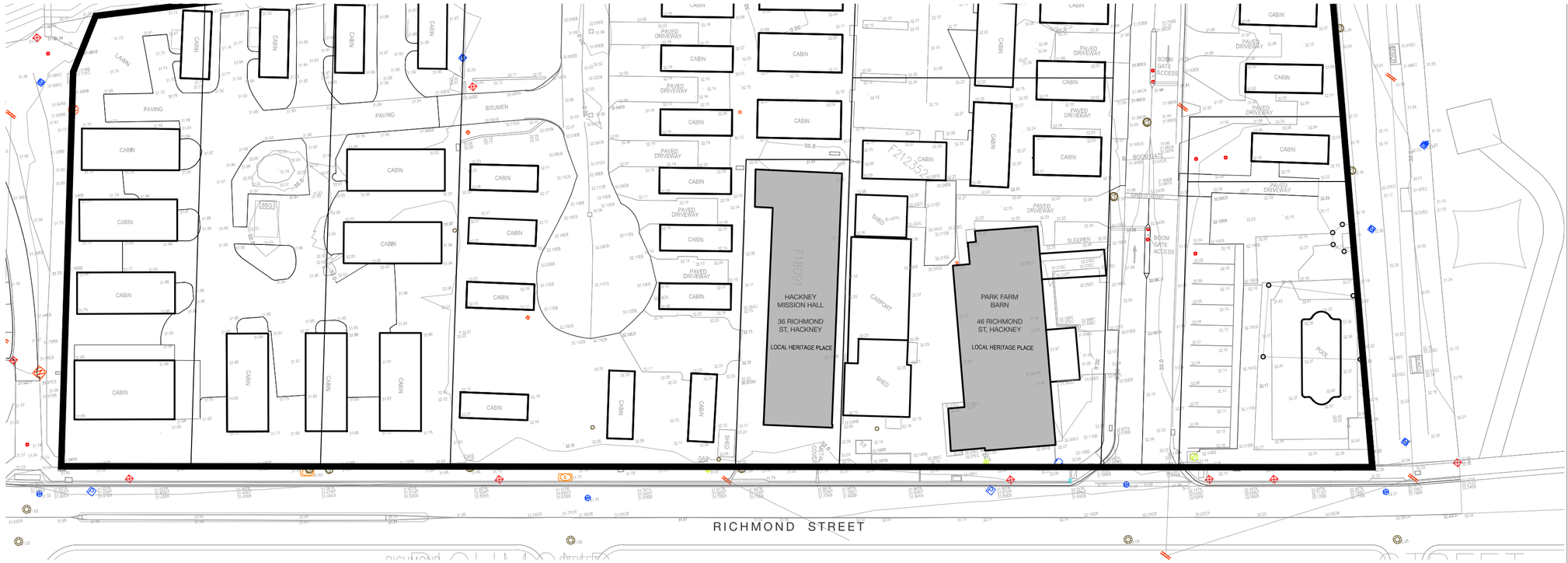
Refer to Heritage Impact Assessment for further details.

## HACKNEY MISSION CHAPEL: 1905

The Church building was constructed in 1905 for 355 pounds. The Hackney Mission is closely associated with Sister Dora (Flora Stella George, M.B.E.) who was the Sister of the People from 1949 to 1970. The Mission was the centre of community life during the Depression of the 1920's and 1930's. The place was known as the Hackney Mission Chapel and a faded inscription on the front facade still reads "Hackney Methodist Church.

## PARK FARM BARN: 1838-1847

This converted barn was once part of the original Park Farm (1838-1847). The farm was used by the South Australian Company to test plants and seeds for local conditions. A loaded dray, or wagon was able to pass through the high doorway, which has stonework of different periods. The Adelaide Caravan Park is now situated on the site of the former homestead, which was demolished in 1965.




↓ Hackney Mission Chapel: 1905

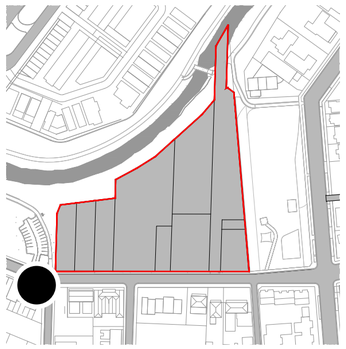
↓ Park Farm Barn: 1838-1847

# 2.4 Existing Site Interfaces

Existing Interface assessment:

## RICHMOND STREET

The existing site conditions viewed from the corner of Richmond Street and the existing Car park.



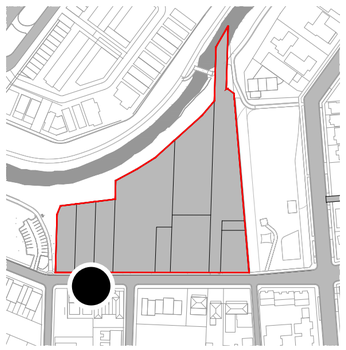
KEY PLAN

# 2.4 Existing Site Interfaces

Existing Interface assessment:

## RICHMOND STREET

The existing site conditions viewed from Richmond Street showing the typical street interface, with residential cabins located behind a solid fence.



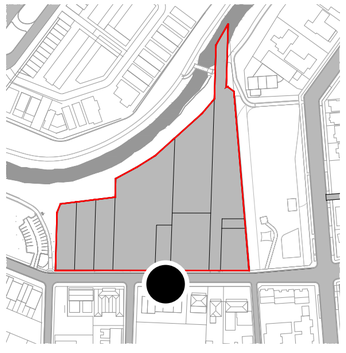
KEY PLAN

# 2.4 Existing Site Interfaces

Existing Interface assessment:

## RICHMOND STREET

The existing site conditions viewed from Richmond Street showing the typical street interface, and the semi-hidden Local Heritage Place behind a tall fence.



KEY PLAN

# 2.4 Existing Site Interfaces

Existing Interface assessment:

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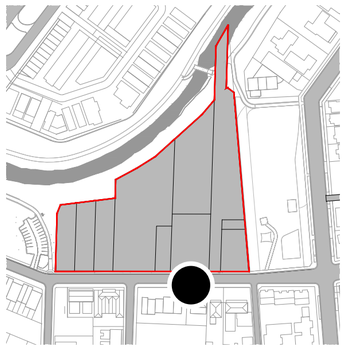


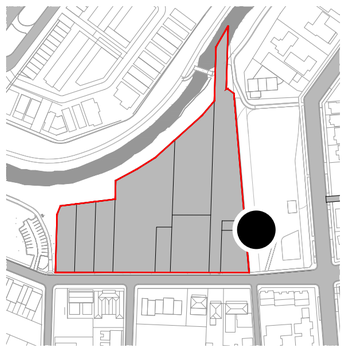
KEY PLAN

# 2.4 Existing Site Interfaces

Existing Interface assessment:

## TWELFTREE RESERVE

The existing site conditions viewed from Twelftree Reserve showing the typical park interface of a tall solid metal fence with residential cabins behind.



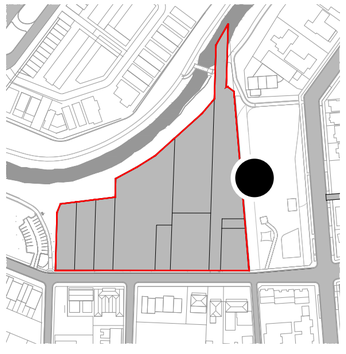
KEY PLAN

# 2.4 Existing Site Interfaces

Existing Interface assessment:

## TWELFTREE RESERVE

The existing site conditions viewed from Twelftree Reserve showing the typical park interface of a chain-wire fence with caravans and cars located on the boundary.



KEY PLAN

# 2.4 Existing Site Interfaces

Existing Interface assessment:

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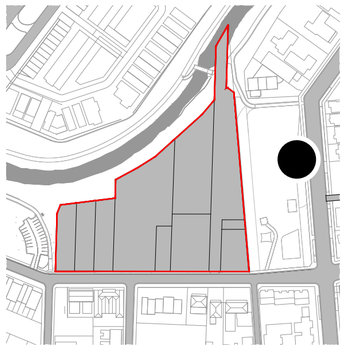


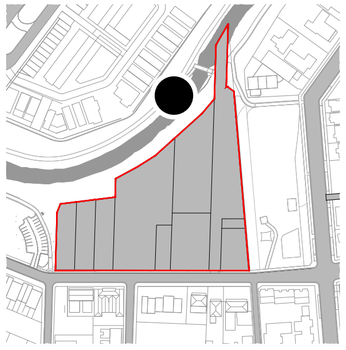
KEY PLAN

# 2.4 Existing Site Interfaces

Existing Interface assessment:

## RIVER TORRENS

The existing site conditions viewed from the River Torrens showing the typical interface of a chain-wire fence with caravans and cars located on the boundary.



KEY PLAN

# 2.4 Existing Site Interfaces

Existing Interface assessment:

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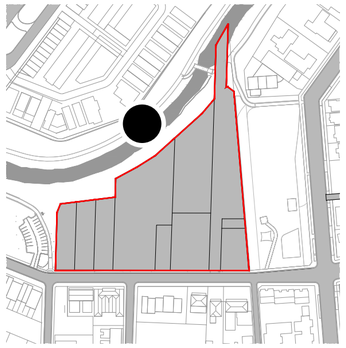


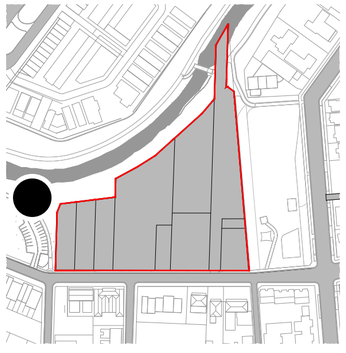
KEY PLAN

# 2.4 Existing Site Interfaces

Existing Interface assessment:

## OLD MILL RESERVE CAR PARK

The existing site conditions viewed from the River Torrens showing the typical interface of a solid metal fence with residential cabins and cars located on the boundary.



KEY PLAN

# 2.4 Existing Site Interfaces

Existing Interface assessment:

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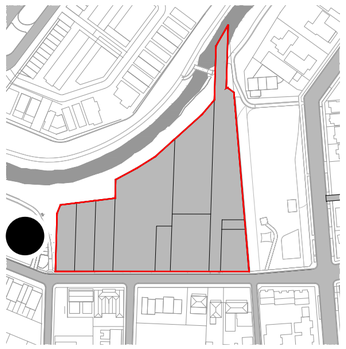

KEY PLAN

# 3.0 Master Plan Overview

# 3.1
# Vision

## The Richmond Street Master Plan reimagines the Adelaide Caravan Park site as a vibrant, connected neighbourhood that enhances its locality.

By embracing the River Torrens, revitalising the public realm, and increasing housing supply, the plan creates a welcoming, accessible precinct that respects its historical identity and strengthens ties to the city centre.

# 3.1
# Vision

FOUR URBAN DESIGN PRINCIPLES GUIDE
THE DESIGN OF THE MASTER PLAN

## River

DESIGN PRINCIPLE 1:
ENHANCE THE RIVER
TORRENS INTERFACE

## Park

DESIGN PRINCIPLE 2:
ACTIVATE THE TWELFTREE
RESERVE FRONTAGE

## Heritage

DESIGN PRINCIPLE 3:
CELEBRATE AND RETAIN THE
BUILT HERITAGE OF THE SITE

## Connection

DESIGN PRINCIPLE 4:
ACTIVATE PUBLIC
CONNECTION THROUGH THE SITE

# 3.1 Vision

ARTISTS IMPRESSION OF THE MASTER PLAN VIEWED FROM BOTANIC PARK

# 3.1 Vision

## 46 DWELLINGS

New 2-3 level residential dwellings located in four distinct precincts. Including the adaptive re-use of two Local Heritage Places.

## PUBLIC CONNECTION

A new integrated path network that connects into the existing trails, and completes the missing piece of the River Torrens Linear Park Trail.

## PUBLIC OPEN SPACE

Three new pieces of public open space are provided as part of the master plan, including a central Urban Forest.

## 78 APARTMENTS

Located in a new 6 Level Build-To-Rent Co-Living building Including a Cafe, and on-site car parking.

NOTE: Refer to Application by Grieve Gillett Architects for information on this proposal.

## 2 LOCAL HERITAGE PLACES

Two Local Heritage Places, are retained and celebrated as part of the master plan. They will be re-purposed and expanded to each form a new residential dwelling.

# 3.2 Urban Structure and Land Division

## LAND DIVISION APPROACH

# 3.2 Urban Structure and Land Division

SUPER-LOT
LAND DIVISION

Attachment 1.5

# 3.3 Master Plan

## PROJECT FEATURES

### 46 DWELLINGS

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### 2 LOCAL HERITAGE PLACES

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# 3.4 Building Heights

## PROPOSED HEIGHTS, BUILT FORM AND MASSING ENVELOPES

Building heights will be low to mid scale. The heights specifically respond to neighbouring interfaces - with lower scale 3 level townhouses on the majority of the site, with a taller medium rise building of 6 levels along the Western Edge of the site responding the the adjacent taller context.

A two level street wall height along Richmond Terrace is proposed - to reinforce the street character and respect the hight of the existing local heritage places.

A high-quality and functional built form will be achieved through:

- Responding to the context
- Respects Heritage Interface
- Appropriate Building Heights and Massing Envelope
- Appropriate Residential Uses
- Shadow Study Analysis has informed the location of built form

# 3.5 Built Form & Land Uses

## PROJECT FEATURES

### 46 DWELLINGS

New 2-3 level residential dwellings located in four distinct precincts. Including the adaptive re-use of two Local Heritage Places.

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# 4.0 Master Plan Precincts

# 4.0 Master Plan Precincts

## 5 PRECINCTS

The site is arranged into five distinct precincts, each with individual character:

## 1. BUILD-TO-RENT, CO-LIVING PRECINCT

Located in a new 6 Level Build-To-Rent, Co-Living building. This precinct will feature:

- 78 Affordable Build-To-Rent Apartments
- Ground Floor Cafe

## 2. HERITAGE PRECINCT

The Heritage Precinct will consist of 2 Heritage Dwellings.

## 3. CENTRAL PRECINCT

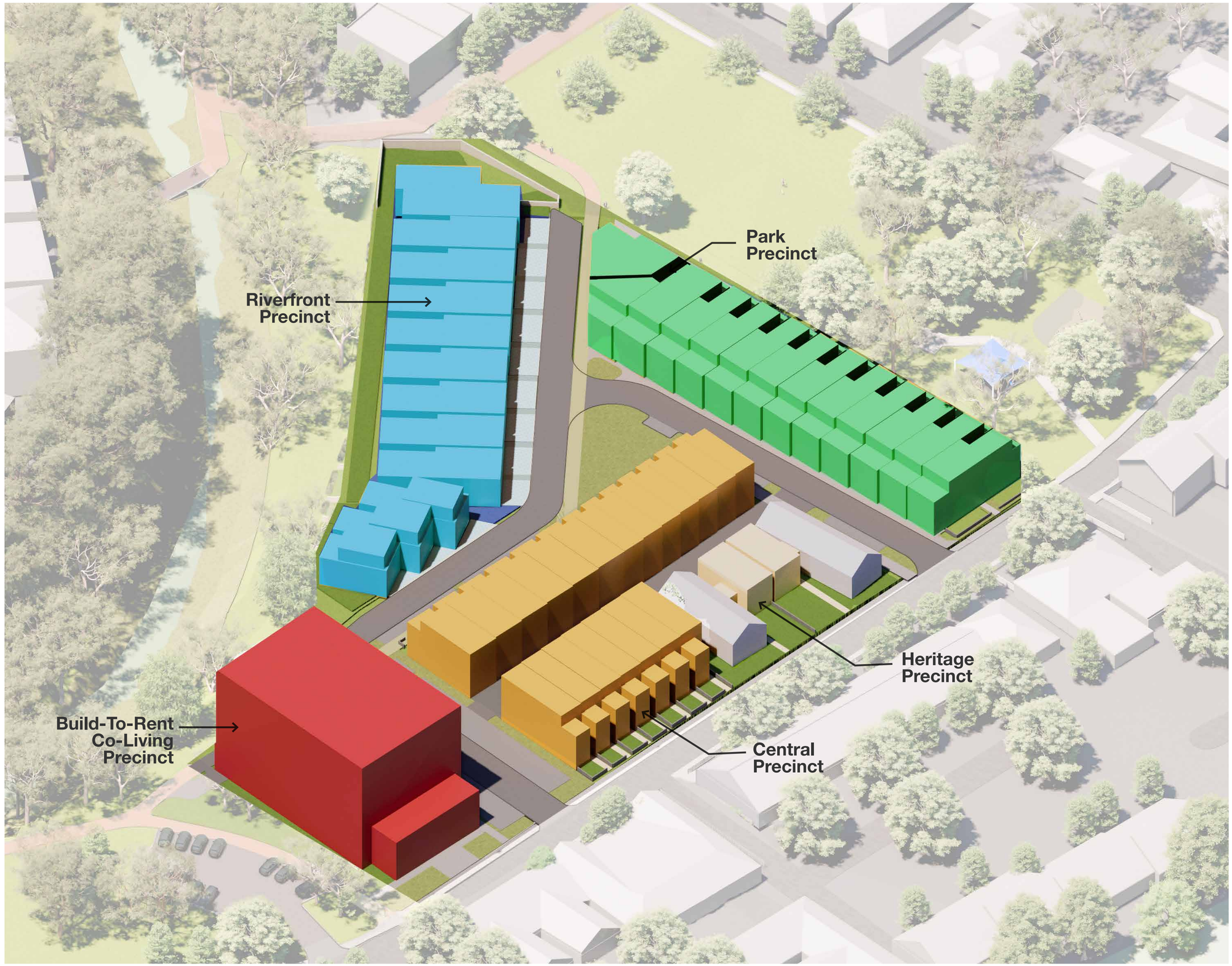
The Central Precinct will consist of 20 Townhouse Style Dwellings facing and enhancing Richmond Street.

## 4. PARK PRECINCT

The Park Precinct will consist of 12 Townhouse Style Dwellings facing and enhancing Twelftree Reserve.

## 5. RIVERFRONT PRECINCT

The Riverfront Precinct will consist of 12 Detached Single Dwellings facing and enhancing the River Torrens Linear Park.



# Built-To-Rent Co-Living Precinct

# 4.1 Build-To-Rent Co-Living Precinct

## BUILD-TO-RENT, CO-LIVING BUILDING

Focused on community and shared living, this precinct is dedicated to the Build-To-Rent Co-Living building, providing much needed affordable rental housing.

Located in a new 6 Level building, this precinct will feature:

- 78 Affordable Build-To-Rent Apartments
- Ground Floor Cafe
- Gym
- On-site car parking
- Tenant Amenity

NOTE: Refer to Application by Grieve Gillett Architects for detailed information on this proposal.

# 4.1 Build-To-Rent Co-Living Precinct

Focused on community and shared living, this precinct is dedicated to the Build-To-Rent Co-Living building, providing much needed affordable rental housing.

# 4.1 Build-To-Rent Co-Living Precinct

The Build-To-Rent Co-Living building will provide an active and vibrant edge to help engage with the River Torrens. A new public shared user path will connect through the site, reconnecting the community through the site.

# Heritage Precinct

# 4.2 Heritage Precinct

The Heritage Precinct will consist of 2 large Heritage Dwellings. Two existing Local Heritage Places are retained and celebrated as part of the master plan. They will be re-purposed and expanded to each form a new residential dwelling.

# 4.2 Heritage Precinct

## 2 ADAPTIVE REUSE HERITAGE DWELLINGS

The Heritage Precinct will consist of 2 large Heritage Dwellings. Two existing Local Heritage Places are retained and celebrated as part of the master plan. They will be re-purposed and expanded to each form a new residential dwelling.

HERITAGE IMPACT STATEMENT:

Please refer to the Heritage Impact Statement document and drawings for detailed information about this precinct.

BUILDING HEIGHT:

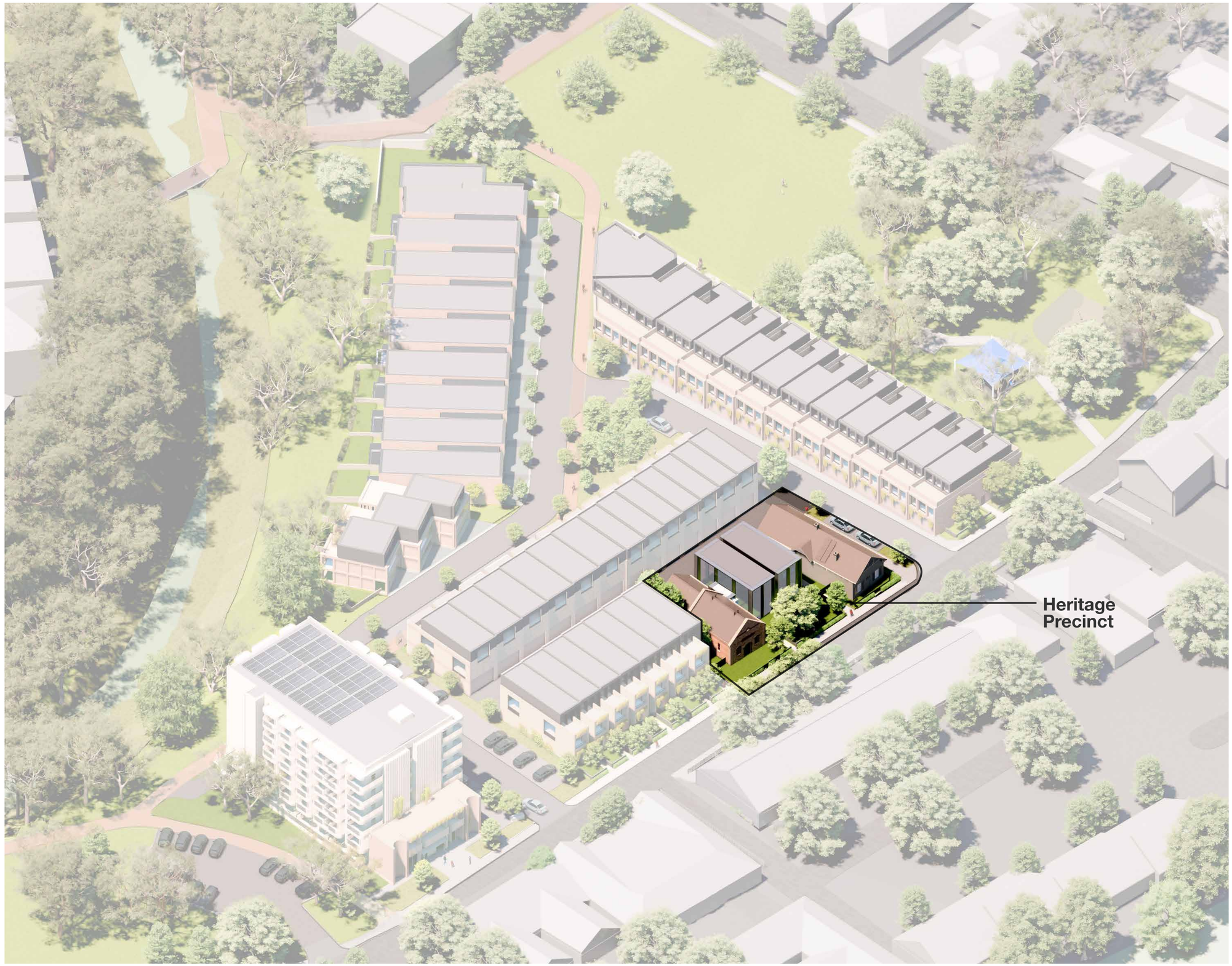
The Dwellings will have a height limit of 2 levels. With the new form setback and detached from the local heritage places.

VEHICLE ACCESS:

Both dwellings will have rear-garaging access off a new Internal Public Lane to the rear of the dwellings.

PEDESTRIAN ENTRY:

The primary pedestrian entry and front door to the homes will be from the Richmond Street frontage.



# 4.2 Heritage Precinct

## PLAN OF DIVISION AND LOT AREAS

The Heritage Precinct will consist of 2 Torrens Title Residential Lots

# 4.2 Heritage Precinct

## BUILDING ENVELOPE MASTER PLAN

The Heritage Precinct will consist of 2 Torrens Title Residential Lots

NOTE:
HERITAGE IMPACT STATEMENT:

Please refer to the Heritage Impact Statement, and Drawing Set for detailed information about the proposed works.

# 4.2 Heritage Precinct

HACKNEY
MISSION HALL

PROPOSED
VISION

# 4.2 Heritage Precinct

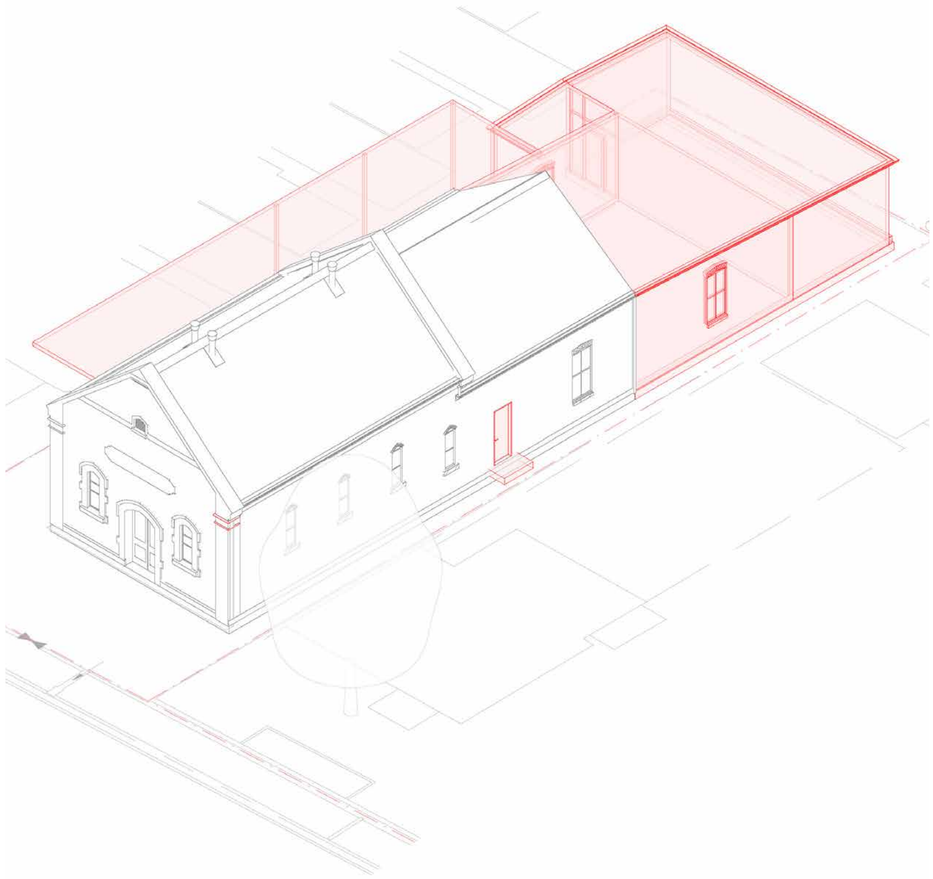
## PROPOSED DEMOLITION SCOPE

HACKNEY
MISSION HALL

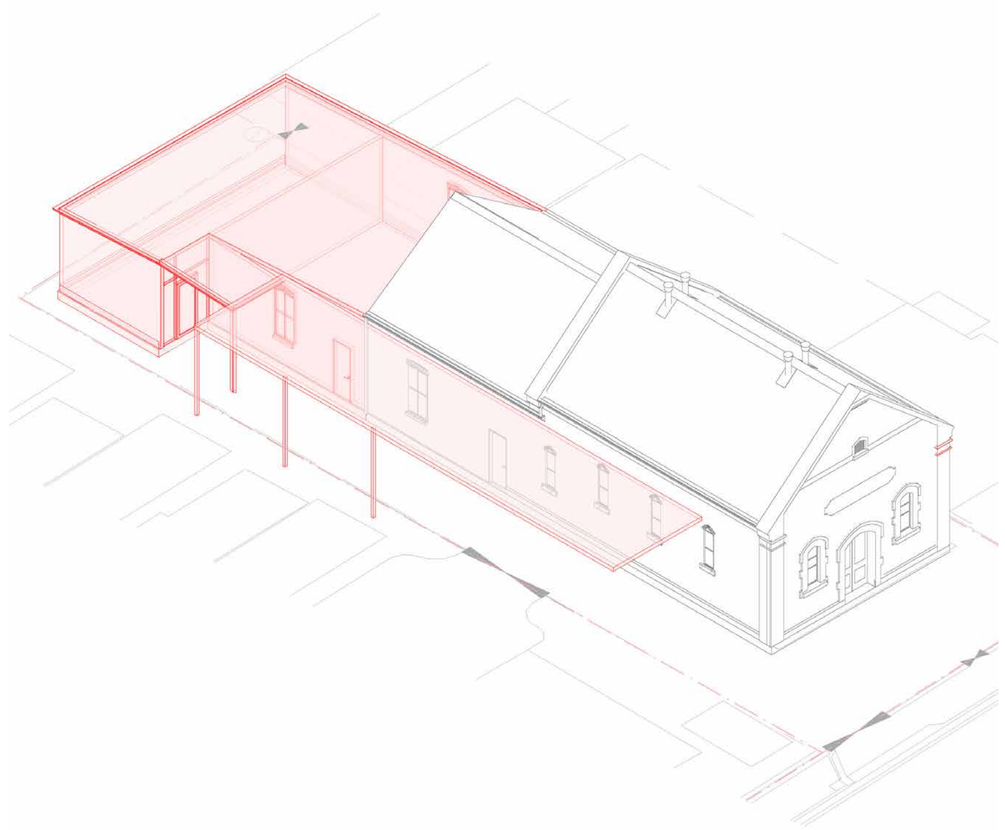
36 RICHMOND
STREET, HACKNEY

NOTE:
HERITAGE IMPACT
STATEMENT:

Please refer to the Heritage Impact Statement, and Drawing Set for detailed information about the proposed works.



PROPOSED DEMOLITION 3D DIAGRAM
PARK FARM BARN



PROPOSED DEMOLITION 3D DIAGRAM
PARK FARM BARN

# 4.2 Heritage Precinct

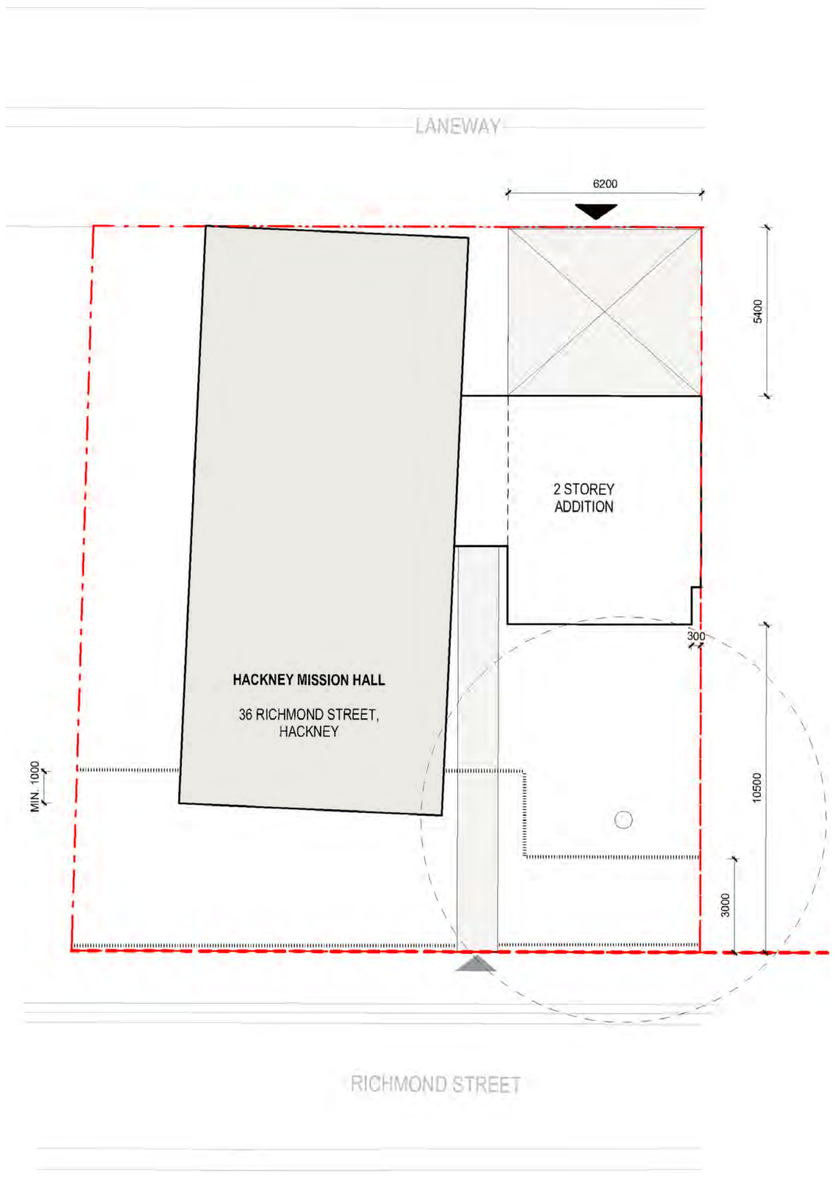
## PROPOSED BUILDING ENVELOPE PLAN

HACKNEY
MISSION HALL

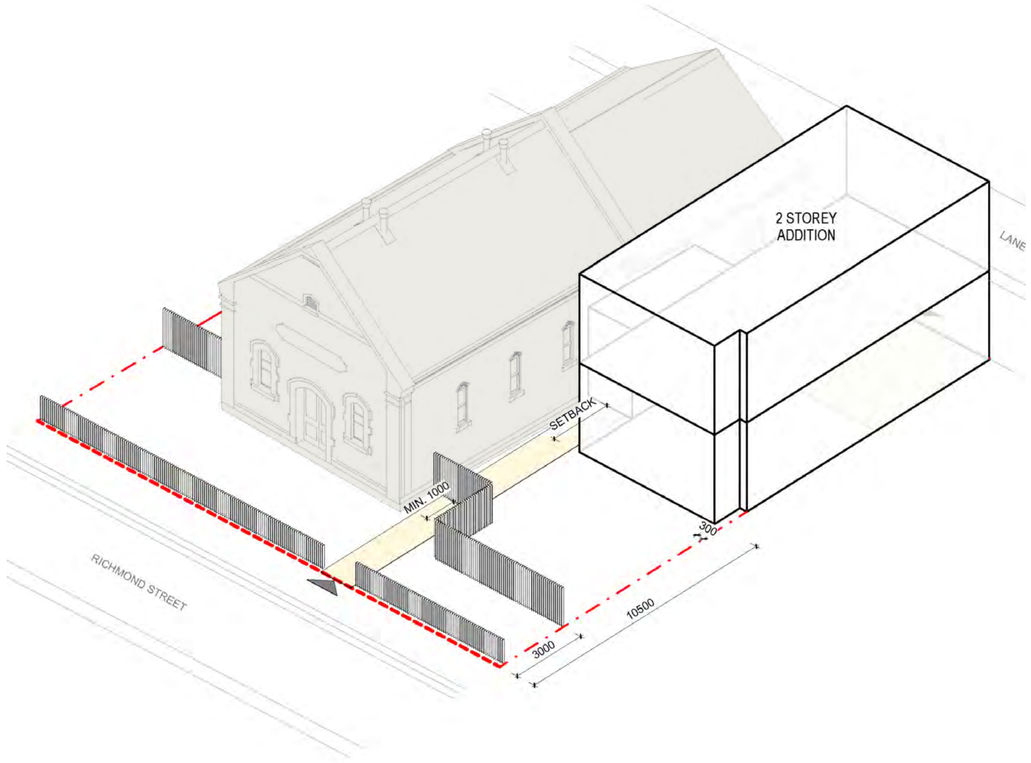
36 RICHMOND
STREET, HACKNEY

NOTE:
HERITAGE IMPACT STATEMENT:

Please refer to the Heritage Impact Statement, and Drawing Set for detailed information about the proposed works.




PROPOSED BUILDING ENVELOPE PLAN
PARK FARM BARN




PROPOSED BUILDING 3D ENVELOPE
PARK FARM BARN

# 4.2 Heritage Precinct

PARK FARM BARN

PROPOSED VISION

# 4.2 Heritage Precinct

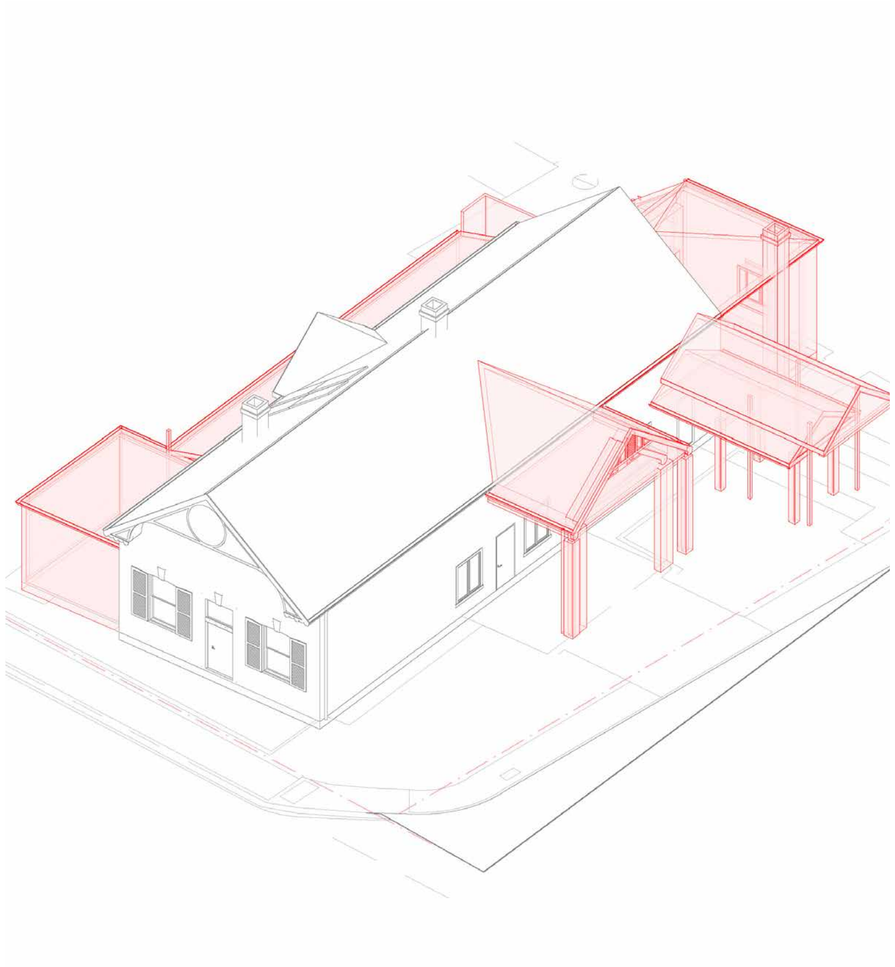
## PROPOSED DEMOLITION SCOPE

PARK FARM
BARN

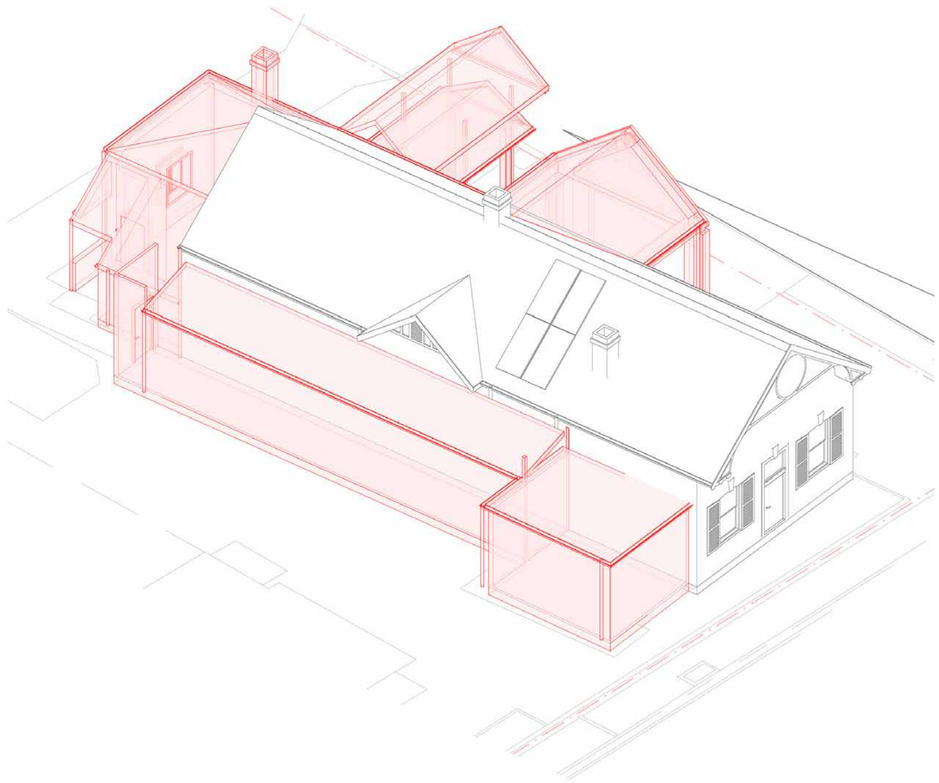
46 RICHMOND
STREET, HACKNEY

NOTE:
HERITAGE IMPACT
STATEMENT:

Please refer to the Heritage Impact Statement, and Drawing Set for detailed information about the proposed works.



PROPOSED DEMOLITION 3D DIAGRAM
PARK FARM BARN



PROPOSED DEMOLITION 3D DIAGRAM
PARK FARM BARN

# 4.2 Heritage Precinct

## PROPOSED BUILDING ENVELOPE PLAN

PARK FARM
BARN

46 RICHMOND
STREET, HACKNEY

NOTE:
HERITAGE IMPACT
STATEMENT:

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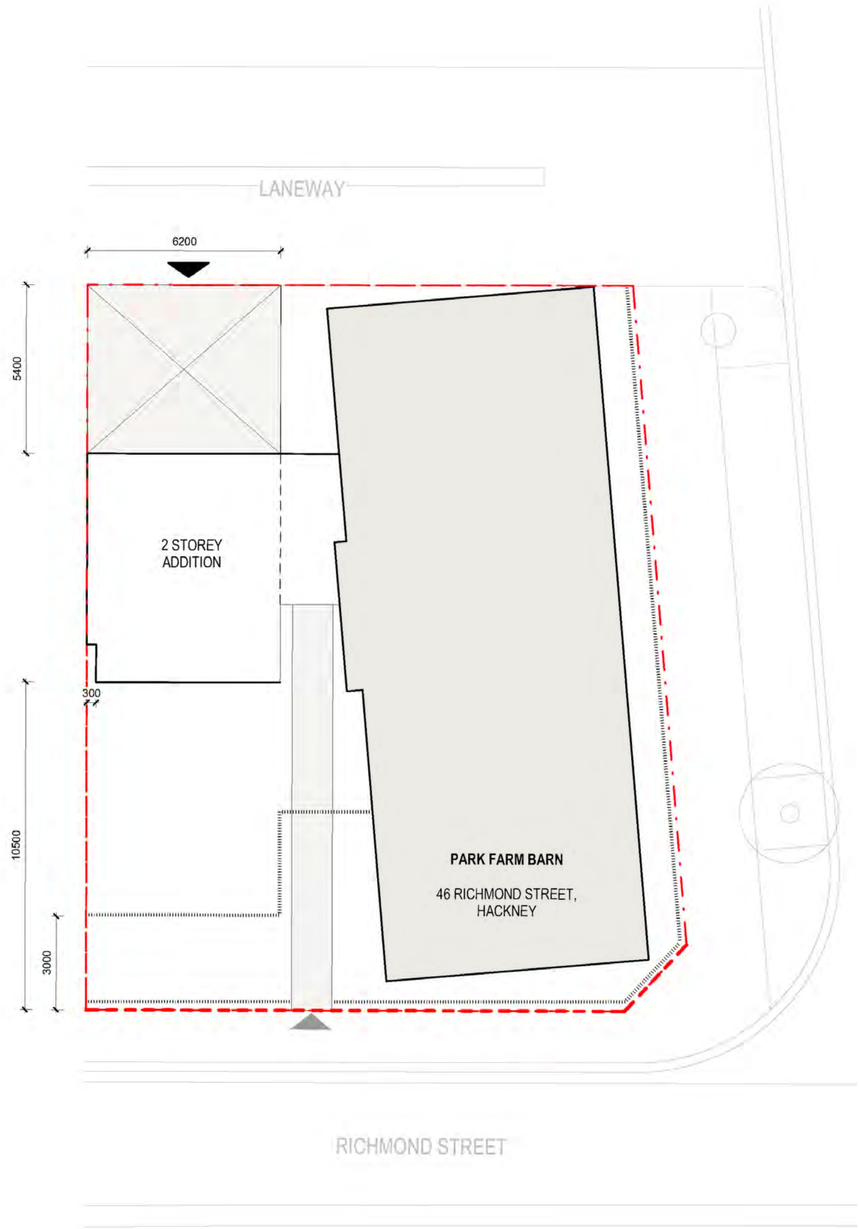
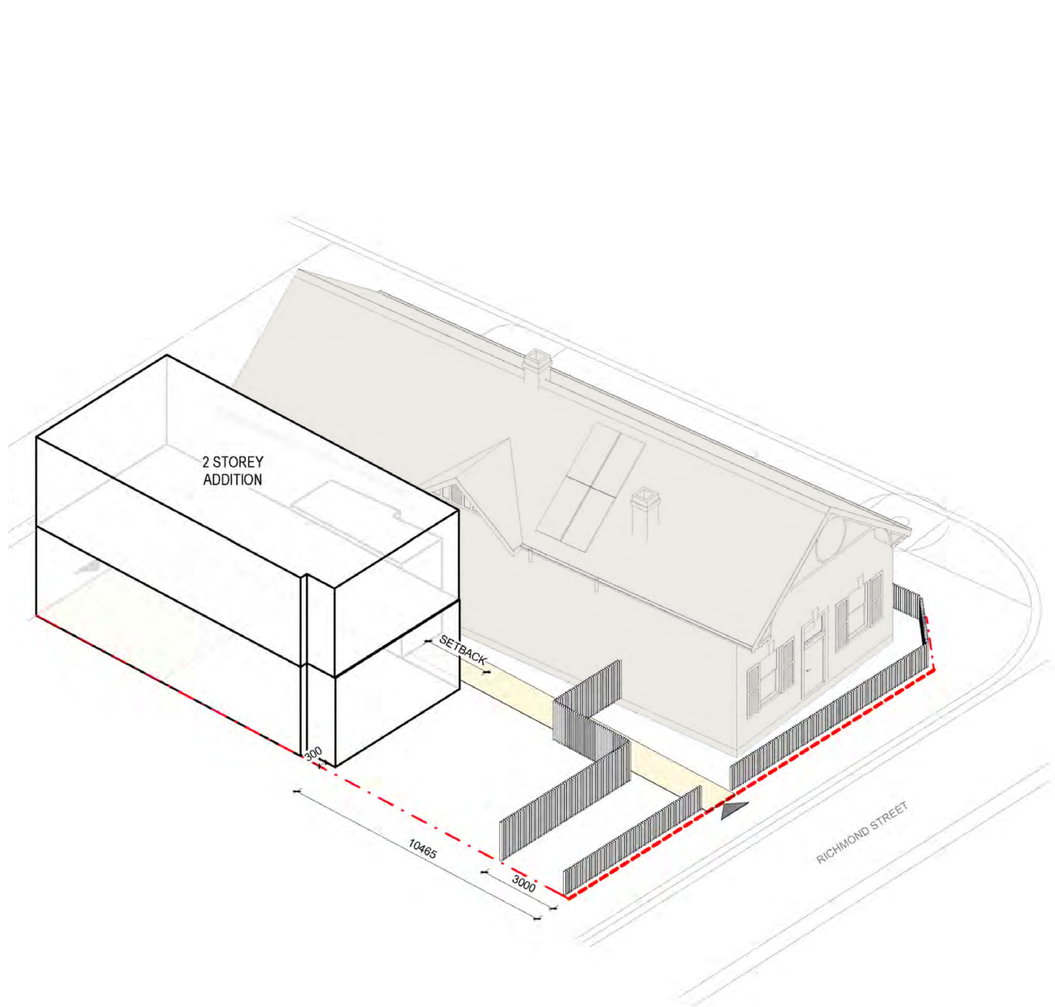



PROPOSED BUILDING ENVELOPE PLAN
PARK FARM BARN




PROPOSED BUILDING 3D ENVELOPE
PARK FARM BARN

# Central Precinct

# 4.3 Central Precinct

# 4.3 Central Precinct

## 20 NEW TERRACE DWELLINGS

The Central Precinct will consist of 20 Townhouse Style Dwellings facing and enhancing the Richmond Street Interface, as well as a new internal Public Road and Urban Forest.

The homes will be a range of sizes targeting young families, professional couples or down-sizer occupiers.

BUILDING HEIGHT:

The Dwellings will have a height limit of 3 levels.

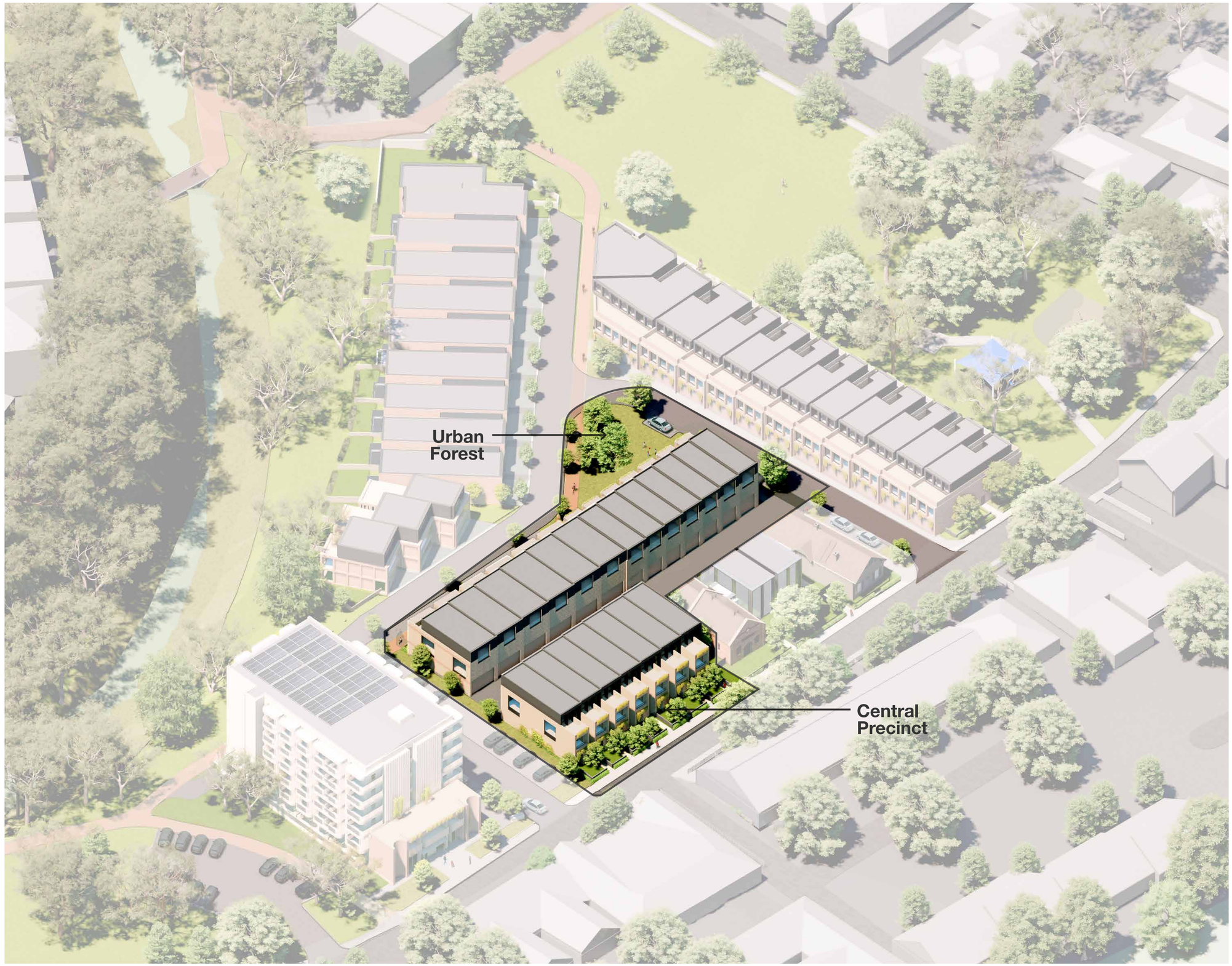
A 2 level streetwall height to Richmond Terrace will respond and respect the Streetscape and height of the local heritage places, with the upper level setback a further 3m to minimise built form from Richmond Street.

VEHICLE ACCESS:

All dwellings will have rear-garaging access off a new Internal Public Lane to the rear of the dwellings.

PEDESTRIAN ENTRY:

The primary pedestrian entry and front door to the homes will be from the Richmond Street and New Road Frontage.



# 4.3 Central Precinct

## PLAN OF DIVISION AND LOT AREAS

The Central Precinct will consist of 20 Torrens Title Residential Lots

# 4.3 Central Precinct

## BUILDING ENVELOPE PLAN

The Central Precinct will consist of 20 Torrens Title Residential Lots with a centrally loaded rear lane.

NOTE:

DWELLING DESIGN SUBJECT TO A FUTURE DEVELOPMENT APPLICATION

# 4.3 Central Precinct

## TYPICAL HOUSING TYPOLOGY PLAN A

INDICATIVE ONLY:

NOTE:

DWELLING DESIGN SUBJECT TO A FUTURE DEVELOPMENT APPLICATION

# 4.3 Central Precinct

## TYPICAL HOUSING TYPOLOGY PLAN B

INDICATIVE ONLY:

NOTE:

DWELLING DESIGN SUBJECT TO A FUTURE DEVELOPMENT APPLICATION

# Park Precinct

# 4.4 Park Precinct

# 4.4 Central Precinct

## 12 NEW PARK FRONTING DWELLINGS

The Park Precinct will consist of 12 Townhouse Style Dwellings facing and enhancing the Twelftree Reserve Interface.

The homes will be large family-friendly or down-sizer homes.

BUILDING HEIGHT:

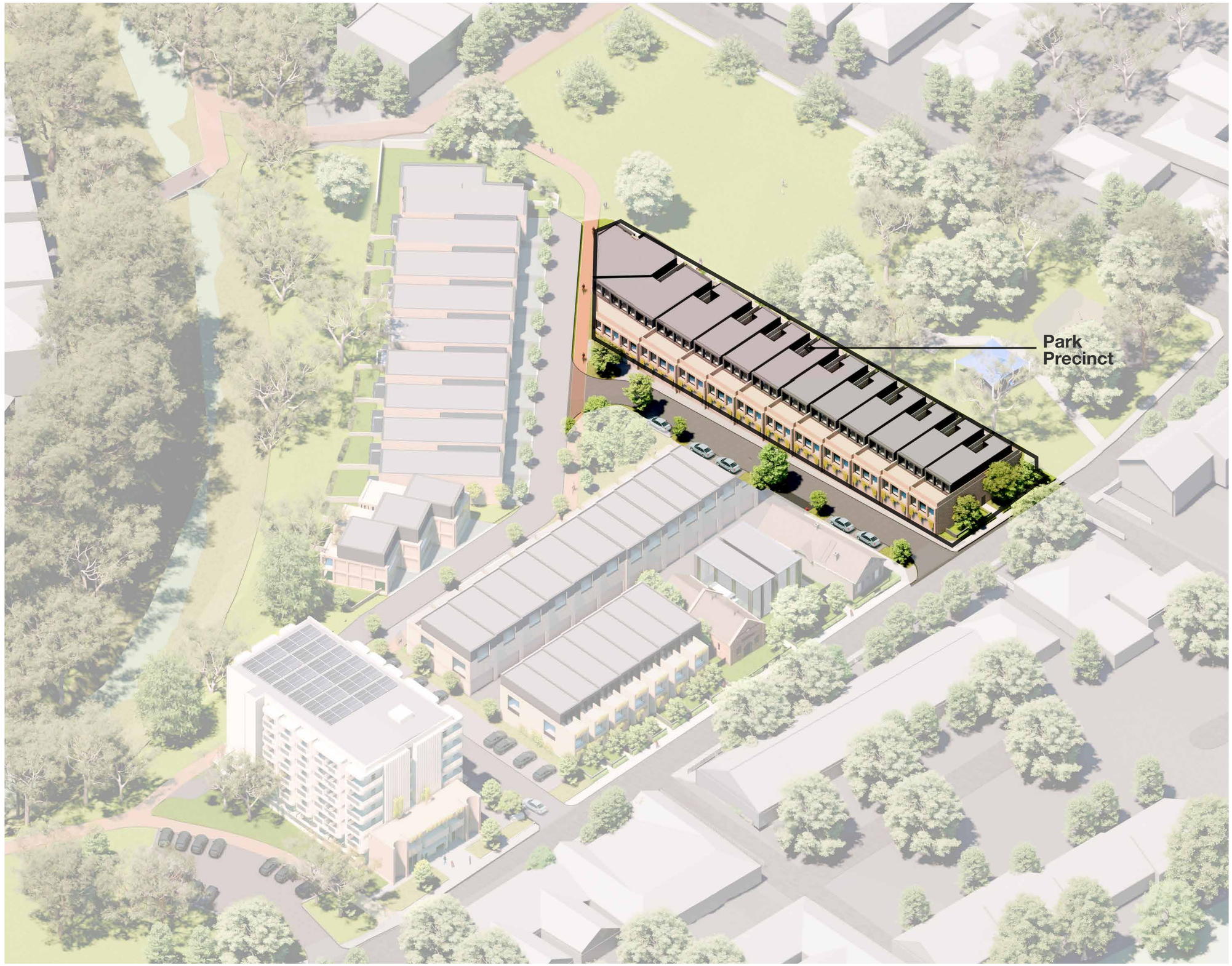
The Dwellings will have a height limit of 3 levels. With the upper level setback to minimise bulk and massing.

VEHICLE ACCESS:

All dwellings will have garaging access off a new Public Road to the rear of the dwellings.

PEDESTRIAN ENTRY:

The primary pedestrian entry and front door to the homes will be from the Twelftree Reserve frontage.



# 4.4 Central Precinct

## 12 NEW PARK FRONTING DWELLINGS

The Park Precinct will consist of 12 Townhouse Style Dwellings.

A tranquil area adjacent to Twelftree Reserve, offering easy access to nearby parks and providing a serene living environment.

# 4.4 Central Precinct

## PLAN OF DIVISION AND LOT AREAS

The Park Precinct will consist of 12 Torrens Title Residential Lots

# 4.4 Central Precinct

## BUILDING ENVELOPE PLAN

The Park Precinct will consist of 12 Torrens Title Residential Lots

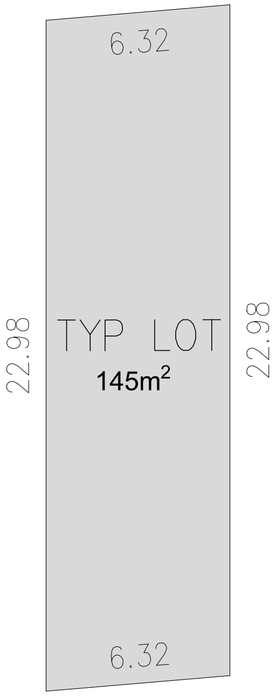
# 4.4 Central Precinct

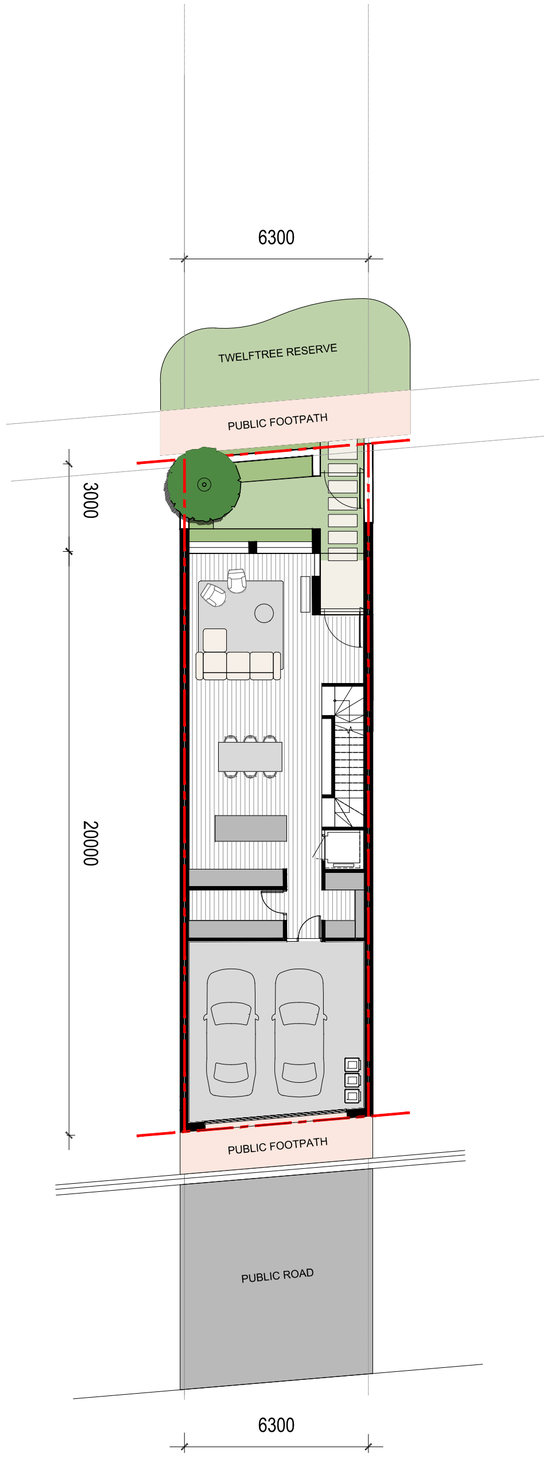
## TYPICAL HOUSING TYPOLOGY PLAN

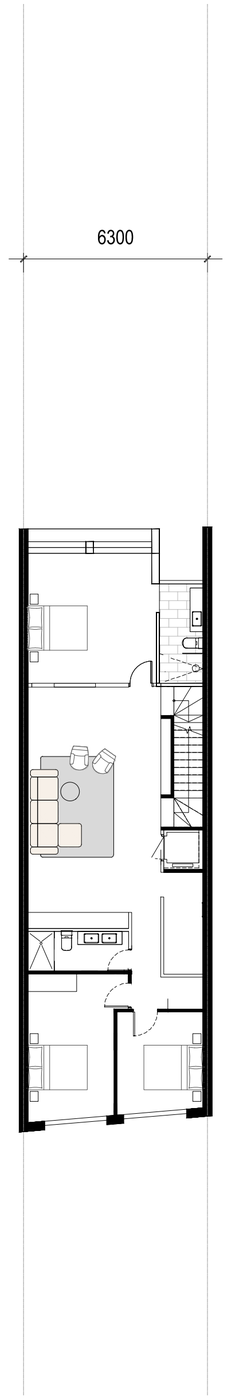
INDICATIVE ONLY:

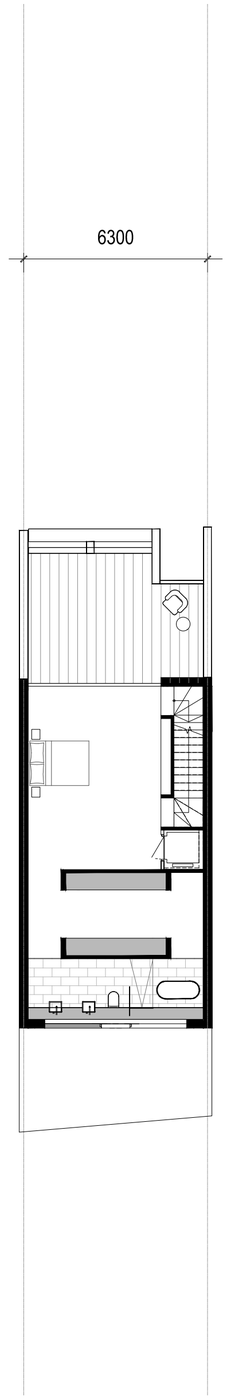
NOTE:

DWELLING DESIGN SUBJECT TO A FUTURE DEVELOPMENT APPLICATION



# Riverfront Precinct

Attach

# 4.5 Riverfront Precinct

# 4.5 Riverfront Precinct

## 12 NEW RIVERFRONT DWELLINGS

The River Precinct will consist of 12 Freestanding Torrens Title Style Dwellings facing and enhancing the River Torrens Interface.

The homes will be large family-friendly or down-sizer homes.

BUILDING HEIGHT:

The Dwellings will have a maximum height limit of 3 levels.

VEHICLE ACCESS:

All dwellings will have garaging access off a new Public Road to the front of the dwellings.

2 Visitor car spaces will be provided in front of the dwellings.

PEDESTRIAN ENTRY:

The primary pedestrian entry and front door to the homes will be from the new internal public road.

# 4.5 Riverfront Precinct

## PLAN OF DIVISION AND LOT AREAS

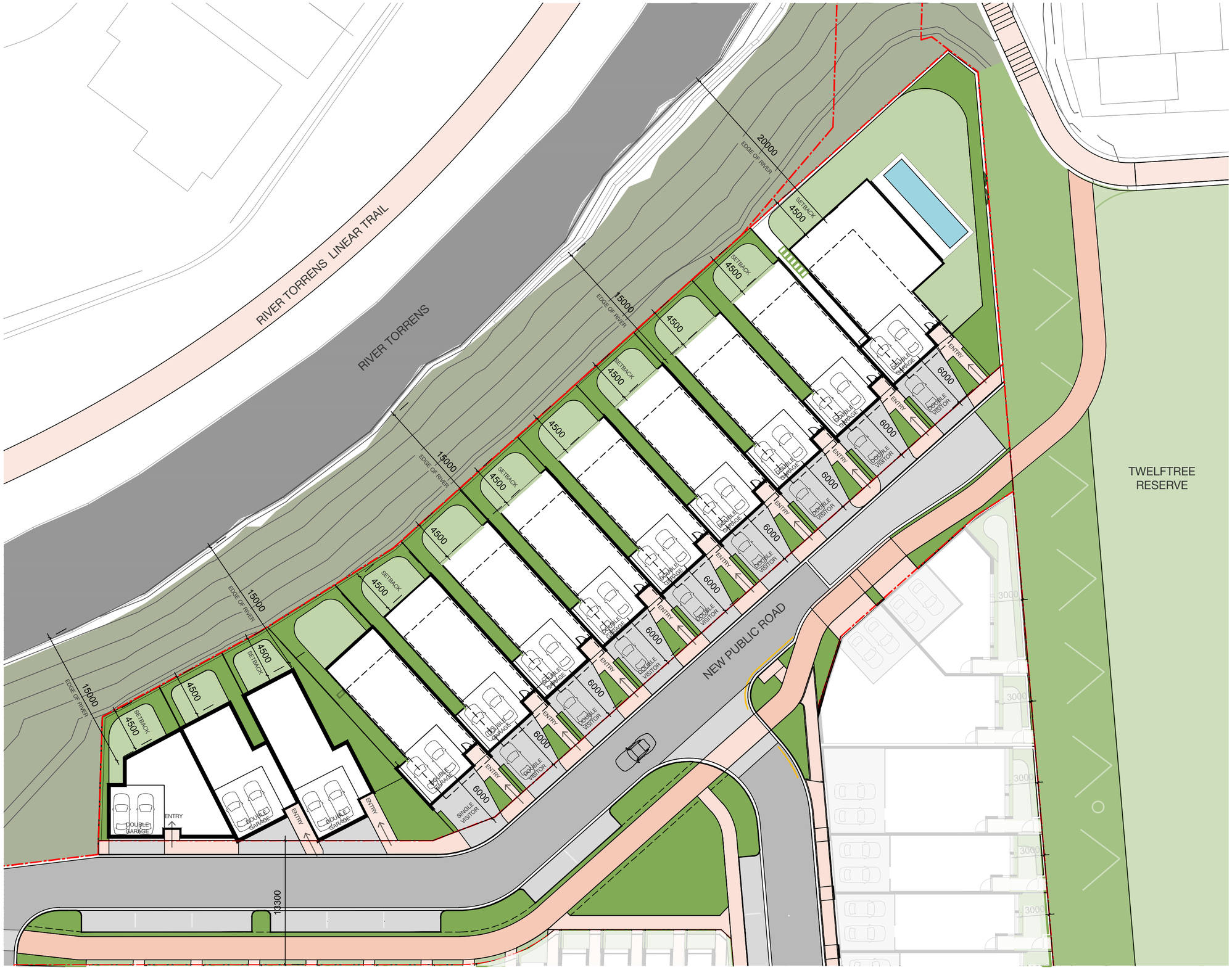
The Riverfront Precinct will consist of 12 Torrens Title homes positioned along the River Torrens, this precinct features river-facing townhouses that embrace the natural beauty of the River corridor.

# 4.5 Riverfront Precinct

## BUILDING ENVELOPE PLAN

NOTE:

DWELLING DESIGN SUBJECT TO A FUTURE DEVELOPMENT APPLICATION



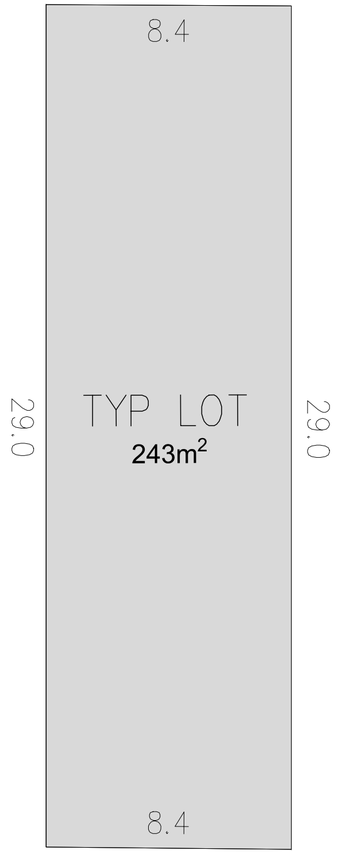
# 4.5 Riverfront Precinct

## TYPICAL HOUSING TYPOLOGY PLAN

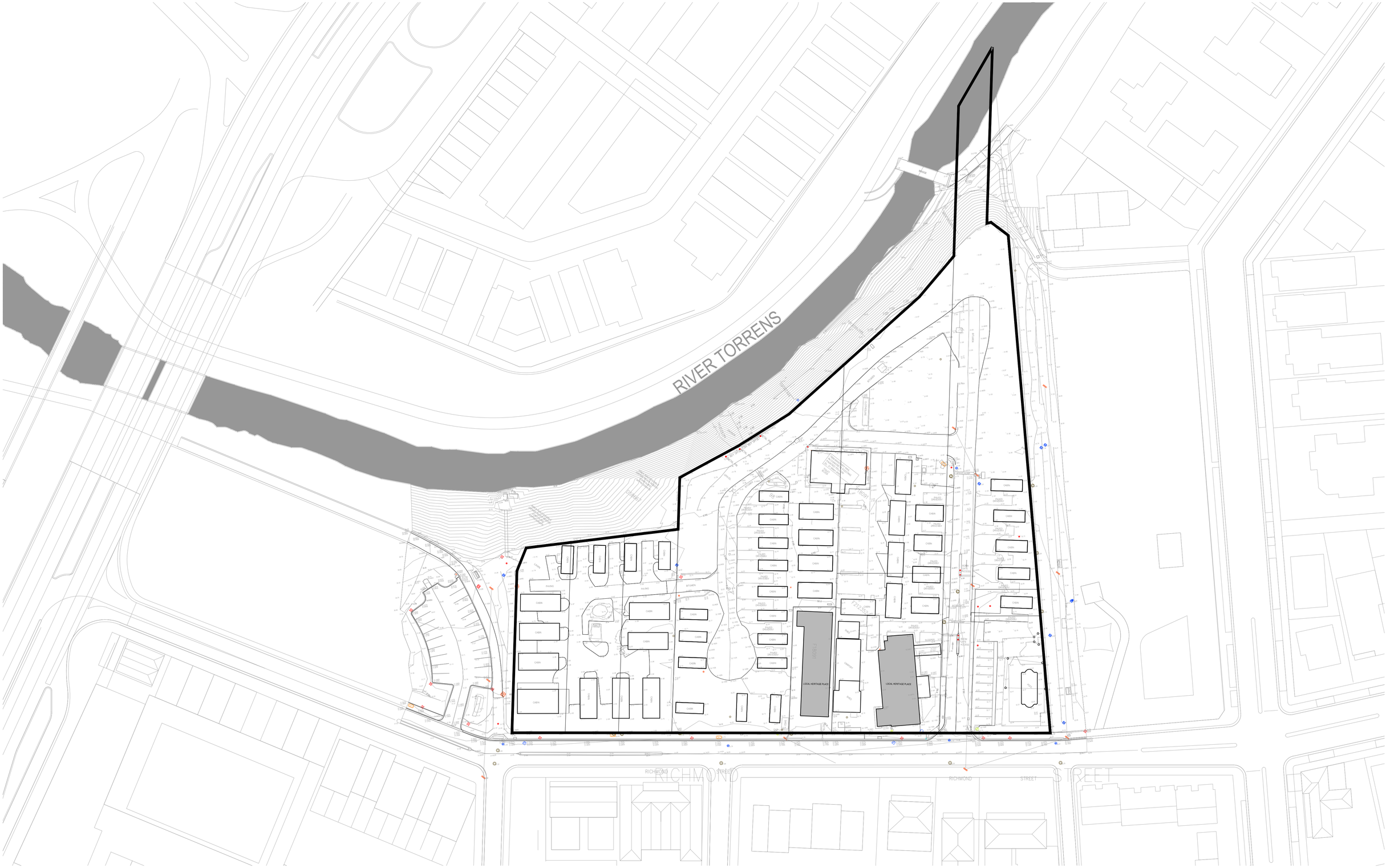
INDICATIVE ONLY:

NOTE:

DWELLING DESIGN SUBJECT TO A FUTURE DEVELOPMENT APPLICATION



Attachment 1.5

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Seek clarification of inconsistencies / conflicts.
Figured dimensions shall take precedence to scaled dimensions.

North

Scale
1:500 AT A1

0 5m 10m 25m 50m



Project
RICHMOND STREET MASTERPLAN

Address
RICHMOND STREET, HACKNEY 5069

Client
ASPEN GROUP

Date
01.05.2025

Revision
03

Status
ISSUE FOR DEVELOPMENT APPLICATION

Drawing Name
SITE PLAN - EXISTING SITE SURVEY

Drawing Number
DA.01

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Scale
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0 5m 10m 25m 50m



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Status
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Drawing Name
SITE PLAN - EXISTING TITLE PLAN

Drawing Number
DA.02

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North

0 5m 10m 25m 50m

Scale
1:500 AT A1

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01.05.2025

Revision
03

Status
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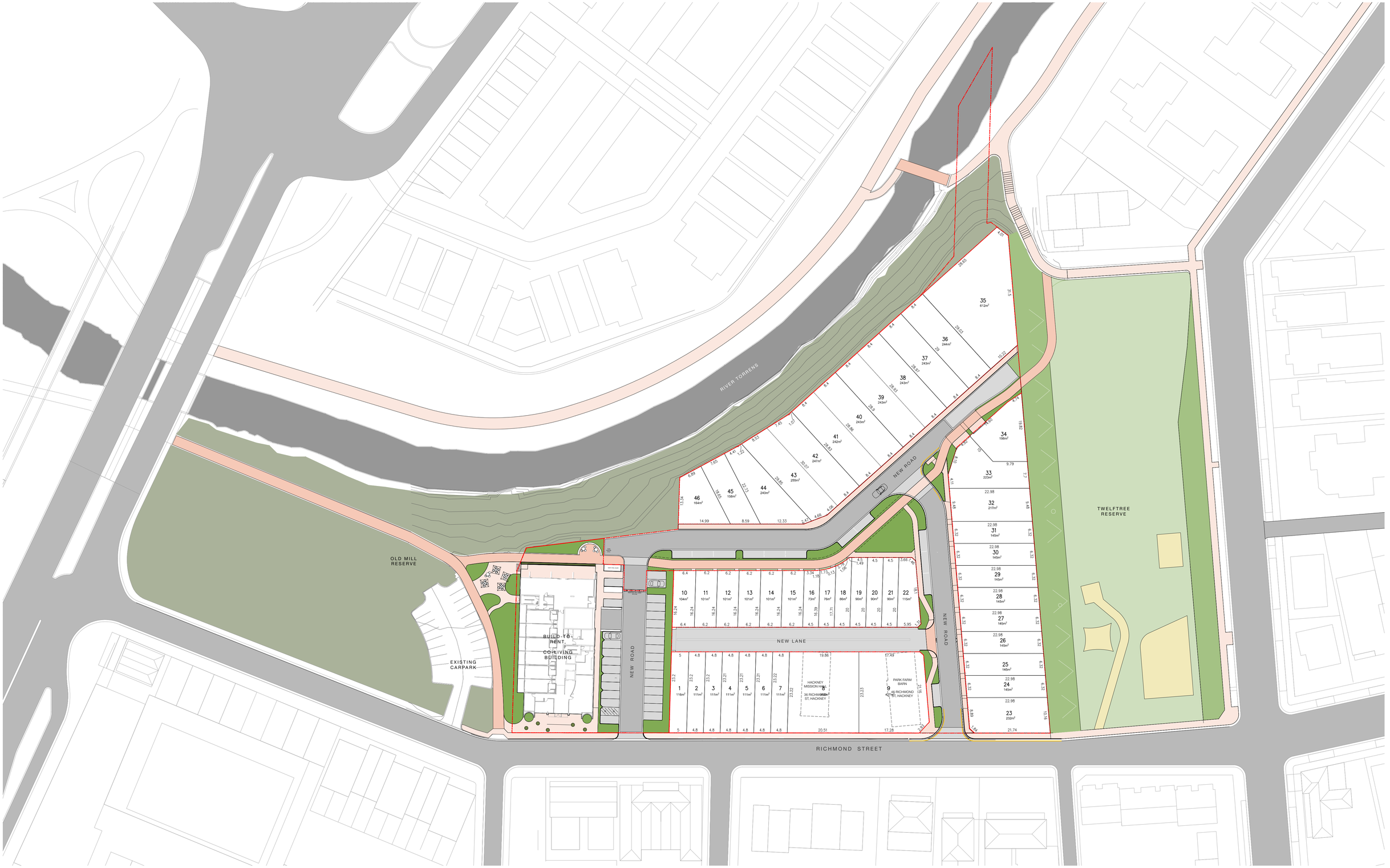
Drawing Name
SITE PLAN - PROPOSED TITLE PLAN

Drawing Number
DA.03

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North

Scale
1:500 AT A1

0 5m 10m 25m 50m

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Client
ASPEN GROUP

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Status
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Drawing Name
SITE PLAN - PROPOSED URBAN STRUCTURE

Drawing Number
DA.04

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North

Scale
1:500 AT A1

0 5m 10m 25m 50m

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Address
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Client
ASPEN GROUP

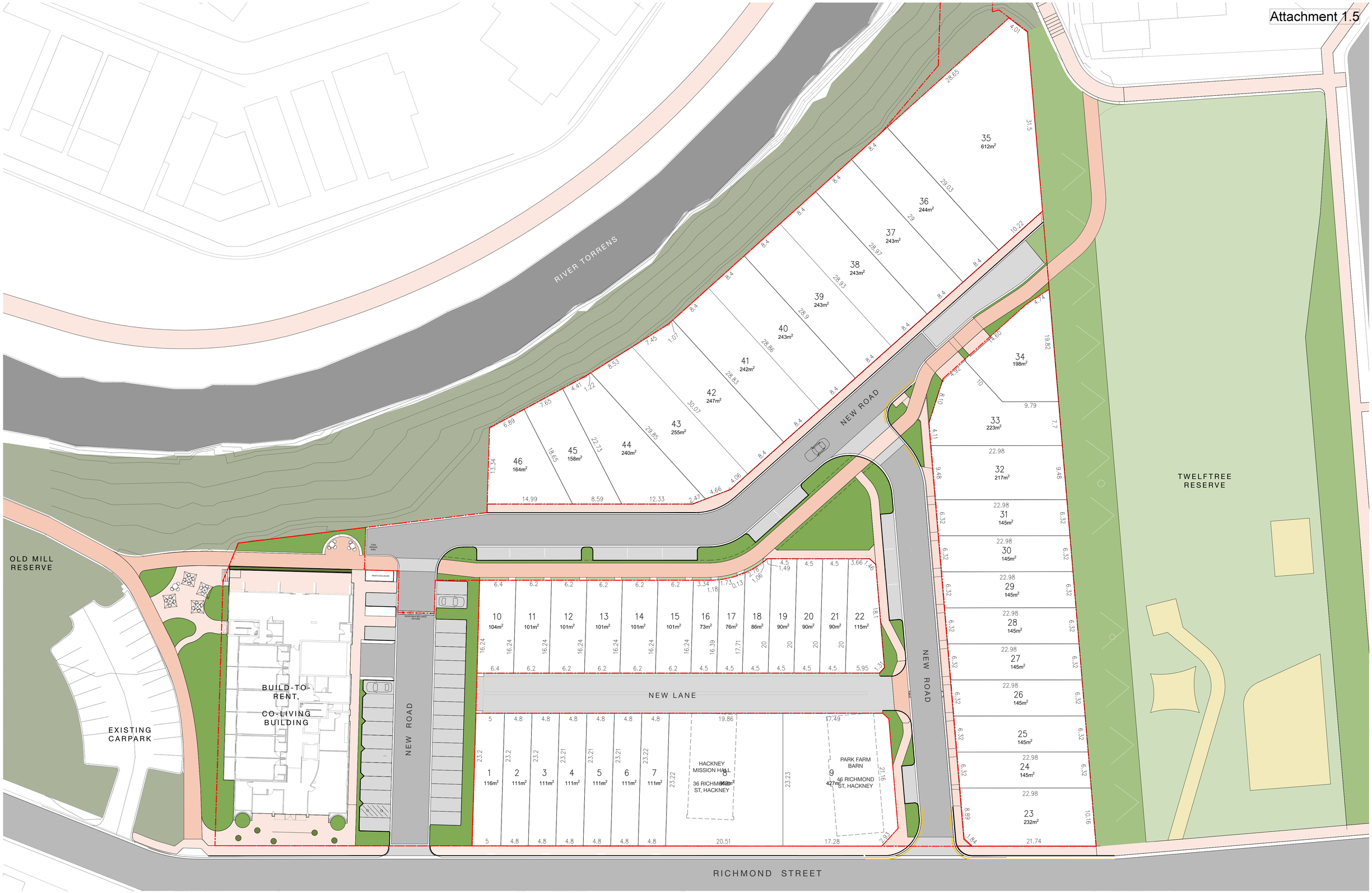
Date
01.05.2025

Revision
03

Status
ISSUE FOR DEVELOPMENT APPLICATION

Drawing Name
SITE PLAN - PROPOSED MASTER PLAN

Drawing Number
DA.05

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North

Scale
1:300 AT A1

0 5m 10m 20m 30m



Project
RICHMOND STREET MASTERPLAN

Address
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Client
ASPEN GROUP

Date
01.05.2025

Revision
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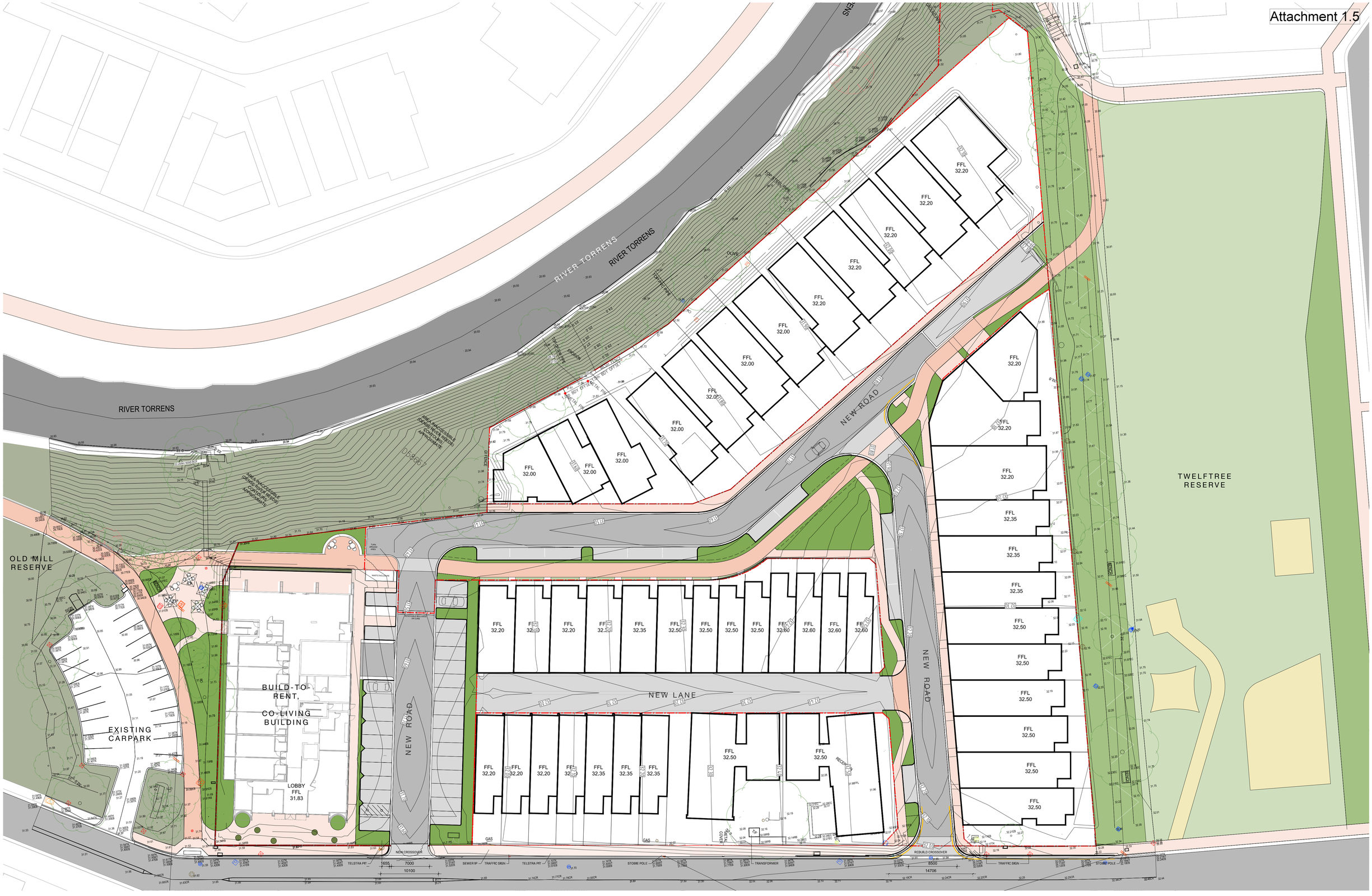
Status
ISSUE FOR DEVELOPMENT APPLICATION

Drawing Name
GA PLAN - PROPOSED LAND DIVISION

Drawing Number
DA.10

Attachment 1.5

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North

0 5m 10m 20m 30m

Scale
1:300 AT A1

Project
RICHMOND STREET MASTERPLAN

Address
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Client
ASPEN GROUP

Date
01.05.2025

Revision
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Status
ISSUE FOR DEVELOPMENT APPLICATION

Drawing Name
GA PLAN - DESIGN LEVELS PLAN

Drawing Number
DA.11

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North

0 5m 10m 20m 30m

Scale
1:300 AT A1

Project
RICHMOND STREET MASTERPLAN

Address
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Client
ASPEN GROUP

Date
01.05.2025

Revision
03

Status
ISSUE FOR DEVELOPMENT APPLICATION

Drawing Name
GA PLAN - PROPOSED MASTER PLAN

Drawing Number
DA.12

# SITE CONTAMINATION DECLARATION FORM

Council area: The city of Norwood Payneham and St Peters

Regarding the land comprised in Certificate(s) of Title Register Book Volume CT5389/441, CT5624/154, CT5923/344, CT5923/342, CT5556/453, CT5389/439, CT5556/452, CT5923/343, CT5389/440, CT5389/442.

I Doug Mowbray, a site contamination consultant, certify the following details:

## Part 1—Investigations

(a) I have relied on the following reports to complete this statement:

2405113_PSI_46RichmondstHackney_05062024

(b) Investigations were conducted in accordance with the National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM).

## Part 2—Site contamination unlikely to exist (for the purposes of planning consent) *

(a) A potentially contaminating activity (as defined in the *State Planning Commission Practice Direction 14 (Site Contamination Assessment)*) is not known to have occurred on the subject land*;

(b) A class 1 activity (see the *State Planning Commission Practice Direction 14 (Site Contamination Assessment)*) is not known to have occurred on adjacent land*.

Signed: Doug Mowbray Date: 05/06/2024

☒ *If being lodged electronically please tick to indicate agreement to this declaration.*

Name of company or business / accreditation body and number

Gama Environmental Pty Ltd

**Note 1—**Investigations found the existence of 'fill or soil importation' on-site (i.e. importation, to a premises of a business, of soil or other fill originating from a site at which another potentially contaminating activity has taken place pursuant Schedule 3 of the *Environment Protection Regulations 2009*). Fill or soil importation is not a potentially contaminating activity for the purposes of the *State Planning Commission Practice Direction: (Site Contamination Assessment)*, but remains a potentially contaminating activity under the *Environment Protection Regulations 2009*. The EPA's Industry Guideline on *'Construction environmental management plans (CEMP)'* provides assistance on meeting the obligations of the *Environment Protection Act 1993.*

**Note 2—**It is an offence to provide false or misleading information on this Form. Maximum penalty: $20 000 pursuant to section 217 of the *Planning, Development and Infrastructure Act 2016.*

**Note 3—**The "subject land" is the land the subject of the subject development application.

**Note 4—**"Adjacent land" is defined in section 3(1) of the *Planning, Development and Infrastructure Act 2016* to mean "in relation to other land, means land that is no more than 60 metres from the other land".

**Delete whichever is not applicable*

# STATEMENT OF SITE SUITABILITY FORM

Development application number: 2405113

Council area of: The city of Norwood Payneham and St Peters

Regarding the land comprised in Certificate(s) of Title Register Book Volume CT5389/441, CT5624/154, CT5923/344, CT5923/342, CT5556/453, CT5389/439, CT5556/452, CT5923/343, CT5389/440, CT5389/442.

I Doug Mowbray, a site contamination consultant, certify the following details:

## Part 1—Investigations

(a) I have relied on the following reports to complete this statement:

2405113_PSI_46RichmondstHackney_05062024

(b) The investigations documented in the above reports were conducted in accordance with the National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM)

## Part 3—Site suitability

I consider the site is suitable for the proposed land use(s):

*i.* *Residential*

*ii.* Click here to enter text.

*iii.* Click here to enter text.

I understand that I must clearly qualify any statement of my opinion as to the existence of site contamination at the site by specifying the land uses that were taken into account in forming that opinion (section 103ZA of the *Environment Protection Act 1993*).

Signed: Doug Mowbray
Date: 05/06/2024

☒ *If being lodged electronically, please tick to indicate agreement to this declaration.*

Name of consultant's company or business / accreditation body and number

Gama Environmental Pty Ltd

**Note—**It is an offence to provide false or misleading information on this Form. Maximum penalty: $20 000 pursuant to section 217 of the *Planning, Development and Infrastructure Act 2016.*

**Delete whichever is not applicable*

# Preliminary Site Investigation

46 Richmond Street, Hackney, SA, 5069

Aspen Group

5 June 2024

2405113

STRUCTURAL.CIVIL.ENVIRONMENTAL

GAMA CONSULTING
Structural, Civil & Environmental Engineering

Suite 3/83 Fullarton Road
Kent Town SA 5067
(08) 7123 4050
gamaconsulting.com.au

# Preliminary Site Investigation
## 46 Richmond Street, Hackney, SA, 5069

**Prepared for:**
**Aspen Group**
**46 Richmond Street, Hackney, SA, 5069**

**Gama Environmental Pty Ltd**

| | |
|---|---|
| **Version** | **1.0** |
| **Description** | **Final** |
| **Date** | **5 June 2024** |
| **Author** | **Doug Mowbray** |
| **Reviewed** | **Mark Vial** |

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# 1 INTRODUCTION

## 1.1 BACKGROUND

Aspen Group engaged Gama Environmental Pty Ltd (Gama) to undertake a Preliminary Site Investigation (PSI) in relation to a proposed development, at the site located at 46 Richmond Street, Hackney, SA, 5069.
as presented in **Figure 1** of **Attachment A.**
The proposed development drawings are provided in **Appendix A.**

## 1.2 OBJECTIVES

As stated in the State Planning Commission, Practice Direction 14 (PD14), Site Contamination Assessment 2021, the objectives of this PSI are to:

- Establish whether any potentially contaminating activities (PCAs) have been undertaken on-site, or within the immediate surroundings (no more than 60 m), which may have resulted in site contamination that poses an unacceptable risk to current and/or future receptors;
- Where PCAs are identified, determine the relevant chemicals of potential concern (COPC), areas of interest and potentially impacted media; and
- Determine whether site contamination exists, may exist or is unlikely to exist at the site.

# 2 METHODOLOGY

## 2.1 GUIDANCE

The adopted methodology is based primarily on guidance provided in the following documents:

- Environment Protection Act, 1993 (the Act), and sub-ordinate Environment Protection Regulations, 2009.
- Planning, Development and Infrastructure (PDI) Act 2016 and the associated Planning, Development and Infrastructure (General) Regulations 2017.
- The National Environment Protection Measure 1999 (Assessment of Site Contamination), as amended 2013 (referred to as the NEPM herein).
- South Australia (SA) Environmental Protection Authority (EPA) Guideline for Assessment and Remediation (GAR) of Site Contamination.

To achieve the objectives outlined in **Section 1.2**, Gama completed a desktop review of the following sources:

- Land titles records accessed via South Australian Integrated Land Information System (SAILIS) website;
- SA EPA records, including;
- Section 7 search;
- Site Contamination Index;
- Sands and McDougall public register;
- Selected historical aerial photographs for the site and surrounding area;
- South Australian Resource Information Geoserver for details relating to local geology;
- National Geospatial-Intelligence Agency for topographic data;
- Australian Soil Resource Information System for details relating to likelihood of encountering acid sulphate soils; and
- Department for Environment and Water (DEW) “WaterConnect” database of registered groundwater bores within a 2-kilometer (km) radius of the site.
- In addition to the desktop information review outlined above, an inspection of the site and surrounding area was undertaken for the purpose of observing the physical setting and structures, as well as identifying any associated PCAs and/or other potentially significant environmental activities.

# 3 SITE DETAILS

Site identification details are summarised in the table below:

| Item | Description |
|---|---|
| **Site Address** | 46 Richmond Street, Hackney, SA, 5069 |
| **Plan and Parcel** | F203953AL91, F213471AL112, D58667AL103, D58667AL101, F212352AL99 F18091AL39, D44733AL100, F212351AL98, D58667AL102 D44733AL101, F18091AL37 |
| **Site Area** | 14,000m$^2$ (approximate) |
| **Certificate of Titles (CT)** | CT5389/441, CT5624/154, CT5923/344, CT5923/342, CT5556/453, CT5187/275, CT5389/439, CT5556/452, CT5923/343, CT5389/440, CT5389/442. |
| **Site Owner** | Aspen Group |
| **Site Zoning** | Housing Diversity Neighbourhood (Z2404) - HDN |
| **Local Council** | The city of Norwood Payneham and St Peters |

## 3.1 SITE DESCRIPTION

An inspection of the site was undertaken by Gama scientists on 31 May 2024. Key observations from the inspection are provided below:

- The site is an operational caravan park.
- The property appropriately stores low volume chemicals in sheds with hardstands.
- Site has a pool, several cabins, mixed surface landscaping of grass, paving and pebbles/road base.

A photographic log is provided in **Appendix B.**

## 3.2 SURROUNDING LAND USE

Surrounding land use details are summarised in the table below:

| Direction from Site | Land Use |
|---|---|
| **North** | The River Torrens, mix of commercial and residential. |
| **East** | Twelftree Reserve, residential properties. |
| **South** | Residential area followed by large St Peters outdoor sporting facilities (ovals and tennis courts). |
| **West** | Old Mill Reserve, Hackney Road and, vacant land and The River Torrens. |

# 4 ENVIRONMENTAL SETTING

## 4.1 GEOLOGY

The Australian Government Geoscience Australia Portal,1:250,000 soils map indicates the dominant surface stratigraphic unit within the vicinity of the site is Quaternary Rocks. The local and regional geology within the vicinity of the site is presented in **Figure 2** of **Attachment A.**

Details obtained from the Australian Soil Resource Information System (ASRIS, 2023) indicates an extremely low likelihood that acid sulphate soils are present at the site. The local and regional acid sulphate soil probability within the vicinity of the site is presented in **Figure 3** of **Attachment A.**

## 4.2 TOPOGRAPHY

The topography at the site slopes gently to the south-southwest, starting at approximately 37m Australian Height Datum (AHD) and dipping to 36m AHD where the development is proposed. An elevation heat map of the area is provided in **Figure 4** of **Attachment A.**

## 4.3 HYDROLOGY

As outlined in the SA EPA GAR (2019), surface water bodies and water courses within 500m of the site should be considered for potential impacts if site contamination exists. As presented in **Figure 5** of **Attachment A.** There is The River Torrens water course identified within the 500m boundary, and second Creek / St Peters Billabong water bodies within the 500m zone that are unlikely to be affected by the site.

## 4.4 LOCAL HYDROGEOLOGY

Quaternary geological formations (and associated aquifers) are typically encountered as the uppermost aquifer in the Adelaide Metropolitan Area. Quaternary units are generally shallow and poorly developed which are known to host up to five aquifers across the Adelaide metropolitan area.

Groundwater within the Q1 (uppermost) aquifer is typically of low salinity (1,000 mg/L to 2,500 mg/L) due to direct recharge mechanisms from surface drainage and from lateral inflow from fractured rock aquifers within the Mount Lofty Ranges to the east (Gerges, 2006). The five aquifers below the Adelaide Plains in the vicinity of the site are described in Gerges (2006) as follows:

- First Quaternary Aquifer (Q1) is well distributed over the Adelaide Metropolitan Area and is located at depths between 3 – 15 metres below ground level (m bgl);
- Second Quaternary Aquifer (Q2) lies between 16 – 30 m bgl;
- Third Quaternary Aquifer (Q3) is approximately 30 – 45 m bgl;
- Fourth Quaternary Aquifer (Q4) is located between 45 – 60 m bgl; and
- Fifth Quaternary Aquifer (Q5) is approximately 65 – 80 m bgl.

As per the SA EPA GAR (2019), groundwater wells within a 2km radius of the site should be considered when determining the environmental values of groundwater. The environmental values, as defined by the South Australia Environment Protection Authority Water Quality Environment Protection Policy 2015 (WQEPP) include:

- Drinking water for human consumption

- Primary industries— irrigation and general water uses
- Primary industries— livestock drinking water
- Primary industries— aquaculture and human consumption of aquatic foods

A review of the DEW WaterConnect groundwater database indicated a total of 920 registered groundwater wells are located within a 2 km radius of the Site and are presented in **Figure 6** of **Attachment A.** An assessment of the chemical characteristics and likelihood of groundwater wells being utilised for the environmental values outlined above was completed and is provided in **Appendix C.**

Based on the information provided in **Appendix C,** labelled “Groundwater Environmental Values”, the environmental value of groundwater within 2km of the site is considered limited with no realistic beneficial use of extracted groundwater.

# 5 SITE HISTORY

## 5.1 HISTORY OF OWNERSHIP

An assessment of the current and historical ownership of the site was undertaken by Gama to determine whether the ownership may be associated with PCAs. The ownership (including listed vocations where available) indicates that there have been no PCAs carried out at the site.

The details for the relevant certificate titles are presented in **Appendix D.**

## 5.2 HISTORICAL AERIAL PHOTOGRAPHY

An assessment of the current and historical aerial photographs in the vicinity of the site was undertaken by Gama to ascertain whether activities onsite or within the vicinity of the site may have resulted in site contamination. A summary of the evolution of the site and region are provided below, with a detailed assessment provided in **Appendix E.**

### *ONSITE DEVELOPMENT*

The site remained largely undeveloped with minor residential properties until the early 1950s when the site was developed into a caravan park. No apparent PCAs have been undertaken onsite.

### *REGIONAL DEVELOPMENT*

The area within the immediate vicinity of the site has largely been utilised for residential, commercial purposes or remained undeveloped from the earliest photo reviewed. The urban density increased overtime for the preexisting land use, becoming increasingly mixed.

## 5.3 PUBLIC REGISTER SEARCH

A public register search (Sands and McDougall) was undertaken to identify whether the historical businesses in the surrounding area of the site may have been associated with PCAs.
Business activities in the vicinity of the site which have been identified as being associated with PCAs and are listed within the Lotsearch document and provided within **Appendix E**.

## 5.4 SITE CONTAMINATION INDEX SEARCH

No results were identified for the site on the SA EPA's site contamination index. Several properties have been identified in Hackney and Gilberton area, however, as they are located more than 60m from 46 Richmond Street, Hackney, SA, 5069, it is not further considered in the interpretation of results as stipulated by the PDI act.

## 5.5 EPA SECTION 7 PARTICULARS

As part of this site history review, Gama requested Section 7 documentation from the SA EPA, which identifies known particulars of mortgages, charges, and prescribed encumbrances affecting land with a particular Certificate Title/Folio. No particulars were noted for the site.

The Section 7 documentation received from the EPA is included in **Appendix F**.

## 5.6 DANGEROUS GOODS LICENSE SEARCH

A review of historical aerial photographs indicates the property or premises has remained predominately undeveloped (vacant) and used for residential purposes until the early 1950's when it became operational as a caravan park. Therefore, a search for the Dangerous Goods License information in relation to the site was not considered necessary.

## 5.7 ANECDOTAL INFORMATION

Talked with the grounds keeper about the use of chemicals and chemical storage onsite on the 31 May 2024. He showed the Gama Environmental scientist where chemicals were stored and mentioned no high doses of chemicals were used for any pesticides or herbicides.

# 6 SUMMARY OF ON-SITE POTENTIAL SOURCES OF CONTAMINATION

Based on the site history information reviewed, information provided by the client, and the site inspection results presented in this report. No PCA as defined by PD14 has been identified to have occurred onsite.

# 7 PRELIMINARY CONCEPTUAL SITE MODEL

A conceptual site model (CSM), preliminary or otherwise, is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The development of a CSM is an essential part of all site assessments and provides the framework for identifying site contamination, and how potential receptors may be exposed to contamination at present or in the future.

For a significant risk to exist, a complete (or potentially complete) exposure pathway must be present, which requires each of the following to be identified:

- The presence of substances that may cause harm (source);
- The possibility of the source to reach the receptor (contaminant migration and exposure pathway); and
- The presence of a receptor, which may be harmed if exposed to the source (receptor).

If the source, pathway, receptor (potential or complete exposure pathway) linkage is not present or possible, there is no risk. Based on the findings outlined in **Section 6**, no potential source of contamination was identified, and therefore site contamination is considered unlikely to exist.

# 8 CONCLUSIONS

As outlined in **Section 1.2,** the objectives of the investigation were to:

- Establish whether any potentially contaminating activities (PCAs) have been undertaken on-site, or within the immediate surroundings (no more than 60 m), which may have resulted in site contamination that poses an unacceptable risk to current and/or future receptors.
- Where PCAs are identified, determine the relevant COPCs, areas of interest and potentially impacted media; and
- Determine whether site contamination exists, may exist or is unlikely to exist at the site.

Based on the works completed, PCAs have not occurred at the site as the intensity of agricultural activity does not meet the definition under PD 14, therefore Gama is of the opinion that site contamination is unlikely to exist.

# 9 REFERENCES


- ASRIS 2024, Australian Soil Resource Information System website, Australian Government. http://www.asris.csiro.au/.
- Australian Government, Geoscience Australia, Geoscience Australia Portal, 1:250k map series (https://portal.ga.gov.au/)
- Gerges, Nabil 2006, Overview of the hydrogeology of the Adelaide Metropolitan area. Knowledge and Information Division, Department of Water, Land and Biodiversity Conservation, June 2006.
- National Environment Protection Council of Australia, 1999. National Environment Protection (Assessment of Site Contamination) Measures. As amended May 2013 (ASC NEPM).
- SARIG 2024, South Australian Resources Information Gateway website, Government of South Australia. Accessed, 29 May 2024. https://map.sarig.sa.gov.au/.
- South Australian Environment Protection Agency, 2019. Guidelines for Assessment and Remediation of Site Contamination, November 2019.
- South Australian Environment Protection Agency, 2009. Environmental Protection Regulation, September 2009.
- Topographic maps.com, South Australia. https://en-au.topographic-map.com/maps/oi/South-Australia/.
- WaterConnect 2024, WaterConnect website, Government of South Australia. https://www.waterconnect.sa.gov.au/Pages/Home.aspx.

# 10 LIMITATIONS

This report has been prepared by Gama Environmental Pty Ltd (Gama) and may be used only by the Client and its designated representatives or relevant statutory authorities and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the report.

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Gama's profession practising in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions, and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Gama makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

This report cannot be reproduced without the written authorisation of Gama and then can only be reproducedin its entirety.

The findings and conclusions contained within this report are relevant to the conditions of the site and the state of legislation currently enacted in the relevant jurisdiction in which the site is located as at the date of this report.

Additionally, the findings and conclusions contained within this report are made following a review of certain information, reports, correspondence, and data noted by methods described in this report including information supplied by the client or its assigns. Gama has designed and managed the program for this report in good faith and in a manner that seeks to confirm the information provided and test its accuracy and completeness. However, Gama does not provide guarantees or assurances regarding the accuracy, completeness and validity of information and data obtained from these sources and accepts no responsibility for errors or omissionsarising from relying on data or conclusions obtained from these sources.

Any representation, statement, opinion, or advice expressed or implied in this report is made on the basis that Gama, its agents and employees are not liable to any other person taking or not taking (as the case may be)action in respect of any representation, statement, opinion, or advice referred to above.

# ATTACHMENT A: FIGURES

STRUCTURAL.CIVIL.ENVIRONMENTAL

GAMA CONSULTING
Structural, Civil & Environmental Engineering
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Kent Town SA 5067
(08) 7123 4050
gamaconsulting.com.au



Structural, Civil & Environmental Engineering

Attachment 1.6

GAMA CONSULTING

Project: Preliminary Site Investigation

Site Address: 46 Richmond Street, Hackney, SA, 5069

Scale: 1:800 A4

0 10 20 30 40 50 m

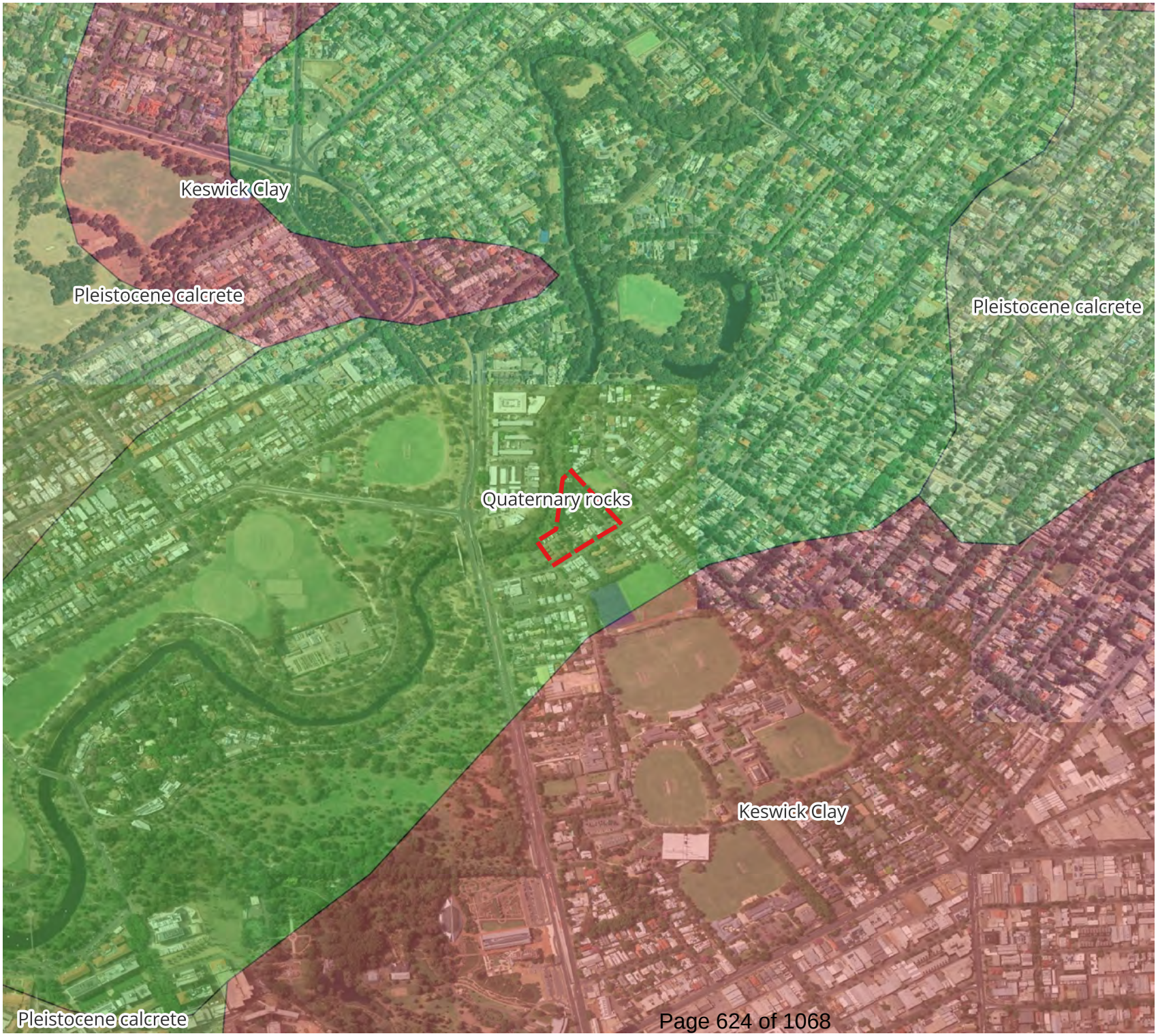
Figure: 1

Client: Aspen Group

Legend:

Approximate Site Boundary

Site Layout




GAMA CONSULTING

Project: Preliminary Site Investigation

Site Address: 46 Richmond St, Hackney, SA 5069

Scale: 1:7,000 A4

0 100 200 300 400 500 m

Figure: 2

Client: Aspen Group

Legend:

Approximate Site Boundary

Site Geology

GAMA CONSULTING

Project: Preliminary Site Investigation

Site Address: 46 Richmond St, Hackney, SA 5069

Scale: 1:1,800 A4

0 25 50 75 100 125 m

Figure: 3

Client: Aspen Group

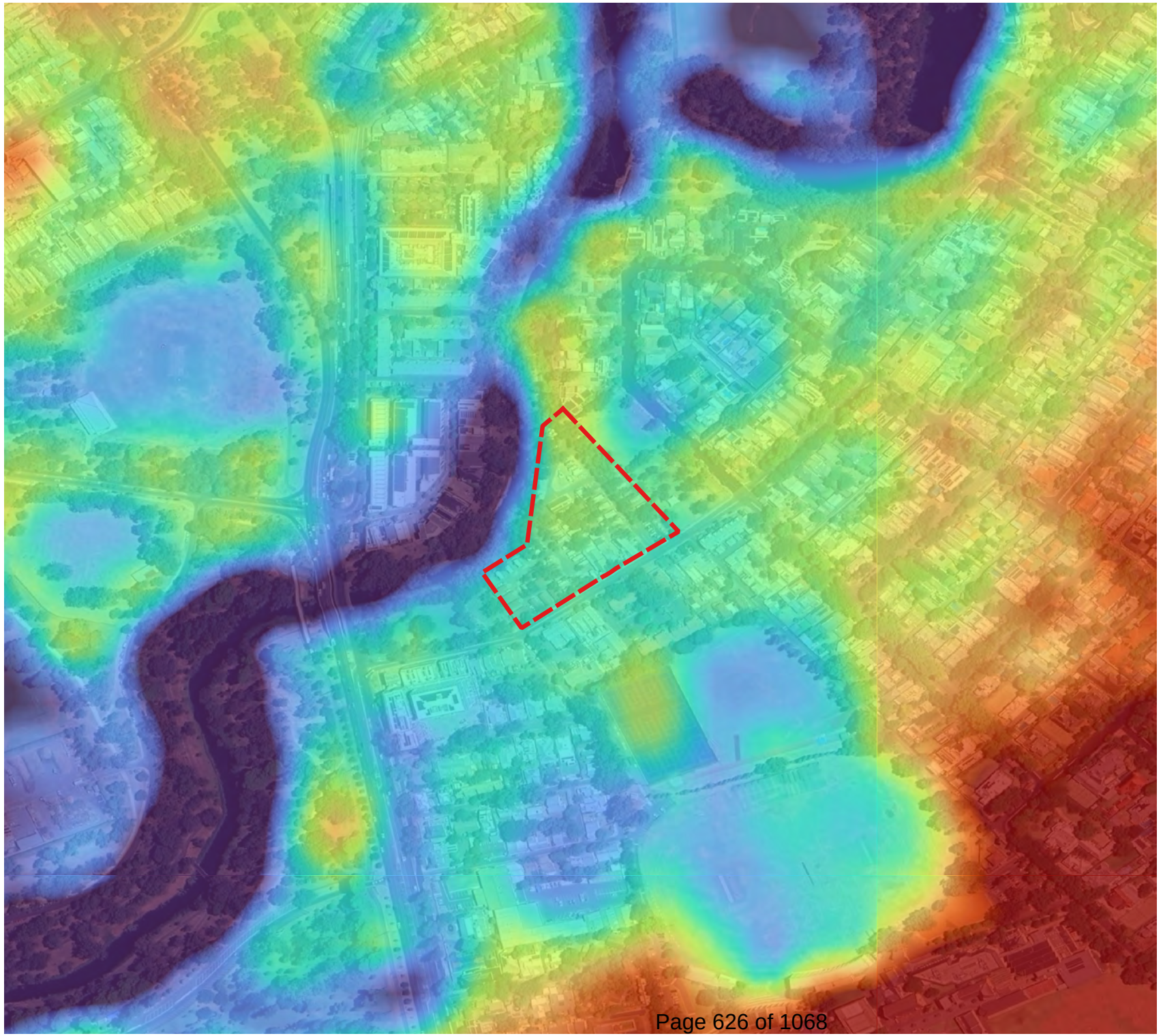
Legend

Approximate Site Boundary

Acid Sulphate Soil Probability

- High
- Low
- Extremely Low
- No Data

Acid Sulphate Soil Probability



GAMA CONSULTING
Structural, Civil & Environmental Engineering

Project: Preliminary Site Investigation

Site Address: 46 Richmond St, Hackney, SA 5069

Scale: 1:3,000 A4

0 50 100 150 200 m

Figure: 4

Client: Aspen Group

Legend:

Approximate Site Boundary

Elevation (mAHD)

30 40

Elevation Heat Map

Attachment 1.6

GAMA CONSULTING

Project: Preliminary Site Investigation

Site Address: 46 Richmond St, Hackney, SA 5069

Scale: 1:5,000 A4

0 75 150 225 300 m

Figure: 5

Client: Aspen Group

Legend

- Water Bodies
- Water Courses
- Approximate Site Boundary
- 500m Radius

Surface Water Within 500m of the Site

Attachment 1.6

GAMA CONSULTING

Project: Preliminary Site Investigation

Site: 46 Richmond St, Hackney, SA 5069

Scale: 1:15,000 A4

0 0.25 0.5 0.75 1 km

Figure: 6

Client: Aspen Group

Legend

2km Radius

All Wells

Approximate Site Boundary

Groundwater Monitoring Wells within 2km

# APPENDIX A: PROPOSED DEVELOPMENT PLANS

STRUCTURAL.CIVIL.ENVIRONMENTAL

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# Master Plan

## Project Features

**47**
Townhouse Dwellings

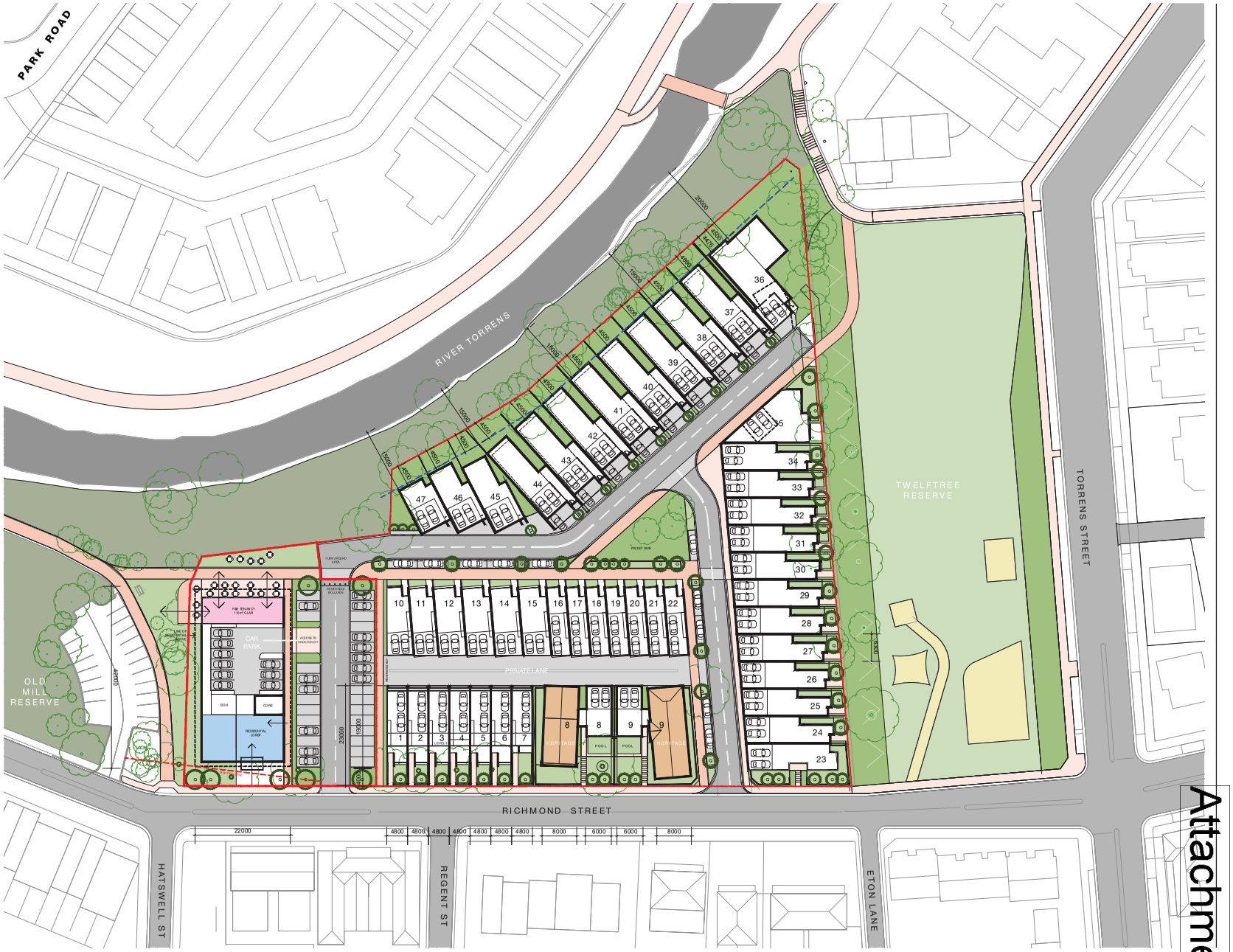
**12**
Riverfront Dwellings - 340m² NSA

**13**
Park Dwellings - 280m² NSA

**6**
6.3m Wide Townhouse - 180m² NSA

**14**
4.5m Wide Townhouse - 150m² NSA

**2**
Heritage Adaptive Reuse Homes



# APPENDIX B: SITE INSPECTION PHOTOGRAPHS

STRUCTURAL.CIVIL.ENVIRONMENTAL

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| Project: 2405113 | Address: 46 Richmond Street, Hackney, SA, 5069 | Date: 31 May 2024 |
|---|---|---|
| **Photo 1**<br>**Description:**<br><br>**Facing northeast at the entrance to Adelaide Caravan Park.** | | |

| **Photo 2**<br>**Description:**<br><br>**Facing north, past the cabins at the front entrance, to the back of Adelaide Caravan Park.** | |
|---|---|

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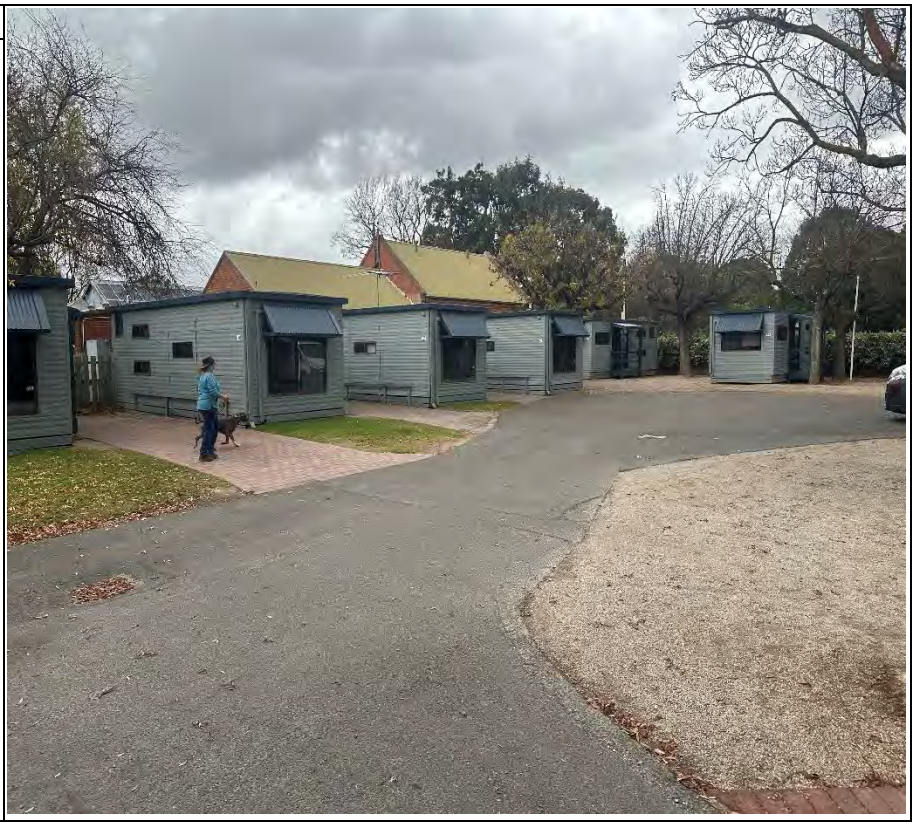
| Photo 3 | |
|---|---|
| **Description:**<br><br>**Facing Southeast towards the church and cabins.** |  |

| Photo 4 | |
|---|---|
| **Description:**<br><br>**Facing south along road, in the central portion of Adelaide Caravan Park.** | |

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| Photo 5 | |
|---|---|
| **Description:**<br><br>**Facing Southwest in the western portion of the Caravan Park.** | |

| Photo 6 | |
|---|---|
| **Description:**<br><br>**Chlorine and chemical storage shed.** | |

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| Photo 7 | |
|---|---|
| **Description:**<br><br>**Cleaning chemical Storage zone.** | |

# APPENDIX C: ENVIRONMENTAL VALUES ASSESSMENT AND WATERCONNECT DATA

STRUCTURAL.CIVIL.ENVIRONMENTAL

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| dh_no | well_id | max_drilled_depth | purpose | latest_status | latest_tds | latest_ec | latest_ph | latest_yield | latitude | longitude | latest_swl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 47102 | 6628-2 | 9.14 | - | | 2470 | 4429 | | | -34.9142815 | 138.6014752 | |
| 47104 | 6628-4 | 11.58 | - | | | | | | -34.9135485 | 138.6036192 | |
| 47105 | 6628-5 | 125.27 | - | | 1671 | 3013 | | | -34.9202765 | 138.6147402 | 13.11 |
| 47106 | 6628-6 | 6.86 | - | OPR | 942 | 1707 | | 3.79 | -34.9172505 | 138.6107462 | 3.66 |
| 47107 | 6628-7 | 6.71 | - | | | | | | -34.9175515 | 138.6132542 | |
| 47110 | 6628-10 | 5.03 | - | ABD | | | | | -34.9170435 | 138.6066802 | 3.35 |
| 47111 | 6628-11 | 24.38 | - | UKN | 1788 | 3220 | 7.6 | | -34.9200065 | 138.6101732 | |
| 47113 | 6628-13 | 30.48 | - | UKN | 1513 | 2729 | 8.4 | | -34.9205865 | 138.6103532 | |
| 47115 | 6628-15 | 12.57 | - | UKN | | | | | -34.9204625 | 138.6100182 | 5.79 |
| 47116 | 6628-16 | 12.57 | - | UKN | | | | | -34.9196765 | 138.6099092 | |
| 47119 | 6628-19 | 11.89 | - | UKN | | | | | -34.9194805 | 138.6095762 | 5.79 |
| 47122 | 6628-22 | 30.48 | - | ABD | | | | | -34.9200635 | 138.6089792 | 9.14 |
| 47123 | 6628-23 | 18.29 | - | ABD | 1581 | 2851 | 7.5 | | -34.9197615 | 138.6082542 | 7.8 |
| 47124 | 6628-24 | 18.29 | - | ABD | | | | | -34.9197245 | 138.6087042 | 7.8 |
| 47125 | 6628-25 | 18.29 | - | ABD | | | | | -34.9199625 | 138.6083902 | 7.11 |
| 47127 | 6628-27 | 18.36 | - | ABD | | | | | -34.9194815 | 138.6086892 | 7.21 |
| 47129 | 6628-29 | 18.36 | - | ABD | | | | | -34.9189745 | 138.6085832 | 7.11 |
| 47131 | 6628-31 | 18.29 | - | ABD | | | | | -34.9189325 | 138.6092192 | 5.79 |
| 47136 | 6628-36 | 18.29 | - | ABD | 1160 | 2100 | | 0.63 | -34.9186395 | 138.6076082 | 4.57 |
| 47132 | 6628-32 | 30.48 | - | ABD | | | | | -34.9188065 | 138.6087522 | 8.18 |
| 47133 | 6628-33 | 21.31 | - | | | | | | -34.9188965 | 138.6083012 | |
| 47135 | 6628-35 | 36.65 | - | ABD | 1100 | 1992 | | 0.38 | -34.9192285 | 138.6077552 | 4.57 |
| 47137 | 6628-37 | 18.29 | - | ABD | 1457 | 2631 | | | -34.9189275 | 138.6076002 | |
| 47138 | 6628-38 | 18.29 | - | ABD | 1671 | 3013 | | | -34.9191845 | 138.6073402 | 4.57 |
| 47140 | 6628-40 | 25.91 | - | ABD | 1455 | 2627 | 7 | 0.13 | -34.9190135 | 138.6041612 | 12.19 |
| 47143 | 6628-43 | 25.91 | - | ABD | 2966 | 5300 | 6.9 | 0.25 | -34.9191885 | 138.6047902 | 12.19 |
| 47144 | 6628-44 | 21.34 | - | ABD | 2155 | 3874 | 7.5 | 0.13 | -34.9192905 | 138.6045142 | 13.11 |
| 47145 | 6628-45 | 21.34 | - | ABD | 2085 | 3749 | 8 | 0.13 | -34.9192855 | 138.6051812 | 12.19 |
| 47146 | 6628-46 | 27.43 | - | ABD | 1255 | 2271 | 7.5 | 0.25 | -34.9196865 | 138.6049182 | 13.72 |
| 47148 | 6628-48 | 15.39 | - | ABD | 262 | 476 | 7.5 | 0.13 | -34.9199115 | 138.6048902 | 5.18 |
| 47150 | 6628-50 | 15.24 | - | UKN | | | | | -34.9193025 | 138.6019192 | |
| 47152 | 6628-52 | 7.62 | - | UKN | | | | | -34.9193375 | 138.6023012 | |
| 47154 | 6628-54 | 7.62 | - | UKN | 457 | 831 | | | -34.9190155 | 138.6024202 | 2.13 |
| 47155 | 6628-55 | 30.48 | - | UKN | 2370 | 4254 | | 0.13 | -34.9187975 | 138.6023392 | 12.19 |
| 47156 | 6628-56 | 6.1 | - | UKN | | | | | -34.9187775 | 138.6027012 | |
| 47160 | 6628-60 | 1.76 | - | | 1602 | 2890 | | | -34.9203305 | 138.6042102 | 1.76 |
| 47161 | 6628-61 | 23.77 | - | ABD | | | | | -34.9218025 | 138.6015952 | 11.28 |
| 47162 | 6628-62 | 23.62 | - | ABD | | | | | -34.9221675 | 138.6013872 | |
| 47169 | 6628-69 | 10.22 | - | ABD | | | | | -34.9215625 | 138.6036052 | |
| 47171 | 6628-71 | 30.02 | - | UKN | | | | | -34.9220345 | 138.6042152 | |
| 47173 | 6628-73 | 20.42 | - | BKF | 2067 | 3715 | 8 | 0.13 | -34.9213225 | 138.6083402 | |
| 47178 | 6628-78 | 4.57 | - | UKN | | | | | -34.9219355 | 138.6083222 | |
| 47165 | 6628-65 | 10.97 | - | ABD | | | | | -34.9216675 | 138.6038862 | |
| 47167 | 6628-67 | 14.33 | - | ABD | | | | | -34.9219405 | 138.6035722 | |
| 47168 | 6628-68 | 13.56 | - | ABD | | | | | -34.9220615 | 138.6037432 | |
| 47174 | 6628-74 | 18.29 | - | UKN | 2909 | 5200 | 8 | 0.13 | -34.9217915 | 138.6083702 | |
| 47176 | 6628-76 | 4.65 | - | UKN | | | | | -34.9219155 | 138.6087282 | |
| 47179 | 6628-79 | 12.19 | - | ABD | | | | | -34.9220845 | 138.6058662 | 3.66 |
| 47180 | 6628-80 | 29.87 | - | | | | | | -34.9221905 | 138.6052722 | |
| 47182 | 6628-82 | 31.7 | - | | | | | | -34.9226815 | 138.6036382 | 31.09 |
| 47184 | 6628-84 | 18.29 | - | | 1760 | 3172 | | | -34.9228775 | 138.6058432 | 4.98 |
| 47185 | 6628-85 | 6.4 | - | | 2780 | 4975 | | 2.02 | -34.9233045 | 138.6060062 | 4.57 |
| 47186 | 6628-86 | 21.34 | - | | 2385 | 4281 | | 6.31 | -34.9227725 | 138.6092062 | 10.67 |
| 47188 | 6628-88 | 12.98 | - | UKN | | | | | -34.9200835 | 138.6022042 | |
| 47190 | 6628-90 | 10.06 | - | UKN | | | | | -34.9200085 | 138.6020312 | |
| 47191 | 6628-91 | 24.38 | - | UKN | 1999 | 3597 | | | -34.9181805 | 138.6021712 | 6.1 |
| 47195 | 6628-95 | 6.71 | - | UKN | 2081 | 3740 | | | -34.9195075 | 138.6022752 | |
| 47197 | 6628-97 | 11.99 | - | | 1028 | 1862 | | | -34.9220155 | 138.6257452 | 9.25 |
| 47198 | 6628-98 | 6.71 | - | | 1257 | 2274 | | | -34.9217175 | 138.6215832 | |
| 47200 | 6628-100 | 10.06 | - | | 1499 | 2705 | | | -34.9234255 | 138.6208442 | |
| 47201 | 6628-101 | 15.24 | - | | 1100 | 1992 | | | -34.9210535 | 138.6235402 | |
| 47202 | 6628-102 | | - | | 6088 | 10665 | | | -34.9166345 | 138.6230002 | |
| 47203 | 6628-103 | 25.3 | - | BKF | 1255 | 2271 | 6.4 | | -34.9122555 | 138.6231152 | |
| 47205 | 6628-105 | 15.24 | - | | 1370 | 2476 | | | -34.9130445 | 138.6206082 | 10.97 |
| 47207 | 6628-107 | 9.14 | - | | 1499 | 2705 | | | -34.9137475 | 138.6210362 | |
| 47211 | 6628-111 | 9.75 | - | | 1692 | 3050 | | 2.53 | -34.9115785 | 138.6198732 | 8.53 |
| 47208 | 6628-108 | 12.8 | RCL | OPR | 1658 | 2990 | 7 | 4.42 | -34.9126505 | 138.6078812 | 6.4 |
| 47209 | 6628-109 | 7.62 | - | | 1471 | 2656 | | | -34.9126925 | 138.6210452 | |
| 47210 | 6628-110 | | - | | 2138 | 3840 | | | -34.9123395 | 138.6260242 | |
| 47212 | 6628-112 | 9.14 | - | | 1242 | 2247 | | | -34.9112335 | 138.6215692 | |
| 47213 | 6628-113 | 60.96 | - | | 1971 | 3547 | | | -34.9185475 | 138.6075122 | 3.1 |
| 47214 | 6628-114 | 28.35 | DRN | OPR | | | | 0.88 | -34.9205715 | 138.6045642 | |
| 47215 | 6628-115 | 25.6 | - | | 1928 | 3470 | 7.4 | | -34.9200105 | 138.6053572 | 10.36 |
| 47216 | 6628-116 | 12.19 | - | ABD | 1928 | 3470 | 7.5 | | -34.9201645 | 138.6053752 | |
| 47218 | 6628-118 | 9.14 | - | ABD | 2070 | 3722 | | | -34.9206665 | 138.6056892 | 7.77 |
| 47223 | 6628-123 | 8.94 | - | ABD | | | | | -34.9204015 | 138.6059702 | |
| 47224 | 6628-124 | 15.24 | - | ABD | | | | | -34.9208615 | 138.6059782 | |
| 47226 | 6628-126 | 15.24 | - | ABD | | | | | -34.9204495 | 138.6056842 | |
| 47227 | 6628-127 | 9.14 | - | ABD | | | | | -34.9208195 | 138.6057172 | |
| 47228 | 6628-128 | | - | | | | | | -34.9190755 | 138.6155412 | |
| 47229 | 6628-129 | | - | NL | | | | | -34.9227125 | 138.6024772 | |
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| 47277 | 6628-177 | 7.62 | - | | 1299 | 2349 | | | -34.9099025 | 138.6189592 | 3.51 |
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| 47284 | 6628-184 | 11.89 | - | | 1320 | 2387 | 7 | | -34.9090285 | 138.6212822 | 0.76 |
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| 47294 | 6628-194 | 7.62 | - | ABD | | | | | -34.9078035 | 138.6140182 | |
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| 47694 | ADE026 | 27.43 | - | BKF | 1105 | 2000 | 7.2 | 2.27 | -34.9242635 | 138.6185542 | 7.05 |
| 47695 | 6628-606 | 20.73 | DRN | OPR | 1318 | 2383 | | 1.51 | -34.9237985 | 138.6045582 | |
| 47696 | 6628-607 | 21.03 | DRN | OPR | | | | 7.58 | -34.9239205 | 138.6047622 | |
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| 47722 | 6628-633 | 42.67 | - | | 1157 | 2094 | | | -34.9284505 | 138.6091292 | |
| 47723 | 6628-634 | | - | | 1160 | 2100 | | | -34.9290805 | 138.6150222 | |
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| 56507 | 6628-9538 | 35.51 | - | | 3030 | 5413 | 7 | 0.25 | -34.8947895 | 138.6109812 | 24.99 |
| 56509 | 6628-9540 | 32 | - | | | | | | -34.8951535 | 138.6152712 | |
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| 56545 | 6628-9576 | | HOL | | 1713 | 3088 | | | -34.8937795 | 138.6256602 | |
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| 56898 | 6628-9929 | 15.54 | - | BKF | 2556 | 4582 | | | -34.9065165 | 138.6279312 | |
| 56899 | 6628-9930 | 12.19 | - | | 1645 | 2967 | 7 | | -34.9068115 | 138.6273212 | 8.53 |
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| 56902 | 6628-9933 | 12.19 | - | BKF | 1814 | 3268 | | | -34.9111835 | 138.6268452 | |
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| 58091 | 6628-11122 | 17.23 | - | UKN | | | | | -34.9001535 | 138.6183212 | |
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| 58458 | 6628-11489 | 28 | IRR STK | OPR | 1272 | 2300 | 7.3 | 3.18 | -34.9133225 | 138.6086052 | 6.7 |
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| 59114 | 6628-12145 | 22 | DOM | OPR | 1636 | 2950 | 7.2 | 0.5 | -34.8987825 | 138.6109202 | 19 |
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| 59566 | ADE159 | 36 | MON | | 2171 | 3900 | 7.8 | 0.26 | -34.9049185 | 138.6278022 | 10.01 |
| 59580 | 6628-12611 | 18 | IRR | OPR | 1356 | 2450 | 6.95 | 1 | -34.9093005 | 138.6145002 | 9.5 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 59636 | 6628-12667 | 18 | DOM | OPR | 2290 | 4110 | 7.7 | 1 | -34.9121355 | 138.6349712 | 6.6 |
| 59967 | 6628-12998 | 9 | - | | 2323 | 4170 | 7.1 | 0.5 | -34.9094895 | 138.6333722 | 3 |
| 60476 | 6628-13507 | 7.32 | - | | 2008 | 3610 | | 0.38 | -34.9122535 | 138.6294622 | 5.49 |
| 60492 | 6628-13523 | 24 | DOM | OPR | 2001 | 3600 | 8 | 0.5 | -34.9033635 | 138.6317322 | 10 |
| 58891 | 6628-11922 | 87 | GEN | | | | | 0.95 | -34.9148925 | 138.6247352 | 3.2 |
| 59851 | 6628-12882 | 8.5 | MON | BKF | | | | | -34.9205625 | 138.6031962 | |
| 59854 | 6628-12885 | 1.5 | MON | BKF | | | | | -34.9205635 | 138.6032072 | |
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| 59858 | 6628-12889 | 3 | MON | BKF | | | | | -34.9205635 | 138.6032182 | |
| 59859 | 6628-12890 | 6 | MON | BKF | | | | | -34.9205635 | 138.6032182 | |
| 59893 | 6628-12924 | 27 | TWS | OPR | 1160 | 2100 | 7.7 | 1.38 | -34.9219475 | 138.6190372 | 5.4 |
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| 61516 | 6628-14547 | 10.5 | MON | ABD | | | | | -34.9022485 | 138.6088722 | |
| 61517 | 6628-14548 | 10.4 | MON | ABD | | | | | -34.9005915 | 138.6012402 | |
| 61518 | 6628-14549 | 10.3 | MON | ABD | | | | | -34.9044085 | 138.6275432 | |
| 62086 | 6628-15117 | 12 | DRN | OPR | 1154 | 2090 | 6.7 | 1.2 | -34.9118795 | 138.6181792 | 6.1 |
| 62411 | 6628-15442 | 11.5 | DOM | OPR | 1658 | 2990 | 7.7 | 1.25 | -34.9003555 | 138.6203512 | 7 |
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| 62507 | 6628-15538 | 7 | DOM | OPR | | | | | -34.9005255 | 138.6221072 | 6 |
| 62570 | 6628-15601 | 12 | DOM | OPR | 1596 | 2879 | 7.8 | 1.5 | -34.9081625 | 138.6231022 | 2.7 |
| 60792 | 6628-13823 | 17 | - | | 1810 | 3260 | 7.4 | 0.63 | -34.9087665 | 138.6332512 | 7.6 |
| 60847 | 6628-13878 | 13 | - | | 1110 | 2010 | 5.8 | 0.4 | -34.9173585 | 138.6268312 | 3 |
| 61320 | 6628-14351 | 15.2 | DOM | OPR | 1867 | 3360 | 7.5 | 1 | -34.9090895 | 138.6336252 | 8.9 |
| 62226 | 6628-15257 | 30 | - | BKF | | | | | -34.9136115 | 138.6077322 | 7.2 |
| 62926 | 6628-15957 | 16 | DOM | OPR | 1184 | 2142 | 8 | 2 | -34.9134795 | 138.6221272 | 7 |
| 62637 | 6628-15668 | 12 | DOM | OPR | 1362 | 2460 | 6.7 | | -34.9186785 | 138.6326052 | 6 |
| 62677 | 6628-15708 | 17.3 | DOM | OPR | 900 | 1631 | 7.6 | 2 | -34.9080955 | 138.6247672 | 8.3 |
| 62751 | 6628-15782 | 16.2 | - | | 1138 | 2060 | 7.9 | 1.25 | -34.9130765 | 138.6208702 | 6 |
| 63150 | 6628-16181 | 15 | DOM | OPR | 1496 | 2700 | 6.9 | | -34.9080305 | 138.6163862 | 6.3 |
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| 63153 | 6628-16184 | 20 | TWS | OPR | 1765 | 3181 | 7.5 | 1.6 | -34.9256415 | 138.6143222 | 1.7 |
| 47157 | 6628-57 | 6.4 | - | UKN | | | | | -34.9189575 | 138.6026852 | |
| 47623 | 6628-526 | 30.94 | - | | | | | | -34.9118105 | 138.6000372 | |
| 47147 | 6628-47 | 27.43 | - | ABD | 1320 | 2387 | 7 | 0.13 | -34.9197655 | 138.6043582 | 12.19 |
| 59894 | 6628-12925 | 94.4 | TWS | OPR | 1306 | 2360 | 7.7 | 0.75 | -34.9235805 | 138.6177532 | 8.4 |
| 57884 | 6628-10915 | 11.58 | - | ABD | | | | | -34.9223775 | 138.6015122 | |
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| 60260 | 6628-13291 | 12.1 | DRN | OPR | | | | | -34.8986525 | 138.6194482 | |
| 60500 | 6628-13531 | 16 | DRN | | | | | | -34.9096425 | 138.6245582 | 3.8 |
| 60969 | 6628-14000 | 66 | - | | 1083 | 1960 | 8.1 | 1.26 | -34.9174585 | 138.6254822 | 0 |
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| 61262 | 6628-14293 | 10.6 | DOM | OPR | 1658 | 2990 | 7.2 | 1.2 | -34.9087645 | 138.6225372 | 2.1 |
| 61480 | 6628-14511 | 42.6 | RCL | OPR | 949 | 1720 | | 1 | -34.9189675 | 138.6298492 | 16 |
| 62980 | 6628-16011 | 12 | - | | | | | | -34.9209695 | 138.6311812 | 11 |
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| 59479 | 6628-12510 | 25 | - | | 2426 | 4350 | 7.7 | 1 | -34.9119065 | 138.6347802 | 5 |
| 59521 | 6628-12552 | 11 | - | | | | | | -34.8973765 | 138.6233582 | 8 |
| 61768 | 6628-14799 | 13.7 | DOM DRN | OPR | | | | | -34.8975775 | 138.6133622 | 0 |
| 62965 | 6628-15996 | 18 | DOM | OPR | 1474 | 2660 | 7 | | -34.9068165 | 138.6317532 | 12 |
| 62983 | 6628-16014 | 16 | DOM | ABD | 989 | 1791 | | | -34.9175565 | 138.6176432 | 5.7 |
| 57896 | 6628-10927 | 13.72 | - | ABD | | | | | -34.9223775 | 138.6015122 | |
| 61223 | 6628-14254 | 16 | - | | 1979 | 3560 | 7.6 | 4 | -34.9068555 | 138.6226692 | 3 |
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| 47134 | 6628-34 | 18.9 | - | ABD | 1210 | 2191 | | 0.38 | -34.9194215 | 138.6074652 | 6.1 |
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| 47187 | 6628-87 | 25.1 | - | UKN | 1688 | 3042 | 7.4 | | -34.9146235 | 138.6101212 | |
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| 47642 | 6628-545 | 5.18 | DRN | | | | | | -34.9209885 | 138.5987952 | |
| 59856 | 6628-12887 | 3 | MON | BKF | | | | | -34.9205635 | 138.6032072 | |
| 62638 | 6628-15669 | 15 | DOM | OPR | 1776 | 3200 | 7.1 | | -34.9033755 | 138.6290832 | 10 |
| 62905 | 6628-15936 | 18 | DOM | OPR | 1463 | 2640 | 7.1 | | -34.9067325 | 138.6315802 | 9 |
| 47718 | 6628-629 | 20.12 | - | UKN | | | | | -34.9270675 | 138.6057212 | |
| 58075 | 6628-11106 | 21.3 | - | UKN | | | | | -34.9229995 | 138.5997542 | |
| 58086 | 6628-11117 | 20.15 | - | UKN | | | | | -34.9068135 | 138.6113332 | |
| 131803 | 6628-16252 | 23 | IND | | 999 | 1810 | 7 | | -34.9122745 | 138.6291452 | |
| 132789 | 6628-16316 | 20 | DOM | | 1452 | 2620 | 6.9 | | -34.8969945 | 138.6222422 | 12 |
| 134425 | 6628-16355 | 19 | DOM | | 783 | 1420 | 7.1 | | -34.9073275 | 138.6344202 | |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 134433 | 6628-16363 | 18 | - | | 1183 | 2142 | | | -34.9116245 | 138.6189312 | |
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| 142103 | 6628-16632 | 12 | DOM | | 2267 | 4070 | 6.8 | | -34.8995275 | 138.6241402 | |
| 145689 | 6628-16727 | 39.1 | MON | DEC | | | | | -34.9158745 | 138.5972812 | |
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| 148580 | 6628-17071 | 30 | DRN | ABD | | | | | -34.8968176 | 138.6116836 | |
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| 148675 | 6628-17121 | 6.2 | MON | | | | | | -34.9205105 | 138.6175262 | |
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| 148679 | 6628-17125 | 7.7 | MON | | | | | | -34.9206085 | 138.6179152 | |
| 150837 | 6628-17254 | 17.5 | DOM | | 1770 | 3190 | 7 | 2 | -34.9069635 | 138.6231592 | |
| 150965 | 6628-17281 | 19 | DOM | | 1284 | 2320 | 7.6 | 1.1 | -34.9149805 | 138.6200732 | |
| 151182 | 6628-17304 | 24 | DOM | STK | 2216 | 3980 | 6.9 | 1 | -34.8981195 | 138.6129652 | 8.1 |
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| 153484 | 6628-17544 | 25 | DOM | ABD | | | | | -34.8996495 | 138.6096922 | |
| 153194 | 6628-17480 | 30 | DRN | | 1250 | 2260 | 7.3 | 0.5 | -34.9179909 | 138.6279594 | |
| 153313 | 6628-17510 | 19 | DOM | | 1754 | 3160 | 7.3 | 1 | -34.9071805 | 138.6314152 | |
| 47121 | 6628-21 | 18.52 | - | | 1021 | 1849 | 7.7 | | -34.9201905 | 138.6094562 | 5.49 |
| 47139 | 6628-39 | 5.79 | - | | | | | | -34.9188615 | 138.6069892 | |
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| 57885 | 6628-10916 | 11.58 | - | ABD | | | | | -34.9223775 | 138.6015122 | |
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| 159794 | 6628-17957 | 17.5 | DOM | | 1049 | 1900 | 7.9 | 1 | -34.9124055 | 138.6234062 | |
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| 161246 | 6628-18005 | 24 | DOM | | 1872 | 3370 | 7 | 1 | -34.9088415 | 138.6333922 | |
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| 47126 | 6628-26 | 18.36 | - | ABD | | | | | -34.9195005 | 138.6082832 | 7.87 |
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| 47114 | 6628-14 | 20.04 | - | UKN | | | | | -34.9207185 | 138.6101852 | 7.16 |
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| 47222 | 6628-122 | 24.38 | - | ABD | 2241 | 4025 | | | -34.9202055 | 138.6061072 | 5.79 |
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| 161849 | 6628-18024 | 10.67 | - | UKN | | | | | -34.9203465 | 138.6023292 | |
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| 57889 | 6628-10920 | 11.43 | - | ABD | | | | | -34.9223775 | 138.6015122 | |
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| 58253 | 6628-11284 | 18.8 | - | BKF | | | | | -34.9230695 | 138.6064292 | |
| 59853 | 6628-12884 | 3 | MON | BKF | | | | | -34.9205635 | 138.6032072 | |
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| 47177 | 6628-77 | 5.64 | - | UKN | | | | | -34.9219215 | 138.6085632 | |
| 47199 | 6628-99 | 30.33 | - | BKF | 785 | 1424 | | 3.79 | -34.9222545 | 138.6163142 | 9.14 |
| 47206 | 6628-106 | 9.75 | - | | 1832 | 3300 | | | -34.9132035 | 138.6208992 | |
| 47275 | 6628-175 | | - | | 1257 | 2274 | | | -34.9109545 | 138.6206792 | |
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| 56498 | 6628-9529 | 36.58 | - | | 1028 | 1862 | | | -34.8984285 | 138.6071552 | 22.86 |
| 56510 | 6628-9541 | 15.7 | - | | 105 | 191 | | | -34.8948065 | 138.6163972 | 12.34 |
| 56548 | 6628-9579 | 12.8 | - | | 1956 | 3520 | | | -34.8941765 | 138.6288982 | |
| 161852 | 6628-18027 | 12.95 | - | UKN | | | | | -34.9202885 | 138.6026042 | |
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| 60497 | 6628-13528 | 18 | EXP MON | | | | | 0.5 | -34.9162925 | 138.6083332 | 5 |
| 140951 | 6628-16563 | 16 | DOM | | | | | 1.2 | -34.9149945 | 138.6206952 | |
| 163079 | 6628-18242 | 21 | DOM | | 1703 | 3070 | | 0.5 | -34.9060105 | 138.6339122 | 9 |
| 142115 | 6628-16636 | 16 | DOM | | 337 | 612 | 7.3 | 1.2 | -34.9157195 | 138.6199842 | |
| 62299 | 6628-15330 | 17.4 | - | OPR | 1407 | 2540 | 7.7 | 3 | -34.9135059 | 138.60728 | 7 |
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| 59317 | 6628-12348 | 16 | - | | | | | 0.54 | -34.9049645 | 138.6305912 | |
| 59453 | 6628-12484 | 21.3 | DOM | OPR | | | | 0.3 | -34.9118975 | 138.6329642 | 7.3 |
| 59860 | 6628-12891 | 3 | MON | BKF | | | | | -34.9205635 | 138.6032182 | |
| 62550 | 6628-15581 | 15 | DOM | OPR | 868 | 1574 | 7.6 | 1 | -34.9166645 | 138.6323782 | 6.5 |
| 62584 | 6628-15615 | 30.4 | IRR | OPR | 968 | 1753 | 8.6 | 10.5 | -34.9174205 | 138.6249252 | 13.7 |
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| 138426 | 6628-16489 | 15 | DOM | | | | | | -34.9083165 | 138.6171342 | 9 |
| 146779 | 6628-16818 | 39 | MON | BKF | | | | | -34.9151465 | 138.5969512 | |
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| 47128 | 6628-28 | 18.36 | - | ABD | 1010 | 1829 | | | -34.9190805 | 138.6089632 | 6.4 |
| 47141 | 6628-41 | 18.29 | - | ABD | 1830 | 3297 | 7 | 0.25 | -34.9189495 | 138.6050382 | 3.66 |
| 47142 | 6628-42 | 21.49 | - | ABD | 2155 | 3874 | 7 | 0.13 | -34.9191955 | 138.6042762 | 12.19 |
| 47149 | 6628-49 | 6.48 | - | UKN | | | | | -34.9187695 | 138.6036872 | |
| 47235 | 6628-135 | | - | | | | | | -34.9214725 | 138.6058732 | |
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| 58097 | ADE048 | 19.32 | MON | | 781 | 1417 | | | -34.8940355 | 138.6244502 | 7.54 |
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| 47220 | 6628-120 | 9.45 | - | ABD | 1172 | 2120 | | | -34.9201125 | 138.6059672 | |
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| 47217 | 6628-117 | 9.14 | - | ABD | 1856 | 3343 | | | -34.9202905 | 138.6053932 | 6.71 |
| 164084 | 6628-18266 | 19.8 | ENV RCL | OPR | 2238 | 4020 | | 2 | -34.9127574 | 138.6063496 | 8 |
| 164355 | 6628-18388 | 30 | DOM | | 2307 | 4140 | | 0.5 | -34.9106945 | 138.6336672 | 11.5 |
| 164407 | 6628-18400 | 16 | DOM | | 1255 | 2270 | | | -34.9141435 | 138.6215082 | |
| 59862 | 6628-12893 | 4 | MON | BKF | | | | | -34.9205635 | 138.6032182 | |
| 164465 | 6628-18406 | 24 | DOM | | 1412 | 2551 | | 0.5 | -34.9239385 | 138.6286352 | |
| 164548 | 6628-18439 | 18 | DOM | | 1973 | 3550 | | | -34.9079055 | 138.6270172 | 9 |
| 164550 | 6628-18441 | 25 | DOM | | 1670 | 3010 | | 1 | -34.9072015 | 138.6348622 | 12 |
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| 168281 | 6628-18860 | 18.2 | DOM | | 2813 | 5030 | | 0.25 | -34.8899255 | 138.6203682 | 11 |
| 164679 | 6628-18465 | 19 | DOM | | 2493 | 4470 | | 1 | -34.8999705 | 138.6260312 | 9 |
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| 167155 | 6628-18706 | 18 | DOM | | 1284 | 2320 | | 0.8 | -34.9057605 | 138.6233802 | 6 |
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| 164822 | 6628-18495 | 19 | DOM | OPR | 2460 | 4410 | | | -34.8998675 | 138.6253342 | 9.2 |
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| 165711 | 6628-18511 | 27 | DOM | | 2267 | 4070 | | | -34.9118675 | 138.6337432 | 10 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 165715 | 6628-18513 | 18 | DOM | | 1788 | 3220 | | | -34.9064265 | 138.6214902 | 5.4 |
| 174181 | 6628-19398 | 18 | DOM | | 1720 | 3100 | | 1 | -34.8955785 | 138.6235972 | 9 |
| 174949 | 6628-19475 | 22.5 | DOM | | 1083 | 1960 | | 2 | -34.9141435 | 138.6228652 | 7.5 |
| 172405 | 6628-19240 | 12.3 | MON | BKF | | | | | -34.8965385 | 138.5991152 | |
| 173727 | 6628-19299 | 14 | DOM | | 2334 | 4190 | | 0.8 | -34.9003615 | 138.6215992 | 8 |
| 173984 | 6628-19347 | 90.3 | DOM | | 2205 | 3960 | | 0.25 | -34.8904305 | 138.6208452 | 11 |
| 173822 | 6628-19323 | 24 | DOM | | 2256 | 4050 | | | -34.9117315 | 138.6336922 | 10 |
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| 174618 | 6628-19471 | 36 | DOM | ABD | | | | | -34.8987155 | 138.6015792 | |
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| 175954 | 6628-19587 | 20 | DOM | | 1670 | 3010 | | 1 | -34.8954845 | 138.6234362 | 8.8 |
| 176251 | 6628-19666 | 18 | DOM | | 1194 | 2160 | | 1 | -34.9126615 | 138.6235862 | 6 |
| 181061 | 6628-20240 | 31 | DOM | ABD | | | | | -34.8962445 | 138.6078252 | |
| 181062 | 6628-20241 | 24 | DOM | | 1743 | 3140 | 6.86 | 0.5 | -34.9007625 | 138.6129792 | 15 |
| 180951 | 6628-20205 | 10.5 | MON | BKF | | | | 0.01 | -34.9125615 | 138.6248392 | 6.8 |
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| 180561 | 6628-20161 | 23 | DOM | | 1083 | 1960 | | 1 | -34.9136955 | 138.6215342 | 6.6 |
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| 187647 | 6628-20684 | 20 | DOM | | 1642 | 2960 | | 1 | -34.9028325 | 138.6233472 | 8 |
| 190003 | 6628-20795 | 22.5 | DOM | | 1005 | 1820 | | 1 | -34.9176475 | 138.6175792 | 7 |
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| 194743 | 6628-20996 | 20 | DOM | | 1188 | 2150 | | 0.8 | -34.9191185 | 138.6322342 | 7.5 |
| 194803 | 6628-21004 | 31.5 | DOM | | 783 | 1420 | | 1 | -34.9134265 | 138.6231642 | 6 |
| 195348 | 6628-21062 | 19.5 | DOM | | 1917 | 3450 | | 0.1 | -34.9096745 | 138.6306562 | 7.3 |
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| 198012 | 6628-21463 | 15 | DOM | | 1474 | 2660 | | 1 | -34.8942045 | 138.6262872 | 9.2 |
| 198299 | 6628-21537 | 25 | DOM | | 2234 | 4010 | | 0.33 | -34.8904345 | 138.6187812 | 15.8 |
| 199975 | 6628-21684 | 18 | DOM | | 1642 | 2960 | | 0.58 | -34.8953265 | 138.6239012 | 8 |
| 196384 | 6628-21178 | 14 | DOM | | 1446 | 2610 | | 0.5 | -34.8997885 | 138.6333092 | 11 |
| 197253 | 6628-21340 | 18 | DOM | | 1642 | 2960 | | 0.5 | -34.8991235 | 138.6324432 | 6 |
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| 196717 | 6628-21225 | 8 | MON | | | | | | -34.9191985 | 138.6266542 | 5.6 |
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| 201600 | 6628-21885 | 11 | MON | | | | | | -34.9011785 | 138.6188132 | 9 |
| 201601 | 6628-21886 | 13 | MON | | 25181 | 39800 | | | -34.9012695 | 138.6185742 | 11.3 |
| 201602 | 6628-21887 | 3.2 | MON | | | | | | -34.9010125 | 138.6186812 | 2.4 |
| 201603 | 6628-21888 | 4.5 | MON | | | | | | -34.9011615 | 138.6183552 | 2.5 |
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| 200342 | 6628-21768 | 20 | DOM | | 1597 | 2880 | | 2 | -34.9082175 | 138.6278512 | 5.5 |
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| 218484 | 6628-22579 | 75 | - | | | | | | -34.8988965 | 138.6013672 | |
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 236159 | 6628-23323 | 20 | - | | 1222 | 2210 | 2 | -34.9125595 | 138.6210412 | 6 |
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| 240227 | 6628-23654 | 20 | - | | 1452 | 2620 | 0.8 | -34.8944905 | 138.6256702 | 9 |
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| 241484 | 6628-23753 | 14 | - | | | | 0.375 | -34.8966325 | 138.6207402 | 5.7 |
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| 266517 | 6628-26033 | 113 | MAR | OPR | 1071 | 1939 | 12 | -34.8948295 | 138.6216082 | 5 |
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|---|---|---|---|---|---|---|---|---|---|---|---|
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| 285069 | 6628-27760 | 11 | MON | BKF | | | | | -34.9180975 | 138.6150352 | 3 |
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| 288421 | 6628-28134 | 29.1 | - | BKF | | | | | -34.9184115 | 138.6142322 | |
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| 288424 | 6628-28137 | 14.75 | - | BKF | | | | | -34.9231625 | 138.6128782 | |
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| 290444 | 6628-28625 | 22 | MON | DEC | | | | | -34.9264305 | 138.6088132 | |
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| 290473 | 6628-28635 | 13.3 | MON | | | | | | -34.9194135 | 138.6150472 | |
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| 290360 | 6628-28605 | 7 | - | | | | | -34.9216575 | 138.6218992 | 4.97 |
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| 313799 | 6628-29850 | 23 | MON | | 718 | 1302 | | -34.9210205 | 138.5983002 | 13.31 |
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| 313803 | 6628-29854 | 41.5 | MON | | 1698 | 3060 | | -34.9210165 | 138.5983122 | 13.21 |
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| 336597 | 6628-30724 | 17 | MON | BKF | | | | -34.9264265 | 138.6101447 | |
| 334434 | 6628-30619 | 17 | MON | BKF | | | | -34.9264265 | 138.6101447 | |
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| 290447 | 6628-28628 | 28.5 | MON | BKF | | | | -34.9217915 | 138.6047072 | |
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| 371215 | 6628-32004 | 35 | MON | BKF | | | | -34.9174107 | 138.606893 | |
| 354319 | 6628-31147 | 7.5 | ENV | BKF | | | | -34.9144817 | 138.6317663 | |
| 354320 | 6628-31148 | 9 | ENV | BKF | | | | -34.9147645 | 138.6333232 | |
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| 325650 | 6628-30398 | 11.5 | MON | | | | | -34.9158927 | 138.6287708 | |
| 367843 | 6628-31744 | 17 | ENV | DRY | | | | -34.9270377 | 138.605475 | |
| 362028 | 6628-31548 | 20 | MON | BKF | | | | -34.9209805 | 138.6160487 | |
| 373232 | 6628-32131 | | - | BKF | | | | -34.9010375 | 138.6097469 | |
| 373233 | 6628-32132 | | - | BKF | | | | -34.9007786 | 138.6094152 | |
| 325426 | 6628-30321 | 5 | MON | | | | | -34.9048622 | 138.5950344 | |
| 325427 | 6628-30322 | 5 | MON | | | | | -34.9047973 | 138.5952464 | |
| 325428 | 6628-30323 | 5 | MON | | | | | -34.9047299 | 138.5951136 | |
| 377544 | 6628-32311 | 30 | MON | BKF | | | | -34.9061406 | 138.5967589 | |
| 377545 | 6628-32312 | 30 | MON | BKF | | | | -34.9070353 | 138.5968751 | |
| 344049 | 6628-30808 | 10.6 | MON | BKF | | | | -34.9107302 | 138.6135651 | |
| 344050 | 6628-30809 | 10.9 | MON | BKF | | | | -34.9101051 | 138.6137959 | |
| 344051 | 6628-30810 | 10.7 | MON | DEC | | | | -34.9102694 | 138.6133954 | |
| 367617 | 6628-31719 | 10 | ENV | BKF | | | | -34.9205825 | 138.6094712 | |
| 367618 | 6628-31720 | 10 | ENV | BKF | | | | -34.9205725 | 138.6101512 | |
| 367619 | 6628-31721 | 10 | ENV | BKF | | | | -34.9195855 | 138.6100052 | |
| 369206 | 6628-31825 | 8.2 | MON | BKF | | | | -34.9167039 | 138.6273794 | |
| 369207 | 6628-31826 | 8 | MON | BKF | | | | -34.91675 | 138.6274328 | |
| 236083 | 6628-23268 | 9.5 | MON | ABD | | | | -34.9125775 | 138.6250132 | |
| 375546 | 6628-32236 | 7 | ENV | DRY | | | | -34.9124412 | 138.6177731 | |
| 375547 | 6628-32237 | 7 | ENV | DRY | | | | -34.9125145 | 138.6178367 | |
| 375548 | 6628-32238 | 6.5 | ENV | DRY | | | | -34.9126606 | 138.6174713 | |
| 369205 | 6628-31824 | 8.2 | MON | BKF | | | | -34.9167116 | 138.6273135 | |
| 339445 | 6628-30757 | | - | BKF | | | | -34.9104273 | 138.6139136 | |
| 325444 | 6628-30328 | 20 | MON | | | | | -34.9215009 | 138.6076717 | |
| 326065 | 6628-30419 | 9.5 | MON | | | | | -34.916362 | 138.6283414 | |
| 355136 | 6628-31261 | 15 | MON | BKF | | | | -34.9019765 | 138.6340972 | |
| 333209 | 6628-30607 | 120.5 | MAR | OPR | 1558 | 2810 | 13 | -34.8958224 | 138.6219228 | 9.3 |
| 352960 | 6628-31001 | 17 | - | BKF | | | | -34.9262278 | 138.6101285 | |
| 355493 | 6628-31338 | 24.95 | MON | BKF | | | | -34.9203858 | 138.610101 | |
| 370814 | 6628-31946 | 9 | MON | | | | | -34.9150243 | 138.6309299 | |
| 370815 | 6628-31947 | 9 | MON | | | | | -34.9149844 | 138.630734 | |
| 371063 | 6628-31964 | | MON | BKF | | | | -34.9258856 | 138.6078509 | |
| 370813 | 6628-31945 | 8.5 | MON | | | | | -34.9148293 | 138.6310997 | |
| 371571 | 6628-32065 | 8 | ENV | | | | | -34.9127541 | 138.6250089 | |
| 371572 | 6628-32066 | 8 | ENV | | | | | -34.9127162 | 138.6249115 | |
| 371573 | 6628-32067 | 8.5 | ENV | | | | | -34.9126167 | 138.6248925 | |
| 371574 | 6628-32068 | 8.5 | ENV | | | | | -34.9125865 | 138.6247572 | |
| 371582 | 6628-32075 | 5 | ENV | | | | | -34.9050263 | 138.5946685 | |
| 371583 | 6628-32076 | 5 | ENV | | | | | -34.9049274 | 138.5946823 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 371584 | 6628-32077 | 5 | ENV | | -34.9049772 | 138.5949216 |
| 371585 | 6628-32078 | 5 | ENV | | -34.9048211 | 138.5947729 |
| 371586 | 6628-32079 | 5 | ENV | | -34.9051218 | 138.5949393 |
| 371587 | 6628-32080 | 5 | ENV | | -34.9050583 | 138.5949192 |
| 354352 | 6628-31166 | 8.5 | ENV | BKF | -34.9142461 | 138.6326267 |
| 365581 | 6628-31697 | 9.5 | - | BKF | -34.9125777 | 138.6249743 |
| 365584 | 6628-31698 | | - | BKF | -34.9127376 | 138.6248493 |
| 365585 | 6628-31699 | | - | BKF | -34.9128903 | 138.624823 |
| 367611 | 6628-31717 | 17 | - | | -34.9262413 | 138.6101213 |
| 371564 | 6628-32062 | 5 | ENV | | -34.9049693 | 138.5949765 |
| 371565 | 6628-32063 | 5 | ENV | | -34.9048261 | 138.5950245 |

# GROUNDWATER ENVIRONMENTAL VALUES

Information relating to the protection of and management of water quality for South Australia can be obtained from:

- Government of Australia, 2018, Australian and New Zealand Guidelines for Fresh and Marine Water Quality (AWQG); and
- Government of South Australia, Environment Protection (Water Quality) Policy 2015 (WQEPP).

The WQEPP references the AWQG as the overarching document relating to the protection and management of water quality in South Australia. In addition, the EPA (2019) Guidelines for the Assessment and remediation of Site Contamination (GAR 2019) provides processes to determine whether there is actual or potential harm to water that is not trivial, through consideration of environmental values. The four-step process to determine the environmental values of groundwater at the site is presented below.

Gama has followed the four-step process as discussed below:

**Step 1: Determination of protected environmental values of groundwater using the WQEPP**.

The following environmental values of groundwater may relate to the site:

- Drinking water for human consumption
- Primary industries— irrigation and general water uses
- Primary industries— livestock drinking water
- Primary industries— aquaculture and human consumption of aquatic foods

A summary of groundwater wells with environmental values outlined above within 2 km of the site is provided in the table below.

**Table1**: Number of groundwater bores in use with 2km radius.

| Use | Number of Registered Bores |
|---|---|
| Domestic | 112 |
| Drainage | 33 |
| Environmental | 23 |
| Exploration | 3 |
| General Usage | 1 |
| Geothermal Energy | 1 |
| Water Hole | 1 |

| Use | Number of Registered Bores |
|---|---|
| Industrial | 1 |
| Irrigation | 6 |
| Managed Aquifer Recharge (incl ASR) | 5 |
| Monitoring | 260 |
| Recreational | 3 |
| Town Water Supply (Public/Muncipal) | 3 |
| Unknown | 468 |

**Step 2: Application of a buffer distance for the protection of surface waters.** Surface water has been considered in a relevant section in the body of the report and is therefore not considered further in this assessment of groundwater environmental values.

**Step 3: Review of available groundwater data using WaterConnect**.

As per Schedule 1, Table 3 in the WQEPP, the potential for groundwater to be utilised is based on total dissolved solids concentrations (TDS). The relative TDS concentration and corresponding potential use are provided in the table 2 below.

**Table 2**: Relative TDS concentrations and corresponding potential uses.

| TDS (mg/L) | Drinking Water | Irrigation and General Use in Primary Production | Livestock Drinking Water | Aquaculture for human consumption |
|---|---|---|---|---|
| **<1,200** | x | x | x | X |
| **>1,200 <3,000** | - | x | x | X |
| **>3,000 <13,000** | - | - | x | x |

Gama completed a review of the DEW (Government of South Australia) WaterConnect groundwater database for groundwater wells utilised for WQEPP environmental values and located within a 2 km radius of the site are presented in the table 3.

**Table 3**: Environmental values with a 2km radius.

| Use & Characteristics | Min | Max |
|---|---|---|
| **Domestic** | | |
| Drilled Depths (m) | 6.9 | 90.3 |
| Standing Water Level (m-bgl) | 0.00 | 19.00 |
| Total Dissolved Solids (milligrams per litre) mg/L | 337 | 2,813 |
| pH | 6.7 | 8.0 |
| Yield (litres per second) L/S | 0.10 | 132.00 |
| **Drainage** | | |
| Drilled Depths (m) | 5.2 | 61.0 |
| Standing Water Level (m-bgl) | 3.80 | 25.91 |
| Total Dissolved Solids (milligrams per litre) mg/L | 970 | 2,273 |
| pH | 6.7 | 7.5 |

| Use & Characteristics | Min | Max |
|---|---|---|
| Yield (litres per second) L/S | 0.25 | 7.58 |
| **Environmental** | | |
| Drilled Depths (m) | 5.0 | 19.8 |
| Standing Water Level (m-bgl) | 8.00 | 8.00 |
| Total Dissolved Solids (milligrams per litre) mg/L | 2,238 | 2,238 |
| pH | NM | NM |
| Yield (litres per second) L/S | 2.00 | 2.00 |
| **Exploration** | | |
| Drilled Depths (m) | 6.5 | 18.0 |
| Standing Water Level (m-bgl) | 5.00 | 5.00 |
| Total Dissolved Solids (milligrams per litre) mg/L | NM | NM |
| pH | NM | NM |
| Yield (litres per second) L/S | 0.50 | 0.50 |
| **General Usage** | | |
| Drilled Depths (m) | 87 | 87 |
| Standing Water Level (m-bgl) | 3.2 | 3.2 |
| Total Dissolved Solids (milligrams per litre) mg/L | NM | NM |
| pH | NM | NM |
| Yield (litres per second) L/S | 0.95 | 0.95 |
| **Geothermal Energy** | | |
| Drilled Depths (m) | 72 | 72 |
| Standing Water Level (m-bgl) | NM | NM |
| Total Dissolved Solids (milligrams per litre) mg/L | NM | NM |
| pH | NM | NM |
| Yield (litres per second) L/S | NM | NM |
| **Water Hole** | | |
| Drilled Depths (m) | NM | NM |
| Standing Water Level (m-bgl) | NM | NM |
| Total Dissolved Solids (milligrams per litre) mg/L | 1713 | 1713 |
| pH | NM | NM |
| Yield (litres per second) L/S | NM | NM |
| **Industrial** | | |
| Drilled Depths (m) | 23 | 23 |
| Standing Water Level (m-bgl) | NM | NM |
| Total Dissolved Solids (milligrams per litre) mg/L | 999 | 999 |
| pH | 7 | 7 |
| Yield (litres per second) L/S | NM | NM |
| **Irrigation** | | |
| Drilled Depths (m) | 15 | 55 |
| Standing Water Level (m-bgl) | 6.7 | 13.7 |
| Total Dissolved Solids (milligrams per litre) mg/L | 968 | 1356 |
| pH | 6.95 | 8.6 |

| | | |
|---|---|---|
| Yield (litres per second) L/S | 0.375 | 10.5 |
| **Use & Characteristics** | **Min** | **Max** |
| **Managed Aquifer Recharge (incl ASR)** | | |
| Drilled Depths (m) | 113 | 183 |
| Standing Water Level (m-bgl) | 5 | 13 |
| Total Dissolved Solids (milligrams per litre) mg/L | 1071 | 3218 |
| pH | NM | NM |
| Yield (litres per second) L/S | 4 | 15 |
| **Monitoring/Investigation/Observation** | | |
| Drilled Depths (m) | 1.5 | 186.0 |
| Standing Water Level (m-bgl) | -7.34 | 25.00 |
| Total Dissolved Solids (milligrams per litre) mg/L | 350 | 25,181 |
| pH | 6.9 | 11.5 |
| Yield (litres per second) L/S | 0.00 | 3.56 |
| **Recreational** | | |
| Drilled Depths (m) | 12.8 | 42.6 |
| Standing Water Level (m-bgl) | 6.4 | 16 |
| Total Dissolved Solids (milligrams per litre) mg/L | 949 | 1658 |
| pH | 7 | 7.1 |
| Yield (litres per second) L/S | 1 | 4.42 |
| **Town Water Supply (Public/Muncipal)** | | |
| Drilled Depths (m) | 20 | 94.4 |
| Standing Water Level (m-bgl) | 1.7 | 8.4 |
| Total Dissolved Solids (milligrams per litre) mg/L | 1160 | 1765 |
| pH | 7.5 | 7.7 |
| Yield (litres per second) L/S | 0.75 | 1.6 |
| **Unknown** | | |
| Drilled Depths (m) | 1.8 | 125.3 |
| Standing Water Level (m-bgl) | 0.00 | 31.09 |
| Total Dissolved Solids (milligrams per litre) mg/L | 105 | 9,296 |
| pH | 5.8 | 8.4 |
| Yield (litres per second) L/S | 0.01 | 32.00 |

**Step 4: Determination of whether actual or potential harm to groundwater that is not trivial, through the application of SA EPA recognised criteria.**

Table 4.

| Potential Environmental Values | Environmental Value Considered | Realistic Use | Justification |
|---|---|---|---|
| **Drinking water for human consumption** | Yes | Unlikely | Wells registered for domestic use are located within a 2 km radius of the site. It is unlikely groundwater within the 2 km radius is used for potable purposes given the availability of reticulated mains. |
| **Primary industries – irrigation and general water uses** | Yes | Unlikely | There are bores registered for irrigation within a 2 km radius of the site. There is also potential for groundwater extracted from the domestic bores to be used for irrigation, however, this is considered unlikely due to the presence of a reticulated water supply. |
| **Primary industries – livestock drinking water** | No | No | There are no bores registered for stock watering within a 2 km radius of the site. Stock watering is considered unlikely, given the urban setting of the site and surrounding area. |
| **Primary industries – aquaculture and human consumption of aquatic foods** | No | No | Assumed groundwater is not used in the vicinity of the site for fresh-water aquaculture, given the site setting and local TDS concentrations. |

Based on the table provided above, the environmental value of groundwater within 2km of the site is considered limited with no realistic beneficial use of extracted groundwater.

# APPENDIX D: CERTIFICATE OF TITLE INFORMATION

STRUCTURAL.CIVIL.ENVIRONMENTAL

GAMA CONSULTING
Structural, Civil & Environmental Engineering

Suite 3/83 Fullarton Road
Kent Town SA 5067
(08) 7123 4050
gamaconsulting.com.au

# HISTORY OF OWNERSHIP – CT 5556/453

| Date of Acquisition and term held | Registered Proprietor(s) & Occupations where available | Reference to Title at Acquisition and sale |
|---|---|---|
| 30.03.1926<br>(1926-1975) | William Hartley James<br>Winfred Murial Foster – 19 April 1928<br>Thomas Walton Holland (Caravan Park Proprietor) and Dalphne Edna Holland – 6 May 1954<br>Adelaide Caravan Park Pty Ltd – 2 October 1974 | Volume 1413 Folio 140 |
| 26.02.1975<br>(1975-1991) | Adelaide Caravan Park Pty Ltd | Volume 4035 Folio 894 |
| 19.03.1991<br>(1991-1998) | Adelaide Caravan Park Pty Ltd | Volume 4376 Folio 870 |
| 17.07.1998<br>(1998-Present) | Adelaide Caravan Park Pty Ltd<br>Converted to computerised title | Volume 5556 Folio 453 |

*Site ownership has been owned by private residents and Adelaide Caravan Park.

Certificate Titles reviewed as part of this assessment are provided on the following pages.

# HISTORY OF OWNERSHIP – CT 5624/154

| Date of Acquisition and term held | Registered Proprietor(s) & Occupations where available | Reference to Title at Acquisition and sale |
|---|---|---|
| 29.01.1878<br>(1878-1951) | John Burton<br>Alexandra Macgeorge – 10 October 1879<br>Edmund Retchford – 19 November 1882<br>William Henderson – 17 December 1885<br>Isabella Henderson – 3 October 1919<br>William Henry Robinson – 21 November 1949 | Volume 270 Folio 26 |
| 03.12.1951<br>(1951-1980) | William Henry Robinson<br>Ethel May Robinson – 2 May 1952<br>James Edward Allen – 20 August 1953<br>Edward Walter Standford – 18 July 1962<br>Marguente Ada Stanford – 21 July 1967<br>South Australian Housing Trust 11 August 1972 | Volume 2179 Folio 200 |
| 18.10.1980<br>(1980-1999) | State Planning Authority<br>Adelaide Caravan Park Pty Ltd – 9.09.1980 | Volume 4167 Folio 957 |
| 15.02.1999<br>(1999-Present) | Adelaide Caravan Park Pty Ltd<br>Converted to computerised title | Volume 5624 Folio 154 |

*Site ownership has been owned by private residents, South Australia Housing Trust and Adelaide Caravan Park.

Certificate Titles reviewed as part of this assessment are provided on the following pages.

# HISTORY OF OWNERSHIP- 5923/543

| Date of Acquisition and term held | Registered Proprietor(s) & Occupations where available | Reference to Title at Acquisition and sale |
|---|---|---|
| 25.08.1877<br>(1877-1913) | John Curgon Bruton<br>Friedrich Edward Heinrich Wulf Krichauff - 11 May 1878<br>William Heddle Garson – 1 May 1883<br>Harry Ross Oldham 18 March 1884<br>John Miller Younger 3 January 1893<br>John Miller Elder 11 June -1897<br>Henry Challenger - 11 June 1897<br>Charlotte Elizabeth Eitgen 7 February 1911<br>Albert George Creeper (Cabinet Maker) 13 September 1913 | Volume 257 Folio 159 |
| 28.11.1949<br>(1949-1971) | *New Title<br>Albert George Creeper (Cabinet Maker) (in public trust since 1938)<br>Percival Ernest Okely - 5 April 1950 (deceased 1955)<br>Florence Evelyn Okely – 8 May 1956<br>Thelma Edith Mcbue 23 September 1966<br>D.G Rimmington Pty Limited 18 November 1966<br>Michael Scheer 21 May 1967<br>Cambridge credit corporation limited 18 October 1968<br>Adelaide Caravan Park Pty. Ltd. 14 December 1971 | Volume 2052 Folio 150 |
| 18.11.1980<br>(1980-present) | Adelaide Caravan Park Pty. Ltd. – 18 November 1980 | Volume 4167 Folio 956 (including land from volume 4170 Folio 145) |
| | Adelaide Caravan Park Pty. Ltd. – 23 July 1985 | Volume 4249 Folio 931 (including land from volume 4170 Folio 146) |
| | Adelaide Caravan Park Pty. Ltd. – 23 July 1995 | Volume 4379 Folio 492 |
| | Adelaide Caravan Park Pty. Ltd. - 1995 | Volume 5711 Folio 161 |
| | Adelaide Caravan Park Pty. Ltd. - 2004 | Volume 5923 Folio 543 |

Site ownership started as private residential and transitioned to private companies, D.G Rimmington Pty, Cambridge Credit Corporation Limited and finally Adelaide Caravan Park.

Certificate Titles reviewed as part of this assessment are provided on the following pages.

# HISTORY OF OWNERSHIP – CT 5923/432

| Date of Acquisition and term held | Registered Proprietor(s) & Occupations where available | Reference to Title at Acquisition and sale |
|---|---|---|
| 04.01.1878<br>(1878-1952) | Federick Willian Lindrum<br>Thomas Ledsam Cottrell – 18 May 1881<br>Thomas Edward McCallister – 5 December 1884<br>Edward John O'Halloran Feelford – 26 November 1886<br>Federick William Lovemore – 10 June 1904<br>Joeseph Parasoua – 2 June 1915<br>Laura Emma Jane – 18 February 1920<br>August Thiele – 21 March 1921<br>Stephen William Goldsworthy – 8 February 1922<br>Betsy Catherine Agnew – 24 April 1926<br>George William Henry (Lots 46, 48 and 49) – 12 August 1948<br>Edin Campell Collier (Lot 51) – 5 October 1951<br>John Riderick Edwards (Lot 45 and 50) – 21 March 1952 | Volume 268 Folio 164 |
| 12.05.1952<br>(1952-1980) | Federick John Roderick Edwards and Doris Agnes Mary Richards<br>Elford Phillis and Jauce Margaret Phillis – 9 November 1972<br>John Edward James Moss and Edith Noreen Moss 13 April | Volume 2203 Folio 164 |
| 18.10.1980<br>(1980-2004) | Lorraine Veronica Crouch | Volume 5688 Folio 396 |
| 31.08.2004<br>(2004-Present) | Converted to computerised title | Volume 5923 Folio 532 |

*Site ownership has been owned by private residents.

Certificate Titles reviewed as part of this assessment are provided on the following pages.

# HISTORY OF OWNERSHIP – CT 5989/440

| Date of Acquisition and term held | Registered Proprietor(s) & Occupations where available | Reference to Title at Acquisition and sale |
|---|---|---|
| 08.12.1915<br>(1915-2000) | George Killingbeck Carter<br>Lindley Percival Bartholomew – 19 March 1946<br>Alfred John Rowntree and Alice May Rowntree – 27 September 1949 | Volume 1042 Folio 177 |
| 19.10.2000<br>(2000-2005) | Alice May Rowntree<br>Converted to computerised title | Volume 5817 Folio 486 |
| 12.12.2005<br>(2005-2007) | Hanag Investments Pty Ltd | Volume 5955 Folio 122 |
| 29.06.2007<br>(2007-Present) | Cancel and reissue of title | Volume 5989 Folio 440 |

*Site ownership has been owned by private residents and a commercial investment company.

Certificate Titles reviewed as part of this assessment are provided on the following pages.

# HISTORY OF OWNERSHIP- 5923/344

| Date of Acquisition and term held | Registered Proprietor(s) & Occupations where available | Reference to Title at Acquisition and sale |
|---|---|---|
| 23.08 .1877<br>(1877-1955) | John Curgon Bruton<br>Friedrich Edward Heinrich Wulf Krichauff – 11 May 1878<br>Heinuch Friedrich Bock - 22 June 1883<br>Amalie Bock 29 October - 1883<br>Carl Friedrich August Rumps - 20 July 1886<br>August Stolte - 13 June 1893<br>William August Stolte - 7 April 1902<br>Charles Pearse - 13 December 1922<br>Robert Lloyd - 4 May 1926<br>Arthur Earnest Lloyd - 15 December 1943-1955 | Volume 257 Folio 160 |
| 16.04.1956<br>(1956-1980) | Mary Ann Lloyd (Hackney Widow) – 16 April 1956<br>Radisau Radisaugevie and Mila Radisaugevie 5 June 1956<br>South Australian Housing Trust 20 March 1972<br>State Planning Authority - 12 June 1973<br>Adelaide Caravan Park Pty. Ltd. - 18 November 1980 | Volume 2448 Folio 21 |
| 23.07.1985<br>(1985-1995) | Adelaide Caravan Park Pty. Ltd. – 15 January 1985<br>(balance to volume 4170 Folio 145) | Volume 4239 Folio 932 |
| 4.12.1995<br>(1995-1997) | Adelaide Caravan Park Pty. Ltd. – 15 January 1995<br>(balance to volume 4170 Folio 146)<br>(Converted to a computerised Title) | Volume 4379 Folio 493 |
| 10.04.1997<br>(1997-2004) | Adelaide Caravan Park Pty. Ltd. | Volume 5411 Folio 162 |
| 28.08.2004<br>(2004-2024) | Adelaide Caravan Park Pty. Ltd. | Volume 5923 Folio 344 |

*Site ownership was originally private residential, transitioned to State planning Authority and South Australian Housing Trust, remaining Adelaide Caravan Park Pty. Ltd a private company.

Certificate Titles reviewed as part of this assessment are provided on the following pages.

# HISTORY OF OWNERSHIP – CT 5389/441

| Date of Acquisition and term held | Registered Proprietor(s) & Occupations where available | Reference to Title at Acquisition and sale |
|---|---|---|
| 14.12.1904<br>(1968-1975) | Freidrich Eduard Henirich Krichauff<br>Dorothea Sophie Krichauff – 22 December 1904<br>Isabella Henderson – 3 October 1913<br>Joseph Henderson – 21 June 1915<br>Mary Gertrude Kerin – 28 February 1927<br>Violet Bera Newman – 21 March 1940<br>Jacob Fama and Adriana Fama – 26 January 1960 | Volume 727 Folio 181 |
| 16.10.1968<br>(1968-1975) | Thomas Walton Holland (Caravan Park Proprietor)<br>Daphne Edna Holland<br>Barabara June Dunn<br>Margaret Ann Holland | Volume 3586 Folio 112 |
| 26.02.1975<br>(1975-1991) | Adelaide Caravan Park Pty Ltd | Volume 4035 Folio 892 |
| 19.03.1991<br>(1991-1996) | Adelaide Caravan Park Pty Ltd | Volume 4376 Folio 868 |
| 03.01.1997<br>(1997-Present) | Adelaide Caravan Park Pty Ltd<br>Converted to computerised title | Volume 5389 Folio 441 |

*Site ownership has been owned by private residents and Adelaide Caravan Park.

Certificate Titles reviewed as part of this assessment are provided on the following pages.

# HISTORY OF OWNERSHIP – CT 5386/439

| Date of Acquisition and term held | Registered Proprietor(s) & Occupations where available | Reference to Title at Acquisition and sale |
|---|---|---|
| 02.06.1926<br>(1926-1934) | Beaumont Arnold Moulden and Sir John Lancelot Stirling Frank Smioth, Frank Weston Ellis, James Thoms Bronson, Herbert Naylor and Isabel Robers – 23 July 1926<br>Arnold Meredith Moulden and Hoan Alexander Thomson – 31 October 1934 | Volume 1421 Folio 89 |
| 25.02.1942<br>(1942-1948) | Arnold Meredith Moulden and John Alexander Thomson<br>Transfer to South Australian Housing Trust 18 December 1945 | Volume 1792 Folio 63 |
| 27.09.1948<br>(1948-1949) | South Australian Housing Trust | Volume 1995 Folio 151 |
| 22.03.1949<br>(1949-1996) | Allan Clifford Brooks<br>Transfer to Isabella Brooks 17 November 1966 | Volume 2015 Folio 115 |
| 16.12.1996<br>(1996-Present) | Converted to computerised title<br>Adelaide Caravan Park Pty. Ltd. | Volume 5386 Folio 439 |

*Site ownership has been owned by private residents and the South Australian Housing Trust.

Certificate Titles reviewed as part of this assessment are provided on the following pages.

# HISTORY OF OWNERSHIP – CT 5556/452

| Date of Acquisition and term held | Registered Proprietor(s) & Occupations where available | Reference to Title at Acquisition and sale |
|---|---|---|
| 25.02.1905<br>(1905-1975) | Ann Stevens<br>Jillian Edwin Johns – 26 March 1920<br>James McNeill – 17 April 1920<br>Heida Clarice Phillips – 8 November 1940<br>Thomas Walton Holland (Caravan Park Proprietor) and Dalphne Edna Holland – 19 January 1954 | Volume 735 Folio 12 |
| 26.02.1975<br>(1975-1991) | Adelaide Caravan Park Pty Ltd | Volume 4035 Folio 893 |
| 19.03.1991<br>(1991-1998) | Adelaide Caravan Park Pty Ltd | Volume 4376 Folio 869 |
| 17.07.1998<br>(1998-Present) | Adelaide Caravan Park Pty Ltd<br>Converted to computerised title | Volume 5556 Folio 452 |

*Site ownership has been owned by private residents and Adelaide Caravan Park.

Certificate Titles reviewed as part of this assessment are provided on the following pages.

# Certificate of Title

| | |
|---|---|
| **Title Reference:** | CT 5923/344 |
| **Status:** | CURRENT |
| **Parent Title(s):** | CT 5411/162, CR 5744/237 |
| **Dealing(s) Creating Title:** | RTD 9229852, VM 9790449 |
| **Title Issued:** | 28/08/2004 |
| **Edition:** | 6 |



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# Certificate of Title

**Title Reference:** CT 5411/162

**Status:** CANCELLED

**Parent Title(s):** CT 4379/493

**Dealing(s) Creating Title:** CONVERTED TITLE

**Title Issued:** 10/04/1997

**Title Cancelled:** 28/08/2004

**Edition:** 2

# Child Titles

| Title Reference | Status | Estate Type | Plan / Parcel | Proprietors/Lessees/ Custodians at time of issue |
|---|---|---|---|---|
| CT 5923/344 | CURRENT | FEE SIMPLE | D58667 ALLOTMENT 103 | ADELAIDE CARAVAN PARK PTY. LTD. |


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# ORIGINAL CERTIFICATE OF TITLE

# South Australia

Register Book,
Volume 4379 Folio 493

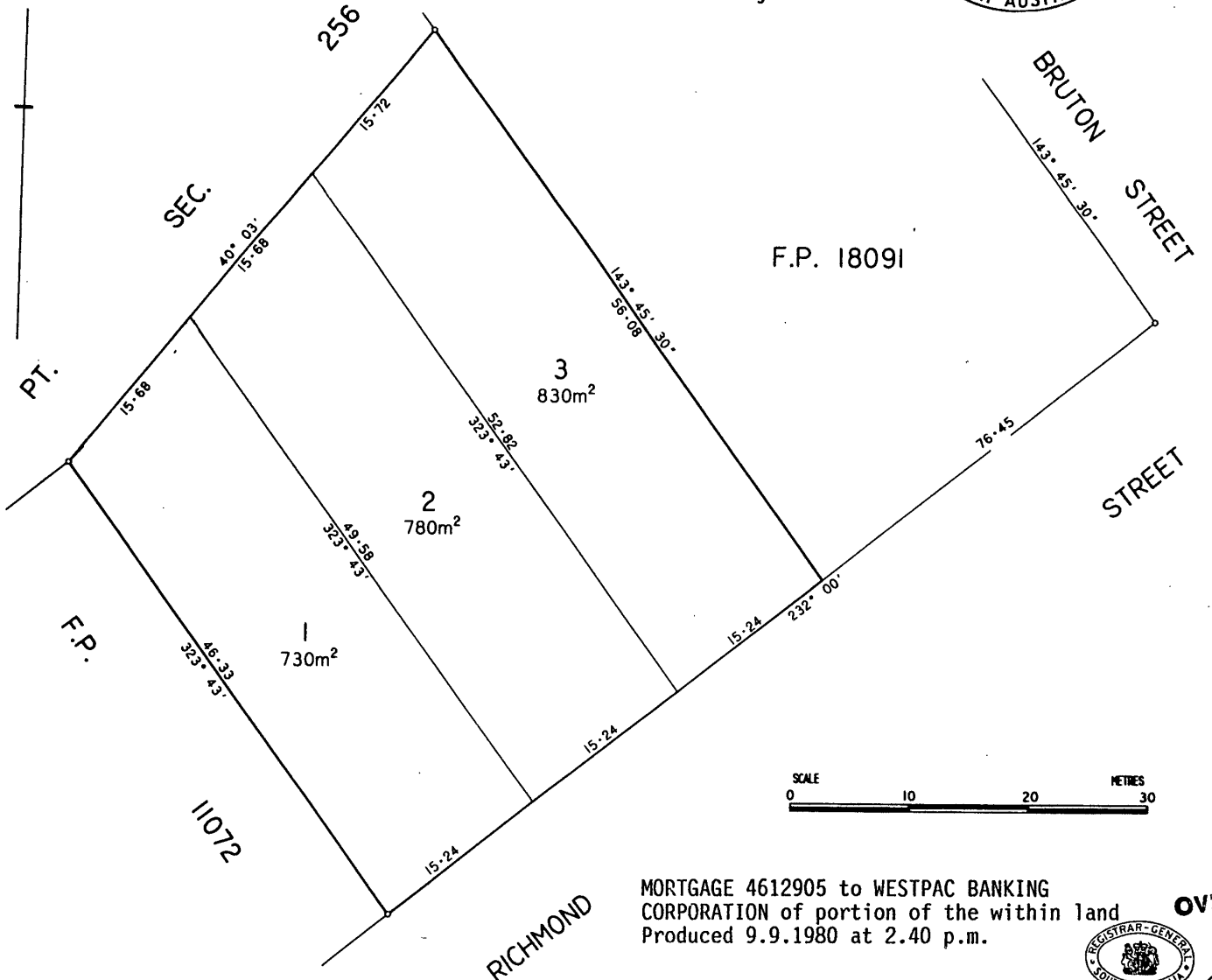
New Certificate for the whole of the Land in Vol.4249 Folio 932 and the balance of the Land in Vol.4170 Folio 146

ADELAIDE CARAVAN PARK PTY. LTD. of Bruton Street Hackney 5069 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 3 of portion of Section 256 HUNDRED OF ADELAIDE in the area named HACKNEY (L.T.R.O. DEPOSITED PLAN No.26881) and delineated on the diagram hereon

Registrar-General

Dated 2 May 1991

REGISTRAR-GENERAL SOUTH AUSTRALIA




MORTGAGE 4612905 to WESTPAC BANKING CORPORATION of portion of the within land Produced 9.9.1980 at 2.40 p.m.

OVER

REGISTRAR-GENERAL SOUTH AUSTRALIA

Attachment 1.6

MORTGAGE 7049396 to WESTPAC BANKING CORPORATION of portion of the within land Produced 29.1.1991 at 14:50

The Address of THE WITHIN NAMED COMPANY is changed to 20-24 Richmond Street Hackney 5069 Vide 8032773 Produced 4.12.1995 at 11:35

CANCELLED

CONVERTED TO A COMPUTERISED TITLE

**ORIGINAL**

# South Australia

Register Book,

Volume 4249 Folio 932

## CERTIFICATE OF TITLE

New Certificate for the whole of the Land in Vol.2448 Folio 21 and the balance of the Land in Vol.4170 Folio 145

ADELAIDE CARAVAN PARK PROPRIETARY LIMITED of Bruton Street Hackney 5069 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 32 of portion of Section 256 HUNDRED OF ADELAIDE in the area named HACKNEY (L.T.R.O. DEPOSITED PLAN No.15454)

In witness whereof I have signed my name and affixed my seal this 23rd day of July 1985

Signed the 23rd day of July )
1985, in the presence of )

Deputy Registrar-General

REGISTRAR-GENERAL SOUTH AUSTRALIA

MORTGAGE 4612905 to WESTPAC BANKING CORPORATION
Produced 9.9.1980 at 2.40 p.m. (Including other land)

REGISTRAR-GENERAL SOUTH AUSTRALIA

Cancelled as regards ~~that portion of~~ the within land comprised in Deposited Plan 26881 (CT 6790/237) and new Certificates issued

Vol.4379 Folios 493

REGISTRAR-GENERAL SOUTH AUSTRALIA

B

# South Australia.

## (CERTIFICATE OF TITLE.)

*Register Book,*

*Vol.* 2448 *Folio* 21

New Certificate of Title for the whole of the Land in Vol.257 Folio 160

MARY ANN LLOYD of Hackney Widow

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 situate in the HUNDRED of ADELAIDE COUNTY of ADELAIDE being PORTION OF ALLOTMENT 15 of the subdivision of portion of Section 256 laid out as HACKNEY and more particularly delineated and bounded as appears in the plan in the margin hereof and therein colored green WHICH said Allotment is bounded as appears in the plan deposited in the Lands Titles Registration Office No.440

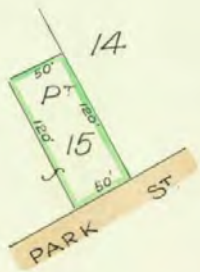
Which said Section is delineated in the public map of the said Hundred deposited in the Land Office at Adelaide.

In witness whereof I have hereunto signed my name and affixed my seal this Sixteenth day of April 1956

Signed the 16th. day of April 1956, in the presence of J. D. Lindsay

Registrar-General.

REGISTRAR-GENERAL SOUTH AUSTRALIA




100 50 0 100 FT

TRANSFER No. 1939556 FROM Mary Ann Lloyd to Radisav Radisavljevic of Park Street Hackney Labourer and Mila Radisavljevic his wife OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND PRODUCED FOR REGISTRATION THE 5 DAY OF April 1956 AT 11.40 a.m.

DEP. REG. GENL.

MORTGAGE No. 1939557 FROM Radisav Radisavljevic and Mila Radisavljevic to The South Australian Amicent Order of Foresters Friendly Society PRODUCED FOR REGISTRATION THE 5 DAY OF April 1956 AT 11.40 a.m. (including other land)

DEP. REG. GENL.

MORTGAGE No. 1939558 FROM
Radisav Radisavljevic and
Mila Radisavljevic to
Mary Ann Lloyd
PRODUCED FOR REGISTRATION THIS 5 DAY OF
April 1956 AT 11.40 am
(Including other land)
DEP. REG. GEN.

D1939558 7/5/63

CANCELLED
AND New CERTIFICATE OF TITLE
ISSUED VIDE 5399641 DEPOSITED PLAN No. 15454
VOL. 4249 FOL. 932

DISCHARGE OF MORTGAGE No. 1939558 BY ENDORSEMENT THEREON. PRODUCED 7/5/1963 AT 3 pm (Land CT 2048 Fol)
DEP. REG. GEN. 21.7.1970

1939558 20/11/70 D.R.O.

DISCHARGE OF MORTGAGE No. 1939557 BY ENDORSEMENT THEREON. PRODUCED 30.6.1970 AT 12.30 pm
DEP. REG. GEN.

T 3298426

TRANSFER No. 3298426
to SOUTH AUSTRALIAN HOUSING TRUST
OF THE WITHIN LAND. PRODUCED 20.3.1972 AT 10.35 am
DEP. REG. GEN.

T 3470306

TRANSFER No. 3470306. To
State Planning Authority
OF THE WITHIN LAND. PRODUCED 12.6.1973 AT 2.30 p.m.
DEP. REG. GEN.

T 4612904. T 4612905

TRANSFER No. 4612904 To
Adelaide Caravan Park Pty. Ltd. of Bruton
Street Hackney 5069
OF THE WITHIN LAND. PRODUCED 9.9.1980 at 2.40 p.m.

MORTGAGE No. 4612905
TO BANK OF NEW SOUTH WALES. PRODUCED 9.9.1980 AT 2.40 pm
(INCLUDING OTHER LAND)

RT 5399641 DP 15454 EN 6021849

THE WHOLE OF THE WITHIN LAND IS NOW COMPRISED IN DEPOSITED PLAN 15454
VIDE APPLICATION R.T. 5399641

CHANGE OF NAME No. 6021849 THE NAME OF THE WITHIN COMPANY IS CHANGED FROM Bank of New South Wales to Westpac Banking Corporation of 2-8 King William Street Adelaide 5000
PRODUCED 23.5.1985 AT 11:40

Attachment 1.6

CANCELLED

AND New
CERTIFICATE OF TITLE ISSUED
VOL. 1939556
VOL. 2448 FOL. 21.
DEP. REG. GEN'L.

# South Australia.

(CERTIFICATE OF TITLE.)

Register Book, Vol. CCLVII Folio 160

John Curzon Bruton of Adelaide Gasfitter is

now seised of an estate in fee simple, subject nevertheless to such incumbrances, liens, and interests, as are notified by memorial under written or endorsed hereon in That piece of land situated in the Hundred of Adelaide County of Adelaide being portion of the allotment No. 15 of portion of the Section 256 Sidonat as Hackney and bounded as appears in the plan in the margin hereof and therein colored pink Which said piece of land contains twenty two perches or thereabouts and angle wise as well on the north easterly side part of the allotment 14 as on the south westerly side part other part of the said allotment 15 one hundred and twenty feet or thereabouts and as well on the north westerly side part of the said allotment 15 as on the south easterly side part Mill Street fifty feet or thereabouts Which said allotment is bounded as appears in the plan deposited in the Lands Titles Registration Office No. 440

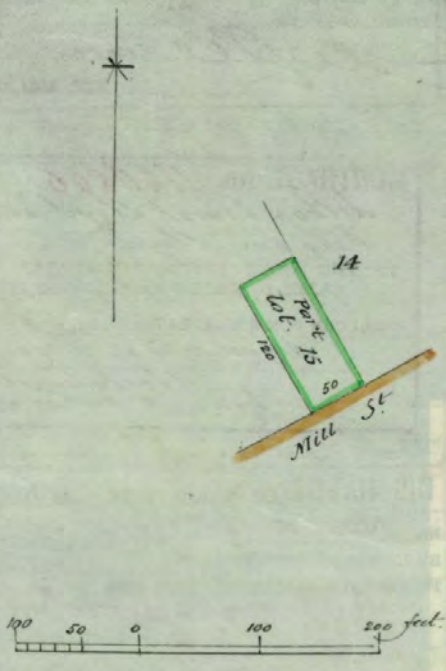
which said Section is delineated in the public map of the said Hundred, deposited in the office of the Surveyor-General and was originally granted the 12th day of February 183 under the hand and seal of Sir George Gawler Esquire Resident Commissioner and Governor of the said province to George Fife Angas and others

In witness whereof, I have hereunto signed my name and affixed my seal this twenty third day of August one thousand eight hundred and seventy seven in presence of

W. Boomfield

Registrar-General.

REGISTRAR-GENERAL SOUTH AUSTRALIA




Mortgage No. 77485 from John Curzon Bruton to Friedrich William Schoddy Produced the 25th day August 1879 at 11 am. W. Boomfield Dep. Reg. Genl.

Transfer No. 85951 from John Curzon Bruton to Friedrich Eduard Heinrich Wulf Krichauff of Adelaide Land Agent of the above land. Produced the 11th day May 1878 at 11 am. W. Boomfield Dep. Reg. Genl.

Discharge of the above Mortgage No. 77485 by receipt endorsed thereon dated the 2nd day of August but Entered the 7th day of August 1878 at 9 am. W. Boomfield Dep. Reg. Genl.

Transfer No. 162475 from Friedrich Eduard Heinrich Wulf Krichauff to Heinrich Friedrich Cock of Hackney Electroplater of the above land Produced the 22 day June 1883 at 2 pm. Wm. Colley By. Reg. Genl.

Mortgage No. 162476 excluding also other properties from Heinrich Friedrich Cock To Carl Friedrich August Rumpf Produced the 22 day June 1883 at 2 pm. Wm. Colley By. Reg. Genl.

over

Attachment 1.6

Transfer No 167656 from Heinrich Friedrich Bock to Amalie Bock wife of the said Heinrich Friedrich Bock of the above land for her separate use Produced the 29 day October 1883 at 3pm
A Whitmore Cheam Dep Reg Genl

Discharge of the within Mortgage No 162476 by receipt endorsed thereon dated the 5 day June 1885 Entered the 16 day June 1885 at noon
A Whitmore Cheam Dep Reg Genl

Mortgage No 191825 Including also the property from Amalie Bock to Carl Friedrich August Rumpf Produced the 16 day June 1886 at noon
A Whitmore Cheam Dep Reg Genl

Transfer No 205658. from Amalie Bock to Carl Friedrich August Rumpf of Adelaide Gentleman of the within land Produced for registration the 20th day of July 1886 at 10 o'clock am
A Whitmore Cheam Dep Reg Genl

Transfer No 269599. from Carl Friedrich August Rumpf to August Stolte of Adelaide Gentleman of an Estate in fee simple in the within land produced for registration the 13 day April 1897 at 2.55 pm
J P Dale Dep Reg Genl

Pursuant to Application No 379559 Auguste Stolte of Norwood Widow and William August Stolte of Kangarilla Farmer are PROPRIETORS OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND, AS THE EXECUTORS NAMED IN THE WILL DATED THE 15 DAY OF March 1887 OF THE WITHIN NAMED August Stolte WHO DIED ON THE 26 DAY OF March 1902 AS APPEARS BY PROBATE DATED THE 7 DAY April 1902 PRODUCED FOR REGISTRATION THE 17 DAY April 1902 AT 3p
E T Heath Dep Reg Genl

The original Certificate being full of endorsements a new Certificate of Title will be required before any further dealing.

The above named Auguste Louisa Stolte died on the 17 day of December 1922 as appears by Official Copy of Death Certificate No 836792 Produced for registration the 13 day of December 1922 at 12.50 pm
[illegible] Dep Reg Genl

Transfer No 836792 from William August Stolte to Charles Pearse of Jervois Street Hawthorn Victoria Gentleman of an estate in fee simple in the within land Produced for registration the 13 day of December 1922 at 12.50 pm
[illegible] Dep Reg Genl

Transfer No 961762 from Charles Pearse to Robert Lloyd of Hackney Gardener of an estate in fee simple in the within land Produced for registration the 1 day of May 1926 at 2.35 pm
[illegible] Dep Reg Genl

TRANSFER No. 1400319 FROM Robert Lloyd to Arthur Ernest Lloyd of Hackney Storeman and Mary Ann Lloyd his wife OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND. PRODUCED FOR REGISTRATION THE 15 DAY OF December 1943 AT 11.40 a.m.
[illegible] DEP. REG. GENL

MORTGAGE No. 1400320 FROM Arthur Ernest Lloyd and Mary Ann Lloyd to The South Australian United Ancient Order of Druids Friendly Society PRODUCED FOR REGISTRATION THE 15 DAY OF December 1943 AT 11.40 a.m. including other land
[illegible] DEP. REG. GENL

MORTGAGE No. 1740866 FROM Arthur Ernest Lloyd and Mary Ann Lloyd TO THE SOUTH AUSTRALIAN UNITED ANCIENT ORDER OF DRUIDS FRIENDLY SOCIETY. PRODUCED FOR REGISTRATION THE 8 DAY OF August 1952 AT 11.300.m. including other land
[illegible] DEP. REG. GENL.

DISCHARGE OF THE WITHIN MORTGAGE No. 1400320 & 1740866 BY ENDORSEMENT THEREON PRODUCED FOR REGISTRATION THE 15 DAY OF January 1954 AT 11.30 am
[illegible] DEP. REG. GENL.

DEATH. The within named Charles Pearse died on the 10 day of July 1955 as appears by Certified Copy of Certificate of Death No. 1908552 Produced for registration the 2 day of September 1955 at 12.45 p.m.
[illegible] Dep. Reg. Gen.

# Certificate of Title

| | |
|---|---|
| **Title Reference:** | CT 5688/396 |
| **Status:** | CANCELLED |
| **Parent Title(s):** | CT 2203/164 |
| **Dealing(s) Creating Title:** | CONVERTED TITLE |
| **Title Issued:** | 02/09/1999 |
| **Title Cancelled:** | 31/08/2004 |
| **Edition:** | 1 |

# Child Titles

| Title Reference | Status | Estate Type | Plan / Parcel | Proprietors/Lessees/ Custodians at time of issue |
|---|---|---|---|---|
| CT 5923/532 | CURRENT | FEE SIMPLE | F44767 ALLOTMENT 817 | LORRAINE VERONICA CROUCH |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# Certificate of Title

| | |
|---|---|
| **Title Reference:** | CT 5923/532 |
| **Status:** | CURRENT |
| **Parent Title(s):** | CT 5688/396 |
| **Dealing(s) Creating Title:** | RT 9810485 |
| **Title Issued:** | 31/08/2004 |
| **Edition:** | 4 |



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# South Australia.

## (CERTIFICATE OF TITLE.)

*Register Book,*
*Vol.* 2203 *Folio* 164

Pursuant to Memorandum of Transfer No.1726791 Registered on Vol.268 Folio 128

FREDERICK JOHN RODERICK EDWARDS Farmer and DORIS AGNES MARY RICHARDS Home Duties both of Minlaton

are the proprietors 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 situate in the HUNDRED of RAMSAY COUNTY of FERGUSSON being the ALLOTMENT 50 of the subdivision of portion of Section 5 laid out as PORT VINCENT and

bounded as appears in the plan in the margin hereof and therein coloured green and in the plan deposited in the Lands Titles Registration Office, No. 591 which said Section is delineated in the public map of the said Hundred deposited in the Land Office at Adelaide.

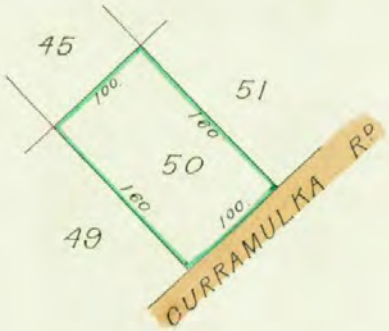
In witness whereof I have hereunto signed my name and affixed my seal this twelfth day of May 1952

Signed the 12th day of May 1952, in the presence of J. W. Davis

G. Pontelow
Acting Registrar-General.

A.D. 1972 830

REGISTRAR-GENERAL SOUTH AUSTRALIA




100 50 0 100 LKS

DEATH. The within named Frederick John Roderick Edwards died on the 26 day of October 1955 vide Probate Dated the 10 day of April 1956 as appears by Memorandum No. 172830 Produced for registration the 9 day of November 1956 at 1-15 p.m.

Dep. Reg. Gen.

TRANSFER No. 3382058. To Elford Phillis of 2 Brian street Lockleys 5032 Lecturer and Joyce Margaret Phillis his wife. OF THE WITHIN LAND. PRODUCED 9.11.1972 AT 3.45pm.

A.J. Shannon Jnr. Dep. REG. GEN.

AD 4890675

DEATH No. 4890675
Elford Phillis
DIED ON 1.3.1982 PRODUCED 19.5.1982 AT 11.40.

OVER

F 4928840

TRANSFER No 4928840 To
John Edward James Moss of 11
Tiparra Avenue Park Holme 5043
Retired and Edith Noreen Moss
his wife
OF THE WITHIN LAND. PRODUCED 11.2.1992 AT 3 p.m.

TRANSFER No. 7279402 To Lorraine Veronica Crouch
of Box 110 Port Vincent 5581
OF THE WITHIN LAND. PRODUCED 13.4.1992 AT 16:00

CANCELLED
CONVERTED TO A COMPUTERISED TITLE

(C)

# South Australia.

CERTIFICATE OF TITLE.

Register Book, Vol. CCV Folio. 128

Pursuant to Memorandum of Transfer No 81321 from Luke Michael Cullen

**Frederick William Lindrum** of Adelaide Hotel Keeper 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 Hundred of Ramsay County of Fergusson being the allotments Nos 42 containing thirty three perches or thereabout 43 containing thirty two perches or thereabouts 44 containing thirty perches or thereabout 45 containing twenty nine perches or thereabouts 46 containing twenty eight perches or thereabout 47 containing twenty six perches or thereabouts 48. 49. 50. 51. 52 and 53 each containing twenty five perches or thereabouts of portion of the Section No 5 laid out as Port Vincent and bounded as appears in the Plan deposited in the Lands Titles Registration Office No 591 Which said section is delineated in the Public Map of the said Hundred deposited in the Office of the Surveyor General and was originally granted the 29th day of May 1855 under the hand and seal of Boyle Travers Finniss Esquire the Officer administering the Government of the said Province to Susanna Chubb Easton Buchanan.

In witness whereof, I have hereunto signed my name and affixed my seal this Fourth day of January one thousand eight hundred and seventy eight

W B Rudall

Registrar-General.

Signed the 10th day of Jan 1878, in presence of

Pursuant to Application No 179314 Hermann Dittmer of Adelaide Gentleman is Entitled to An Estate in fee Simple in the above land as one of the Executors of the Will of the above named Frederick William Lindrum dated the 25th day January 1880 who died on the 26th day January 1880 as appears by Probate dated the 6th day February 1880. Produced to me and Entered the 29th day October 1880 at Noon.

Dep Reg Genl

Transfer No 125995 from Hermann Dittmer to Thomas Ledsam Cottrell of Adelaide Coachbuilder of the above land Produced the 18 day May 1881 at 11 A.M.

Dep Reg Genl

Transfer

Transfer No 184473 from Thomas Colbert to Thomas Edward McAllister of Adelaide Land Agent of the within land Produced the 6 day December 1884 at 11 am

A.R. Fitzmaurice Dep Reg Gen

Be it known that the within named Thomas Edward McAllister in the within land has been transmitted hereby unto Thomas of Adelaide Accountant the Executor of the said Thomas Colbert McAllister as appears by Deed of Assignment dated the 2 day August 1886 Produced for registration the 26 day November 1886 at 2:45pm No 209345

[illegible] Dep Reg Gen

Transfer No 209345

Edward John O'Halloran Fulford of Adelaide Manager of the Bank of Australasia Limited the within land Produced for registration the 26 day November 1886 at 2:45 pm

[illegible] Dep Reg Gen

Transfer No 209522 from Edward John O'Halloran Fulford to The Corporation of The Bank of Australasia of the within land Produced for registration the 2 day December 1886 at 2.20pm

[illegible] Dep Reg Gen

Transfer No 410308 from The Bank of Australasia to Frederick William Luxmoore of Port Vincent Agent of an estate in fee simple in the within land Produced for registration the 10 day of June 1904 at 11.6 am

Vernon T Edwards Dep Reg Gen

P/Attorneys Repairs for 214907 + 362956

Vernon T Edwards Dep Reg Gen

Transfer No 638073 from Frederick William Luxmoore to Joseph Parsons of Curramulka Farmer of an estate in fee simple in the within land Produced for registration the 2 day of June 1915 at 12.15 pm

[illegible] Dep Reg Gen

Transfer No 740078 from Joseph Parsons to Laura Emma Jane Hickman of Port Vincent Married Woman of an estate in fee simple in the within land Produced for registration the 18 day of February 1920 at 11.35 am

[illegible] Dep Reg Gen

Transfer No 779651 from Laura Emma Jane Hickman to August Gottlieb Thiele of Port Vincent farmer of an estate in fee simple in the within land Produced for registration the 21 day of March 1921 at 3pm

[illegible] Dep Reg Gen

Transfer No 808413 from August Gottlieb Thiele to Stephen William Goldsworthy of Curramulka Farmer of an estate in fee simple in the within land Produced for registration the 17 day of February 1922 at 11.25 am

[illegible] Dep Reg Gen

Transfer No 960868 from Stephen William Goldsworthy to Betsy Catherine Agnew wife of William James Agnew of Port Julia Farmer of an estate in fee simple in the within land Produced for registration the 24 day of April 1926 at noon

[illegible] Dep Reg Gen

M 1105032

MORTGAGE No. 1105032 FROM
Betsy Catherine Agnew
to The Bank of Adelaide
PRODUCED FOR REGISTRATION THE 18 DAY OF August 1930 AT 11.20 am (Including other land)

[illegible] DEP. REG GENL.

~~Volume 725 Folio 226~~

The within Mortgage No. 1105032 is discharged from the sum of £45 and the within Lot 47 discharged from the whole of the principal sum thereby secured as appears by Memorandum No. 1508225 Produced for registration the 24 day of July 1947 at 11.15 am

[illegible] Dep Reg Gen

P/A No 1477150

CT 268/128

Attachment 1.6

TRANSFER No. 1508226 FROM
Betsy Catherine Agnew to
Maxwell Ebury Cowell
OF THE WITHIN Lot 47
PRODUCED FOR REGISTRATION THE 1st DAY OF
July 1947 AT 11.15 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1508226 AND NEW CERTIFICATE
OF TITLE ISSUED VOL 1948 FOLIO 7H
DEP. REG. GENL.

D 1105032
PA

DISCHARGE OF THE WITHIN MORTGAGE
No. 1105032
BY ENDORSEMENT THEREON
PRODUCED FOR REGISTRATION THE 27 DAY OF
April 1948 AT 11.40 am
DEP. REG. GENL.

T 1545620

TRANSFER No. 1545620 FROM
Betsy Catherine Agnew to
George William Henty
OF THE WITHIN Lots 56. 58. 59
PRODUCED FOR REGISTRATION THE 17 DAY OF
August 1948 AT 2.30 pm
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1545620 AND NEW CERTIFICATE
OF TITLE ISSUED VOL 1992 FOLIO 90.
DEP. REG. GENL.

T 1593532

TRANSFER No. 1593532 FROM
Betsy Catherine Agnew to
Wilfrid Stewart Sickes, Arthur Edward
Stewart Sickes and Ronald
Stewart Sickes
OF THE WITHIN Lots 42. 43. 52 and 53 as to one-fourth
PRODUCED FOR REGISTRATION THE 25 DAY OF
October 1949 AT 11.15 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1593532 AND NEW CERTIFICATE
OF TITLE ISSUED VOL 2018 FOLIO 113
DEP. REG. GENL.

T 1697829

TRANSFER No. 1697829 FROM
Betsy Catherine Agnew to
Colin Campbell Collins
OF THE WITHIN Lot 51.
PRODUCED FOR REGISTRATION THE 5 DAY OF
October 1951 AT 11.15 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1697829 AND NEW CERTIFICATE
OF TITLE ISSUED VOL 2170 FOLIO 145
DEP. REG. GENL.

T 1720452

TRANSFER No. 1720452 Frederick FROM
Betsy Catherine Agnew to John Roderick
Edwards and John Commyns Edwards
OF THE WITHIN Lot 45
PRODUCED FOR REGISTRATION THE 21 DAY OF
March 1952 AT 11.15 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1720452 AND NEW CERTIFICATE
OF TITLE ISSUED VOL 2197 FOLIO 42
DEP. REG. GENL.

TRANSFER No. 1720453 FROM
Betsy Catherine Agnew to Frederick John
Roderick Edwards and Robert Ashby Lawton
Edwards
OF THE WITHIN Lot 44
PRODUCED FOR REGISTRATION THE 21 DAY OF
March 1952 AT 11.15 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1720453. AND NEW CERTIFICATE
OF TITLE ISSUED VOL 2197 FOLIO 43
DEP. REG. GENL.

T 1726791

TRANSFER No. 1726791. FROM
Betsy Catherine Agnew to Frederick John
Roderick Edwards and Doris Agnes
Mary Richards
OF THE WITHIN Lot 50. (balance of the within land)
PRODUCED FOR REGISTRATION THE 6 DAY OF
May 1952 AT 11.15 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1726791. AND NEW CERTIFICATE
OF TITLE ISSUED VOL 2203 FOLIO 164
DEP. REG. GENL.

# Certificate of Title

| | |
|---|---|
| **Title Reference:** | CT 5989/440 |
| **Status:** | CURRENT |
| **Parent Title(s):** | CT 5955/122 |
| **Dealing(s) Creating Title:** | ACT 10716409 |
| **Title Issued:** | 29/06/2007 |
| **Edition:** | 4 |



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# Certificate of Title

| | |
|---|---|
| **Title Reference:** | CT 5955/122 |
| **Status:** | CANCELLED |
| **Parent Title(s):** | CT 5817/486 |
| **Dealing(s) Creating Title:** | SC 10291195 |
| **Title Issued:** | 12/12/2005 |
| **Title Cancelled:** | 29/06/2007 |
| **Edition:** | 3 |

# Child Titles

| Title Reference | Status | Estate Type | Plan / Parcel | Proprietors/Lessees/ Custodians at time of issue |
|---|---|---|---|---|
| CT 5989/439 | CURRENT | FEE SIMPLE | C24126 LOT 281 | HANAG INVESTMENTS PTY. LTD. |
| CT 5989/440 | CURRENT | FEE SIMPLE | C24126 LOT 282 | HANAG INVESTMENTS PTY. LTD. |
| CT 5989/441 | CURRENT | FEE SIMPLE | C24126 LOT 283 | HANAG INVESTMENTS PTY. LTD. |
| CT 5989/442 | CURRENT | FEE SIMPLE (COMMON PROPERTY) | C24126 COMMON PROPERTY (COMMUNITY PLAN) CP | COMMUNITY CORPORATION NO. 24126 INC. |


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# Certificate of Title

| | |
|---|---|
| **Title Reference:** | CT 5817/486 |
| **Status:** | CANCELLED |
| **Parent Title(s):** | CT 1042/177 |
| **Dealing(s) Creating Title:** | CONVERTED TITLE |
| **Title Issued:** | 19/10/2000 |
| **Title Cancelled:** | 12/12/2005 |
| **Edition:** | 1 |

# Child Titles

| Title Reference | Status | Estate Type | Plan / Parcel | Proprietors/Lessees/ Custodians at time of issue |
|---|---|---|---|---|
| CT 5955/122 | CANCELLED | FEE SIMPLE | D2236 ALLOTMENT 128 | ALICE MAY ROWNTREE |


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South Australia. (CERTIFICATE OF TITLE)

Register Book,

Vol. 1042 Folio 177

Pursuant to Memorandum of Transfer No 64 94 03

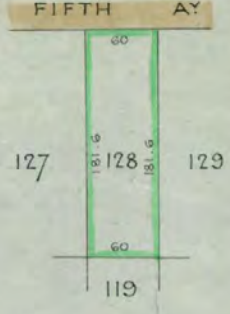
George Kittingbeck Carter of Mile End Engineman is the proprietor of an estate in fee simple subject nevertheless to such incumbrances liens and interests as are notified by memorial underwritten or endorsed hereon in That piece of land situated in the HUNDRED of Adelaide COUNTY of Adelaide being the ALLOTMENT 128 containing one rood or thereabouts of the subdivision of portions of Sections 86 and 87 laid out as Ascot Park and

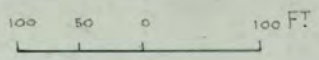
bounded as appears in the plan in the margin hereof and therein colored green and in the plan deposited in the Lands Titles Registration Office No. 2236 which said Sections are delineated in the public map of the said Hundred deposited in the office of the Surveyor-General.

In witness whereof I have hereunto signed my name and affixed my seal this Eighth day of December 1915

Signed the 8th day of December 1915 in the presence of H F Griggs

J S Blackwell
Registrar-General.




TRANSFER No. 1449459 FROM
George Killingbeck Carter to
Lindley Percival Dennis
Bartholomew of 46 Seventh
Avenue St. Peters Process worker
OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND.
PRODUCED FOR REGISTRATION THE 31 DAY OF
January 1946 at noon
DEP. REG. GENL.

MORTGAGE No. 1455237 FROM
Lindley Percival Dennis Bartholomew
to The Colonial Mutual Life
Assurance Society Limited
PRODUCED FOR REGISTRATION THE 29 DAY OF
March 1946 AT 11.25 AM
DEP. REG. GENL.

D 1455237 T 1589844
P/A No 1523608 per Money

DISCHARGE OF THE WITHIN MORTGAGE
No. 1455237
BY ENDORSEMENT THEREON
PRODUCED FOR REGISTRATION THE 27 DAY OF
September 1949 AT 12.45 pm
DEP. REG. GENL.

over

TRANSFER No. 1589811 FROM

Lindley Percival Dennis Bartholomew

to Alfred John Rowntree of 55 Springbank Road Colonel Light Gardens Motor Mechanic and Alice May Rowntree his wife

OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND

PRODUCED FOR REGISTRATION THE 27 DAY OF September 1949 AT 12.45 p.m.

DEP. REG. GENL.

DEATH No. 7552481

Alfred John Rowntree

DIED ON 8.12.1992 PRODUCED 9.9.1993 AT 11:00

CANCELLED

CONVERTED TO A COMPUTERISED TITLE

# Certificate of Title

| | |
|---|---|
| **Title Reference:** | CT 5556/452 |
| **Status:** | CURRENT |
| **Parent Title(s):** | CT 4376/869 |
| **Dealing(s) Creating Title:** | CONVERTED TITLE |
| **Title Issued:** | 17/07/1998 |
| **Edition:** | 6 |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# ORIGINAL
## CERTIFICATE OF TITLE

# South Australia

Register Book,
Volume 4376 Folio 869

Attachment 1.6

CANCELLED
CONVERTED TO A COMPUTERISED TITLE

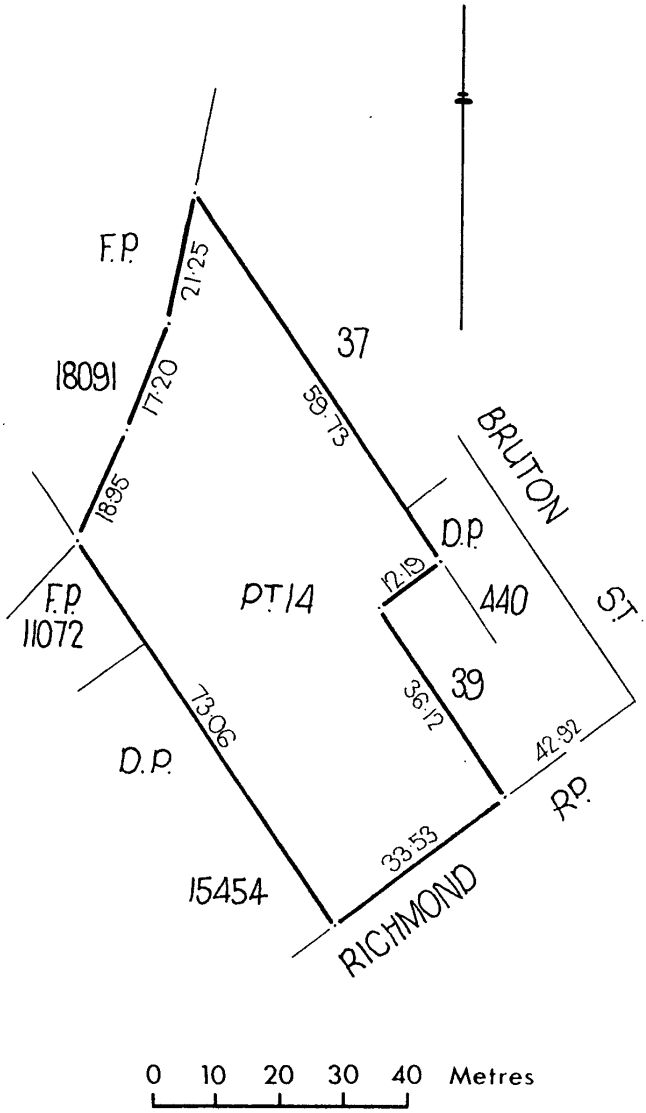
New Certificate for the whole of the Land in Conv. 1035 Folio 893

ADELAIDE CARAVAN PARK PTY. LTD. of 8 Bruton Street Hackney 5069 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 PORTION OF ALLOTMENT 14 of portion of Section 256 HUNDRED OF ADELAIDE in the area named HACKNEY (L.T.R.O. DEPOSITED PLAN No.440) and delineated on the diagram hereon

F.P. 18091
APPROVED

Registrar-General

Dated 19 March 1991




*CAVEAT 7000433 lodged by WESTPAC BANKING CORPORATION over the within land Produced 22.10.1990 at 10:20*

CAVEAT 7000433 has been withdrawn vide 7142161
Produced 23.7.1991 at 10:00

MORTGAGE 7142162 to WESTPAC BANKING CORPORATION
Produced 23.7.1991 at 10:00

The Address of THE WITHIN NAMED COMPANY is changed to 20-24 Richmond Street Hackney 5069
Vide 8032773 Produced 4.12.1995 at 11:35

DISCHARGE of Mortgage 7142162 vide 8276637
Produced 11.4.1997 at 9:00

Attachment 1.6

# ORIGINAL CERTIFICATE OF TITLE

## South Australia

Register Book,

Volume 4035 Folio 893

New Certificate for the whole of the Land in Vol.735 Folio 12

ADELAIDE CARAVAN PARK PROPRIETARY LIMITED of care of B.H. Crichton 34 Pirie Street Adelaide 5000 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 PORTION OF ALLOTMENT 14 of portion of Section 256 HUNDRED OF ADELAIDE laid out as HACKNEY (L.T.R.O. Plan deposited No.440) and delineated by bold black lines on the plan hereon

In witness whereof I have signed my name and affixed my seal this 26th day of February 1975

Signed the 26th day of February )
1975, in the presence of R. Halliday )

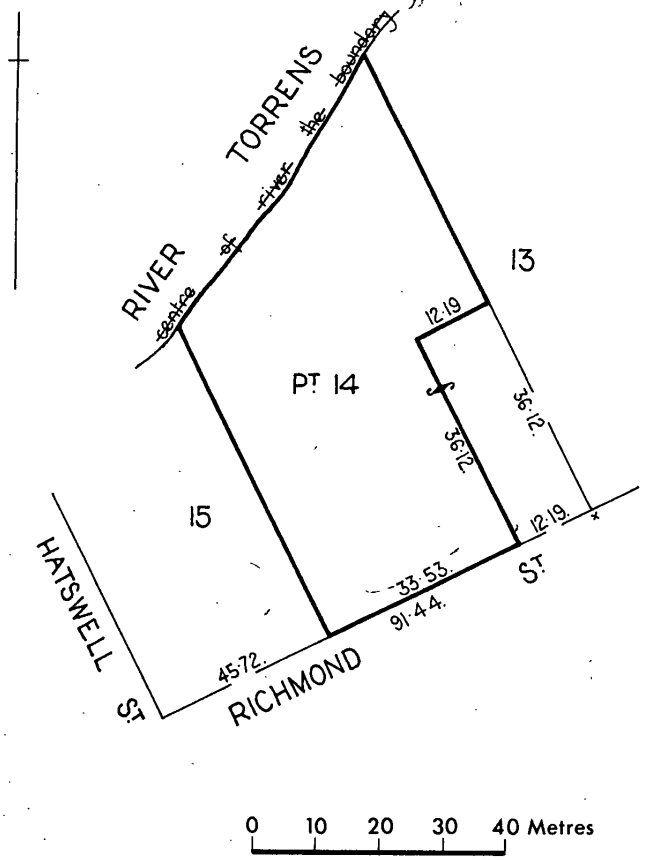
C.L. Nairn

Deputy Registrar-General

REGISTRAR-GENERAL SOUTH AUSTRALIA

Corrections in red vide Lr 3300/75
C. Nelson Hoyle
Dep. Reg. Genl.

F.P. 18091 APPROVED




~~XX5279799~~

*REGISTRAR-GENERAL'S CAVEAT 5279799 over PORTION of the within land Entered 6.8.1984 at 3.25 p.m. (Including other land)*

~~AQ 6043894~~

Caveat 5279799 is withdrawn this 10.7.1985 at 11:00

ACQUISITION 6043894 whereby PORTION of the within land is vested in MINISTER OF WATER RESOURCES Produced 2.7.1985 at 10:15 (Dup CT not prod)

CANCELLED as regards land in Acquisition 6043394 and new Certificate of Title issued VOL. 4255 FOL. 290

Attachment 1.6

*CAVEAT 7000433 lodged by WESTPAC BANKING CORPORATION over the within land Produced 22.10.1990 at 10:20*

CANCELLED and New Certificate of Title Issued pursuant to Section 79 of the Real Property Act 1886 as amended vide Application No. 7016554

Vol. 4376 Fol. 869

# South Australia. (CERTIFICATE OF TITLE.)

Register Book.

Vol. 735 Folio 12

Balance Certificate of Title from Vol 218 Folio 221

Ann Stevens of Adelaide Widow

is the proprietor of an estate in fee simple as the Executrix of the Will of Charles Stevens deceased 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 HUNDRED of Adelaide COUNTY of Adelaide being PORTION of Allotment 14 of portion of Section 256 laid out as Hackney and bounded as appears on the plans in the margin hereof and therein colored green Which said piece of land contains two roods and twenty eight perches or thereabouts and is more particularly delineated on the said plan

which said Allotment is bounded as appears in the plan deposited in the Lands Titles Registration Office No 440

which said Section 10 delineated in the public map of the said Hundred 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 July 1905

Signed the 11th day of July 1905 in the presence of E. J. Crayford

M. Giles

Registrar-General.

REGISTRAR GENERAL SOUTH AUSTRALIA

Pursuant to Application No 722503 Charles Stevens of Railway Terrace Goodwood Carpenter and John Riddock Stevens of Forest Chemist are

PROPRIETORS OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND AS THE EXECUTORS NAMED IN THE WILL DATED THE 20th DAY OF June 1913 OF THE ABOVE NAMED Ann Stevens WHO DIED ON THE 4th DAY OF May 1917 AS APPEARS BY PROBATE DATED THE 21st DAY OF June 1917 PRODUCED FOR REGISTRATION THE 24th DAY OF July 1919 AT 11.50 a.m.

REP. REG. GEN'L.

Transfer No 744212 from Charles Stevens and John Riddock Stevens to Gilbert Edwin Johns of Parkside Cut of Business of an estate in fee simple in the within land Produced for registration the 26th day of March 1920 at 11.45 am

Transfer No 746372 from Gilbert Edwin Johns to James McNeil of Adelaide Cut Grazier of an estate in fee simple in the within land. Produced for registration the 17 day of April 1920 at 11 o'clock A.M.

L.H. McCallum Deputy Registrar General

TRANSMISSION APPLICATION No 1214313
Farmers Cooperative Executors and Trustees Limited of Franklin Street Adelaide
PROPRIETOR OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND AS THE EXECUTOR NAMED IN THE WILL DATED THE 28 DAY OF August 1935 OF THE ABOVE NAMED James McNeil WHO DIED ON THE 29 DAY OF February 1936 AS APPEARS BY PROBATE DATED THE 1 DAY OF May 1936 PRODUCED FOR REGISTRATION THE 10 DAY OF June 1936 AT 11 A.M.

A J Seebohm DEP. REG. GENL

TRANSFER No. 1330480 FROM
Farmers Cooperative Executors and Trustees Limited to Hilda Clarice Phillips of Hackney Married Woman OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND.
PRODUCED FOR REGISTRATION THE 8 DAY OF November 1940 AT 2.50 pm

G Hunteloes DEP. REG. GENL.

TRANSFER No. 1816137 FROM
Hilda Clarice Phillips to Thomas Walton Holland of 68 Bruton Street Hackney Caravan Park Proprietor and Daphne Edna Holland his wife
OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND
PRODUCED FOR REGISTRATION THE 19 DAY OF January 1954 AT NOON

DEP. REG. GENL.

MORTGAGE No. 1818585 FROM
Thomas Walton Holland and Daphne Edna Holland to Arthur Gray
PRODUCED FOR REGISTRATION THE 5 DAY OF February 1954 AT 2.50 pm

APPLICATION No 2686049 THE WITHIN mortgage No 1818585 IS TRANSMITTED TO Gilbert Herbert Gray of Nelanto Andrew Camden Hatch Hasler Butcher and Dudley Shelton Gray of Penola Farmer AS THE EXECUTORS NAMED IN THE WILL DATED 18.8.1964 OF Arthur Gray WHO DIED 6.1.1965 VIDE PROBATE DATED 3.8.1965 PRODUCED 14.12.1965 AT 4.45 pm

R. London DEP. REG. GEN.

DISCHARGE OF MORTGAGE No. 1818585 VIDE No 2721522
PRODUCED 3.5.1966 AT 3.5 pm

J Hughes DEP. REG. GEN.

LEASE No. 3510792
Adelaide Caravan Park Proprietary Limited
OF THE WITHIN LAND. TERM: commencing on the 1.7.1972 and expiring on the 31.5.1997
PRODUCED 1.1973 AT 11.8 am

D.J. Randell DEP. REG. GEN.

SURRENDER OF Lease No. 3510792
VIDE No. 3671448 PRODUCED 2.10 1974 AT 10.55 am

R. London DEP. REG. GEN.

TRANSFER No. 3671448
to Adelaide Caravan Park Pty. Limited of care of B. Id. Brighton 7 Pirie Street Adelaide 5000
OF THE WITHIN LAND PRODUCED 2.10.1974 at 10.55 am

R. London

CANCELLED
AND New CERTIFICATE OF TITLE
ISSUED VIDE 3671448 VOL 4035 FOL 893

J Hughes DEP. REG. GEN.

# Certificate of Title

| | |
|---|---|
| **Title Reference:** | CT 5556/453 |
| **Status:** | CURRENT |
| **Parent Title(s):** | CT 4376/870 |
| **Dealing(s) Creating Title:** | CONVERTED TITLE |
| **Title Issued:** | 17/07/1998 |
| **Edition:** | 6 |



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# ORIGINAL
## CERTIFICATE OF TITLE

# South Australia

Register Book
Volume 4376 Folio 870

**CANCELLED**
**CONVERTED TO A COMPUTERISED TITLE**
REGISTRAR-GENERAL SOUTH AUSTRALIA

New Certificate for the whole of the Land in Vol.4035 Folio 894

ADELAIDE CARAVAN PARK PTY. LTD. of 8 Bruton Street Hackney 5069 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 PORTION OF ALLOTMENT 13 of portion of Section 256 HUNDRED OF ADELAIDE in the area named HACKNEY (L.T.R.O. DEPOSITED PLAN No.440) and delineated on the diagram hereon

F.P. 18091
APPROVED

Registrar-General

Dated 19 March 1991

REGISTRAR-GENERAL SOUTH AUSTRALIA

*CAVEAT 7000433 lodged by WESTPAC BANKING CORPORATION over the within land Produced 22.10.1990 at 10:20*

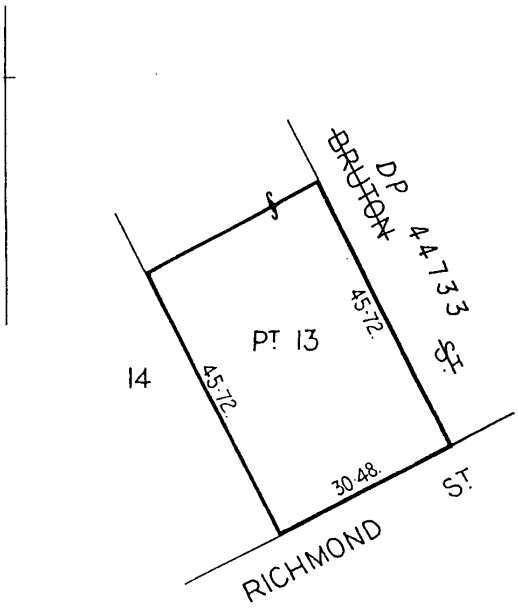
REGISTRAR-GENERAL SOUTH AUSTRALIA

CAVEAT 7000433 has been withdrawn vide 7142161
Produced 23.7.1991 at 10:00

REGISTRAR-GENERAL SOUTH AUSTRALIA

MORTGAGE 7142162 to WESTPAC BANKING CORPORATION
Produced 23.7.1991 at 10:00

REGISTRAR-GENERAL SOUTH AUSTRALIA




The Address of THE WITHIN NAMED COMPANY is changed to 20-24 Richmond Street Hackney 5069
Vide 8032773 Produced 4.12.1995 at 11:35

REGISTRAR-GENERAL SOUTH AUSTRALIA

DISCHARGE of Mortgage 7142162 vide 8276637
Produced 11.4.1997 at 9:00

REGISTRAR-GENERAL SOUTH AUSTRALIA

*BRUTON STREET ABUTTAL CLOSED & MERGED VIDE DP44733*

PAW

16/9/1996

REGISTRAR-GENERAL SOUTH AUSTRALIA

Attachment 1.6

# ORIGINAL CERTIFICATE OF TITLE

South Australia

Register Book, Volume 4035 Folio 894

New Certificate for the whole of the Land in Vol. 1413 Folio 140

ADELAIDE CARAVAN PARK PROPRIETARY LIMITED of care of B. H. Crichton 34 Pirie Street Adelaide 5000 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 PORTION OF ALLOTMENT 13 of portion of Section 256 HUNDRED OF ADELAIDE laid out as HACKNEY (L.T.R.O. Plan deposited No.440) and delineated by bold black lines on the plan hereon

In witness whereof I have signed my name and affixed my seal this 26th day of February 1975

Signed the 26th day of February )
1975, in the presence of R. Halliday )

C.L. Nairn

Deputy Registrar-General

REGISTRAR-GENERAL SOUTH AUSTRALIA

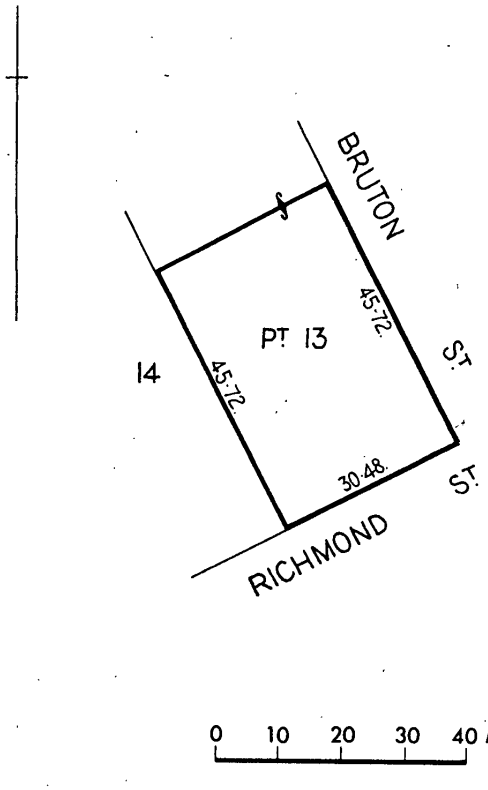
F.P. 18091 APPROVED

*CAVEAT 7000433 lodged by WESTPAC BANKING CORPORATION over the within land Produced 22.10.1990 at 10:20*

REGISTRAR-GENERAL SOUTH AUSTRALIA

CANCELLED and New Certificate of Title Issued pursuant to Section 79 of the Real Property Act 1886 as amended vide Application No. 7016554
Vol. 4376 Fol. 870

REGISTRAR-GENERAL SOUTH AUSTRALIA



Attachment 1.6

# Certificate of Title

| | |
|---|---|
| **Title Reference:** | CT 5624/154 |
| **Status:** | CURRENT |
| **Parent Title(s):** | CT 4167/957 |
| **Dealing(s) Creating Title:** | CONVERTED TITLE |
| **Title Issued:** | 15/02/1999 |
| **Edition:** | 6 |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# ORIGINAL CERTIFICATE OF TITLE

# South Australia

Register Book,

Volume 4167 Folio 957

New Certificate for the whole of the Land in Vol.2179 Folio 200

STATE PLANNING AUTHORITY 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 PORTION OF ALLOTMENT 12 of portion of Section 256 HUNDRED OF ADELAIDE laid out as HACKNEY (L.T.R.O. DEPOSITED PLAN No.440) and 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 November 1980

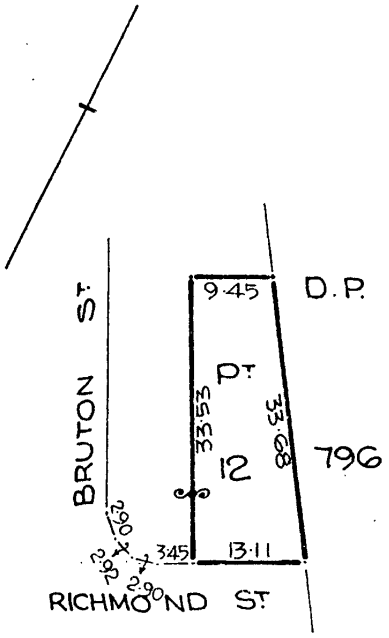
Signed the 18th day of November )
1980, in the presence of J.M.Badman. )

J.A.Hughes.

Deputy Registrar-General

REGISTRAR-GENERAL SOUTH AUSTRALIA

F.P. 18091 APPROVED




~~T4612904~~ ~~M4612905~~

TRANSFER 4612904 to ADELAIDE CARAVAN PARK PTY. LTD. of Bruton Street Hackney 5069 of the within land Produced 9.9.1980 at 2.40 p.m.

REGISTRAR-GENERAL SOUTH AUSTRALIA

MORTGAGE 4612905 to BANK OF NEW SOUTH WALES Produced 9.9.1980 at 2.40 p.m. (Including other land)

CN-6021849-(905)

REGISTRAR-GENERAL SOUTH AUSTRALIA

CHANGE OF NAME 6021849 The Name of the within Company is changed from Bank of New South Wales to WESTPAC BANKING CORPORATION of 2-8 King William Street Adelaide 5000 Prod ced 23.5.1985 at 11:40

REGISTRAR-GENERAL SOUTH AUSTRALIA

The Address of THE WITHIN NAMED COMPANY is changed to 20-24 Richmond Street Hackney 5069 Vide 8032773 Produced 4.12.1995 at 11:35

REGISTRAR-GENERAL SOUTH AUSTRALIA

Attachment 1.6

DISCHARGE of Mortgages 4612905 & 7049396 vide 8276636 Produced 11.4.1997 at 9:00

REGISTRAR-GENERAL SOUTH AUSTRALIA

CANCELLED

CONVERTED TO A COMPUTERISED TITLE

REGISTRAR-GENERAL SOUTH AUSTRALIA

# South Australia. (CERTIFICATE OF TITLE.)

CANCELLED
AND New CERTIFICATE OF TITLE
ISSUED VIDE H612904 VOL. 4167 FOL. 957

*Register Book,*
*Vol.* 2173 *Folio* 200

New Certificate of Title for the whole of the Land in Vol.270 Folio 26

WILLIAM HENRY ROBINSON of 102 Ward Street North Adelaide Out of Business

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 situate in the **HUNDRED of** ADELAIDE **COUNTY of** ADELAIDE being PORTION OF ALLOTMENT 12 of the subdivision of portion of Section 256 laid out as HACKNEY and more particularly delineated and bounded as appears in the plan in the margin hereof and therein colored green WHICH said Allotment is bounded as appears in the plan deposited in the Lands Titles Registration Office No.440

Which said Section is delineated in the public map of the said Hundred deposited in the Land Office at Adelaide.

In witness whereof I have hereunto signed my name and affixed my seal this third day of December 19 57

Signed the 3rd day of December 19 57. in the presence of A Potts

Registrar-General.

REGISTRAR-GENERAL SOUTH AUSTRALIA

1704679

TRANSMISSION APPLICATION No. 1704679
Farmers' Co-operative Executors and Trustees Limited of Franklin Street Adelaide is PROPRIETOR OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND AS THE EXECUTOR NAMED IN THE WILL DATED THE 3 DAY OF January 1950 OF THE ABOVE NAMED William Henry Robinson WHO DIED ON THE 19 DAY OF July 19 57 AS APPEARS BY PROBATE DATED THE 6 DAY OF September 19 57 PRODUCED FOR REGISTRATION THE 22 DAY OF November 19 57 AT 2.30 PM

DEP. REG. GENL.

1726482

TRANSFER No. 1726482 FROM Farmers Co-operative Executors and Trustees Limited to Ethel May Robinson of 102 Ward Street North Adelaide Widow OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND PRODUCED FOR REGISTRATION THE 2 DAY OF May 19 62 AT 2 pm

DEP. REG. GENL.

OVER

Attachment 1.6

TRANSFER No. 1794979 FROM
Ethel May Robinson to James Edward Allen of Clare Grazier
OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND
PRODUCED FOR REGISTRATION THE 20 DAY OF August 1953 AT 2.55 pm
DEP. REG. GENL.

T/A 2353487

APPLICATION No. 2353487 THE WITHIN LAND IS TRANSMITTED TO EXECUTOR TRUSTEE AND AGENCY COMPANY OF SOUTH AUSTRALIA LIMITED OF 22 GRENFELL STREET ADELAIDE.
AS THE EXECUTOR NAMED IN THE WILL DATED 17.7.1958 OF JAMES EDWARD ALLEN. WHO DIED 11.8.1958 VIDE PROBATE DATED 26.11.1958 PRODUCED 16.5.1962 AT 11.55 A.M.
DEP. REG. GEN.

T 2368503 m 2368504 m 2368505

TRANSFER No. 2368503
to Edward Walter Stamford of 30 Park Street Hackney Tramways Officer
OF THE WITHIN LAND. PRODUCED 18/7/1962 AT 2.45 pm
DEP. REG. GEN.

MORTGAGE No. 2368504
to Executor Trustee and Agency Company of South Australia Limited.
PRODUCED 18.7.1962 AT 2.45 pm (INCLUDING OTHER LAND)
DEP. REG. GEN.

MORTGAGE No. 2368505
to Credit House (S.A.) Proprietary Limited
PRODUCED 18.7.1962 AT 2.45 pm (INCLUDING OTHER LAND)
DEP. REG. GEN.

M 2534852

MORTGAGE No. 2534852 to Deposit and Investment Company (S.A.) Proprietary Limited
PRODUCED 3/6/1964 AT 11.25 am
DEP. REG. GEN.

P/A 2151836
DISCHARGE OF MORTGAGE No. 2368505 VIDE No. 2610320
PRODUCED 15.3.1965 AT 2.25 pm
DEP. REG. GEN.

M 2706845 D 2534852 M 2706846

MORTGAGE No. 2621032 to Albert Thomas John Prior, Violet Winifred Prior, and Elizabeth Alice Listar Prior
PRODUCED 21.4.1965 AT noon (INCLUDING OTHER LAND)
DEP. REG. GEN.

DISCHARGE OF MORTGAGE No. 2621032 VIDE No. 2706845
PRODUCED 9.3.1966 AT 12.55 P.M.
DEP. REG. GEN.

See Search 20973

P/A 2626507
DISCHARGE OF MORTGAGE No. 2534852 BY ENDORSEMENT THEREON. PRODUCED 9.3.1966 AT 2.55 pm
DEP. REG. GEN.

MORTGAGE No. 2706846 TO
Deposit and Investment Company (S.A.) Proprietary Limited
~~OF THE WITHIN LAND~~ PRODUCED 9.3.1966 AT 2.55 P.M.
DEP. REG. GEN.

T/A 2771704

APPLICATION No. 2771704 THE WITHIN land IS TRANSMITTED TO
Marguerite Ada Stamford of 46 Richland Street Hackney Widow
AS THE ADMINISTRATRIX OF Edward Walter Stamford WHO DIED 3.5.1966 INTESTATE VIDE LETTERS OF ADMINISTRATION DATED 27.9.1966
PRODUCED 2.11.1966 AT 12.30 p.
DEP. REG. GEN.

T 2839742

TRANSFER No. 2839742 to the within named Marguerite Ada Stamford
OF THE WITHIN LAND. PRODUCED 2/12/1967 AT 11.25 am
DEP. REG. GEN.

M 2891372 D 2706846 22/2 D.R.G.
P/A 2680679 2706846
DISCHARGE OF MORTGAGE No. 2891372 BY ENDORSEMENT THEREON. PRODUCED 22.2.1968 AT 2.20 pm
DEP. REG. GEN.

MORTGAGE No. 2891372 to Deposit and Investment Company (S.A.) Proprietary Limited
PRODUCED 19.2.1968 at 2.20 pm 11.35 am.
DEP. REG. GEN.

D 2891372 M 3009592 D.R.G.
P/A 2680679
DISCHARGE OF MORTGAGE No. 2891372 BY ENDORSEMENT THEREON. PRODUCED 5.12.1969 AT 11.35 a
DEP. REG. GEN.

MORTGAGE No. 3009592 TO
Harvard Securities Pty. Limited
PRODUCED 5.12.1969 AT 11.35 a (INCLUDING OTHER LAND)
DEP. REG. GEN.

(D 2534852) 13/7/71 3009592
DISCHARGE OF MORTGAGE No. 2368504 BY ENDORSEMENT THEREON. PRODUCED 13/7/1971 AT 12.35 pm
DEP. REG. GEN.

T 3370936

TRANSFER No. 3370936 to
SOUTH AUSTRALIAN HOUSING TRUST of Adelaide 5000
OF THE WITHIN LAND. PRODUCED 11/10/1972 AT 2.55 pm
DEP. REG. GEN.

T 3470306

TRANSFER No. 3470306
To State Planning Authority.
OF THE WITHIN LAND. PRODUCED 12.6.1973 AT 2.30 p.m.
DEP. REG. GEN.

T 2662906 M 2662905 See

# Crown Record

**Title Reference:** CR 5744/237

**Status:** CANCELLED

**Parent Title(s):**

**Dealing(s) Creating Title:** RT 8854016

**Title Issued:** 16/03/2000

**Title Cancelled:** 28/08/2004

**Edition:** 1

# Child Titles

| Title Reference | Status | Estate Type | Plan / Parcel | Proprietors/Lessees/ Custodians at time of issue |
|---|---|---|---|---|
| CT 5923/342 | CURRENT | FEE SIMPLE | D58667 ALLOTMENT 101 | ADELAIDE CARAVAN PARK PTY. LTD. |
| CT 5923/343 | CURRENT | FEE SIMPLE | D58667 ALLOTMENT 102 | ADELAIDE CARAVAN PARK PTY. LTD. |
| CT 5923/344 | CURRENT | FEE SIMPLE | D58667 ALLOTMENT 103 | ADELAIDE CARAVAN PARK PTY. LTD. |
| CR 5923/345 | CURRENT | CROWN LAND (UNALIENATED) | D58667 ALLOTMENT 104 | MINISTER FOR ENVIRONMENT AND CONSERVATION |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# Certificate of Title

| | |
|---|---|
| **Title Reference:** | CT 5923/343 |
| **Status:** | CURRENT |
| **Parent Title(s):** | CT 5411/161, CR 5744/237 |
| **Dealing(s) Creating Title:** | RTD 9229852, VM 9790448 |
| **Title Issued:** | 28/08/2004 |
| **Edition:** | 6 |



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# Certificate of Title

| | |
|---|---|
| **Title Reference:** | CT 5411/161 |
| **Status:** | CANCELLED |
| **Parent Title(s):** | CT 4379/492 |
| **Dealing(s) Creating Title:** | CONVERTED TITLE |
| **Title Issued:** | 10/04/1997 |
| **Title Cancelled:** | 28/08/2004 |
| **Edition:** | 2 |

# Child Titles

| Title Reference | Status | Estate Type | Plan / Parcel | Proprietors/Lessees/ Custodians at time of issue |
|---|---|---|---|---|
| CT 5923/343 | CURRENT | FEE SIMPLE | D58667 ALLOTMENT 102 | ADELAIDE CARAVAN PARK PTY. LTD. |


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# ORIGINAL

## CERTIFICATE OF TITLE

# South Australia

Register Book,

Volume 4379 Folio 492

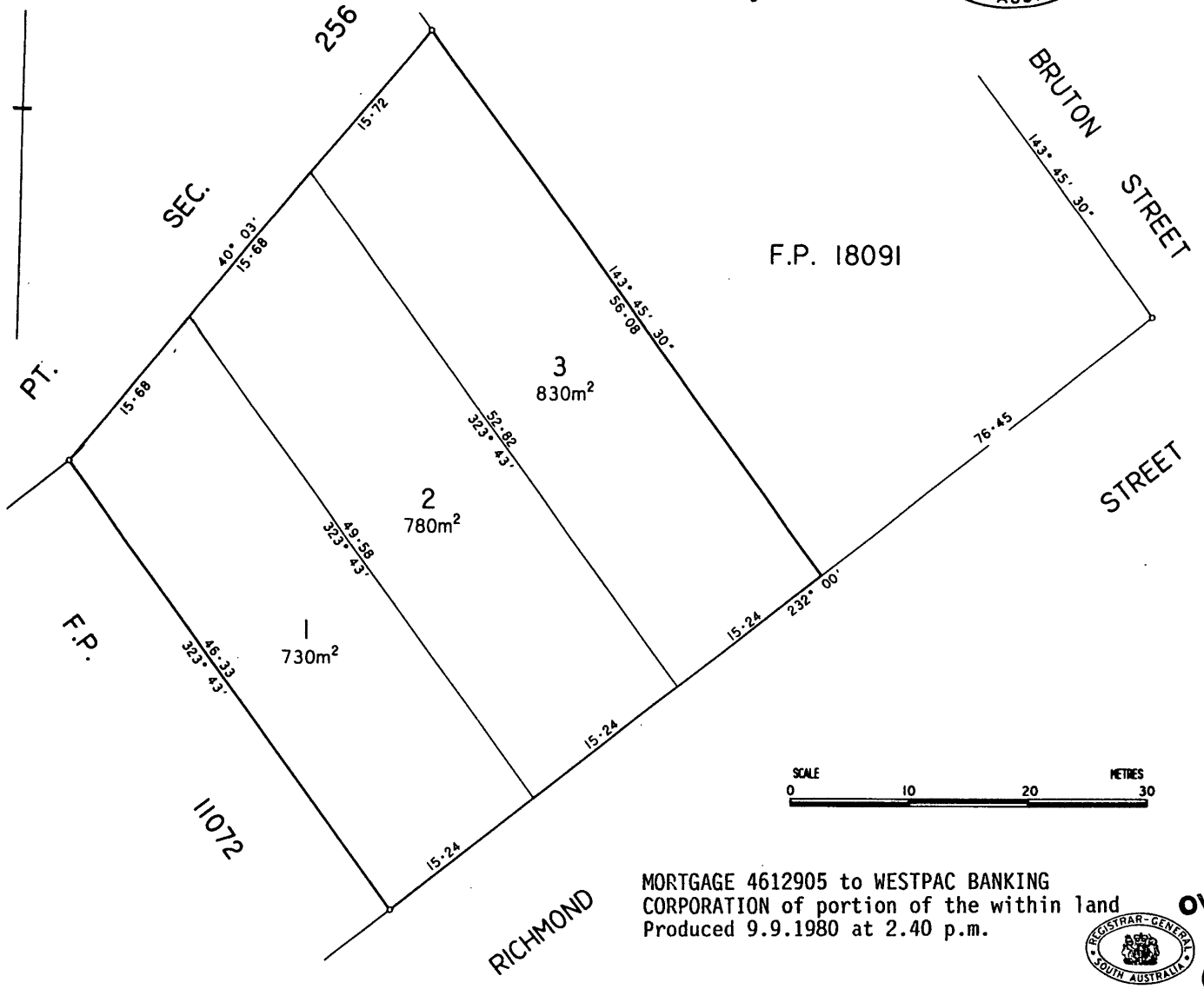
New Certificate for the whole of the Land in Vol.4249 Folio 931 and portion of the Land in Vol.4170 Folio 146

ADELAIDE CARAVAN PARK PTY. LTD. of Bruton Street Hackney 5069 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 2 of portion of Section 256 HUNDRED OF ADELAIDE in the area named HACKNEY (L.T.R.O. DEPOSITED PLAN No.26881) and delineated on the diagram hereon

Registrar-General

Dated 2 May 1991

REGISTRAR-GENERAL SOUTH AUSTRALIA




MORTGAGE 4612905 to WESTPAC BANKING CORPORATION of portion of the within land Produced 9.9.1980 at 2.40 p.m.

OVER

REGISTRAR-GENERAL SOUTH AUSTRALIA

Attachment 1.6

MORTGAGE 7049396 to WESTPAC BANKING CORPORATION of portion of the within land Produced 29.1.1991 at 14:50

The Address of THE WITHIN NAMED COMPANY is changed to 20-24 Richmond Street Hackney 5069 Vide 8032773 Produced 4.12.1995 at 11:35

CANCELLED

CONVERTED TO A COMPUTERISED TITLE

# ORIGINAL CERTIFICATE OF TITLE

# South Australia

Register Book

Volume 4249 Folio 931

New Certificate for the whole of the Land in Vol.4167 Folio 956 and portion of the Land in Vol.4170 Folio 145

ADELAIDE CARAVAN PARK PROPRIETARY LIMITED of Bruton Street Hackney 5069 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 31 of portion of Section 256 HUNDRED OF ADELAIDE in the area named HACKNEY (L.T.R.O. DEPOSITED PLAN No.15454)

In witness whereof I have signed my name and affixed my seal this 23rd day of July 1985

Signed the 23rd day of July 1985, in the presence of J. Hamilton

Deputy Registrar-General

REGISTRAR-GENERAL SOUTH AUSTRALIA

MORTGAGE 4612905 to WESTPAC BANKING CORPORATION
Produced 9.9.1980 at 2.40 p.m. (Including other land)

REGISTRAR-GENERAL SOUTH AUSTRALIA

Cancelled as regards ~~that portion of~~ the within land comprised in Deposited Plan 26881 (CT6790257) and new Certificates issued Vol. 4379 Folios 492

REGISTRAR-GENERAL SOUTH AUSTRALIA

# ORIGINAL CERTIFICATE OF TITLE

# South Australia

Register Book,
Volume 4167 Folio 956

New Certificate for the whole of the Land in Vol.2052 Folio 150

ADELAIDE CARAVAN PARK PROPRIETARY LIMITED of Bruton Street Hackney 5069 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 PORTION OF ALLOTMENT 15 of portion of Section 256 HUNDRED OF ADELAIDE laid out as HACKNEY (L.T.R.O. DEPOSITED PLAN No.440) and 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 November 1980

Signed the 18th day of November )
1980, in the presence of gmeacher )

Jat Hughes

Deputy Registrar-General

REGISTRAR-GENERAL SOUTH AUSTRALIA

~~M4612905~~
MORTGAGE 4612905 to BANK OF NEW SOUTH WALES Produced 9.9.1980 at 2.40 p.m. (Including other land)

REGISTRAR-GENERAL SOUTH AUSTRALIA

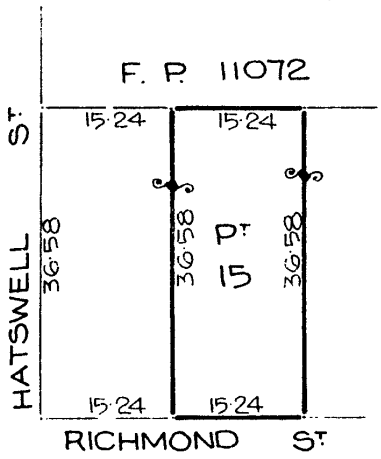
~~RT 5399641 DP 15454~~
~~CN 6021849 (905)~~

**THE WHOLE OF THE WITHIN LAND IS NOW COMPRISED IN DEPOSITED PLAN 15454 VIDE APPLICATION R.T. 5399641**

REGISTRAR-GENERAL SOUTH AUSTRALIA

CHANGE OF NAME 6021849 The Name of the within Company is changed from Bank of New South Wales to WESTPAC BANKING CORPORATION of 2-8 King William Street Adelaide 5000 Produced 23.5.1985 at 11:40

REGISTRAR-GENERAL SOUTH AUSTRALIA




CANCELLED

AND New CERTIFICATE OF TITLE
ISSUED VIDE 5399641 DEPOSITED PLAN 15454
VOL. 4249 FOL. 931

REGISTRAR-GENERAL SOUTH AUSTRALIA

# South Australia.

## (CERTIFICATE OF TITLE.)

CANCELLED
AND New CERTIFICATE OF TITLE
ISSUED VIDE 4612905 VOL. 4167 FOL. 956

*Register Book,*
*Vol.* 2052 *Folio* 150

New Certificate of Title for the whole of the Land in Vol.257 Folio 159

ALBERT GEORGE CREEPER of No.16 Park Street Hackney Cabinet Maker

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 situate in the HUNDRED of ADELAIDE COUNTY of ADELAIDE being PORTION OF ALLOTMENT 15 of the subdivision of portion of Section 256 laid out as HACKNEY and more particularly delineated and bounded as appears in the plan in the margin hereof and therein colored green WHICH said Allotment is bounded as appears in the plan deposited in the Lands Titles Registration Office No.440

Which said Section is delineated in the public map of the said Hundred deposited in the Land Office at Adelaide.

In witness whereof I have hereunto signed my name and affixed my seal this twenty eighth day of November 1949

Signed the 28th day of November 1949, in the presence of [illegible]

Registrar-General.

REGISTRAR-GENERAL SOUTH AUSTRALIA

TRANSMISSION APPLICATION No. 159613

Public Trustee is

PROPRIETOR OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND AS THE ADMINISTRATOR OF THE ESTATE OF THE ABOVE NAMED Albert George Creeper WHO DIED ON THE 13th DAY OF November 1938. ~~INTESTATE~~ AS APPEARS BY LETTERS OF ADMINISTRATION dated the 4th day of November 1949 with will annexed DATED THE 22nd DAY OF October 1938 PRODUCED FOR REGISTRATION THE 22 DAY OF November 1949 AT 11 a.m.

DEP. REG. GENL.

T 11607 H 116077

100 0 100FT

146B

TRANSFER No. 1616072 FROM
Public Trustee to Percival Ernest Okely of 16 Park Street Hackney Baker and Florence Evelyn Okely his wife.
OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND
PRODUCED FOR REGISTRATION THE 5 DAY OF April 19 50 AT 11.30am
DEP. REG. GENL.

MORTGAGE No. 1616073 FROM
Percival Ernest Okely and Florence Evelyn Okely to
The Independent Grand of Odd Fellows Manchester Unity Friendly Society in South Australia Amorosa Alpheus Lodge No. 4
PRODUCED FOR REGISTRATION THE 5 DAY OF
April 19 50 AT 11.30am
DEP. REG. GENL.

A 1721927

DEATH. The within named Percival Ernest Okely died on the 15 day of October 1955 as appears by Certified Copy of Certificate of Death No. 1921927 Produced for registration the 30 day of November 19 55 at noon m.
G.E. Caswell Dep. Reg. Gen.

T/M 1944704

TRANSFER No. 1944704 FROM
The Independent Order of Oddfellows Manchester Unity Friendly Society in South Australia Alpheus Lodge No. 4 of the Independent Order of Oddfellows Manchester Unity Friendly Society in South Australia of 44 Franklin Street Adelaide
OF THE WITHIN Mortgage No. 1616073
PRODUCED FOR REGISTRATION THE 8 DAY OF May 1956 AT noon
DEP. REG. GENL.

T A 274674

APPLICATION No. 2761875 THE WITHIN Land IS TRANSMITTED TO Thelma Ruth McRae of 24 Abbott Street Glenelg Married Woman
AS THE ADMINISTRATRIX OF Florence Evelyn Okely WHO DIED 8.5.1966 INTESTATE VIDE LETTERS OF ADMINISTRATION dated 16.8.1966 DATED 18.8.1966.
PRODUCED 23.9.1966 AT 2.15pm
DEP. REG. GEN.

D 1616073 T 2776335 to 2776336

DISCHARGE OF MORTGAGE No. 1616073 BY ENDORSEMENT THEREON. PRODUCED 18.11.1966 AT 11.20 am
DEP. REG. GEN.

TRANSFER No. 2776335 to
D.G. Rimington Pty Limited of 35 Park Avenue Rosslyn Park.
OF THE WITHIN LAND. PRODUCED 18.11.1966 at 11.20 am
DEP. REG. GEN.

MORTGAGE No. 2776336 to
Lenswerth Finance Limited
PRODUCED 18.11.1966 AT 11.20 am
DEP. REG. GEN.

THE WITHIN LAND IS DISCHARGED FROM MORTGAGE No. 2776336 BY ENDORSEMENT THEREON.
PRODUCED 21-4-1967 AT 11.40 am
DEP. REG. GEN.

TRANSFER No. 2815193 TO
Michael Scheer of 22 Richmond Street Hackney Crane Operator
OF THE WITHIN LAND. PRODUCED 21-4-1967 AT 11.40 P.M.
DEP. REG. GEN.

MORTGAGE No. 2815194 to
Marguerita Agnes Munro
PRODUCED 21-4-1967 AT 11.40 am
DEP. REG. GEN.

MORTGAGE No. 2815195 TO CHALLIS INVESTMENTS LIMITED
PRODUCED 21-4-1967 AT 11.40 am
DEP. REG. GEN.

Caveat 2823476 lodged 22.5.67 at 9.05 am

CAVEAT No. 2823476 LODGED BY D.G. Rimington Pty. Limited OVER THE WITHIN LAND. PRODUCED 23.5.1967 AT 1.55 pm
DEP. REG. GEN.

H 2952475 DM A 2952476 D 2815193 T 2952477

Caveat No. 2823476 HAS BEEN WITHDRAWN VIDE No. 2952475. PRODUCED 17.10.1968 AT 11.30 am
DEP. REG. GEN.

DISCHARGE OF MORTGAGE No. 2815194 VIDE No. 2952476. PRODUCED 17.10.1968 AT 11.30 am
DEP. REG. GEN.

P/A 2486416 DRG.

THE WITHIN LAND IS DISCHARGED FROM MORTGAGE No. 2815195 BY ENDORSEMENT THEREON. PRODUCED 17.10.1968 AT 11.30 am
DEP. REG. GEN.

TRANSFER No. 2952477 to
Cambridge Credit Corporation Limited of 196 North Terrace Adelaide 5000.
OF THE WITHIN LAND. PRODUCED 17.10.1968 AT 11.30 am
DEP. REG. GEN.

T 3270294

TRANSFER No. 3270294 to
Adelaide Caravan Park Pty. Ltd. of Burton Street Hackney 5069
OF THE WITHIN LAND. PRODUCED 14.12.1971 AT 1.10 pm
DEP. REG. GEN.

NEW C.T. REQUIRED BEFORE FURTHER REGN.

M 4612905 See Face

(C)

# South Australia.

(CERTIFICATE OF TITLE.)

FP 22602

Register Book, Vol. CCLVII Folio 159

John Curzon Bruton of Adelaide Gasfitter 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 Hundred of Adelaide County of Adelaide being portion of the allotment No 15 of portion of the Section 253 Town of Hackney and bounded as appears in the plan in the margin hereof and thereon colored green Which said piece of land contains twenty two perches or thereabouts and measures as well on the north easterly side upon other portion of the said allotment One hundred and twenty feet or thereabouts and as well on the north westerly side next other part of the said allotment as on the south easterly side next Hill Street fifty feet or thereabouts The said South westerly side being distant from the south westerly boundary of the said allotment fifty feet or thereabouts Which said allotment is bounded as appears in the plan deposited in the Lands Titles Registration Office No 40

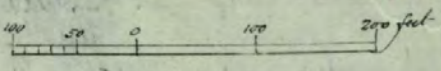
which said Section is delineated in the public map of the said Hundred, deposited in the office of the Surveyor-General and was originally granted the 12th day of February 1843 under the hand and seal of George Gawler Governor Resident Commissioner and Governor of the said province to George Fife Angas and others

In witness whereof, I have hereunto signed my name and affixed my seal this twenty third day of August one thousand eight hundred and seventy in presence of

John Carter

Registrar-General.

REGISTRAR GENERAL SOUTH AUSTRALIA




CANCELLED

AND new CERTIFICATE OF TITLE ISSUED VIDE Letter No 2596 of 1949

VOL. 2052 FOL. 150

DEP REG GENL

Mortgage No 85884 from John Curzon Bruton to Friedrich Eduard Heinrich Wulf Kruchauff and Carl Gustav Schodlich. Produced the 9th day May 1878 at 1pm

Dep Registrar

Transfer No 85951 from John Curzon Bruton to Friedrich Eduard Heinrich Wulf Kruchauff of Adelaide Land Agent of the above land. Produced the 11th day May 1878 at 11am

Dep Registrar

Discharge of the above Mortgage No 85884 by receipt endorsed thereon dated the 26 day April. Entered the 1 day of May 1883 at 11 a.m.

Transfer No 160112 from Friedrich Eduard Heinrich Wulf Kruchauff to William Heddle Garson of Park Street Hackney Builder of the above land Produced the 1 day May 1883 at 9 a.m.

Mortgage

Mortgage No 160113 from William Hedley Gasson to Frederick William Rowley Produced the 1 day May 1893 at 4 pm
M Turner Dep Reg Genl

Transfer No 183028 from William Hedley Gasson to Harry Ross Oldham of Adelaide Gentleman of the within land Produced the 28 day October 1893 at 10 am
A Witherington Dep Reg Genl

Discharge of the within Mortgage No 160113 by receipt endorsed thereon Produced for registration the 3 day January 1903 at 2.35 pm
E J Heath Dep Reg Genl

Transfer No 267362.
from Harry Ross Oldham to Frederick William Rowley of Gilles Plains Gentleman of all his estate and interest in the within land Produced for registration the 3 day January 1903 at 2.35 pm
E J Heath Dep Reg Genl

Mortgage No 267363
from Frederick William Rowley Produced for registration the 3 day January 1903 at 2.35 pm
E J Heath Dep Reg Genl

Discharge of the within Mortgage No 267363 by receipt endorsed thereon Produced for registration the 11 day June 1897 at 2.45 pm
E J Heath Dep Reg Genl

Transfer No 317161 from John Müller the younger to John Müller the Elder of Kadina Shoemaker of an estate in fee simple in the within land Produced for registration the 11 day June 1897 at 2.45 pm
E J Heath Dep Reg Genl

Mortgage No 317162 from John Müller the Elder to Henry Chennings Produced for registration the 11 day June 1897 at 2.45 pm
E J Heath Dep Reg Genl

Mortgage No 347920 from John Müller the Elder to Henry Owen Tray Produced for registration the 6 day December 1897 at 3 pm
M Turner Dep Reg Genl

Transfer No 526509 from Henry Chennings as Mortgagee to Charlotte Elizabeth Eitzen wife of Louis Theodore Rudolph Eitzen of Hackney Tramway Motorman of an estate in fee simple in the within land Produced for registration the 7 day of February 1911 at 11 am
W Maxwell Dep Reg Genl

Mortgage No 526510 from Charlotte Elizabeth Eitzen to The State Bank of South Australia Produced for registration the 7 day of February 1911 at 11 am
W Maxwell Dep Reg Genl

DISCHARGE OF THE [illegible] MORTGAGE
NO 526510 BY RECEIPT ENDORSED
THEREON, PRODUCED FOR REGISTRATION
THE 23 DAY OF September
19 [illegible] AT [illegible]
[illegible]
Dep. Reg. General

Transfer No 597670 from Charlotte Elizabeth Eitzen to Albert George Creeper of Gouger Street Adelaide Furniture manufacturer of an estate in fee simple in the within land Produced for registration the 13 day of September 1913 at 11.25 am
[illegible] Registrar

Mortgage No 602611 from Albert George Creeper to Rose Howard Clark Produced for registration the 25 day of November 1913 at 1 pm
Vernon H Edwards Dep Reg Genl

Mortgage No 602612 from Albert George Creeper to The Co-operative Building Society of South Australia Produced for registration the 25 day of November 1913 at 1 pm
Vernon H Edwards Dep Reg Genl

DISCHARGE OF THE above MORTGAGES
NOS 602611 and 602613
BY RECEIPT ENDORSED THEREON PRODUCED
FOR REGISTRATION THE 16 DAY OF
March 19 17 AT 10 30 am
H W Harwood
DEP. REG. GENL.

TA 1597/613 See Face

# Certificate of Title

| | |
|---|---|
| **Title Reference:** | CT 5389/441 |
| **Status:** | CURRENT |
| **Parent Title(s):** | CT 4376/868 |
| **Dealing(s) Creating Title:** | RTD 8043336 |
| **Title Issued:** | 03/01/1997 |
| **Edition:** | 7 |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# ORIGINAL
## CERTIFICATE OF TITLE

# South Australia

Register Book
Volume 4376 Folio 868

New Certificate for the whole of the Land in Vol.4035 Folio 892

ADELAIDE CARAVAN PARK PTY. LTD. of 8 Bruton Street Hackney 5069 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 PORTION OF ALLOTMENT 12 of portion of Section 256 HUNDRED OF ADELAIDE in the area named HACKNEY (L.T.R.O. DEPOSITED PLAN No.440) and delineated on the diagram hereon

F.P. 18091
APPROVED

Registrar-General

Dated 19 March 1991

REGISTRAR-GENERAL SOUTH AUSTRALIA

*CAVEAT 7000433 lodged by WESTPAC BANKING CORPORATION over the within land Produced 22.10.1990 at 10:20*

REGISTRAR-GENERAL SOUTH AUSTRALIA

CAVEAT 7000433 has been withdrawn vide 7142161 Produced 23.7.1991 at 10:00

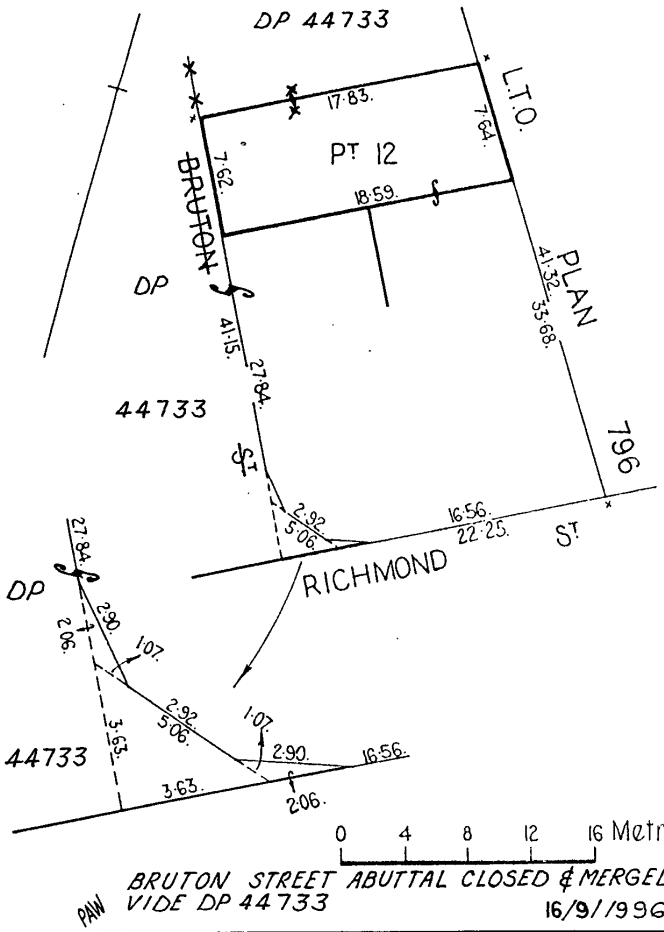
REGISTRAR-GENERAL SOUTH AUSTRALIA

MORTGAGE 7142162 to WESTPAC BANKING CORPORATION Produced 23.7.1991 at 10:00

REGISTRAR-GENERAL SOUTH AUSTRALIA

The Address of THE WITHIN NAMED COMPANY is changed to 20-24 Richmond Street Hackney 5069 Vide 8032773 Produced 4.12.1995 at 11:35

REGISTRAR-GENERAL SOUTH AUSTRALIA




BRUTON STREET ABUTTAL CLOSED & MERGED VIDE DP 44733 16/9//996.

PAN

REGISTRAR-GENERAL SOUTH AUSTRALIA

Attachment 1.6

CANCELLED AS REGARDS
~~PORTION BALANCE OF~~
THE WITHIN LAND AND
NEW COMPUTERISED TITLE(S) ISSUED

REGISTRAR-GENERAL SOUTH AUSTRALIA

# ORIGINAL CERTIFICATE OF TITLE

South Australia

Register Book,
Volume 4035 Folio 892

Pursuant to Transfer 3671450 Registered on Vol.3586 Folio 112

ADELAIDE CARAVAN PARK PROPRIETARY LIMITED of care of B.H. Crichton 34 Pirie Street Adelaide 5000 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 PORTION OF ALLOTMENT 12 of portion of Section 256 HUNDRED OF ADELAIDE laid out as HACKNEY (L.T.R.O. Plan deposited No.440) and delineated by bold black lines on the plan hereon

In witness whereof I have signed my name and affixed my seal this 26th day of February 1975

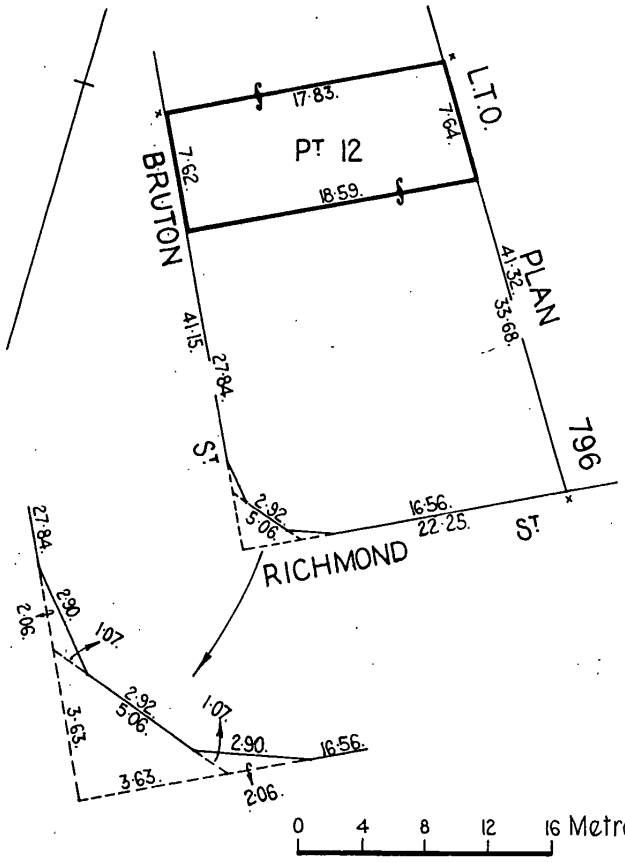
Signed the 26th day of February 1975, in the presence of R. Halliday

C.L. Nairn

Deputy Registrar-General

REGISTRAR-GENERAL SOUTH AUSTRALIA

F.P. 18091 APPROVED




*CAVEAT 7000433 lodged by WESTPAC BANKING CORPORATION over the within land Produced 22.10.1990 at 10:20*

REGISTRAR-GENERAL SOUTH AUSTRALIA

CANCELLED and New Certificate of Title Issued pursuant to Section 79 of the Real Property Act 1886 as amended vide Application No. 7016554
Vol. 4376 Fol. 868

REGISTRAR-GENERAL SOUTH AUSTRALIA

Attachment 1.6

# South Australia

## (CERTIFICATE OF TITLE)

*Register Book,*
*Vol.* 3586 *Folio* 112

New Certificate of Title for the whole of the Land in Vol.727 Folio 181

THOMAS WALTON HOLLAND Caravan Park Proprietor DAPHNE EDNA HOLLAND his wife BARBARA JUNE DUNN Married Woman and MARGARET ANN HOLLAND Spinster all of 8 Bruton Street Hackney 5069

are the proprietor s 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 situate in the HUNDRED of ADELAIDE COUNTY of ADELAIDE being PORTION OF ALLOTMENT 12 of the subdivision of portion of Section 256 laid out as HACKNEY and more particularly delineated and bounded as appears in the plan in the margin hereof and therein colored green SUBJECT nevertheless to rights of way over portion of the said land as delineated in the said plan and therein marked Private Road WHICH said Allotment is bounded as appears in the plan deposited in the Lands Titles Registration Office No.440

Which said Section is delineated in the public map of the said Hundred deposited in the Land Office at Adelaide.

In witness whereof I have hereunto signed my name and affixed my seal this 16th day of October 1968.

Signed the 16th day of October 1968, in the presence of Adelaide

D. L. Collins

Registrar-General

REGISTRAR-GENERAL SOUTH AUSTRALIA

Sub by C/N 3510791 A/M 3510791A L 3510792

THE WITHIN NAME Margaret Ann Holland is corrected to Margaret Anne Holland

VIDE APPLICATION No. 3510791
PRODUCED 4.9.1973 AT 11.15am.
D. L. Randell Dep. Reg. Gen.

MARRIAGE No. 3510791A
Margaret Anne Holland was married to Richard Hesse Davis of 9 Cowan & Bruton Street, Hackney Adelaide Publican
on 17.1.1970 at Adelaide
Entered 6.12.1973 at 11am Produced 4.9.1973 at 11.15am
D. L. Randell Dep. Reg. Gen.

LEASE No. 3510794 To
Adelaide Caravan Park Proprietary Limited
OF THE WITHIN LAND. TERM commencing on the 1.7.1972 and expiring on the 31.5.1997
PRODUCED 4.9.1973 AT 11.15am.
D. L. Randell DEP. REG. GEN.

NOTIFICATION No. 3535536 Portion of THE WITHIN LAND IS VESTED IN The Corporation of the Town of St. Peters. AS A PUBLIC STREET PURSUANT TO SECTION 305 (3) OF THE LOCAL GOVERNMENT ACT 1934-1969 VIDE GOVERNMENT GAZETTE DATED 12.6.1969 PRODUCED 29.10.1973 AT 11.30 am
(Comp. C.T. not Prod.)
DEP. REG. GEN.

S/L 3671445 T 3671450.
4-11-1974 DRG.

SURRENDER OF Lease No. 3510794
VIDE No. 3671445 PRODUCED 2.10. 1974 AT 10.55 am
DEP. REG. GEN.

TRANSFER No. 3671450
to Adelaide Caravan Park Pty. Limited of
care of B. Id. Lyddiatt 34 Pirie Street
Adelaide 5000
OF THE WITHIN LAND PRODUCED 2.10.1974 at 10.55 am
DEP. REG. GEN.

TRANSFER No. 3671450 to
Adelaide Caravan Park Pty. Limited
of portion
OF THE WITHIN Land
PRODUCED 2.10.1974 AT 10.55 am
DEP. REG. GEN.
CANCELLED AS REGARDS ABOVE LAND AND NEW C.T. ISSUED
VOL. 4035 FOL. 892
DEP. REG. GEN

~~Portion of~~ the within right of way extinguished vide Section 90e of the Real Property Act 1886 and this Certificate of Title is partially/~~totally~~ Cancelled
Entered 16/ 9 /1996

PAW

CANCELLED as regards ~~(portion of)~~ the within land:

CLOSED and all rights, easements and interests are extinguished pursuant to section 25 of the Roads (Opening and Closing) Act, 1991.
(Deposited Plan 44733 )
(RT 8043336 )
Entered: 16/9/1996.

PAW

# South Australia

## (CERTIFICATE OF TITLE.)

Register Book,

Vol. 727 Folio 181

Balance Certificate of Title from Vol. 270 Folio 29

Friedrich Eduard Heinrich Wulf Krichauff of Adelaide Land Agent

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 HUNDRED of Adelaide COUNTY of Adelaide being PORTION of Allotment 12 of portion of Section 256 laid out as Hackney and bounded as appears in the plan in the margin hereof and thereon colored green Which said piece of land contains twenty perches or thereabouts and is more particularly delineated in the said plan Subject nevertheless to such Rights of Way as have been granted over the Private Road more particularly delineated in the said plan

CANCELLED

AND ISSUED VIDE New 2948419 CERTIFICATE OF TITLE VOL. 3586 FOL. 112

Hudson Hayden DEP. REG. GENL.

TRANSFER No. 2948419 to Thomas Walton Holland Caravan Park Proprietor and Daphne Edna Holland his wife, Barbara June Dunn married woman and Margaret Ann Holland Spinster all of 589 Bruton Street Hackney Road

OF THE WITHIN

PRODUCED 30.9. 19 06 AT 12.50 p.m.

Gathright DEP. REG. GENL.

Lands Titles Registration Office No. 1110

which said Allotment is bounded as appears in the plan deposited in the Lands Titles Registration Office No. 1110 which said Section 10 delineated in the public map of the said Hundred deposited in the office of the Surveyor-General.

In witness whereof I have hereunto signed my name and affixed my seal this Fourteenth day of December 1904

Signed the 14th day of December 1904 in the presence of

E. E. Playford

M. Giles

Registrar-General.

REGISTRAR GENERAL SOUTH AUSTRALIA

Pursuant to Application No 417686

Dorothea Alvolina Sophie Krichauff of Norwood Widow is PROPRIETOR OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND AS THE EXECUTRIX NAMED IN THE WILL DATED THE 10 DAY OF March 1903 OF THE above NAMED Friedrich Eduard Heinrich Wulf Krichauff WHO DIED ON THE 30 DAY OF September AS APPEARS BY PROBATE DATED THE 9 DAY OF November 1904 PRODUCED FOR REGISTRATION THE 22 DAY OF December 1904 AT 12 40 pm

Vernon Edwards DEP. REG. GENL.

Transfer No. 417687 from Dorothea Alvolina Sophie Krichauff to the said Dorothea Alvolina Sophie Krichauff an Estate in fee simple in the within Land. Produced for registration the 22 day of December 1904 at 12 40 pm

Vernon Edwards Dep Reg Genl

Transfer No 599156 from Dorothea Auerbach Sophie Reichardt to Isabella Henderson of Park Street Hackney Spinster of an estate in fee simple in the within land Produced for registration the 3 day of October 1913 at 2 pm
W Blackwell Dep Reg Genl

Transfer No 639090 from Isabella Henderson to Joseph Henderson of Tebrabury Hattie Superintendent of an estate in fee simple in the within land Produced for registration the day of June 1916 at noon
W H Sacker Dep Reg Genl

Transfer No 661609 from Joseph Henderson to Isabella Henderson of Park Street Hackney Spinster of an estate in fee simple in the within land Produced for registration the 29 day of July 1916 at noon
W Burns Dep Reg Genl

Pursuant to Application No 883803 Joseph Ignatius Carroll of Castlereagh Street Sydney in the State of New South Wales Mercantile Clerk is the PROPRIETOR OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND AS THE EXECUT... NAMED IN THE WILL DATED THE 15 DAY OF March 1923 OF THE ABOVE-NAMED Isabella Henderson WHO DIED ON THE 11 DAY OF August 19 23 AS APPEARS BY PROBATE DATED THE 25 DAY OF September 1923 PRODUCED FOR REGISTRATION THE 25 DAY OF March 1924 AT 2.50 P.M.
DEP. REG. GENL
W Wilcox

Transfer No 999311 from Joseph Ignatius Carroll to Mary Gertrude Kerin wife of James Joseph Kerin of 66 Castlereagh Street Sydney Company Manager of an estate in fee simple in the within land Produced for registration the 28 day of February 1927 at 9.15 am
W Wilcox Dep Reg Genl

TRANSFER No. 1094266 FROM
Mary Gertrude Kerin
to Grace Emily Jane Armstrong
of Hackney Spinster
OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND.
PRODUCED FOR REGISTRATION THE 4 DAY OF April 1930 AT 12.25 pm
W Wilcox wood
DEP. REG. GENL.

MORTGAGE No. 1094267 FROM
Grace Emily Jane Armstrong
to Henry Wicks
PRODUCED FOR REGISTRATION THE 4 DAY OF April 1930 AT 12.25 pm
W Wilcox wood
DEP. REG. GENL.

TRANSMISSION APPLICATION No. 1309385
within Mortgage 1094267
Elder's Trustee and Executor Company Limited of North Terrace Adelaide and Frank Arnold Wicks of Payneham orrs Smithtown
THE ... NAMED IN THE WILL DATED THE 25 DAY OF February 1936 OF THE WITHIN NAMED Henry Wicks WHO DIED ON THE 25 DAY OF June 1939 AS APPEARS BY PROBATE DATED THE 29 DAY OF August 1939 PRODUCED FOR REGISTRATION THE 22 DAY OF December 1939 AT 12 noon
W Leeeaves DEP. REG. GENL.

DISCHARGE OF THE within MORTGAGE No. 1094267
BY MEMORANDUM No. 1314457
PRODUCED FOR REGISTRATION THE 21 DAY OF March 1940 AT 11.10 Am
W Leeeaves DEP. REG. GENL.

TRANSFER No. 1314458 FROM
Grace Emily Jane Armstrong To
Violet Vera Newman of Miller Street North Unley married woman
OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND.
PRODUCED FOR REGISTRATION THE 21 DAY OF March 1940 AT 11.10 Am
W Leeeaves DEP. REG. GENL.

TRANSFER No. 2178460 FROM
Violet Vera Newman
to Jacob Fama of Brenton Street Hackney Carpenter and Adriana Joanna Maria Fama his wife
OF THE WITHIN LAND. PRODUCED 26.1.1960 AT 11.30 am
DEP. REG. GEN.

MORTGAGE No. 2178461 FROM
Jacob Fama and Adriana Joanna Maria Fama
to Violet Vera Newman
PRODUCED 26.1.1960 AT 11.30 am
DEP. REG. GEN.

DISCHARGE OF MORTGAGE No. 2178461 BY ENDORSEMENT THEREON. PRODUCED 11/1/1965 AT 11.40 a
DEP. REG. GEN.

TRANSFER No. 2593420 from Jacob Fama to the within named Adriana Joanna Maria Fama
OF THE WITHIN LAND. PRODUCED 11/1/1965 AT 11.40 a
DEP. REG. GEN.

# Certificate of Title

| | |
|---|---|
| **Title Reference:** | CT 5386/439 |
| **Status:** | CURRENT |
| **Parent Title(s):** | CT 2015/115 |
| **Dealing(s) Creating Title:** | CONVERTED TITLE |
| **Title Issued:** | 16/12/1996 |
| **Edition:** | 5 |



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# South Australia.

(CERTIFICATE OF TITLE.)

CANCELLED

CONVERTED TO A COMPUTERISED TITLE

*Register Book,*

*Vol.* 2015 *Folio* 115

Pursuant to Memorandum of Transfer No.1565494 Registered on Vol.1995 Folio 151

ALLAN CLIFFORD BROOKS of Mattner Avenue Glenelg North Bank Officer

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 situate in the HUNDRED of ADELAIDE COUNTY of ADELAIDE

being the ALLOTMENT 209 of the subdivision of portion of Section 185 laid out as GLENELG NORTH and

bounded as appears in the plan in the margin hereof and therein coloured green and in the plan deposited in the Lands Titles Registration Office, No. 4327 which said Section is delineated in the public map of the said Hundred deposited in the Land Office at Adelaide.

In witness whereof I have hereunto signed my name and affixed my seal this twentysecond day of March 1949

Signed the 22nd day of March 1949, in the presence of McLachlan

Registrar-General.

REGISTRAR-GENERAL SOUTH AUSTRALIA

MORTGAGE No. 1565495 FROM Allan Clifford Brooks to The National Bank of Australasia Limited

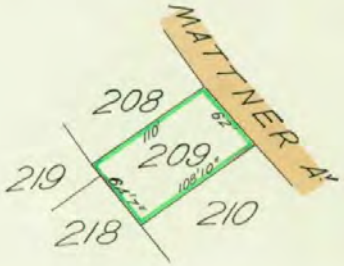
PRODUCED FOR REGISTRATION THE 4 DAY OF March 1949 AT Noon

DEP. REG. GENL.

D 1565495 15/1/63

DISCHARGE OF MORTGAGE No. 1565495 BY ENDORSEMENT THEREON. PRODUCED 15-3-1963 AT 11.20 am

DEP. REG. GEN.




F/A276095 F/A276096

APPLICATION No.276095 THE WITHIN land. IS TRANSMITTED TO Bagots Executor and Trustee Company Limited of 198 North Terrace Adelaide AS THE EXECUTOR NAMED IN THE WILL DATED 24-10-1938 19-6-1966 OF Allan Clifford Brooks WHO DIED VIDE PROBATE DATED 8-8-1966 PRODUCED 17-11-1966 AT 3.30

DEP. REG. GEN.

TRANSFER No.276096 TO Isabella Florence Brooks of 21 Mattner Avenue Glenelg North Widow OF THE WITHIN LAND. PRODUCED 17/11/1966 AT 3.30 P.M.

DEP. REG. GEN.

100 50 0 100 FT

# South Australia.

## (CERTIFICATE OF TITLE.)

*Register Book,*

*Vol.* 1995 *Folio* 151

New Certificate of Title for portion of the Land in Vol.1792 Folio 63

SOUTH AUSTRALIAN HOUSING TRUST of Adelaide

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

THOSE piece s of land situate in the HUNDRED of ADELAIDE COUNTY of ADELAIDE

being the ALLOTMENT S 143.144.145.146.147.148.149.150.151.152.153.154.155.156.157.158.159.160.161.162.163.164.165.166.167.168.169.170.171.172.173.174.175.176.177.178.179.180.181.182.183.184.185.186.187.188.189.190.191.192.193.194.195.196.197.198.199.200.201.202.203.204.205.206.207.208.209.210.211.212.213.214.215.216.217.218.219.220.221.222.223.and 224 of the subdivision of portion of Section 185 laid out as GLENELG NORTH and

bounded as appears in the plan deposited in the Lands Titles Registration Office No. 4327 Which said Section is delineated in the public map of the said Hundred deposited in the Land Office at Adelaide.

In witness whereof I have hereunto signed my name and affixed my seal this twenty seventh day of September 1948

Signed the 27th day of September 1948, in the presence of D. Wynne-Williams

Registrar-General.

REGISTRAR-GENERAL SOUTH AUSTRALIA

Lots 169. 170 only

Resubdivision Approved under Sec. 15, T.P. Act 1945 of 1929 Vide Book 32 Page 36

TRANSFER No. 1565165 FROM South Australian Housing Trust to Albert Brian James and Ida James

OF THE WITHIN Lot 208

PRODUCED FOR REGISTRATION THE 2 DAY OF March 1949 AT 2.45 pm

DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1565165 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2014 FOLIO 66

DEP. REG. GENL.

over

TRANSFER No. 1565167 FROM
South Australian Housing Trust to John Murray Hill
OF THE WITHIN Lot 196.
PRODUCED FOR REGISTRATION THE 2 DAY OF March 1949 AT 2.45 pm.
fwChilds DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1565167. AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2014 FOLIO 67.
DEP. REG. GENL.

TRANSFER No. 1565293 FROM
South Australian Housing Trust to Stanley Wilfred James and Nora Irene James
OF THE WITHIN Lot 198
PRODUCED FOR REGISTRATION THE 3. DAY OF March 1949 AT 12.25 pm
fwChilds DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1565293. AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2014 FOLIO 68
DEP. REG. GENL.

TRANSFER No. 1565295 FROM
South Australian Housing Trust to George Alexander Marshall and Linda Marjorie Marshall
OF THE WITHIN Lot 201.
PRODUCED FOR REGISTRATION THE 3. DAY OF March 1949 AT 12.25 pm
fwChilds DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1565295. AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2014 FOLIO 69.
DEP. REG. GENL.

~~1566005~~ ~~1566006~~ ~~1566171~~ ~~1566172~~ ~~1566942~~ ~~1566943~~

TRANSFER No. 1566005 FROM
South Australian Housing Trust to Maynard Winterbottom Hall and Sarah Jane Hall
OF THE WITHIN Lot 206
PRODUCED FOR REGISTRATION THE 9. DAY OF March 1949 AT 2.10 pm
DEP. REG. GENL. (2)

CANCELLED AS REGARDS LAND IN TRANSFER No. 1566005. AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2016 FOLIO 116
DEP. REG. GENL.

TRANSFER No. 1565494 FROM
South Australian Housing Trust to Allan Clifford Brooks
OF THE WITHIN Lot 209.
PRODUCED FOR REGISTRATION THE 4. DAY OF March 1949. AT noon.
DEP. REG. GENL. (1)

CANCELLED AS REGARDS LAND IN TRANSFER No. 1565494 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2015 FOLIO 115
DEP. REG. GENL.

TRANSFER No. 1566171 FROM
South Australian Housing Trust to Leonard James Haines and Doris Florence Haines
OF THE WITHIN Lot 193.
PRODUCED FOR REGISTRATION THE 10. DAY OF March 1949 AT noon
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1566171. AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2015 FOLIO 117.
DEP. REG. GENL.

~~1567207~~ ~~1567208~~

CANCELLED
as regards the within Lot 169 and portion of Lot 170.
AND New CERTIFICATE OF TITLE ISSUED VIDE Letter 452/1949.
VOL. 2015 FOL. 118.
DEP. REG. GENL.

~~1567957~~ ~~1567958~~ ~~1567956~~ ~~1567957~~ ~~1567958~~ ~~1567959~~ ~~1567960~~ ~~1567961~~ ~~1567962~~ ~~1567963~~ ~~1567964~~ ~~1567965~~ ~~1567966~~ ~~1567967~~ ~~1567968~~ ~~1567969~~

TRANSFER No. 1566942 FROM
South Australian Housing Trust to Frances Mary Evans
OF THE WITHIN Lot 191
PRODUCED FOR REGISTRATION THE 16 DAY OF March 1949 AT 2.45 pm
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1566942 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2017 FOLIO 28.
DEP. REG. GENL.

TRANSFER No. 1566943 FROM
South Australian Housing Trust to
Peter Hay Mackintosh
OF THE WITHIN Lot 205
PRODUCED FOR REGISTRATION THE 16 DAY OF
March 1949 AT 2.45 pm
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1566943 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2017 FOLIO 29
DEP. REG. GENL.

TRANSFER No. 1567207 FROM
South Australian Housing Trust to
Laurence Harold Hoff and Dulcie Elizabeth Hoff
OF THE WITHIN Lot 192
PRODUCED FOR REGISTRATION THE 18 DAY OF
March 1949 AT 12.10 pm
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1567207 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2017 FOLIO 30.
REG. GENL.

T1568368 T1568369 T1568370 T1568371
T1568372 T1568373 T1568374 T1568375
T1568376 T1568377 T1568378 T1568379
T1568380 T1568430 T1568611
T1568612 T1568773 T1568906
T1568839 T1568851
T1568409 T1568410

TRANSFER No. 1567954 FROM
South Australian Housing Trust to
Director of War Service Homes
OF THE WITHIN Lot 210
PRODUCED FOR REGISTRATION THE 25 DAY OF
March 1949 AT Noon
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1567954 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2018 FOLIO 141.
DEP. REG. GENL.

TRANSFER No. 1567955 FROM
South Australian Housing Trust to
Franklin John Radford and
Christina Jean Radford
OF THE WITHIN Lot 202
PRODUCED FOR REGISTRATION THE 25 DAY OF
March 1949 AT Noon
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1567955 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2018 FOLIO 142
DEP. REG. GENL.

TRANSFER No. 1567957 FROM
South Australian Housing Trust to
Stanley Lyonnatt Weir
OF THE WITHIN Lot 184
PRODUCED FOR REGISTRATION THE 25 DAY OF
March 1949 AT Noon
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1567957 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2018 FOLIO 143
DEP. REG. GENL.

TRANSFER No. 1567959 FROM
South Australian Housing Trust to
Edward Harcourt Wardon
OF THE WITHIN Lot 194
PRODUCED FOR REGISTRATION THE 25 DAY OF
March 1949 AT Noon
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1567959 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2018 FOLIO 144
DEP. REG. GENL.

TRANSFER No. 1567961 FROM
South Australian Housing Trust to
Colin Alfred Linnell and Maisie Edith Linnell
OF THE WITHIN Lot 187
PRODUCED FOR REGISTRATION THE 25 DAY OF
March 1949 AT Noon
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1567961 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2018 FOLIO 145
DEP. REG. GENL.

Over

TRANSFER No. 1567963 FROM
South Australian Housing Trust to
Thomas Atkinson and Monica Eileen Atkinson
OF THE WITHIN Lot 189
PRODUCED FOR REGISTRATION THE 25 DAY OF
March 1949 AT 10am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1567963 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2018 FOLIO 146
DEP. REG. GENL.

TRANSFER No. 1568372 FROM
South Australian Housing Trust to
Clarence William Goding and Phyllis Joyce Goding
OF THE WITHIN Lot 199
PRODUCED FOR REGISTRATION THE 29 DAY OF
March 1949 AT 11.50 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1568372 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2018 FOLIO 150.
DEP. REG. GENL.

TRANSFER No. 1567965 FROM
South Australian Housing Trust to
Director of War Service Homes
OF THE WITHIN Lot 207
PRODUCED FOR REGISTRATION THE 25 DAY OF
March 1949 AT 10am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1567965 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2018 FOLIO 147.
DEP. REG. GENL.

TRANSFER No. 1568374 FROM
South Australian Housing Trust to
Richard Edward Weaver and Aileen May Weaver
OF THE WITHIN Lot 203
PRODUCED FOR REGISTRATION THE 29 DAY OF
March 1949 AT 11.50 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1568374 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2018 FOLIO 151.
DEP. REG. GENL.

TRANSFER No. 1567966 FROM
South Australian Housing Trust to
Kelvin Reuben Deer and Enid Margaret Deer
OF THE WITHIN Lot 186
PRODUCED FOR REGISTRATION THE 25 DAY OF
March 1949 AT 10am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1567966 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2018 FOLIO 148
DEP. REG. GENL.

TRANSFER No. 1568376 FROM
South Australian Housing Trust to
John Jenimore Hunt and Margaret Claire Hunt
OF THE WITHIN Lot 197
PRODUCED FOR REGISTRATION THE 29 DAY OF
March 1949 AT 11.50 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1568376 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2018 FOLIO 152
DEP. REG. GENL.

TRANSFER No. ~~1567968~~ 1568368 FROM
South Australian Housing Trust to
Ian Dingwall Mitchell
OF THE WITHIN Lot 188
PRODUCED FOR REGISTRATION THE 29 DAY OF
March 1949 AT ~~10am~~ 11.50 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. ~~1567968~~ 1568368 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2018 FOLIO 149
DEP. REG. GENL.

TRANSFER No. 1568378 FROM
South Australian Housing Trust to
Ian Cuthbert Chandler and Joan Audrey Chandler
OF THE WITHIN Lot 200
PRODUCED FOR REGISTRATION THE 29 DAY OF
March 1949 AT 11.50 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1568378 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2018 FOLIO 153
DEP. REG. GENL.

TRANSFER No. ~~1568330~~ 1568529 FROM
South Australian Housing Trust to
Gordon Harold Tidge
OF THE WITHIN Lot 211
PRODUCED FOR REGISTRATION THE 30 DAY OF
March 1949 AT 11.20 am
A.R. Rogers
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1568529 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2018 FOLIO 154
A.R. Rogers
DEP. REG. GENL.

TRANSFER No. 1568611 FROM
South Australian Housing Trust to
Boyce Wilson Worthley and Marjorie Ruth Worthley
OF THE WITHIN Lot 212
PRODUCED FOR REGISTRATION THE 30 DAY OF
March 1949 AT 2.55 pm
A.R. Rogers
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1568611 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2018. FOLIO 155.
A.R. Rogers
DEP. REG. GENL.

TRANSFER No. 1568773 FROM
South Australian Housing Trust to
Norman William George Orford and Peggy Orford
OF THE WITHIN Lot 214
PRODUCED FOR REGISTRATION THE 31 DAY OF
March 1949 AT 2.50 pm
A.R. Rogers
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1568773 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2018 FOLIO 156
A.R. Rogers
DEP. REG. GENL.

TRANSFER No. 1568839 FROM
South Australian Housing Trust to
Director of War Service Homes
OF THE WITHIN Lot 175
PRODUCED FOR REGISTRATION THE 1 DAY OF
April 1949 AT 11.45 am
A.R. Rogers
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1568839 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2018 FOLIO 157
A.R. Rogers
DEP. REG. GENL.

~~T1570153~~ M 1570154
T ~~1570355~~ M 1570356 T ~~1570357~~
T ~~1570359~~ M 1570360 T ~~1570607~~ M 1570608

TRANSFER No. 1567968 FROM
South Australian Housing Trust to
Bryan Grant Wilson and
Margaret Anne Wilson
OF THE WITHIN Lot 190
PRODUCED FOR REGISTRATION THE 25 DAY OF
March 1949 AT noon
J.W. Childs
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1567968 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2020 FOLIO 24
A.R. Rogers
DEP. REG. GENL.

TRANSFER No. 1568370 FROM
South Australian Housing Trust to
Stanley George Dyson and
Ethelda Oliver Marjory Dyson
OF THE WITHIN Lot 195
PRODUCED FOR REGISTRATION THE 29 DAY OF
March 1949 AT 11.50 am
J.W. Childs
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1568370 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2020 FOLIO 25
A.R. Rogers
DEP. REG. GENL.

TRANSFER No. 1568851 FROM
South Australian Housing Trust
to Director of War Service Homes
OF THE WITHIN Lot 204
PRODUCED FOR REGISTRATION THE 1 DAY OF
April 1949 AT 11.45 am
J.W. Childs
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1568851 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2020 FOLIO 26
A.R. Rogers
DEP. REG. GENL.

TRANSFER No. 1569409 FROM
South Australian Housing Trust
to Stephen Barnabas Jeffery
OF THE WITHIN Lot 217
PRODUCED FOR REGISTRATION THE 6 DAY OF
April 1949 AT 2.35 pm
J.W. Childs
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1569409 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2020 FOLIO 27
A.R. Rogers
DEP. REG. GENL.

T1570713 ~~T1571601~~ M1571602
T ~~1571813~~ M1571814

over

TRANSFER No. 1570153 FROM
South Australian Housing Trust
to Leslie Joseph Munns and
Dorothy Eileen Munns
OF THE WITHIN Lot 172.
PRODUCED FOR REGISTRATION THE 13 DAY OF
April 1949 AT 11.15 am
J.W. Childs
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1570153. AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2021 FOLIO 82.
DEP. REG. GENL.

TRANSFER No. 1570355 FROM
South Australian Housing Trust
to Geoffrey Fisher Crosby and
Hilda Rose Crosby
OF THE WITHIN Lot 222.
PRODUCED FOR REGISTRATION THE 13 DAY OF
April 1949 AT 3 pm
J.W. Childs
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1570355 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2021 FOLIO 83.
DEP. REG. GENL.

TRANSFER No. 1570359 FROM
South Australian Housing Trust
to Keith Murray Edwards
and Nellie Edwards
OF THE WITHIN Lot 220.
PRODUCED FOR REGISTRATION THE 13 DAY OF
April 1949 AT 3 pm
J.W. Childs
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1570359 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2021 FOLIO 84.
DEP. REG. GENL.

TRANSFER No. 1570607 FROM
South Australian Housing Trust
to Ross Wickham Hayes and
Patricia Maxine James
OF THE WITHIN Lot 213.
PRODUCED FOR REGISTRATION THE 14 DAY OF
April 1949 AT 2.50 pm
J.W. Childs
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1570607 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2021 FOLIO 85.
A.R. Rogers
DEP. REG. GENL.

T1571970 M1571971 T1572926 M1572969
T1572470 M1572471

TRANSFER No. 1570717
South Australian Housing Trust to
Director of War Service Homes
OF THE WITHIN Lot 224
PRODUCED FOR REGISTRATION THE 20 DAY OF
April 1949 AT 11.20 am
J.W. Childs
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1570717. AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2022 FOLIO 88.
A.R. Rogers
DEP. REG. GENL.

TRANSFER No. 1571813 FROM
South Australian Housing Trust to
Colin Raymond Fennell and Laura
Emily Fennell
OF THE WITHIN Lot 223.
PRODUCED FOR REGISTRATION THE 29 DAY OF
April 1949 AT 11.30 am
J.W. Childs
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1571813 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2022 FOLIO 89
A.R. Rogers
DEP. REG. GENL.

TRANSFER No. 1571966 FROM
South Australian Housing Trust to
Martin Edward McAvenna and
Joan Louise McAvenna
OF THE WITHIN Lot No 174
PRODUCED FOR REGISTRATION THE 2 DAY OF
May 1949 AT 11.45 am
J.W. Childs
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1571966 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2022 FOLIO 90
A.R. Rogers
DEP. REG. GENL.

TRANSFER No. 1571970 FROM
South Australian Housing Trust to
John Maxwell Campbell and
Nance Campbell
OF THE WITHIN Lot 216
PRODUCED FOR REGISTRATION THE 2 DAY OF
May 1949 AT 11.45 am
J.W. Childs
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1571970. AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2022 FOLIO 91.
A.R. Rogers
DEP. REG. GENL.

T1573498 M1573499 T1573536
M1573537 T1573538 M1573539

Attachment 1.6

TRANSFER No. 1570357 FROM
South Australian Housing Trust
to Donald Desmond Spooner and
Lorna Mary Spooner
OF THE WITHIN Lot 213
PRODUCED FOR REGISTRATION THE 13 DAY OF
April 1949 AT 3pm
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1570357 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2024 FOLIO 5
DEP. REG. GENL.

TRANSFER No. 1572470 FROM
South Australian Housing Trust
to John William Sweeney
and Lilian Mary Sweeney
OF THE WITHIN Lot 157
PRODUCED FOR REGISTRATION THE 5 DAY OF
May 1949 AT 12.30 pm
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1572470 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2024 FOLIO 6.
DEP. REG. GENL.

~~T1573883~~ M 1573884 ~~T1574018~~
~~T1574020~~ M1574021 ~~T1574026~~
M 1574019
M 1574027 ~~M1574028~~ M1574029
~~T1574946~~
~~M1574476~~ M1574477
M 1574967 ~~T1575211~~ M 1575212
~~T1575215~~ ~~T1575216~~

TRANSFER No. 1571601 FROM
South Australian Housing Trust
to Vivian Alzano Guy and
Lorna Mary Guy
OF THE WITHIN Lot 185.
PRODUCED FOR REGISTRATION THE 28 DAY OF
April 1949 AT 11.30 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1571601 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2025 FOLIO 155.
DEP. REG. GENL.

TRANSFER No. 1573498 FROM
South Australian Housing Trust
to Maxwell David Fisher
and Patricia Fisher
OF THE WITHIN Lot 221
PRODUCED FOR REGISTRATION THE 13 DAY OF
May 1949 AT 11.10 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1573498 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2025 FOLIO 156
DEP. REG. GENL.

TRANSFER No. 1573536 FROM
South Australian Housing Trust
to Colin Douglas Warren Tregeagle
and Carmel Patricia Warren Tregeagle
OF THE WITHIN Lot 158
PRODUCED FOR REGISTRATION THE 13 DAY OF
May 1949 AT 11.45 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1573536 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2025 FOLIO 157.
DEP. REG. GENL.

TRANSFER No. 1573538 FROM
South Australian Housing Trust
to Claude Anthony Gardner
OF THE WITHIN Lot 150
PRODUCED FOR REGISTRATION THE 13 DAY OF
May 1949 AT 11.45 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1573538 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2025 FOLIO 158
DEP. REG. GENL.

TRANSFER No. 1573883 FROM
South Australian Housing Trust
to Albert John McGough and
Lita Evelynne McGough
OF THE WITHIN Lot 171
PRODUCED FOR REGISTRATION THE 17 DAY OF
May 1949 AT 11.20 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1573883 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2025 FOLIO 159
DEP. REG. GENL.

TRANSFER No. 1574018 FROM
South Australian Housing Trust
to Stanley Gordon Arnold and
Jean Arnetta Arnold
OF THE WITHIN Lot 166.
PRODUCED FOR REGISTRATION THE ~~17~~ 18 DAY OF
May 1949 AT 11.10 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1574018 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2025 FOLIO 160
DEP. REG. GENL.

over

TRANSFER No. 1574020 FROM
South Australian Housing Trust to
William Innes Mackay and
Pauline Myrtle Mackay
OF THE WITHIN Lot 182

PRODUCED FOR REGISTRATION THE 18 DAY OF
May 1949 AT 11.10 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1574020 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2025 FOLIO 161.
DEP. REG. GENL.

TRANSFER No. 1574026 FROM
South Australian Housing Trust to
William Edward John Knowles
and Mabel Margaret Knowles
OF THE WITHIN Lot 167

PRODUCED FOR REGISTRATION THE 18 DAY OF
May 1949 AT 11.10 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1574026 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2025 FOLIO 162
DEP. REG. GENL.

TRANSFER No. 1574418 FROM
South Australian Housing Trust
to John Stanley Flett and
Hilda Laura Flett
OF THE WITHIN Lot 180

PRODUCED FOR REGISTRATION THE 20 DAY OF
May 1949 AT 11.50 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1574418 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2025 FOLIO 163
DEP. REG. GENL.

TRANSFER No. 1574476 FROM
South Australian Housing Trust to
Reginald Mervyn Clifford Summers
OF THE WITHIN Lot 152

PRODUCED FOR REGISTRATION THE 20 DAY OF
May 1949 AT 11.50 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1574476. AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2025 FOLIO 164
DEP. REG. GENL.

T1575334 M 1575335 M 1575341 T1575346 T1575355 M 1575356 T1575674 M 1575675 T1575683 M 1575684 T 1575691 M 1575692

TRANSFER No. 1575211 FROM
South Australian Housing Trust to
Malvern George Heaslop Stott and
Desma Jean Stott
OF THE WITHIN lot 215

PRODUCED FOR REGISTRATION THE 26 DAY OF
May 1949 AT 11.45 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1575211 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2027 FOLIO 45.
DEP. REG. GENL.

TRANSFER No. 1574966 FROM
South Australian Housing Trust to
James Philip Skehan and
Kathleen Skehan
OF THE WITHIN lot 178

PRODUCED FOR REGISTRATION THE 25 DAY OF
May 1949 AT 11 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1574966 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2027 FOLIO 46.
DEP. REG. GENL.

TRANSFER No. 1575215 FROM
South Australian Housing Trust
to Director of War Service Homes
OF THE WITHIN lot 165

PRODUCED FOR REGISTRATION THE 26 DAY OF
May 1949 AT 11.45 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1575215 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2027 FOLIO 47
DEP. REG. GENL.

TRANSFER No. 1575216 FROM
South Australian Housing Trust
to Director of War Service Homes
OF THE WITHIN lot 146

PRODUCED FOR REGISTRATION THE 26 DAY OF
May 1949 AT 11.45 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1575216 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2027 FOLIO 48
DEP. REG. GENL.

Attachment 1.6

TRANSFER No. 1575334 FROM South Australian Housing Trust to Arthur John Hounslow and Pauline Elizabeth Hounslow
OF THE WITHIN lot 177
PRODUCED FOR REGISTRATION THE 27 DAY OF May 1949 AT 11.30 a.m.
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1575334 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2027 FOLIO 49.
DEP. REG. GENL.

TRANSFER No. 1575336 FROM South Australian Housing Trust to Barbara Ethel Hastwell
OF THE WITHIN lot 145
PRODUCED FOR REGISTRATION THE 27 DAY OF May 1949 AT 11.30 a.m.
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1575336 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2027 FOLIO 50.
DEP. REG. GENL.

TRANSFER No. 1575340 FROM South Australian Housing Trust to William Thomas Stapleton and Coral Fay Stapleton
OF THE WITHIN lot 168
PRODUCED FOR REGISTRATION THE 27 DAY OF May 1949 AT 11.30 a.m.
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1575340 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2027 FOLIO 51.
DEP. REG. GENL.

TRANSFER No. 1575346 FROM South Australian Housing Trust to Alfred Charles Longmore and Doreen Mavis Longmore
OF THE WITHIN lot 183
PRODUCED FOR REGISTRATION THE 27 DAY OF May 1949 AT 11.30 a.m.
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1575346 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2027 FOLIO 52
DEP. REG. GENL.

TRANSFER No. 1575355 FROM South Australian Housing Trust to Norman Maxwell Wigglesworth and Nancy Florence Wigglesworth
OF THE WITHIN lot 176
PRODUCED FOR REGISTRATION THE 27 DAY OF May 1949 AT 11.30 a.m.
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1575355 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2027 FOLIO 53.
DEP. REG. GENL.

TRANSFER No. 1575674 FROM South Australian Housing Trust to John Ronald Weir and Margaret Reeve Weir
OF THE WITHIN lot 144.
PRODUCED FOR REGISTRATION THE 31 DAY OF May 1949 AT 11.20 a.m.
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1575674 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2027 FOLIO 54.
DEP. REG. GENL.

TRANSFER No. 1575683 FROM South Australian Housing Trust to Joseph Patrick Starrs and Margaret Mary Starrs
OF THE WITHIN lot 149
PRODUCED FOR REGISTRATION THE 31 DAY OF May 1949 AT 11.20 a.m.
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1575683 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2027 FOLIO 55.
DEP. REG. GENL.

TRANSFER No. 1575691 FROM South Australian Housing Trust to Roger Tomlinson and Irene Dorothy Tomlinson
OF THE WITHIN lot 154
PRODUCED FOR REGISTRATION THE 31 DAY OF May 1949 AT 11.20 a.m.
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1575691 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2027 FOLIO 56
DEP. REG. GENL.

over

TRANSFER No. 1575693 FROM
South Australian Housing Trust
to Douglas Victor Eason and
Olga Edith Eason
OF THE WITHIN lot 164.
PRODUCED FOR REGISTRATION THE 31 DAY OF
May 1949 AT 11.20 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1575693 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2027 FOLIO 57.
DEP. REG. GENL.

T1577458

TRANSFER No. 1577458 FROM
South Australian Housing Trust to
Director of War Service Homes
OF THE WITHIN lot 162.
PRODUCED FOR REGISTRATION THE 16 DAY OF
June 1949 AT 11.50 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1577458 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2028 FOLIO 158.
DEP. REG. GENL.

T 1577789 T1577928
M 1577929 T 1577930 M 1577931
T 1577932 M 1577933 T 1577934

TRANSFER No. 1569006 FROM
South Australian Housing Trust to
Director of War Service Homes
OF THE WITHIN lot 173
PRODUCED FOR REGISTRATION THE 11 DAY OF
April 1949 AT 11.10 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1569006 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2030 FOLIO 21
DEP. REG. GENL.

TRANSFER No. 1577789 FROM
South Australian Housing Trust to
William George Petley and Rosaline Violet
May Petley Bella Bolton
OF THE WITHIN lot 170
PRODUCED FOR REGISTRATION THE 17 DAY OF
June 1949 at 2.50 p.m
DEP. REG. GENL.

Cancelled as regards land in Transfer
No 1577789 and new Certificate of Title
issued Vol. 2030 Folio 22
Dep. Reg. Genl.

TRANSFER No. 1577928 FROM
South Australian Housing Trust to
Edward Joseph Hawthorn and Alice Grace
Hawthorn
OF THE WITHIN lot 179
PRODUCED FOR REGISTRATION THE 21 DAY OF
June 1949 AT 11.15 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1577928 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2030 FOLIO 23
DEP. REG. GENL.

TRANSFER No. 1577930 FROM
South Australian Housing Trust to
Robert Arnold Williams and Dorothy
Joyce Williams
OF THE WITHIN lot 181
PRODUCED FOR REGISTRATION THE 21 DAY OF
June 1949 AT 11.15 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1577930 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2030 FOLIO 24
DEP. REG. GENL.

TRANSFER No. 1577932 FROM
South Australian Housing Trust to
Robert Leslie Hyman Fisher
OF THE WITHIN lot 183
PRODUCED FOR REGISTRATION THE 21 DAY OF
June 1949 AT 11.15 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER
No. 1577932 AND NEW CERTIFICATE
OF TITLE ISSUED VOL. 2030 FOLIO 25.
DEP. REG. GENL.

TRANSFER No. 1577948 FROM
South Australian Housing Trust to
Director of War Service Homes
OF THE WITHIN lot 161
PRODUCED FOR REGISTRATION THE 21 DAY OF
June 1949 AT 11.15 am
DEP. REG. GENL.

Cancelled as regards land in Transfer
No 1577948 and new Certificate of Title
issued Vol. 2030 Folio 26
Dep. Reg. Genl.

Attachment 1.6

TRANSFER No. 1580466 FROM South Australian Housing Trust to Director of War Service Homes
OF THE WITHIN Lot 143
PRODUCED FOR REGISTRATION THE 11 DAY OF July 1949 AT 11.10 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1580466 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2032 FOLIO 55
DEP. REG. GENL.

T1580950 M1580951 T1580956 M1580957 T1580958 M1580959 T1581034 T1581043 M1581044 T1581337 M1581156 T1581764 M1581765

TRANSFER No. 1580950 FROM South Australian Housing Trust to Claude Allan Potts and Gwendoline Eleanor Potts
OF THE WITHIN Lot 159
PRODUCED FOR REGISTRATION THE 14 DAY OF July 1949 AT 11.40 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1580950 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2033 FOLIO 185
DEP. REG. GENL.

TRANSFER No. 1580956 FROM South Australian Housing Trust to George Reid Donaldson
OF THE WITHIN Lot 148
PRODUCED FOR REGISTRATION THE 14 DAY OF July 1949 AT 11.40 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1580956 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2033 FOLIO 186
DEP. REG. GENL.

TRANSFER No. 1580958 FROM South Australian Housing Trust to Bloffard Connolly and Nellie May Connolly
OF THE WITHIN Lot 160
PRODUCED FOR REGISTRATION THE 14 DAY OF July 1949 AT 11.40 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1580958 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2033 FOLIO 187
DEP. REG. GENL.

TRANSFER No. 1581043 FROM South Australian Housing Trust to Donald Scott Matheson
OF THE WITHIN Lot 147
PRODUCED FOR REGISTRATION THE 14 DAY OF July 1949 AT 2.40 P.M.
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1581043 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2033 FOLIO 188
DEP. REG. GENL.

TRANSFER No. 1581034 FROM South Australian Housing Trust to Director of War Service Homes
OF THE WITHIN Lot 181
PRODUCED FOR REGISTRATION THE 14 DAY OF July 1949 AT 2.40 pm
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1581034 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2035 FOLIO 59
DEP. REG. GENL.

TRANSFER No. 1581764 FROM South Australian Housing Trust to Ronald Charles Yates and Joan Yates
OF THE WITHIN Lot 156
PRODUCED FOR REGISTRATION THE 20 DAY OF July 1949 AT 11.30 am
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1581764 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2035 FOLIO 60
DEP. REG. GENL.

over

T158977

Attachment 1.6

TRANSFER No. 1581357 FROM
South Australian Housing Trust to Lloyd Hughes Rule allen and Beaches Hall allen
OF THE WITHIN Lot 155
PRODUCED FOR REGISTRATION THE 15 DAY OF July 1949 AT 3 pm
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1581357 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2036 FOLIO 141
DEP. REG. GENL.

TRANSFER No. 1583977 FROM
South Australian Housing Trust to William Wyndham Evans and Lenore Sylvia Evans
OF THE WITHIN Lot 218
PRODUCED FOR REGISTRATION THE 8 DAY OF August 1949 AT 2.20 pm
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1583977 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2038. FOLIO 88.
DEP. REG. GENL.

T160+1977

TRANSFER No. 1601977 FROM
South Australian Housing Trust to The Commonwealth of Australia
OF THE ~~WITHIN~~ balance of the within land.
PRODUCED FOR REGISTRATION THE 30 DAY OF December 1949 AT 12.40 pm
DEP. REG. GENL.

CANCELLED AS REGARDS LAND IN TRANSFER No. 1601977 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 2057 FOLIO 161
DEP. REG. GENL.

# South Australia.

## (CERTIFICATE OF TITLE.)

*Register Book,*

*Vol.* 1792 *Folio* 63

Balance Certificate of Title from Vol.1421 Folio 89

ARNOLD MEREDITH MOULDEN of Adelaide Solicitor and JOHN ALEXANDER THOMSON of Bowman Building Adelaide Accountant are the proprietors 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 HUNDREDS OF ADELAIDE and NOARLUNGA COUNTY OF ADELAIDE being PORTION OF SECTION 185 more particularly delineated and bounded as appears in the plan in the margin hereof and therein colored green

Which said Section is delineated in the public mapsof the said Hundreds deposited in the Lands and Survey Office at Adelaide.

In witness whereof I have hereunto signed my name and affixed my seal this Twenty-fifth day of February 1942.

Signed the 25th day of February 1942, in the presence of L.M. Pratt

Acting Registrar-General.

REGISTRAR-GENERAL SOUTH AUSTRALIA

1441596

GOV. GAZETTE 14th NOV. 1974
L.T.O. LETTER 2717 OF 1979
DEP. REG. GENL.

B. Nelson Hayles

F.P. 3543 APPROVED

F.P. 3544 APPROVED

Search 1713

TRANSFER No. 1441596 FROM Arnold Meredith Moulden and John Alexander Thomson to South Australian Housing Trust of King William Street Adelaide OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND

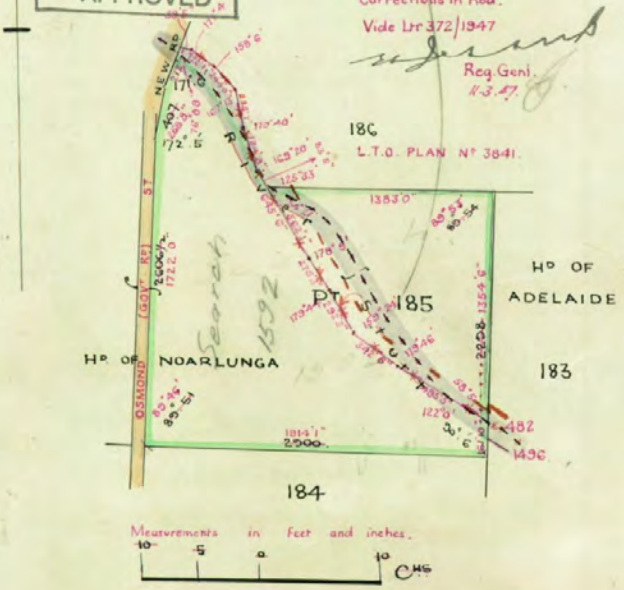
PRODUCED FOR REGISTRATION THE 18 DAY OF October 1945 AT 12.35 P.M.

DEP. REG. GENL.

Corrections in Red. Vide Ltr 372/1947 Reg. Genl. 11.3.47

CANCELLED AS REGARDS PORTION OF THE WITHIN LAND (LAND NOW IN PLAN No. 4224) AND A NEW CERTIFICATE OF TITLE ISSUED VIDE L.T.O. 980 OF 1947 VOL. 1944 FOL. 169

DEP. REG. GENL




Portion of THE WITHIN LAND (Dorrick M. Coldsworthy Cecil Keeping A.R.A.C.I. Oldmeadow Morris Mc. Blackburn Keely Hall Eunwood Dorrick Kilpatrick and Davy Gardening Films Proprietors and Alison M. Kilpatrick) IN DEPOSITED PLAN No. 4224 IS VESTED IN THE Corporation of the Town of West Torrens BY VIRTUE OF SEC. 14 SUB SEC. 1 OF ACT 1945 OF 1920 VIDE L.T.O. DOCKET No. 980 OF 1947

DEP. REG. GENL.

(over)

CANCELLED AS REGARDS PORTION OF THE WITHIN LAND (LAND NOW IN PLAN No. 4327. ) AND A NEW CERTIFICATE OF TITLE ISSUED VIDE L.T.O. 1712 OF 1948 VOL. 1995 FOL. 151.

DEP. REG. GENL.

Portions of THE WITHIN LAND (Reserve F Plantation Reserve and E Shannon Scattered Reserves Boyntham 16th Lawn and Hockey Reserve) IN DEPOSITED PLAN No. 4327 IS VESTED IN THE Corporation of the Town of West Torrens. BY VIRTUE OF SEC. 14 SUB SEC. 1 OF ACT 1948 OF 1929 VIDE L.T.O. DOCKET No. 1712 OF 1948.

DEP. REG. GENL.

Portion of the within Reserve C has been taken for a New Road Vide confirmation of Road Order in Gazette of 26th August 1954 (Tracing No 4064)

Dep. Reg Genl

Portion of the within Reserve C which has been taken for a New Road has been closed Vide Tracing No. 4037. Confirmed Gazette 25th Nov. 1954

Dep Reg Genl.

Portion of the within Reserve "C" has been taken for a New Road. Vide Confirmation of Road Order in Gazette dated 8th August 1957. (Tracing No. 4307)

Dep. Reg. Genl.

Portion of the within Reserve "C" which has been taken for a New Road has been closed. Vide Confirmation of Road Order in Gazette dated 14th November, 1957 (Tracing No. 4343)

Dep. Reg. Genl.

THE LAND IN THIS CERTIFICATE IS REDESIGNATED AS ALLOTMENT(S) 2 IN FILED PLAN 1875 NEW CERTIFICATE TO BE ISSUED WHEN DUPLICATE IS PRODUCED.

~~F4231145~~ ~~F4231146~~

Transfer 4231145 to Minister of Works of an EASEMENT OVER PORTION OF THE WITHIN ~~LAND~~ A Reserve in LTO Plan 4327 PRODUCED 14.7.1978 AT 11.10am.

CANCELLED AS REGARDS ABOVE LAND AND NEW C.T. ISSUED VOL. 4128 FOL. 229

Transfer 4231146 to Minister of Works of an EASEMENT OVER PORTION OF THE WITHIN ~~LAND~~ Reserve in LTO Plan 4224. PRODUCED 14.7.1978 AT 11.10am.

CANCELLED AS REGARDS ABOVE LAND AND NEW C.T. ISSUED VOL. 4128 FOL. 229

"THE WITHIN LAND WAS ANNEXED TO THE CORPORATION OF THE CITY OF GLENELG VIDE GOVERNMENT GAZETTE OF DECEMBER 21 1950 PAGE 1853"

Cancelled as regards Allotments 153, 154, 225, 227, 226 (Reserves) In deposited plans 4224 4327 being portion ~~balance~~ of the within land and new Certificates issued Vol. 4128 Folios 230, 231, 233, 234, 235

Cancelled as regards Allotments 2 (Reserve) In ~~deposited~~ Filed plan 1875 being portion ~~balance~~ of the within land and new Certificates issued Vol. 4128 Folio 232

Cancelled as regards Allotments 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 155, 158, 189, 228, 229, 230, 231, 232, 233, 234, 235, 236 (Public Roads) In deposited plans 4224 4327 being ~~portion~~ balance of the within land and new Certificates issued Vol. 4128 Folio 236

South Australia. (CERTIFICATE OF TITLE.)

Register Book,

Vol. 1421 Folio 89

Balance Certificate of Title per 10 Oct 1866

Beaumont Arnold Moulden of Queen's Advocate Chambers and Sir John Lancelot Stirling K.C.M.G. of the Supreme Court all in

as 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

Those pieces of land situated in the County of Adelaide being firstly Portion of Section 185 situated in the Hundreds of Adelaide and Noarlunga and Secondly a Closed Road containing four acres and three perches or thereabouts situated in the Hundred of Adelaide which said pieces of land are more particularly delineated and bounded as upon the plan in the margin hereof and thereon colored green

Except portion of the within land taken for New Road

waiv Dep Reg Genl. G.G. 39

which said Section is delineated in the public map of the said Hundreds deposited in the Lands and Survey Office at Adelaide.

In witness whereof I have hereunto signed my name and affixed my seal this Second day of June 1926

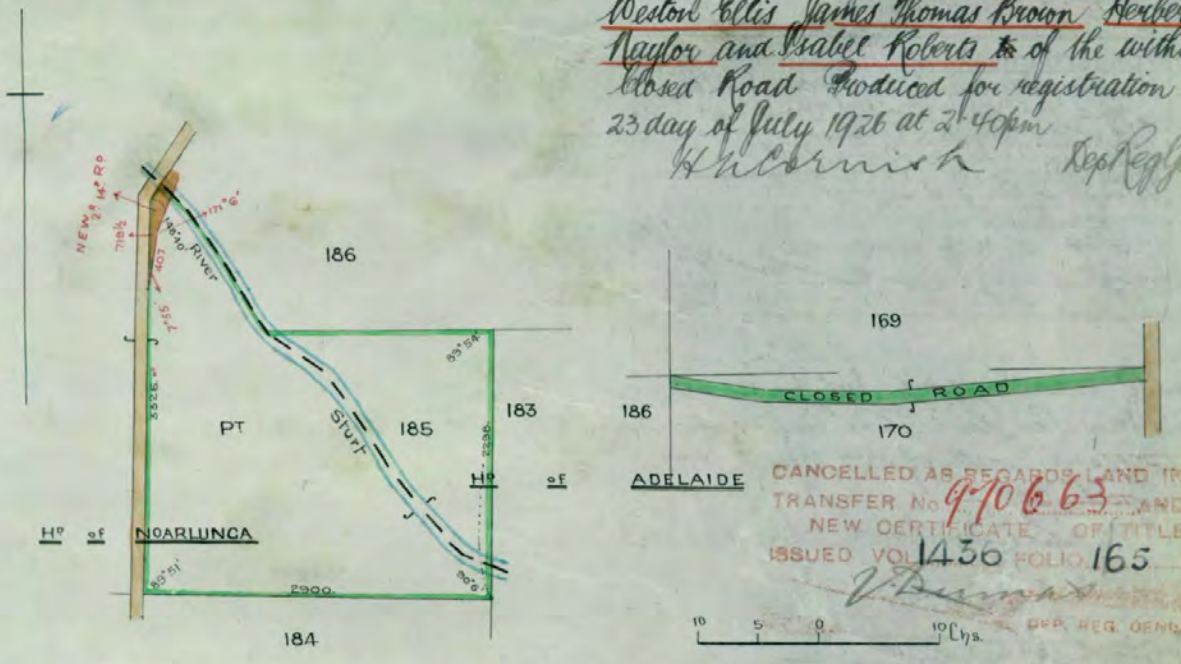
Signed the 2nd day of June 1926, in the presence of A. D. Shaw.

R. H. Gallop

Registrar-General.

Transfer No. 970663 from Beaumont Arnold Moulden and Sir John Lancelot Stirling K.C.M.G. to Frank Smith Frank Weston Ellis James Thomas Brown Herbert Naylor and Isabel Roberts as of the within Closed Road Produced for registration the 23 day of July 1926 at 2.40 pm

H. McInnis Dep Reg Gene




CANCELLED AS REGARDS LAND IN TRANSFER No. 970663 AND NEW CERTIFICATE OF TITLE ISSUED VOL. 1436 FOLIO 165

DEP. REG. GENL.

The above named Beaumont Arnold Moulden died on the 20 day of December 1926 as appears by Office of Certificate of Death No 988142 & Memorandum No 988909. Produced for registration the 3rd day of January 1927 at 1 p.m.

Dep Reg Genl

Transfer No 988911 from Sir John Lancelot Stirling to the said Sir John Lancelot Stirling and Sir Frank Beaumont Moulden and Arnold Meredith Moulden both of Adelaide Solicitors of an estate in fee simple in the balance of the within land. Produced for registration the 3rd day of January 1927 at 1 p.m.

Dep Reg Genl

CD 1135137

Death Herein named Frank Beaumont Moulden died on the 8 day of April 1932 as appears by Memorandum No 1134778 vide No 1135137 Produced for registration the 9 day of May 1932 at 2.40 p.m.

Dep Reg Gen

Death The within named Sir John Lancelot Stirling died on the 24 day of May 1932 as appears by Office Copy of Certificate of Death No 1136529 Produced for registration the 8 day of June 1932 at 2.50 p.m.

Dep Reg Genl

TRANSFER No. 1143590 FROM Arnold Meredith Moulden to the said Arnold Meredith Moulden and John Alexander Thomson of Bowman Building Adelaide Accountant OF AN ESTATE IN FEE SIMPLE IN THE ~~WITHIN LAND~~ balance of the within land

PRODUCED FOR REGISTRATION THE 31 DAY OF October 1939 AT 11.40 a.m.

DEP. REG. GENL.

Portion of the within part Section 185 has been taken for a New Road Vide confirmation of Road Order in Gazette of 23rd March 1939 (Tracing No 3142)

W.A.West Dep Reg Genl.

CANCELLED

AND Balance CERTIFICATE OF TITLE ISSUED VIDE Letter No. 200 of 1942 VOL. 1793 FOL. 63

DEP. REG. GENL.

# Certificate of Title

| | |
|---|---|
| **Title Reference:** | CT 5389/442 |
| **Status:** | CURRENT |
| **Parent Title(s):** | CT 5082/42 |
| **Dealing(s) Creating Title:** | RTD 8043336 |
| **Title Issued:** | 03/01/1997 |
| **Edition:** | 7 |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# Certificate of Title

**Title Reference:** CT 5082/42

**Status:** CANCELLED

**Parent Title(s):** CT 4340/18

**Dealing(s) Creating Title:** CONVERTED TITLE

**Title Issued:** 05/08/1992

**Title Cancelled:** 03/01/1997

**Edition:** 3

# Child Titles

| Title Reference | Status | Estate Type | Plan / Parcel | Proprietors/Lessees/ Custodians at time of issue |
|---|---|---|---|---|
| CT 5389/442 | CURRENT | FEE SIMPLE | F18091 ALLOTMENT 37 | ADELAIDE CARAVAN PARK PTY. LTD. |


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# ORIGINAL CERTIFICATE OF TITLE

## South Australia

Register Book,
Volume 4340 Folio 18

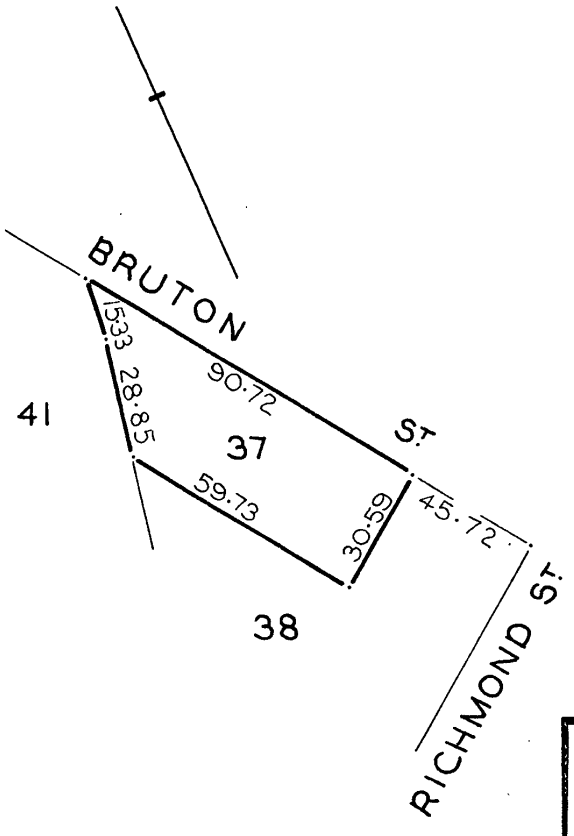
New Certificate for the balance of the Land in Vol.1574 Folio 118

BARBARA JUNE DUNN and MARGARET ANNE DAVIS both of 8 Bruton Street Hackney 5069 Company Directors are the proprietors of an estate in fee simple AS TENANTS IN COMMON subject nevertheless to such encumbrances liens and interests as are notified by memorial underwritten or endorsed hereon in ALLOTMENT 37 of portion of Section 256 HUNDRED OF ADELAIDE in the area named HACKNEY (L.T.R.O. FILED PLAN No.18091) and delineated on the diagram hereon

Deputy Registrar-General

Dated 12 July 1989

REGISTRAR-GENERAL SOUTH AUSTRALIA




*CAVEAT 7000432 lodged by WESTPAC BANKING CORPORATION over the within land Produced 22.10.1990 at 10:20*

A substituted Certificate was issued on the 14 day of January 1991 on proof to the satisfaction of the Registrar-General that the duplicate had been lost or destroyed (Application 7016553)

CAVEAT 7000432 has been withdrawn vide 7142160 Produced 23.7.1991 at 10:00

MORTGAGE 7142160A to WESTPAC BANKING CORPORATION Produced 23.7.1991 at 10:00

CANCELLED

CONVERTED TO A COMPUTERISED TITLE

# South Australia. (CERTIFICATE OF TITLE.)

Register Book, Vol. 1574 Folio 118

—Pursuant to Memorandum of Transfer No. 1097688 registered on Vol. 224 Folio 1 —

NELSON LEONARD WESTER of Prospect Watchmaker and ELIZABETH JANE WESTER his wife are ——

——— the proprietor s 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 HUNDRED of ADELAIDE COUNTY of ADELAIDE being PORTION OF ALLOTMENT 13 of the subdivision of portion of Section 256 laid out as HACKNEY and more particularly delineated and bounded as appears in the plan in the margin hereof and therein colored green ———

which said Allotment is bounded as appears in the plan deposited in the Lands Titles Registration Office No. 440

which said Section is delineated in the public map of the said Hundred deposited in the Lands and Survey Office at Adelaide.

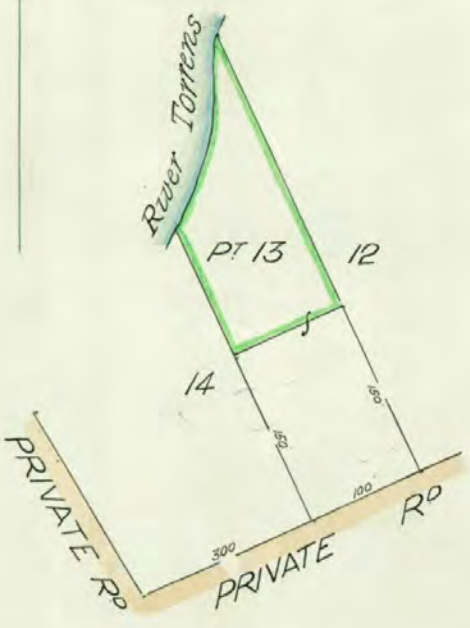
In witness whereof I have hereunto signed my name and affixed my seal this fifth day of June 1930

Signed the 5th day of June 1930, in the presence of Mog Hinze

W. D. Lampard Registrar-General.

M1100841

F.P. 18091 APPROVED




MORTGAGE No. 1100841 FROM Nelson Leonard Wester and Elizabeth Jane Wester to Kitt Dare

PRODUCED FOR REGISTRATION THE 26 DAY OF June 1930 AT 11.50 a.m.

DEP. REG GENL.

Dis 1100841

DISCHARGE OF THE within MORTGAGE No. 1100841 BY ENDORSEMENT THEREON

PRODUCED FOR REGISTRATION THE 1st DAY OF December 1932 AT 2.50 p.m.

DEP. REG. GENL.

TRANSFER No. 1147929 FROM Nelson Leonard Wester and Elizabeth Jane Wester To Thomas Walton Holland Gardener and Mary Ellen Holland widow both of 3 Brunton Street Hackney OF AN ESTATE IN FEE SIMPLE IN THE WITHIN LAND

PRODUCED FOR REGISTRATION THE 16 DAY OF February 1933 AT 2.50 p.m.

DEP. REG. GENL.

Over

MORTGAGE No. 1147930 FROM
Thomas Walton Holland and Mary Ellen Holland To Nelson Leonard Wooster and Elizabeth Jane Wooster
PRODUCED FOR REGISTRATION THE 16 DAY OF February 1933 AT 2.20pm
DEP. REG GENL.

1147930

DISCHARGE OF THE within MORTGAGE
No. 1147930
BY ENDORSEMENT THEREON
PRODUCED FOR REGISTRATION THE 31 DAY OF January 1939 AT 12.40pm
DEP. REG. GENL.

T. 1287844 M. 1287845.

TRANSFER No. 1287844 FROM
Mary Ellen Holland to the within named Thomas Walton Holland of her estate and interest ~~OF AN ESTATE IN FEE SIMPLE~~ IN THE WITHIN LAND.
PRODUCED FOR REGISTRATION THE 12 DAY OF April 1939 AT 11.20am
DEP. REG. GENL.

DRG 26.1989

MORTGAGE No. 1287845 FROM
Thomas Walton Holland to the South Australian Limited Ancient Order of Druids Friendly Society
PRODUCED FOR REGISTRATION THE 12 DAY OF April 1939 AT 11.20am
DEP. REG. GENL.

M. 1296748.

MORTGAGE No. 1296748 FROM
Thomas Walton Holland to the South Australian United Ancient Order of Druids Friendly Society
PRODUCED FOR REGISTRATION THE 4 DAY OF July 1939 AT Noon.
DEP. REG GENL.

D. 1296748 D. 1287845

DISCHARGE OF THE within MORTGAGE
No. d 1296748 and 1287845
BY ENDORSEMENT THEREON
PRODUCED FOR REGISTRATION THE 15 DAY OF December 1943 AT 3pm
DEP. REG. GENL.

L 3435/648 Subject to L 3510/793

See D de Rivaz Torrens

Beautification Scheme Ln 2695/67

LEASE No. 3510793 TO
Adelaide Caravan Park Proprietary Limited
OF THE WITHIN LAND. TERM commencing on the 1.7.1972 and expiring on the 31.5.1997
PRODUCED 4.9. 1973 AT 11.15am
D.G. Randell DEP. REG. GEN.

~~XX5279794~~

REGISTRAR-GENERAL'S CAVEAT No. 5279794
portion of
OVER THE WITHIN LAND
ENTERED 6.8.1984 AT 3.25pm

AQ 6043396.

Caveat No. 5279794 is
withdrawn this 10.7.1985 at 11:00

ACQUISITION No. 6043396
WHEREBY portion
THE WITHIN LAND IS VESTED IN
MINISTER OF WATER RESOURCES
PRODUCED 2.7.1985 at 10:15
(Dup C.T. ~~not~~ prod)
CANCELLED AS REGARDS LAND IN
ACQUISITION No. 6043396 AND NEW
CERTIFICATE OF TITLE ISSUED VOL. 4255
FOLIO 290

Balance of the

APPLICATION No. 6668595 THE WITHIN land
IS TRANSMITTED TO David Dunstall Whitbread of 173 Wakefield Street Adelaide 5000 Chartered Accountant
AS THE EXECUTOR NAMED IN THE WILL DATED 6.7.1988 OF Thomas Walton Holland WHO DIED 6.7.1988 VIDE
PROBATE DATED 14.10.1988 PRODUCED 5.1.1989 AT 14:40

TRANSFER No. 6663596 to
Barbara June Dunn and Margaret Anne Davis both of 8 Bruton Street Hackney 5069 Company Directors of the Balance
OF THE WITHIN LAND. PRODUCED 5.1.1989 AT 14:40
as Tenants in Common

NEW C.T. ISSUING VIDE 6663596

CANCELLED
AND Balance CERTIFICATE OF TITLE
ISSUED VIDE 6663596 FILED PLAN No. 18097
VOL. 4340 FOL 18

# HISTORY OF OWNERSHIP – CT 5389/442

| Date of Acquisition and term held | Registered Proprietor(s) & Occupations where available | Reference to Title at Acquisition and sale |
|---|---|---|
| 05.06.1930<br>(1930-1989) | Nelson Leonard Lester (Watch Maker) and Elizabeth Jane Wester (his wife)<br>Thomas Walton Holland (Caravan Park Proprietor) and Mary Ellen Holland - 16 February 1933<br>Thomas Walton Holland from Mary Ellen Holland - 12 April 1939<br>Barbara June Dunn and Margaret Anne Davis – 5 January 1989 | Volume 1574 Folio 118 |
| 12.07.1989<br>(1989-1991) | Barbara June Dunn and Margaret Anne Davis<br>(Converted to a computerised title) | Volume 4340 Folio 18 |
| 05.08.1992<br>(1992-1997) | Adelaide Caravan Park Pty. Ltd. | Volume 5082 Folio 42 |
| 03.01.1997<br>(1997-Present) | Adelaide Caravan Park Pty. Ltd. | Volume 5389 Folio 442 |

*Site ownership has been owned by private residents and Adelaide Caravan Park.

Certificate Titles reviewed as part of this assessment are provided on the following pages.

# APPENDIX E: LOTSEARCH DATA AND HISTORICAL AERIAL PHOTOGRAPHY

STRUCTURAL.CIVIL.ENVIRONMENTAL

GAMA CONSULTING
Structural, Civil & Environmental Engineering

Suite 3/83 Fullarton Road
Kent Town SA 5067
(08) 7123 4050
gamaconsulting.com.au

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

**Date: 29 May 2024 13:44:55**

**Reference: LS056783 EP**

**Address: 46 Richmond Street, Hackney, SA 5069**

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 On-site | No. Features within 100m | No. Features within Buffer |
|---|---|---|---|---|---|---|---|---|
| Cadastre Boundaries | Precisely | 17/04/2024 | 09/02/2024 | Quarterly | - | - | - | - |
| EPA Site Contamination Index | Environment Protection Authority SA | 16/05/2024 | 16/05/2024 | Monthly | 1000m | 0 | 11 | 35 |
| EPA Environmental Protection Orders | Environment Protection Authority SA | 01/03/2024 | 01/03/2024 | Monthly | 1000m | 0 | 0 | 1 |
| EPA Environmental Authorisations | Environment Protection Authority SA | 01/03/2024 | 01/03/2024 | Monthly | 1000m | 0 | 1 | 21 |
| Contamination Assessment Areas | Environment Protection Authority SA | 06/03/2024 | 06/03/2024 | Quarterly | 1000m | 0 | 0 | 0 |
| EPA Groundwater Prohibition Areas | Environment Protection Authority SA | 17/05/2024 | 02/04/2024 | Monthly | 1000m | 0 | 0 | 0 |
| EPA PFAS Site Investigations | Environment Protection Authority SA | 15/05/2024 | 30/04/2024 | Monthly | 2000m | 0 | 0 | 0 |
| Defence PFAS Investigation & Management Program - Investigation Sites | Australian Department of Defence | 16/05/2024 | 29/02/2024 | Monthly | 2000m | 0 | 0 | 0 |
| Defence PFAS Investigation & Management Program - Management Sites | Australian Department of Defence | 16/05/2024 | 29/02/2024 | Monthly | 2000m | 0 | 0 | 0 |
| Airservices Australia National PFAS Management Program | Airservices Australia | 16/05/2024 | 16/05/2024 | Monthly | 2000m | 0 | 0 | 0 |
| Defence Controlled Areas | Australian Department of Defence | 15/04/2024 | 15/04/2024 | Quarterly | 2000m | 0 | 0 | 0 |
| Defence 3 Year Regional Contamination Investigation Program | Australian Department of Defence | 30/04/2024 | 02/09/2022 | Quarterly | 2000m | 0 | 0 | 0 |
| National Unexploded Ordnance (UXO) | Australian Department of Defence | 15/04/2024 | 15/04/2024 | Quarterly | 2000m | 0 | 0 | 0 |
| National Waste Management Facilities Database | Geoscience Australia | 26/05/2022 | 07/03/2017 | Annually | 1000m | 0 | 0 | 0 |
| EPA Collection Depots | Environment Protection Authority SA | 06/03/2024 | 20/08/2022 | Quarterly | 1000m | 0 | 0 | 1 |
| National Liquid Fuel Facilities | Geoscience Australia | 20/09/2023 | 07/09/2020 | Annually | 1000m | 0 | 0 | 3 |
| Historical Business Directories (Premise & Intersection Matches) | Hardie Grant, Sands & McDougall | | | Not required | 100m | 1 | 24 | 24 |
| Historical Business Directories (Road & Area Matches) | Hardie Grant, Sands & McDougall | | | Not required | 100m | - | 6 | 6 |
| UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches) | Hardie Grant, Sands & McDougall | | | Not required | 250m | 0 | 6 | 7 |
| UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches) | Hardie Grant, Sands & McDougall | | | Not required | 250m | - | 0 | 1 |
| Mines and Mineral Deposits | SA Department for Energy and Mining | 06/05/2024 | 06/05/2024 | Quarterly | 1000m | 0 | 0 | 0 |
| Hydrogeology Map of Australia | Geoscience Australia | 17/04/2024 | 19/08/2019 | Annually | 1000m | 2 | 2 | 2 |
| Groundwater Aquifers | SA Department for Environment and Water | 16/06/2023 | 01/01/2008 | Annually | 1000m | 1 | 1 | 1 |
| Drillholes | SA Department for Environment and Water | 07/05/2024 | 17/04/2024 | Quarterly | 2000m | 4 | 11 | 972 |
| Surface Geology 1:100,000 | SA Department for Energy and Mining | 01/05/2024 | 12/12/2020 | Annually | 1000m | 1 | 1 | 3 |
| Geological Linear Structures 1:100,000 | SA Department for Energy and Mining | 01/05/2024 | 11/12/2020 | Annually | 1000m | 0 | 0 | 0 |
| Atlas of Australian Soils | Australian Bureau of Agricultural and Resource Economics and Sciences | 12/01/2024 | 17/02/2011 | Annually | 1000m | 1 | 1 | 1 |
| Soil Types | SA Department for Environment and Water | 30/04/2024 | 18/02/2020 | Annually | 1000m | 1 | 1 | 1 |
| Atlas of Australian Acid Sulfate Soils | CSIRO | 12/01/2024 | 21/02/2013 | Annually | 1000m | 1 | 1 | 1 |


Lotsearch Pty Ltd ABN 89 480 168 018

| Dataset Name | Custodian | Supply Date | Currency Date | Update Frequency | Dataset Buffer (m) | No. Features On-site | No. Features within 100m | No. Features within Buffer |
|---|---|---|---|---|---|---|---|---|
| Acid Sulfate Soil Potential | SA Department for Environment and Water | 27/05/2024 | 18/02/2020 | Annually | 1000m | 1 | 1 | 1 |
| Soil Salinity - Watertable Induced | SA Department for Environment and Water | 06/12/2023 | 18/02/2020 | Annually | 1000m | 1 | 1 | 1 |
| Soil Salinity - Non-watertable | SA Department for Environment and Water | 06/12/2023 | 18/02/2020 | Annually | 1000m | 1 | 1 | 1 |
| Soil Salinity - Non-watertable (magnesia patches) | SA Department for Environment and Water | 06/12/2023 | 18/02/2020 | Annually | 1000m | 1 | 1 | 1 |
| Planning and Design Code - Zones | Attorney-General's Department | 17/05/2024 | 15/02/2024 | Monthly | 1000m | 2 | 8 | 31 |
| Planning and Design Code - Subzones | Attorney-General's Department | 17/05/2024 | 15/02/2024 | Monthly | 1000m | 0 | 0 | 4 |
| Land Use Generalised 2020 | SA Department for Trade and Investment | 04/12/2023 | 05/05/2023 | Annually | 1000m | 2 | 8 | 13 |
| Commonwealth Heritage List | Australian Department of Climate Change, Energy, the Environment and Water | 20/10/2023 | 13/04/2022 | Annually | 500m | 0 | 0 | 0 |
| National Heritage List | Australian Department of Climate Change, Energy, the Environment and Water | 20/10/2023 | 13/04/2022 | Annually | 500m | 0 | 0 | 1 |
| State Heritage Areas | SA Department for Environment and Water | 28/05/2024 | 18/02/2020 | Annually | 500m | 0 | 0 | 0 |
| SA Heritage Places | SA Department for Environment and Water | 23/04/2024 | 01/02/2024 | Quarterly | 500m | 2 | 23 | 255 |
| Aboriginal Land | SA Department for Energy and Mining | 28/05/2024 | 26/09/2022 | Annually | 500m | 0 | 0 | 0 |
| Planning and Design Code - Overlays - Bushfire | SA Department for Trade and Investment | 17/05/2024 | 17/05/2024 | Monthly | 1000m | 0 | 0 | 0 |
| Bushfires and Prescribed Burns History | SA Department for Environment and Water | 28/05/2024 | 26/04/2024 | Monthly | 1000m | 0 | 0 | 0 |
| Planning and Design Code - Overlays - Flooding | SA Department for Trade and Investment | 17/05/2024 | 17/05/2024 | Monthly | 1000m | 2 | 3 | 3 |
| Native Vegetation Floristic Areas - NVIS - State-wide | SA Department for Environment and Water | 19/04/2024 | 14/02/2022 | Annually | 1000m | 0 | 0 | 0 |
| Collaborative Australian Protected Areas Database (CAPAD) 2022 - Terrestrial | Australian Department of Climate Change, Energy, the Environment and Water | 04/03/2024 | 30/06/2022 | Annually | 1000m | 0 | 0 | 0 |
| Collaborative Australian Protected Areas Database (CAPAD) 2022 - Marine | Australian Department of Climate Change, Energy, the Environment and Water | 04/03/2024 | 30/06/2022 | Annually | 1000m | 0 | 0 | 0 |
| Groundwater Dependent Ecosystems Atlas | Bureau of Meteorology | 05/06/2023 | 01/06/2023 | Annually | 1000m | 1 | 2 | 3 |
| Inflow Dependent Ecosystems Likelihood | Bureau of Meteorology | 05/06/2023 | 01/06/2023 | Annually | 1000m | 1 | 2 | 3 |
| Ramsar Wetland Areas | SA Department for Environment and Water | 16/05/2024 | 11/04/2024 | Annually | 1000m | 0 | 0 | 0 |


Lotsearch Pty Ltd ABN 89 480 168 018

# Site Diagram

**46 Richmond Street, Hackney, SA 5069**

**Legend**

- Site Boundary
- Internal Parcel Boundaries

**Total Area:** 14157m²

**Total Perimeter:** 624m

Scale: 0 25 50 Meters

Data Source 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

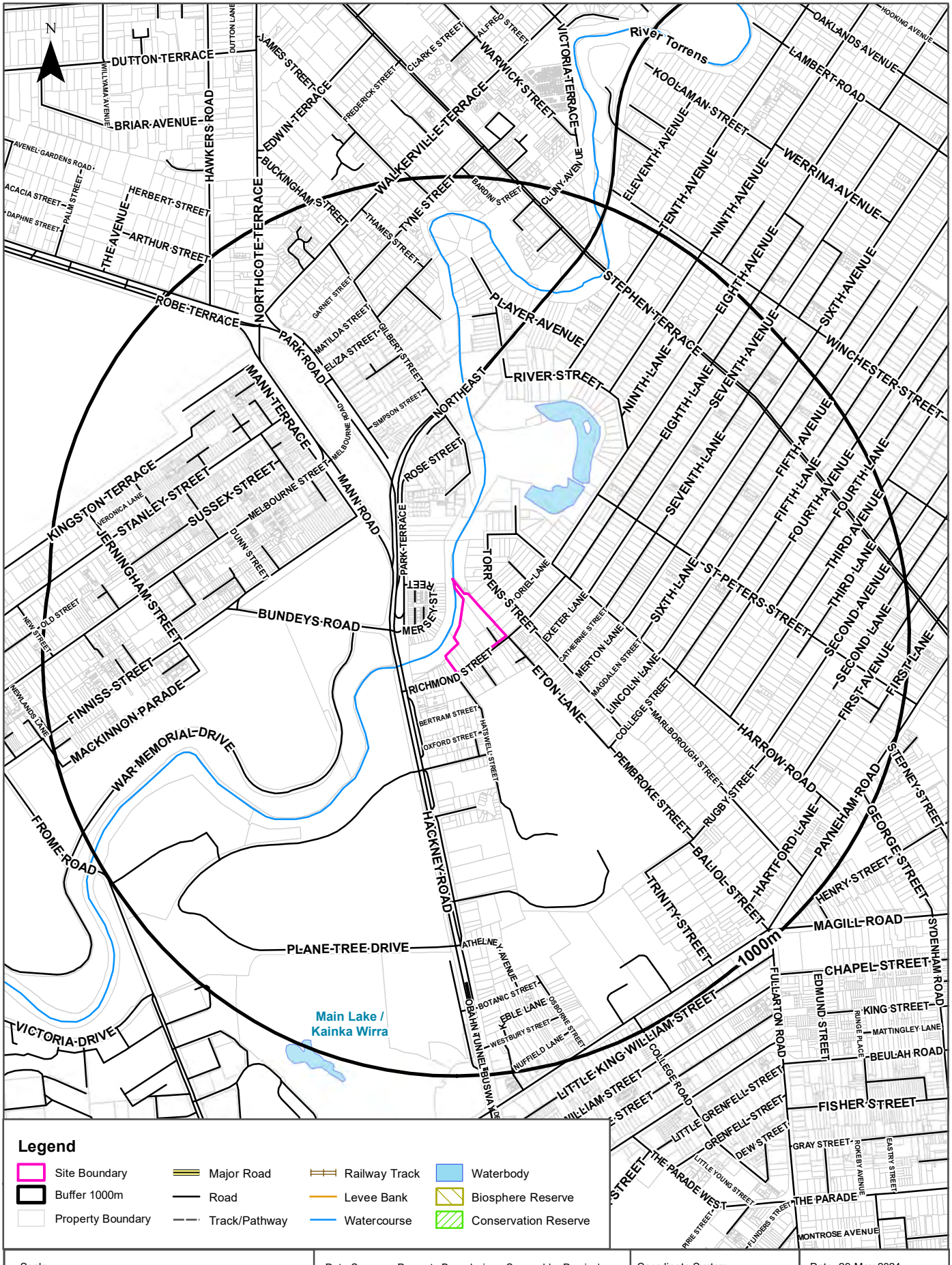
Date: 27 May 2024



Lotsearch Pty Ltd ABN 89 086 168 018

# Topographic Features

**46 Richmond Street, Hackney, SA 5069**

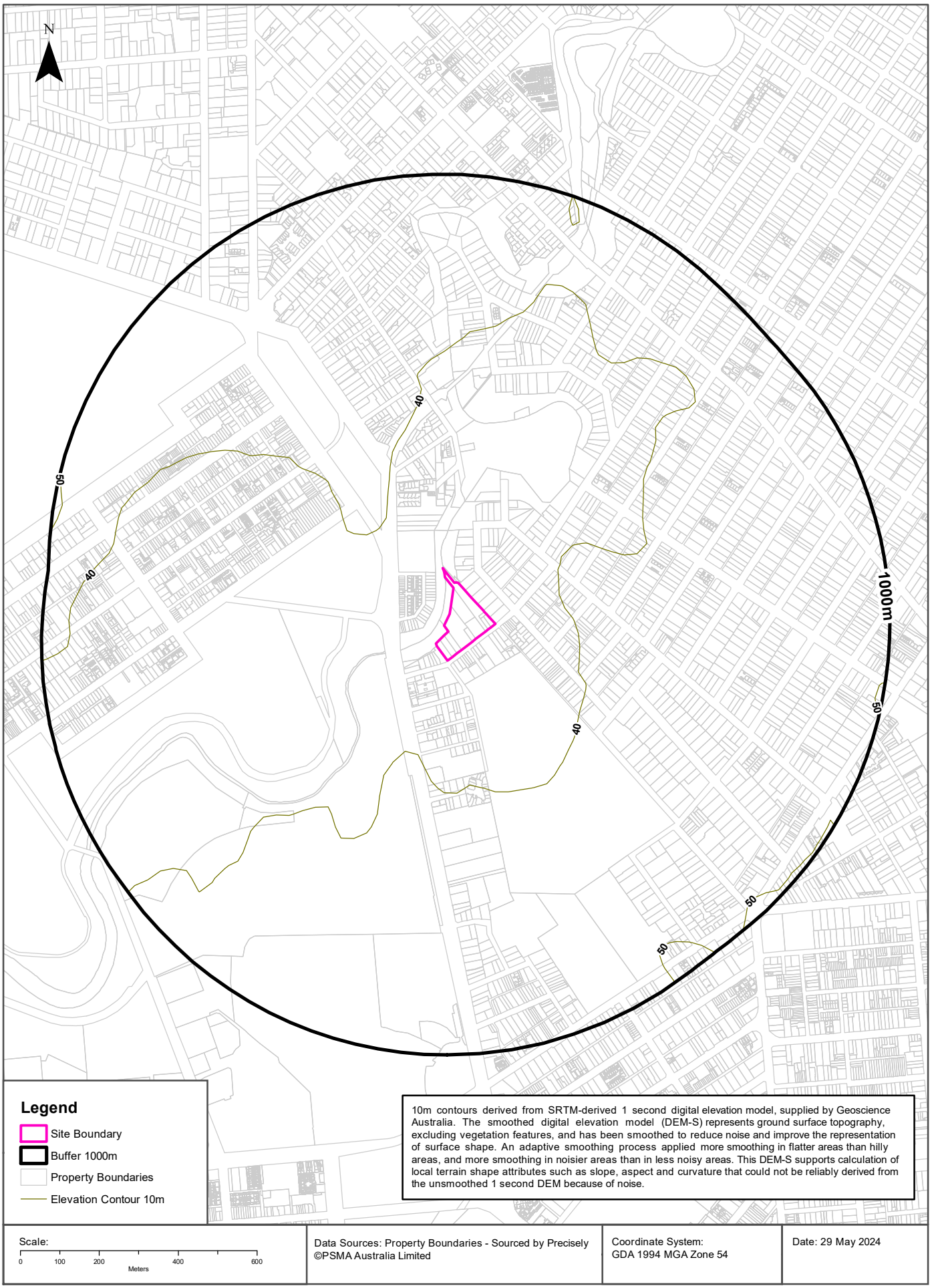





Lotsearch Pty Ltd ABN 89 009 168 018

# Elevation Contours

**46 Richmond Street, Hackney, SA 5069**



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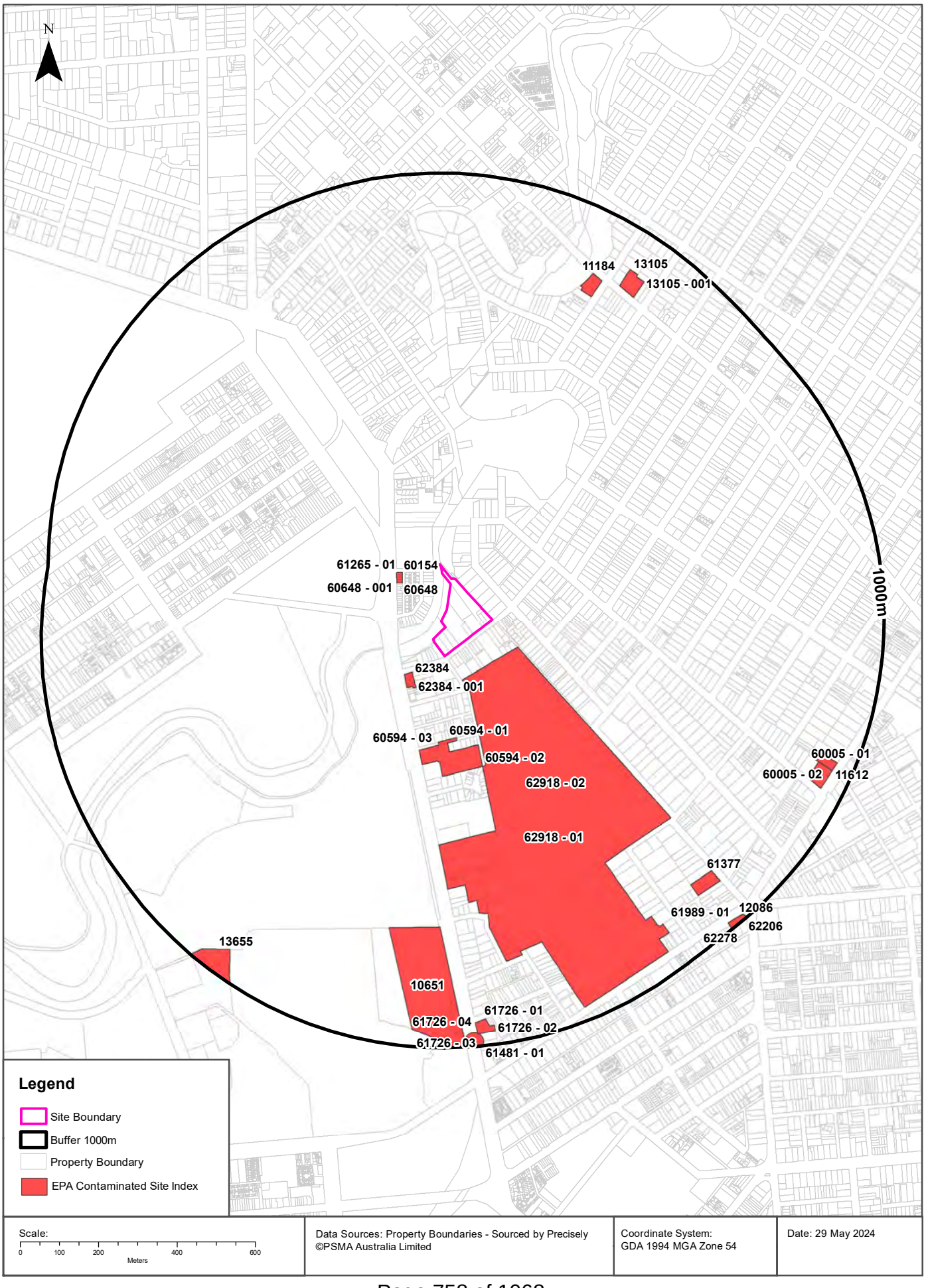
# EPA Site Contamination Index

**46 Richmond Street, Hackney, SA 5069**






Lotsearch Pty Ltd ABN 89 085 168 018

# EPA Contaminated Land

**46 Richmond Street, Hackney, SA 5069**

## EPA Site Contamination Index

Sites on the EPA Contamination Index within the dataset buffer:

| Notification No | Type | Address | Activity | Status | LocConf | Dist | Dir |
|---|---|---|---|---|---|---|---|
| 62918 - 01 | S83A Notification | St Peter's College, 55 Hackney Road, Hackney 55 Hackney Road HACKNEY SA 5069 | Listed Substances (storage) | Current EPA List | Premise Match | 74m | South East |
| 62918 - 02 | S83A Notification | St Peter's College, 55 Hackney Road, Hackney 55 Hackney Road HACKNEY SA 5069 | Listed Substances (storage) | Current EPA List | Premise Match | 74m | South East |
| 62384 | Audit Notification | 95 Hackney Road HACKNEY SA 5069 | Dry cleaning; Motor vehicle repair or maintenance | Current EPA List | Premise Match | 91m | South West |
| 62384 - 001 | Audit Report | 95 Hackney Road HACKNEY SA 5069 | Dry cleaning; Motor vehicle repair or maintenance | Current EPA List | Premise Match | 91m | South West |
| 12686 | Pre 1 July 2009 Audit Notification | 45 Park Terrace GILBERTON SA 5081 | Not recorded | Current EPA List | Premise Match | 98m | North West |
| 12686 | Pre 1 July 2009 Audit Termination | 45 Park Terrace GILBERTON SA 5081 | Not recorded | Current EPA List | Premise Match | 98m | North West |
| 60154 | Audit Notification | 45 Park Terrace GILBERTON SA 5081 | Not recorded | Current EPA List | Premise Match | 98m | North West |
| 60154 | Audit Termination | 45 Park Terrace GILBERTON SA 5081 | Not recorded | Current EPA List | Premise Match | 98m | North West |
| 60648 | Audit Notification | 45-49 Park Terrace GILBERTON SA 5081 | Not recorded | Current EPA List | Premise Match | 98m | North West |
| 60648 - 001 | Audit Report | 45-49 Park Terrace GILBERTON SA 5081 | Fill or soil importation | Current EPA List | Premise Match | 98m | North West |
| 61265 - 01 | S83A Notification | 45-50 Park Terrace GILBERTON SA 5081 | Fill or soil importation | Current EPA List | Premise Match | 98m | North West |
| 60594 - 01 | S83A Notification | 71-77 Hackney Road HACKNEY SA 5069 | Not recorded | Current EPA List | Premise Match | 210m | South |
| 60594 - 02 | S83A Notification | 71-77 Hackney Road HACKNEY SA 5069 | Listed Substances (storage); Wineries or distilleries | Current EPA List | Premise Match | 210m | South |
| 60594 - 03 | S83A Notification | 71-77 Hackney Road HACKNEY SA 5069 | Listed Substances (storage); Wineries or distilleries | Current EPA List | Premise Match | 210m | South |
| 10651 | 109 Notification | Hackney Road HACKNEY SA 5069 | Not recorded | Current EPA List | Premise Match | 690m | South |
| 11184 | S83 Notification | 88 Stephen Terrace ST PETERS SA 5069 | Not recorded | Current EPA List | Premise Match | 785m | North |
| 13105 | Pre 1 July 2009 Audit Notification | 79 Stephen Terrace ST PETERS SA 5069 | Not recorded | Current EPA List | Premise Match | 842m | North East |
| 13105 - 001 | Pre 1 July 2009 Audit Report | 79 Stephen Terrace ST PETERS SA 5069 | Not recorded | Current EPA List | Premise Match | 842m | North East |
| 61377 | 109 Notification | 8-10 Baliol Street COLLEGE PARK SA 5069 | Fill or soil importation | Current EPA List | Premise Match | 844m | South East |
| 60005 - 02 | S83A Notification | 77 Payneham Road ST PETERS SA 5069 | Listed Substances (storage); Service stations | Current EPA List | Premise Match | 889m | East |
| 11612 | S83 Notification | 75 Payneham Road ST PETERS SA 5069 | Not recorded | Current EPA List | Premise Match | 900m | South East |
| 60005 - 01 | S83A Notification | 75 Payneham Road ST PETERS SA 5069 | Service stations | Current EPA List | Premise Match | 900m | South East |
| 13655 | 109 Notification | Lot 22 Frome Road ADELAIDE SA 5000 | Fill or soil importation | Current EPA List | Premise Match | 928m | South West |
| 61726 - 01 | S83A Notification | 15 Hackney Road HACKNEY SA 5069 | Service stations | Current EPA List | Premise Match | 930m | South |
| 61726 - 02 | S83A Notification | 15 Hackney Road HACKNEY SA 5069 | Service stations | Current EPA List | Premise Match | 930m | South |


Lotsearch Pty Ltd ABN 89 480 168 018

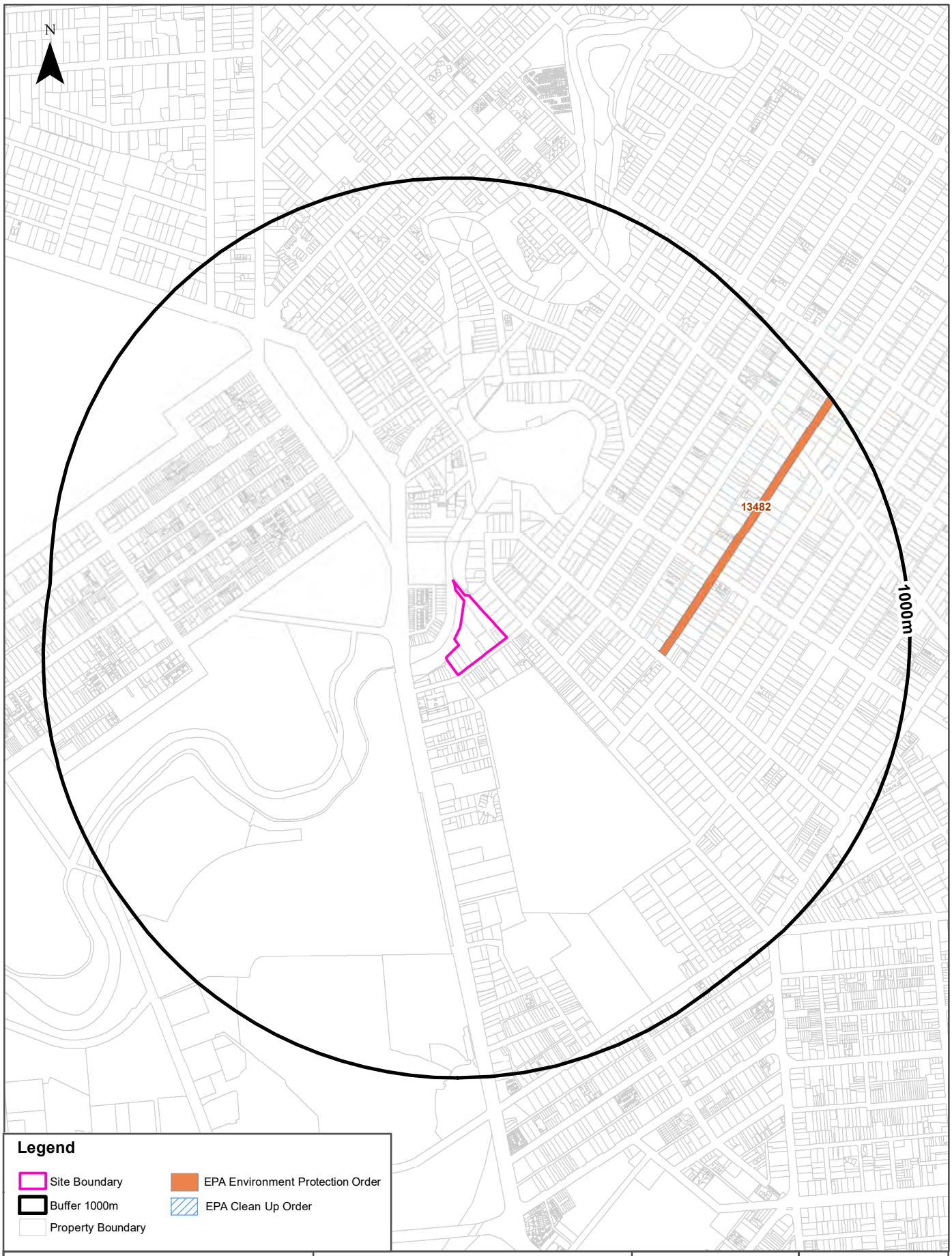
| Notification No | Type | Address | Activity | Status | LocConf | Dist | Dir |
|---|---|---|---|---|---|---|---|
| 61726 - 03 | S83A Notification | 15 Hackney Road HACKNEY SA 5069 | Listed Substances (storage); Service stations | Current EPA List | Premise Match | 930m | South |
| 61726 - 04 | S83A Notification | 15 Hackney Road HACKNEY SA 5069 | Listed Substances (storage); Service stations | Current EPA List | Premise Match | 930m | South |
| 61481 - 01 | S83A Notification | Hackney Road Carriageway HACKNEY SA 5069 | Not recorded | Current EPA List | Premise Match | 965m | South |
| 12086 | S83 Notification | 1 Fullarton Road KENT TOWN SA 5067 | Service stations | Current EPA List | Premise Match | 980m | South East |
| 61989 - 01 | S83A Notification | 1 Fullarton Road KENT TOWN SA 5071 | Service stations | Current EPA List | Premise Match | 980m | South East |
| 61989 - 02 | S83A Notification | 1 Fullarton Road KENT TOWN SA 5071 | Service stations | Current EPA List | Premise Match | 980m | South East |
| 61989 - 04 | S83A Notification | 1 Fullarton Road and 88 North Tce, Kent Town 1 Fullarton Road KENT TOWN SA 5071 | Listed Substances (storage); Service stations | Current EPA List | Premise Match | 980m | South East |
| 62206 | Audit Notification | 1 Fullarton Road & 88 North Terrace KENT TOWN SA 5071 | Listed Substances (storage); Service stations | Current EPA List | Premise Match | 980m | South East |
| 62206 - 001 | Audit Report | 1 Fullarton Road & 88 North Terrace KENT TOWN SA 5071 | Dry cleaning; Listed Substances (storage); Motor vehicle repair or maintenance; Service stations; Wood preservation works | Current EPA List | Premise Match | 980m | South East |
| 62278 | Voluntary Proposal | 1 Fullarton Road and 88 North Terrace KENT TOWN SA 5067 | Listed Substances (storage); Service stations | Current EPA List | Premise Match | 980m | South East |

Site Contamination Index Data Source: EPA South Australia


Lotsearch Pty Ltd ABN 89 480 168 018

# EPA Environment Protection and Clean Up Orders

**46 Richmond Street, Hackney, SA 5069**






Lotsearch Pty Ltd ABN 89 085 168 018

# EPA Public Register

**46 Richmond Street, Hackney, SA 5069**

## 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 |
|---|---|---|---|---|---|---|---|---|---|
| 13482 | ENVIRONMENT PROTECTION ORDER | ISSUED | | Fifth Avenue, St Peters SA 5069 | Caused environmental nuisance in the form of noise. | Current EPA Register | Road Match | 376m | East |

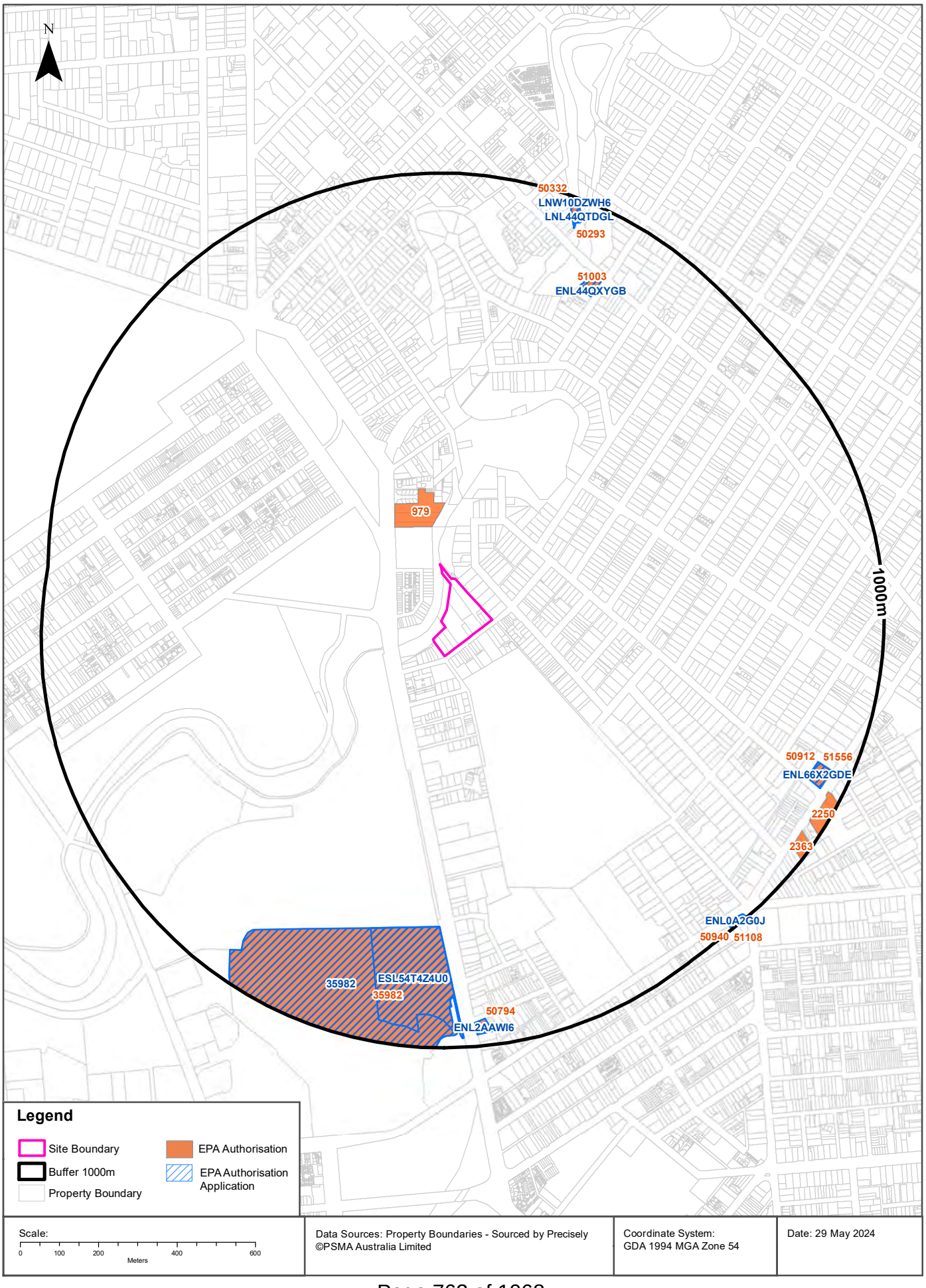
Authorisations Data Source: EPA South Australia



Lotsearch Pty Ltd ABN 89 480 168 018

# EPA Authorisations and Applications

**46 Richmond Street, Hackney, SA 5069**






Lotsearch Pty Ltd ABN 89 008 168 018

# EPA Public Register

**46 Richmond Street, Hackney, SA 5069**

## 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 |
|---|---|---|---|---|---|---|---|---|---|
| 979 | LICENCE | Issued | ADELAIDE CLINIC HOLDINGS PTY. LTD. | 33-36 Park Terrace, GILBERTON SA 5081 | Activity producing listed waste | Current EPA Register | Premise Match | 99m | North |
| 35982 | LICENCE | Issued | BOARD OF THE BOTANIC GARDENS AND STATE HERBARIUM | Botanic Gardens, Hackney Road, ADELAIDE, 5001, SA | Discharge during the licence period of stormwater to underground aquifers from a stormwater drainage system situated in metropolitan Adelaide - | Current EPA Register | Premise Match | 690m | South |
| 35982 | LICENCE APPLICATION | Proceed To Authorisation | Board of the Botanic Gardens and State Herbarium | Botanic Gardens Hackney Road, Hackney SA 5069 | Discharge during the licence period of stormwater to underground aquifers from a stormwater drainage system situated in metropolitan Adelaide - | Current EPA Register | Premise Match | 690m | South |
| ESL54T4Z4U0 | LICENCE APPLICATION | Authorisation Updated | THE UNIVERSITY OF ADELAIDE | Lot 102 Hackney Road, ADELAIDE SA 5000 | Activity producing listed waste | Current EPA Register | Premise Match | 690m | South |
| 51003 | LICENCE | Issued | PHILO & MARIE PTY LTD | 88 Stephen Terrace, ST PETERS SA 5069 | Petrol stations | Current EPA Register | Premise Match | 785m | North |
| ENL44QXYGB | LICENCE APPLICATION | Authorisation Updated | PHILO & MARIE PTY LTD | 88 Stephen Terrace, ST PETERS SA 5069 | Petrol stations | Current EPA Register | Premise Match | 785m | North |
| 50912 | LICENCE | Transferred | WEEROONA HOLDINGS PTY. LIMITED | 1 Harrow Road, ST PETERS SA 5069 | Petrol stations | Current EPA Register | Premise Match | 900m | South East |
| 51556 | LICENCE | Issued | AGCORP TRADING PTY LTD | 1 Harrow Road, ST PETERS SA 5069 | Petrol stations | Current EPA Register | Premise Match | 900m | South East |
| ENL66X2GDE | LICENCE APPLICATION | Authorisation Updated | WEEROONA HOLDINGS PTY. LIMITED | 1 Harrow Road, ST PETERS SA 5069 | Petrol stations | Current EPA Register | Premise Match | 900m | South East |
| 50293 | Works Approval | Surrendered | ERA WATER REGIONAL SUBSIDIARY | Various Sites within the Eastern Region of Adelaide | Discharge during the licence period of stormwater to underground aquifers from a stormwater drainage system situated in metropolitan Adelaide - | Current EPA Register | Premise Match | 925m | North |
| LNW10DZWH6 | WORKS APPROVAL APPLICATION | Authorisation Updated | ERA WATER REGIONAL SUBSIDIARY | Various Sites within the Eastern Region of Adelaide | Discharge during the licence period of stormwater to underground aquifers from a stormwater drainage system situated in metropolitan Adelaide - | Current EPA Register | Premise Match | 925m | North |
| 50332 | Licence | Issued | ERA WATER REGIONAL SUBSIDIARY | Various Sites within the Eastern Region of Adelaide | Discharge during the licence period of stormwater to underground aquifers from a stormwater drainage system situated in metropolitan Adelaide - | Current EPA Register | Premise Match | 928m | North |


Lotsearch Pty Ltd ABN 89 480 168 018

| Record No. | Record Type | Record Status | Entity | Site Address | Activity | EPA Register Status | LocConf | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|
| LNL44 QTDGL | LICENCE APPLICATION | Authorisation Updated | ERA WATER REGIONAL SUBSIDIARY | Various Sites within the Eastern Region of Adelaide | Discharge during the licence period of stormwater to underground aquifers from a stormwater drainage system situated in metropolitan Adelaide - | Current EPA Register | Premise Match | 928m | North |
| 50794 | LICENCE | Issued | EG FUELCO (AUSTRALIA) LIMITED | 15 Hackney Road, HACKNEY SA 5069 | Petrol stations | Current EPA Register | Premise Match | 930m | South |
| ENL2A AWI6 | LICENCE APPLICATION | Authorisation Updated | EG FUELCO (AUSTRALIA) LIMITED | 15 Hackney Road, HACKNEY SA 5069 | Petrol stations | Current EPA Register | Premise Match | 930m | South |
| 2250 | LICENCE | Issued | SPORTSMED SA HOSPITALS PTY LTD | 18-20 Henry Street, STEPNEY SA 5069 | Activity producing listed waste | Current EPA Register | Premise Match | 956m | South East |
| 2363 | LICENCE | Issued | SCOUT ASSOCIATION OF AUSTRALIA (SA BRANCH) | Lots 61, 68 & 69, Payneham Road, STEPNEY SA 5069 | Waste Recovery Facility | Current EPA Register | Premise Match | 956m | South East |
| 50940 | LICENCE | Transferred | SHAHIN ENTERPRISES PTY. LTD. | 1 Fullarton Road, KENT TOWN SA 5067 | Petrol stations | Current EPA Register | Premise Match | 980m | South East |
| 51108 | LICENCE | Issued | ON THE RUN PTY LTD | 1 Fullarton Road, KENT TOWN SA 5067 | Petrol stations | Current EPA Register | Premise Match | 980m | South East |
| ENL0A 2G0J | LICENCE APPLICATION | Authorisation Updated | SHAHIN ENTERPRISES PTY. LTD. | 1 Fullarton Road, KENT TOWN SA 5067 | Petrol stations | Current EPA Register | Premise Match | 980m | South East |
| 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


Lotsearch Pty Ltd ABN 89 480 168 018

# Contamination Assessment and Groundwater Prohibition Areas

**46 Richmond Street, Hackney, SA 5069**

## Contamination Assessment Areas

Contamination Assessment Areas published by the EPA within the dataset buffer:

| Map Id | Area Name | Map Link | Status | Location Confidence | Distance | Direction |
|---|---|---|---|---|---|---|
| N/A | | | | | | |

Assessment Areas Data Source: EPA South Australia


Lotsearch Pty Ltd ABN 89 480 168 018

# Contamination Assessment and Groundwater Prohibition Areas

**46 Richmond Street, Hackney, SA 5069**

## EPA Groundwater Prohibition Areas

EPA Groundwater Prohibition Areas within the dataset buffer:

| Map Id | Site Name | Location Confidence | Distance | Direction |
|---|---|---|---|---|
| N/A | No records in buffer | | | |

Groundwater ProhibitionAreas Data Source: EPA South Australia



Lotsearch Pty Ltd ABN 89 480 168 018

# PFAS Investigation & Management Programs

**46 Richmond Street, Hackney, SA 5069**

## EPA PFAS Site Investigations

Sites identified by the EPA as requiring PFAS contamination investigation within the dataset buffer:

| Record ID | Site Name | Document Link | Location Confidence | Distance | Direction |
|---|---|---|---|---|---|
| N/A | No records in buffer | | | | |

EPA PFAS Site Investigations Custodian: EPA South Australia

## Defence PFAS Investigation & 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 & Management Program Data Custodian: Department of Defence, Australian Government

## Defence PFAS Investigation & 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 & Management Program Data Custodian: 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


Lotsearch Pty Ltd ABN 89 480 168 018

# Defence Sites and Unexploded Ordnance

**46 Richmond Street, Hackney, SA 5069**

## Defence Controlled Areas (DCA)

Defence Controlled Areas provided by the Department of Defence within the dataset buffer:

| Site ID | Location Name | Loc Conf | Dist | Dir |
|---|---|---|---|---|
| N/A | No records in buffer | | | |

Defence Controlled Areas, Data Custodian: Department of Defence, Australian Government

## Defence 3 Year Regional Contamination Investigation Program (RCIP)

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

## National Unexploded Ordnance (UXO)

Sites which have been assessed by the Department of Defence for the potential presence of unexploded ordnance within the dataset buffer:

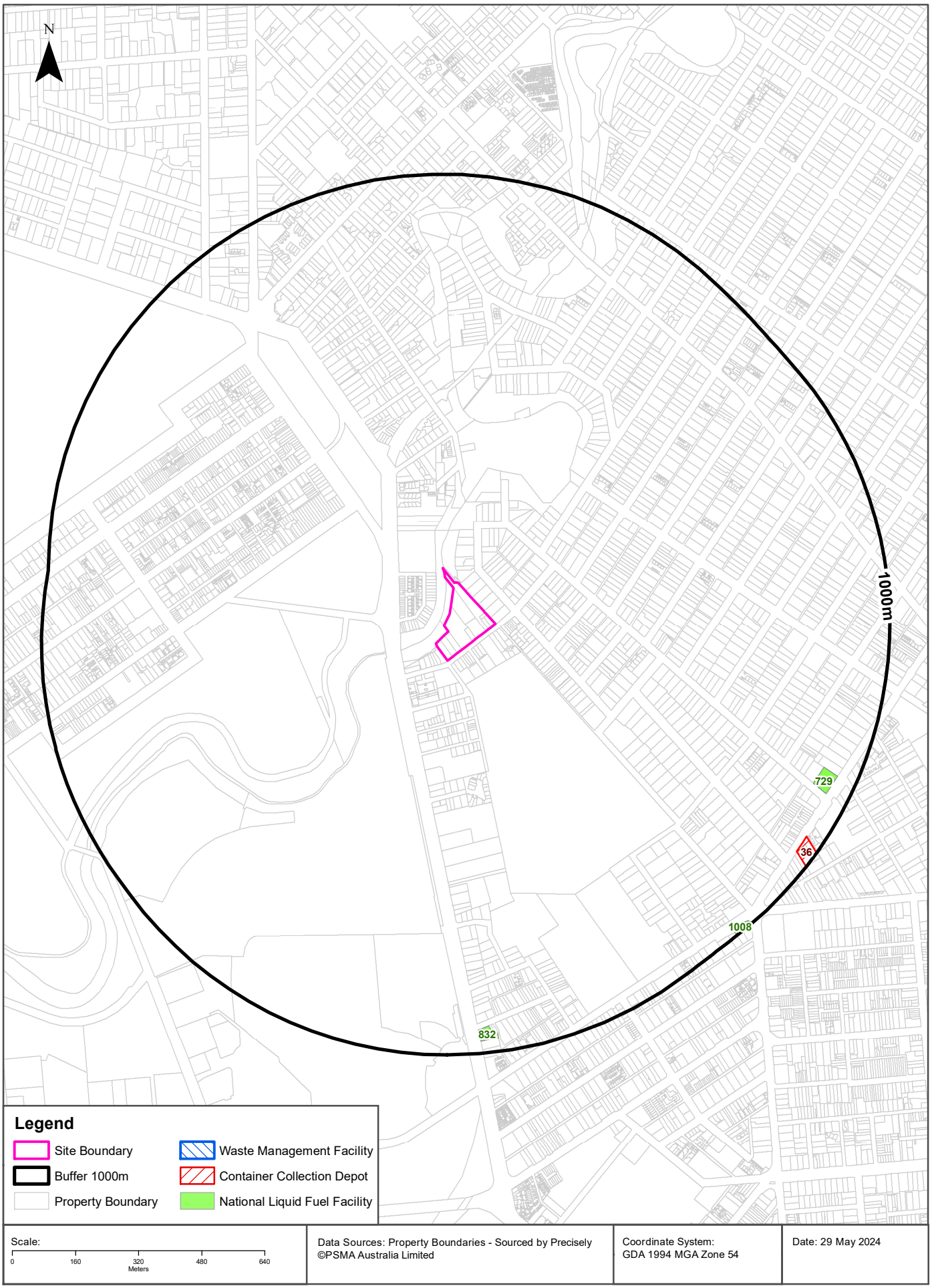
| Site ID | Location Name | Category | Area Description | Additional Information | Commonwealth | Loc Conf | Dist | Dir |
|---|---|---|---|---|---|---|---|---|
| N/A | No records in buffer | | | | | | | |

National Unexploded Ordnance (UXO), Data Custodian: Department of Defence, Australian Government


Lotsearch Pty Ltd ABN 89 480 168 018

# Waste Management & Liquid Fuel Facilities

**46 Richmond Street, Hackney, SA 5069**






Lotsearch Pty Ltd ABN 89 000 168 018

# Waste Management and Liquid Fuel Facilities

**46 Richmond Street, Hackney, SA 5069**

## 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 |
|---|---|---|---|---|---|---|
| 36 | Scout Recycling Centre Payneham | 16 Payneham Road | STEPNEY | Premise Match | 956m | South East |

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 | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 729 | BP | BP St Peters | 1 Harrow Road | St Peters | Petrol Station | Operational | | 25/07/2011 | Premise Match | 900m | South East |
| 832 | Caltex | Woolworths Caltex Hackney | 11-15 Hackney Road | Hackney | Petrol Station | Operational | | 25/07/2011 | Premise Match | 930m | South |
| 1008 | Peregrine Corporation | Mobil On The Run Kent Town | 1 Fullarton Road | Kent Town | Petrol Station | Operational | | 13/07/2012 | Premise Match | 980m | South East |

National Liquid Fuel Facilities Data Source: Geoscience Australia
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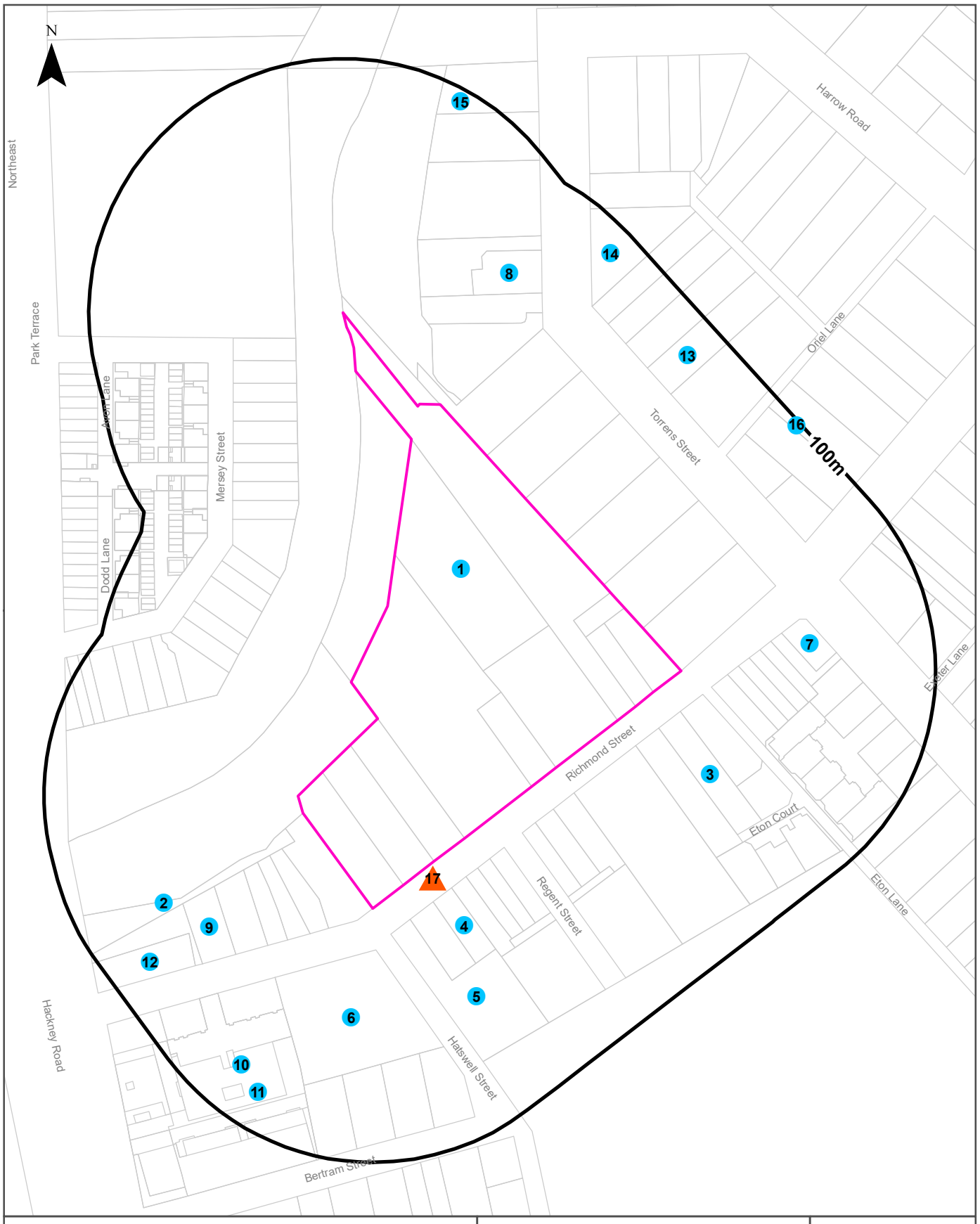
Lotsearch Pty Ltd ABN 89 480 168 018

# Historical Business Directories

**46 Richmond Street, Hackney, SA 5069**




**Legend**

- Site Boundary
- Buffer 100m
- 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 25 50 75 100 Meters

Coordinate System: GDA 1994 MGA Zone 54

Date: 29 May 2024

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018
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Lotsearch Pty Ltd ABN 89 008 168 018

# Historical Business Directories

**46 Richmond Street, Hackney, SA 5069**

## Business Directory Records 1910-1991
## Premise or Road Intersection Matches

Potentially contaminative business activities extracted from 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 | Direction |
|---|---|---|---|---|---|---|---|
| 1 | CARAVAN PARKS | Adelaide Caravan Park., 8 Bruton St., Hackney . | 3256 | 1950 | Premise Match | 0m | On-site |
| 2 | MOTOR PAINTERS, RENOVATORS & TRIMMERS | Runis V 99 Hackney rd Hackney | 17870 | 1973 | Premise Match | 9m | South West |
| | MOTOR PAINTERS & TRIMMERS | Runis V 99 Hackney rd Hackney | 10983 | 1965 | Premise Match | 9m | South West |
| 3 | CERAMIC AND GLASS TILERS | De Lisio V 55 Richmond st Hackney | 37837 | 1973 | Premise Match | 12m | South East |
| 4 | ENGRAVERS & DIE SINKERS | Jenkin T 29 Park st Hackney | 10399 | 1965 | Premise Match | 12m | South |
| 5 | BUTCHERS | Szmandra I 23 Park st Hackney | 3734 | 1965 | Premise Match | 12m | South |
| | MOTOR ENGINEERS, GARAGES & SERVICE STATIONS | Petrenko W 1 Hastwell st Hackney | 21624 | 1955 | Premise Match | 12m | South |
| 6 | MOTOR ENGINEERS, GARAGES & SERVICE STATIONS | Szumlinski S 7 Park st Hackney | 22564 | 1955 | Premise Match | 16m | South |
| 7 | PETROL STORAGE SYSTEMS AND SERVICE STATIONS | Skinner, L., 61 Park ter, hackney | 3870 | 1930 | Premise Match | 42m | East |
| 8 | CARRIERS & CARTAGE CONTRACTORS | Figg, W. J., 46 Torrens St., College Park | 3419 | 1950 | Premise Match | 44m | North |
| | Carters and Carriers | Figg, W. J., 46 Torrens st, College Park | 17183 | 1940 | Premise Match | 44m | North |
| 9 | Butchers | Goldsworthy G A 2 Park st Hackney | 11688 | 1955 | Premise Match | 45m | South West |
| | BUTCHERS | Goldsworthy, G. A., 2 Park st. Hackney | 14202 | 1940 | Premise Match | 45m | South West |
| | Butchers | Goldsworthy, C. N., 2 Park st, Hackney | 10320 | 1930 | Premise Match | 45m | South West |
| 10 | Dry Cleaners, Dyers & Laundries | Adelaide Dyers & Dry Cleaners 93 Hackney rd Hackney | 28594 | 1955 | Premise Match | 53m | South West |
| | CLEANERS, DYERS & PRESSERS | Adelaide Dyers & Dry Cleaners., 93 Hackney Rd., Hackney | 6072 | 1950 | Premise Match | 53m | South West |
| | DRY CLEANERS, DYERS & PRESSERS | Adelaide Dyers & Dry Cleaners., 93 Hackney Rd., Hackney | 6062 | 1950 | Premise Match | 53m | South West |
| 11 | FOOD SPECIALISTS | Bellenger & Co, 91 Hackney rd, Hackney | 39517 | 1955 | Premise Match | 60m | South West |
| | ENGINEERS (Mechanical & General) | Oldfield A 2 Bertram st Hackney | 36976 | 1955 | Premise Match | 60m | South West |
| 12 | Dry Cleaners, Dyers & Laundries | Adelaide Dyers & Dry Cleaners 97 Hackney rd Hackney | 48869 | 1965 | Premise Match | 64m | South West |
| 13 | Squash Courts | College Park Squash Centre 31 Torrens St, College Park 5069 | 23500 | 1984 | Premise Match | 70m | North East |
| 14 | BUILDERS & GENERAL CONTRACTORS | Clarke C C 45 Torrens st College Park | 5608 | 1955 | Premise Match | 70m | North |
| 15 | Electricians & Electric Light Contractors | Bagusauskas J 62 Torrens st College Park | 51987 | 1965 | Premise Match | 86m | North |
| 16 | BAKERS & CAKE SHOPS & CATERERS | Vanderhock A 4 Richmond st College Park | 35514 | 1965 | Premise Match | 95m | North East |

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Lotsearch Pty Ltd ABN 69 080 168 018

# Business Directory Records 1910-1991
# Road or Area Matches

Potentially contaminative business activities extracted from 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 |
|---|---|---|---|---|---|---|
| 17 | ENGRAVERS & DIE SINKERS | Jenkin T 20 Park st Hackney | 13610 | 1973 | Road Match | 4m |
| | Architects | Mong-Moea H 57 Park st Hackney | 35161 | 1955 | Road Match | 4m |
| | Produce Merchants | Hall, T. W., Park st, Hackney | 10134 | 1940 | Road Match | 4m |
| | DAIRIES AND MILK VENDORS | Phillips, C., 20 Park st, Hackney | 18989 | 1940 | Road Match | 4m |
| | PRODUCE MERCHANTS | Hall, T. W., Park st, Hackney | 5306 | 1930 | Road Match | 4m |
| | Florists | Henderson, Wm, Park st, Hackney | 7359 | 1910 | Road Match | 4m |

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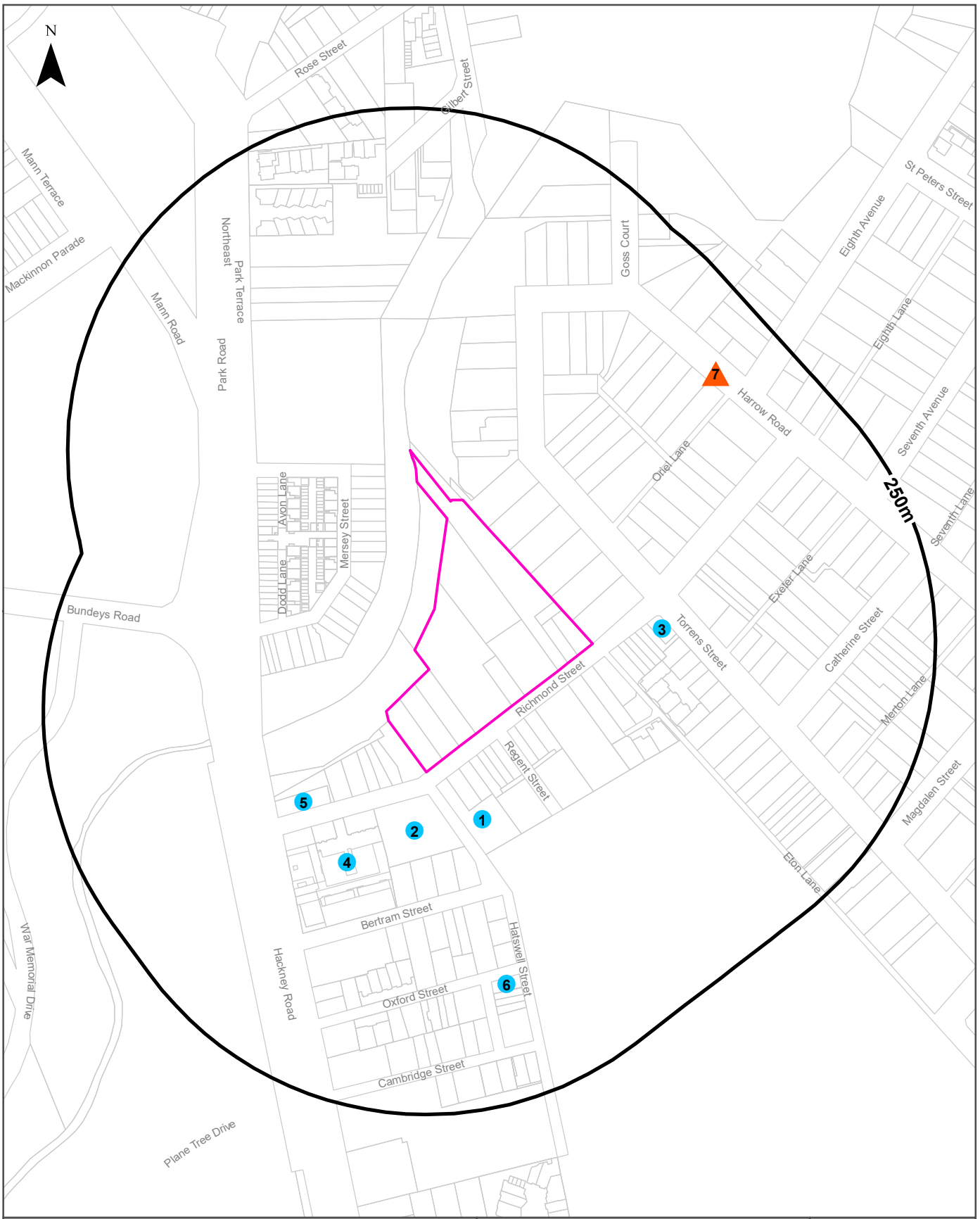
Lotsearch Pty Ltd ABN 69 480 168 018

# Dry Cleaners, Motor Garages & Service Stations

**46 Richmond Street, Hackney, SA 5069**




**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 50 100 150 200 Meters

Coordinate System: GDA 1994 MGA Zone 54

Date: 29 May 2024

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018
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# Historical Business Directories

**46 Richmond Street, Hackney, SA 5069**

## 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 | Direction |
|---|---|---|---|---|---|---|---|
| 1 | MOTOR ENGINEERS, GARAGES & SERVICE STATIONS | Petrenko W 1 Hastwell st Hackney | 21624 | 1955 | Premise Match | 12m | South |
| 2 | MOTOR ENGINEERS, GARAGES & SERVICE STATIONS | Szumlinski S 7 Park st Hackney | 22564 | 1955 | Premise Match | 16m | South |
| 3 | PETROL STORAGE SYSTEMS AND SERVICE STATIONS | Skinner, L., 61 Park ter, hackney | 3870 | 1930 | Premise Match | 42m | East |
| 4 | Dry Cleaners, Dyers & Laundries | Adelaide Dyers & Dry Cleaners 93 Hackney rd Hackney | 28594 | 1955 | Premise Match | 53m | South West |
| | DRY CLEANERS, DYERS & PRESSERS | Adelaide Dyers & Dry Cleaners., 93 Hackney Rd., Hackney | 6062 | 1950 | Premise Match | 53m | South West |
| 5 | Dry Cleaners, Dyers & Laundries | Adelaide Dyers & Dry Cleaners 97 Hackney rd Hackney | 48869 | 1965 | Premise Match | 64m | South West |
| 6 | MOTOR ENGINEERS, GARAGES & SERVICE STATIONS | Roberts G H 4 Hastwell st Hackney | 22014 | 1955 | Premise Match | 160m | South |

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# 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 |
|---|---|---|---|---|---|---|
| 7 | MOTOR GARAGES & SERVICE STATIONS | Mason I R Harrow rd St Peters | 16649 | 1973 | Road Match | 139m |

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Lotsearch Pty Ltd ABN 89 480 168 018

# Aerial Imagery 2024

**46 Richmond Street, Hackney, SA 5069**

Lotsearch Pty Ltd ABN 89 085 168 018

# Aerial Imagery 2021

**46 Richmond Street, Hackney, SA 5069**

Lotsearch Pty Ltd ABN 89 085 168 018

# Aerial Imagery 2018

**46 Richmond Street, Hackney, SA 5069**

Lotsearch Pty Ltd ABN 89 000 168 018

# Aerial Imagery 2015

**46 Richmond Street, Hackney, SA 5069**

Lotsearch Pty Ltd ABN 89 008 168 018

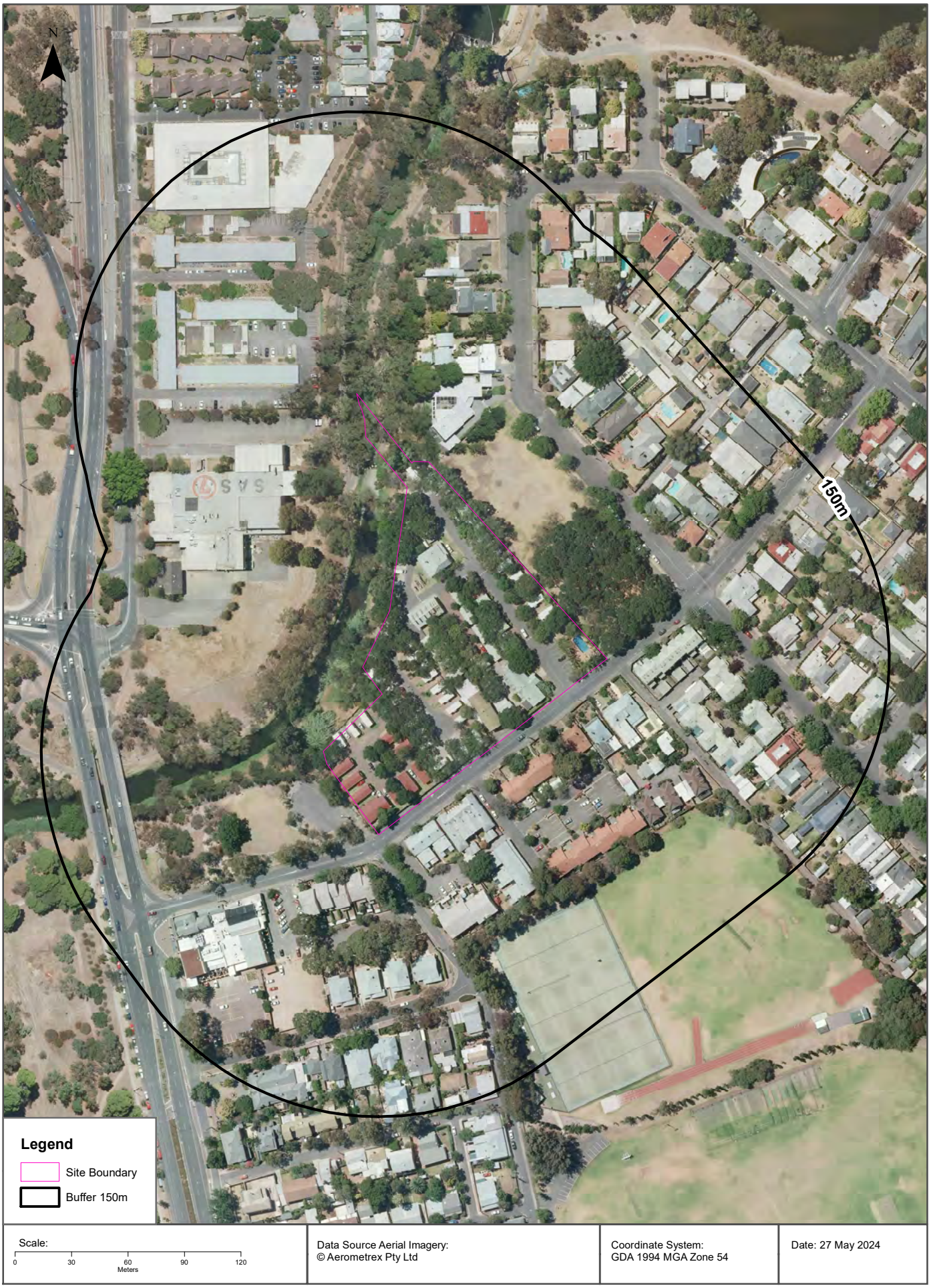
# Aerial Imagery 2012

**46 Richmond Street, Hackney, SA 5069**

Lotsearch Pty Ltd ABN 89 085 168 018

# Aerial Imagery 2009

**46 Richmond Street, Hackney, SA 5069**






Lotsearch Pty Ltd ABN 89 008 168 018

# Aerial Imagery 2006

**46 Richmond Street, Hackney, SA 5069**

Lotsearch Pty Ltd ABN 89 085 168 018

# Aerial Imagery 2002

**46 Richmond Street, Hackney, SA 5069**

Lotsearch Pty Ltd ABN 89 000 168 018

# Aerial Imagery 1997-1998

**46 Richmond Street, Hackney, SA 5069**

Lotsearch Pty Ltd ABN 89 085 168 018

# Aerial Imagery 1986-1989

**46 Richmond Street, Hackney, SA 5069**

Lotsearch Pty Ltd ABN 89 085 168 018

# Aerial Imagery 1979

**46 Richmond Street, Hackney, SA 5069**

Lotsearch Pty Ltd ABN 89 085 168 018

# Aerial Imagery 1968-1969

**46 Richmond Street, Hackney, SA 5069**

Lotsearch Pty Ltd ABN 89 085 118 018

# Aerial Imagery 1959-1961

**46 Richmond Street, Hackney, SA 5069**

Lotsearch Pty Ltd ABN 89 086 168 018

# Aerial Imagery 1949

**46 Richmond Street, Hackney, SA 5069**

Lotsearch Pty Ltd ABN 89 086 168 018

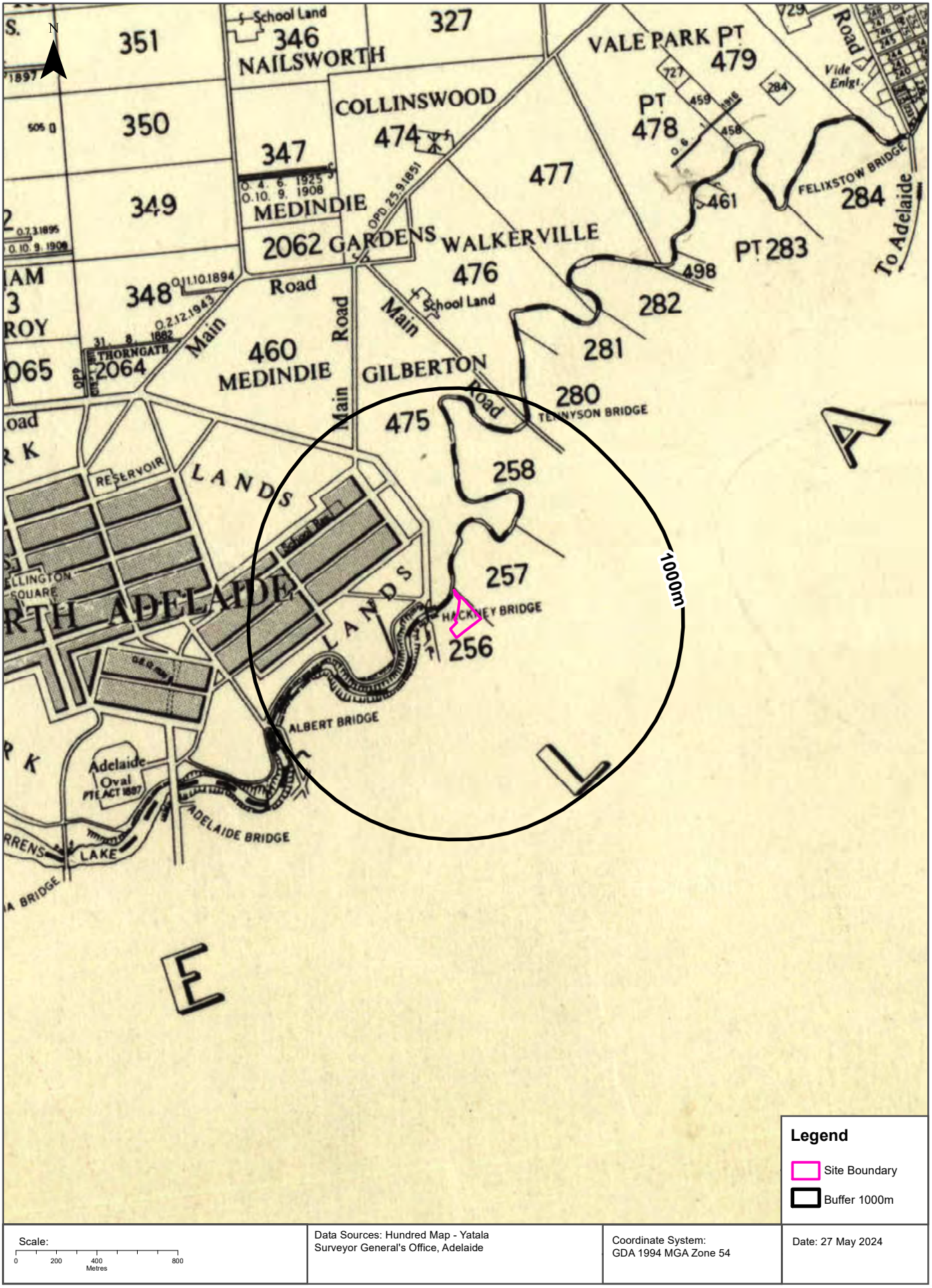
# Historical Map 1982

**46 Richmond Street, Hackney, SA 5069**

Lotsearch Pty Ltd ABN 89 000 168 018

# Historical Map 1962

**46 Richmond Street, Hackney, SA 5069**

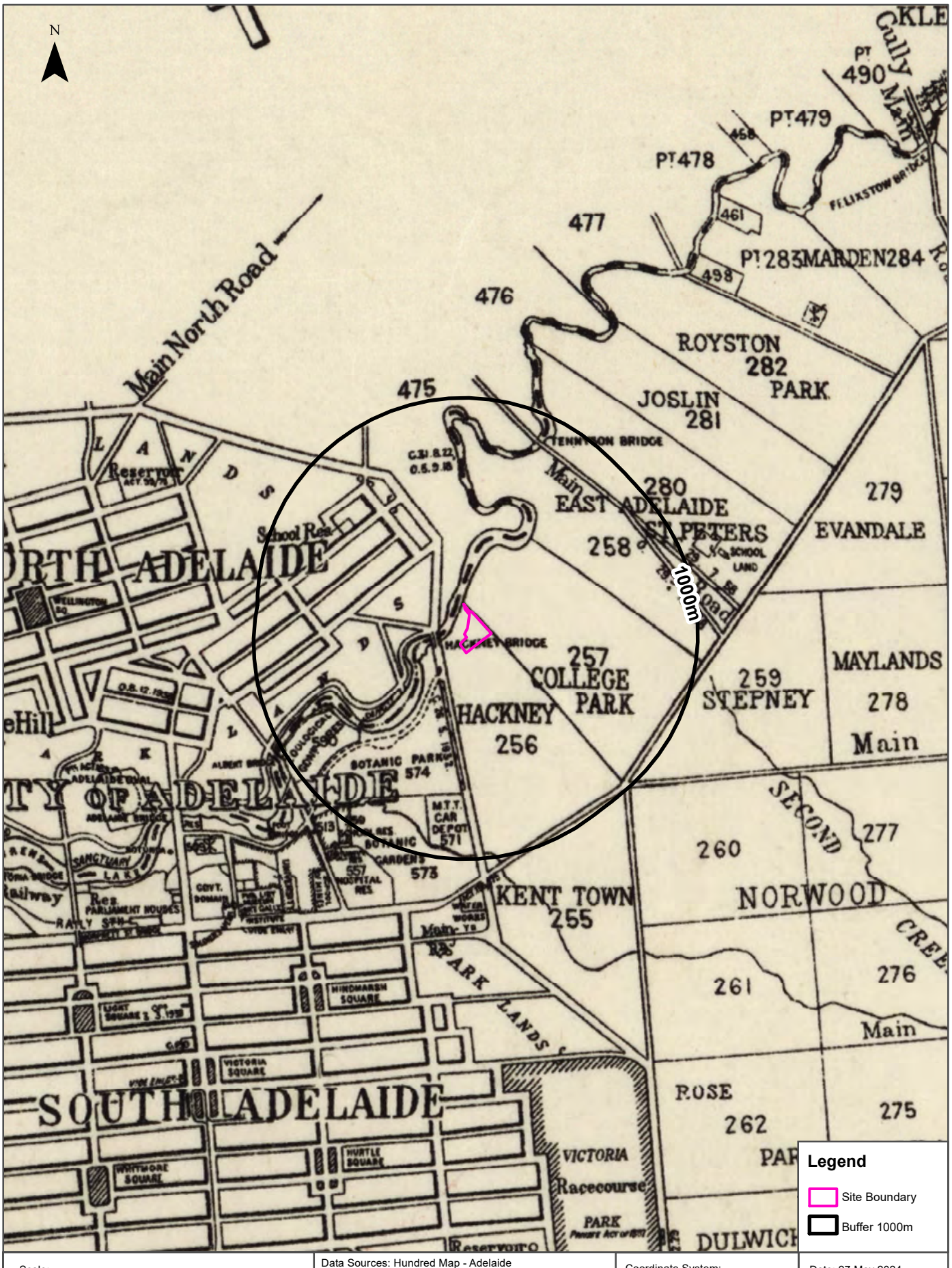





Lotsearch Pty Ltd ABN 89 008 168 018

# Historical Map 1959

**46 Richmond Street, Hackney, SA 5069**

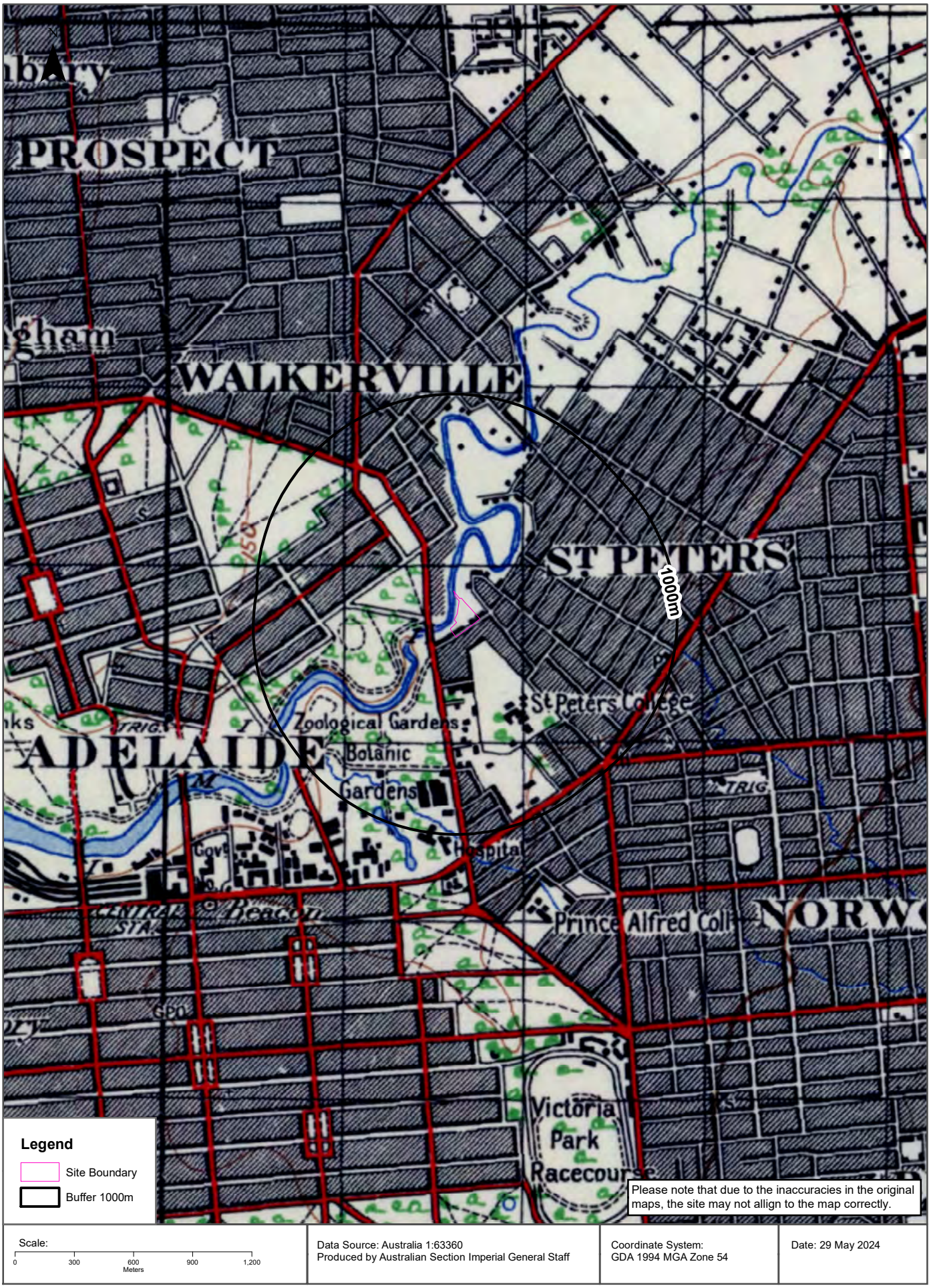





Lotsearch Pty Ltd ABN 89 008 168 018

# Historical Map c.1937

**46 Richmond Street, Hackney, SA 5069**

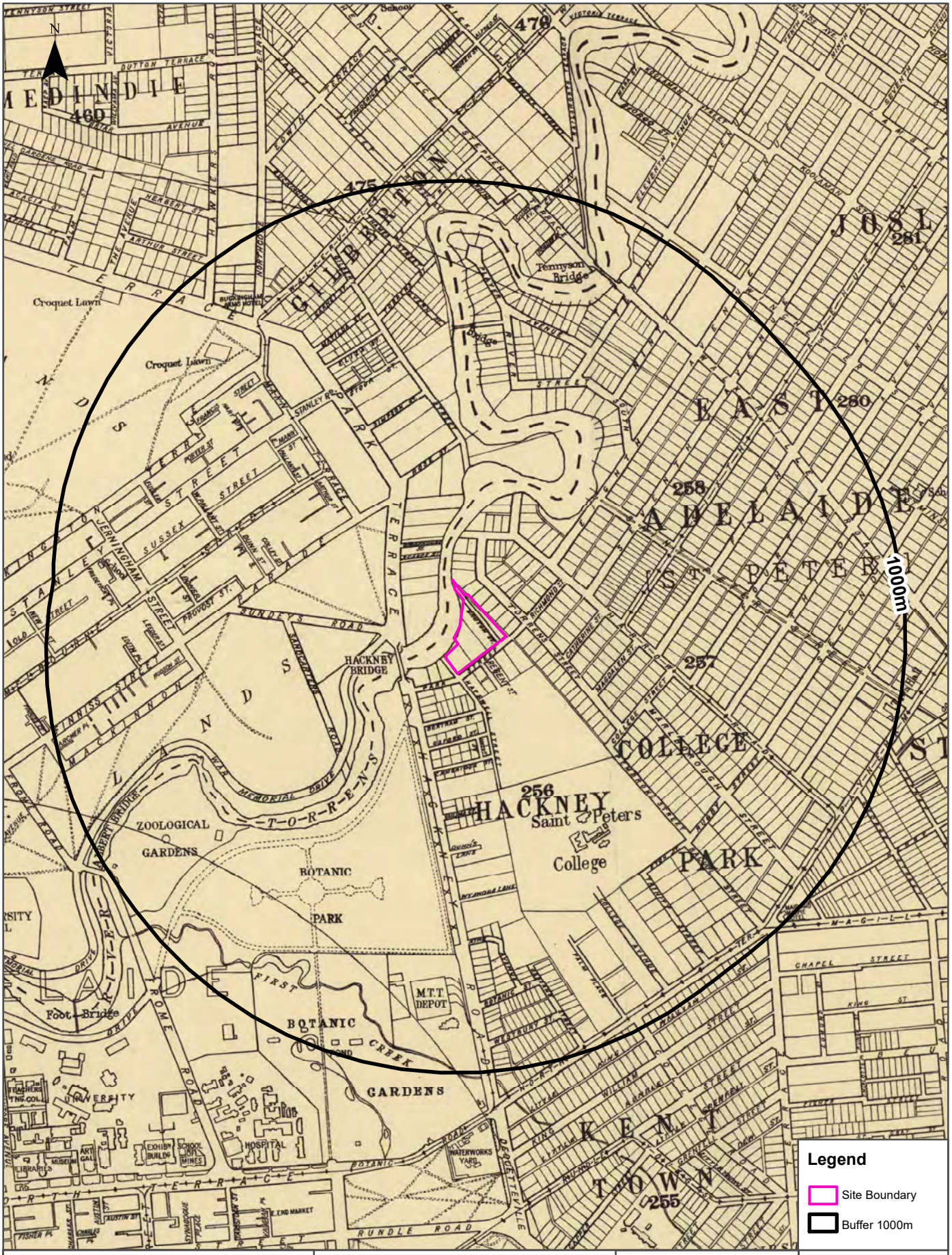





Lotsearch Pty Ltd ABN 89 008 168 018

# Historical Map 1927

**46 Richmond Street, Hackney, SA 5069**

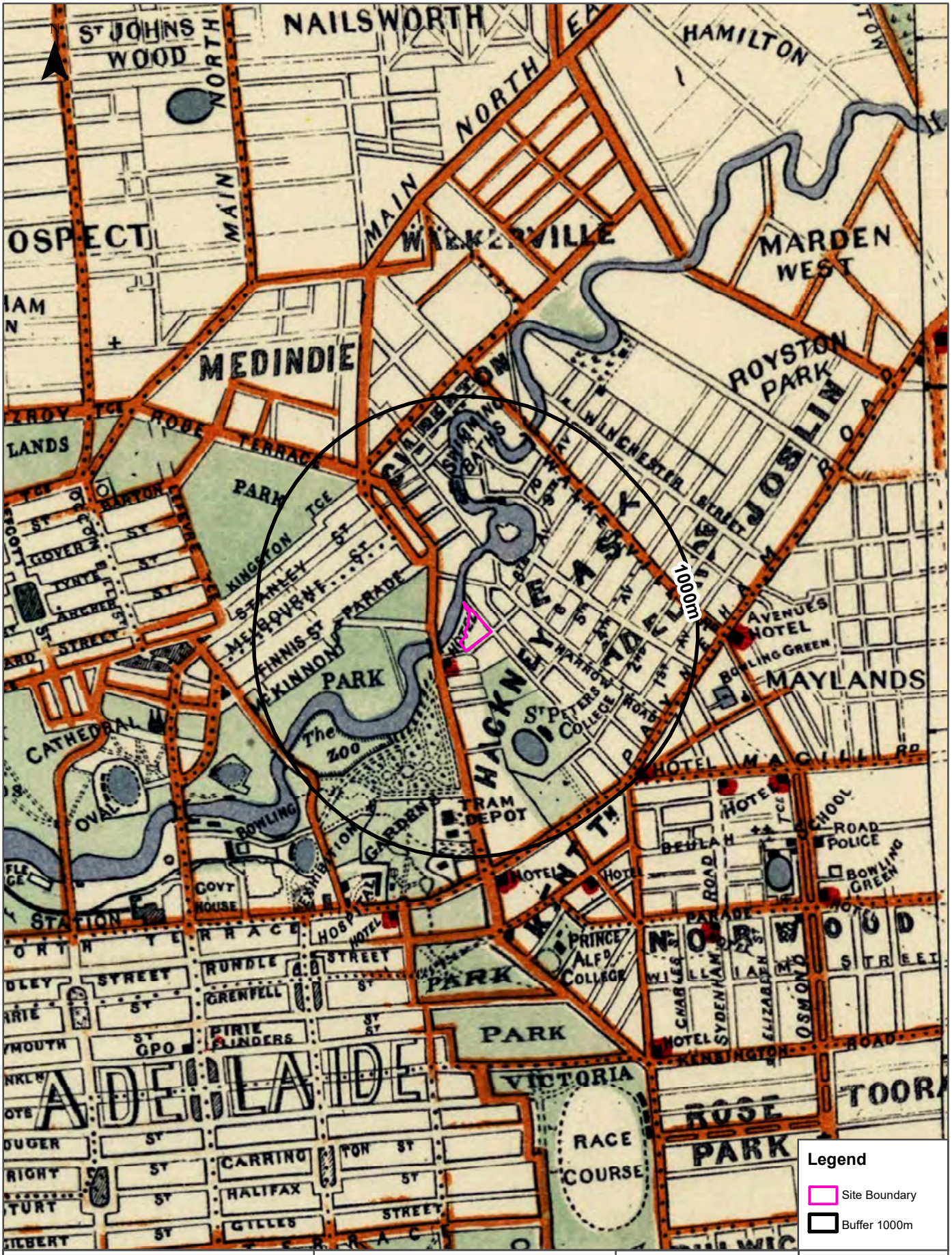





Lotsearch Pty Ltd ABN 89 008 168 018

# Historical Map 1926

**46 Richmond Street, Hackney, SA 5069**

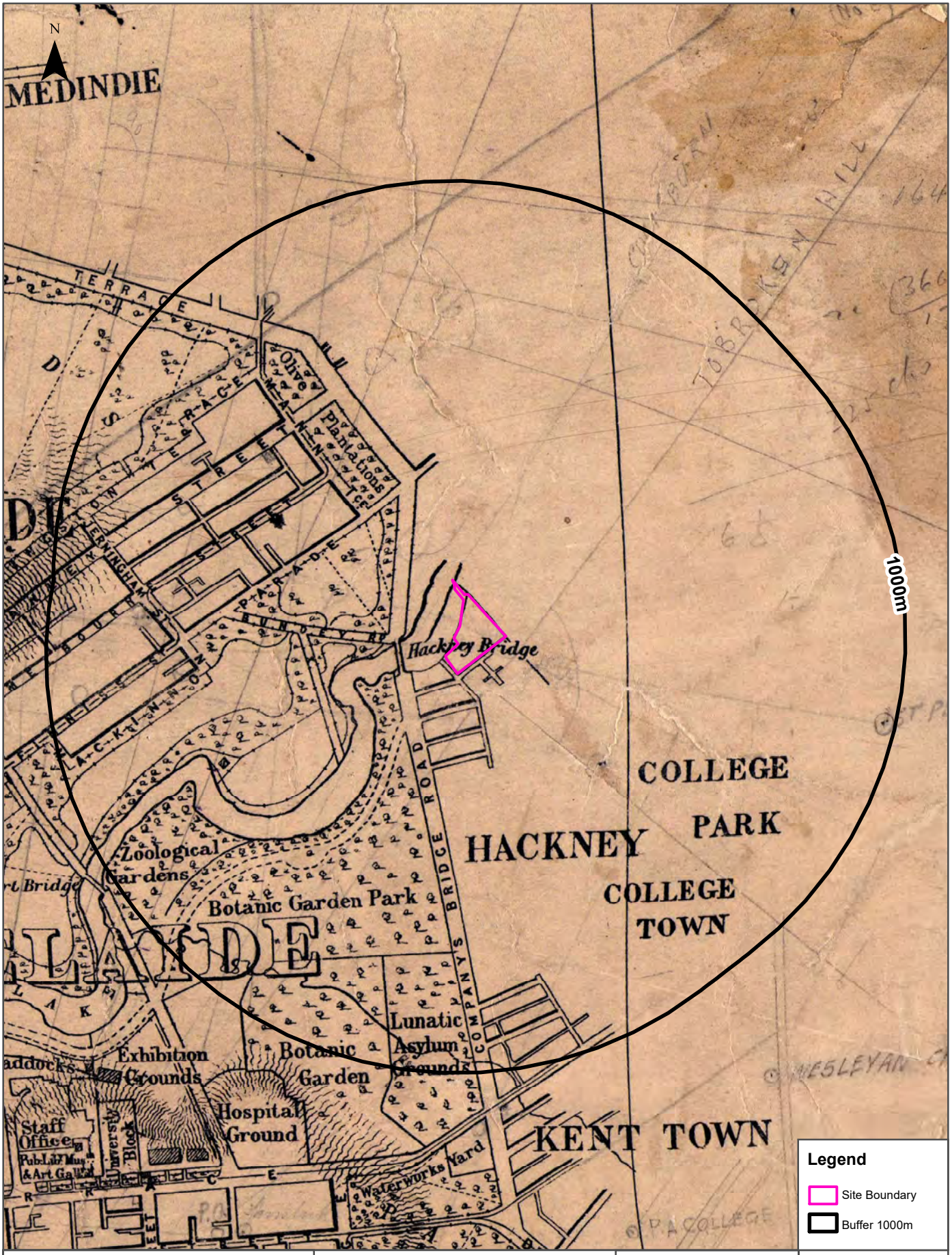





Lotsearch Pty Ltd ABN 89 085 168 018

# Historical Map 1889

**46 Richmond Street, Hackney, SA 5069**

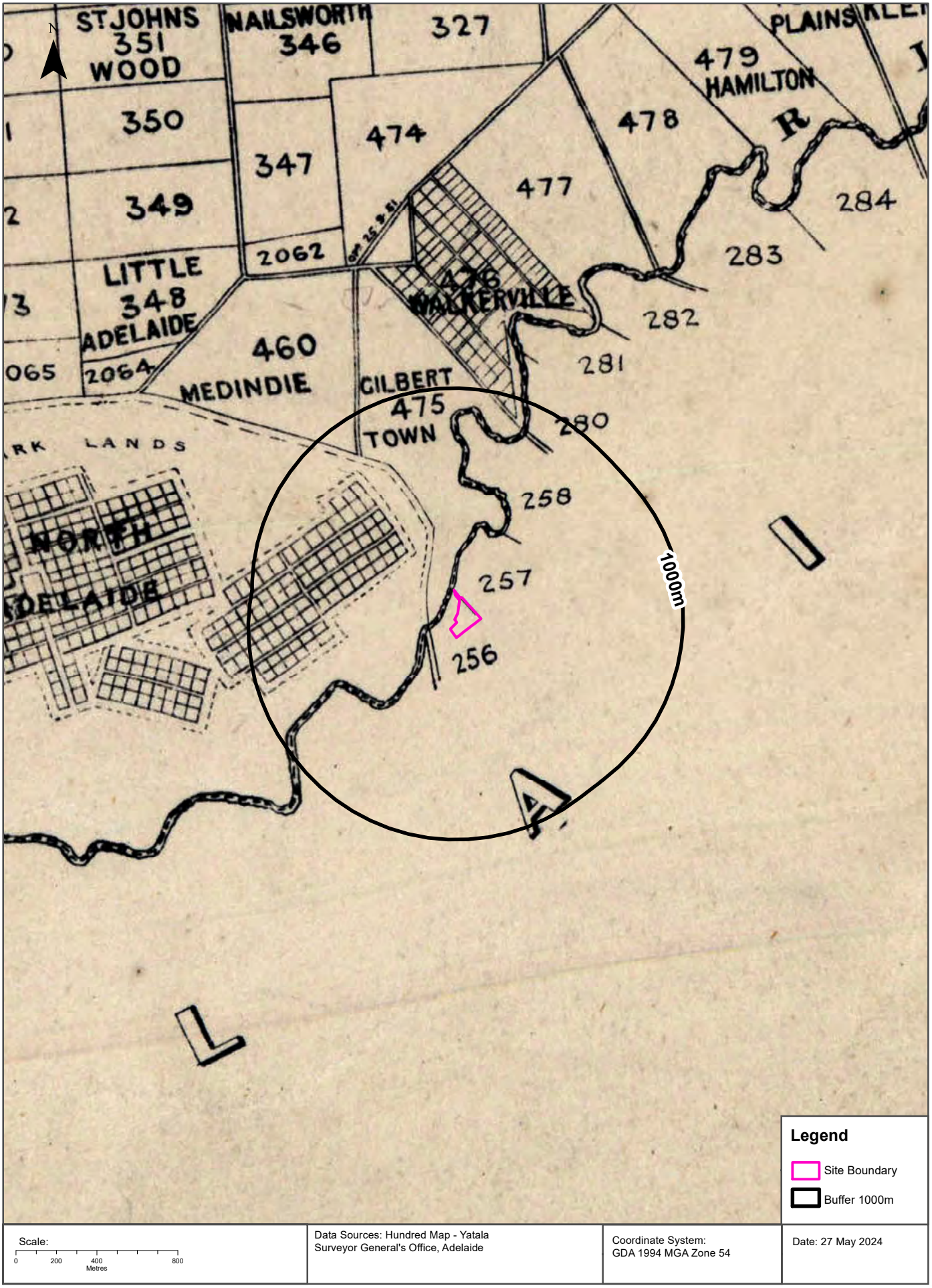





Lotsearch Pty Ltd ABN 89 085 168 018

# Historical Map 1876

**46 Richmond Street, Hackney, SA 5069**






Lotsearch Pty Ltd ABN 89 085 168 018

# Historical Map 1873

**46 Richmond Street, Hackney, SA 5069**

Lotsearch Pty Ltd ABN 89 085 168 018

# Mining

**46 Richmond Street, Hackney, SA 5069**

## Mines and Mineral Deposits

Mines and mineral deposits within the dataset buffer:

| Deposit No. | Name | Class | Status | Commodity | Year | Description | Dist | Dir |
|---|---|---|---|---|---|---|---|---|
| N/A | No records in buffer | | | | | | | |

All Mines and Mineral Deposits Data Source: Dept. of State Development, Resources and Energy - South Australia
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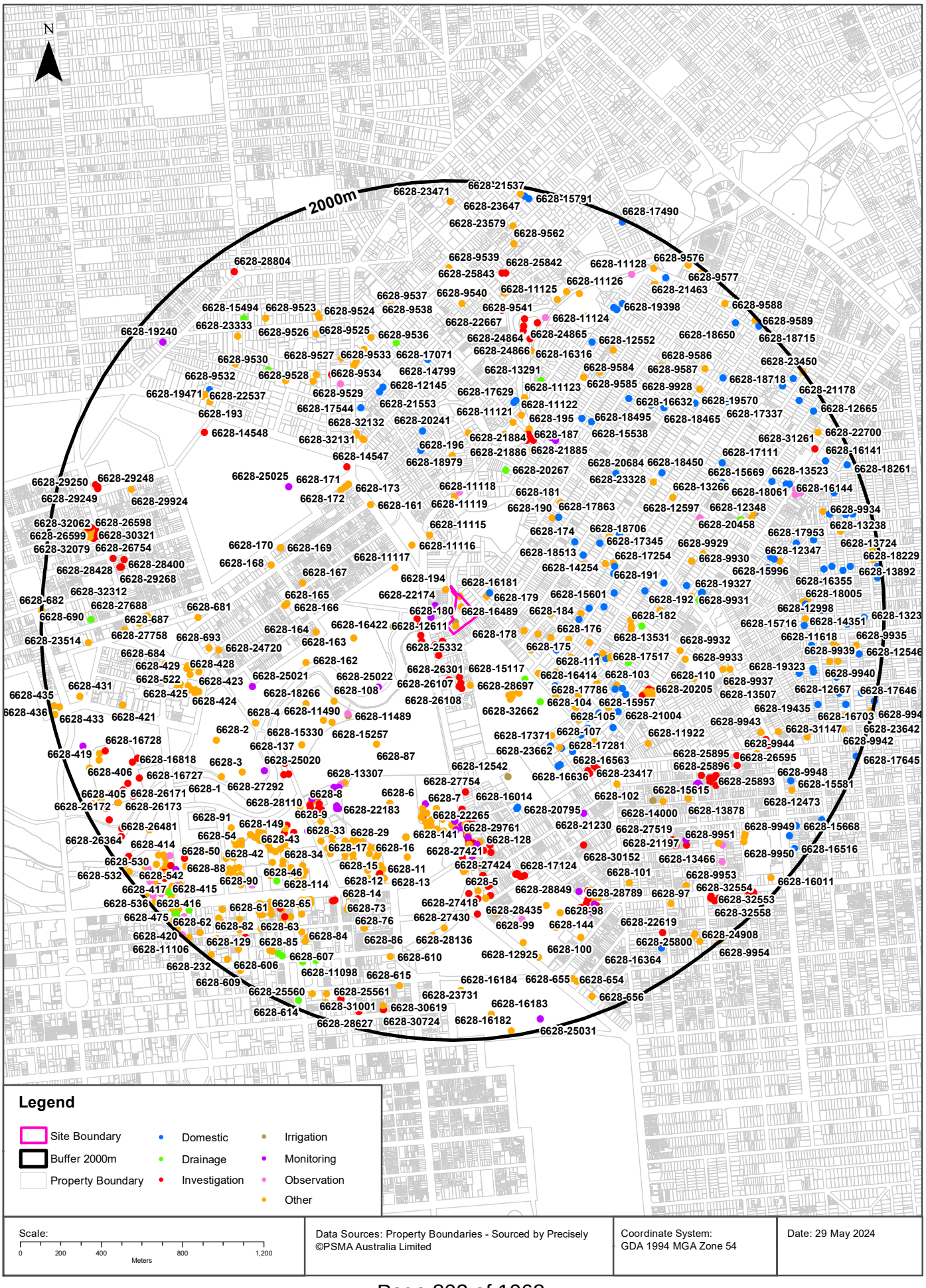
Lotsearch Pty Ltd ABN 89 480 168 018

# Drillholes

**46 Richmond Street, Hackney, SA 5069**






Lotsearch Pty Ltd ABN 89 085 158 018

# Hydrogeology & Groundwater

**46 Richmond Street, Hackney, SA 5069**

## Hydrogeology

Description of aquifers within the dataset buffer:

| Description | Distance | Direction |
|---|---|---|
| Porous, extensive highly productive aquifers | 0m | On-site |
| Porous, extensive aquifers of low to moderate productivity | 0m | On-site |

Hydrogeology Map of Australia : Commonwealth of Australia (Geoscience Australia)
Creative Commons 4.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/4.0

## 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 | On-site |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-12611 | 59580 | | Operational | Irrigation | 1983-12-14 | 18.00 | | 32.00 | 6.95 | 1356 | 2450 | 1.0000 | 9.50 | 9.50 | 22.50 | 0m | On-site |
| 6628-180 | 47280 | | Operational | | | 8.53 | | 32.00 | | 2670 | 4782 | | | | | 0m | On-site |
| 6628-33034 | 387906 | | Backfilled | | | 20.00 | | | | | | | 8.50 | 8.50 | | 0m | On-site |
| 6628-33036 | 387908 | | Backfilled | | | 20.00 | | | | | | | | | | 0m | On-site |
| 6628-194 | 47294 | | Abandoned | | 1964-06-29 | 7.62 | | | | | | | | | | 30m | North West |
| 6628-22214 | 206376 | | | Monitoring | 2005-08-03 | 12.00 | | 31.30 | | 2607 | 4670 | | 9.50 | 9.50 | 21.80 | 52m | West |
| 6628-30809 | 344050 | | Backfilled | Investigation | 2020-06-18 | 10.90 | | 31.60 | | | | | | | | 63m | South West |
| 6628-30757 | 339445 | | Backfilled | | | | | 32.00 | | | | | | | | 81m | South West |
| 6628-22173 | 205992 | | | Monitoring | 2005-08-01 | 11.50 | | 31.00 | | 2567 | 4600 | | 9.60 | 9.60 | 21.40 | 88m | West |
| 6628-179 | 47279 | | | | 1934-12-06 | 10.67 | 33.00 | | | | | 0.2500 | 8.23 | 8.23 | 24.77 | 94m | North East |
| 6628-22174 | 205993 | | | Monitoring | 2005-08-02 | 11.50 | | 32.00 | | 1608 | 2900 | | 10.20 | 10.20 | 21.80 | 95m | West |
| 6628-30810 | 344051 | | Decommissioned | Investigation | 2020-06-18 | 10.70 | | 31.30 | | | | | | | | 104m | South West |
| 6628-16181 | 63150 | | Operational | Domestic | 1992-10-01 | 15.00 | | 33.00 | 6.90 | 1496 | 2700 | | 6.30 | 6.30 | 26.70 | 115m | North East |


Lotsearch Pty Ltd ABN 89 480 168 018

| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-30808 | 344049 | | Backfilled | Investigation | 2020-06-18 | 10.60 | | 31.60 | | | | | | | | 127m | South West |
| 6628-25335 | 258592 | BH 4 | | Investigation | 2009-11-24 | 20.00 | | 26.00 | | | | | 3.80 | 3.80 | 22.20 | 137m | West |
| 6628-25332 | 258589 | BH 1 | Backfilled | Investigation | 2009-11-26 | 20.00 | | 24.60 | | | | | 3.50 | 3.50 | 21.10 | 139m | South West |
| 6628-16489 | 138426 | | | Domestic | 1993-11-12 | 15.00 | | 34.00 | | | | | 9.00 | 9.00 | 25.00 | 148m | East |
| 6628-25333 | 258590 | BH 2 | Backfilled | Investigation | 2009-11-25 | 20.00 | | 30.10 | | | | | 9.40 | 9.40 | 20.70 | 149m | South West |
| 6628-25334 | 258591 | BH 3 | Backfilled | Investigation | 2009-11-23 | 20.00 | | 31.90 | | | | | 10.60 | 10.60 | 21.30 | 153m | West |
| 6628-26302 | 269264 | GW 1 | | Investigation | 2011-11-29 | 7.50 | | 31.90 | | 1479 | 2670 | | 5.50 | 5.50 | 26.40 | 214m | South |
| 6628-26301 | 269263 | GW 2 | | Investigation | 2011-11-29 | 7.50 | | 31.40 | | 1653 | 2980 | | 5.50 | 5.50 | 25.90 | 226m | South |
| 6628-178 | 47278 | | | | | 9.45 | | 34.80 | | 1057 | 1914 | | | | | 239m | East |
| 6628-26107 | 266964 | MW 1 | | Investigation | 2011-07-28 | 6.00 | | 31.80 | | 1681 | 3030 | | 3.50 | 3.50 | 28.30 | 245m | South |
| 6628-16422 | 135637 | | Abandoned | Irrigation | 1993-02-10 | 21.00 | | 32.00 | | | | 0.3750 | 12.80 | 12.80 | 19.20 | 260m | West |
| 6628-26109 | 266966 | MW 3 | | Investigation | 2011-07-28 | 5.20 | | 31.70 | | 1591 | 2870 | | 2.50 | 2.50 | 29.20 | 260m | South |
| 6628-28697 | 291250 | | Operational | | | 10.00 | | 32.00 | | | | | | | | 264m | South |
| 6628-16423 | 135638 | | Operational | Irrigation | 1993-03-05 | 55.00 | | 32.00 | 7.80 | 1226 | 2217 | 1.3000 | 13.00 | 13.00 | 19.00 | 267m | West |
| 6628-26108 | 266965 | MW 2 | | Investigation | 2011-07-28 | 6.00 | | 31.90 | | 1917 | 3450 | | 3.20 | 3.20 | 28.70 | 273m | South |
| 6628-11115 | 58084 | SADT T1 | Unknown | | 1979-08-29 | 15.90 | 32.83 | | | | | | | | | 274m | North |
| 6628-11116 | 58085 | SADT T2 | Unknown | | 1979-08-24 | 18.25 | 32.48 | | | | | | | | | 281m | North West |
| 6628-11117 | 58086 | SADT T3 | Unknown | | 1979-09-19 | 20.15 | 32.45 | | | | | | | | | 290m | North West |
| 6628-177 | 47277 | | | | | 7.62 | | 35.80 | | 1299 | 2349 | | 3.51 | 3.51 | 32.29 | 311m | East |
| 6628-23329 | 236165 | | | | 2007-12-19 | 26.00 | | 36.00 | | 1272 | 2300 | 2.0000 | 4.00 | 4.00 | 32.00 | 313m | South East |
| 6628-24716 | 247054 | | | | 2008-09-18 | 20.00 | | 36.00 | | 1271 | 2298 | 0.5800 | 9.50 | 9.50 | 26.50 | 354m | East |
| 6628-23666 | 240254 | | | | 2007-11-20 | 20.00 | | 36.40 | | 1123 | 2033 | 0.3000 | 4.30 | 4.30 | 32.10 | 375m | East |
| 6628-15117 | 62086 | | Operational | Drainage | 1989-11-03 | 12.00 | 36.00 | | 6.70 | 1154 | 2090 | 1.2000 | 6.10 | 6.10 | 29.90 | 390m | South East |
| 6628-32663 | 383645 | | Dry | Environmental | 2023-10-03 | 6.00 | | | | | | | | | | 400m | South East |
| 6628-32664 | 383646 | | Dry | Environmental | 2023-10-03 | 7.50 | | | | | | | | | | 405m | South East |
| 6628-16363 | 134433 | | | | 1993-02-22 | 18.00 | | 38.00 | | 1183 | 2142 | | | | | 413m | South East |
| 6628-32236 | 375546 | | Dry | Environmental | 2023-01-17 | 7.00 | | 35.60 | | | | | | | | 419m | South East |
| 6628-16556 | 139175 | | | Domestic | 1994-02-17 | 18.00 | | 37.00 | 6.80 | 1210 | 2190 | | | | | 422m | East |
| 6628-32238 | 375548 | | Dry | Environmental | 2023-01-18 | 6.50 | | 36.20 | | | | | | | | 422m | South East |
| 6628-32662 | 383644 | | Dry | Environmental | 2023-10-04 | 7.00 | | | | | | | | | | 425m | South East |
| 6628-32237 | 375547 | | Dry | Environmental | 2023-01-17 | 7.00 | | 35.60 | | | | | | | | 429m | South East |
| 6628-11118 | 58087 | SADT B1W | Unknown | | 1979-08-15 | 17.80 | 33.46 | | | | | | | | | 443m | North |
| 6628-25022 | 253370 | GW 125 | | Monitoring | 2009-11-25 | 13.20 | 28.41 | | | 1312 | 2371 | | 7.42 | 7.42 | 20.99 | 452m | South West |
| 6628-16525 | 138543 | | | Domestic | 1993-12-04 | 18.00 | | 38.30 | 7.10 | 1222 | 2210 | | | | | 453m | South East |


Lotsearch Pty Ltd ABN 89 480 168 018

| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-176 | 47276 | PUB. BLDGS DEPT. | Abandoned | | 1964-01-31 | 25.91 | | | | | | | 10.97 | 10.97 | | 463m | East |
| 6628-11119 | 58088 | B1E | | Observation | 1979-08-17 | 12.85 | 26.73 | | 8.10 | 799 | 1450 | | 1.49 | 1.49 | 25.24 | 467m | North |
| 6628-163 | 47263 | | Abandoned | | | 41.15 | | 31.30 | | | | 1.7700 | | | | 467m | West |
| 6628-111 | 47211 | | | | 1914-06-12 | 9.75 | 38.00 | | | 1692 | 3050 | 2.5300 | 8.53 | 8.53 | 29.47 | 475m | South East |
| 6628-17462 | 152970 | | | Domestic | 1995-11-15 | 15.00 | | 37.90 | 7.20 | 1513 | 2730 | | | | | 497m | East |
| 6628-175 | 47275 | | | | | | | 38.00 | | 1257 | 2274 | | | | | 501m | East |
| 6628-184 | 47284 | | | | 1914-01-01 | 11.89 | | 37.80 | 7.00 | 1320 | 2387 | | 0.76 | 0.76 | 37.04 | 507m | East |
| 6628-16414 | 135509 | | | Domestic | 1993-10-01 | 13.70 | | 39.40 | 7.20 | 1244 | 2251 | 1.4000 | | | | 516m | South East |
| 6628-104 | 47204 | ST PETERS BOYS COLLEGE, HACKNEY | Operational | Drainage | 1914-04-01 | 46.94 | | 41.20 | 7.50 | 1295 | 2340 | 1.8900 | 7.62 | 7.62 | 33.58 | 526m | South East |
| 6628-16362 | 134432 | | | Domestic | 1993-03-10 | 16.00 | | 38.00 | 7.60 | 1440 | 2600 | 0.9000 | | | | 548m | East |
| 6628-23777 | 241517 | | | | 2008-01-24 | 24.00 | | 40.40 | | | | 0.7000 | | | | 549m | South East |
| 6628-161 | 47261 | SUBWAY 1 | Unknown | | 1974-05-31 | 20.20 | 34.00 | | 7.60 | 884 | 1603 | | | | | 564m | North West |
| 6628-185 | 47285 | | | | | 7.62 | | 38.80 | | 1157 | 2094 | | | | | 565m | East |
| 6628-183 | 47283 | | | | | 9.14 | | 38.80 | | 1071 | 1940 | | | | | 569m | East |
| 6628-23439 | 237445 | | | | 2007-11-03 | 26.00 | | 37.10 | | 1490 | 2690 | 1.0000 | 6.00 | 6.00 | 31.10 | 571m | East |
| 6628-157 | 47257 | | | | | | | 38.80 | | 1114 | 2016 | | | | | 577m | East |
| 6628-112 | 47212 | | | | | 9.14 | | 39.00 | | 1242 | 2247 | | | | | 588m | East |
| 6628-190 | 47290 | | | | | 7.92 | | 33.30 | | 1452 | 2620 | | | | | 592m | North East |
| 6628-174 | 47274 | | Operational | Domestic | 1914-10-01 | 6.86 | 37.00 | | 7.50 | 1883 | 3390 | 0.1500 | 3.96 | 3.96 | 33.04 | 597m | North East |
| 6628-18513 | 165715 | | | Domestic | 1997-03-03 | 18.00 | | 37.70 | | 1788 | 3220 | | 5.40 | 5.40 | 32.30 | 598m | North East |
| 6628-17863 | 156320 | | | Domestic | 1996-02-23 | 16.00 | | 33.60 | 7.50 | 1692 | 3050 | 1.2500 | | | | 616m | North East |
| 6628-18451 | 164560 | | | Domestic | 1997-04-04 | 16.50 | | 39.80 | | 1188 | 2150 | | 5.40 | 5.40 | 34.40 | 618m | East |
| 6628-14293 | 61262 | | Operational | Domestic | 1988-10-27 | 10.60 | | 38.70 | 7.20 | 1658 | 2990 | 1.2000 | 2.10 | 2.10 | 36.60 | 622m | East |
| 6628-23323 | 236159 | | | | 2007-12-07 | 20.00 | | 40.30 | | 1222 | 2210 | 2.0000 | 6.00 | 6.00 | 34.30 | 626m | South East |
| 6628-105 | 47205 | | | | | 15.24 | | 41.30 | | 1370 | 2476 | | 10.97 | 10.97 | 30.33 | 633m | South East |
| 6628-20267 | 181471 | | | Drainage | 2000-07-17 | 12.00 | | 34.00 | | 2014 | 3620 | | 9.00 | 9.00 | 25.00 | 635m | North |
| 6628-109 | 47209 | | | | | 7.62 | | 40.50 | | 1471 | 2656 | | | | | 636m | South East |
| 6628-22387 | 210962 | | | | 2006-02-21 | 18.50 | | 40.00 | | 1085 | 1963 | 1.0000 | 5.00 | 5.00 | 35.00 | 643m | East |
| 6628-196 | 47296 | RIVER TORRENS | | | | | | | | 2028 | 3649 | | | | | 645m | North |
| 6628-164 | 47264 | | Abandoned | | 1969-01-09 | 10.52 | | | | | | | | | | 646m | West |
| 6628-11490 | 58459 | | Operational | Observation; Stock | 1972-04-11 | 18.30 | 28.97 | 29.70 | 7.40 | 1250 | 2260 | 3.5600 | 5.93 | 6.66 | 23.04 | 651m | South West |


Lotsearch Pty Ltd ABN 89 466 168 018

| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-15782 | 62751 | | | | 1991-12-05 | 16.20 | | 41.40 | 7.90 | 1138 | 2060 | 1.2500 | 6.00 | 6.00 | 35.40 | 652m | South 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 | 657m | South West |
| 6628-87 | 47187 | SUBWAY 2 | Unknown | | 1974-06-06 | 25.10 | 29.00 | | 7.40 | 1688 | 3042 | | | | | 661m | South West |
| 6628-106 | 47206 | | | | | 9.75 | | 41.60 | | 1832 | 3300 | | | | | 664m | South East |
| 6628-17517 | 153320 | | | Domestic | 1995-12-09 | 12.00 | | 40.10 | 6.80 | 1261 | 2280 | | | | | 665m | East |
| 6628-108 | 47208 | | Operational | Recreational | 1967-11-08 | 12.80 | 29.00 | | 7.00 | 1658 | 2990 | 4.4200 | 6.40 | 6.40 | 22.60 | 669m | South West |
| 6628-181 | 47281 | | | | 1934-08-01 | 8.53 | | 34.00 | | 1457 | 2631 | | 7.31 | 7.31 | 26.69 | 673m | North East |
| 6628-23815 | 241702 | | | | 2008-06-19 | 20.50 | | 40.00 | | 1127 | 2041 | 1.0000 | 5.00 | 5.00 | 35.00 | 675m | South East |
| 6628-14254 | 61223 | | | | 1988-07-23 | 16.00 | | 42.00 | 7.60 | 1979 | 3560 | 4.0000 | 3.00 | 3.00 | 39.00 | 676m | East |
| 6628-15601 | 62570 | | Operational | Domestic | 1991-08-02 | 12.00 | | 39.00 | 7.80 | 1596 | 2879 | 1.5000 | 2.70 | 2.70 | 36.30 | 679m | East |
| 6628-27639 | 284488 | | | | 2014-10-03 | 27.00 | | 40.40 | | 998 | 1807 | 0.3000 | 6.50 | 6.50 | 33.90 | 684m | East |
| 6628-18707 | 167339 | | | | | 9.00 | | 40.40 | | | | | | | | 686m | East |
| 6628-18979 | 169294 | | Backfilled | Domestic | 1998-04-27 | 30.00 | | 36.20 | | 1917 | 3450 | 0.5000 | 13.00 | 13.00 | 23.20 | 688m | North |
| 6628-23779 | 241519 | | | | 2008-01-25 | 18.00 | | 42.30 | | | | 1.0000 | | | | 694m | South East |
| 6628-17345 | 151223 | | | Domestic | 1995-06-16 | 20.00 | | 40.30 | 7.40 | 1676 | 3020 | 1.0000 | | | | 696m | North East |
| 6628-16603 | 141309 | | | Domestic | 1994-03-08 | 15.00 | | 41.10 | 7.60 | 1714 | 3090 | 1.0000 | | | | 699m | East |
| 6628-17254 | 150837 | | | Domestic | 1995-05-09 | 17.50 | | 42.00 | 7.00 | 1770 | 3190 | 2.0000 | | | | 715m | East |
| 6628-173 | 47273 | | Abandoned | | 1970-11-25 | 3.05 | | | | | | | | | | 715m | North West |
| 6628-107 | 47207 | | | | | 9.14 | | 42.30 | | 1499 | 2705 | | | | | 716m | South East |
| 6628-191 | 47291 | | | | | 9.75 | | 42.00 | | 2242 | 4027 | | | | | 716m | East |
| 6628-172 | 47272 | | Abandoned | | 1970-11-25 | 3.35 | | | | 792 | 1437 | | | | | 717m | North West |
| 6628-162 | 47262 | | Backfilled | | 1947-08-19 | 51.21 | | 30.10 | | 1385 | 2502 | 4.4200 | 9.30 | 9.30 | 20.80 | 721m | West |
| 6628-171 | 47271 | | Abandoned | | 1970-11-20 | 9.14 | | | | | | | | | | 722m | North West |
| 6628-167 | 47267 | | Backfilled | | | 18.29 | | 31.30 | | 2056 | 3699 | | | | | 730m | West |
| 6628-17371 | 151252 | | | Domestic | 1995-08-03 | 18.00 | | 42.10 | 7.60 | 1143 | 2070 | 1.2500 | | | | 731m | South East |
| 6628-15257 | 62226 | | Backfilled | | 1990-05-10 | 30.00 | | 30.00 | | | | | 7.20 | 7.20 | 22.80 | 740m | South West |
| 6628-20161 | 180561 | | | Domestic | 2000-04-28 | 23.00 | | 42.20 | | 1083 | 1960 | 1.0000 | 6.60 | 6.60 | 35.60 | 744m | South East |
| 6628-16454 | 135727 | | | Domestic | 1993-07-28 | 12.00 | | 40.80 | | | | 1.0000 | | | | 745m | East |
| 6628-12542 | 59511 | | Operational | Irrigation | 1983-11-11 | 15.00 | 40.00 | | | | | 1.2600 | 7.60 | 7.60 | 32.40 | 752m | South |
| 6628-23667 | 240255 | | | | 2007-11-23 | 20.00 | | 40.70 | | 1524 | 2750 | 0.8500 | 9.30 | 9.30 | 31.40 | 752m | North East |
| 6628-14412 | 61381 | | | | 1989-03-08 | 10.97 | | 40.00 | | | | | 4.87 | 4.87 | 35.13 | 753m | East |
| 6628-182 | 47282 | | | | | 19.81 | 40.00 | | 7.50 | 1356 | 2450 | 0.8200 | 1.52 | 1.52 | 38.48 | 758m | East |
| 6628-23669 | 240257 | | | | 2007-12-14 | 22.00 | | 40.00 | | 1216 | 2200 | 1.0000 | 6.00 | 6.00 | 34.00 | 759m | East |
| 6628-23449 | 237459 | | | | 2008-02-06 | 18.00 | | 34.00 | | 1485 | 2680 | 0.3750 | 12.00 | 12.00 | 22.00 | 761m | North |


Lotsearch Pty Ltd ABN 89 480 168 018

| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-23662 | 240237 | | | | 2008-01-16 | 20.00 | | 42.70 | | 1166 | 2110 | 1.2000 | 8.80 | 8.80 | 33.90 | 762m | South East |
| 6628-103 | 47203 | | Backfilled | | | 25.30 | | 41.20 | 6.40 | 1255 | 2271 | | | | | 765m | South East |
| 6628-15330 | 62299 | HOLE 2 | Operational | | 1990-06-08 | 17.40 | | 30.00 | 7.70 | 1407 | 2540 | 3.0000 | 7.00 | 7.00 | 23.00 | 767m | South West |
| 6628-15957 | 62926 | | Operational | Domestic | 1992-03-17 | 16.00 | | 42.00 | 8.00 | 1184 | 2142 | 2.0000 | 7.00 | 7.00 | 35.00 | 767m | South East |
| 6628-17786 | 156027 | | | Domestic | 1996-02-06 | 15.00 | | 41.20 | 7.33 | 1233 | 2230 | 1.2500 | | | | 768m | South East |
| 6628-17281 | 150965 | | | Domestic | 1995-06-02 | 19.00 | | 42.80 | 7.60 | 1284 | 2320 | 1.1000 | | | | 770m | South East |
| 6628-26029 | 266488 | | | Drainage | 2011-04-07 | 30.50 | | 41.80 | | 970 | 1757 | 1.0000 | 5.80 | 5.80 | 36.00 | 776m | East |
| 6628-18400 | 164407 | | | Domestic | 1997-02-23 | 16.00 | | 43.00 | | 1255 | 2270 | | | | | 778m | South East |
| 6628-20241 | 181062 | | | Domestic | 2000-06-09 | 24.00 | | 36.50 | 6.86 | 1743 | 3140 | 0.5000 | 15.00 | 15.00 | 21.50 | 779m | North |
| 6628-21860 | 200887 | | | Domestic | 2002-04-22 | 18.00 | | 43.40 | | 1255 | 2270 | 9.0000 | 15.00 | 15.00 | 28.40 | 779m | South East |
| 6628-27754 | 285063 | | | Investigation | 2015-03-18 | 15.00 | | 35.30 | | | | | | | | 782m | South |
| 6628-14547 | 61516 | GH 42 | Abandoned | Investigation | 1982-02-24 | 10.50 | 35.00 | | | | | | | | | 783m | North West |
| 6628-23050 | 234155 | | | | 2007-01-19 | 19.00 | | 34.00 | | 2126 | 3820 | 1.0000 | 9.50 | 9.50 | 24.50 | 783m | North East |
| 6628-18706 | 167155 | | | Domestic | 1997-12-13 | 18.00 | | 42.00 | | 1284 | 2320 | 0.8000 | 6.00 | 6.00 | 36.00 | 785m | North East |
| 6628-23587 | 239394 | | | | 2007-12-18 | 20.00 | | 42.00 | | 1530 | 2760 | 1.5000 | 9.20 | 9.20 | 32.80 | 787m | East |
| 6628-26863 | 275270 | | | | 2012-11-01 | 18.00 | | 42.00 | | 1608 | 2900 | 1.0000 | 7.50 | 7.50 | 34.50 | 790m | South East |
| 6628-11120 | 58089 | SADT B2E | Unknown | | 1979-09-19 | 17.72 | 34.67 | | | | | | | | | 794m | North |
| 6628-166 | 47266 | | Abandoned | | 1934-08-08 | 113.69 | | 31.70 | | 2556 | 4582 | 0.5700 | 21.34 | 21.34 | 10.36 | 796m | West |
| 6628-17957 | 159794 | | | Domestic | 1996-08-01 | 17.50 | | 41.50 | 7.90 | 1049 | 1900 | 1.0000 | | | | 797m | South East |
| 6628-18266 | 164084 | | Operational | Environmental; Recreational | 1996-10-28 | 19.80 | | 29.00 | | 2238 | 4020 | 2.0000 | 8.00 | 8.00 | 21.00 | 797m | South West |
| 6628-20676 | 187229 | | | Domestic | 2001-08-31 | 19.50 | | 41.70 | | 1524 | 2750 | 1.5000 | 9.00 | 9.00 | 32.70 | 802m | North East |
| 6628-16563 | 140951 | | | Domestic | 1993-11-19 | 16.00 | | 43.60 | | | | 1.2000 | | | | 805m | South East |
| 6628-165 | 47265 | | Backfilled | | | 21.34 | 32.00 | | | | | 4.1000 | | | | 806m | West |
| 6628-13531 | 60500 | | | Drainage | 1985-12-16 | 16.00 | | 40.30 | | | | | 3.80 | 3.80 | 36.50 | 809m | East |
| 6628-21886 | 201601 | MW22 | | Investigation | 2004-06-23 | 13.00 | | 33.50 | | 25181 | 39800 | | 11.30 | 11.30 | 22.20 | 812m | North |
| 6628-21888 | 201603 | MW 24 | | Investigation | | 4.50 | | 28.20 | | | | | 2.50 | 2.50 | 25.70 | 813m | North |
| 6628-21274 | 196903 | | | Domestic | 2003-06-05 | 24.00 | | 43.60 | | 1066 | 1930 | 0.6000 | 9.00 | 9.00 | 34.60 | 817m | South East |
| 6628-19666 | 176251 | | | Domestic | 1999-01-07 | 18.00 | | 41.70 | | 1194 | 2160 | 1.0000 | 6.00 | 6.00 | 35.70 | 825m | South East |
| 6628-21884 | 201599 | MW 20 | | Investigation | 2004-06-24 | 12.00 | | 34.10 | | | | | 9.00 | 9.00 | 25.10 | 827m | North East |
| 6628-15708 | 62677 | | Operational | Domestic | 1991-10-15 | 17.30 | | 40.90 | 7.60 | 900 | 1631 | 2.0000 | 8.30 | 8.30 | 32.60 | 831m | East |
| 6628-15709 | 62678 | | Operational | Domestic | 1991-10-17 | 16.70 | | 42.40 | 7.40 | 1178 | 2131 | 2.7500 | 7.10 | 7.10 | 35.30 | 831m | South East |
| 6628-16636 | 142115 | | | Domestic | 1993-11-19 | 16.00 | | 42.60 | 7.30 | 337 | 612 | 1.2000 | | | | 831m | South East |
| 6628-21885 | 201600 | MW 21 | | Investigation | 2004-06-24 | 11.00 | | 34.00 | | | | | 9.00 | 9.00 | 25.00 | 831m | North |
| 6628-21004 | 194803 | | | Domestic | 2002-12-16 | 31.50 | | 42.00 | | 783 | 1420 | 1.0000 | 6.00 | 6.00 | 36.00 | 838m | South East |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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-21887 | 201602 | MW 23 | | Investigation | 2004-06-28 | 3.20 | | 28.10 | | | | | 2.40 | 2.40 | 25.70 | 842m | North |
| 6628-187 | 47287 | TENNYSON BRIDGE 5 | Unknown | | 1953-03-22 | 6.10 | | | | | | | 3.35 | 3.35 | | 843m | North |
| 6628-32467 | 381475 | | | Environmental | 2023-06-27 | 15.00 | | 36.00 | | | | | | | | 843m | North West |
| 6628-23320 | 236156 | | | | 2007-12-15 | 20.00 | | 44.00 | | 1412 | 2550 | 1.0000 | 5.00 | 5.00 | 39.00 | 847m | South East |
| 6628-32131 | 373232 | | Backfilled | | | | | 36.00 | | | | | | | | 848m | North West |
| 6628-26300 | 269231 | DW | Controlled - shut in | Monitoring | 2008-09-03 | 180.00 | | 34.00 | | | | 2.5000 | -7.34 | -7.34 | 41.34 | 849m | South |
| 6628-169 | 47269 | | Abandoned | | 1970-02-23 | 9.14 | | | | | | | | | | 862m | West |
| 6628-170 | 47270 | | Abandoned | | 1970-02-24 | 7.62 | | | | | | | | | | 862m | West |
| 6628-27422 | 280493 | BH2 | | Investigation | | 10.00 | | 35.30 | | | | | | | | 864m | South |
| 6628-11121 | 58090 | SADT GS7 | Unknown | | 1979-08-23 | 17.35 | 35.14 | | | | | | | | | 865m | North |
| 6628-7 | 47107 | | | | | 6.71 | | 34.30 | | | | | | | | 865m | South |
| 6628-19475 | 174949 | | | Domestic | 1999-03-25 | 22.50 | | 43.20 | | 1083 | 1960 | 2.0000 | 7.50 | 7.50 | 35.70 | 867m | South East |
| 6628-195 | 47295 | RIVER TORRENS | | | | | | | | 942 | 1707 | | | | | 868m | North |
| 6628-27270 | 279791 | LAKE BORE 7 | | | | 6.00 | 33.37 | 33.19 | | | | | 3.26 | 3.08 | 30.11 | 874m | South |
| 6628-32466 | 381474 | | | Environmental | 2023-06-26 | 15.00 | | 36.00 | | | | | | | | 879m | North West |
| 6628-22368 | 210170 | | | Monitoring | 2005-11-14 | 12.00 | | 34.90 | | 6430 | 11220 | | 8.40 | 8.40 | 26.50 | 884m | North East |
| 6628-22369 | 210171 | | | Monitoring | 2005-11-14 | 11.00 | | 34.90 | | 2375 | 4260 | | 8.50 | 8.50 | 26.40 | 884m | North East |
| 6628-22340 | 209662 | | | Monitoring | 2005-11-15 | 11.00 | | 35.00 | | 2415 | 4330 | | 9.00 | 9.00 | 26.00 | 886m | North East |
| 6628-32132 | 373233 | | Backfilled | | | | | 36.00 | | | | | | | | 888m | North West |
| 6628-27884 | 285615 | BG IMP 4 | | | | | | | | | | | | | | 890m | South |
| 6628-6 | 47106 | BOTANIC GARDENS | Operational | | 1914-10-01 | 6.86 | 32.00 | | | 942 | 1707 | 3.7900 | 3.66 | 3.66 | 28.34 | 890m | South |
| 6628-168 | 47268 | SUBWAY 7 | Unknown | | 1974-07-09 | 30.00 | 34.00 | | 7.30 | 2388 | 4284 | | 9.00 | 9.00 | 25.00 | 891m | West |
| 6628-27880 | 285611 | BG IMP 1 | | | | | | | | | | | | | | 892m | South |
| 6628-27882 | 285613 | BG IMP 3 | | | | | | | | | | | | | | 892m | South |
| 6628-24567 | 245587 | BG EAST BORE | Operational | Managed Aquifer Recharge (incl ASR) | 2009-02-26 | 183.00 | | 34.80 | | 2824 | 5050 | 12.0000 | 6.10 | 6.10 | 28.70 | 893m | South |
| 6628-24566 | 245586 | BG WEST BORE | Operational | Managed Aquifer Recharge (incl ASR) | 2009-02-06 | 130.00 | | 33.80 | | 3218 | 5740 | 15.0000 | 5.60 | 5.60 | 28.20 | 894m | South |
| 6628-27881 | 285612 | BG IMP 2 | | | | | | | | | | | | | | 897m | South |
| 6628-192 | 47292 | | | | | 6.55 | | 41.20 | | 2056 | 3699 | | 2.90 | 2.90 | 38.30 | 898m | East |
| 6628-25650 | 262709 | GMW 15 | | Investigation | 2010-10-25 | 11.00 | | 42.70 | | | | | | | | 902m | South East |
| 6628-23736 | 241428 | MW 13 | | | 2008-04-07 | 9.50 | | 42.80 | | | | | 8.00 | 8.00 | 34.80 | 903m | South East |
| 6628-23735 | 241427 | MW 12 | Abandoned | | 2008-04-07 | 9.50 | | 42.80 | | | | | | | | 907m | South East |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-13528 | 60497 | | | Exploration; Observation | 1985-11-22 | 18.00 | 30.00 | | | | | 0.5000 | 5.00 | 5.00 | 25.00 | 908m | South West |
| 6628-16014 | 62983 | | Abandoned | Domestic | 1992-02-14 | 16.00 | | 42.00 | | 989 | 1791 | | 5.70 | 5.70 | 36.30 | 910m | South |
| 6628-22152 | 205640 | N117B (BG1) | Controlled - shut in | Monitoring | 2005-03-08 | 186.00 | | 33.90 | 7.70 | 2460 | 4410 | | 3.40 | 3.40 | 30.50 | 912m | South |
| 6628-11122 | 58091 | SADT B3W | Unknown | | 1979-08-20 | 17.23 | 35.28 | | | | | | | | | 913m | North |
| 6628-32465 | 381473 | | | Environmental | 2023-06-27 | 15.00 | | 36.40 | | | | | | | | 914m | North West |
| 6628-27269 | 279790 | LAKE BORE 6 | | | | 6.00 | 33.26 | 33.11 | | | | | 3.42 | 3.27 | 29.84 | 915m | South |
| 6628-27271 | 279792 | LAKE BORE 8 | | | | 6.00 | 34.34 | 34.28 | | | | | 3.43 | 3.37 | 30.91 | 915m | South |
| 6628-23267 | 236082 | MW 9 | Backfilled | Investigation | 2007-10-12 | 9.50 | | 43.00 | | | | | 7.60 | 7.60 | 35.40 | 916m | East |
| 6628-32068 | 371574 | | | Environmental | 2022-08-18 | 8.50 | | 43.10 | | | | | | | | 916m | South East |
| 6628-20795 | 190003 | | | Domestic | 2001-12-22 | 22.50 | | 41.80 | | 1005 | 1820 | 1.0000 | 7.00 | 7.00 | 34.80 | 917m | South |
| 6628-20205 | 180951 | | Backfilled | Monitoring | 2000-05-02 | 10.50 | | 43.10 | | | | 0.0100 | 6.80 | 6.80 | 36.30 | 921m | East |
| 6628-22269 | 206476 | MW 10 | | Monitoring | 2005-08-11 | 6.00 | | 35.90 | | | | | | | | 921m | South |
| 6628-25651 | 262710 | GMW 16 | Backfilled | Investigation | 2010-10-25 | 11.00 | | 43.20 | | | | | 6.80 | 6.80 | 36.40 | 921m | South East |
| 6628-13307 | 60276 | | Operational | Observation | 1985-04-16 | 19.00 | 30.70 | 30.01 | 6.90 | 1199 | 2170 | 3.0000 | 4.92 | 4.23 | 25.78 | 922m | South West |
| 6628-27760 | 285069 | BH 20 | Backfilled | Investigation | 2015-03-17 | 11.00 | | 35.80 | | | | | 3.00 | 3.00 | 32.80 | 922m | South |
| 6628-27423 | 280494 | BH4 | Backfilled | Investigation | | 10.00 | | 35.80 | | | | | | | | 923m | South |
| 6628-27883 | 285614 | BG IMP 4 | | | | | | | | | | | | | | 923m | South |
| 6628-29759 | 313485 | | | Monitoring | 2018-10-24 | 7.00 | | 35.20 | | | | | | | | 923m | South |
| 6628-22268 | 206475 | MW 9 | | Monitoring | 2005-08-11 | 6.00 | | 35.80 | | | | | | | | 924m | South |
| 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 | 927m | South West |
| 6628-13529 | 60498 | | | Observation | 1985-11-27 | 18.00 | 30.00 | | 7.60 | 1334 | 2410 | 1.0000 | 5.00 | 5.00 | 25.00 | 928m | South West |
| 6628-32067 | 371573 | | | Environmental | 2022-08-18 | 8.50 | | 43.30 | | | | | | | | 928m | South East |
| 6628-20779 | 189076 | | | Domestic | 2002-02-05 | 20.00 | | 42.40 | | 1586 | 2860 | 1.5000 | 7.00 | 7.00 | 35.40 | 930m | East |
| 6628-24916 | 252868 | MW 14 | Abandoned | Investigation | 2009-09-11 | 12.00 | | 43.30 | | | | | | | | 931m | East |
| 6628-31698 | 365584 | | Backfilled | | | | | 43.20 | | | | | | | | 931m | South East |
| 6628-31697 | 365581 | | Backfilled | | | 9.50 | | 43.40 | | | | | | | | 933m | East |
| 6628-32066 | 371572 | | | Environmental | 2022-08-18 | 8.00 | | 43.40 | | | | | | | | 935m | South East |
| 6628-27268 | 279789 | LAKE BORE 5 | | | | 6.00 | 33.13 | 33.00 | | | | | 2.76 | 2.63 | 30.37 | 936m | South |
| 6628-31699 | 365585 | | Backfilled | | | | | 43.40 | | | | | | | | 936m | South East |
| 6628-23268 | 236083 | MW 10 | Abandoned | Investigation | 2007-10-12 | 9.50 | | 43.40 | | | | | | | | 937m | East |
| 6628-23418 | 236958 | MW 22 | | Investigation | 2007-09-20 | 12.00 | | 45.20 | | | | | | | | 939m | South East |
| 6628-23419 | 236959 | MW 23 | | Investigation | 2007-09-21 | 12.00 | | 44.60 | | | | | | | | 939m | South East |
| 6628-23734 | 241426 | MW 11 | | | 2008-04-07 | 9.50 | | 43.60 | | | | | | | | 939m | East |
| 6628-25025 | 253373 | SBGW 72 | | Monitoring | 2009-11-30 | 14.47 | 33.98 | | | 605 | 1100 | | 11.44 | 11.44 | 22.54 | 939m | North West |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-28633 | 290471 | CH 1390 | | | 2016-10-31 | 13.30 | | 35.80 | | | | | | | | 940m | South |
| 6628-27264 | 279785 | LAKE BORE 1 | | | | 6.00 | 34.88 | 34.85 | | | | | 3.84 | 3.81 | 31.04 | 941m | South |
| 6628-22267 | 206474 | SB 6 | | Monitoring | 2005-08-12 | 5.70 | | 36.00 | | | | | | | | 942m | South |
| 6628-22179 | 206186 | | | Monitoring | 2005-07-05 | 7.00 | | 30.00 | | 1337 | 2415 | | 3.80 | 3.80 | 26.20 | 943m | South West |
| 6628-32065 | 371571 | | | Environmental | 2022-08-18 | 8.00 | | 43.60 | | | | | | | | 945m | South East |
| 6628-22265 | 206472 | MW 5 | | Monitoring | 2005-08-11 | 6.00 | | 35.70 | | | | | | | | 947m | South |
| 6628-27267 | 279788 | LAKE BORE 4 | | | | 6.00 | 33.09 | 33.01 | | | | | 2.55 | 2.47 | 30.54 | 950m | South |
| 6628-23417 | 236957 | MW 21 | | Investigation | 2007-09-19 | 12.00 | | 44.70 | | | | | | | | 951m | South East |
| 6628-28134 | 288421 | BH 49 | Backfilled | | | 29.10 | | 35.40 | | | | | | | | 955m | South |
| 6628-22178 | 206185 | | | Monitoring | 2005-07-05 | 7.00 | | 30.00 | | 979 | 1772 | | 3.80 | 3.80 | 26.20 | 956m | South West |
| 6628-22266 | 206473 | MW 6 | | Monitoring | 2005-08-11 | 6.00 | | 35.80 | | | | | | | | 956m | South |
| 6628-22270 | 206477 | MW 11 | | Monitoring | 2005-08-12 | 6.00 | | 36.00 | | | | | | | | 957m | South |
| 6628-17629 | 154939 | | Abandoned | Domestic | 1996-01-15 | 20.00 | | 36.00 | | | | | | | | 959m | North |
| 6628-27272 | 279793 | LAKE BORE 9 | | | | 6.00 | 33.09 | 32.97 | | | | | 2.08 | 1.96 | 31.01 | 959m | South |
| 6628-22823 | 228844 | SB/MW 20 | | Investigation | 2006-07-10 | 12.00 | | 45.30 | | | | | 8.30 | 8.30 | 37.00 | 960m | South East |
| 6628-22271 | 206478 | MW 12 | | | 2005-08-12 | 6.00 | | 37.10 | | | | | | | | 961m | South |
| 6628-27266 | 279787 | LAKE BORE 3 | | | | 6.00 | 33.27 | 33.25 | | | | | 1.86 | 1.84 | 31.41 | 963m | South |
| 6628-29761 | 313506 | | | Monitoring | 2018-10-24 | 8.00 | | 35.50 | | | | | | | | 965m | South |
| 6628-17630 | 154940 | | | Domestic | 1996-01-15 | 20.00 | | 36.00 | | | | | | | | 970m | North |
| 6628-27265 | 279786 | LAKE BORE 2 | | | | 6.00 | 33.49 | 33.37 | | | | | 1.82 | 1.70 | 31.67 | 971m | South |
| 6628-20684 | 187647 | | | Domestic | 2001-10-05 | 20.00 | | 38.90 | | 1642 | 2960 | 1.0000 | 8.00 | 8.00 | 30.90 | 973m | North East |
| 6628-27429 | 280500 | BH7 | | | 2014-08-11 | 20.00 | | 36.00 | | | | | | | | 977m | South |
| 6628-15442 | 62411 | | Operational | Domestic | 1990-11-24 | 11.50 | | 35.90 | 7.70 | 1658 | 2990 | 1.2500 | 7.00 | 7.00 | 28.90 | 983m | North East |
| 6628-27753 | 285062 | | | Investigation | 2015-03-17 | 9.00 | | 36.10 | | | | | | | | 985m | South |
| 6628-17544 | 153484 | | Abandoned | Domestic | 1996-01-05 | 25.00 | | 37.30 | | | | | | | | 988m | North West |
| 6628-28138 | 288426 | BH 23 | | | 2015-03-18 | 15.00 | | 36.10 | | | | | | | | 990m | South |
| 6628-27755 | 285064 | | | Investigation | 2015-03-19 | 20.00 | | 36.20 | | | | | | | | 995m | South |
| 6628-11123 | 58092 | SADT B3E | Unknown | | 1979-08-21 | 10.15 | 28.58 | | | | | | | | | 999m | North |
| 6628-28637 | 290475 | CH 1430 | | Monitoring | 2016-10-31 | 13.30 | | 36.50 | | | | | | | | 1005m | South |
| 6628-25021 | 253369 | SBGW 64 | | Monitoring | 2009-11-24 | 13.33 | 28.95 | | | 1334 | 2410 | | 8.31 | 8.31 | 20.64 | 1006m | West |
| 6628-9932 | 56901 | | | | | | | 42.20 | | 985 | 1785 | | | | | 1010m | East |
| 6628-110 | 47210 | | | | | | | 44.00 | | 2138 | 3840 | | | | | 1011m | East |
| 6628-27421 | 280492 | BH8 | | Investigation | | 25.00 | | 37.10 | | | | | | | | 1015m | South |
| 6628-21553 | 198360 | | Backfilled | Domestic | 2003-12-10 | 22.00 | | 37.90 | | | | 0.3000 | 6.00 | 6.00 | 31.90 | 1021m | North |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-22183 | 206190 | | | Monitoring | 2005-07-05 | 7.00 | | 30.30 | | 1031 | 1867 | | 4.00 | 4.00 | 26.30 | 1024 m | South West |
| 6628-139 | 47239 | BOTANIC GARDENS | | | | | | 34.20 | | 1299 | 2349 | | | | | 1027 m | South |
| 6628-140 | 47240 | BOTANIC GARDENS | | | | | | 34.20 | | 1213 | 2196 | | | | | 1027 m | South |
| 6628-141 | 47241 | BOTANIC GARDENS | | | | | | 34.20 | | 1271 | 2300 | | | | | 1027 m | South |
| 6628-22182 | 206189 | | | Monitoring | 2005-07-04 | 7.00 | | 30.30 | | 1064 | 1925 | | 4.00 | 4.00 | 26.30 | 1028 m | South West |
| 6628-128 | 47228 | ROMMILLY CHAMBER | | | | | | | | | | | | | | 1034 m | South |
| 6628-22181 | 206188 | | | Monitoring | 2005-07-04 | 7.00 | | 30.30 | | 1434 | 2590 | | 4.00 | 4.00 | 26.30 | 1035 m | South West |
| 6628-12145 | 59114 | | Operational | Domestic | 1983-02-10 | 22.00 | | 37.90 | 7.20 | 1636 | 2950 | 0.5000 | 19.00 | 19.00 | 18.90 | 1036 m | North |
| 6628-27752 | 285061 | | | Investigation | 2015-03-26 | 20.00 | | 37.90 | | | | | | | | 1037 m | South |
| 6628-18439 | 164548 | | | Domestic | 1997-03-12 | 18.00 | | 43.70 | | 1973 | 3550 | | 9.00 | 9.00 | 34.70 | 1038 m | East |
| 6628-27756 | 285065 | | | Investigation | 2015-03-22 | 20.00 | | 37.20 | | | | | | | | 1038 m | South |
| 6628-28634 | 290472 | CH 1460 | Decommissioned | | 2016-11-29 | 14.30 | | 37.20 | | | | | | | | 1038 m | South |
| 6628-27749 | 285058 | | | Investigation | 2015-03-23 | 15.00 | | 37.20 | | | | | | | | 1039 m | South |
| 6628-28112 | 288287 | | | Investigation | 2015-12-13 | 25.00 | | 29.60 | | | | | 4.10 | 4.10 | 25.50 | 1040 m | South West |
| 6628-28636 | 290474 | MB 2 | Backfilled | Monitoring | 2016-07-22 | 7.80 | | 38.00 | | | | | | | | 1044 m | South |
| 6628-9933 | 56902 | | Backfilled | | | 12.19 | | 42.60 | | 1814 | 3268 | | | | | 1044 m | East |
| 6628-27290 | 280016 | GW 1 | | Investigation | 2014-06-17 | 9.00 | | 27.90 | | | | | 5.50 | 5.50 | 22.40 | 1047 m | South West |
| 6628-27420 | 280491 | BH6 | | Investigation | 2014-07-27 | 25.00 | | 37.10 | | | | | | | | 1049 m | South |
| 6628-11922 | 58891 | | | General Usage | 1980-05-26 | 87.00 | | 44.20 | | | | 0.9500 | 3.20 | 3.20 | 41.00 | 1051 m | South East |
| 6628-19299 | 173727 | | | Domestic | 1999-02-05 | 14.00 | | 36.00 | | 2334 | 4190 | 0.8000 | 8.00 | 8.00 | 28.00 | 1051 m | North East |
| 6628-9931 | 56900 | | | | | 7.92 | | 42.00 | 6.50 | 2085 | 3749 | | 1.83 | 1.83 | 40.17 | 1056 m | East |
| 6628-28219 | 288584 | MW 1 | | Investigation | 2015-05-15 | 6.00 | | 38.00 | | | | | 3.80 | 3.80 | 34.20 | 1057 m | South |
| 6628-4 | 47104 | | | | | 11.58 | | 28.00 | | | | | | | | 1059 m | South West |
| 6628-27291 | 280017 | GW 2 | | Investigation | 2014-06-17 | 9.00 | | 26.20 | | | | | 5.15 | 5.15 | 21.05 | 1065 m | South West |
| 6628-15538 | 62507 | | Operational | Domestic | 1991-05-05 | 7.00 | | 36.00 | | | | | 6.00 | 6.00 | 30.00 | 1067 m | North East |
| 6628-28111 | 288286 | | | Investigation | 2015-12-15 | 25.00 | | 29.60 | | | | | 4.00 | 4.00 | 25.60 | 1067 m | South West |
| 6628-10 | 47110 | S.A.I.T. | Abandoned | | 1964-09-18 | 5.03 | | | | | | | 3.35 | 3.35 | | 1068 m | South West |
| 6628-28635 | 290473 | CH 1490 | | Monitoring | 2016-10-27 | 13.30 | | 37.20 | | | | | | | | 1068 m | South |
| 6628-17304 | 151182 | | | Domestic; Stock | 1995-09-01 | 24.00 | | 38.00 | 6.90 | 2216 | 3980 | 1.0000 | 8.10 | 8.10 | 29.90 | 1069 m | North |
| 6628-22180 | 206187 | | | Monitoring | 2005-07-04 | 7.00 | | 29.20 | | 1580 | 2850 | | 3.80 | 3.80 | 25.40 | 1071 m | South West |
| 6628-28220 | 288585 | MW 2 | | Investigation | 2015-05-15 | 5.50 | | 38.00 | | | | | | | | 1076 m | South |
| 6628-102 | 47202 | | | | | | | 46.20 | | 6088 | 10665 | | | | | 1077 m | South East |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-32003 | 371214 | | Backfilled | Investigation | 2022-08-26 | 35.00 | | 29.70 | | | | | | | | 1083 m | South West |
| 6628-23328 | 236164 | | | | 2008-01-16 | 20.00 | | 41.30 | | 1463 | 2640 | 2.5000 | 10.00 | 10.00 | 31.30 | 1084 m | North East |
| 6628-27292 | 280018 | GW 3 | | Investigation | 2014-06-17 | 5.00 | | 22.40 | | | | | 2.30 | 2.30 | 20.10 | 1085 m | South West |
| 6628-9930 | 56899 | | | | | 12.19 | | 44.30 | 7.00 | 1645 | 2967 | | 8.53 | 8.53 | 35.77 | 1086 m | East |
| 6628-32004 | 371215 | | Backfilled | Investigation | 2022-08-30 | 35.00 | | 29.60 | | | | | | | | 1087 m | South West |
| 6628-9 | 47109 | S.A.I.T. | Abandoned | | 1964-06-25 | 9.14 | | | | | | | 3.05 | 3.05 | | 1088 m | South West |
| 6628-18977 | 169292 | | | Drainage | 1998-05-01 | 21.00 | | 42.40 | | 2273 | 4080 | 3.3000 | 7.00 | 7.00 | 35.40 | 1090 m | East |
| 6628-21230 | 196722 | | | Monitoring | 2003-01-07 | 11.00 | | 44.40 | | | | | 8.00 | 8.00 | 36.40 | 1091 m | South East |
| 6628-28221 | 288586 | MW 3 | | Investigation | 2015-05-14 | 6.50 | | 38.00 | | | | | 4.50 | 4.50 | 33.50 | 1093 m | South |
| 6628-28638 | 290476 | CH 1535 | | Monitoring | 2016-10-27 | 10.80 | | 38.00 | | | | | | | | 1098 m | South |
| 6628-8 | 47108 | S.A.I.T. | Abandoned | | 1964-06-23 | 14.33 | | | | | | | 3.05 | 3.05 | | 1098 m | South West |
| 6628-28110 | 288285 | | | Investigation | 2015-12-16 | 25.00 | | 29.10 | | | | | 4.00 | 4.00 | 25.10 | 1100 m | South West |
| 6628-27419 | 280490 | BH9 | Decommissioned | Investigation | 2014-07-28 | 15.00 | | 39.00 | | | | | | | | 1104 m | South |
| 6628-21769 | 200343 | | | Domestic | 2004-03-07 | 20.00 | | 42.00 | | 1856 | 3340 | 2.0000 | 5.50 | 5.50 | 36.50 | 1106 m | East |
| 6628-13291 | 60260 | | Operational | Drainage | 1984-08-25 | 12.10 | | 36.00 | | | | | | | | 1107 m | North |
| 6628-25192 | 255918 | MAR | Operational | Managed Aquifer Recharge (incl ASR) | 2010-04-20 | 168.50 | | 44.50 | | 1101 | 1992 | 4.0000 | 13.00 | 13.00 | 31.50 | 1108 m | East |
| 6628-32002 | 371213 | | Backfilled | Investigation | 2022-08-23 | 35.00 | | 29.10 | | | | | | | | 1109 m | South West |
| 6628-21768 | 200342 | | | Domestic | 2004-03-06 | 20.00 | | 42.00 | | 1597 | 2880 | 2.0000 | 5.50 | 5.50 | 36.50 | 1111 m | East |
| 6628-31 | 47131 | PUBLIC BLDGS DPT | Abandoned | | 1963-02-13 | 18.29 | | | | | | | 5.79 | 5.79 | | 1117 m | South West |
| 6628-27428 | 280499 | BH14 | | Investigation | 2014-08-03 | 25.00 | | 38.90 | | | | | | | | 1120 m | South |
| 6628-17 | 47117 | RADIOTHERAPY 7 | Unknown | | 1955-05-20 | 12.57 | | | | | | | | | | 1121 m | South |
| 6628-138 | 47238 | BOTANIC GARDENS | | | | | | 34.00 | | 1742 | 3140 | | | | | 1122 m | South |
| 6628-13266 | 60235 | | Abandoned | | 1985-02-15 | 18.00 | | 43.70 | | | | | | | | 1123 m | North East |
| 6628-32 | 47132 | RAH | Abandoned | | 1963-02-22 | 30.48 | | | | | | | 8.18 | 8.18 | | 1123 m | South West |
| 6628-14799 | 61768 | | Operational | Domestic; Drainage | 1989-11-07 | 13.70 | | 38.00 | | | | | 0.00 | 0.00 | 38.00 | 1126 m | North |
| 6628-30 | 47130 | RAH | Abandoned | | 1963-02-08 | 18.36 | | | | | | | 8.38 | 8.38 | | 1126 m | South West |
| 6628-18 | 47118 | RADIOTHERAPY 8 | Unknown | | 1955-05-06 | 12.57 | | | | | | | 5.18 | 5.18 | | 1127 m | South |
| 6628-142 | 47242 | | Abandoned | | 1964-09-22 | 15.09 | | | | 1597 | 2880 | | 3.50 | 3.50 | | 1129 m | South West |
| 6628-27751 | 285060 | | | Investigation | 2015-03-25 | 10.00 | | 39.30 | | | | | | | | 1132 m | South |
| 6628-20 | 47120 | RADIOTHERAPY 10 | Unknown | | 1955-06-27 | 30.48 | | | 7.00 | 1485 | 2680 | | | | | 1133 m | South |
| 6628-24720 | 247058 | | | | 2008-10-01 | 22.00 | | 31.30 | | 1625 | 2930 | 0.0830 | 9.50 | 9.50 | 21.80 | 1133 m | West |
| 6628-27750 | 285059 | | | Investigation | 2015-03-25 | 15.00 | | 39.70 | | | | | | | | 1135 m | South |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-18186 | 162941 | | | Domestic | 1996-07-29 | 8.00 | | 36.00 | | | | | | | | 1137 m | North East |
| 6628-94 | 47194 | | Abandoned | | 1959-09-30 | 15.24 | 29.00 | | | 1070 | 1938 | 0.6300 | 5.99 | 5.99 | 23.01 | 1138 m | South West |
| 6628-13029 | 59998 | | | Observation | 1984-08-28 | 90.00 | 43.62 | 43.65 | 7.40 | 1160 | 2100 | 0.0000 | 15.25 | 15.27 | 28.37 | 1139 m | North West |
| 6628-28 | 47128 | RAH | Abandoned | | 1963-01-30 | 18.36 | | | | 1010 | 1829 | | 6.40 | 6.40 | | 1142 m | South West |
| 6628-18450 | 164559 | | | Domestic | 1997-02-28 | 18.00 | | 41.40 | | 1490 | 2690 | | 9.60 | 9.60 | 31.80 | 1145 m | North East |
| 6628-29 | 47129 | RAH | Abandoned | | 1963-02-05 | 18.36 | | | | | | | 7.11 | 7.11 | | 1147 m | South West |
| 6628-28022 | 287376 | | Backfilled | Investigation | 2015-09-17 | 16.00 | | 39.90 | | | | | | | | 1148 m | South |
| 6628-9929 | 56898 | | Backfilled | | | 15.54 | | 45.00 | | 2556 | 4582 | | | | | 1148 m | East |
| 6628-25020 | 253368 | SBGW 67 | | Monitoring | 2009-11-23 | 11.87 | 28.24 | | | 1754 | 3160 | | 7.43 | 7.43 | 20.81 | 1150 m | South West |
| 6628-28023 | 287377 | | Backfilled | Investigation | 2015-09-25 | 16.50 | | 39.70 | | | | | 14.00 | 14.00 | 25.70 | 1151 m | South |
| 6628-33 | 47133 | | | | 1963-02-28 | 21.31 | | 32.40 | | | | | | | | 1152 m | South West |
| 6628-27427 | 280498 | BH15 | | Investigation | 2014-07-30 | 20.00 | | 40.00 | | | | | | | | 1153 m | South |
| 6628-28520 | 289789 | | Backfilled | | 2015-05-18 | 20.50 | | 39.70 | | | | | | | | 1153 m | South |
| 6628-113 | 47213 | | | | | 60.96 | | 30.00 | | 1971 | 3547 | | 3.10 | 3.10 | 26.90 | 1155 m | South West |
| 6628-31721 | 367619 | | Backfilled | Environmental | 2022-03-16 | 10.00 | | 36.00 | | | | | | | | 1156 m | South |
| 6628-11754 | 58723 | | Abandoned | Observation | | 5.25 | 39.23 | | 7.80 | 1552 | 2800 | | 5.82 | 5.82 | 33.41 | 1158 m | South |
| 6628-36 | 47136 | RAH | Abandoned | | 1964-06-02 | 18.29 | 30.00 | | | 1160 | 2100 | 0.6300 | 4.57 | 4.57 | 25.43 | 1159 m | South West |
| 6628-19 | 47119 | RADIOTHERAPY 9 | Unknown | | 1955-06-09 | 11.89 | | | | | | | 5.79 | 5.79 | | 1160 m | South |
| 6628-5 | 47105 | | | | 1881-12-12 | 125.27 | | 41.90 | | 1671 | 3013 | | 13.11 | 13.11 | 28.79 | 1162 m | South |
| 6628-16 | 47116 | RADIOTHERAPY 6 | Unknown | | 1955-05-11 | 12.57 | | | | | | | | | | 1169 m | South |
| 6628-28135 | 288422 | BH 51 | Backfilled | | | 34.65 | | 42.00 | | | | | | | | 1172 m | South |
| 6628-693 | 47770 | | | | 1934-10-01 | 57.00 | | 33.20 | | 2059 | 3702 | | 10.36 | 10.36 | 22.84 | 1178 m | West |
| 6628-37 | 47137 | PUBLIC BLDS. DPT | Abandoned | | 1964-05-28 | 18.29 | | | | 1457 | 2631 | | | | | 1187 m | South West |
| 6628-9533 | 56502 | SPRING | | | | | | | | 794 | 1440 | | | | | 1191 m | North West |
| 6628-12597 | 59566 | ADE 159 | | Observation | 1983-11-17 | 36.00 | 45.41 | 45.47 | 7.80 | 2171 | 3900 | 0.2600 | 9.95 | 10.01 | 35.46 | 1192 m | East |
| 6628-14549 | 61518 | GH 44 | Abandoned | Investigation | 1983-02-28 | 10.30 | 46.00 | | | | | | | | | 1193 m | North East |
| 6628-27 | 47127 | RAH | Abandoned | | 1963-01-24 | 18.36 | | | | | | | 7.21 | 7.21 | | 1193 m | South West |
| 6628-11 | 47111 | RADIOTHERAPY 1 | Unknown | | 1955-03-28 | 24.38 | | | 7.60 | 1788 | 3220 | | | | | 1195 m | South |
| 6628-27424 | 280495 | BH13 | Backfilled | Investigation | 2014-08-08 | 15.00 | | 41.40 | | | | | | | | 1199 m | South |
| 6628-27426 | 280497 | BH17 | | Investigation | 2014-08-06 | 20.00 | | 41.40 | | | | | | | | 1199 m | South |
| 6628-29671 | 312564 | | | Investigation | 2018-06-13 | 6.00 | | 44.60 | | | | | | | | 1200 m | North West |
| 6628-9534 | 56503 | | | | 1914-01-01 | 36.27 | | 46.10 | | 971 | 1760 | | | | | 1202 m | North West |
| 6628-20686 | 187681 | ADELAIDE UNIVERSITY 1 | | Monitoring | 2001-06-15 | 154.00 | | 29.10 | | 2290 | 4110 | | | | | 1206 m | South West |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-12 | 47112 | RADIOTHERAPY 2 | Unknown | | 1955-03-31 | 12.34 | | | | 2556 | 4580 | | 6.10 | 6.10 | | 1208 m | South |
| 6628-35 | 47135 | RAH | Abandoned | | 1964-06-11 | 36.65 | | | | 1100 | 1992 | 0.3800 | 4.57 | 4.57 | | 1208 m | South West |
| 6628-39 | 47139 | PUB. BLDGS DEPT. | | | 1966-08-02 | 5.79 | | | | | | | | | | 1211 m | South West |
| 6628-26 | 47126 | RAH | Abandoned | | 1963-01-21 | 18.36 | | | | | | | 7.87 | 7.87 | | 1212 m | South West |
| 6628-23819 | 241708 | | | | 2008-06-04 | 22.50 | | 43.80 | | 1765 | 3180 | 1.5000 | 10.00 | 10.00 | 33.80 | 1215 m | North East |
| 6628-24 | 47124 | RAH | Abandoned | | 1963-01-11 | 18.29 | | | | | | | 7.80 | 7.80 | | 1217 m | South West |
| 6628-9529 | 56498 | | | | | 36.58 | | 45.40 | | 1028 | 1862 | | 22.86 | 22.86 | 22.54 | 1219 m | North West |
| 6628-9584 | 56553 | | | | | 9.45 | | 36.30 | | 1043 | 1889 | | 7.77 | 7.77 | 28.53 | 1220 m | North East |
| 6628-30152 | 315977 | | | Investigation | 2019-04-02 | 20.00 | | 46.00 | | | | | | | | 1221 m | South East |
| 6628-17121 | 148675 | | | Investigation | 1995-01-29 | 6.20 | | 40.20 | | | | | | | | 1222 m | South |
| 6628-17122 | 148676 | | | Investigation | 1995-01-29 | 7.00 | | 40.10 | | | | | | | | 1223 m | South |
| 6628-38 | 47138 | RAH | Abandoned | | 1964-05-26 | 18.29 | | | | 1671 | 3013 | | 4.57 | 4.57 | | 1224 m | South West |
| 6628-11698 | 58667 | SADT HM 1 | Unknown | | 1981-02-05 | 20.24 | 36.46 | | | | | | | | | 1227 m | North |
| 6628-681 | 47758 | SUBWAY 6 | Unknown | | 1974-07-16 | 38.00 | 46.00 | | | | | | | | | 1228 m | West |
| 6628-17071 | 148580 | | Abandoned | Drainage | 1995-02-24 | 30.00 | | 45.50 | | | | | | | | 1230 m | North |
| 6628-9937 | 56906 | | | | | 7.62 | | 44.40 | | 2527 | 4530 | | | | | 1236 m | East |
| 6628-17124 | 148678 | | | Investigation | 1995-01-28 | 10.00 | | 40.50 | | | | | 4.30 | 4.30 | 36.20 | 1237 m | South |
| 6628-21 | 47121 | RAH | | | 1962-12-13 | 18.52 | | | 7.70 | 1021 | 1849 | | 5.49 | 5.49 | | 1237 m | South |
| 6628-31338 | 355493 | | Backfilled | Investigation | 2021-06-18 | 24.95 | | 38.60 | | | | | | | | 1237 m | South |
| 6628-23 | 47123 | RAH | Abandoned | | 1963-01-08 | 18.29 | | | 7.50 | 1581 | 2851 | | 7.80 | 7.80 | | 1238 m | South West |
| 6628-9528 | 56497 | | | | | 24.38 | | 46.20 | | 9296 | 15983 | | | | | 1238 m | North West |
| 6628-34 | 47134 | RAH | Abandoned | | 1964-06-18 | 18.90 | 30.00 | | | 1210 | 2191 | 0.3800 | 6.10 | 6.10 | 23.90 | 1240 m | South West |
| 6628-17125 | 148679 | | | Investigation | 1995-01-29 | 7.70 | | 40.50 | | | | | | | | 1241 m | South |
| 6628-22 | 47122 | RAH | Abandoned | | 1963-01-02 | 30.48 | | | | | | | 9.14 | 9.14 | | 1241 m | South |
| 6628-3 | 47103 | ADELAIDE UNIVERSITY OVAL | Abandoned | | | 12.19 | | 28.00 | | 956 | 1733 | 9.4700 | 7.62 | 7.62 | 20.38 | 1242 m | South West |
| 6628-9535 | 56504 | | | | 1914-10-15 | 45.72 | | 49.10 | | 2998 | 5357 | | 24.69 | 24.69 | 24.41 | 1243 m | North |
| 6628-17123 | 148677 | | | Investigation | 1995-01-29 | 8.00 | | 40.80 | | | | | | | | 1244 m | South |
| 6628-430 | 47527 | PUB. BLDGS DEPT. | | | 1961-03-01 | 24.99 | | | | | | | 11.28 | 11.28 | | 1245 m | West |
| 6628-15 | 47115 | RADIOTHERAPY 5 | Unknown | | 1955-05-04 | 12.57 | | | | | | | 5.79 | 5.79 | | 1248 m | South |
| 6628-9527 | 56496 | | | | 1914-11-01 | 30.48 | | 48.30 | | 1000 | 1811 | 0.2000 | 19.81 | 19.81 | 28.49 | 1248 m | North West |
| 6628-22747 | 228094 | BH 4E | | Investigation | 2007-02-09 | 6.00 | | 28.40 | | | | | 5.10 | 5.10 | 23.30 | 1249 m | South West |
| 6628-31548 | 362028 | | Backfilled | Investigation | 2021-10-20 | 20.00 | | 42.50 | | | | | | | | 1249 m | South |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-13 | 47113 | RADIOTHERAPY 3 | Unknown | | 1955-04-19 | 30.48 | | | 8.40 | 1513 | 2729 | | | | | 1251 m | South |
| 6628-25 | 47125 | RAH | Abandoned | | 1963-01-16 | 18.29 | | | | | | | 7.11 | 7.11 | | 1253 m | South West |
| 6628-31549 | 362031 | | | Investigation | 2021-10-21 | 25.00 | | 42.50 | | | | | | | | 1254 m | South |
| 6628-23260 | 236057 | GMW 1 | | Investigation | 2008-01-21 | 6.00 | | 29.10 | | | | | 3.70 | 3.70 | 25.40 | 1255 m | South West |
| 6628-31720 | 367618 | | Backfilled | Environmental | 2022-03-17 | 10.00 | | 39.00 | | | | | | | | 1256 m | South |
| 6628-15615 | 62584 | | Operational | Irrigation | 1991-09-12 | 30.40 | | 49.60 | 8.60 | 968 | 1753 | 10.5000 | 13.70 | 13.70 | 35.90 | 1257 m | South East |
| 6628-25763 | 263835 | BH 8 | | | 2011-01-10 | 19.80 | | | | | | | 5.00 | 5.00 | | 1266 m | South West |
| 6628-423 | 47520 | PUB. BLDGS DEPT. | | | 1960-12-05 | 36.58 | | | | | | | | | | 1266 m | West |
| 6628-14 | 47114 | RADIOTHERAPY 4 | Unknown | | 1955-04-28 | 20.04 | | | | | | | 7.16 | 7.16 | | 1270 m | South |
| 6628-9938 | 56907 | | | | | 7.31 | | 45.50 | | 2041 | 3672 | | 6.10 | 6.10 | 39.40 | 1270 m | East |
| 6628-2 | 47102 | | | | 1934-11-01 | 9.14 | | 27.70 | | 2470 | 4429 | | | | | 1271 m | South West |
| 6628-27418 | 280489 | BH10 | | | 2014-07-29 | 20.00 | | 42.40 | | | | | | | | 1272 m | South |
| 6628-16632 | 142103 | | | Domestic | 1994-05-20 | 12.00 | | 37.50 | 6.80 | 2267 | 4070 | | | | | 1275 m | North East |
| 6628-686 | 47763 | KINNAIRD HILL | | | 1965-10-26 | 10.06 | | | | | | | | | | 1276 m | West |
| 6628-31719 | 367617 | | Backfilled | Environmental | 2022-03-16 | 10.00 | | 39.50 | | | | | | | | 1277 m | South |
| 6628-16252 | 131803 | | | Industrial | 1992-12-21 | 23.00 | | 44.90 | 7.00 | 999 | 1810 | | | | | 1278 m | East |
| 6628-24866 | 248308 | BH11 GW04 | | Investigation | 2009-06-05 | 12.00 | | 36.00 | | | | | 9.80 | 9.80 | 26.20 | 1281 m | North |
| 6628-27759 | 285068 | BH 34 | Backfilled | Investigation | 2015-03-25 | 15.00 | | 42.00 | | | | | 4.00 | 4.00 | 38.00 | 1281 m | South |
| 6628-426 | 47523 | PUB. BLDGS DEPT. | | | 1960-12-12 | 11.28 | | | | | | | | | | 1281 m | West |
| 6628-23259 | 236055 | GMW 2 | | Investigation | 2008-01-21 | 6.00 | | 28.70 | | | | | 3.70 | 3.70 | 25.00 | 1286 m | South West |
| 6628-9585 | 56554 | | | | | 10.36 | 37.00 | | 7.00 | 2355 | 4227 | 0.3800 | 7.32 | 7.32 | 29.68 | 1286 m | North East |
| 6628-425 | 47522 | PUB. BLDGS DEPT. | | | 1960-12-09 | 10.67 | | | | | | | | | | 1287 m | West |
| 6628-9536 | 56505 | | | | | 33.53 | | 50.00 | | 1170 | 2118 | | | | | 1289 m | North |
| 6628-762 | 47811 | | | | | 9.14 | | 29.40 | | 2159 | 3881 | | | | | 1290 m | West |
| 6628-428 | 47525 | | | | 1965-11-03 | 30.63 | | | 7.00 | 2980 | 5325 | | 12.95 | 12.95 | | 1291 m | West |
| 6628-685 | 47762 | KINNAIRD MILL | | | 1965-10-25 | 21.34 | | | 6.70 | 2500 | 4482 | | 14.33 | 14.33 | | 1294 m | West |
| 6628-14000 | 60969 | | | | 1987-06-01 | 66.00 | | 49.40 | 8.10 | 1083 | 1960 | 1.2600 | 0.00 | 0.00 | 49.40 | 1295 m | South East |
| 6628-424 | 47521 | PUB. BLDGS DEPT. | | | 1960-12-09 | 24.38 | | | | | | | | | | 1297 m | West |
| 6628-429 | 47526 | | | | 1965-11-05 | 14.17 | | | | | | | 12.95 | 12.95 | | 1299 m | West |
| 6628-25572 | 262306 | | | | 2009-12-18 | 100.00 | | 48.50 | | 1479 | 2670 | 4.0000 | 22.50 | 22.50 | 26.00 | 1300 m | North West |
| 6628-28436 | 289491 | MW 2 | | Investigation | 2016-08-08 | 9.00 | | 43.30 | | | | | 7.50 | 7.50 | 35.80 | 1302 m | South |
| 6628-13507 | 60476 | | | | 1985-11-22 | 7.32 | 47.00 | | | 2008 | 3610 | 0.3800 | 5.49 | 5.49 | 41.51 | 1306 m | East |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-24569 | 245613 | | | | | | | 48.70 | | | | | | | | 1306 m | North West |
| 6628-24865 | 248307 | BH3 GW03 | | Investigation | 2009-06-01 | 12.00 | | 36.00 | | | | | 10.00 | 10.00 | 26.00 | 1310 m | North |
| 6628-27425 | 280496 | BH11 | Backfilled | Investigation | 2014-08-04 | 20.00 | | 42.70 | | | | | | | | 1310 m | South |
| 6628-526 | 47623 | | | | 1969-10-01 | 30.94 | | | | | | | | | | 1311 m | West |
| 6628-28435 | 289490 | MW 1 | | | 2016-08-08 | 10.00 | | 43.40 | | | | | 8.00 | 8.00 | 35.40 | 1312 m | South |
| 6628-28437 | 289492 | MW 3 | | | 2016-08-08 | 9.50 | | 43.40 | | | | | 7.50 | 7.50 | 35.90 | 1312 m | South |
| 6628-521 | 47618 | SZ 77 | | | 1969-10-01 | 31.24 | 0.00 | | | | | | | | | 1325 m | West |
| 6628-18495 | 164822 | | Operational | Domestic | 1997-05-12 | 19.00 | | 38.40 | | 2460 | 4410 | | 9.20 | 9.20 | 29.20 | 1326 m | North East |
| 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 | 1326 m | South West |
| 6628-24864 | 248306 | BH09 GW02 | | Investigation | 2009-06-03 | 12.00 | | 36.00 | | | | | 10.00 | 10.00 | 26.00 | 1334 m | North |
| 6628-1 | 47101 | SUBWAY 3 | Unknown | | 1974-07-10 | 30.00 | 28.00 | | 6.90 | 4047 | 7179 | | 6.00 | 6.00 | 22.00 | 1339 m | South 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 | 1347 m | South West |
| 6628-525 | 47622 | | | | 1969-10-01 | 23.62 | | | | | | | | | | 1348 m | West |
| 6628-522 | 47619 | | | | 1969-10-01 | 23.16 | | | | | | | | | | 1352 m | West |
| 6628-25894 | 265152 | GW 2 | | Investigation | | 12.00 | | 48.30 | | | | | 6.50 | 6.50 | 41.80 | 1354 m | South East |
| 6628-151 | 47251 | UNION B 6 | Unknown | | 1968-05-13 | 7.92 | | | | | | | | | | 1357 m | South West |
| 6628-23753 | 241484 | | | | 2008-01-30 | 14.00 | | 37.00 | | | | 0.3750 | 5.70 | 5.70 | 31.30 | 1360 m | North |
| 6628-31824 | 369205 | | Backfilled | Monitoring | 2022-03-16 | 8.20 | | 48.10 | | | | | | | | 1361 m | South East |
| 6628-43 | 47143 | ADELAIDE UNI. | Abandoned | | 1969-04-03 | 25.91 | | | 6.90 | 2966 | 5300 | 0.2500 | 12.19 | 12.19 | | 1361 m | South West |
| 6628-524 | 47621 | | | | 1969-10-01 | 30.79 | | | | | | | | | | 1361 m | West |
| 6628-119 | 47219 | | Abandoned | | 1959-09-04 | 9.14 | | | | 1945 | 3500 | | 7.62 | 7.62 | | 1363 m | South West |
| 6628-19327 | 173826 | | | Domestic | 1999-01-08 | 18.00 | | 46.90 | | 1759 | 3170 | 1.0000 | 10.80 | 10.80 | 36.10 | 1365 m | East |
| 6628-31825 | 369206 | | Backfilled | Monitoring | 2022-03-16 | 8.20 | | 48.20 | | | | | | | | 1365 m | South East |
| 6628-150 | 47250 | UNION B 5 | Unknown | | 1968-07-13 | 4.88 | | | | | | | | | | 1366 m | South West |
| 6628-18465 | 164679 | | | Domestic | 1997-04-21 | 19.00 | | 39.10 | | 2493 | 4470 | 1.0000 | 9.00 | 9.00 | 30.10 | 1366 m | North East |
| 6628-21062 | 195348 | | | Domestic | 2002-11-27 | 19.50 | | 45.20 | | 1917 | 3450 | 0.1000 | 7.30 | 7.30 | 37.90 | 1366 m | East |
| 6628-24598 | 245692 | GW 5 | | Investigation | 2012-05-14 | 12.00 | | 36.00 | | | | | 9.50 | 9.50 | 26.50 | 1366 m | North |
| 6628-24863 | 248304 | BHO5 GW01 | | Investigation | 2009-06-02 | 12.00 | | 36.00 | | | | | | | | 1367 m | North |
| 6628-75 | 47175 | DENTAL CENTRE 1 | Backfilled | | 1974-06-14 | 15.15 | 10.50 | | 7.60 | 1686 | 3038 | | | | | 1369 m | South |
| 6628-15669 | 62638 | | Operational | Domestic | 1991-09-27 | 15.00 | | 44.70 | 7.10 | 1776 | 3200 | | 10.00 | 10.00 | 34.70 | 1370 m | North East |
| 6628-31826 | 369207 | | Backfilled | Monitoring | 2022-03-16 | 8.00 | | 48.20 | | | | | | | | 1372 m | South East |
| 6628-523 | 47620 | | | | 1969-10-01 | 31.24 | | | | | | | | | | 1374 m | West |
| 6628-13878 | 60847 | | | | 1987-02-12 | 13.00 | 49.00 | | 5.80 | 1110 | 2010 | 0.4000 | 3.00 | 3.00 | 46.00 | 1375 m | South East |
| 6628-148 | 47248 | UNION B 2 | Unknown | | 1968-07-09 | 6.10 | | | | | | | | | | 1375 m | South West |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-23322 | 236158 | | | | 2007-12-01 | 21.00 | | 46.70 | | 1564 | 2820 | 1.5000 | 11.00 | 11.00 | 35.70 | 1375 m | East |
| 6628-23559 | 238685 | | | Drainage | 2008-08-13 | 26.00 | | 46.70 | | 1423 | 2570 | 2.0000 | 12.00 | 12.00 | 34.70 | 1375 m | East |
| 6628-120 | 47220 | | Abandoned | | 1959-09-15 | 9.45 | | | | 1172 | 2120 | | | | | 1378 m | South West |
| 6628-122 | 47222 | | Abandoned | | 1961-12-04 | 24.38 | | | | 2241 | 4025 | | 5.79 | 5.79 | | 1380 m | South West |
| 6628-147 | 47247 | UNION B 1 | Unknown | | 1968-07-09 | 6.10 | | | | | | | | | | 1380 m | South West |
| 6628-27430 | 280501 | BH18 | Backfilled | Investigation | 2014-08-05 | 20.00 | | 43.40 | | | | | | | | 1383 m | South |
| 6628-22667 | 219429 | GW 1 | | Investigation | 2005-12-18 | 16.00 | | 38.30 | | | | | 14.00 | 14.00 | 24.30 | 1384 m | North |
| 6628-40 | 47140 | ADELAIDE UNI. | Abandoned | | 1969-05-02 | 25.91 | | | 7.00 | 1455 | 2627 | 0.1300 | 12.19 | 12.19 | | 1384 m | South 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 | 1386 m | South West |
| 6628-121 | 47221 | | Abandoned | | 1961-12-06 | 9.14 | | | | | | | | | | 1388 m | South West |
| 6628-146 | 47246 | UNION UR 2 | Unknown | | 1968-06-01 | 5.64 | | | | | | | | | | 1388 m | South West |
| 6628-16316 | 132789 | | | Domestic | 1993-01-07 | 20.00 | | 36.90 | 6.90 | 1452 | 2620 | | 12.00 | 12.00 | 24.90 | 1391 m | North East |
| 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 | 1392 m | South West |
| 6628-73 | 47173 | CHEST CLINIC 1 | Backfilled | | 1971-10-13 | 20.42 | 41.00 | | 8.00 | 2067 | 3715 | 0.1300 | | | | 1392 m | South |
| 6628-99 | 47199 | | Backfilled | | 1938-06-01 | 30.33 | | 44.20 | | 785 | 1424 | 3.7900 | 9.14 | 9.14 | 35.06 | 1392 m | South |
| 6628-27431 | 280502 | BH16 | Backfilled | | 2014-08-07 | 15.00 | | 39.90 | | | | | | | | 1394 m | South |
| 6628-9540 | 56509 | | | | 1934-01-01 | 32.00 | | 38.00 | | | | | | | | 1394 m | North |
| 6628-49 | 47149 | UNION UR 1 | Unknown | | 1968-05-29 | 6.48 | | | | | | | | | | 1395 m | South West |
| 6628-30115 | 315787 | | Backfilled | Investigation | 2019-02-12 | 8.00 | | 49.80 | | | | | | | | 1396 m | South East |
| 6628-9530 | 56499 | | Operational | Drainage | 1960-08-25 | 13.41 | | 50.10 | | | | | | | | 1396 m | North West |
| 6628-152 | 47252 | | Abandoned | | 1968-08-23 | 6.40 | | | | | | | | | | 1397 m | South West |
| 6628-153 | 47253 | | Abandoned | | 1968-08-23 | 8.53 | | | | | | | | | | 1397 m | South West |
| 6628-154 | 47254 | | Abandoned | | 1968-08-23 | 4.27 | | | | | | | | | | 1397 m | South West |
| 6628-155 | 47255 | | Abandoned | | 1968-08-23 | 6.71 | | | | | | | | | | 1397 m | South West |
| 6628-156 | 47256 | | Abandoned | | 1968-08-23 | 7.31 | | | | | | | | | | 1397 m | South West |
| 6628-46 | 47146 | ADELAIDE UNI. | Abandoned | | 1969-03-14 | 27.43 | | | 7.50 | 1255 | 2271 | 0.2500 | 13.72 | 13.72 | | 1397 m | South West |
| 6628-115 | 47215 | | | | 1959-09-24 | 25.60 | | | 7.40 | 1928 | 3470 | | 10.36 | 10.36 | | 1401 m | South West |
| 6628-20240 | 181061 | | Abandoned | Domestic | 2000-06-19 | 31.00 | | 52.50 | | | | | | | | 1402 m | North West |
| 6628-25893 | 265151 | GW 1 | Backfilled | Investigation | 2011-09-10 | 10.00 | | 49.70 | | | | | 5.50 | 5.50 | 44.20 | 1402 m | South East |
| 6628-684 | 47761 | WEBBER & WILL. | | | 1963-11-21 | 4.57 | | | | | | | | | | 1402 m | West |
| 6628-11124 | 58093 | DEPT OF TRANS | | Observation | 1979-08-10 | 18.80 | 37.24 | | | | | | 8.93 | 8.93 | 28.31 | 1404 m | North |
| 6628-149 | 47249 | UNION B 3 | Unknown | | 1968-07-11 | 6.20 | | | | | | | | | | 1404 m | South West |
| 6628-123 | 47223 | | Abandoned | | 1965-08-23 | 8.94 | | | | | | | | | | 1405 m | South West |
| 6628-125 | 47225 | | Abandoned | | 1965-08-25 | 8.74 | | | | | | | | | | 1407 m | South West |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-30105 | 315777 | | Backfilled | Investigation | 2019-02-12 | 8.00 | | 50.00 | | | | | | | | 1408 m | South East |
| 6628-9526 | 56495 | | | | | 32.31 | | 52.70 | | 2116 | 3804 | | | | | 1410 m | North West |
| 6628-30106 | 315778 | | Backfilled | Investigation | 2019-02-12 | 8.00 | | 49.90 | | | | | | | | 1411 m | South East |
| 6628-12552 | 59521 | | | | 1983-10-26 | 11.00 | | 37.00 | | | | | 8.00 | 8.00 | 29.00 | 1412 m | North East |
| 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 | 1412 m | South |
| 6628-9537 | 56506 | | | | | 27.43 | | 48.70 | | 2359 | 4234 | | 23.62 | 23.62 | 25.08 | 1412 m | North |
| 6628-28849 | 294686 | | Backfilled | Monitoring | 2017-04-08 | 7.80 | | 42.90 | | | | | 5.00 | 5.00 | 37.90 | 1413 m | South East |
| 6628-30419 | 326065 | | | Investigation | 2019-09-27 | 9.50 | | 50.00 | | | | | | | | 1413 m | South East |
| 6628-116 | 47216 | | Abandoned | | 1959-09-09 | 12.19 | | | 7.50 | 1928 | 3470 | | | | | 1414 m | South West |
| 6628-30398 | 325650 | | | Investigation | 2019-09-03 | 11.50 | | 49.60 | | | | | | | | 1416 m | South East |
| 6628-17111 | 148654 | | | Domestic | 1995-03-15 | 21.00 | | 43.40 | 7.50 | 1546 | 2790 | 2.0000 | | | | 1417 m | North East |
| 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 | 1418 m | South West |
| 6628-117 | 47217 | | Abandoned | | 1959-09-01 | 9.14 | | | | 677 | 1230 | | 6.71 | 6.71 | | 1424 m | South West |
| 6628-126 | 47226 | | Abandoned | | 1962-07-04 | 15.24 | | | | | | | | | | 1424 m | South West |
| 6628-28793 | 293909 | | Backfilled | Investigation | 2017-04-07 | 7.50 | | 43.70 | | | | | 4.00 | 4.00 | 39.70 | 1427 m | South East |
| 6628-12348 | 59317 | | | | 1983-06-26 | 16.00 | 47.00 | | | | | 0.5400 | | | | 1429 m | East |
| 6628-14548 | 61517 | GH 43 | Abandoned | Investigation | 1982-02-27 | 10.40 | 48.50 | | | | | | | | | 1432 m | North West |
| 6628-28604 | 290359 | SB04/GW1 | | | 2016-08-25 | 6.00 | | 44.00 | | | | | 5.22 | 5.22 | 38.78 | 1434 m | South East |
| 6628-30328 | 325444 | | | Investigation | 2019-08-14 | 20.00 | | 41.50 | | | | | | | | 1435 m | South West |
| 6628-47 | 47147 | ADELAIDE UNI. | Abandoned | | 1969-04-16 | 27.43 | | | 7.00 | 1320 | 2387 | 0.1300 | 12.19 | 12.19 | | 1436 m | South West |
| 6628-74 | 47174 | CHEST CLINIC 2 | Unknown | | 1971-10-18 | 18.29 | 42.00 | | 8.00 | 2909 | 5200 | 0.1300 | | | | 1439 m | South |
| 6628-76 | 47176 | COLD STORES 1 | Unknown | | 1962-12-19 | 4.65 | | | | | | | | | | 1440 m | South |
| 6628-30107 | 315779 | | Backfilled | Investigation | 2019-02-12 | 8.00 | | 50.00 | | | | | | | | 1441 m | South East |
| 6628-9541 | 56510 | | | | 1914-01-01 | 15.70 | | 38.00 | | 105 | 191 | | 12.34 | 12.34 | 25.66 | 1442 m | North |
| 6628-118 | 47218 | | Abandoned | | 1959-09-03 | 9.14 | | | | 2070 | 3722 | | 7.77 | 7.77 | | 1443 m | South West |
| 6628-29900 | 314333 | | | Investigation | 2019-01-18 | 21.00 | | 41.70 | | | | | | | | 1445 m | South West |
| 6628-143 | 47243 | | | Observation | 1964-01-01 | 13.72 | 36.00 | | 7.50 | 350 | 637 | 2.5000 | | | | 1446 m | South |
| 6628-77 | 47177 | COLD STORES 2 | Unknown | | 1962-12-20 | 5.64 | | | | | | | | | | 1446 m | South |
| 6628-124 | 47224 | | Abandoned | | 1962-07-06 | 15.24 | | | | | | | | | | 1447 m | South West |
| 6628-17510 | 153313 | | | Domestic | 1995-12-29 | 19.00 | | 48.00 | 7.30 | 1754 | 3160 | 1.0000 | | | | 1447 m | East |
| 6628-28136 | 288423 | BH54 51 | Backfilled | | | 14.52 | | 38.40 | | | | | | | | 1448 m | South |
| 6628-24989 | 253166 | | | | 2009-07-31 | 20.00 | | 47.30 | | 1278 | 2310 | 1.2000 | 7.00 | 7.00 | 40.30 | 1449 m | East |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-11473 | 58442 | YAT 88 | | Observation | 1979-02-23 | 30.00 | 37.42 | 37.75 | 7.70 | 1580 | 2850 | 0.0200 | 11.04 | 11.37 | 26.38 | 1450 m | North |
| 6628-11474 | 58443 | | | Observation | 1979-03-14 | 21.00 | 37.78 | 37.78 | 11.50 | 1586 | 2860 | 0.1515 | 11.41 | 11.41 | 26.37 | 1450 m | North |
| 6628-25895 | 265153 | GW 4 | | Investigation | 2011-09-10 | 9.00 | | 49.60 | | | | | | | | 1450 m | South East |
| 6628-91 | 47191 | CHEMISTRY BLDG 1 | Unknown | | 1961-11-29 | 24.38 | | | | 1999 | 3597 | | 6.10 | 6.10 | | 1452 m | South West |
| 6628-78 | 47178 | COLD STORES 3 | Unknown | | 1962-12-20 | 4.57 | | | | | | | | | | 1455 m | South |
| 6628-127 | 47227 | | Abandoned | | 1966-08-26 | 9.14 | | | | | | | | | | 1456 m | South West |
| 6628-20458 | 184037 | | | Domestic | 2000-12-29 | 19.00 | | 47.40 | | 1502 | 2710 | 0.6000 | 10.50 | 10.50 | 36.90 | 1456 m | East |
| 6628-56 | 47156 | ATTC 7 | Unknown | | 1957-08-08 | 6.10 | | | | | | | | | | 1460 m | South West |
| 6628-9538 | 56507 | | | | 1934-01-01 | 35.51 | | 50.00 | 7.00 | 3030 | 5413 | 0.2500 | 24.99 | 24.99 | 25.01 | 1464 m | North |
| 6628-27519 | 280988 | GW 2 | Backfilled | Investigation | | 9.00 | | 50.20 | | | | | | | | 1465 m | South East |
| 6628-9542 | 56511 | | | | | 14.02 | | 38.00 | 7.00 | 2085 | 3749 | | 10.97 | 10.97 | 27.03 | 1468 m | North |
| 6628-28792 | 293908 | | Backfilled | Investigation | 2017-04-07 | 9.00 | | 44.00 | | | | | | | | 1469 m | South East |
| 6628-144 | 47244 | | Backfilled | | 1955-01-01 | 39.62 | | 43.60 | | | | 0.7600 | | | | 1470 m | South |
| 6628-15936 | 62905 | | Operational | Domestic | 1992-03-03 | 18.00 | | 48.20 | 7.10 | 1463 | 2640 | | 9.00 | 9.00 | 39.20 | 1470 m | East |
| 6628-27520 | 280989 | GW 1 | Backfilled | Investigation | | 9.00 | | 50.20 | | | | | | | | 1473 m | South East |
| 6628-9525 | 56494 | | | | | 2.13 | 54.00 | | | 2430 | 4359 | 0.1000 | 1.68 | 1.68 | 52.32 | 1474 m | North West |
| 6628-57 | 47157 | ATTC 8 | Unknown | | 1957-08-07 | 6.40 | | | | | | | | | | 1475 m | South West |
| 6628-25896 | 265154 | GW 3 | | Investigation | 2011-09-10 | 11.00 | | 50.40 | | | | | 6.50 | 6.50 | 43.90 | 1476 m | South East |
| 6628-98 | 47198 | | | | | 6.71 | | 44.10 | | 1257 | 2274 | | | | | 1476 m | South East |
| 6628-27688 | 284578 | | Decommissioned | | 2015-03-04 | 25.00 | | 47.10 | | | | | | | | 1479 m | West |
| 6628-28789 | 293881 | MW 2 | | Investigation | 2016-10-22 | 7.00 | 43.31 | 43.39 | | | | | 4.50 | 4.58 | 38.81 | 1481 m | South East |
| 6628-28605 | 290360 | GW 2 | | | 2016-08-25 | 7.00 | | 45.60 | | | | | 4.97 | 4.97 | 40.63 | 1483 m | South East |
| 6628-15996 | 62965 | | Operational | Domestic | 1992-04-17 | 18.00 | | 48.40 | 7.00 | 1474 | 2660 | | 12.00 | 12.00 | 36.40 | 1484 m | East |
| 6628-55 | 47155 | ATTC 6 | Unknown | | 1957-07-15 | 30.48 | | | | 2370 | 4254 | 0.1300 | 12.19 | 12.19 | | 1486 m | South West |
| 6628-28790 | 293882 | MW 3 | | Investigation | 2016-10-22 | 7.00 | 43.15 | 43.23 | | | | | 4.20 | 4.28 | 38.95 | 1487 m | South |
| 6628-133 | 47233 | | | | | | | | | | | | | | | 1488 m | South West |
| 6628-28137 | 288424 | BH 55 | Backfilled | | | 14.75 | | 37.00 | | | | | | | | 1488 m | South |
| 6628-30607 | 333209 | | Operational | Managed Aquifer Recharge (incl ASR) | 2020-01-30 | 120.50 | | 36.20 | | 1558 | 2810 | 13.0000 | 9.30 | 9.30 | 26.90 | 1489 m | North East |
| 6628-58 | 47158 | ATTC 9 | Unknown | | 1957-07-29 | 7.92 | | | | | | | 1.22 | 1.22 | | 1489 m | South West |
| 6628-19570 | 175921 | | | Domestic | 1999-08-03 | 19.50 | | 40.80 | | 2397 | 4300 | 0.7000 | 9.00 | 9.00 | 31.80 | 1493 m | North East |
| 6628-60 | 47160 | | | | | 1.76 | | | | 1602 | 2890 | | 1.76 | 1.76 | | 1493 m | South West |
| 6628-114 | 47214 | | Operational | Drainage | 1935-09-10 | 28.35 | | 42.00 | | | | 0.8800 | | | | 1494 m | South West |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-193 | 47293 | | Backfilled | | | 18.90 | | 49.30 | | 1642 | 2961 | | 16.76 | 16.76 | 32.54 | 1496 m | North West |
| 6628-134 | 47234 | | | | | | | | | | | | | | | 1497 m | South West |
| 6628-54 | 47154 | ATTC 5 | Unknown | | 1957-08-02 | 7.62 | | | | 457 | 831 | | 2.13 | 2.13 | | 1497 m | South West |
| 6628-17480 | 153194 | | | Drainage | 1995-09-13 | 30.00 | | 50.40 | 7.30 | 1250 | 2260 | 0.5000 | | | | 1498 m | South East |
| 6628-27521 | 280990 | GW 3 | Backfilled | Investigation | 2014-09-18 | 9.00 | | 50.40 | | | | | | | | 1498 m | South East |
| 6628-9524 | 56493 | | | | | 51.82 | | 54.00 | | 471 | 856 | | 27.43 | 27.43 | 26.57 | 1499 m | North West |
| 6628-59 | 47159 | ATTC 10 | Unknown | | 1957-07-23 | 30.48 | | | | 1770 | 3190 | 1.2600 | 14.93 | 14.93 | | 1500 m | South West |
| 6628-101 | 47201 | | | | | 15.24 | | 48.90 | | 1100 | 1992 | | | | | 1502 m | South East |
| 6628-9586 | 56555 | | | | | 10.67 | | 38.10 | | 1927 | 3468 | | 8.84 | 8.84 | 29.26 | 1502 m | North East |
| 6628-30499 | 331491 | | Dry | Monitoring | 2019-11-09 | 9.00 | | 44.40 | | | | | | | | 1503 m | South East |
| 6628-131 | 47231 | | | | | | | | | | | | | | | 1504 m | South West |
| 6628-53 | 47153 | ATTC 4 | Unknown | | 1957-08-05 | 7.62 | | | | 357 | 649 | | 1.22 | 1.22 | | 1507 m | South West |
| 6628-11125 | 58094 | SADT B4E | Unknown | | 1979-08-14 | 20.50 | 37.38 | | | | | | 8.25 | 8.25 | 29.13 | 1508 m | North |
| 6628-9943 | 56912 | | | | | 7.16 | | 50.00 | 7.00 | 2355 | 4227 | | 5.94 | 5.94 | 44.06 | 1508 m | East |
| 6628-21225 | 196717 | | | Monitoring | 2003-06-12 | 8.00 | | 50.70 | | | | | 5.60 | 5.60 | 45.10 | 1509 m | South East |
| 6628-12347 | 59316 | | | | 1983-06-30 | 9.00 | 49.00 | | | | | 0.3000 | 6.00 | 6.00 | 43.00 | 1510 m | East |
| 6628-135 | 47235 | | | | | | | | | | | | | | | 1510 m | South West |
| 6628-28788 | 293880 | MW 1 | | Investigation | 2016-10-22 | 7.50 | 44.05 | 44.11 | | | | | 4.30 | 4.36 | 39.75 | 1513 m | South East |
| 6628-86 | 47186 | | | | 1934-06-15 | 21.34 | 43.00 | | | 2385 | 4281 | 6.3100 | 10.67 | 10.67 | 32.33 | 1514 m | South |
| 6628-132 | 47232 | | | | | | | | | | | | | | | 1517 m | South West |
| 6628-27758 | 285067 | | Decommissioned | | 2015-03-31 | 25.00 | | 46.40 | | | | | | | | 1518 m | West |
| 6628-28791 | 293883 | MW 4 | | Investigation | 2016-10-22 | 5.00 | 43.80 | 43.90 | | | | | 4.00 | 4.10 | 39.80 | 1520 m | South East |
| 6628-31947 | 370815 | | | Investigation | 2022-07-20 | 9.00 | | 50.00 | | | | | | | | 1523 m | South East |
| 6628-9532 | 56501 | CELLAR | | | | | | | | 2313 | 4152 | | | | | 1526 m | North West |
| 6628-52 | 47152 | ATTC 3 | Unknown | | 1957-07-31 | 7.62 | | | | | | | | | | 1529 m | South West |
| 6628-21197 | 196547 | | | Investigation | 2003-06-12 | 8.00 | | 50.90 | | | | | | | | 1530 m | South East |
| 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 | 1531 m | South |
| 6628-19471 | 174618 | | Abandoned | Domestic | 1999-03-16 | 36.00 | | 49.70 | | | | | | | | 1532 m | North West |
| 6628-136 | 47236 | | | | | | | | | | | | | | | 1534 m | South West |
| 6628-22579 | 218484 | | | | 2006-04-21 | 75.00 | | | | | | | | | | 1534 m | North West |
| 6628-9944 | 56913 | | Backfilled | | 1914-01-01 | 24.99 | 50.00 | | | 728 | 1322 | 1.2600 | 7.62 | 7.62 | 42.38 | 1535 m | South East |
| 6628-51 | 47151 | ATTC 2 | Unknown | | | 8.53 | | | | 2770 | 4957 | | | | | 1536 m | South West |
| 6628-30500 | 331492 | | | Monitoring | 2019-11-08 | 9.00 | | 44.50 | | | | | 4.60 | 4.60 | 39.90 | 1537 m | South East |
| 6628-9531 | 56500 | CELLAR | | | | | | | | 1771 | 3192 | | | | | 1540 m | North West |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-22538 | 215520 | | | | 2006-05-14 | 78.00 | | | | | | | | | | 1541 m | North West |
| 6628-31946 | 370814 | | | Investigation | 2022-07-20 | 9.00 | | 50.20 | | | | | | | | 1541 m | South East |
| 6628-22536 | 215518 | | | | 2006-05-28 | 75.00 | | | | | | | | | | 1542 m | North West |
| 6628-95 | 47195 | FORENSIC LAB 1 | Unknown | | 1966-12-08 | 6.71 | 39.11 | | | 2081 | 3740 | | | | | 1544 m | South West |
| 6628-22537 | 215519 | | | Geothermal energy | 2006-06-05 | 72.00 | | 49.80 | | | | | | | | 1546 m | North West |
| 6628-31945 | 370813 | | | Investigation | 2022-07-20 | 8.50 | | 50.40 | | | | | | | | 1546 m | East |
| 6628-28712 | 291386 | | Operational | | | 14.00 | | 38.50 | | | | | | | | 1548 m | North |
| 6628-26596 | 272287 | MW 2 | | Investigation | 2012-06-12 | 8.50 | | 50.30 | | | | | 6.80 | 6.80 | 43.50 | 1549 m | South East |
| 6628-50 | 47150 | ATTC 1 | Unknown | | 1957-06-26 | 15.24 | | | | | | | | | | 1552 m | South West |
| 6628-26597 | 272288 | MW 3 | | Investigation | 2012-06-13 | 8.50 | | 50.40 | | | | | 6.60 | 6.60 | 43.80 | 1553 m | South East |
| 6628-9928 | 56897 | | | | | 11.43 | | 40.20 | | 2156 | 3875 | | | | | 1556 m | North East |
| 6628-11126 | 58095 | SADT B5W | Unknown | | 1979-08-16 | 18.85 | 37.36 | | | | | | | | | 1559 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 | 1559 m | South |
| 6628-18026 | 161851 | LIBRARY PIER M13 | Unknown | | 1965-01-28 | 11.28 | | | | | | | | | | 1564 m | South West |
| 6628-25843 | 264415 | MW 3 | | Investigation | 2011-04-06 | 12.00 | | 37.90 | | | | | 9.70 | 9.70 | 28.20 | 1566 m | North |
| 6628-25842 | 264414 | MW 2 | | Investigation | 2011-04-06 | 12.00 | | 37.80 | | | | | 9.30 | 9.30 | 28.50 | 1568 m | North |
| 6628-26595 | 272286 | MW 1 | | Investigation | 2012-06-12 | 8.50 | | 50.50 | | | | | 6.60 | 6.60 | 43.90 | 1568 m | South East |
| 6628-79 | 47179 | | Abandoned | | 1964-12-04 | 12.19 | | | | | | | 3.66 | 3.66 | | 1569 m | South West |
| 6628-12888 | 59857 | | Backfilled | Observation | 1984-03-27 | 4.00 | | 42.70 | | | | | | | | 1570 m | South West |
| 6628-12889 | 59858 | | Backfilled | Observation | 1984-03-27 | 3.00 | | 42.70 | | | | | | | | 1570 m | South West |
| 6628-12890 | 59859 | | Backfilled | Observation | 1984-03-27 | 6.00 | | 42.70 | | | | | | | | 1570 m | South West |
| 6628-12891 | 59860 | | Backfilled | Observation | 1984-03-28 | 3.00 | | 42.70 | | | | | | | | 1570 m | South West |
| 6628-12892 | 59861 | | Backfilled | Observation | 1984-03-28 | 3.00 | | 42.70 | | | | | | | | 1570 m | South West |
| 6628-12893 | 59862 | | Backfilled | Observation | 1984-03-28 | 4.00 | | 42.70 | | | | | | | | 1570 m | South West |
| 6628-12883 | 59852 | | Backfilled | Observation | 1984-03-26 | 8.00 | | 42.70 | | | | | | | | 1571 m | South West |
| 6628-12884 | 59853 | | Backfilled | Observation | 1984-03-26 | 3.00 | | 42.70 | | | | | | | | 1571 m | South West |
| 6628-12885 | 59854 | | Backfilled | Observation | 1984-03-26 | 1.50 | | 42.70 | | | | | | | | 1571 m | South West |
| 6628-12886 | 59855 | | Backfilled | Observation | 1984-03-26 | 1.50 | | 42.70 | | | | | | | | 1571 m | South West |
| 6628-12887 | 59856 | | Backfilled | Observation | 1984-03-26 | 3.00 | | 42.70 | | | | | | | | 1571 m | South West |
| 6628-9539 | 56508 | | | | | 15.24 | | 39.30 | 7.00 | 2651 | 4748 | | | | | 1571 m | North |
| 6628-12882 | 59851 | | Backfilled | Observation | 1984-03-23 | 8.50 | | 42.70 | | | | | | | | 1572 m | South West |
| 6628-96 | 47196 | FORENSIC LAB 2 | Unknown | | 1967-01-18 | 16.69 | 39.11 | | | | | | | | | 1573 m | South West |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-26033 | 266517 | SCALES RESERVE | Operational | Managed Aquifer Recharge (incl ASR) | 2011-08-12 | 113.00 | | 31.70 | | 1071 | 1939 | 12.0000 | 5.00 | 5.00 | 26.70 | 1575 m | North |
| 6628-89 | 47189 | LIBRARY DM 2 | Unknown | | 1964-12-17 | 4.88 | | | | | | | | | | 1577 m | South West |
| 6628-14078 | 61047 | | | Observation | 1980-01-01 | 12.25 | | 43.00 | | | | 0.0000 | 0.00 | 0.00 | 43.00 | 1585 m | South West |
| 6628-14079 | 61048 | | | Observation | 1980-01-01 | 10.10 | | 43.00 | | | | 0.0000 | 0.00 | 0.00 | 43.00 | 1585 m | South West |
| 6628-14080 | 61049 | | | Observation | 1980-01-01 | 10.10 | | 43.00 | | | | 0.0000 | 0.00 | 0.00 | 43.00 | 1585 m | South West |
| 6628-14081 | 61050 | | | Observation | 1980-01-01 | 9.60 | | 43.00 | | | | 0.0000 | 0.00 | 0.00 | 43.00 | 1585 m | South West |
| 6628-14082 | 61051 | | | Observation | 1980-01-01 | 9.90 | | 43.00 | | | | 0.0000 | 0.00 | 0.00 | 43.00 | 1585 m | South West |
| 6628-14083 | 61052 | | | Observation | 1980-01-01 | 7.70 | | 43.00 | | | | 0.0000 | 0.00 | 0.00 | 43.00 | 1585 m | South West |
| 6628-14084 | 61053 | | | Observation | 1980-01-01 | 7.15 | | 43.00 | | | | 0.0000 | 0.00 | 0.00 | 43.00 | 1585 m | South West |
| 6628-14085 | 61054 | | | Observation | 1982-01-01 | 9.70 | | 43.00 | | | | 0.0000 | 0.00 | 0.00 | 43.00 | 1585 m | South West |
| 6628-18027 | 161852 | LIBRARY PIER N6 | Unknown | | 1965-03-01 | 12.95 | | | | | | | | | | 1585 m | South West |
| 6628-31147 | 354319 | | Backfilled | Environmental | 2021-02-23 | 7.50 | | 51.00 | | | | | | | | 1587 m | East |
| 6628-19398 | 174181 | | | Domestic | 1999-03-02 | 18.00 | | 37.30 | | 1720 | 3100 | 1.0000 | 9.00 | 9.00 | 28.30 | 1589 m | North East |
| 6628-13523 | 60492 | | Operational | Domestic | 1985-11-01 | 24.00 | 47.00 | | 8.00 | 2001 | 3600 | 0.5000 | 10.00 | 10.00 | 37.00 | 1590 m | North East |
| 6628-19587 | 175954 | | | Domestic | 1999-05-04 | 20.00 | | 37.20 | | 1670 | 3010 | 1.0000 | 8.80 | 8.80 | 28.40 | 1590 m | North East |
| 6628-687 | 47764 | LUCAS PARKER 1 | Unknown | | 1959-04-13 | 27.43 | | | | 3331 | 5939 | | | | | 1590 m | West |
| 6628-32312 | 377545 | | Backfilled | Investigation | 2021-05-11 | 30.00 | | 48.00 | | | | | | | | 1594 m | West |
| 6628-88 | 47188 | LIBRARY DM 1 | Unknown | | 1964-12-16 | 12.98 | | | | | | | | | | 1594 m | South West |
| 6628-28628 | 290447 | BH 2 | Backfilled | Investigation | 2016-07-05 | 28.50 | | 44.20 | | | | | | | | 1597 m | South West |
| 6628-90 | 47190 | LIBRARY DM 3 | Unknown | | 1964-12-17 | 10.06 | | | | | | | | | | 1599 m | South West |
| 6628-28445 | 289520 | | | | 2016-08-23 | 25.00 | | 44.20 | | | | | 16.00 | 16.00 | 28.20 | 1600 m | South West |
| 6628-70 | 47170 | JOHN MARTINS | Abandoned | | 1966-12-13 | 24.00 | | | | | | | | | | 1600 m | South West |
| 6628-13823 | 60792 | | | | 1986-11-11 | 17.00 | 49.00 | | 7.40 | 1810 | 3260 | 0.6300 | 7.60 | 7.60 | 41.40 | 1601 m | East |
| 6628-9523 | 56492 | | | | 1914-01-01 | | | 53.60 | | 943 | 1709 | | | | | 1606 m | North West |
| 6628-12484 | 59453 | | Operational | Domestic | 1982-12-06 | 21.30 | | 50.60 | | | | 0.3000 | 7.30 | 7.30 | 43.30 | 1607 m | East |
| 6628-15716 | 62685 | | Operational | Domestic | 1991-11-05 | 19.00 | | 48.00 | 7.30 | 1984 | 3570 | 132.0000 | 12.00 | 12.00 | 36.00 | 1607 m | East |
| 6628-18024 | 161849 | LIBRARY PIER G5 | Unknown | | 1965-02-22 | 10.67 | | | | | | | | | | 1607 m | South West |
| 6628-80 | 47180 | | | | | 29.87 | | 44.30 | | | | | | | | 1607 m | South West |
| 6628-17953 | 159790 | | | Domestic | 1996-08-21 | 20.00 | | 49.60 | 7.10 | 1496 | 2700 | 0.5000 | | | | 1608 m | East |
| 6628-17337 | 151215 | | | Domestic | 1995-07-01 | 21.00 | | 42.30 | 7.20 | 2437 | 4370 | 2.2000 | | | | 1612 m | North East |
| 6628-12998 | 59967 | | | | 1983-03-24 | 9.00 | 48.00 | | 7.10 | 2323 | 4170 | 0.5000 | 3.00 | 3.00 | 45.00 | 1613 m | East |
| 6628-18021 | 161846 | LIBRARY PIER A10 | Unknown | | 1965-02-11 | 10.06 | | | | | | | | | | 1613 m | South West |
| 6628-18025 | 161850 | LIBRARY PIER J1 | Unknown | | 1965-01-27 | 18.23 | | | | | | | | | | 1613 m | South West |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-18005 | 161246 | | | Domestic | 1996-06-04 | 24.00 | | 49.20 | 7.00 | 1872 | 3370 | 1.0000 | | | | 1614 m | East |
| 6628-32311 | 377544 | | Backfilled | Investigation | 2021-04-07 | 30.00 | | 48.50 | | | | | | | | 1614 m | West |
| 6628-439 | 47536 | | | | 1966-08-02 | 5.79 | | 37.30 | | | | | | | | 1614 m | South West |
| 6628-11286 | 58255 | | Backfilled | | 1965-01-27 | 18.23 | | | | | | | | | | 1618 m | South West |
| 6628-610 | 47699 | | Backfilled | | | 32.00 | | 43.30 | | | | | | | | 1620 m | South |
| 6628-23333 | 236171 | | Backfilled | | 2007-11-26 | 38.50 | | 52.30 | | | | | | | | 1621 m | North West |
| 6628-100 | 47200 | | | | | 10.06 | | 44.10 | | 1499 | 2705 | | | | | 1622 m | South |
| 6628-29177 | 302371 | | | Investigation | 2017-10-21 | 30.00 | | 44.40 | | | | | 17.00 | 17.00 | 27.40 | 1623 m | South West |
| 6628-72 | 47172 | JOHN MARTINS | Abandoned | | 1967-06-19 | 15.90 | | | | | | | | | | 1623 m | South West |
| 6628-14055 | 61024 | | | | 1988-05-09 | 18.80 | 49.00 | | 7.30 | 2504 | 4490 | 1.2500 | 7.60 | 7.60 | 41.40 | 1625 m | East |
| 6628-28400 | 289371 | | | Investigation | 2016-05-03 | 19.00 | | 48.30 | | | | | | | | 1626 m | West |
| 6628-18022 | 161847 | LIBRARY PIER A6 | Unknown | | 1965-02-13 | 11.43 | | | | | | | | | | 1627 m | South West |
| 6628-21684 | 199975 | | | Domestic | 2004-05-04 | 18.00 | | 37.80 | | 1642 | 2960 | 0.5800 | 8.00 | 8.00 | 29.80 | 1628 m | North East |
| 6628-65 | 47165 | JOHN MARTINS | Abandoned | | 1967-06-13 | 10.97 | | | | | | | | | | 1629 m | South West |
| 6628-9952 | 56921 | NW HAND DUG WELL | Backfilled | | | 42.67 | 52.35 | | | 940 | 1704 | 1.0100 | 9.14 | 9.14 | 43.21 | 1631 m | South East |
| 6628-29268 | 305516 | | | Investigation | 2018-01-11 | 30.00 | | 48.30 | | | | | | | | 1633 m | West |
| 6628-14351 | 61320 | | Operational | Domestic | 1988-10-20 | 15.20 | 49.00 | | 7.50 | 1867 | 3360 | 1.0000 | 8.90 | 8.90 | 40.10 | 1635 m | East |
| 6628-69 | 47169 | JOHN MARTINS | Abandoned | | 1967-10-03 | 10.22 | | | | | | | | | | 1635 m | South West |
| 6628-11127 | 58096 | SADT B5E | Unknown | | 1979-08-07 | 18.20 | 36.94 | | | | | | | | | 1637 m | North |
| 6628-11284 | 58253 | K.W.G.SMITH PTY. | Backfilled | | 1975-10-09 | 18.80 | | | | | | | | | | 1641 m | South West |
| 6628-18023 | 161848 | LIBRARY PIER C1A | Unknown | | 1965-02-17 | 13.72 | | | | | | | | | | 1643 m | South West |
| 6628-9587 | 56556 | | | | | 18.59 | 41.00 | | 7.00 | 2185 | 3925 | 1.2600 | 5.49 | 5.49 | 35.51 | 1644 m | North East |
| 6628-29924 | 314422 | BH 2 | | | | 10.00 | | 50.00 | | | | | 4.80 | 4.80 | 45.20 | 1645 m | West |
| 6628-421 | 47518 | | | | | | | | | 2399 | 4304 | | | | | 1645 m | West |
| 6628-71 | 47171 | JOHN MARTINS 3 | Unknown | | 1966-12-13 | 30.02 | | | | | | | | | | 1645 m | South West |
| 6628-84 | 47184 | BRICKED WELL | | | | 18.29 | | 44.70 | | 1760 | 3172 | | 4.98 | 4.98 | 39.72 | 1647 m | South West |
| 6628-81 | 47181 | ANZ BANK | | | | 10.97 | | | | | | | 3.35 | 3.35 | | 1648 m | South West |
| 6628-16782 | 146341 | | | Domestic | 1994-10-12 | 23.00 | | 48.10 | 7.00 | 1979 | 3560 | 0.2000 | | | | 1649 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 | 1649 m | South |
| 6628-18388 | 164355 | | | Domestic | 1996-12-04 | 30.00 | | 49.40 | | 2307 | 4140 | 0.5000 | 11.50 | 11.50 | 37.90 | 1650 m | East |
| 6628-31166 | 354352 | | Backfilled | Environmental | 2021-02-22 | 8.50 | | 51.80 | | | | | | | | 1650 m | East |
| 6628-64 | 47164 | JOHN MARTINS | Abandoned | | 1967-05-29 | 15.39 | | | | | | | | | | 1652 m | South West |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-9951 | 56920 | SE HAND DUG WELL | | Observation | | | 51.96 | | 7.70 | 1295 | 2340 | | 4.91 | 4.91 | 47.05 | 1655 m | South East |
| 6628-11285 | 58254 | K.W.G.SMITH PTY | Backfilled | | 1975-10-08 | 19.00 | | | | | | | | | | 1658 m | South West |
| 6628-26175 | 267206 | | Decommissioned | Investigation | 2011-11-24 | 30.00 | | 24.70 | | | | | | | | 1659 m | South West |
| 6628-16144 | 63113 | | Operational | Domestic | 1992-09-29 | 15.00 | | 48.20 | 6.90 | 2340 | 4200 | | 10.50 | 10.50 | 37.70 | 1663 m | East |
| 6628-66 | 47166 | JOHN MARTINS | Abandoned | | 1967-06-08 | 14.63 | | | | | | | | | | 1664 m | South West |
| 6628-15494 | 62463 | | | Drainage | 1990-12-18 | 14.00 | | 52.90 | | | | | 11.00 | 11.00 | 41.90 | 1669 m | North West |
| 6628-19323 | 173822 | | | Domestic | 1998-12-07 | 24.00 | | 51.60 | | 2256 | 4050 | | 10.00 | 10.00 | 41.60 | 1669 m | East |
| 6628-28428 | 289447 | | Backfilled | Investigation | 2016-06-06 | 21.50 | | 48.50 | | | | | | | | 1670 m | West |
| 6628-67 | 47167 | JOHN MARTINS | Abandoned | | 1967-05-24 | 14.33 | | | | | | | | | | 1670 m | South West |
| 6628-18061 | 162599 | E 8 | | Observation | 1995-10-27 | 13.50 | | 48.80 | 7.30 | 1322 | 2390 | | | | | 1672 m | East |
| 6628-68 | 47168 | JOHN MARTINS | Abandoned | | 1967-07-13 | 13.56 | | | | | | | | | | 1672 m | South West |
| 6628-18511 | 165711 | | | Domestic | 1997-06-02 | 27.00 | | 51.90 | | 2267 | 4070 | | 10.00 | 10.00 | 41.90 | 1676 m | East |
| 6628-63 | 47163 | JOHN MARTINS | Abandoned | | 1967-07-11 | 11.33 | | | | | | | | | | 1678 m | South West |
| 6628-9953 | 56922 | | | | | 14.02 | | 51.50 | | 1128 | 2042 | | | | | 1680 m | South East |
| 6628-18062 | 162600 | E 9 | | Observation | 1995-10-27 | 13.50 | | 48.70 | 7.20 | 1412 | 2550 | | | | | 1681 m | East |
| 6628-18827 | 167961 | | | Domestic | 1998-02-03 | 21.00 | | 41.60 | | 1810 | 3260 | 1.0000 | 10.50 | 10.50 | 31.10 | 1681 m | North East |
| 6628-85 | 47185 | | | | | 6.40 | 45.00 | | | 2780 | 4975 | 2.0200 | 4.57 | 4.57 | 40.43 | 1682 m | South West |
| 6628-16818 | 146779 | | Backfilled | Investigation | 1994-07-15 | 39.00 | | 24.10 | | | | | | | | 1689 m | South West |
| 6628-11112 | 58081 | KW 12 | Unknown | | 1979-09-02 | 10.41 | 33.63 | | | | | | | | | 1692 m | South West |
| 6628-16727 | 145689 | | Decommissioned | Investigation | 1994-07-19 | 39.10 | | 26.00 | | | | | | | | 1693 m | South West |
| 6628-19328 | 173827 | | | Domestic | 1999-01-19 | 25.00 | | 50.00 | | 1631 | 2940 | 1.0000 | 12.60 | 12.60 | 37.40 | 1693 m | East |
| 6628-18242 | 163079 | | | Domestic | 1997-01-10 | 21.00 | | 50.30 | | 1703 | 3070 | 0.5000 | 9.00 | 9.00 | 41.30 | 1694 m | East |
| 6628-18063 | 162601 | E 12 | | Observation | 1995-10-27 | 13.50 | | 49.00 | 7.30 | 1793 | 3230 | | | | | 1699 m | East |
| 6628-14511 | 61480 | NORWOOD OVAL | Operational | Recreational | 1989-03-20 | 42.60 | | 53.20 | | 949 | 1720 | 1.0000 | 16.00 | 16.00 | 37.20 | 1700 m | South East |
| 6628-11113 | 58082 | DEPT-TRANSPORT | | Observation | 1979-08-02 | 16.00 | 35.58 | | 7.10 | 994 | 1800 | | 11.76 | 11.76 | 23.82 | 1704 m | South West |
| 6628-97 | 47197 | | | | | 11.99 | | 50.00 | | 1028 | 1862 | | 9.25 | 9.25 | 40.75 | 1706 m | South East |
| 6628-9949 | 56918 | | Backfilled | | | 10.97 | 54.00 | | | 771 | 1400 | 2.5300 | 7.31 | 7.31 | 46.69 | 1707 m | South East |
| 6628-13466 | 60435 | | Capped | Observation | 1985-07-26 | 149.30 | 53.13 | 53.20 | 7.60 | 1500 | 2400 | 1.2500 | 18.84 | 18.91 | 34.29 | 1710 m | South East |
| 6628-18703 | 167152 | | | Domestic | 1997-12-08 | 27.00 | | 50.90 | | 1759 | 3170 | | 15.00 | 15.00 | 35.90 | 1711 m | East |
| 6628-9562 | 56531 | | | | | 59.44 | | 41.30 | | 686 | 1245 | 0.7600 | 12.80 | 12.80 | 28.50 | 1717 m | North |
| 6628-16355 | 134425 | | | Domestic | 1992-12-01 | 19.00 | | 51.40 | 7.10 | 783 | 1420 | | | | | 1718 m | East |
| 6628-9950 | 56919 | | Abandoned | | 1915-01-01 | 79.25 | | 53.60 | | 1228 | 2222 | 0.0400 | 18.29 | 18.29 | 35.31 | 1721 m | South East |
| 6628-11111 | 58080 | GH 157 | Abandoned | Investigation | 1979-08-30 | 13.83 | 35.93 | | | | | | | | | 1725 m | South West |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-19435 | 174360 | | | Domestic | 1999-03-04 | 24.00 | | 53.10 | | 2216 | 3980 | 1.0000 | 9.60 | 9.60 | 43.50 | 1730 m | East |
| 6628-31148 | 354320 | | Backfilled | Environmental | 2021-02-22 | 9.00 | | 52.70 | | | | | | | | 1730 m | East |
| 6628-82 | 47182 | | | | 1915-01-01 | 31.70 | | 45.00 | | | | | 31.09 | 31.09 | 13.91 | 1734 m | South West |
| 6628-15581 | 62550 | | Operational | Domestic | 1991-05-15 | 15.00 | 53.00 | | 7.60 | 868 | 1574 | 1.0000 | 6.50 | 6.50 | 46.50 | 1743 m | South East |
| 6628-11098 | 58067 | | | Drainage | | | | 46.00 | | | | | | | | 1745 m | South West |
| 6628-11110 | 58079 | KW 10A | Unknown | | 1979-09-01 | 12.50 | 37.26 | | | | | | | | | 1748 m | South West |
| 6628-9939 | 56908 | | | | | | | 52.50 | | 2085 | 3749 | | | | | 1748 m | East |
| 6628-26170 | 267200 | | Backfilled | Investigation | 2011-11-30 | 30.00 | | 24.30 | | | | | 8.50 | 8.50 | 15.80 | 1754 m | South West |
| 6628-615 | 47704 | | Abandoned | | 1963-07-03 | 4.57 | | | | | | | | | | 1754 m | South |
| 6628-690 | 47767 | | | Drainage | 1966-04-07 | 32.00 | | 46.10 | | | | 0.2500 | 25.91 | 25.91 | 20.19 | 1755 m | West |
| 6628-14014 | 60983 | | | | 1987-09-30 | 29.00 | | 51.70 | 7.90 | 1732 | 3120 | 1.7500 | | | | 1757 m | East |
| 6628-16184 | 63153 | | Operational | Town Water Supply (Public/Muncipal) | 1992-09-10 | 20.00 | | 38.00 | 7.50 | 1765 | 3181 | 1.6000 | 1.70 | 1.70 | 36.30 | 1757 m | South |
| 6628-130 | 47230 | | | | | | | | | | | | | | | 1758 m | South West |
| 6628-26174 | 267205 | BH 2 | | Investigation | 2011-11-22 | 30.00 | | 25.30 | | | | | 8.50 | 8.50 | 16.80 | 1758 m | South West |
| 6628-18441 | 164550 | | | Domestic | 1997-02-24 | 25.00 | | 52.00 | | 1670 | 3010 | 1.0000 | 12.00 | 12.00 | 40.00 | 1759 m | East |
| 6628-26755 | 274705 | MW 7A | | Investigation | 2012-12-07 | 5.00 | | 49.00 | | | | | 2.80 | 2.80 | 46.20 | 1762 m | West |
| 6628-27777 | 285132 | MW 9 | | Investigation | 2014-09-05 | 5.00 | | 48.80 | | | | | 2.80 | 2.80 | 46.00 | 1762 m | West |
| 6628-26600 | 272291 | MW 3 | | Investigation | | 5.50 | | 48.80 | | | | | | | | 1768 m | West |
| 6628-12473 | 59442 | | | | 1983-08-30 | 23.00 | | 54.00 | 7.50 | 1117 | 2022 | 1.0000 | 3.50 | 3.50 | 50.50 | 1770 m | South East |
| 6628-12510 | 59479 | | | | 1983-10-07 | 25.00 | | 52.90 | 7.70 | 2426 | 4350 | 1.0000 | 5.00 | 5.00 | 47.90 | 1770 m | East |
| 6628-23514 | 238554 | | | | 2008-08-27 | 80.00 | | 45.70 | | 2887 | 5160 | 0.1900 | 28.00 | 28.00 | 17.70 | 1770 m | West |
| 6628-26598 | 272289 | MW 1 | | Investigation | 2012-06-18 | 17.40 | | 48.90 | | | | | | | | 1771 m | West |
| 6628-26754 | 274704 | MW 6A | | Investigation | 2012-12-06 | 5.00 | | 48.80 | | | | | 4.80 | 4.80 | 44.00 | 1771 m | West |
| 6628-61 | 47161 | | Abandoned | | 1970-09-02 | 23.77 | | | | | | | 11.28 | 11.28 | | 1771 m | South West |
| 6628-29852 | 313801 | SITE 5 | | Observation | 2018-11-11 | 13.00 | | 31.50 | | 2114 | 3800 | | 9.87 | 9.87 | 21.63 | 1772 m | South West |
| 6628-30322 | 325427 | | | Investigation | 2019-06-05 | 5.00 | | 49.10 | | | | | | | | 1773 m | West |
| 6628-9934 | 56903 | | Backfilled | | | 19.20 | | 50.40 | | 1299 | 2349 | | 14.63 | 14.63 | 35.77 | 1774 m | East |
| 6628-29035 | 299974 | MW 11 | | Investigation | 2017-05-31 | 5.00 | | 49.00 | | | | | 2.70 | 2.70 | 46.30 | 1775 m | West |
| 6628-11128 | 58097 | DEPT OF TRANS | | Observation | 1979-08-02 | 19.32 | 38.61 | 38.61 | | 781 | 1417 | | 7.54 | 7.54 | 31.07 | 1776 m | North East |
| 6628-413 | 47510 | | | | | | | | | 285 | 518 | | | | | 1776 m | South West |
| 6628-11099 | 58068 | | | Drainage | | | | 45.90 | | | | | | | | 1777 m | South West |
| 6628-28194 | 288554 | MW 10 | | Investigation | 2015-07-09 | 4.50 | | 48.70 | | | | | | | | 1777 m | West |
| 6628-11618 | 58587 | | | | 1978-12-01 | 25.00 | | 52.20 | 7.40 | 2312 | 4150 | | | | | 1778 m | East |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-26599 | 272290 | MW 2 | | Investigation | 2012-06-19 | 5.50 | | 48.80 | | | | | | | | 1779 m | West |
| 6628-29681 | 312577 | | | Investigation | 2018-05-28 | 5.00 | | 49.10 | | | | | | | | 1779 m | West |
| 6628-26753 | 274703 | MW 5A | | Investigation | 2012-12-07 | 5.00 | | 48.70 | | | | | 4.70 | 4.70 | 44.00 | 1786 m | West |
| 6628-30323 | 325428 | | | Investigation | 2019-06-05 | 5.00 | | 49.20 | | | | | | | | 1786 m | West |
| 6628-26752 | 274702 | MW 4A | | Investigation | 2012-12-10 | 5.00 | | 48.80 | | | | | 3.20 | 3.20 | 45.60 | 1787 m | West |
| 6628-9940 | 56909 | | | | | 8.23 | | 53.10 | 6.00 | 1832 | 3300 | | 7.62 | 7.62 | 45.48 | 1787 m | East |
| 6628-26171 | 267201 | | Backfilled | Investigation | 2011-12-01 | 30.00 | | 24.10 | | | | | 7.50 | 7.50 | 16.60 | 1790 m | South West |
| 6628-30321 | 325426 | | | Investigation | 2019-06-05 | 5.00 | | 48.90 | | | | | | | | 1790 m | West |
| 6628-12667 | 59636 | | Operational | Domestic | 1984-01-06 | 18.00 | 55.00 | | 7.70 | 2290 | 4110 | 1.0000 | 6.60 | 6.60 | 48.40 | 1792 m | East |
| 6628-32063 | 371565 | | | Environmental | 2022-08-09 | 5.00 | | 49.00 | | | | | | | | 1792 m | West |
| 6628-30242 | 316764 | | Dry | Monitoring | 2019-06-06 | 17.00 | | 34.50 | | | | | | | | 1793 m | South West |
| 6628-16728 | 145690 | | | Investigation | 1994-07-21 | 40.40 | | 24.00 | | | | | | | | 1794 m | West |
| 6628-32062 | 371564 | | | Environmental | 2022-08-09 | 5.00 | | 48.80 | | | | | | | | 1794 m | West |
| 6628-32079 | 371586 | | | Environmental | 2022-10-10 | 5.00 | | 48.60 | | | | | | | | 1794 m | West |
| 6628-606 | 47695 | | Operational | Drainage | | 20.73 | 46.00 | | | 1318 | 2383 | 1.5100 | | | | 1794 m | South West |
| 6628-23654 | 240227 | | | | 2007-04-03 | 20.00 | | 38.30 | | 1452 | 2620 | 0.8000 | 9.00 | 9.00 | 29.30 | 1795 m | North East |
| 6628-414 | 47511 | | | | 1970-12-18 | 14.78 | | | | | | | 4.57 | 4.57 | | 1795 m | South West |
| 6628-607 | 47696 | | Operational | Drainage | | 21.03 | 46.00 | | | | | 7.5800 | | | | 1796 m | South West |
| 6628-22619 | 218966 | GMW 1 | | Investigation | 2006-07-26 | 8.50 | | 50.00 | | | | | 5.20 | 5.20 | 44.80 | 1797 m | South East |
| 6628-29853 | 313802 | SITE 6 | Backfilled | Observation | 2018-11-14 | 17.84 | | 34.90 | | 1642 | 2960 | | 12.68 | 12.68 | 22.22 | 1797 m | South West |
| 6628-32080 | 371587 | | | Environmental | 2022-10-10 | 5.00 | | 48.70 | | | | | | | | 1797 m | West |
| 6628-654 | 47743 | | Backfilled | | | 18.90 | | 47.90 | | 1128 | 2042 | | 8.53 | 8.53 | 39.37 | 1797 m | South |
| 6628-32077 | 371584 | | | Environmental | 2022-10-10 | 5.00 | | 48.70 | | | | | | | | 1798 m | West |
| 6628-129 | 47229 | | Not Located | | | | | 45.10 | | | | | | | | 1799 m | South West |
| 6628-28386 | 289349 | GWA | Not Located | Investigation | | 10.00 | | 33.10 | | | | | 9.58 | 9.58 | 23.52 | 1799 m | South West |
| 6628-32553 | 382291 | | | Investigation | 2023-06-27 | 10.50 | | 52.00 | | | | | 7.80 | 7.80 | 44.20 | 1799 m | South East |
| 6628-529 | 47626 | | | | | | | 30.60 | | | | | | | | 1799 m | South West |
| 6628-29978 | 314574 | GEOTECH BORE HOLE 2 | Decommissioned | | 2018-12-17 | 18.10 | | 45.60 | | | | | | | | 1800 m | South West |
| 6628-32602 | 382578 | | | Investigation | 2023-08-11 | 5.00 | | 49.10 | | | | | | | | 1800 m | West |
| 6628-29977 | 314573 | GEOTECH BORE HOLE 1 | Backfilled | | 2018-12-18 | 16.05 | | 45.60 | | | | | | | | 1802 m | South West |
| 6628-13238 | 60207 | | Operational | Domestic | 1985-01-19 | 16.80 | 51.00 | | 7.90 | 1591 | 2870 | 0.3100 | 12.20 | 12.20 | 38.80 | 1803 m | East |
| 6628-16582 | 141259 | | | Domestic | 1994-05-28 | 23.00 | | 50.80 | 6.70 | 1962 | 3530 | 1.0000 | | | | 1803 m | East |
| 6628-29248 | 304192 | | | Investigation | 2017-12-14 | 6.00 | | 50.00 | | | | | | | | 1804 m | West |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-23579 | 239079 | | | | 2008-05-20 | 39.50 | | 43.40 | | 2653 | 4750 | 1.3300 | 1.00 | 1.00 | 42.40 | 1805 m | North |
| 6628-32554 | 382293 | | | Investigation | 2023-06-27 | 12.00 | | 52.00 | | | | | 7.80 | 7.80 | 44.20 | 1805 m | South East |
| 6628-29249 | 304193 | | | Investigation | 2017-12-14 | 6.00 | | 50.00 | | | | | | | | 1808 m | West |
| 6628-32601 | 382577 | | | Investigation | 2023-08-10 | 5.00 | | 49.00 | | | | | | | | 1810 m | West |
| 6628-18440 | 164549 | | | Domestic | 1997-02-25 | 26.00 | | 52.20 | | 1743 | 3140 | | 15.20 | 15.20 | 37.00 | 1811 m | East |
| 6628-26129 | 266997 | BHA | | Investigation | 2011-07-03 | 18.45 | | 45.30 | | | | | | | | 1811 m | South West |
| 6628-28153 | 288493 | | | Investigation | 2016-03-06 | 35.00 | | 36.30 | | | | | | | | 1813 m | South West |
| 6628-28160 | 288505 | | | | 2016-02-16 | 35.00 | | 31.70 | | | | | | | | 1814 m | South West |
| 6628-62 | 47162 | | Abandoned | | 1970-09-04 | 23.62 | | | | | | | | | | 1814 m | South West |
| 6628-32078 | 371585 | | | Environmental | 2022-10-10 | 5.00 | | 48.90 | | | | | | | | 1815 m | West |
| 6628-527 | 47624 | | | | | | | 27.50 | | | | | | | | 1815 m | South West |
| 6628-16358 | 134428 | | | Domestic | 1993-06-01 | 9.00 | | 51.70 | 7.10 | 1827 | 3292 | | | | | 1818 m | East |
| 6628-655 | 47744 | | | | | 12.19 | | 48.10 | | 1885 | 3395 | | | | | 1818 m | South |
| 6628-20195 | 180887 | | | Domestic | 2000-04-01 | 38.50 | | 54.00 | | 1546 | 2790 | 1.0000 | 18.00 | 18.00 | 36.00 | 1820 m | East |
| 6628-29250 | 304194 | | | Investigation | 2017-12-14 | 6.00 | | 50.00 | | | | | | | | 1820 m | West |
| 6628-32075 | 371582 | | | Environmental | 2022-10-10 | 5.00 | | 48.60 | | | | | | | | 1820 m | West |
| 6628-32076 | 371583 | | | Environmental | 2022-10-10 | 5.00 | | 48.70 | | | | | | | | 1821 m | West |
| 6628-10910 | 57879 | BIRKS BUILDING | Abandoned | | 1961-03-13 | 11.58 | | | | | | | | | | 1825 m | South West |
| 6628-10911 | 57880 | BIRKS BUILDING | Abandoned | | 1961-03-14 | 11.43 | | | | | | | | | | 1825 m | South West |
| 6628-10912 | 57881 | BIRKS BUILDING | Abandoned | | 1961-03-14 | 11.58 | | | | | | | | | | 1825 m | South West |
| 6628-10913 | 57882 | BIRKS BUILDING | Abandoned | | 1961-03-15 | 11.58 | | | | | | | | | | 1825 m | South West |
| 6628-10914 | 57883 | BIRKS BUILDING | Abandoned | | 1961-03-15 | 11.43 | | | | | | | | | | 1825 m | South West |
| 6628-10915 | 57884 | BIRKS BUILDING | Abandoned | | 1961-03-16 | 11.58 | | | | | | | | | | 1825 m | South West |
| 6628-10916 | 57885 | BIRKS BUILDING | Abandoned | | 1961-03-16 | 11.58 | | | | | | | | | | 1825 m | South West |
| 6628-10917 | 57886 | BIRKS BUILDING | Abandoned | | 1961-03-17 | 11.43 | | | | | | | | | | 1825 m | South West |
| 6628-10918 | 57887 | BIRKS BUILDING | Abandoned | | 1961-03-17 | 11.43 | | | | | | | | | | 1825 m | South West |
| 6628-10919 | 57888 | BIRKS BUILDING | Abandoned | | 1961-03-18 | 11.58 | | | | | | | | | | 1825 m | South West |
| 6628-10920 | 57889 | BIRKS BUILDING | Abandoned | | 1961-03-18 | 11.43 | | | | | | | | | | 1825 m | South West |
| 6628-10921 | 57890 | BIRKS BUILDING | Abandoned | | 1961-03-19 | 11.58 | | | | | | | | | | 1825 m | South West |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-10922 | 57891 | BIRKS BUILDING | Abandoned | | 1961-03-19 | 11.58 | | | | | | | | | | 1825 m | South West |
| 6628-10923 | 57892 | BIRKS BUILDING | Abandoned | | 1961-03-20 | 11.58 | | | | | | | | | | 1825 m | South West |
| 6628-10924 | 57893 | BIRKS BUILDING | Abandoned | | 1961-03-20 | 13.72 | | | | | | | | | | 1825 m | South West |
| 6628-10925 | 57894 | BIRKS BUILDING | Abandoned | | 1961-03-21 | 13.72 | | | | | | | | | | 1825 m | South West |
| 6628-10926 | 57895 | BIRKS BUILDING | Abandoned | | 1961-03-21 | 13.72 | | | | | | | | | | 1825 m | South West |
| 6628-10927 | 57896 | BIRKS BUILDING | Abandoned | | 1961-03-22 | 13.72 | | | | | | | | | | 1825 m | South West |
| 6628-10928 | 57897 | BIRKS BUILDING | Abandoned | | 1961-03-22 | 13.72 | | | | | | | | | | 1825 m | South West |
| 6628-10929 | 57898 | BIRKS BUILDING | Abandoned | | 1961-03-23 | 13.72 | | | | | | | | | | 1825 m | South West |
| 6628-11109 | 58078 | KW 9 | Unknown | | 1979-09-04 | 12.50 | 37.74 | | | | | | | | | 1826 m | South West |
| 6628-419 | 47516 | | | | 1914-01-01 | 10.36 | | 24.00 | | 2130 | 3829 | | | | | 1826 m | West |
| 6628-32558 | 382301 | | | Investigation | 2023-06-28 | 9.50 | | 52.00 | | | | | 4.20 | 4.20 | 47.80 | 1827 m | South East |
| 6628-533 | 47630 | | | | | | | 32.10 | | | | | | | | 1827 m | South West |
| 6628-22620 | 218967 | GMW 2 | | Investigation | 2006-07-26 | 9.00 | | 50.00 | | | | | 5.20 | 5.20 | 44.80 | 1829 m | South East |
| 6628-26055 | 266583 | | Backfilled | | | 13.90 | | 45.20 | | | | | | | | 1831 m | South West |
| 6628-32555 | 382295 | | | Investigation | 2023-06-28 | 9.50 | | 52.60 | | | | | 4.60 | 4.60 | 48.00 | 1831 m | South East |
| 6628-13724 | 60693 | | | | 1986-07-08 | 20.00 | 52.00 | | | 1055 | 1910 | 0.2500 | 12.10 | 12.10 | 39.90 | 1833 m | East |
| 6628-23731 | 241403 | | | | 2007-12-07 | 32.00 | | 47.90 | | 1839 | 3310 | 32.0000 | 17.00 | 17.00 | 30.90 | 1838 m | South |
| 6628-22621 | 218968 | GMW 3 | | Investigation | 2006-07-27 | 6.20 | | 50.00 | | | | | 3.60 | 3.60 | 46.40 | 1840 m | South East |
| 6628-26172 | 267203 | | Backfilled | Investigation | 2011-11-23 | 30.00 | | 24.60 | | | | | 9.00 | 9.00 | 15.60 | 1840 m | South West |
| 6628-26173 | 267204 | | | | 2011-11-30 | 10.00 | | 24.60 | | | | | 8.00 | 8.00 | 16.60 | 1840 m | South West |
| 6628-29856 | 313805 | SITE 7 | | Observation | 2018-11-13 | 19.00 | | 37.40 | | 1558 | 2810 | | 15.04 | 15.04 | 22.36 | 1840 m | South West |
| 6628-406 | 47503 | | | | | 8.53 | | 24.00 | | 1056 | 1913 | | | | | 1840 m | West |
| 6628-28385 | 289348 | GWB | Backfilled | | 2016-02-09 | 13.00 | | 33.20 | | | | | | | | 1841 m | South West |
| 6628-431 | 47528 | | Abandoned | | 1934-11-13 | 74.68 | | 42.00 | | 1345 | 2431 | 0.1300 | 21.34 | 21.34 | 20.66 | 1845 m | West |
| 6628-534 | 47631 | | | | | | | 32.10 | | 1351 | 2440 | | | | | 1845 m | South West |
| 6628-16817 | 146778 | | Backfilled | Investigation | 1994-07-13 | 40.00 | | 24.00 | | | | | | | | 1847 m | South West |
| 6628-28159 | 288504 | | Not Located | Investigation | 2016-02-10 | 25.00 | | 32.70 | | | | | | | | 1847 m | South West |
| 6628-18442 | 164551 | | | Domestic | 1997-04-08 | 25.00 | | 52.60 | | 1631 | 2940 | | 15.00 | 15.00 | 37.60 | 1848 m | East |
| 6628-31261 | 355136 | | Backfilled | Investigation | 2021-04-22 | 15.00 | | 48.50 | | | | | | | | 1850 m | North East |
| 6628-530 | 47627 | | | | | | | 29.30 | | | | | | | | 1851 m | South West |
| 6628-18855 | 168227 | | | Domestic | 1998-02-17 | 28.00 | | 50.50 | | 2404 | 4310 | | 13.80 | 13.80 | 36.70 | 1854 m | East |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-21463 | 198012 | | | Domestic | 2003-07-09 | 15.00 | | 38.00 | | 1474 | 2660 | 1.0000 | 9.20 | 9.20 | 28.80 | 1854 m | North East |
| 6628-9948 | 56917 | | | | | 8.53 | | 54.00 | | 1185 | 2145 | | 3.66 | 3.66 | 50.34 | 1854 m | South East |
| 6628-16364 | 134434 | | | Domestic | 1992-12-17 | 15.00 | | 50.40 | 6.90 | 1010 | 1829 | | | | | 1856 m | South East |
| 6628-9576 | 56545 | | | Water Hole | | | | | | 1713 | 3088 | | | | | 1860 m | North East |
| 6628-19240 | 172405 | F 14A | Backfilled | Monitoring | 1998-08-26 | 12.30 | | 51.40 | | | | | | | | 1861 m | North West |
| 6628-418 | 47515 | PUB. BLDGS DEPT. | | | 1974-02-07 | 19.90 | | | 7.70 | 2182 | 3920 | | 14.35 | 14.35 | | 1861 m | South West |
| 6628-542 | 47639 | | Not Located | | 1974-09-27 | 11.00 | | | | | | | | | | 1861 m | South West |
| 6628-28383 | 289346 | GWE | Not Located | Investigation | 2016-02-26 | 12.00 | | 34.00 | | | | | 9.56 | 9.56 | 24.44 | 1863 m | South West |
| 6628-31001 | 352960 | | Backfilled | | 2020-01-20 | 17.00 | | 48.20 | | | | | | | | 1863 m | South |
| 6628-16703 | 145576 | | | Domestic | 1994-10-10 | 17.00 | | 54.70 | 6.90 | 2295 | 4120 | | | | | 1865 m | East |
| 6628-9935 | 56904 | | | | | 37.00 | | 52.90 | 8.00 | 2372 | 4255 | | | | | 1868 m | East |
| 6628-16141 | 63110 | | Operational | Domestic | 1992-10-08 | 21.32 | | 49.30 | 7.40 | 2375 | 4261 | 1.5000 | 13.00 | 13.00 | 36.30 | 1873 m | North East |
| 6628-17341 | 151219 | | | | 1995-06-28 | 30.00 | | 54.10 | 7.00 | 2256 | 4050 | 0.7500 | | | | 1874 m | East |
| 6628-417 | 47514 | PUBLIC BLDGS DPT | Abandoned | | 1974-02-08 | 14.50 | | | | | | | | | | 1874 m | South West |
| 6628-15681 | 62650 | | Operational | Domestic | 1991-11-03 | 21.00 | | 51.90 | 7.00 | 600 | 1091 | | 13.50 | 13.50 | 38.40 | 1877 m | East |
| 6628-15668 | 62637 | | Operational | Domestic | 1991-10-03 | 12.00 | | 56.00 | 6.70 | 1362 | 2460 | | 6.00 | 6.00 | 50.00 | 1879 m | South East |
| 6628-21340 | 197253 | | | Domestic | 2003-08-12 | 18.00 | | 45.90 | | 1642 | 2960 | 0.5000 | 6.00 | 6.00 | 39.90 | 1879 m | North East |
| 6628-23526 | 238605 | | Backfilled | | | 8.50 | | 45.30 | | | | | | | | 1879 m | South West |
| 6628-20996 | 194743 | | | Domestic | 2002-12-06 | 20.00 | | 56.00 | | 1188 | 2150 | 0.8000 | 7.50 | 7.50 | 48.50 | 1880 m | South East |
| 6628-31964 | 371063 | | Backfilled | Investigation | 2022-07-26 | | | 47.50 | | | | | | | | 1881 m | South |
| 6628-25561 | 262186 | BH 2 | | | 2009-08-25 | 26.40 | | | | | | | 15.40 | 15.40 | | 1882 m | South |
| 6628-493 | 47590 | | | Drainage | 1904-01-01 | 40.84 | | 42.30 | | 1270 | 2298 | | | | | 1882 m | South West |
| 6628-9942 | 56911 | | | | | 10.67 | | 54.10 | | 3499 | 6230 | | | | | 1883 m | East |
| 6628-28804 | 293972 | MW 1 | Backfilled | Investigation | 2016-11-21 | 7.50 | | 52.80 | | | | | 1.60 | 1.60 | 51.20 | 1884 m | North West |
| 6628-30619 | 334434 | | Backfilled | Investigation | 2020-01-08 | 17.00 | | 48.40 | | | | | | | | 1884 m | South |
| 6628-30724 | 336597 | | Backfilled | Investigation | 2020-01-19 | 17.00 | | 48.40 | | | | | | | | 1884 m | South |
| 6628-16183 | 63152 | | Backfilled | | 1992-09-09 | 24.00 | | 40.20 | | 1851 | 3332 | 0.5000 | 2.30 | 2.30 | 37.90 | 1885 m | South |
| 6628-12546 | 59515 | | Operational | Domestic | 1983-11-10 | 22.00 | 54.00 | | 7.60 | 1917 | 3450 | 1.7500 | 5.00 | 5.00 | 49.00 | 1886 m | East |
| 6628-26364 | 270097 | BH 1 | Backfilled | Investigation | 2012-02-17 | 49.50 | | 25.10 | | | | | 5.50 | 5.50 | 19.60 | 1888 m | South West |
| 6628-28158 | 288503 | | Not Located | Investigation | 2016-02-12 | 25.00 | | 31.30 | | | | | | | | 1888 m | South West |
| 6628-543 | 47640 | | | Drainage | 1976-03-04 | 6.70 | | 36.70 | | | | | | | | 1888 m | South West |
| 6628-544 | 47641 | | | Drainage | 1976-03-16 | 8.53 | | 37.00 | | | | | | | | 1889 m | South West |
| 6628-545 | 47642 | | | Drainage | 1976-03-23 | 5.18 | | 37.00 | | | | | | | | 1889 m | South West |


Lotsearch Pty Ltd ABN 89 480 168 018

| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-546 | 47643 | | | Drainage | 1976-04-03 | 9.14 | | 37.00 | | | | | | | | 1889 m | South West |
| 6628-28384 | 289347 | GWC | Not Located | Investigation | 2016-02-12 | 13.00 | | 31.60 | | | | | 9.70 | 9.70 | 21.90 | 1891 m | South West |
| 6628-416 | 47513 | PUB. BLDGS DEPT. | | | 1974-02-06 | 12.22 | | | | | | | | | | 1891 m | South West |
| 6628-25019 | 253367 | SBGW 59 | | Monitoring | 2009-11-23 | 9.55 | 24.42 | | | 874 | 1585 | | 6.65 | 6.65 | 17.77 | 1892 m | West |
| 6628-24908 | 252812 | | | | | 4.20 | | 50.30 | | | | | | | | 1896 m | South East |
| 6628-16087 | 63056 | | Operational | Recharge | 1992-07-29 | 16.76 | | 23.90 | 7.20 | 1894 | 3409 | | | | | 1897 m | South West |
| 6628-23471 | 237488 | | Backfilled | | 2008-01-29 | 40.00 | | 48.80 | | | | | | | | 1897 m | North |
| 6628-29851 | 313800 | SOPN332817 SITE 4 | | Observation | 2018-11-10 | 12.00 | | 29.40 | | 1075 | 1945 | | 7.65 | 7.65 | 21.75 | 1897 m | South West |
| 6628-512 | 47609 | | | | 1966-09-28 | 9.86 | | | | | | | | | | 1899 m | South West |
| 6628-22700 | 219873 | | | | 2006-09-07 | 29.00 | | 47.60 | | 2727 | 4880 | 1.0000 | 11.00 | 11.00 | 36.60 | 1901 m | North East |
| 6628-13239 | 60208 | | Operational | Domestic | 1985-01-25 | 28.00 | | 52.80 | 7.50 | 1401 | 2530 | | 10.00 | 10.00 | 42.80 | 1903 m | East |
| 6628-21178 | 196384 | | | Domestic | 2003-01-24 | 14.00 | | 47.10 | | 1446 | 2610 | 0.5000 | 11.00 | 11.00 | 36.10 | 1903 m | North East |
| 6628-531 | 47628 | | | | | | | 28.80 | | | | | | | | 1903 m | South West |
| 6628-415 | 47512 | PUB. BLDGS DEPT. | | | 1974-02-01 | 19.45 | | | 7.80 | 1508 | 2720 | | 10.70 | 10.70 | | 1904 m | South West |
| 6628-25846 | 264437 | | | | 2010-05-24 | 16.00 | | 50.70 | | 530 | 963 | 0.7000 | 10.00 | 10.00 | 40.70 | 1905 m | South East |
| 6628-440 | 47537 | | | | | | | | | 1242 | 2247 | | | | | 1905 m | South West |
| 6628-25560 | 262185 | BH 1 | | | 2009-08-23 | 25.40 | | | | | | | | | | 1906 m | South |
| 6628-30393 | 325617 | | Dry | Investigation | 2019-05-22 | 20.00 | | 24.70 | | | | | | | | 1907 m | South West |
| 6628-18650 | 166991 | | | Domestic | 1997-10-10 | 21.00 | | 40.10 | | 1334 | 2410 | | 10.20 | 10.20 | 29.90 | 1908 m | North East |
| 6628-26477 | 271041 | BRICK WELL | Backfilled | | | 2.70 | | 24.20 | | | | | | | | 1909 m | South West |
| 6628-32680 | 383906 | | | Investigation | 2023-09-05 | 7.50 | | | | | | | 4.50 | 4.50 | | 1909 m | South East |
| 6628-28382 | 289345 | GWF | Not Located | Investigation | 2016-02-24 | 12.00 | | 33.70 | | | | | 9.56 | 9.56 | 24.14 | 1911 m | South West |
| 6628-535 | 47632 | | Not Located | | | | | 32.40 | | | | | | | | 1911 m | South West |
| 6628-20126 | 179093 | | | Domestic | 1999-10-10 | 25.00 | | 52.00 | | 1658 | 2990 | 0.5000 | 9.00 | 9.00 | 43.00 | 1912 m | East |
| 6628-28625 | 290444 | | Decommissioned | Investigation | 2016-11-11 | 22.00 | | 48.00 | | | | | | | | 1913 m | South |
| 6628-656 | 47745 | SZ 78 | | | | 9.14 | | 49.00 | | 1499 | 2705 | | | | | 1913 m | South |
| 6628-8985 | 55954 | PUB. BLDGS. DEPT | | Exploration | 1979-01-26 | 6.50 | 30.00 | | | | | | | | | 1913 m | South West |
| 6628-26481 | 271045 | | Backfilled | Investigation | 2012-10-08 | 11.00 | | 22.10 | | | | | 3.00 | 3.00 | 19.10 | 1914 m | South West |
| 6628-483 | 47580 | | | | 1964-10-01 | 17.20 | | | | | | | | | | 1918 m | South West |
| 6628-25562 | 262187 | BH 3 | | | 2009-08-27 | 25.40 | | | | | | | 18.40 | 18.40 | | 1919 m | South |
| 6628-28627 | 290446 | BH 2 | Decommissioned | Investigation | 2016-11-11 | 20.50 | | 48.00 | | | | | | | | 1919 m | South |
| 6628-30392 | 325616 | | | Investigation | 2019-05-20 | 20.00 | | 24.80 | | | | | | | | 1921 m | South West |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-8986 | 55955 | PUB. BLDGS. DEPT | | Exploration | 1979-01-26 | 12.00 | 35.30 | | | | | | | | | 1923 m | South West |
| 6628-11108 | 58077 | DEPT OF TRANS | | Observation | 1979-09-13 | 19.20 | 42.27 | | | | | | 16.96 | 16.96 | 25.31 | 1924 m | South West |
| 6628-32678 | 383904 | | | Investigation | 2023-09-06 | 6.70 | | | | | | | 4.20 | 4.20 | | 1924 m | South East |
| 6628-29854 | 313803 | SOPN332820 SITE 1 | | Observation | 2018-11-26 | 41.50 | | 35.60 | | 1698 | 3060 | | 13.21 | 13.21 | 22.39 | 1925 m | South West |
| 6628-29850 | 313799 | SITE 1 | | Observation | 2018-11-07 | 23.00 | | 35.60 | | 718 | 1302 | | 13.31 | 13.31 | 22.29 | 1926 m | South West |
| 6628-18702 | 167151 | | | Domestic | 1997-12-09 | 21.00 | | 55.50 | | 2539 | 4550 | | 10.50 | 10.50 | 45.00 | 1927 m | East |
| 6628-29855 | 313804 | SITE 1 | Dry | Observation | 2018-11-08 | 8.70 | | 35.60 | | | | | | | | 1927 m | South West |
| 6628-528 | 47625 | ADELAIDE COUNCIL | | | | 9.45 | | | | | | | 7.16 | 7.16 | | 1927 m | South West |
| 6628-29858 | 313807 | SOPH332824 SITE 3 | | Observation | 2018-11-09 | 12.00 | | 31.60 | | 1222 | 2210 | | 8.16 | 8.16 | 23.44 | 1928 m | South West |
| 6628-494 | 47591 | | | | | 18.29 | | 44.20 | | | | | | | | 1929 m | South West |
| 6628-28381 | 289344 | GWH | | Investigation | 2016-02-27 | 11.00 | | 34.20 | | | | | 9.56 | 9.56 | 24.64 | 1930 m | South West |
| 6628-32681 | 383907 | | | Investigation | 2023-09-18 | 7.00 | | | | | | | 4.40 | 4.40 | | 1930 m | South East |
| 6628-32679 | 383905 | | | Investigation | 2023-09-06 | 6.30 | | | | | | | 4.40 | 4.40 | | 1932 m | South East |
| 6628-11129 | 58098 | SADT B7W | Unknown | | 1979-08-09 | 14.26 | 34.40 | | | | | | | | | 1935 m | North East |
| 6628-12665 | 59634 | | Operational | Domestic | 1984-01-25 | 25.00 | | 47.10 | 7.90 | 1653 | 2980 | 0.5000 | 8.00 | 8.00 | 39.10 | 1935 m | North East |
| 6628-16516 | 138533 | | | Domestic | 1993-12-15 | 15.00 | | 56.30 | 6.50 | 1373 | 2480 | | 6.00 | 6.00 | 50.30 | 1936 m | South East |
| 6628-485 | 47582 | | | | 1964-09-24 | 20.22 | | | | | | | | | | 1937 m | South West |
| 6628-26362 | 269872 | BH 2 | Decommissioned | Investigation | 2012-02-25 | 36.00 | | 22.00 | | | | | | | | 1938 m | South West |
| 6628-9588 | 56557 | | | | | 12.80 | | 39.20 | | | | | 8.84 | 8.84 | 30.36 | 1938 m | North East |
| 6628-16011 | 62980 | | | | 1992-02-05 | 12.00 | | 56.20 | | | | | 11.00 | 11.00 | 45.20 | 1939 m | South East |
| 6628-487 | 47584 | | | | 1966-03-24 | 6.71 | | | | | | | | | | 1939 m | South West |
| 6628-490 | 47587 | | | Drainage | 1966-04-01 | 8.53 | | 41.90 | | | | | 7.92 | 7.92 | 33.98 | 1939 m | South West |
| 6628-491 | 47588 | | | Drainage | 1966-03-14 | 6.71 | | 41.90 | | | | | 5.18 | 5.18 | 36.72 | 1939 m | South West |
| 6628-25800 | 264105 | | | | 2011-06-17 | 15.00 | | 51.20 | | | | | | | | 1940 m | South East |
| 6628-479 | 47576 | | | | 1964-10-30 | 60.81 | | | | | | | 15.24 | 15.24 | | 1940 m | South West |
| 6628-486 | 47583 | | | | 1964-10-11 | 24.38 | | | | | | | | | | 1940 m | South West |
| 6628-18718 | 167417 | | | Domestic | 1997-10-26 | 27.00 | | 46.40 | | 1912 | 3440 | 1.0000 | 17.00 | 17.00 | 29.40 | 1941 m | North East |
| 6628-475 | 47572 | | | | 1964-10-14 | 5.49 | | | | | | | | | | 1941 m | South West |
| 6628-476 | 47573 | | | | 1964-10-14 | 30.48 | | | | | | | 16.76 | 16.76 | | 1941 m | South West |
| 6628-477 | 47574 | | | | 1964-09-30 | 9.14 | | | | | | | | | | 1941 m | South West |
| 6628-478 | 47575 | | | | 1964-10-18 | 5.49 | | | | | | | | | | 1941 m | South West |
| 6628-480 | 47577 | | | Drainage | 1966-03-09 | 9.60 | | 41.90 | | | | | 7.62 | 7.62 | 34.28 | 1941 m | South West |


Lotsearch Pty Ltd ABN 89 480 168 018

| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-481 | 47578 | | | Drainage | 1966-03-10 | 9.14 | | 41.90 | | | | | 8.38 | 8.38 | 33.52 | 1941 m | South West |
| 6628-482 | 47579 | | | | 1966-03-11 | 9.45 | | | | | | | 7.92 | 7.92 | | 1941 m | South West |
| 6628-488 | 47585 | | | Drainage | 1966-03-28 | 9.45 | | 41.90 | | | | | 7.92 | 7.92 | 33.98 | 1941 m | South West |
| 6628-489 | 47586 | | | Drainage | 1966-03-29 | 10.06 | | 41.90 | | | | | 8.53 | 8.53 | 33.37 | 1941 m | South West |
| 6628-25031 | 253379 | SBGW 46 | | Monitoring | 2009-12-08 | 18.05 | 47.81 | | | 1005 | 1821 | | 10.12 | 10.12 | 37.69 | 1944 m | South |
| 6628-492 | 47589 | | | Drainage | 1966-03-31 | 10.06 | | 42.70 | | | | | 8.69 | 8.69 | 34.01 | 1949 m | South West |
| 6628-15791 | 62760 | | Operational | Domestic | 1991-12-04 | 18.00 | | 46.20 | | | | | | | | 1951 m | North |
| 6628-608 | 47697 | | | | | 22.25 | | 45.20 | | | | | 17.98 | 17.98 | 27.22 | 1952 m | South West |
| 6628-433 | 47530 | FESTIVAL NORTH 2 | Unknown | | 1965-12-30 | 56.39 | 43.00 | | 6.70 | 3530 | 6285 | | 24.22 | 24.22 | 18.78 | 1953 m | West |
| 6628-405 | 47502 | | | | | 9.75 | | 24.00 | | 1213 | 2196 | | 6.71 | 6.71 | 17.29 | 1955 m | South West |
| 6628-21537 | 198299 | | | Domestic | 2003-11-12 | 25.00 | | 46.50 | | 2234 | 4010 | 0.3300 | 15.80 | 15.80 | 30.70 | 1958 m | North |
| 6628-614 | 47703 | | Abandoned | Drainage | | 60.96 | | 46.60 | | | | | | | | 1961 m | South West |
| 6628-23642 | 240201 | | | | 2008-05-21 | 21.70 | | 55.50 | | 2443 | 4380 | 0.5000 | 7.00 | 7.00 | 48.50 | 1962 m | East |
| 6628-29857 | 313806 | SITE 2 | | Observation | 2018-11-09 | 12.00 | | 34.50 | | 1340 | 2420 | | 7.60 | 7.60 | 26.90 | 1962 m | South West |
| 6628-609 | 47698 | | | | | 63.70 | | 45.60 | | | | | | | | 1962 m | South West |
| 6628-18261 | 164079 | | | Domestic | 1997-02-21 | 25.00 | | 50.20 | | 2138 | 3840 | | 15.60 | 15.60 | 34.60 | 1963 m | East |
| 6628-23647 | 240208 | | | | 2008-02-28 | 60.00 | | 46.80 | | 604 | 1098 | | 17.20 | 17.20 | 29.60 | 1964 m | North |
| 6628-13892 | 60861 | | | | 1987-02-21 | 15.00 | | 54.00 | | | | | 14.80 | 14.80 | 39.20 | 1967 m | East |
| 6628-9577 | 56546 | | | | 1934-01-01 | 49.68 | | 38.20 | | 2073 | 3727 | | 10.36 | 10.36 | 27.84 | 1968 m | North East |
| 6628-14008 | 60977 | | | | 1987-06-01 | 27.00 | | 53.90 | 7.80 | 1149 | 2080 | 1.5000 | 14.50 | 14.50 | 39.40 | 1971 m | East |
| 6628-17507 | 153310 | | | Domestic | 1995-12-15 | 18.00 | | 56.90 | 7.40 | 961 | 1740 | 0.5000 | 6.60 | 6.60 | 50.30 | 1971 m | South East |
| 6628-484 | 47581 | | | | 1964-09-17 | 23.37 | | | | | | | | | | 1971 m | South West |
| 6628-420 | 47517 | | | Drainage | 1919-01-01 | 40.84 | | 42.70 | | | | | | | | 1973 m | South West |
| 6628-536 | 47633 | | | | | | | 36.30 | | | | | | | | 1975 m | South West |
| 6628-9578 | 56547 | | Abandoned | | | 11.58 | | 38.90 | | 2159 | 3881 | | | | | 1975 m | North East |
| 6628-16182 | 63151 | | Backfilled | | 1992-09-09 | 92.00 | | 40.80 | | | | | | | | 1976 m | South |
| 6628-26482 | 271046 | | Backfilled | | | 16.50 | | 24.80 | | | | | | | | 1976 m | South West |
| 6628-18231 | 163030 | | | Domestic | 1997-01-31 | 28.00 | | 54.40 | | 1737 | 3130 | | 15.60 | 15.60 | 38.80 | 1977 m | East |
| 6628-435 | 47532 | FESTIVAL NORTH 4 | Unknown | | 1966-01-17 | 40.84 | 44.00 | | | | | | | | | 1979 m | West |
| 6628-232 | 47332 | | | | 1921-01-01 | 15.24 | 44.00 | | | | | 1.6400 | | | | 1980 m | South West |
| 6628-18715 | 167414 | | | Domestic | 1997-10-30 | 21.00 | | 42.00 | | 1378 | 2490 | 1.0000 | 10.50 | 10.50 | 31.50 | 1981 m | North East |
| 6628-532 | 47629 | | | | | | | 27.00 | | | | | | | | 1981 m | South West |
| 6628-18229 | 163028 | | | Domestic | 1996-12-16 | 28.00 | | 54.20 | | 1732 | 3120 | | 17.40 | 17.40 | 36.80 | 1982 m | East |
| 6628-11106 | 58075 | KW 6 | Unknown | | 1979-09-01 | 21.30 | 43.07 | | | | | | | | | 1983 m | South West |


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| Unit No | Drillhole No | Name | Status | Purpose | Drill Date | Max Depth | Ref Elev | Ground Elev | PH | TDS | EC | Yield | DTW | SWL | RSWL | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6628-436 | 47533 | FESTIVAL NORTH 5 | Unknown | | 1965-12-10 | 18.29 | 42.00 | | | | | | | | | 1983 m | West |
| 6628-513 | 47610 | SA RAILWAYS | | | 1966-08-26 | 6.25 | | | | | | | 4.27 | 4.27 | | 1983 m | South West |
| 6628-17490 | 153290 | | | Domestic | 1995-12-18 | 24.00 | | 37.40 | 7.00 | 1687 | 3040 | 0.8000 | | | | 1985 m | North |
| 6628-17645 | 155099 | | | Domestic | 1996-01-22 | 19.00 | | 55.70 | 7.40 | 2008 | 3610 | 0.5000 | | | | 1988 m | East |
| 6628-9589 | 56558 | | | | | 10.97 | | 41.30 | | 730 | 1325 | | 8.38 | 8.38 | 32.92 | 1988 m | North East |
| 6628-495 | 47592 | | | | | 33.53 | | 42.90 | | | | | | | | 1989 m | South West |
| 6628-9941 | 56910 | | | | | 5.49 | 56.00 | | | 2727 | 4882 | 0.6300 | 2.44 | 2.44 | 53.56 | 1992 m | East |
| 6628-11107 | 58076 | DEPT OF TRANS. | | Observation | 1979-09-13 | 22.25 | 42.82 | | | | | | 16.97 | 16.97 | 25.85 | 1994 m | South West |
| 6628-17342 | 151220 | | | Domestic | 1995-06-30 | 30.00 | | 56.00 | 6.90 | 270 | 490 | 0.5000 | | | | 1996 m | East |
| 6628-9954 | 56923 | | | | | 59.74 | | 52.40 | | | | | | | | 1996 m | South East |
| 6628-17646 | 155100 | | | Domestic | 1996-01-18 | 24.00 | | 56.00 | 7.30 | 2001 | 3600 | 0.5000 | | | | 1999 m | East |
| 6628-23450 | 237460 | | | | 2008-04-04 | 30.00 | | 46.90 | | 905 | 1641 | 1.0000 | 13.00 | 13.00 | 33.90 | 1999 m | North East |
| 6628-682 | 47759 | SUBWAY 8 | Unknown | | 1974-05-30 | 34.80 | 46.00 | | 7.30 | 1031 | 1867 | | 26.00 | 26.00 | 20.00 | 2000 m | West |

Drillholes Data Source: Dept of Environment, Water and Natural Resources - South Australia
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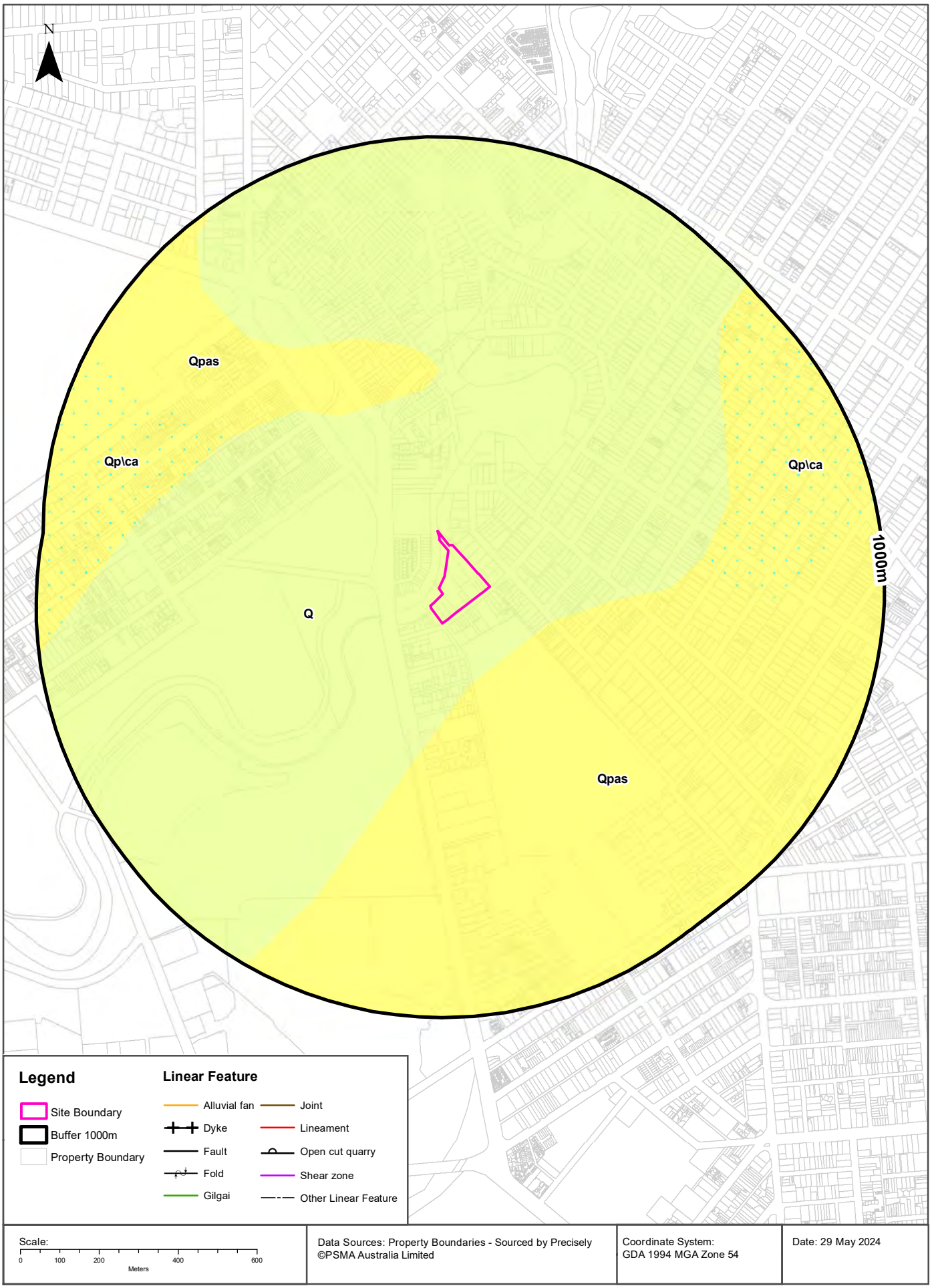
# Geology 1:100,000

**46 Richmond Street, Hackney, SA 5069**






Lotsearch Pty Ltd ABN 89 008 168 018

# Geology

**46 Richmond Street, Hackney, SA 5069**

## 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 | Dist | Dir |
|---|---|---|---|---|---|---|---|---|---|
| Q | Quaternary rocks | Undifferentiated Quaternary rocks. | | UNKNOWN | PLEISTOCENE-HOLOCENE | Quaternary | Quaternary | 0m | On-site |
| Qpas | Keswick Clay | Clay, smectite-rich, grey-green, with red or yellow mottling and rare sand lenses. | Pleistocene alluvial/fluvial sediments | ST VINCENT BASIN | PLEISTOCENE | Pleistocene | Pleistocene | 166m | South East |
| Qp\ca | Pleistocene calcrete | Undifferentiated Pleistocene calcrete. | Pleistocene rocks | UNKNOWN | PLEISTOCENE | Pleistocene | Pleistocene | 547m | East |

Geology Data Source: Dept of Environment, Water and Natural Resources - South Australia
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## Linear Structures 1:100,000

Linear geological structures within the dataset buffer:

| Map Code | Description | Distance | Direction |
|---|---|---|---|
| N/A | No records in buffer | | |

Geology Data Source: Dept of Environment, Water and Natural Resources - South Australia
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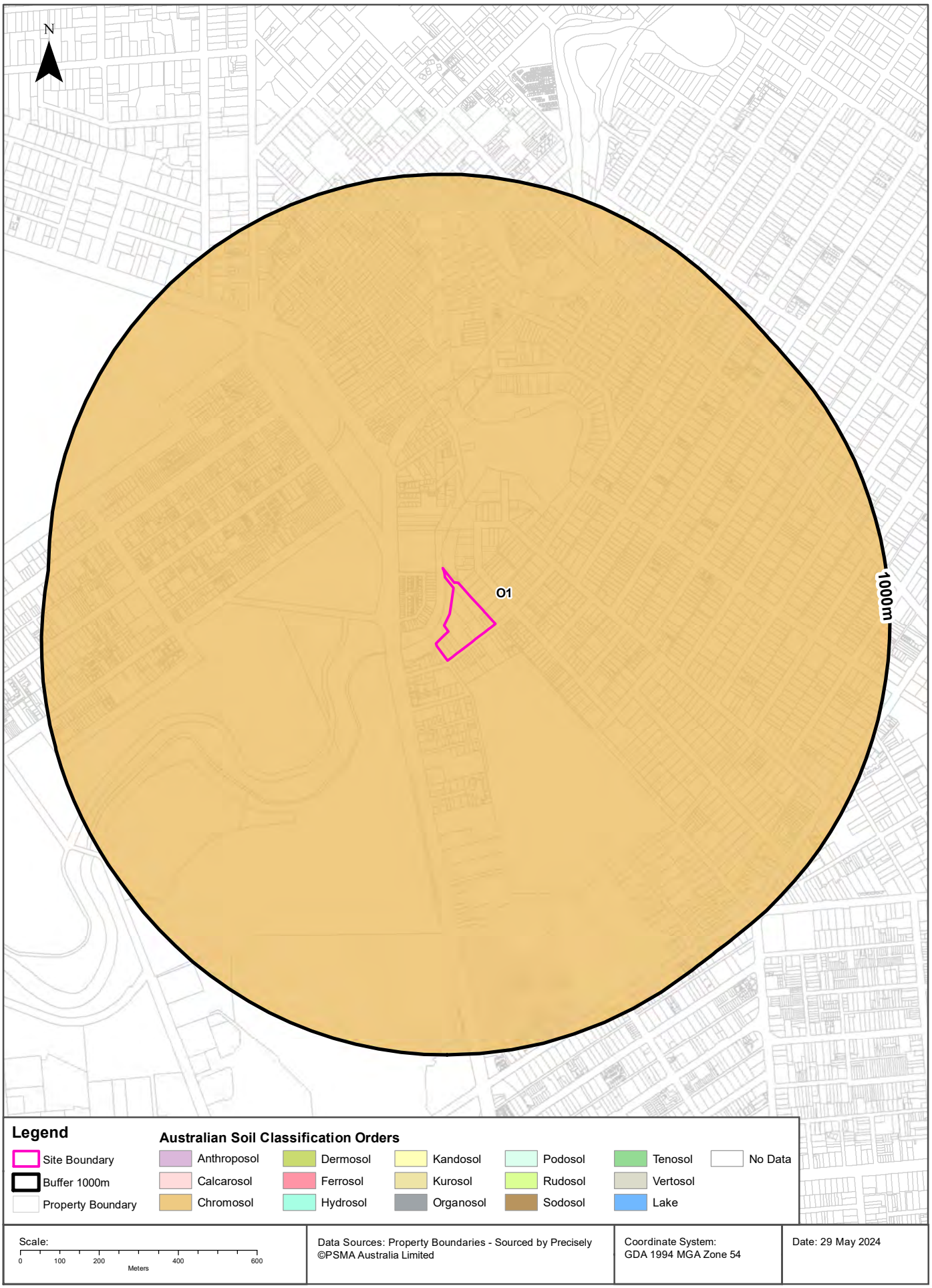
# Atlas of Australian Soils

**46 Richmond Street, Hackney, SA 5069**






Lotsearch Pty Ltd ABN 89 000 168 018

# Soils

**46 Richmond Street, Hackney, SA 5069**

## 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 | Direction |
|---|---|---|---|---|
| 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 | On-site |

Atlas of Australian Soils Data Source: CSIRO
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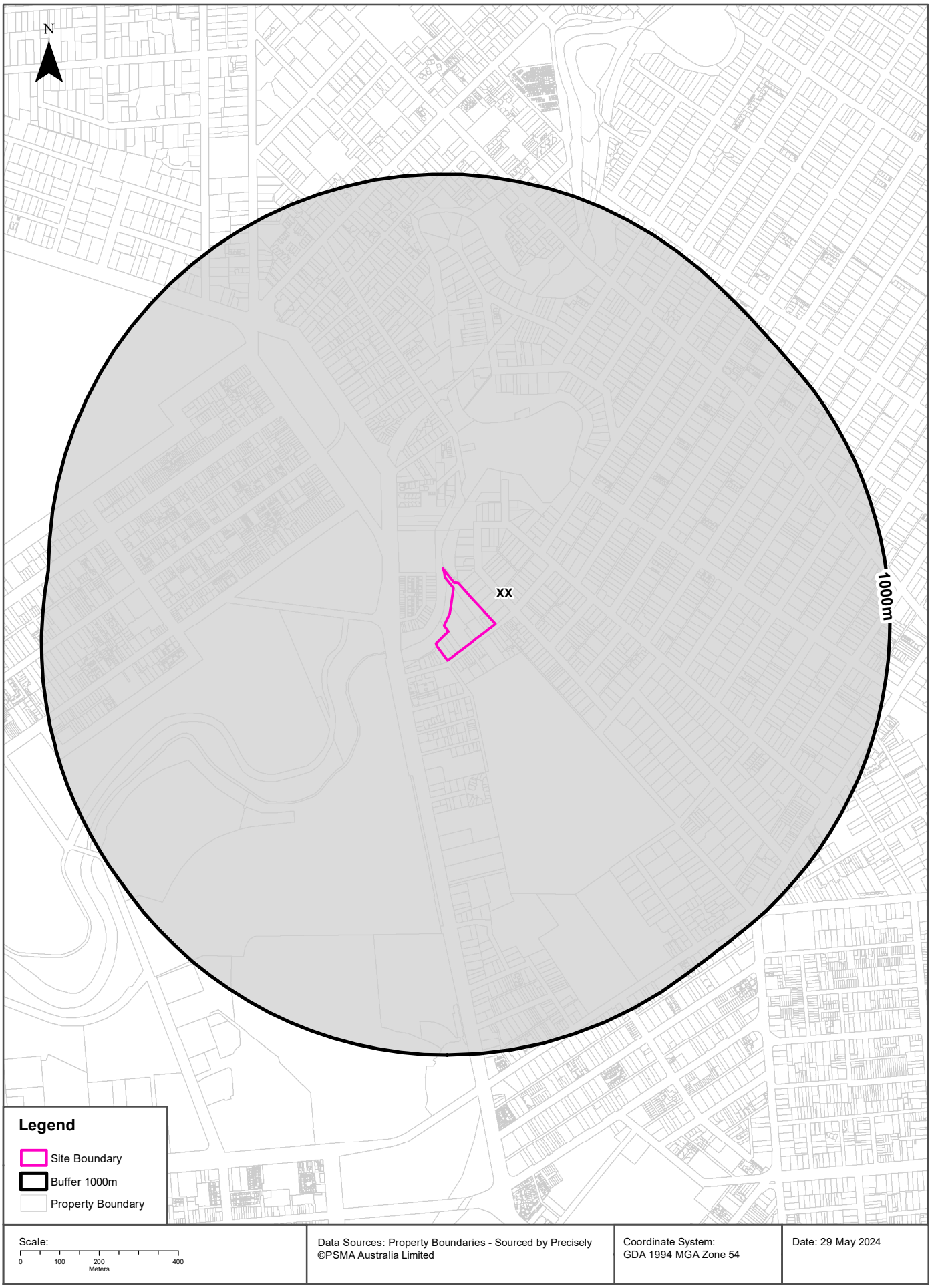
# Soil Types

**46 Richmond Street, Hackney, SA 5069**






Lotsearch Pty Ltd ABN 89 085 168 018

# Soils

**46 Richmond Street, Hackney, SA 5069**

## Soil Types

Soil types within the dataset buffer:

| Map category code | Soil type description | Distance | Direction |
|---|---|---|---|
| XX | Not applicable - No assessment/analysis undertaken | 0m | On-site |

Soil Types Data Source: Dept of Environment, Water and Natural Resources - South Australia
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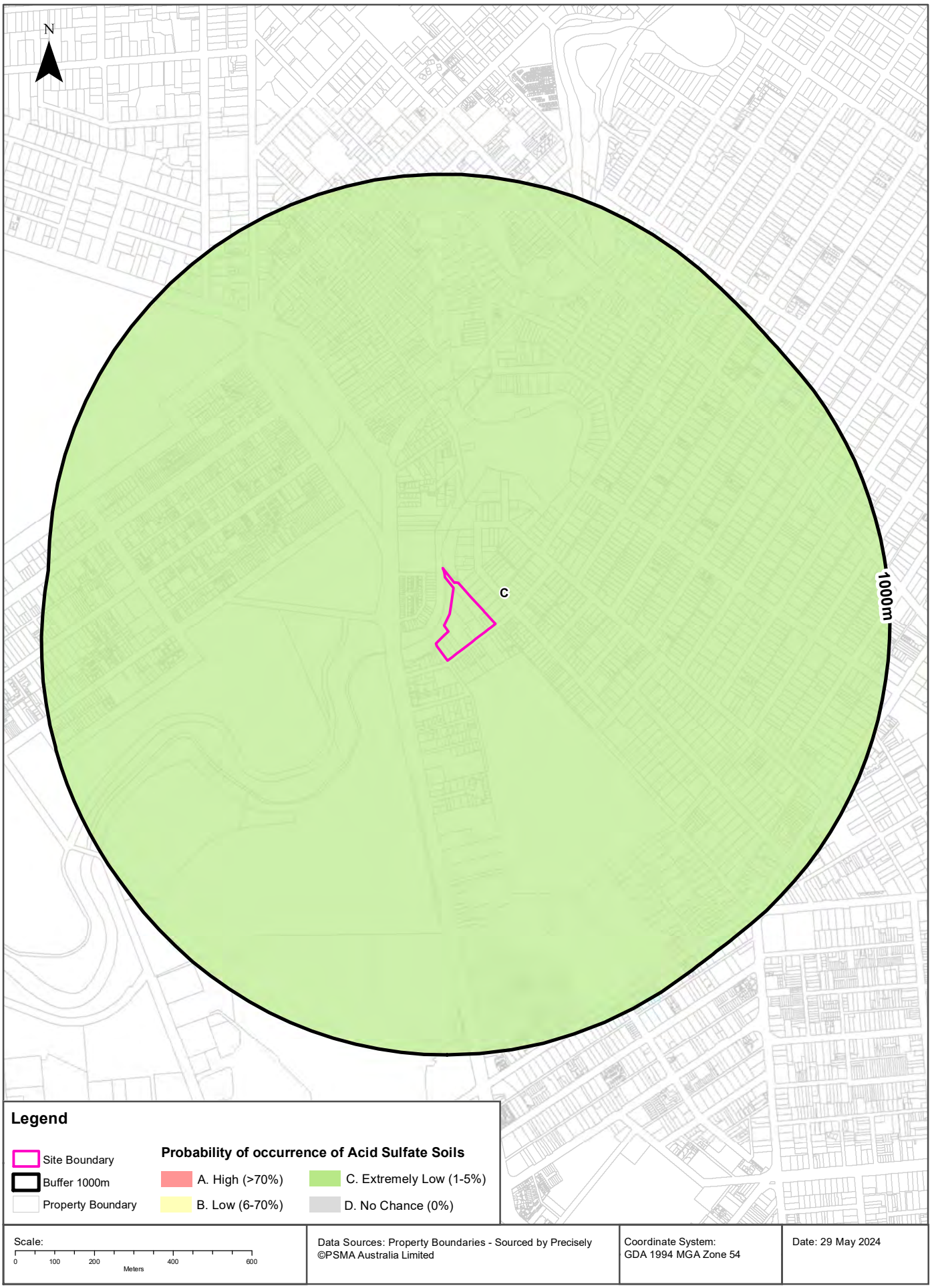
# Atlas of Australian Acid Sulfate Soils

**46 Richmond Street, Hackney, SA 5069**






Lotsearch Pty Ltd ABN 89 086 168 018

# Acid Sulfate Soils

**46 Richmond Street, Hackney, SA 5069**

## Atlas of Australian Acid Sulfate Soils

Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

| Class | Description | Distance | Direction |
|---|---|---|---|
| C | Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas. | 0m | On-site |

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO
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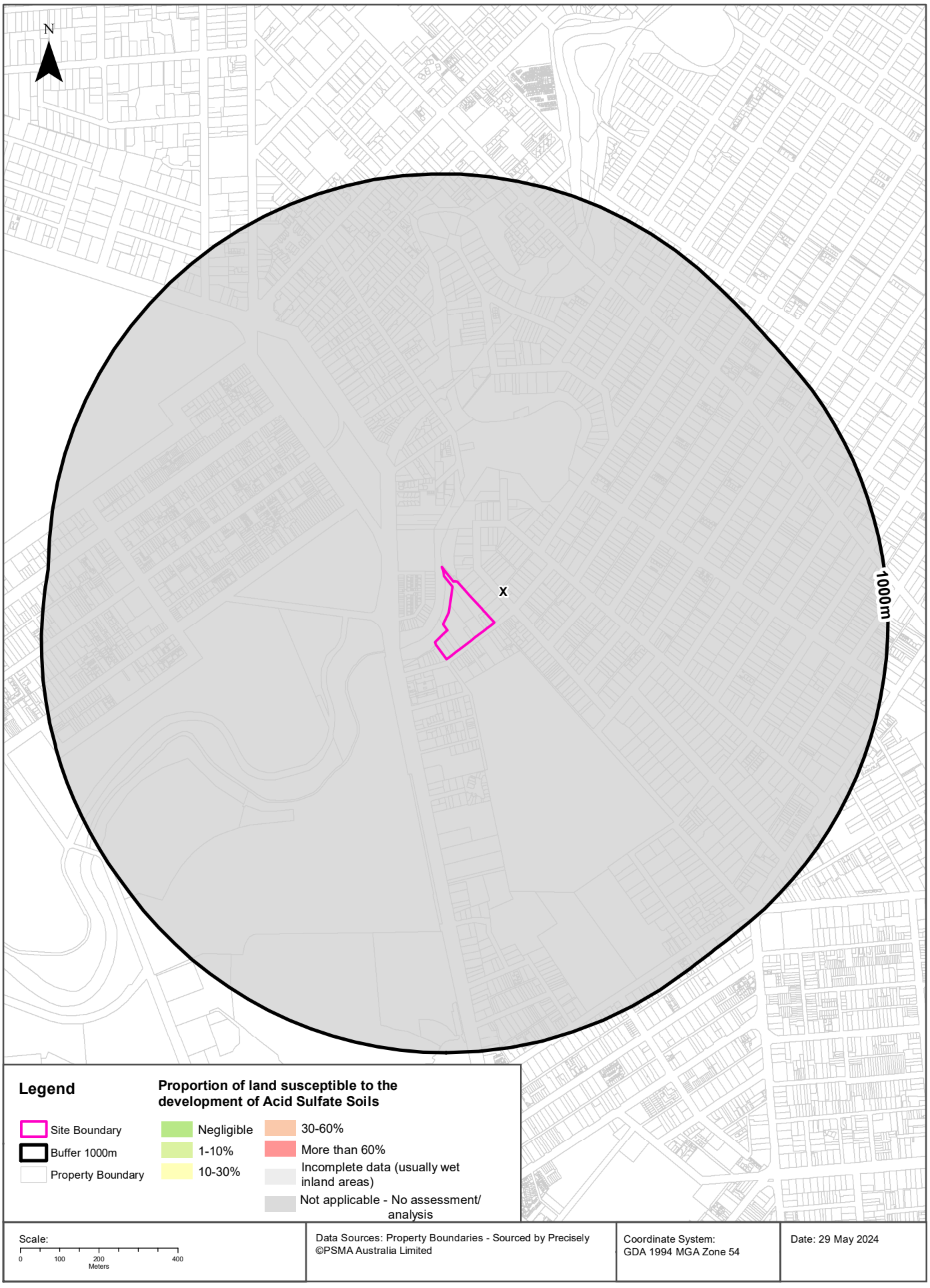
# Acid Sulfate Soils Potential

**46 Richmond Street, Hackney, SA 5069**






Lotsearch Pty Ltd ABN 89 085 168 018

# Acid Sulfate Soils

**46 Richmond Street, Hackney, SA 5069**

## 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 | Direction |
|---|---|---|---|
| X | Not applicable - No assessment/analysis undertaken | 0m | On-site |

Acid Sulfate Soils Data Source: Dept of Environment, Water and Natural Resources - South Australia
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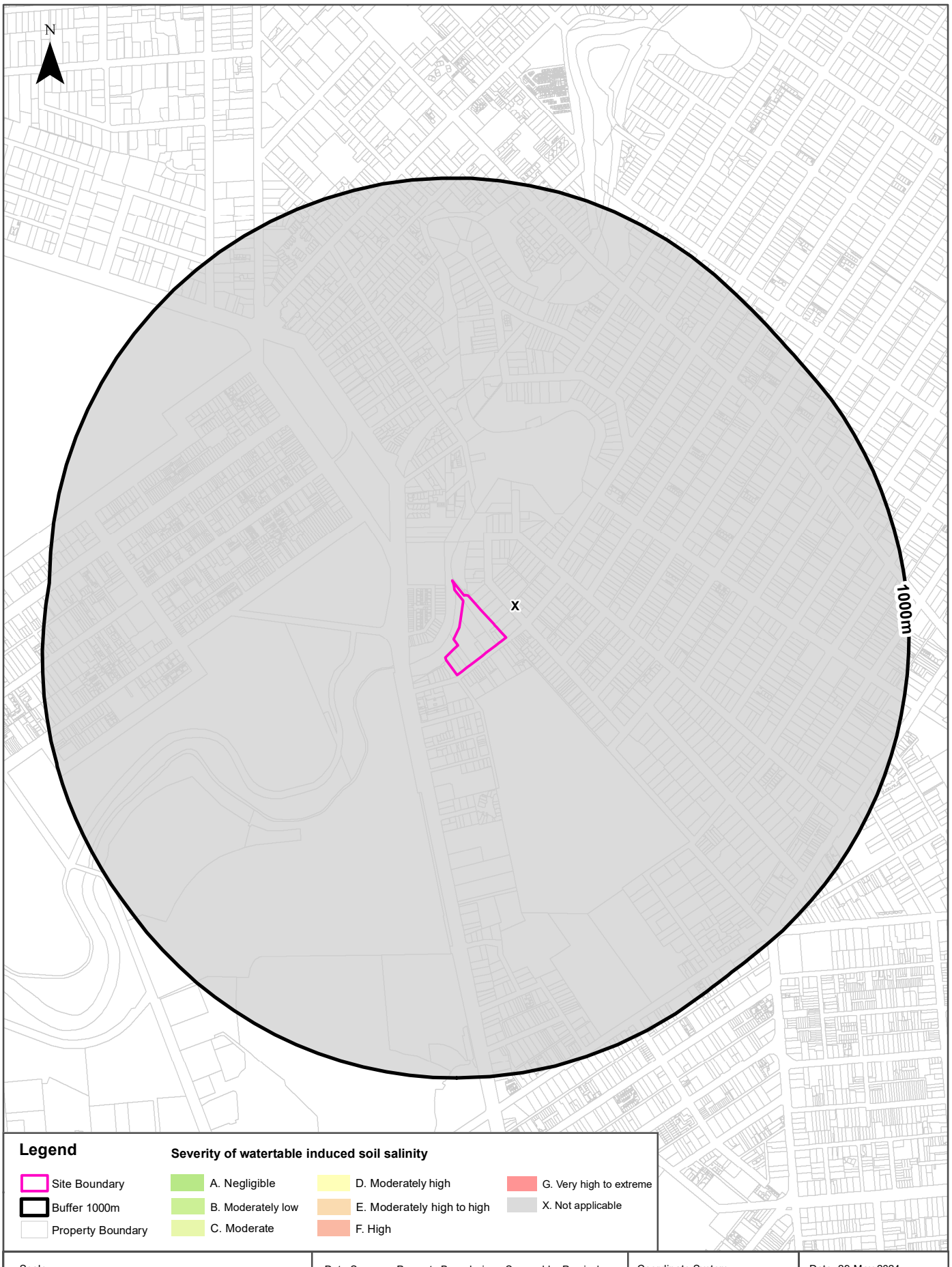
# Soil Salinity - Watertable Induced

**46 Richmond Street, Hackney, SA 5069**



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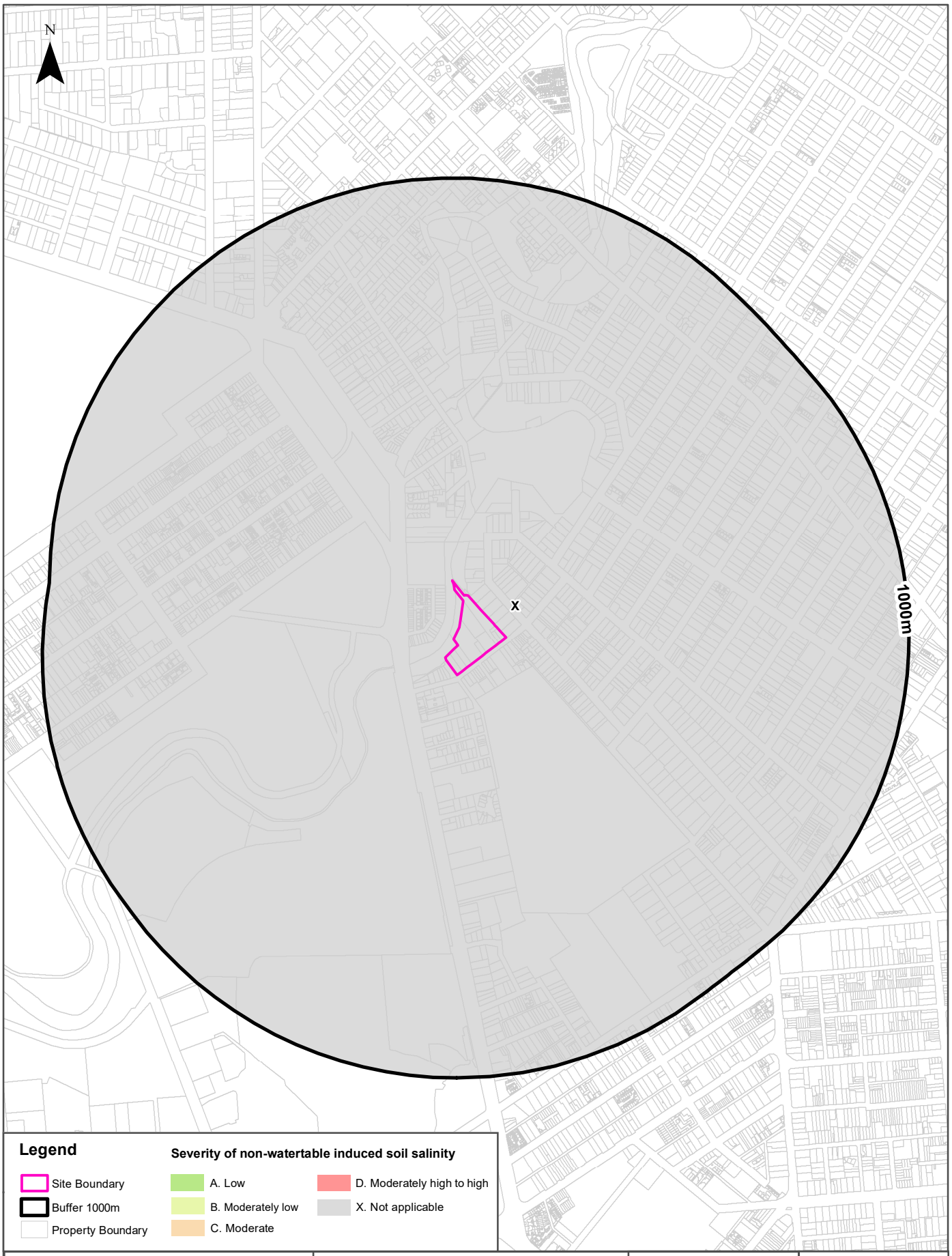
# Soil Salinity - Non-watertable

**46 Richmond Street, Hackney, SA 5069**



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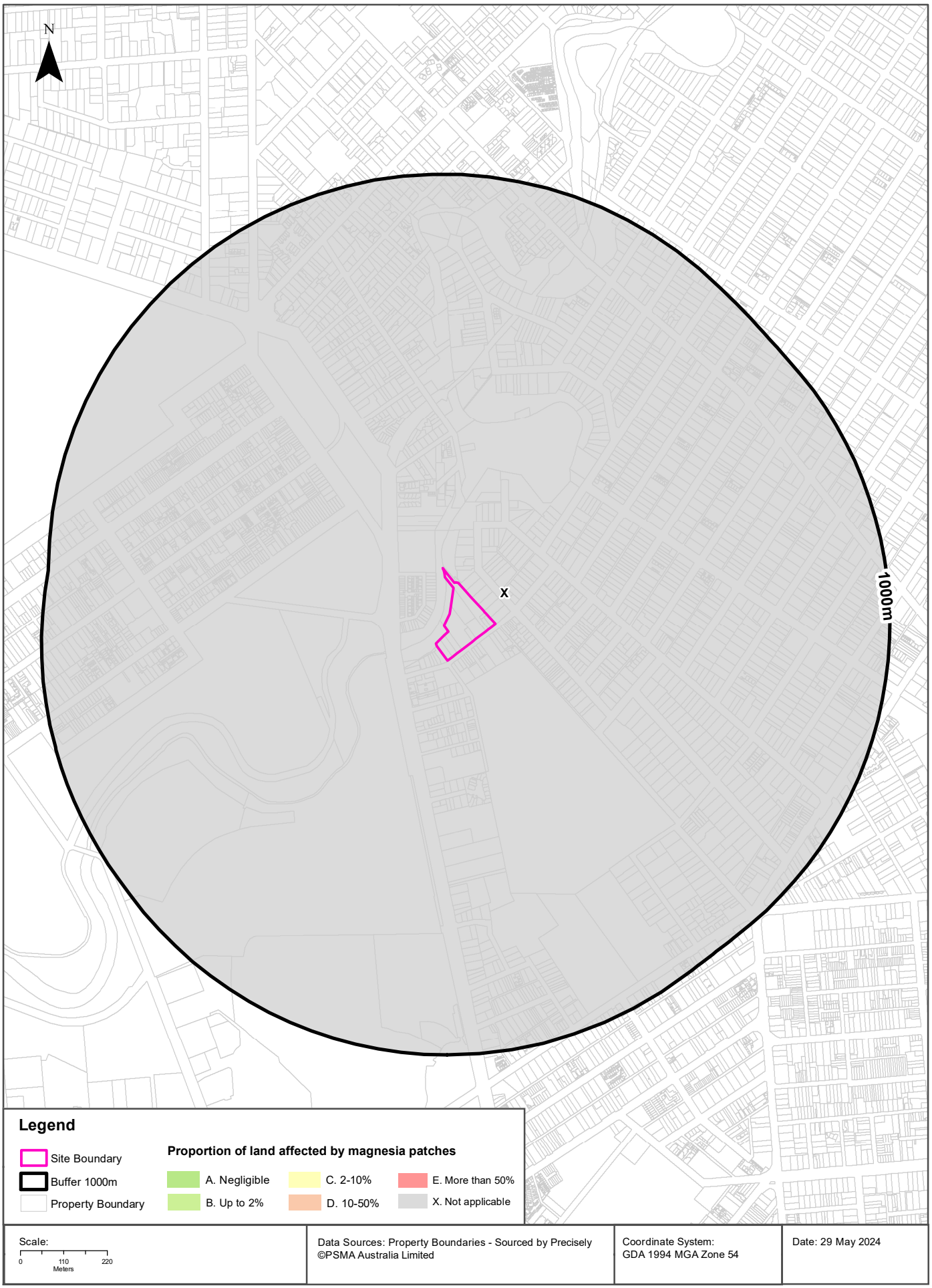
# Soil Salinity - Non-watertable (Magnesia Patches)

**46 Richmond Street, Hackney, SA 5069**



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# Soil Salinity

**46 Richmond Street, Hackney, SA 5069**

## Soil Salinity - Watertable Induced

Watertable induced soil salinity within the dataset buffer:

| Map category code | Severity description | Distance | Direction |
|---|---|---|---|
| X | Not applicable - No assessment/analysis undertaken | 0m | On-site |

Salinity Watertable Induced Data Source: Dept of Environment, Water and Natural Resources - South Australia
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## 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 | Direction |
|---|---|---|---|---|---|
| X | Not applicable - No assessment/analysis undertaken | | | 0m | On-site |

Salinity Non-Watertable Data Source: Dept of Environment, Water and Natural Resources - South Australia
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## Soil Salinity - Non-Watertable (Magnesia Patches)

Magnesia patches within the dataset buffer:

| Map category code | Proportion of land affected by magnesia patches | Distance | Direction |
|---|---|---|---|
| X | Not applicable - No assessment/analysis undertaken | 0m | On-site |

Salinity Non-Watertable (Magnesia Patches) Data Source: Dept of Environment, Water and Natural Resources - South Australia
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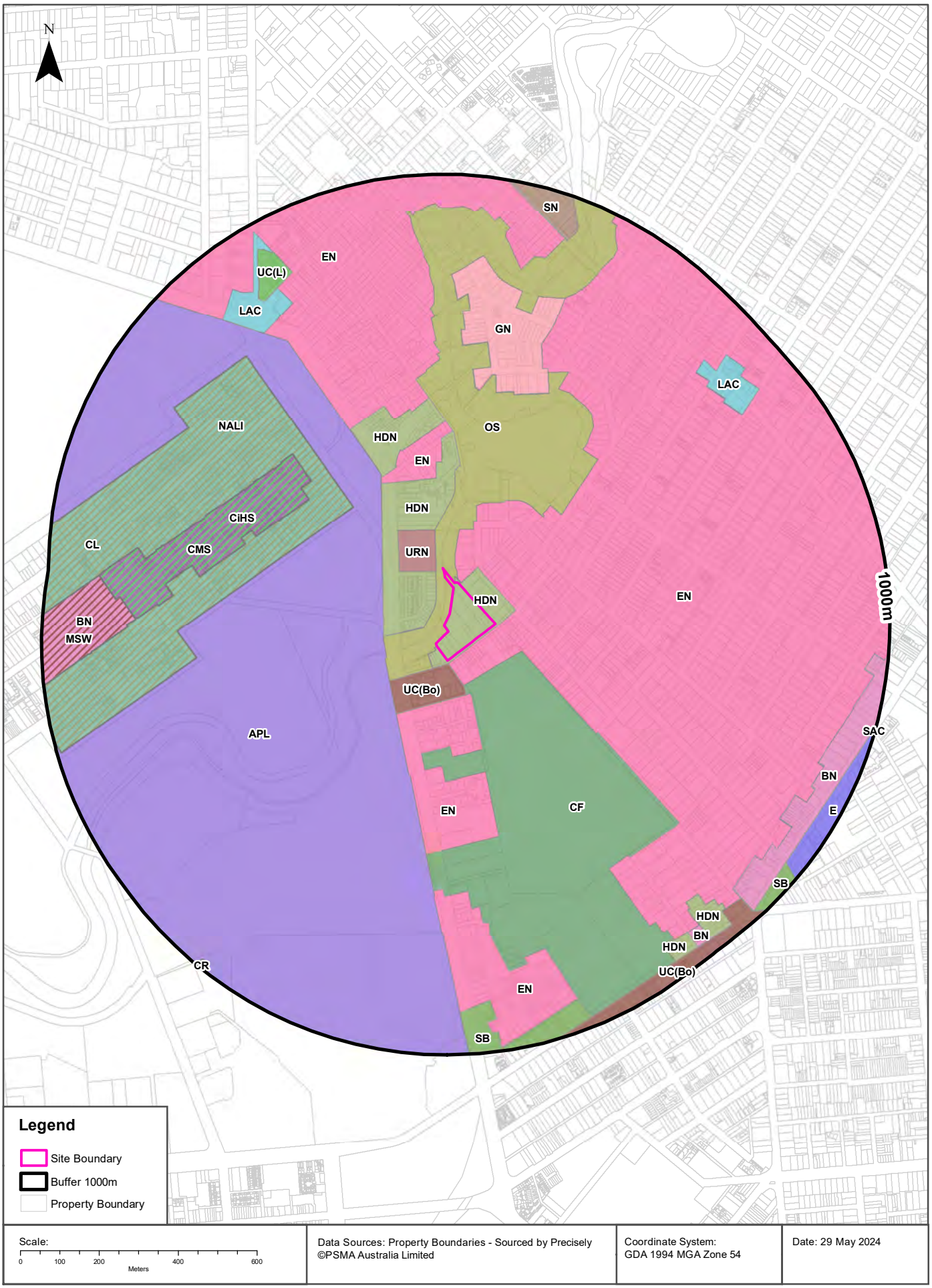
# Planning and Design Code Zones

**46 Richmond Street, Hackney, SA 5069**






Lotsearch Pty Ltd ABN 89 008 168 018

# Planning

**46 Richmond Street, Hackney, SA 5069**

## Planning and Design Code - Zones

Planning and Design Code zones within the dataset buffer:

| Map Id | Zone Code | Zone Name | Legal Start Date | Status | Distance | Direction |
|---|---|---|---|---|---|---|
| HDN | Z2404 | Housing Diversity Neighbourhood | 19/03/2021 | 0 | 0m | On-site |
| OS | Z4501 | Open Space | 19/03/2021 | 0 | 0m | On-site |
| EN | Z1506 | Established Neighbourhood | 19/03/2021 | 0 | 6m | East |
| UC(Bo) | Z6302 | Urban Corridor (Boulevard) | 19/03/2021 | 0 | 9m | South West |
| URN | Z6307 | Urban Renewal Neighbourhood | 19/03/2021 | 0 | 18m | North West |
| HDN | Z2404 | Housing Diversity Neighbourhood | 19/03/2021 | 0 | 20m | North West |
| CF | Z0903 | Community Facilities | 19/03/2021 | 0 | 74m | South East |
| EN | Z1506 | Established Neighbourhood | 19/03/2021 | 0 | 95m | South |
| APL | Z0302 | Adelaide Park Lands | 29/06/2023 | 0 | 130m | South West |
| EN | Z1506 | Established Neighbourhood | 19/03/2021 | 0 | 230m | North |
| CL | Z0908 | City Living | 19/03/2021 | 0 | 276m | West |
| HDN | Z2404 | Housing Diversity Neighbourhood | 19/03/2021 | 0 | 279m | North |
| CMS | Z0909 | City Main Street | 19/03/2021 | 0 | 383m | West |
| EN | Z1506 | Established Neighbourhood | 19/03/2021 | 0 | 396m | North |
| GN | Z2102 | General Neighbourhood | 19/03/2021 | 0 | 462m | North |
| EN | Z1506 | Established Neighbourhood | 19/03/2021 | 0 | 578m | South |
| LAC | Z3603 | Local Activity Centre | 23/06/2022 | 0 | 749m | North West |
| BN | Z0601 | Business Neighbourhood | 19/03/2021 | 0 | 763m | West |
| LAC | Z3603 | Local Activity Centre | 19/03/2021 | 0 | 801m | North East |
| UC(L) | Z6304 | Urban Corridor (Living) | 23/06/2022 | 0 | 816m | North West |
| HDN | Z2404 | Housing Diversity Neighbourhood | 19/03/2021 | 0 | 852m | South East |
| SB | Z5719 | Suburban Business | 19/03/2021 | 0 | 867m | South |
| BN | Z0601 | Business Neighbourhood | 19/03/2021 | 0 | 872m | South East |
| SN | Z5707 | Suburban Neighbourhood | 19/03/2021 | 0 | 889m | North |
| HDN | Z2404 | Housing Diversity Neighbourhood | 19/03/2021 | 0 | 905m | South East |
| BN | Z0601 | Business Neighbourhood | 19/03/2021 | 0 | 916m | South East |
| UC(Bo) | Z6302 | Urban Corridor (Boulevard) | 19/03/2021 | 0 | 926m | South East |
| E | Z1501 | Employment | 19/03/2021 | 0 | 947m | South East |
| SB | Z5719 | Suburban Business | 19/03/2021 | 0 | 952m | South East |
| CR | Z0911 | City Riverbank | 20/01/2022 | 0 | 979m | South West |
| SAC | Z5705 | Suburban Activity Centre | 19/03/2021 | 0 | 993m | East |

Planning and Design Code Zones Data Source: Attorney-General's Department - South Australia
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## Planning and Design Code - Subzones

Planning and Design Code subzones within the dataset buffer:

| Map Id | Subzone Code | Subzone Name | Legal Start Date | Status | Distance | Direction |
|---|---|---|---|---|---|---|
| NALI | S4202 | North Adelaide Low Intensity | 19/03/2021 | 0 | 276m | West |
| CiHS | S0903 | City High Street | 19/03/2021 | 0 | 383m | West |
| MSW | S3905 | Melbourne Street West | 19/03/2021 | 0 | 764m | West |
| Inn | S2701 | Innovation | 20/01/2022 | 0 | 979m | South West |

Planning and Design Code Subzones Data Source: Attorney-General's Department - South Australia
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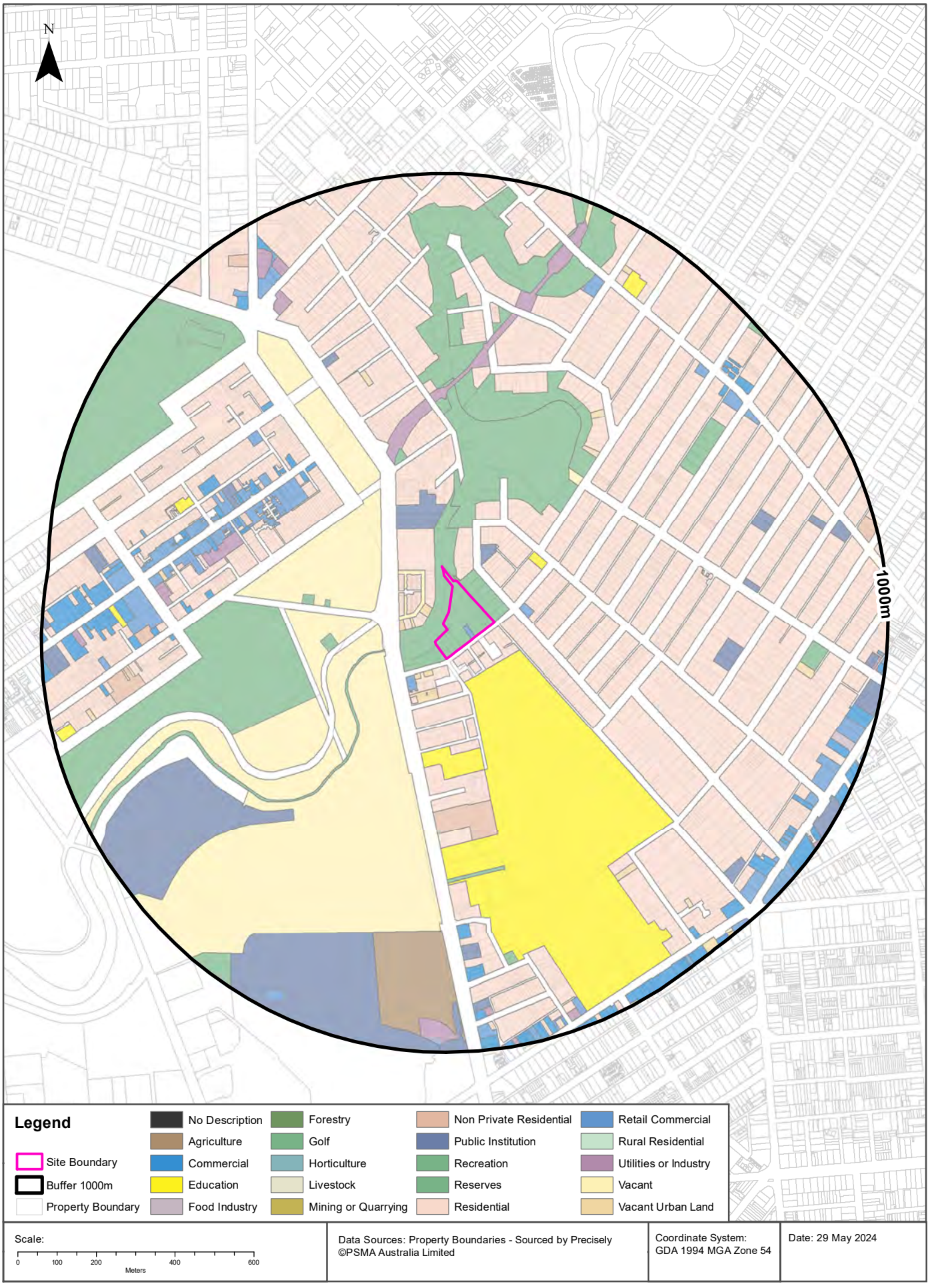
# Land Use Generalised

**46 Richmond Street, Hackney, SA 5069**



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# Planning

**46 Richmond Street, Hackney, SA 5069**

## Land Use Generalised

Land use classes within the dataset buffer:

| Description | Distance | Direction |
|---|---|---|
| Recreation | 0m | On-site |
| Retail Commercial | 0m | On-site |
| Reserves | 0m | North West |
| Residential | 6m | North |
| Vacant | 43m | South |
| Vacant Urban Land | 43m | West |
| Public Institution | 70m | North |
| Education | 74m | South East |
| Non Private Residential | 112m | South West |
| Utilities or Industry | 286m | North |
| Commercial | 404m | North West |
| Agriculture | 690m | South |
| Food Industry | 903m | East |

Land Use Generalised Data Source: Dept of Planning, Transport and Infrastructure - South Australia
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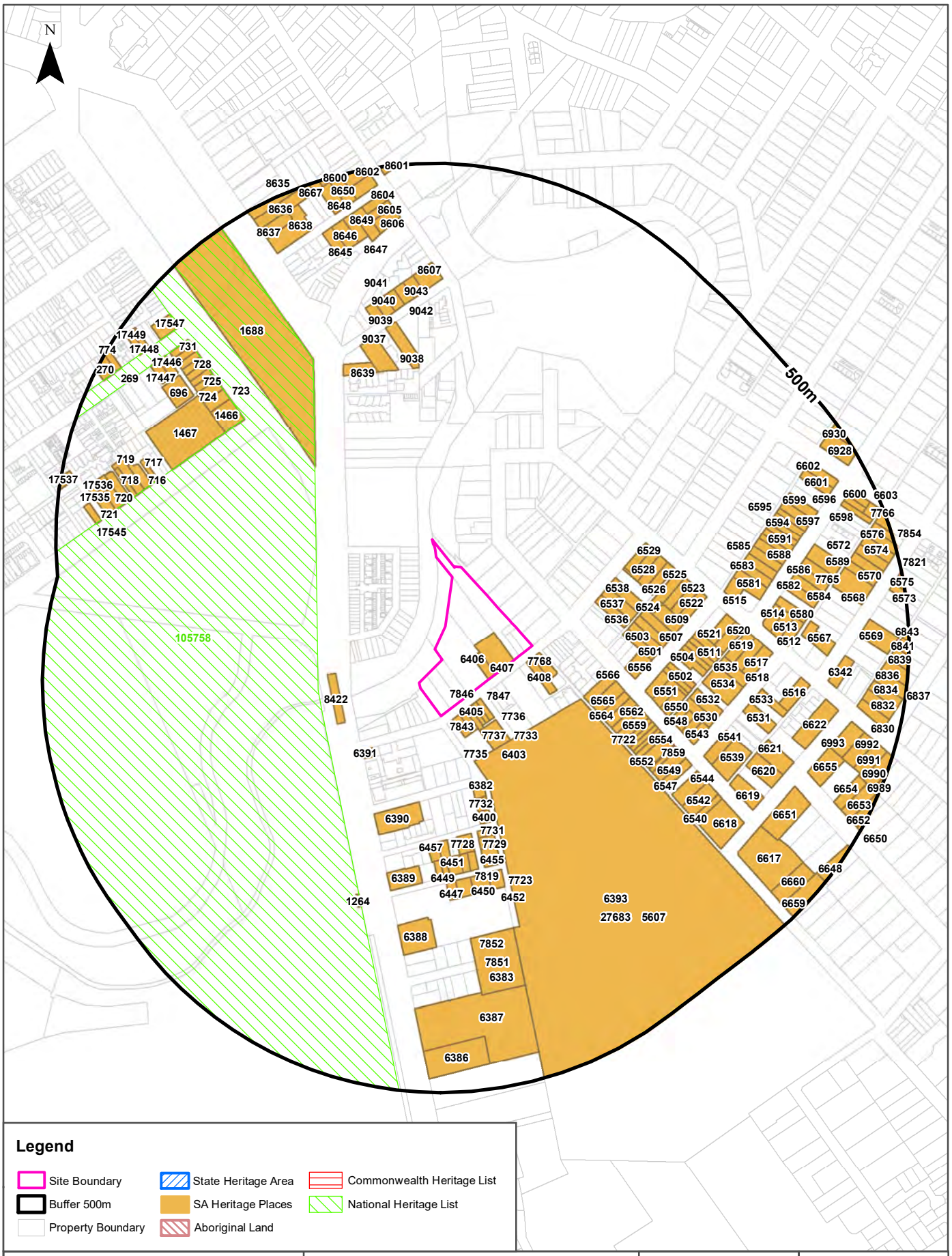
# Heritage

**46 Richmond Street, Hackney, SA 5069**



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# Heritage

**46 Richmond Street, Hackney, SA 5069**

## 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
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## 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 | 134m | West |

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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## 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
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## SA Heritage Places

SA Heritage Places within the dataset buffer:

| Heritage No | Location | Heritage Class | Australian Class | Details | Auth Date | Distance | Direction |
|---|---|---|---|---|---|---|---|
| 6406 | 36 Richmond Street HACKNEY | Local | Religious Building | Uniting Church | 26/10/2006 | 0m | On-site |
| 6407 | 46 Richmond Street HACKNEY | Local | House | Dwelling (Former Park Farm Barn) | 26/10/2006 | 0m | On-site |
| 6404 | 25 Richmond Street HACKNEY | Local | Flat - Units | Row Dwelling | 26/10/2006 | 12m | South |
| 6405 | 33 Richmond Street HACKNEY | Local | Flat - Units | Row Dwelling | 26/10/2006 | 12m | South |
| 6408 | 55 Richmond Street HACKNEY | Local | House | Attached Dwelling | 26/10/2006 | 12m | South East |
| 7768 | 57 Richmond Street HACKNEY | Local | House | Attached Dwelling | 26/10/2006 | 12m | East |
| 7843 | 27 Richmond Street HACKNEY | Local | Flat - Units | Row Dwelling | 26/10/2006 | 12m | South |
| 7844 | 29 Richmond Street HACKNEY | Local | Flat - Units | Row Dwelling | 26/10/2006 | 12m | South |
| 7845 | 35 Richmond Street HACKNEY | Local | Flat - Units | Row Dwelling | 26/10/2006 | 12m | South |


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| Heritage No | Location | Heritage Class | Australian Class | Details | Auth Date | Distance | Direction |
|---|---|---|---|---|---|---|---|
| 7846 | 37 Richmond Street HACKNEY | Local | Flat - Units | Row Dwelling | 26/10/2006 | 12m | South |
| 7847 | 39 Richmond Street HACKNEY | Local | Flat - Units | Row Dwelling | 26/10/2006 | 12m | South |
| 7848 | 31 Richmond Street HACKNEY | Local | Flat - Units | Row Dwelling | 26/10/2006 | 12m | South |
| 6403 | 2 Regent Street HACKNEY | Local | Flat - Units | Row Dwelling | 26/10/2006 | 46m | South |
| 7733 | 4 Regent Street HACKNEY | Local | Flat - Units | Row Dwelling | 26/10/2006 | 46m | South |
| 7734 | 6 Regent Street HACKNEY | Local | Flat - Units | Row Dwelling | 26/10/2006 | 46m | South |
| 7735 | 8 Regent Street HACKNEY | Local | Flat - Units | Row Dwelling | 26/10/2006 | 46m | South |
| 7736 | 10 Regent Street HACKNEY | Local | Flat - Units | Row Dwelling | 26/10/2006 | 46m | South |
| 7737 | 12 Regent Street HACKNEY | Local | Flat - Units | Row Dwelling | 26/10/2006 | 46m | South |
| 5607 | Hackney Road HACKNEY | State | Secondary School/College | Old School House, St Peter's College | | 74m | South East |
| 6393 | Hackney Road HACKNEY | Local | Secondary School/College | St Peters College | 26/10/2006 | 74m | South East |
| 27683 | Hackney Road HACKNEY | State | Secondary School/College | St Peter's College - Big Quad Precinct | | 74m | South East |
| 6566 | 36 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 95m | East |
| 6391 | 95 Hackney Road HACKNEY | Local | Hotel - Motel - Inn | Hackney Hotel | 26/10/2006 | 99m | South West |
| 6536 | 63 Richmond Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 101m | East |
| 6382 | 11 Bertram Street HACKNEY | Local | House | Dwelling (Former 'Hailes Villa' Gardener's Cottage) | 26/10/2006 | 102m | South |
| 8422 | Hackney Road HACKNEY | State | Bridge | Hackney Bridge (former New Company Bridge) [Metal Arch] | | 107m | South West |
| 6565 | 34 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 109m | East |
| 6537 | 65 Richmond Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 113m | East |
| 6390 | 85 Hackney Road HACKNEY | Local | House | Dwelling ('Edgerly') | 26/10/2006 | 117m | South |
| 7732 | 2 Hatswell Street HACKNEY | Local | House | Dwelling (Former 'Hailes Villa' Coachhouse/Stables) | 26/10/2006 | 119m | South |
| 6501 | 2 Catherine Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 120m | East |
| 6556 | 19 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 126m | East |
| 6538 | 67 Richmond Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 127m | East |
| 6564 | 32 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 127m | South East |
| 6503 | 4 Catherine Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 128m | East |
| 6400 | 2 Oxford Street HACKNEY | Local | House | Dwelling (Former 'Hailes Villa' Coachmans House) | 26/10/2006 | 136m | South |
| 6505 | 6 Catherine Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 138m | East |
| 6563 | 30 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 138m | South East |
| 6507 | 8 Catherine Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 147m | East |
| 6562 | 28 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 151m | South East |


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| Heritage No | Location | Heritage Class | Australian Class | Details | Auth Date | Distance | Direction |
|---|---|---|---|---|---|---|---|
| 6528 | 86 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 157m | North East |
| 6509 | 10 Catherine Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 158m | East |
| 6529 | 88 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 160m | North East |
| 7728 | 9 Oxford Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 160m | South |
| 7731 | 4 Hatswell Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 160m | South |
| 6524 | 78 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 161m | East |
| 6553 | 17 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 161m | East |
| 6559 | 24 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 161m | South East |
| 7722 | 26 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 161m | South East |
| 6527 | 84 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 163m | East |
| 6401 | 5 Oxford Street HACKNEY | Local | House | Attached Dwelling | 26/10/2006 | 164m | South |
| 6525 | 80 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 164m | East |
| 7727 | 5a Oxford Street HACKNEY | Local | House | Attached Dwelling | 26/10/2006 | 164m | South |
| 6457 | 3 Oxford Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 168m | South |
| 6526 | 82 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 168m | East |
| 6456 | 6 Hatswell Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 169m | South |
| 7729 | 8 Hatswell Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 169m | South |
| 7730 | 10 Hatswell Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 169m | South |
| 6551 | 15 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 174m | East |
| 6500 | 1 Catherine Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 175m | East |
| 6558 | 22 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 175m | South East |
| 6502 | 3 Catherine Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 179m | East |
| 6557 | 20 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 181m | South East |
| 1688 | Mann Terrace NORTH ADELAIDE | State | Olive Plantation | Mann Terrace Olive Plantation | | 183m | North West |
| 6454 | 16 Cambridge Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 184m | South |
| 6453 | 14 Cambridge Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 185m | South |
| 6455 | 18 Cambridge Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 185m | South |
| 6451 | 10 Cambridge Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 186m | South |
| 7725 | 12 Cambridge Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 186m | South |
| 7721 | 18B Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 187m | South East |
| 6523 | 76 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 188m | East |
| 6550 | 13 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 188m | East |


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| Heritage No | Location | Heritage Class | Australian Class | Details | Auth Date | Distance | Direction |
|---|---|---|---|---|---|---|---|
| 7724 | 8 Cambridge Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 189m | South |
| 6504 | 5A Catherine Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 190m | East |
| 6449 | 6 Cambridge Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 191m | South |
| 6555 | 18A Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 193m | South East |
| 6506 | 7 Catherine Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 197m | East |
| 6522 | 74 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 198m | East |
| 6554 | 18 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 199m | South East |
| 6389 | 79 Hackney Road HACKNEY | Local | Historic Sites (unclassified) | Former Dwelling ('Park Lodge') | 26/10/2006 | 201m | South |
| 6508 | 9 Catherine Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 202m | East |
| 6552 | 16 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 206m | South East |
| 6510 | 11 Catherine Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 207m | East |
| 6548 | 11 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 207m | East |
| 6511 | 13 Catherine Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 212m | East |
| 6530 | 2 Magdalen Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 214m | East |
| 6448 | 5 Cambridge Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 217m | South |
| 6450 | 9 Cambridge Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 217m | South |
| 6452 | 13 Cambridge Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 217m | South |
| 6546 | 9 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 217m | East |
| 7723 | 11 Cambridge Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 217m | South |
| 7819 | 7 Cambridge Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 217m | South |
| 6532 | 4 Magdalen Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 219m | East |
| 6447 | 3 Cambridge Street HACKNEY | Contributory | House | Dwelling | 26/10/2006 | 220m | South |
| 7859 | 14 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 225m | South East |
| 6545 | 7 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 228m | East |
| 9038 | 8 Rose Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 229m | North |
| 6521 | 70 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 230m | East |
| 6534 | 6 Magdalen Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 230m | East |
| 9037 | 2 Rose Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 230m | North |
| 6549 | 12 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 231m | South East |
| 8639 | 28 Park Terrace GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 234m | North |


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| Heritage No | Location | Heritage Class | Australian Class | Details | Auth Date | Distance | Direction |
|---|---|---|---|---|---|---|---|
| 6543 | 5 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 239m | East |
| 6520 | 68 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 241m | East |
| 6535 | 8 Magdalen Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 246m | East |
| 6547 | 10 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 248m | South East |
| 6519 | 66 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 254m | East |
| 1264 | Hackney Road Botanic Park ADELAIDE | Local | Historic Sites (unclassified) | Carriageway entrance gates | 1/11/2001 | 261m | South West |
| 6515 | 55 Harrow Road ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 264m | East |
| 6518 | 64 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 267m | East |
| 6388 | 69 Hackney Road HACKNEY | Local | Historic Sites (unclassified) | Mocatta House | 26/10/2006 | 268m | South |
| 6541 | 3 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 270m | South East |
| 6544 | 6 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 270m | South East |
| 6517 | 62 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 279m | East |
| 6581 | 2 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 281m | East |
| 6539 | 1 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 285m | South East |
| 6542 | 4 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 290m | South East |
| 6531 | 3 Magdalen Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 292m | East |
| 6583 | 4 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 292m | East |
| 1466 | 1-5 MacKinnon Parade NORTH ADELAIDE | State | House | Dwellings | | 296m | North West |
| 6383 | 13/ 6 Vailima Court HACKNEY | Local | Historic Sites (unclassified) | Former ('Vailima') Coach House | 26/10/2006 | 296m | South |
| 7851 | 14/ 6 Vailima Court HACKNEY | Local | Historic Sites (unclassified) | Former ('Vailima') Coach House | 26/10/2006 | 296m | South |
| 7852 | 15/ 6 Vailima Court HACKNEY | Local | Historic Sites (unclassified) | Former ('Vailima') Coach House | 26/10/2006 | 296m | South |
| 9039 | 3 Rose Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 296m | North |
| 6585 | 6 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 302m | East |
| 9040 | 5 Rose Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 302m | North |
| 6533 | 7 Magdalen Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 304m | East |
| 6514 | 53 Harrow Road ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 307m | East |
| 9041 | 7 Rose Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 308m | North |
| 1467 | 6-18 MacKinnon Parade NORTH ADELAIDE | State | House | Dwellings | | 310m | North West |
| 6540 | 2 Torrens Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 311m | South East |
| 6587 | 8 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 312m | East |
| 9042 | 9 Rose Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 315m | North |
| 6513 | 51 Harrow Road ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 316m | East |


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| Heritage No | Location | Heritage Class | Australian Class | Details | Auth Date | Distance | Direction |
|---|---|---|---|---|---|---|---|
| 6618 | 2 College Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 320m | South East |
| 6619 | 4 College Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 320m | South East |
| 6588 | 10 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 322m | East |
| 9043 | 9A Rose Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 322m | North |
| 6620 | 6 College Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 324m | South East |
| 6580 | 1 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 326m | East |
| 723 | 6-8 Mann Terrace (known as 7) NORTH ADELAIDE | Local | House | House | 1/11/2001 | 328m | North West |
| 6512 | 49 Harrow Road ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 328m | East |
| 6621 | 8 College Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 329m | East |
| 8607 | 66 Gilbert Street GILBERTON | Local | Historic Sites (unclassified) | External form, materials and detailing of the c.1912-13 dwelling | 8/02/2007 | 330m | North |
| 6590 | 12 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 332m | East |
| 6516 | 56 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 335m | East |
| 6591 | 14 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 339m | East |
| 724 | 9-10 Mann Terrace NORTH ADELAIDE | Local | House | House | 1/11/2001 | 343m | North West |
| 6582 | 3 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 343m | East |
| 6592 | 16 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 346m | East |
| 6584 | 5 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 352m | East |
| 6593 | 18 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 353m | East |
| 725 | 11 Mann Terrace NORTH ADELAIDE | Local | House | House | 1/11/2001 | 357m | North West |
| 6567 | 2A Fifth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 357m | East |
| 6594 | 20 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 360m | East |
| 6586 | 7 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 361m | East |
| 6622 | 12 College Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 365m | East |
| 726 | 12-13 Mann Terrace NORTH ADELAIDE | Local | House | House | 1/11/2001 | 366m | North West |
| 6595 | 22 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 369m | East |
| 696 | 11-19 Arthur Street NORTH ADELAIDE | Local | House | Row houses | 1/11/2001 | 370m | North West |
| 7765 | 9 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 370m | East |
| 6387 | 63 Hackney Road HACKNEY | Local | Historic Sites (unclassified) | Former Dwelling ('Vailima') | 26/10/2006 | 371m | South |
| 716 | 23 MacKinnon Parade NORTH ADELAIDE | Local | House | House | 1/11/2001 | 373m | North West |
| 727 | 14 Mann Terrace NORTH ADELAIDE | Local | House | House | 1/11/2001 | 375m | North West |
| 6597 | 24 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 375m | East |


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| Heritage No | Location | Heritage Class | Australian Class | Details | Auth Date | Distance | Direction |
|---|---|---|---|---|---|---|---|
| 717 | 25 MacKinnon Parade NORTH ADELAIDE | Local | House | House | 1/11/2001 | 379m | North West |
| 6589 | 11 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 380m | East |
| 728 | 15 Mann Terrace NORTH ADELAIDE | Local | House | House | 1/11/2001 | 383m | North West |
| 6617 | 1 College Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 385m | South East |
| 6599 | 26 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 386m | North East |
| 6651 | 38 Marlborough Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 386m | South East |
| 718 | 26-27 MacKinnon Parade NORTH ADELAIDE | Local | House | House | 1/11/2001 | 388m | North West |
| 729 | 17 Mann Terrace NORTH ADELAIDE | Local | House | House | 1/11/2001 | 392m | North West |
| 6342 | 47 Harrow Road (corner of Fifth Avenue) ST PETERS | Local | Historic Sites (unclassified) | Former Shop/Dwelling | 26/10/2006 | 395m | East |
| 8645 | 2 Simpson Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 396m | North |
| 719 | 28 MacKinnon Parade NORTH ADELAIDE | Local | House | House | 1/11/2001 | 397m | North West |
| 8646 | 4 Simpson Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 400m | North |
| 730 | 18 Mann Terrace NORTH ADELAIDE | Local | House | House | 1/11/2001 | 401m | North West |
| 6655 | 45 Marlborough Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 401m | East |
| 720 | 29-30 MacKinnon Parade NORTH ADELAIDE | Local | House | House | 1/11/2001 | 403m | North West |
| 8649 | 8 Simpson Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 403m | North |
| 17446 | 13-15 Melbourne Street NORTH ADELAIDE | Local | House | House | 30/03/2006 | 404m | North West |
| 6568 | 4 Fifth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 405m | East |
| 8647 | 6 Simpson Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 406m | North |
| 17447 | 17 Melbourne Street NORTH ADELAIDE | Local | House | House | 30/03/2006 | 409m | North West |
| 731 | 19-20 Mann Terrace NORTH ADELAIDE | Local | House | House | 1/11/2001 | 410m | North West |
| 1468 | 32 MacKinnon Parade NORTH ADELAIDE | State | House | Dwelling | | 412m | West |
| 8606 | 56 Gilbert Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 412m | North |
| 6993 | 52 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 415m | East |
| 6601 | 32 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 419m | North East |
| 721 | 33-35 MacKinnon Parade (known as 34) NORTH ADELAIDE | Local | House | House | 1/11/2001 | 422m | West |
| 6570 | 6 Fifth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 427m | East |


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| Heritage No | Location | Heritage Class | Australian Class | Details | Auth Date | Distance | Direction |
|---|---|---|---|---|---|---|---|
| 6386 | 61 Hackney Road HACKNEY | Local | House | Dwelling | 26/10/2006 | 429m | South |
| 6602 | 34 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 430m | North East |
| 8605 | 54 Gilbert Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 430m | North |
| 17535 | 10 Colley Street NORTH ADELAIDE | Local | House | House | 30/03/2006 | 431m | West |
| 6569 | 5 Fifth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 432m | East |
| 8638 | 20 Park Terrace GILBERTON | Local | Historic Sites (unclassified) | External form, materials and detailing of the c.1897-8 dwelling | 8/02/2007 | 432m | North West |
| 6571 | 8 Fifth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 435m | East |
| 17536 | 12 & 14 Colley Street NORTH ADELAIDE | Local | House | Semi-detached houses | 30/03/2006 | 435m | North West |
| 6830 | 2 Fourth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 437m | East |
| 6992 | 50 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 437m | East |
| 17547 | 21-22 & 23 Mann Terrace NORTH ADELAIDE | Local | House | Semi-detached houses | 30/03/2006 | 439m | North West |
| 17545 | 37 MacKinnon Parade (cnr Colley St) NORTH ADELAIDE | Local | House | House | 30/03/2006 | 440m | West |
| 8604 | 52 Gilbert Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 441m | North |
| 6832 | 4 Fourth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 442m | East |
| 6572 | 10 Fifth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 444m | East |
| 6834 | 6 Fourth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 449m | East |
| 6596 | 23 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 450m | East |
| 6654 | 43 Marlborough Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 450m | East |
| 8648 | 7 Simpson Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 452m | North |
| 6574 | 12 Fifth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 454m | East |
| 6660 | 11 Pembroke Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 454m | South East |
| 17448 | 16-18 Melbourne Street NORTH ADELAIDE | Local | House | House | 30/03/2006 | 454m | North West |
| 6598 | 25 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 455m | East |
| 6836 | 8 Fourth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 455m | East |
| 6991 | 48 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 455m | East |
| 8637 | 19 Park Terrace GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 455m | North West |
| 17449 | 20 Melbourne Street NORTH ADELAIDE | Local | House | House | 30/03/2006 | 456m | North West |
| 8650 | 9 Simpson Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 458m | North |
| 6600 | 27 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 463m | East |
| 6837 | 10 Fourth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 463m | East |


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| Heritage No | Location | Heritage Class | Australian Class | Details | Auth Date | Distance | Direction |
|---|---|---|---|---|---|---|---|
| 6928 | 36 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 463m | North East |
| 8603 | 50 Gilbert Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 463m | North |
| 6653 | 41 Marlborough Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 464m | East |
| 6576 | 14 Fifth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 465m | East |
| 8636 | 18 Park Terrace GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 471m | North West |
| 269 | 30-32 Melbourne Street NORTH ADELAIDE | Local | House | House | 1/11/2001 | 472m | North West |
| 6603 | 14 St Peters Street ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 472m | East |
| 6839 | 12 Fourth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 472m | East |
| 6990 | 46 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 472m | East |
| 7854 | 16 Fifth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 475m | East |
| 270 | 32, 34, 36, 36a & 38 Melbourne Street NORTH ADELAIDE | Local | House | Former row houses | 1/11/2001 | 476m | North West |
| 6659 | 10 Pembroke Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 477m | South East |
| 6573 | 11 Fifth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 479m | East |
| 6652 | 39 Marlborough Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 480m | South East |
| 8602 | 48 Gilbert Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 480m | North |
| 6841 | 14 Fourth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 481m | East |
| 17537 | 22 & 24-26 Dunn Street NORTH ADELAIDE | Local | House | Semi-detached Houses | 30/03/2006 | 481m | West |
| 6578 | 18 Fifth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 483m | East |
| 6648 | 32 Marlborough Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 483m | South East |
| 7766 | 20 Fifth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 483m | East |
| 8667 | 7 Stour Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 484m | North |
| 6930 | 38 Sixth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 485m | North East |
| 6575 | 13 Fifth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 486m | East |
| 8635 | 17 Park Terrace GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 486m | North West |
| 8665 | 5 Stour Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 487m | North |
| 8601 | 47 Gilbert Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 489m | North |
| 6989 | 44 Harrow Road COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 490m | East |
| 6843 | 16 Fourth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 491m | East |
| 8600 | 46 Gilbert Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 491m | North |


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| Heritage No | Location | Heritage Class | Australian Class | Details | Auth Date | Distance | Direction |
|---|---|---|---|---|---|---|---|
| 7821 | 15 Fifth Avenue ST PETERS | Contributory | House | Dwelling | 26/10/2006 | 492m | East |
| 6650 | 37 Marlborough Street COLLEGE PARK | Contributory | House | Dwelling | 26/10/2006 | 493m | South East |
| 8661 | 1 Stour Street GILBERTON | Contributory | Historic Sites (unclassified) | | 8/02/2007 | 499m | North |
| 774 | 7 & 9 Sussex Street NORTH ADELAIDE | Local | House | Semi-detached houses | 1/11/2001 | 500m | North West |

Heritage Places Data Source: Dept of Environment, Water and Natural Resources - South Australia
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## 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


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# Natural Hazards

**46 Richmond Street, Hackney, SA 5069**

## Bushfire Overlays

Bushfire Overlays from the Planning and Design Code within the dataset buffer:

| Overlay Id | Name | Description | Legal Start Date | Legal End Date | Distance | Direction |
|---|---|---|---|---|---|---|
| N/A | No records in buffer | | | | | |

Bushfire Overlays Data Source: Attorney-General's Department - South Australia
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## 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 (ha) | Distance | Direction |
|---|---|---|---|---|---|---|---|
| N/A | No records in buffer | | | | | | |

Bushfires and Prescribed Burns History Data Source: Dept of Environment, Water and Natural Resources - South Australia
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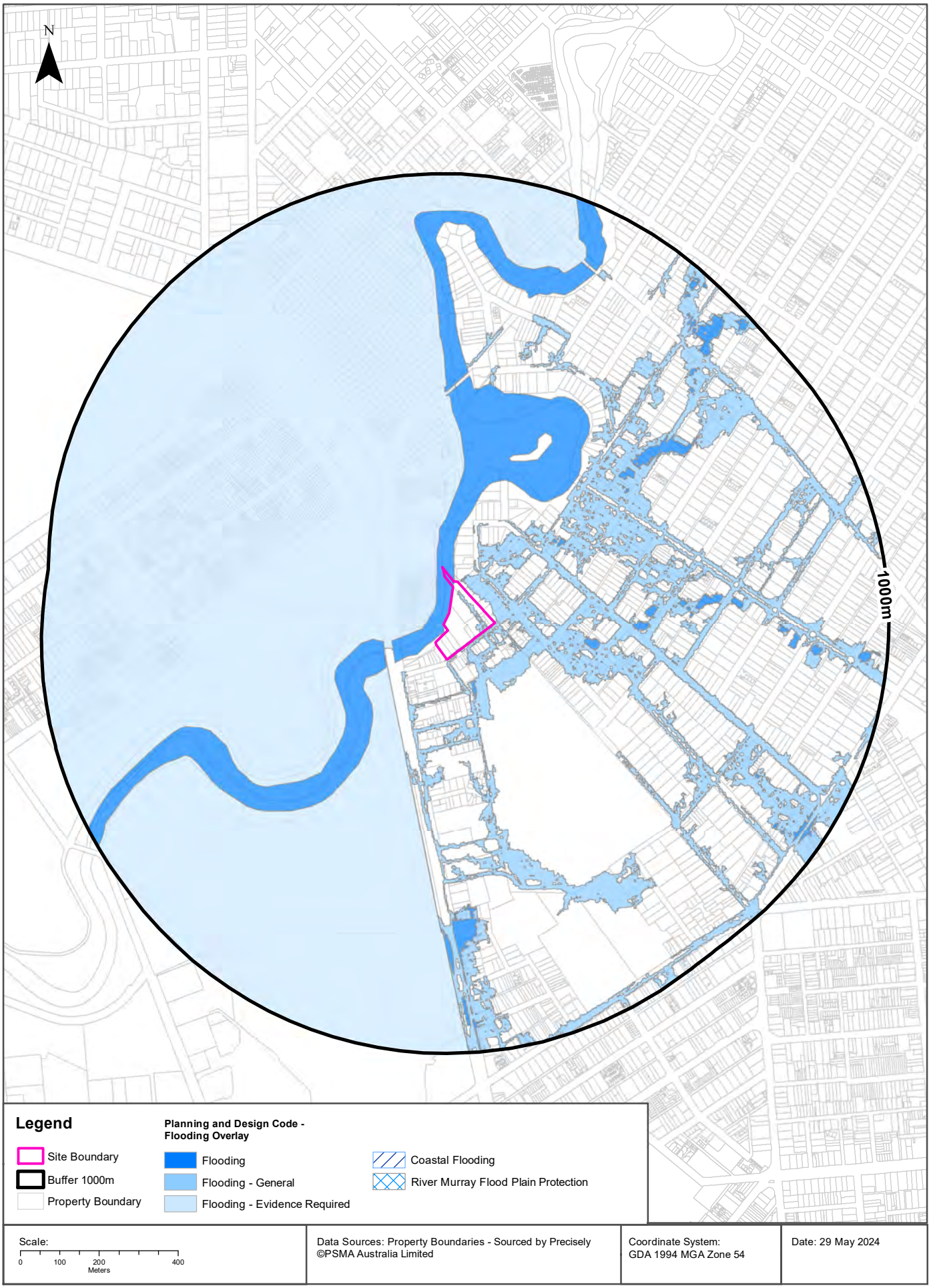
# Natural Hazards - Flood

**46 Richmond Street, Hackney, SA 5069**






Lotsearch Pty Ltd ABN 89 008 168 018

# Natural Hazards

**46 Richmond Street, Hackney, SA 5069**

## Flooding Overlays

Flooding Overlays from the Planning and Design Code within the dataset buffer:

| Overlay Id | Name | Description | Legal Start | Legal End | Distance | Direction |
|---|---|---|---|---|---|---|
| O2403 | Hazards (Flooding) | The Hazards (Flooding) Overlay seeks to minimise flood hazard risk to people, property, infrastructure and the environment. | 29/02/2024 | | 0m | On-site |
| O2414 | Hazards (Flooding - General) | The Hazards (Flooding - General) Overlay seeks to minimise impacts of general flood risk through appropriate siting and design of development. | 29/02/2024 | | 0m | On-site |
| O2416 | Hazards (Flooding - Evidence Required) | The Hazards (Flooding - Evidence Required) Overlay adopts a precautionary approach to mitigate potential impacts of potential flood risk through appropriate siting and design of development. | 29/02/2024 | | 14m | West |

Flooding Overlays Data Source: Attorney-General's Department - South Australia
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# Ecological Constraints

**46 Richmond Street, Hackney, SA 5069**

## Native Vegetation

| Record ID | Vegetation Group | Vegetation Group Percentage | Structural Formation Description | Species and Stratum Details | Description of the Environment | Ground Truth Methodology | Capture Scale | Distance | Direction |
|---|---|---|---|---|---|---|---|---|---|
| N/A | No records within the buffer | | | | | | | | |

Department for Environment and Water Data Source: Native Vegetation Floristic Areas - NVIS - State-wide
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# Ecological Constraints

**46 Richmond Street, Hackney, SA 5069**

## Collaborative Australian Protected Areas Database - Terrestrial

Protected areas in terrestrial environments identified by the CAPAD within the dataset buffer:

| Map ID | Area Name | Area Details | Management Category | Authority | Jurisdiction | Dist | Dir |
|---|---|---|---|---|---|---|---|
| N/A | No records in buffer | | | | | | |

## Collaborative Australian Protected Areas Database - Marine

Protected areas in marine environments identified by the CAPAD within the dataset buffer:

| Map ID | Area Name | Area Details | Management Category | Authority | Jurisdiction | Dist | Dir |
|---|---|---|---|---|---|---|---|
| N/A | No records in buffer | | | | | | |

Source: Collaborative Australian Protected Areas Database (CAPAD) 2022
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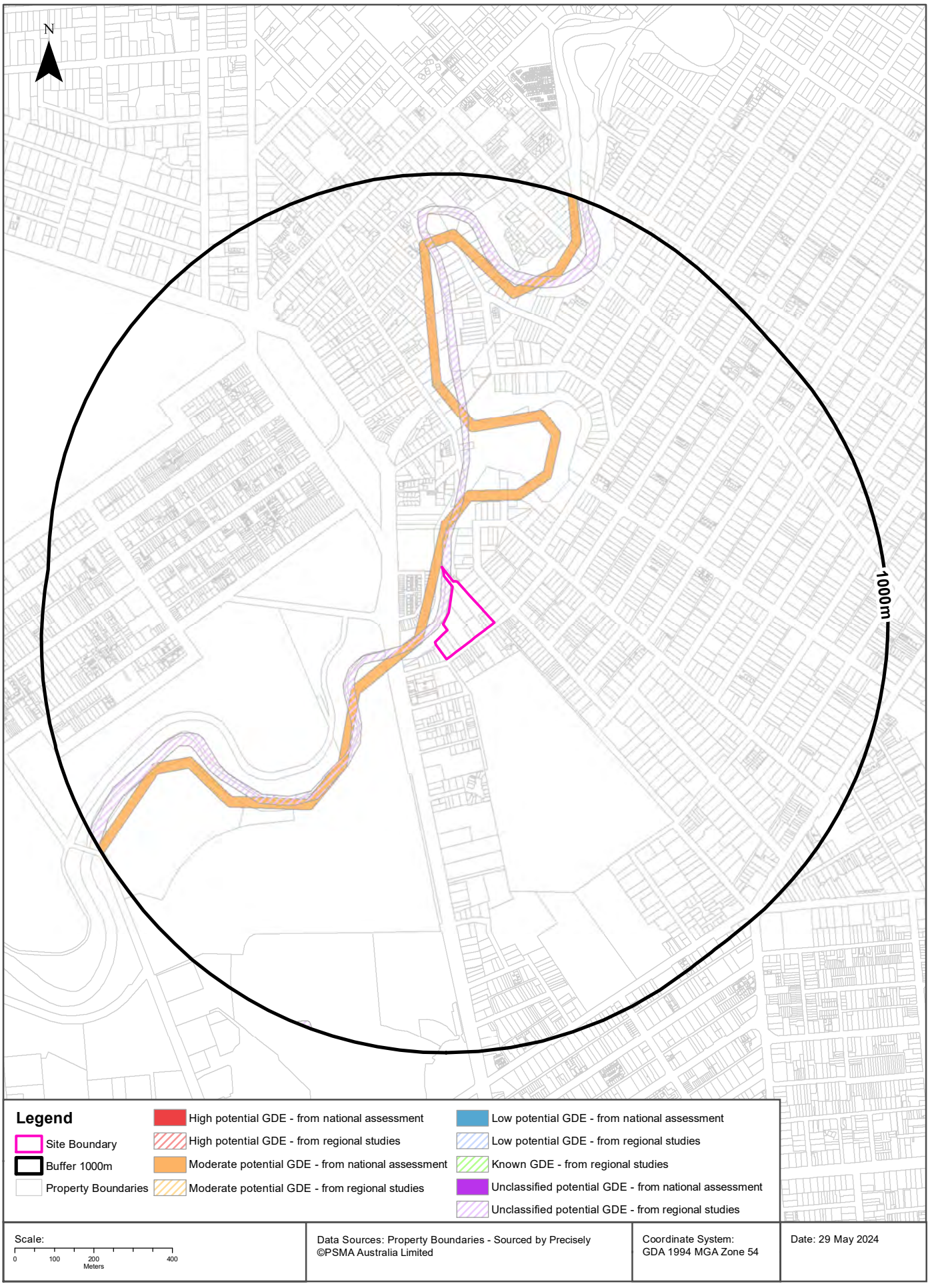
# Ecological Constraints - Groundwater Dependent Ecosystems Atlas

**46 Richmond Street, Hackney, SA 5069**






Lotsearch Pty Ltd ABN 89 085 168 018

# Ecological Constraints

**46 Richmond Street, Hackney, SA 5069**

## Groundwater Dependent Ecosystems Atlas

| Type | Name | GDE Potential | Geomorphology | Ecosystem Type | Aquifer Geology | Distance | Direction |
|---|---|---|---|---|---|---|---|
| Aquatic | | Unclassified potential GDE - from regional studies | Complex fold belt of prominent ranges in north, chiefly quartzite with vales on weaker rocks; stepped fault blocks and islands in south, mainly of weathered metamorphic rocks with ferruginous cappings. | Wetland | | 0m | On-site |
| Aquatic | | Moderate potential GDE - from national assessment | Complex fold belt of prominent ranges in north, chiefly quartzite with vales on weaker rocks; stepped fault blocks and islands in south, mainly of weathered metamorphic rocks with ferruginous cappings. | River | | 5m | North |
| Aquatic | | Unclassified potential GDE - from regional studies | Salt lake and bahadas in north; alluvial and littoral plains in south; north-west/south-east longitudinal dunes, mainly stabilized. | Wetland | | 984m | South |

Groundwater Dependent Ecosystems Atlas Data Source: The Bureau of Meteorology
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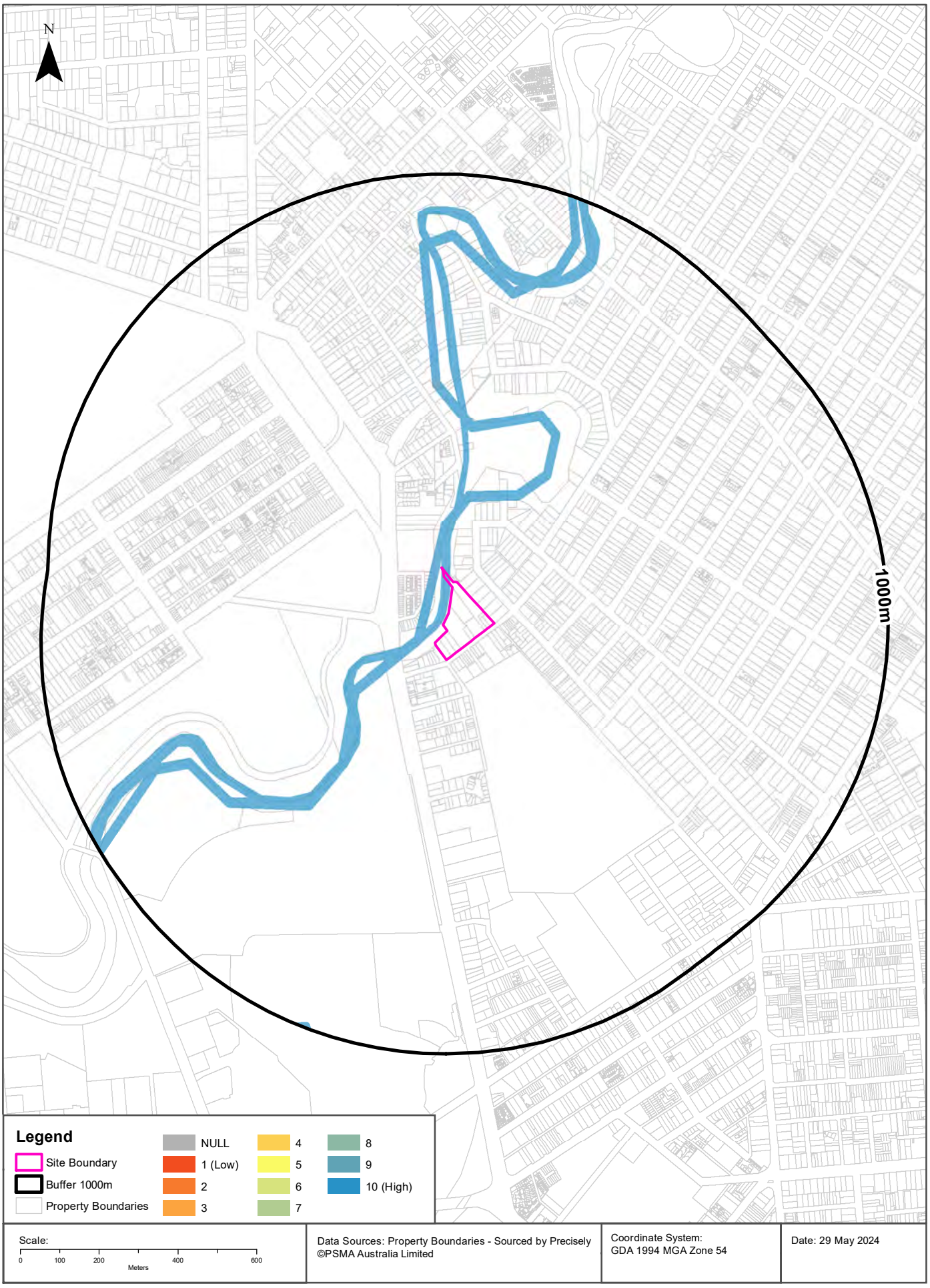
# Ecological Constraints - Inflow Dependent Ecosystems Likelihood

**46 Richmond Street, Hackney, SA 5069**



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# Ecological Constraints

**46 Richmond Street, Hackney, SA 5069**

## Inflow Dependent Ecosystems Likelihood

| Type | Name | IDE Likelihood | Geomorphology | Ecosystem Type | Aquifer Geology | Distance | Direction |
|---|---|---|---|---|---|---|---|
| Aquatic | | 10 | Complex fold belt of prominent ranges in north, chiefly quartzite with vales on weaker rocks; stepped fault blocks and islands in south, mainly of weathered metamorphic rocks with ferruginous cappings. | Wetland | | 0m | On-site |
| Aquatic | | 10 | Complex fold belt of prominent ranges in north, chiefly quartzite with vales on weaker rocks; stepped fault blocks and islands in south, mainly of weathered metamorphic rocks with ferruginous cappings. | River | | 5m | North |
| Aquatic | | 10 | Salt lake and bahadas in north; alluvial and littoral plains in south; north-west/south-east longitudinal dunes, mainly stabilized. | Wetland | | 984m | South |

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology

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# Ecological Constraints

**46 Richmond Street, Hackney, SA 5069**

## Ramsar Wetlands

What Ramsar wetland areas exist within the dataset buffer?

| Wetland | Distance | Direction |
|---|---|---|
| No records in buffer | | |

Ramsar Wetlands Data Source: Dept of Environment, Water and Natural Resources - South Australia
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# 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 |
| Area Match | Georeferenced to an approximate or general area |
| Road Match | Georeferenced to a road or rail corridor |
| Road Intersection | Georeferenced to a road intersection |
| Buffered Point | A point feature buffered to x metres |
| Adjacent Match | Land adjacent to a georeferenced feature |
| Network of Features | Georeferenced to a network of features |
| Suburb Match | Georeferenced to a suburb boundary |
| As Supplied | Spatial data supplied by provider |


Lotsearch Pty Ltd ABN 89 480 168 018

**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.


Lotsearch Pty Ltd ABN 69 000 168 018

# APPENDIX F: SECTION 7

STRUCTURAL.CIVIL.ENVIRONMENTAL

GAMA CONSULTING
Structural, Civil & Environmental Engineering

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Kent Town SA 5067
(08) 7123 4050
gamaconsulting.com.au

Environment Protection Authority
GPO Box 2607 Adelaide SA 5001
211 Victoria Square Adelaide SA 5000
T (08) 8204 2004
Country areas 1800 623 445



GAMA Consulting
Suite 3
83 Fullarton Road
KENT TOWN SA 5067

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

03 June, 2024

**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 5389 Folio 441 |
| Address | Allotment 91, 46 Richmond Street, HACKNEY SA 5069 |

**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.

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Email: epasection7@sa.gov.au

Contact: Public Register
Telephone: (08) 8204 9128
Email: epa.publicregister@sa.gov.au

03 June, 2024

**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 5624 Folio 154 |
| Address | Allotment 112, 46 Richmond Street, HACKNEY SA 5069 |

**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.

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Contact: Public Register
Telephone: (08) 8204 9128
Email: epa.publicregister@sa.gov.au

03 June, 2024

**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 5923 Folio 344 |
| Address | Allotment 103, 46 Richmond Street, HACKNEY SA 5069 |

**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.

Environment Protection Authority
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83 Fullarton Road
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Contact: Public Register
Telephone: (08) 8204 9128
Email: epa.publicregister@sa.gov.au

03 June, 2024

**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 5923 Folio 342 |
| Address | Allotment 101, 46 Richmond Street, HACKNEY SA 5069 |

**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.

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Contact: Public Register
Telephone: (08) 8204 9128
Email: epa.publicregister@sa.gov.au

03 June, 2024

**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 5556 Folio 453 |
| Address | Allotment 99, 46 Richmond Street, HACKNEY SA 5069 |

**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.

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Email: epa.publicregister@sa.gov.au

03 June, 2024

**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 5389 Folio 439 |
| Address | Allotment 100, 46 Richmond Street, HACKNEY SA 5069 |

**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.

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Attachment 1.6

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Email: epa.publicregister@sa.gov.au

03 June, 2024

**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 5556 Folio 452 |
| Address | Allotment 98, 46 Richmond Street, HACKNEY SA 5069 |

**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.

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Contact: Public Register
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03 June, 2024

**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 5923 Folio 343 |
| Address | Allotment 102, 46 Richmond Street, HACKNEY SA 5069 |

**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.

Environment Protection Authority
GPO Box 2607 Adelaide SA 5001
211 Victoria Square Adelaide SA 5000
T (08) 8204 2004
Country areas 1800 623 445



GAMA Consulting
Suite 3
83 Fullarton Road
KENT TOWN SA 5067

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

03 June, 2024

**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 5389 Folio 440 |
| Address | Allotment 101, 46 Richmond Street, HACKNEY SA 5069 |

**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.

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Email: epasection7@sa.gov.au

Contact: Public Register
Telephone: (08) 8204 9128
Email: epa.publicregister@sa.gov.au

03 June, 2024

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I refer to your enquiry concerning the parcel of land comprised in

| | |
|---|---|
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| Address | Allotment 37, 46 Richmond Street, HACKNEY SA 5069 |

**Schedule – Division 1 – *Land and Business (Sale and Conveyancing) Regulations 2010***

**PARTICULARS OF MORTGAGES, CHARGES AND PRESCRIBED ENCUMBRANCES AFFECTING THE LAND**

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|---|---|---|
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| 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***

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| 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 |

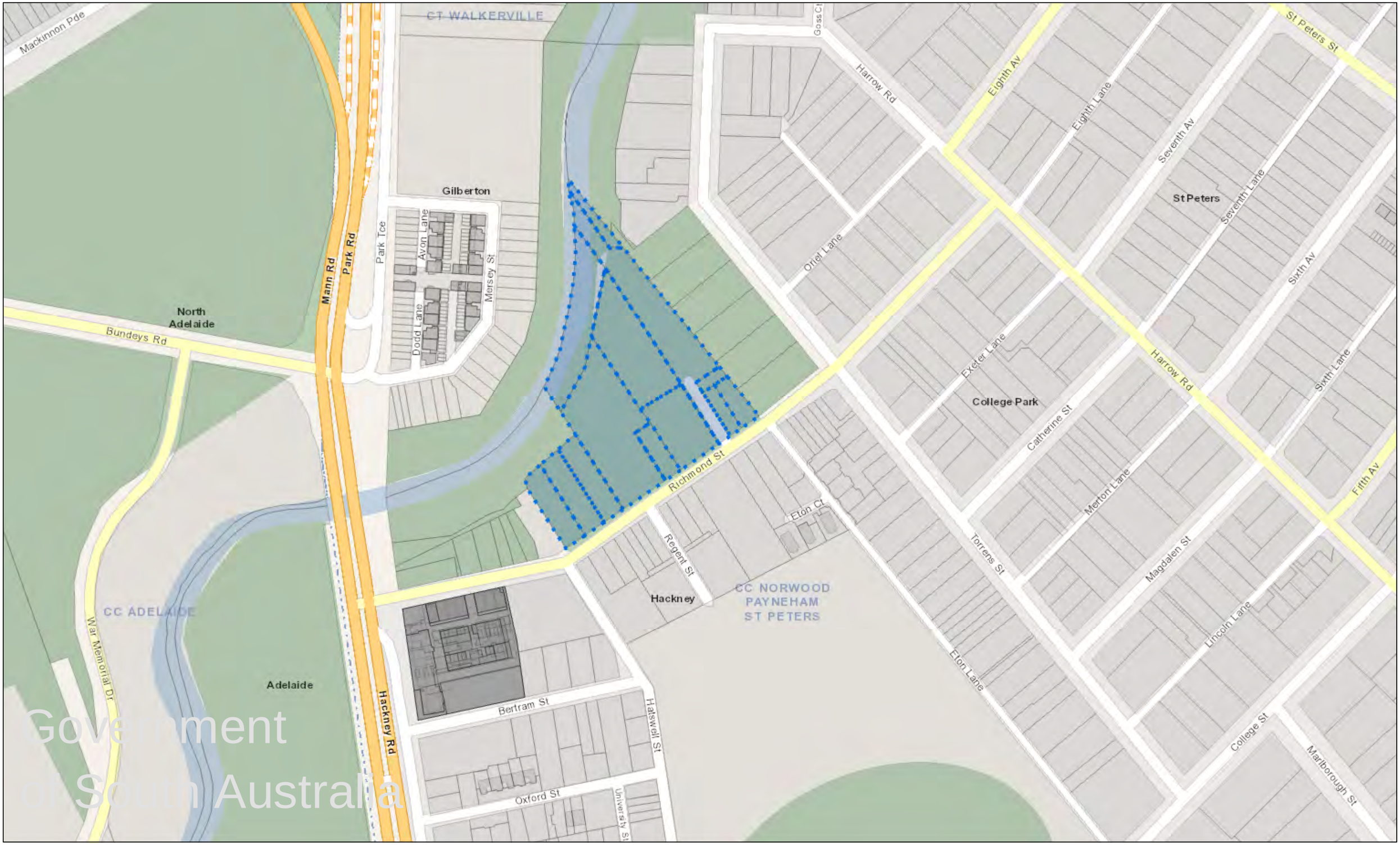
All care and diligence has been taken to access the above information from available records. Historical records provided to the EPA concerning matters arising prior to 1 May 1995 are limited and may not be accurate or complete.

# SAPPA Report

The SA Property and Planning Atlas is available on the Plan SA website: https://sappa.plan.sa.gov.au

Attachment 2

## Subject Land Map




Government of South Australia

**Disclaimer:** The information provided above, is not represented to be accurate, current or complete at the time of printing this report. The Government of South Australia accepts no liability for the use of this data, or any reliance placed on it.

# SAPPA Report

The SA Property and Planning Atlas is available on the Plan SA website: https://sappa.plan.sa.gov.au

Attachment 2

## Subject Land Map (Aerial)

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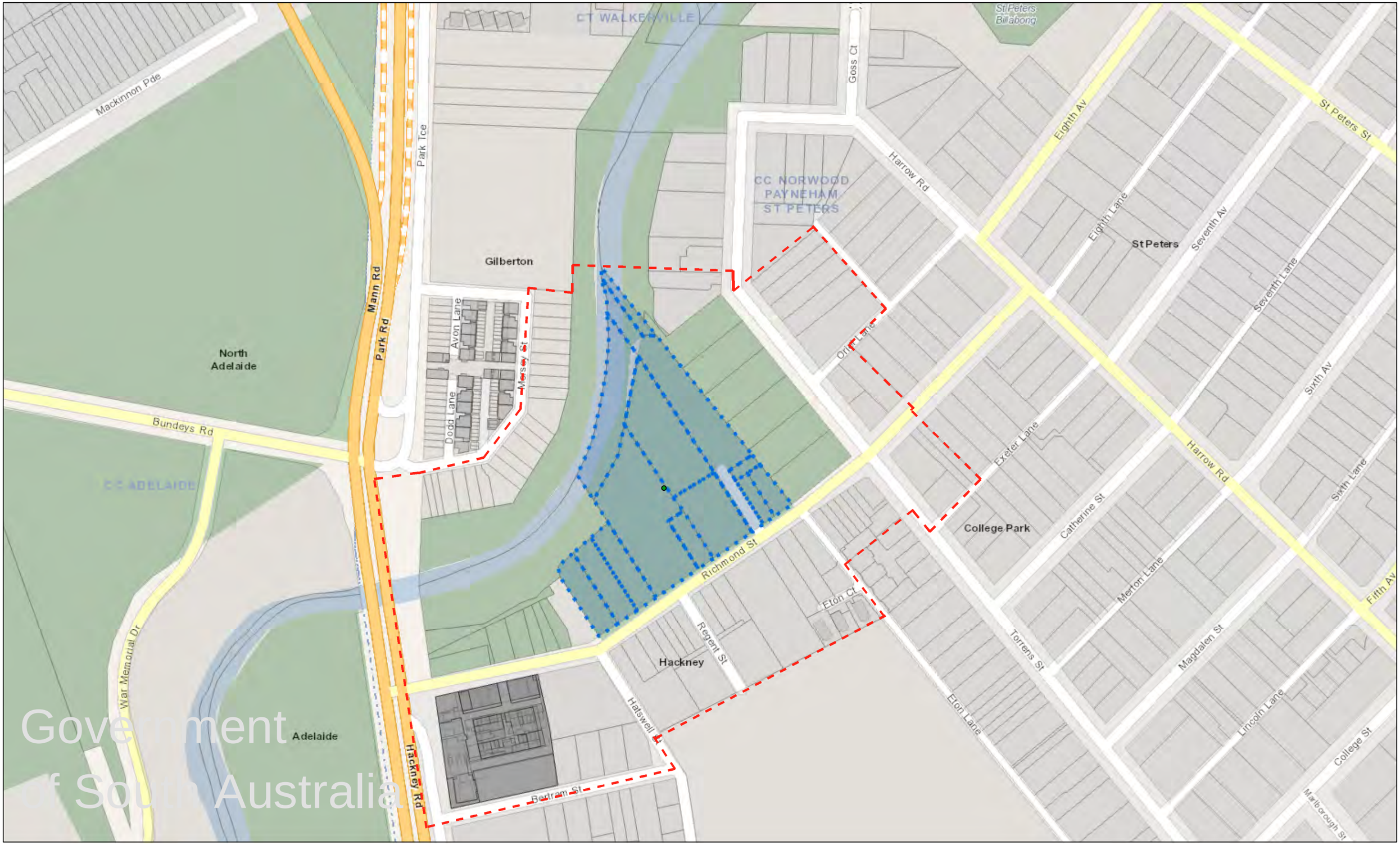
# SAPPA Report

The SA Property and Planning Atlas is available on the Plan SA website: https://sappa.plan.sa.gov.au

Attachment 2

## Locality Map




Government of South Australia

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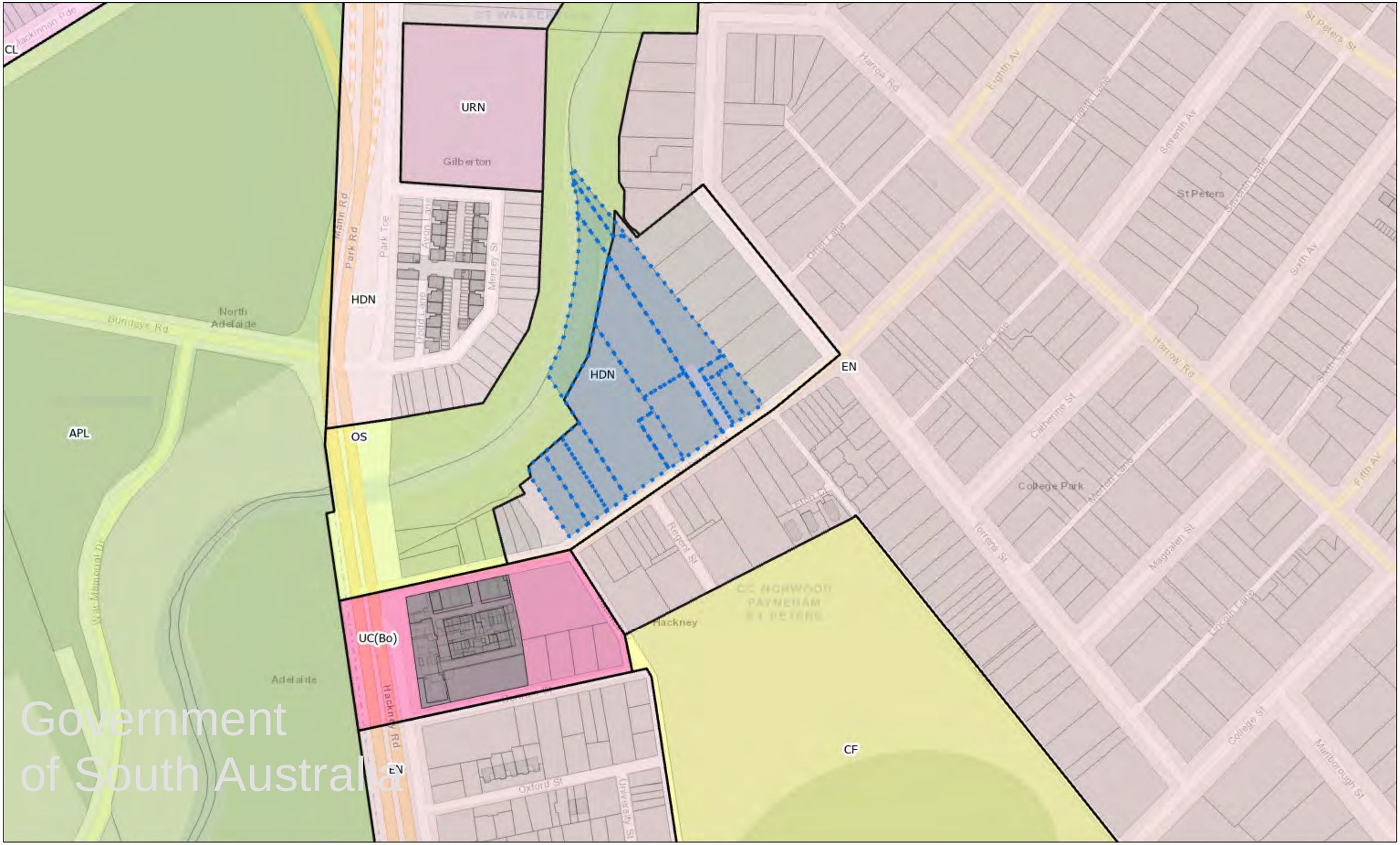
# SAPPA Report

The SA Property and Planning Atlas is available on the Plan SA website: https://sappa.plan.sa.gov.au

Attachment 3

## Zoning Map

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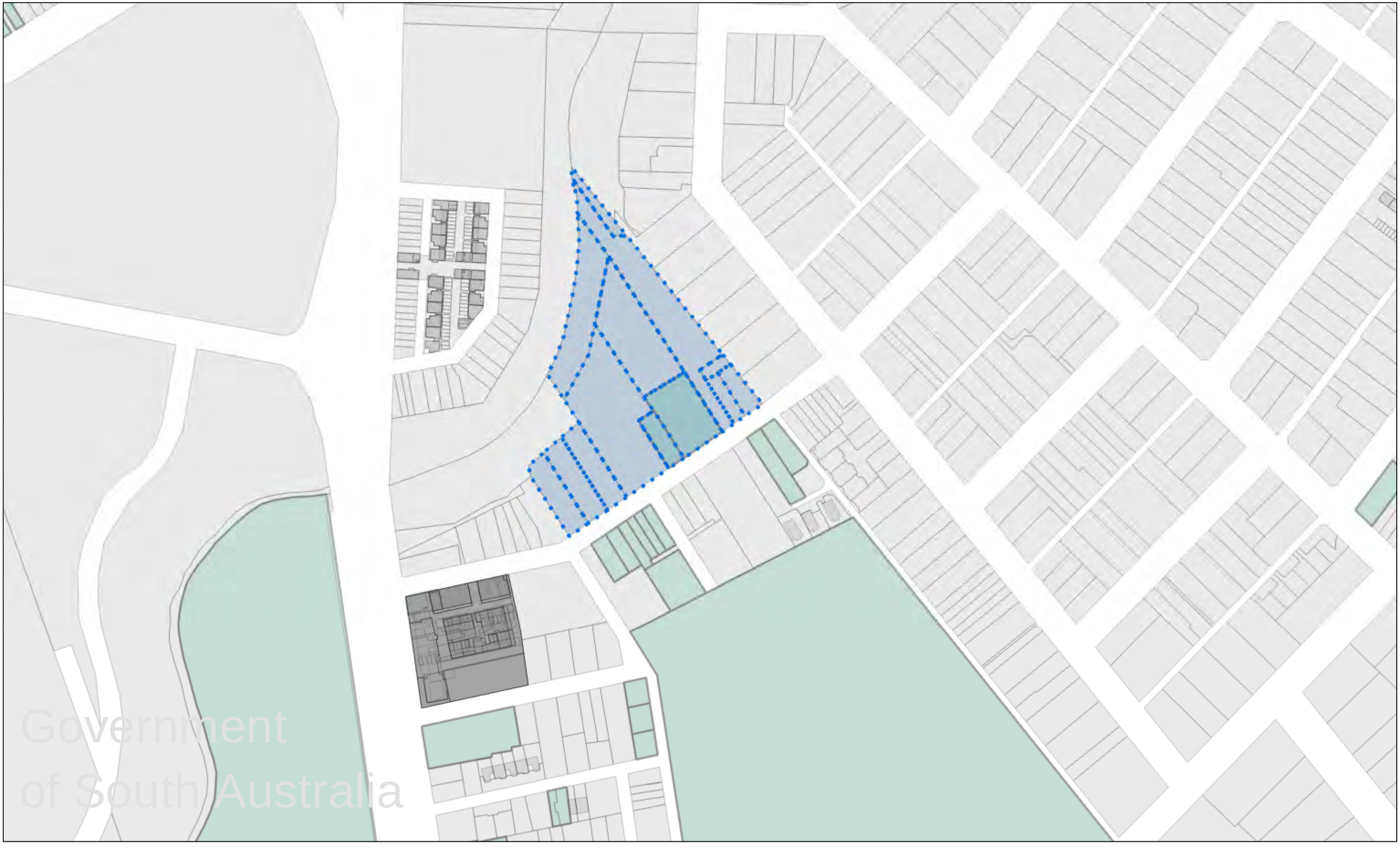
# SAPPA Report

The SA Property and Planning Atlas is available on the Plan SA website: https://sappa.plan.sa.gov.au

Attachment 3

## LHP Overlay Map

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# SAPPA Report

The SA Property and Planning Atlas is available on the Plan SA website: https://sappa.plan.sa.gov.au

Attachment 4

## Representation Map

**All representors not identified below are out of the map's range**

Government of South Australia

**Disclaimer:** The information provided above, is not represented to be accurate, current or complete at the time of printing this report. The Government of South Australia accepts no liability for the use of this data, or any reliance placed on it.

# Details of Representations

Attachment 5

## Application Summary

| | |
|---|---|
| Application ID | 24040449 |
| Proposal | Torrens Title Land Division creating 47 allotments (from 11 existing), three (3) public roads with associated footpaths, public open space reserves, together with associated earthworks (bank stabilisation works). Construction of a six-storey mixed-use building comprising: - 78 serviced apartments (in the form of a residential flat building) across the 5 upper level; - associated office and amenities at ground level, with associated signage; - a separate café tenancy at ground level, with associated signage; - a basement car park; - at-grade parking and the construction of a private road; - together with associated earthworks and landscaping. Partial demolition of 2 Local Heritage Places and a change of use to detached dwellings |
| Location | 36 RICHMOND ST HACKNEY SA 5069, 46 RICHMOND ST HACKNEY SA 5069, LOT 41 RICHMOND ST HACKNEY SA 5069 |

## Representations

**Representor 1** - Rebecca Madigan

| | |
|---|---|
| Name | Rebecca Madigan |
| Address | |
| Submission Date | 30/05/2025 02:21 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**

This massive increase in permanent residence in a small area is wholly unsupported. There is no provision for the massive increase in traffic this will create on a narrow and already busy suburban street (Richmond St) - noting there is provision for 150-200 additional cars to be expected to utilise these homes. The building heights are not in keeping with the local area heritage. The increase in traffic will seriously deteriorate the quality of life and amenity of the entire suburb. Not to mention the massive safety risks to children and parents who frequent twelftree reserve and the Cafe across the road. How the council could allow a quiet suburb to be turned into a locality of high density and transient housing is absurd.

## Attached Documents

**Representor 2** - Patrick Swanson

| | |
|---|---|
| Name | Patrick Swanson |
| Address | |
| Submission Date | 05/06/2025 08:30 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 support the development |

**Reasons**
A much more suitable use of this land than it currently has. This will bring more public amenities to the local community and allow for important added housing.

## Attached Documents

**Representor 3** - Ewan Stewart

| | |
|---|---|
| Name | Ewan Stewart |
| Address | |
| Submission Date | 06/06/2025 09:07 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**

As a resident of remote South Australia it an accepted fact is that essential specialists, services and experiences for adults and children are concentrated and monopolised in Adelaide. Accomodation that is reasonable value for money, and located close the critical services such as hospitals is becoming more scarce. To have made a decision to procreate more than twice now excludes my family from most city accomodation providers
Removal of the Adelaide Caravan will remove another option for country families to attend hospitals with their families, provide a further imposition for participation in sport and cultural events. Considered as a singular location this caravan park may seem inconsequential to the overall Adelaide accomodation market. However each decision to remove more affordable options tilts the supply demand relationship and increases cost. I ask you to consider the impact of this change on those outside the council area who are impacted by reduction of local services, the consolidation of these in metro area, not just a focus on housing infill in the inner city.

## Attached Documents

**Representor 4** - Kerrie Greve-Golding

| | |
|---|---|
| Name | Kerrie Greve-Golding |
| Address | |
| Submission Date | 06/06/2025 03:11 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 this application should be refused as the caravan park on its current form is an important part of our community and should be retained in its entirety. It provides the opportunity for visitors both to our family, and visitors to the state in general, to stay close to the city at a reasonable price and in beautful surroundings close to the city. During events such as Womad, Fringe, etc it is booked out. I believe there are also permanent residents there, where will they go on a housing crisis? Our community needs the caravan park optionsmore than we require apartments at expensive prices for a select group of people. I also object to the partial demolition of heritage buildings. The rate at which we are handing over these icons of our community to greedy developers who care nothing for the historical value and knock down everything except the bare minimum so that they can maximize profit with no regard for history is deplorable. These buildings should be retained in whole. The high density of this development proposal is also concerning, there is not sufficient car parking or wide enough streets for such an increase in traffic from potential residents and their visitors. Additionally, with the children's playground and the well utilized cafe nearby there is always plenty of foot traffic, which is concerning with an increase in road traffic, there is not sufficient traffic control for that kind of increase.

## Attached Documents

## Representations

Attachment 5

**Representor 5** - Terry Healey

| | |
|---|---|
| Name | Terry Healey |
| Address | |
| Submission Date | 07/06/2025 09:25 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 support the development with some concerns |
| **Reasons**<br>The width of Richmond Street between Hackney Rd and Torrens St is already a issue needs to be widened | |

## Attached Documents

**Representor 6** - Derek Seret

| | |
|---|---|
| Name | Derek Seret |
| Address | |
| Submission Date | 09/06/2025 02:59 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**

The co-living block shows 78 apartments with undercroft car parking of 15 places, 2.5m wide, 5.15m deep. Approx 30 shown in plan adjacent building. Approx 12 additional on proposed new public roads. Likely that Old Mill Reserve car park is assumed to take additional parking load or side streets of Hackney such as Bertram St. The renders of the new precincts all look quite enticing however the same sort of approach used for the 95 Hackney Rd development and the actual result is far from the original renders. The 95 Hackney Rd elevation looks like a glass framed office block now. See some example as per attached from a copy of the original application used to sell the development application.

## Attached Documents

| |
|---|
| Richmond-Master-Plan-response-1508324.pdf |

Actual development (extracted from Richmond St Master Plan page 75)

Original development application figures.

**Figure 20 - Hackney Rd/Bertram St Post development Streetscape Character**

While much of the Development Plan policy for streetscape and building design in the zone is [illegible]

**Figure 17 - Bertram Street Post Development Streetscape Character Restored**

**Figure 18 - Richmond Street Post Development Streetscape Character Restored**

**Figure 19 - Hackney Rd/ Richmond St Post Development Streetscape Character**

Figure 30 – E: Hatswell St/Bertram St Existing View

Figure 31 – E: Hatswell St/Bertram St Tectvs Visual Simulation /Limited Change Expected

Current elevation does not look like this and much more noticeable on skyline.

**Representor 7** - Marysia Marchant

| | |
|---|---|
| Name | Marysia Marchant |
| Address | |
| Submission Date | 10/06/2025 12:36 PM |
| Submission Source | Online |
| 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**

We neighbours opposite have had 6 years of the Hackney hotel development noise, dust and disturbance. Now this. We are waiting for traffic calming measures as a traffic survey conducted established that Richmond street is in urgent need of traffic calming. it is a narrow street with many demands on it already. Cafe school park The new Botaniq unfinished for 6 years development. Where are the proposed residents and their visitors going to park? Light pollution and total loss of privacy as we are in close proximity to planned new development and we will be overlooked. Nature wildlife. We have koalas and blue tongue lizards here. They will be affected As well as the nesting birds and bats which fly overhead. It will be seriously detrimental to the environment. Greening Adelaide? Aspen have already cut down trees on our street line robbing we opposite, of our summer shade, despite appeals from council and residents, without planting more. This street needs shade for pedestrians and cyclists. New housing is good and necessary but not on a narrow street which is used as a rat run by commuters etc. The proposed development will Make living here unbearable.

## Attached Documents

**Representor 8** - Helen Goldsworthy

| | |
|---|---|
| Name | Helen Goldsworthy |
| Address | |
| Submission Date | 13/06/2025 08:28 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** | |

## Attached Documents

| |
|---|
| Our-submission-June-2025_final-1510699.pdf |

**Submission of Helen and Jeffrey Goldsworthy, owners of the residential house at 12 Bertram St, Hackney.**

We have been notified of an application for the development of the Adelaide Caravan Park site in Hackney, Application ID 24040449.

We submit that the development should not be approved in its current form, for the following reasons:

**1) Building Height**

The proposed 6-storey tower (the "Build-to-Rent Co-living building") violates DPF 3.1 of the Housing Diversity Neighbourhood Zone. This is acknowledged at p. 15 of the "Planning Report" prepared by UPRS and submitted by the developer, the Aspen Group, where it is stated that "The proposed height of the Residential Flat Building (Build-to-Rent Co-living building) exceeds 2 levels and therefore does not satisfy DPF 3.1 of the Zone."

This Planning Report goes on to argue that the tower should nevertheless be approved because it complies with PO 3.1 of the Zone, which refers to a building that "complements the height of nearby buildings" (p.22 of Planning Report). The Report asserts that the proposed tower *"*has been sited on the western extent of the site diagonally opposite the Botaniq development (Hackney Hotel redevelopment site) that is 6 levels" (p. 24), and states elsewhere that "Its height takes precedent from the 6-storey Botaniq development diagonally opposite the site" (p. 11).

In fact, the proposed tower will not be "diagonally opposite" the 6-storey Botaniq building. There is a long row of two-storey apartments (owned by the S.A. Housing Trust) diagonally opposite the proposed tower, i.e., along Richmond St from the Botaniq development to the corner of Hatswell and Richmond Streets. The Botaniq developers gained approval for a 6-storey building close to Hackney Road, and lower rise buildings along adjacent streets, e.g. 2 storey townhouses along Bertram St. Our understanding is that the zoning rules applicable to the block on which the Botaniq and our house are located do not allow more than 2 (or possibly 3) storeys at the Hatswell end of the block. To suggest that this somehow justifies a large leap-frog to a 6-storey building in a highly sensitive area, in which the buildings immediately and diagonally opposite it are no more than 2-storeys, is simply incorrect. The proposed tower will be out of character with, and much higher than, all the buildings close to it. Figure 8, on p. 24 of the Planning Report, is misleading by making the 6-storey building in the Botaniq development look much closer to the proposed tower than it really is.

The previously quoted statement about the proposed tower taking "precedent" from the Botaniq building (Planning Report, p. 11) is chilling. If the tower is built, will it set another "precedent" for further buildings of a similar height in Richmond St or neighbouring streets?

**2) Visual Impact on Linear Park along the River Torrens**

The proposed tower is insensitive to the existing natural environment along the River Torrens adjacent to the development, and will look out of place and ugly to the many walkers and cyclists who enjoy the amenity provided by Linear Park. Developments along the river close to the proposed tower, both residential dwellings on the northern riverbank across from the proposed tower and those currently adjacent to it (the single-storey cabins in the caravan park) have in the past been kept to no more than two storeys. In our opinion the proposed 6-story tower will be excessively tall and unattractive, with a negative impact on the riverscape. Its overbearing nature

is apparent in Figure 5 at p.12 of the Planning Report, and the photos at pp 97, 154 and 162 of the Masterplan prepared by Forum.

The health and visual beauty of the River Torrens is more important than profits to be made by developers. How many trees above the riverbank will be cut down, and where is the green space for new trees to replace them? At a minimum the developers should be asked to screen the row of 3-storey units from viewpoints along the riverbanks, with appropriate native trees and vegetation. Otherwise views along the river adjoining the development will be dominated by these new buildings, rather than the existing trees and bushes that sit on and above the southern riverbank. Will this set a precedent for other detrimental developments along the river?

**3) Tree Canopy**

What will be the effect of this development on local flora and fauna, both in the residential area and along the river? The current site has many trees that will have to be removed, not just along the river, and the loss of tree canopy will deprive many birds and other native animals of their habitats. The loss of cooling from the tree canopy, and the extensive use of hard concrete and asphalt surfaces, will increase the urban heat island effect already being experienced in Adelaide, which will intensify with global warming.

**4) Privacy**

Even if the proposed 6-storey tower is permitted despite being totally inappropriate, we question the design of the balconies on the south-eastern and south-western corners. In our opinion, these balconies should not be allowed to face south at all; they should only face east or west, and a screen should be provided on the southern edge so that the people in these apartments cannot overlook the private yards of others in the area.

**5) Traffic**

We are very concerned about the potential increase in traffic along Bertram Street, and the narrow, picturesque residential streets adjacent to it in Hackney, if this proposed development goes ahead in its current form. At the Richmond St-Hackney Road intersection, it is only possible to turn left onto Hackney Road and not right. In order to go right you must turn left onto Hackney Road at this intersection, drive up to the turning lane for Plane Tree Drive and do a U-turn there. With the large number of residents at the newly proposed development, combined with the many new residents at the Botaniq development, we fear that pile-ups at the Richmond St-Hackney Road intersection will get much worse, and drivers will try to circumvent this by creating “rat runs” through the totally unsuitable, narrow and currently quiet streets such as Bertram St, Oxford St and Cambridge St.

**6) Storm Water**

Considering the overall development, there will be many more hard surfaces in the combined proposed tower and many little units, than were there previously in the caravan park. This will lead to an increase in stormwater. There are many pages of information about this, but the bottom line is whether this water will have negative effects on the environment, especially the river environment. How well is this water going to be managed?

**Representor 9** - Anne MItchell

| | |
|---|---|
| Name | Anne MItchell |
| Address | |
| Submission Date | 16/06/2025 10:39 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 support the development |

**Reasons**
As a local resident - I am in support of this land division application. The Caravan Park has been a fenced off island for a long time - with a large blank fence around the perimeter I think it will be fantastic for this site to be rejuvenated - and become permeable and accessible to the community. I especially like how this will enhance and make the Twelftree Reserve frontage more active and safe. I also support the retention of the two heritage buildings.

## Attached Documents

**Representor 10** - David Elliott

| | |
|---|---|
| Name | David Elliott |
| Address | |
| Submission Date | 16/06/2025 12:11 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**

This submission is made by the Bike Adelaide Committee on behalf of Bike Adelaide members. We wish to express our general support for the proposal noting we have some concerns about the proposed shared-use path through the development site. We support the project's proposed land use of providing medium density townhouses and higher density shared living build-to-rent accommodation. We express support for the inclusion of the shared-use path element but have concerns about it's design. The proposal rightly notes that this section is a longstanding gap in the Torrens Linear Trail. As a high use commuter and recreational route, we are supportive of duplicating the trail on the southern side of the Torrens. However, the proposal states that the path width in reference to the design standards is minimum 2.5m. We suggest that the upper limit of 3m (AustRoads) be used, noting that the path will invite higher use than a standard path in similar developments, and that the path provides direct access to properties' front entrances. We note and support the inclusion of the 0.5m buffer zones between the carparks, path and property line. However, it is notable that the carparking, and the residences' entrances introduce pathway crossflow demand which may cause frustration to people crossing the path, and people following the path. The ideal outcome for a high use shared pathway would be it's positioning behind the riverside townhouses. This orientation has precedent on the Outer Harbor Greenway at St Clair, and along various sections of the Coastal Path. This could be achieved with the narrowing of the road consistent with the raised driveway area and narrowing of the path marked as the prospective shared path. This does however mean that the contribution of Council to connect to a path behind the townhouses would be more complicated. Regarding the continuous raised footpath, we are supportive but express a need that appropriate signage be included to assert the right of way of the path. Regarding the other crossing at the site's western end, our concern is regarding the removable bollards and whether it is intended that they are in place by default, in which case they act as a modal filter. If that is the case, then we are supportive of the design approach. If the bollards are likely to not be in place most of the time, then we advise that that crossing should also be a continuous raised footpath to ensure consistency of the walking and cycling environment.

## Attached Documents

**Representor 11** - Alan Green

| | |
|---|---|
| Name | Alan Green |
| Address | |
| Submission Date | 16/06/2025 01:05 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 support the development with some concerns |

**Reasons**
My objection relates to the building height on two counts. Firstly other local developments, eg Mersey st and Hackney Rd have been limited to 3-4 stories. Given that both at some stage of the process sought more stories it is reasonable that this development be treated in a similar manner. A six story residence on the river would also be a significant change in the aesthetics of the area. Richmond Rd already carries significant traffic as one of the only routes offering acess to and from local residences.. Given the traffic pressure that will arise from the recent Hackney development a further six story dwelling would add considerably to the existing traffic issues. Less stories means less dwellings and less traffic.

## Attached Documents

**Representor 12** - Helen Beasley

| | |
|---|---|
| Name | Helen Beasley |
| Address | |
| Submission Date | 16/06/2025 05:26 PM |
| Submission Source | Online |
| 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**

My concerns are: - Insufficient parking for extra cars owned by residents and their visitors on site, or on the very narrow Richmond Street - The provision of green space is inadequate - given the density within your development - The traffic load in the surrounding Avenues and Harrow Road will be significantly increased, impacting students at Saint Peter's College (pick-up, drop-off and pedestrian traffic), adversely impact customers at Fix Cafe, and add to congestion at the Hackney Road exit from Richmond Street during peak hours. - The character and safety of the suburb will be irreversibly damaged for all time.

## Attached Documents

**Representor 13** - Cuong Phan

| | |
|---|---|
| Name | Cuong Phan |
| Address | |
| Submission Date | 16/06/2025 08:55 PM |
| Submission Source | Online |
| 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**
The existing traffic infrastructure cannot support a development of this size and the proposed dwelling density is excessive relative to the local area and safety of residents, particularly children and families attending the hackney kindergarten and Twelftree Reserve. Our concern regarding this development proposal is in the context of a recently developed site at the corner or Richmond street and Hackney Road (High density dwelling with no associated improvements to traffic, schooling, and local amenities infrastructure.

## Attached Documents

**Representor 14** - Edwina Hicks

| | |
|---|---|
| Name | Edwina Hicks |
| Address | |
| Submission Date | 17/06/2025 12:50 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**<br>See attached submission | |

## Attached Documents

| |
|---|
| Representation-on-application-EdwinaHicks-11435924.pdf |

# REPRESENTATION ON APPLICATION

*Planning, Development and Infrastructure Act 2016*

| | |
|---|---|
| **Applicant:** | Aspen Group |
| **Development Number:** | 24040449 |
| **Nature of Development:** | Torrens Title Land Division creating 47 allotments (from 11 existing), three (3) public roads with associated footpaths, public open space reserves, together with associated earthworks (bank stabilisation works). Construction of a six-storey mixed-use building comprising: - 78 serviced apartments (in the form of a residential flat building) across the 5 upper level; - associated office and amenities at ground level, with associated signage; - a separate café tenancy at ground level, with associated signage; - a basement car park; - at-grade parking and the construction of a private road; - together with associated earthworks and landscaping. Partial demolition of 2 Local Heritage Places and a change of use to detached dwellings |
| **Zone/Sub-zone/Overlay:** | Click here to enter text. *[zone/sub-zone/overlay of subject land]* |
| **Subject Land:** | 36-46 Richmond Road HACKNEY SA 5069 |
| **Contact Officer:** | The City of Norwood Payneham & St Peters |
| **Phone Number:** | 08 8366 4530 |
| **Close Date:** | Friday 20 June 2025 at 11:59 pm Australia/Adelaide |

| | |
|---|---|
| My name*: Edwina Hicks | My phone number: |
| My postal address*: | My email: |

** Indicates mandatory information*

My position is:

- ☐ I support the development
- ☐ I support the development with some concerns (detail below)
- ☒ I oppose the development

The specific reasons I believe that consent should be granted/refused are:

***From:*** *Edwina hicks*
***Sent:*** *Friday, June 13, 2025 7:11 PM*
***To:*** *Development Assessment <developmentassessment@npsp.sa.gov.au>*
***Subject:*** *Objection - Application 24040449*

*Application 24040449*
*Aspen Group*
*36-46 Richmond st, Hackney 5069*

*Dear Council,*
*I am writing to formally object to the proposed development located at 36-46 Richmond Rd, Hackney SA 5069 which includes 124 apartments and 48 townhouses.*

***1. Excessive Density Without Supporting Infrastructure***
*This proposal introduces an extremely high-density development in an area that lacks the necessary facilities to support such a population increase. There is no nearby shopping precinct, school, medical service or public transport hub within walking distance, meaning most future residents will be reliant on cars for daily needs.*

***2. Severe Traffic Impact on Surrounding Roads***
*The development will significantly worsen traffic congestion on already overloaded local roads, particularly* ***Richmond Street****, which currently experiences delays during peak hours. Adding over 170 new dwellings will drastically increase vehicle movements in and out of the area, making conditions unsafe and unmanageable for current residents.*
*Similarly,* ***Harrow Road*** *already suffers from frequent congestion and will not cope with the additional traffic generated. This will push overflow traffic into smaller residential backstreets, further compounding safety and access issues.*

***3. Loss of Suburban Character and Safety***
*The St Peters area is currently a quiet, leafy suburb valued for its low traffic, green spaces, and safety—especially for children walking, cycling or playing outdoors. This development would bring a permanent and damaging change to the character of the neighbourhood. It risks transforming a family-friendly community into a traffic-heavy, high-density zone with no safe pedestrian infrastructure to support such a change. Increased traffic in this zone also risks devaluing existing properties.*

***4. Poor Access to Essential Services***
*Due to the site's location, residents will be forced to drive through the narrow backstreets of St Peters to reach essential services such as supermarkets at* ***The Avenues*** *or* ***Woolworths in Walkerville****. This will not only inconvenience new residents but will impose further traffic burdens on surrounding suburbs, particularly in areas not designed to handle high volumes of through-traffic.*
*In summary, the proposed development is entirely inappropriate for this location due to its excessive scale, lack of facilities, and the unacceptable impact it will have on traffic, safety, and the local environment.*

*I respectfully urge the Council to reject this proposal in its current form.*

*It would be great to see this area developed with larger block sizes and no high density housing to maintain the integrity of the surrounding area and suburbs given its location.*

*Kind regards,*
*Edwina Hicks*

*[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 consent should be granted or refused; and
- comment only on the performance-based elements (or aspects) 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 |

**You may be contacted if you indicate that you wish to be heard by the relevant authority in support of your submission*

Signature: Edwina Hicks Date: 17/6/25

Return Address: *[relevant authority postal address]* or

Email:

Complete online submission: plan.sa.gov.au/have_your_say/notified_developments

**Representor 15** - Tom Hicks

| | |
|---|---|
| Name | Tom Hicks |
| Address | |
| Submission Date | 17/06/2025 01:44 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**<br>See attached submission | |

## Attached Documents

| |
|---|
| TomHicks-11437118.pdf |

# REPRESENTATION ON APPLICATION

*Planning, Development and Infrastructure Act 2016*

| | |
|---|---|
| **Applicant:** | Aspen Group |
| **Development Number:** | 24040449 |
| **Nature of Development:** | Torrens Title Land Division creating 47 allotments (from 11 existing), three (3) public roads with associated footpaths, public open space reserves, together with associated earthworks (bank stabilisation works). Construction of a six-storey mixed-use building comprising: - 78 serviced apartments (in the form of a residential flat building) across the 5 upper level; - associated office and amenities at ground level, with associated signage; - a separate café tenancy at ground level, with associated signage; - a basement car park; - at-grade parking and the construction of a private road; - together with associated earthworks and landscaping. Partial demolition of 2 Local Heritage Places and a change of use to detached dwellings |
| **Zone/Sub-zone/Overlay:** | Click here to enter text. *[zone/sub-zone/overlay of subject land]* |
| **Subject Land:** | 36-46 Richmond Road HACKNEY SA 5069 |
| **Contact Officer:** | The City of Norwood Payneham & St Peters |
| **Phone Number:** | 08 8366 4530 |
| **Close Date:** | Friday 20 June 2025 at 11:59 pm Australia/Adelaide |

| | |
|---|---|
| My name*: Tom Hicks | My phone number: |
| My postal address*: | My email: |

** Indicates mandatory information*

My position is:

- ☐ I support the development
- ☐ I support the development with some concerns (detail below)
- ☒ I oppose the development

The specific reasons I believe that consent should be granted/refused are:

*Application 24040449*
*Aspen Group*
*36-46 Richmond st, Hackney 5069*

*Dear Council,*
*I am writing to formally object to the proposed development located at 36-46 Richmond Rd, Hackney SA 5069 which includes 124 apartments and 48 townhouses.*

***1. Excessive Density Without Supporting Infrastructure***
*This proposal introduces an extremely high-density development in an area that lacks the necessary facilities to support such a population increase. There is no nearby shopping precinct, school, medical service or public transport hub within walking distance, meaning most future residents will be reliant on cars for daily needs.*

***2. Severe Traffic Impact on Surrounding Roads***
*The development will significantly worsen traffic congestion on already overloaded local roads, particularly* ***Richmond Street****, which currently experiences delays during peak hours. Adding over 170 new dwellings will drastically increase vehicle movements in and out of the area, making conditions unsafe and unmanageable for current residents.*
*Similarly,* ***Harrow Road*** *already suffers from frequent congestion and will not cope with the additional traffic generated. This will push overflow traffic into smaller residential backstreets, further compounding safety and access issues.*

***3. Loss of Suburban Character and Safety***
*The St Peters area is currently a quiet, leafy suburb valued for its low traffic, green spaces, and safety—especially for children walking, cycling or playing outdoors. This development would bring a permanent and damaging change to the character of the neighbourhood. It risks transforming a family-friendly community into a traffic-heavy, high-density zone with no safe pedestrian infrastructure to support such a change. Increased traffic in this zone also risks devaluing existing properties.*

***4. Poor Access to Essential Services***
*Due to the site's location, residents will be forced to drive through the narrow backstreets of St Peters to reach essential services such as supermarkets at* ***The Avenues*** *or* ***Woolworths in Walkerville****. This will not only inconvenience new residents but will impose further traffic burdens on surrounding suburbs, particularly in areas not designed to handle high volumes of through-traffic.*
*In summary, the proposed development is entirely inappropriate for this location due to its excessive scale, lack of facilities, and the unacceptable impact it will have on traffic, safety, and the local environment.*

*I respectfully urge the Council to reject this proposal in its current form.*

*It would be great to see this area developed with larger block sizes and no high density housing to maintain the integrity of the surrounding area and suburbs given its location.*

*Kind regards,*
*Tom Hicks*

*[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 consent should be granted or refused; and
- comment only on the performance-based elements (or aspects) 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 |

**You may be contacted if you indicate that you wish to be heard by the relevant authority in support of your submission*

Signature: Tom Hicks Date: 17/6/25

Return Address: *[relevant authority postal address]* or

Email:

Complete online submission: plan.sa.gov.au/have_your_say/notified_developments

## Representations

**Representor 16** - Lynette Davies

| | |
|---|---|
| Name | Lynette Davies |
| Address | |
| Submission Date | 18/06/2025 11:46 AM |
| Submission Source | Online |
| 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**

I believe planning consent should be refused. BACKGROUND In 1838, 2 years after Proclamation this area of Hackney was established as a farm leading to the construction of a flour mill. The workman's cottages, a church and 'barn' are heritage listed and are a reminder of this history. Hackney and College Park were recognized and listed as having conservation and heritage importance. To protect these suburbs building restrictions (eg building height and area, protection of green space and removal of trees) were instituted. ZONING At some stage after the amalgamation of the 3 councils the new Council altered the zoning requirements allowing this Proposal to even exist. The development is on 11 titles that is approximately 1/2 the size of Adelaide Oval. It is proposed to alter this, to cram in 47 housing blocks plus the 6 storey apartment block. In the small low population density suburb of Hackney this would result in a 50% increase in population (figures from Australian Bureau of Statistics). INFRASTRUCTURE Building saturation will result in infrastructure problems that can not be solved - namely traffic. All traffic from the development is funnelled out on to Richmond Street. This narrow road is already congested with bottlenecks occurring even without the increase in traffic that is to be expected when the Hackney Hotel apartments are completed. This will also have the effect of funnelling traffic into College Park and St Peters suburban streets. ENVIRONMENT The high density housing plan has allocated little to no green space or provision for tree planting to maintain the leafy green suburb's character. It is to be noted that the Aspen Group acknowledged and used this as a positive for the Caravan Park - "a quiet area, a secret gem with serenity." The development is on the banks of the Torrens. Earthworks to restructure the bank has the potential to damage this ecosystem that is home to nesting native waterfowl, kookaburras, rakali ( Australian Otter), breeding koalas and possums. CONCLUSION This proposal should be carefully considered. It should not be made in some office or council chamber viewing dubious zoning requirements and a map, relying on supposed modern Town Planning ideas that believe it is the way of the future to forget and expunge the character and charm of our past. The members of the Assessment Panel should make decisions after actually looking and exploring the small low population density, quiet suburbs surrounding the proposed development to become aware of the travesty of allowing this to pass. It should be stressed that if this area is destroyed the mistake will be unable to be rectified.

## Attached Documents

**Representor 18** - Bailey Feltus

| | |
|---|---|
| Name | Bailey Feltus |
| Address | |
| Submission Date | 18/06/2025 12:36 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 support the development |

**Reasons**
From someone that lives in the East it is great to see some rational density that is supported with pedestrian connectivity and public transport.

## Attached Documents

**Representor 19** - Isaac Feltus

| | |
|---|---|
| Name | Isaac Feltus |
| Address | |
| Submission Date | 18/06/2025 12:43 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 |

**Reasons**
I appreciate the size of the townhouses and with very generous land parcels which is rare for townhouses these days. These city fringe locations are where we need these developments!!

## Attached Documents

**Representor 20** - Shaghayegh Koosh

| | |
|---|---|
| Name | Shaghayegh Koosh |
| Address | |
| Submission Date | 18/06/2025 01:22 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 |
| **Reasons**<br>The connectivity to the torrens is much needed and perfect fringe location | |

## Attached Documents

**Representor 21** - Yiorgo Ormsby

| | |
|---|---|
| Name | Yiorgo Ormsby |
| Address | |
| Submission Date | 18/06/2025 02:12 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 |

**Reasons**
Great opportunities for youger demographic getting into the housing market, on the city fringe. Great for building the community in an unused area.

## Attached Documents

**Representor 22** - Sarah Fahlbusch

| | |
|---|---|
| Name | Sarah Fahlbusch |
| Address | |
| Submission Date | 18/06/2025 04:26 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 |

**Reasons**
Developing this area is better than it being left in its current, unused state. Will create more of a social hub in the local neighbourhood and attract more of a demographic using the linear park trail, hopefully invigorating the area

## Attached Documents

**Representor 23** - Kym Perks

| | |
|---|---|
| Name | Kym Perks |
| Address | |
| Submission Date | 18/06/2025 04:45 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 |

**Reasons**
This development proposal is well thought through and provides various forms of accommodation in a desirable area. It allows access to the River for the public and connects an important link of the river walkway. The proposal is well thought through with many townhouses provided and not just covered in apartments. I believe this development suits the area and will be an asset to the local community.

## Attached Documents

**Representor 24** - Kathryn Quigley

| | |
|---|---|
| Name | Kathryn Quigley |
| Address | |
| Submission Date | 18/06/2025 05:01 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 |

**Reasons**
The proposed buildings look really nice and suit the area. This will be a great new neighbourhood and provide supply to the area where it is hard to get. The build to rent idea is really exciting and will be great for Adelaide. This will be a great location for it being so close to the city and transport options. Also, the proposed Cafe on the river will be a destination for people to come and enjoy and residents in the building to enjoy.

## Attached Documents

**Representor 25** - Brad Jackson

| | |
|---|---|
| Name | Brad Jackson |
| Address | |
| Submission Date | 18/06/2025 09:25 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'm not against the development of this area for low rise dwellings, and the 46 townhouses planned for the area, although quite small in land area and with minimal yards, seem to be in keeping with what is happening these days, but a six story building is not the sort of development that should be occurring in this residential area, especially on the banks of the Torrens. It is something more suited to the inner city. The developers shouldn't be allowed to build something so tall in this area where it will dominate the view from the bushland around Linear Path and the River Torrens. There is no parking possible on Richmond Street and there appears to be only 26 on-site parking spaces for the residents of the 78 apartments in the 6 storey building and for their visitors, as well as visitors to the 20 houses in the Central Precinct and also visitors to the Café. Is there more parking underneath the tower? Even assuming the 6 storey building is for short term rentals, most would still need a car to get around in Adelaide, especially if they're visiting the wine regions. Has there been any research done to find out how many people visit Adelaide with a car to determine how much car parking space will be needed? There appears to be nothing in the plans to widen the footpath on the north side of Richmond Street although the plans do suggest planting some trees on the street which will hinder pedestrian access even further. The footpath on Richmond Street is already too narrow and will need to be much wider to accommodate the extra foot traffic. The existing Linear Path connection to Richmond Street is tight and there are potential safety concerns on that bend in the road where the paths meet, especially with all the extra road and footpath traffic and with the new access road to the property being so close to the blind corner. With all the work that will have to be done to ensure the stability of the high river cliffs adjacent to the site, especially if it has to support a six story building, surely the developers could have included a continuation of the path on the southern side of the River Torrens to join the two sections of the Linear Path at each end of the property. Other than this, the planned shared path that goes through the complex and joins the Linear Path at each end has steps leading down to the river at the East end which will be difficult for bicycle riders. The plans provide 888 square metres of green reserve land which includes some land that is steep and unusable. This is about half of the 12.5% that the plan says is required for a development this size. Where will the rest of the reserve land be? Richmond Street is the only road that accesses Hackney Road from the suburbs of College Park and St Peters and is the only Western exit from the area. It's very narrow and already quite busy. An extra 124 dwellings on the street will cause even more congestion getting onto the main road and more delays attempting a U turn at Plane Tree Drive for anyone who wants to head to North Adelaide or Robe Terrace. Removing the high rise with its 78 dwellings from the plans would ease this. Also, I hope the developers won't be allowed to close the road whilst building the complex. Part of Richmond Street further down next to the Hackney Hotel development was sometimes closed during building but there were alternate routes around the hotel. There are no alternate routes if Richmond Street is closed outside this development.

## Attached Documents

**Representor 26** - Greg Wilmot

| | |
|---|---|
| Name | Greg Wilmot |
| Address | |
| Submission Date | 25/06/2025 03:59 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 support the development with some concerns |

**Reasons**
I wanted to provide feedback about the proposed development on Richmond Rd, Hackney. I wanted to make a representation that Richmond Rd is a major bike path but the roadway it very narrow. There has been an attempt to correct this at the expense of the footpath. This no longer allows children to ride on the footpath. This situation will be made worse will more roads and traffic. I wanted to suggest that a bicycle path be included in the plan to run through the planning zone, thus keeping bicycles off Richmond St. Looking at the plan I see there is a footpath along the route I was going to suggest. This path will have to suffice to provide the bicycle access to the city used by many people in the area.

## Attached Documents

**Representor 27** - WalkingSA

| | |
|---|---|
| Name | WalkingSA |
| Address | |
| Submission Date | 25/06/2025 04:39 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 support the development with some concerns |
| **Reasons**<br>See attached Submission | |

## Attached Documents

| |
|---|
| WalkingSaSubmissionOnHackneyCaravanParkRedevelopment20062025-11517274.pdf |

walkingsa.org.au
Ph 0457 006 620 | office@walkingsa.org.au
Level 1, The Joinery, 111 Franklin Street, Adelaide SA 5000
Walking SA Inc. ABN 78 019 005 437

20 June 2025

developmentassessment@npsp.sa.gov.au

**Application 24040449, Richmond Street, Hackney**

Dear Sir/Madam

We would like to make a few comments about the proposed redevelopment of the caravan park site in Hackney.

First, and most obviously, the redevelopment offers a rare opportunity to improve walking conditions, especially between the Hackney/ St Peters area and Adelaide's CBD.

The combination of St Peters College and poor facilities for crossing Hackney Road mean that people who want to walk to CBD need to use the Linear Park paths that pass under Hackney Road bridges. They reach these underpasses either by using Richmond Street, or by using the Linear Park path.

Both of these have disadvantages.

Richmond Street has narrow footpaths and is very busy in the morning peak, with commuter traffic combining with St Peters College student drop-off traffic. The situation will of course be made worse by the presence of hundreds of new potential commuters supplied with plentiful parking. (We note with appreciation the lower levels of parking provided for the build-to-rent component of the proposed development.)

The Linear Park route requires two crossings of the river: from the southern side to the northern side, using the Mau Bridge below the caravan park, and from the northern side to the southern side using the Sir Douglas Nicholls Bridge, just east of the zoo. While pleasant, this route is circuitous. More seriously, it is unavailable when river levels are high, because the Mau Bridge is very low; not much higher than a ford.

A route that would link the (admittedly narrow) path through Twelftree Reserve with the path alongside Old Mill Reserve and thence under the Hackney Road bridges on the south side of the Torrens would obviously be attractive to people walking to the City, as well as cyclists. It would hopefully boost active transport numbers and reduce car numbers in the local area.

We are pleased to see that the proposed redevelopment would allow this possibility. We note in fact that a shared path is proposed that would provide this connection.

While we are pleased to see this potential improvement, it is disappointing that the opportunity it being lost to provide an element of continuity by not having this path to the north of the housing development, rather than within it. As you would realise, practically all of the active travel along the Torrens is within a park environment. This section would be through suburbia. We understand that

some embankment stabilisation is needed for the new development. Would it be possible to include a path, possibly cantilevered, similar to that constructed by the City of Charles Sturt in Hindmarsh? If this is not possible, we ask council to create a new, wider and more direct path across Twelftree Reserve to connect with the new path through the development.

Having the path within medium density housing brings particular issues, especially in the morning commuter period. We note parking is plentifully provided for in the development, so it can be expected that there will be a lot of de-parking manoeuvres in the morning. We are pleased to see that the shared use path would pass the front of houses that have their parking at the rear, so there is little chance for conflict. The possible exceptions are the parking for buildings numbered 33 and 34, at the northern end of the eastern north-south access street. We are not clear about what is intended here. Is it undercroft parking that opens directly onto the shared use path? If so, it is dangerous.

The documentation does not provide the width of the verge at this location, but we assume that it meets the standard width of 600mm, to prevent car doors from the adjacent parallel parking opening onto the path. The shared path itself should be 3m wide. Experience of the Linear Park paths being shared by pedestrians (often with dogs) and by often high-speed commuter cyclists suggest that anything less than 3m creates conflicts.

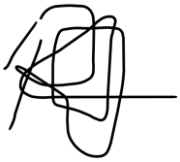
We are also pleased to see a continuous footpath across the eastern north-south access road. Obviously, this should also apply to the western north-south access road as well, unless there are good engineering reasons why this is not possible. Similarly, the path on the western side of the north-south access street should not require pedestrians to give way to cars emerging from the car parking access lane. Once again this should be a continuous footpath.

We also believe that continuous footpaths should also be provided across the entrances to the site on Richmond Street. This approach would improve the safety of what will be a busy location, particularly in the morning peak. It should also help to slow car movement within the development. This will be critical, especially for the north-south access street adjacent to the build for rent building, as this is likely to become a de facto shared zone.

We are puzzled by the pedestrian provision on other side of the east-west access street, outside buildings 35 to 46. Is there a footpath at all? If so, it should be continuous and not broken up by driveways with different pavements. This also applies to the eastern footpath on the eastern north-south access street.

Overall, we welcome the new development as providing the opportunity to enhance active transport in the area. We hope that our recommendations for some engineering changes will result in the realisation of this opportunity.

Yours faithfully



Rod Quintrell
Executive Director

**Representor 28** - St Peters Residents Association Inc St Peters Residents Association Inc

| | |
|---|---|
| Name | St Peters Residents Association Inc St Peters Residents Association Inc |
| Address | |
| Submission Date | 19/06/2025 11:32 AM |
| Submission Source | Online |
| 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**<br>See attached | |

## Attached Documents

| |
|---|
| ADELAIDE-CARAVAN-PARK-SPRA-DA-SUBMISSION-1512997.pdf |

ST PETERS RESIDENTS ASSOCIATION INC.

E-mail : info@stpeters.asn.au ABN 86 794 177 385

Representing the Residents of St Peters, College Park, Hackney, Stepney, Maylands, Evandale & Joslin.

**DEVELOPMENT APPLICATION 24040449**
**ASPEN GROUP RICHMOND STREET HACKNEY**

The St Peters Residents Association Inc (SPRA) requests that this submission be considered in connection with this Development Application

This submission is based on the Planning Report prepared for the Aspen Group by UPRS dated 6th December 2024, and other supporting consultant reports.

**Zoning**
Most of the site is in the Housing Diversity Neighbourhood Zone.

This Zone anticipates: -
DO 1 Medium density housing supports a range of needs and lifestyles, located within easy reach of a diversity of services and facilities.
Employment and community service uses contribute to making the neighbourhood a convenient place to live without compromising residential amenity.
PO 1.1 Diverse range of medium density housing and accommodation complemented by a range of compatible non-residential uses supporting an active, convenient, and walkable neighbourhood.

**Aspen Planning Report (APR) pages 10-11**

**4.2 Build-to-Rent Co-living Design**

The Residential Flat Building (Build-to-Rent Co-living building) with associated car parking and landscaping will be developed within Lot 47. The Build-to-Rent Co-living building has been designed by Grieve Gillett Architects (GGA).

The building has a primary frontage to Richmond Street. There is an existing public car park and shared access path with linkage to the River Torrens Linear Park path to the west of the proposed building. The north-east corner of the building adjoins a proposed public road, open space reserve and the open-air car park is adjacent to the eastern facade.

The Residential Flat Building has a maximum building height of 6-storeys and 23.6m. Its height takes precedent from the the 6-storey Botaniq development diagonally opposite the site.

The 6 level Botaniq development nearby should not be used as a precedent for the proposed Residential Flat Building to also be 6 levels. This will be discussed later in this submission.

**APR pages 18-19**

## 6.2 Residential Density

Performance Outcome 1.1 of the Housing Diversity Neighbourhood Zone quoted in the previous section of this report anticipates "medium density housing".

Part 8 – Administrative Terms and Definitions of the Code provides the following relevant definition:

| Term | Definition |
|---|---|
| *Medium net residential density* | *Means 35 to 70 dwelling units per hectare.* |
| *Net residential density* | *Is calculated by dividing the total number of dwellings by the area of residential land that they occupy (excluding other land uses, roads, public open space and services) and expressed as dwelling units per hectare (du/ha)* |

The SPRA interpretation of the desired Performance Outcome 1.1 is that: -
35du/ha equals an average site area of 286 m²
70 du/ha equals an average site area of 143 m²
and that a mid-level medium net residential density of 50 du/ha yields an average site area of 200 m²
All of these are net of other land uses.

It appears that the applicant's calculations are incorrect.

Areas occupied by "*other land uses, roads, public open space and services*" must be subtracted to determine a net residential density value as expressed by the Code.

It is common practice for 30% of each hectare to be dedicated to "*other land uses, roads, public open space and services*".

The 78 dwellings within the Residential Flat Building and 46 residential allotments are proposed across the 13,990m² site. This equates to a gross density of 113 dwellings per hectare (13,990m² divided by 124).

This should read

> *"This equates to a gross area of 113 square metres per dwelling (13,990m² divided by 124)".*

An average site area of 113m² for the whole development can in no way be considered to be 'medium density'. It is clearly high density.

Additionally

The formula to convert this to a per hectare net density figure is as follows:

10,000m²/(13,990m² + 30%) x 124 dwellings = 68.2 dwellings per hectare.

On this basis, the proposal achieves a net residential density that satisfies PO 1.1.

This is incorrect as the applicant has calculated the dwellings per hectare by adding the 30% allowed for other land uses instead of subtracting to get the net site area.

The correct calculation therefore should be: -
10,000m² / (13,990m² - 30%) x 124 dwellings = 126.6 dwellings per hectare.
On this basis the proposal clearly fails to achieve a net residential density that satisfies the medium density intent of PO 1.1.

SPRA has considered the proposal in other ways: -

Ignoring the 2106m² area of the Residential Flat Building on lot 47, as this is a stand-alone element of the proposal, the total site area of allotments 1 to 46 is 8090m².
This gives a net residential density of 56.9 du/ha or an average site area of 176m². This is at the higher end of the medium density range.

If the larger, low-density, lots 8, 9 & 35 (total 1527m²) are taken out of the calculation, then the remaining smaller 43 allotments have a net residential density of 65.5 du/ha and an average site area of only 153m². This is at the top end of the medium density range.

DPF 2.1 specifies the following: -

Allotments/sites for residential purposes accord with the following:
(a) site areas (or allotment areas in the case of land division) are not less than the following:
Minimum site area for a detached dwelling is 330 sqm; semi-detached dwelling is 300 sqm.
and
(b) site frontages (or allotment frontages in the case of land division) are not less than:
Minimum frontage for a detached dwelling is 9m; semi-detached dwelling is 8m;

All of the 43 smaller allotments fail to meet the requirements of DPF 2.1, being between 73m² to 255m². Most also fail the 8m or 9m frontage requirements being between 4.5m to 8.4m.

**APR Page 21** has the following statement: -

- "Medium net residential density" is defined by the Code as 35 to 70 dwellings per hectare. Applying the same equation as earlier, a net density of 35 to 70 dwellings equates to lot areas of 100m² to 200m². Low net residential density is defined by the Code as less than 35 dwellings per hectare or lot areas greater than 200m².

SPRA contends that the use of the earlier noted incorrect equation results in the wrong figures.

**APR page 21**

## 6.3 Non-Residential Intensity

The Zone provides the following provisions relating to non-residential development:

***PO 1.2*** ***Commercial activities improve community access to services are of a scale and type to maintain residential amenity.***

***DPF 1.2*** ***A shop, consulting room or office (or any combination thereof) satisfies any one of the following:***

...

***(a) is located more than 500m from an Activity Centre and satisfies one of the following:***

***(i) does not exceed 100m² gross leasable floor area (individually or combined, in a single building) where the site does not have a frontage to a State Maintained Road...***

The proposed shop / café at the rear of the Residential Flat Building has a gross leasable area, including the outdoor terrace, of 251m². This is 250% greater than the area permitted in DPF 1.2.

**APR page 22**

## 6.4 Building Height

The Zone provides the following provisions relevant to building height:

***PO 3.1*** ***Building height is consistent with the form expressed in any relevant*** **Maximum Building Height (Levels) Technical and Numeric Variation layer** ***and*** **Maximum Building Height (Metres) Technical and Numeric Variation layer** ***or is generally low rise, or complements the height of nearby buildings.***

***DPF 3.1*** ***Building height (excluding garages, carports and outbuildings) is no greater than:***

***Maximum building height is 2 levels... (Underlining added)***

PO 3.1 provides flexibility in building heights. Buildings can be 2 levels as identified in the relevant TNV Layer, or be "low rise" (2 levels as defined in the Code), or complement the height of nearby dwellings.

The site is also identified in Concept Plan 82: Hackney under Part 12 of the Code (see Figure 7 below). This provides a "building height range" of 1 to 4 storeys.

The Code provisions for the site include four options relating to the building height.

1. A TVN maximum of 2 levels should apply to the Residential Flat Building. This should be the height of the development.

2. Low Rise as defined by the Code is two levels.

3. The application proposes that the building can "complement the height of nearby buildings", specifically the Botaniq development.
   The 6 level Botaniq development nearby should not be used as a precedent for the proposed Residential Flat Building for the following reasons: -
   - The Housing Diversity Neighbourhood Zone has a Maxinum Building Height TVN of 2 levels and therefore does not satisfy DPF 3.1 of the Zone.
   - The Botaniq development site is zoned Urban Corridor (Boulevard) which encourages a greater height and density.
   - The Botaniq was approved by the Development Assessment Commission in 2021, and not by the NPSP CAP or the earlier DAP, and under different planning rules.
   - The DAC took other factors into account when allowing 6 levels.
   - The Botanic current UC(B) zoning has a 4 level /15 metre height TVN.

- The UC(B) TVN has an interface envelope of 30 degrees measured at 3m above natural ground at the boundary. The effect of a similar TVN on this site is illustrated in Appendix A, with 6 storeys only being achieved in the back third of the building.
- The Botaniq six level building is in the centre of the site, some 20 metres distance from the surrounding Richmond Street, Hatswell Street and Hackney Road. This proposal has the higher component only 10.5m from Richmond Street
- The closest corner of the 6 level Botaniq is some 80 metres from the closest corner of the proposed Residential Flat Building.

4. Concept Plan 82 Hackney has some bearing on this proposal insomuch as it gives a Building Height Range of 1 to 4 storeys.

   *Maximum building height for 24-46 Richmond Street, Hackney is 4 storeys, except dwellings fronting Richmond Street, which should not exceed 1 storey and dwellings fronting Twelftree and Old Mill Reserves, which should not exceed 2 storeys.*

This range is clearly designed to have the higher buildings in the centre of the site and towards the River Torrens frontage.
The Residential Flat Building has its stated frontage to Richmond Street and so should only be one storey. Alternatively, if it is to be considered as fronting Old Mill Reserve then it can only be up to two storeys. In either case the Concept Plan does not envisage six stories.

**APR page 28**

## 6.7 Dwelling Configuration and Amenity

The Design in Urban Areas General Development Policy provides the following provisions:

***PO 27.1*** ***Dwellings are provided with suitable sized areas of usable private open space to meet the needs of occupants.***

***DPF 27.1*** ***Private open space provided in accordance with Design in Urban Areas Table 1 - Private Open Space.***

| Table 1 – Private Open Space | |
|---|---|
| Dwellings at ground level | 15m² / minimum dimension 3m |
| Dwellings above ground level: | |

| Table 1 – Private Open Space | |
|---|---|
| Studio | 4m² / minimum dimension 1.8m |
| One bedroom dwelling | 8m² / minimum dimension 2.1m |

The ground floor dwellings of the Residential Flat Building do not satisfy DPF 27.1 as they have only an 8m² balcony rather than 15m² of open space.
While the upper floor Studio Apartments appear to satisfy the Code, half of the one bedroom apartments have open space of less than the required 8m².

**APR page 30**

## 6.9 Local Heritage Places

### *6.9.1 Partial Demolition and Works*

Lot 39 F18091 and Lot 99 F212352 are subject to the Local Heritage Overlay. Each allotment contains a Local Heritage Place (LHP) being the former Uniting Church building and Former Park Farm Barn.

The Association is very pleased that the two Local Heritage places will be retained on suitably sized allotments, and that the work proposed in this application only involves the removal of the non-contributory additions.

**APR pages 34-35**

## 6.10 Concept Plan

The site is subject to Concept Plan 82: Hackney (shown in **Figure 7** above) and the Housing Diversity Neighbourhood Zone provides the following policy guidance on its consideration:

***PO 9.1*** ***Development is compatible with the outcomes sought by any relevant Concept Plan contained within Part 12 - Concept Plans of the Planning and Design Code to support the orderly development of land through staging of development and provision of infrastructure.***

SPRA supports the aims of the concept plan.
In Particular: -

- The development height objectives.
- Pedestrian/Cycle Path to link with the existing River Torrens Linear Park Pedestrian/Cycle Path.
- Future pedestrian links.
- Vehicle access points.

**APR page 35**

## 6.11 Traffic, Access and Parking

### *6.11.1 Transport and Access*

The land is subject to the Traffic Generating Development Overlay which seeks (no underlining has been used given the relevance of all provisions):

***PO 1.1*** ***Development designed to minimise its potential impact on the safety, efficiency and functional performance of the State Maintained Road network.***

The proposed development will generate significant additional traffic movements. The Lot 47 development proposes 44 (inadequate) car parks, and together with vehicles from the 46 subdivided allotments at least 100 vehicles will need to enter and exit the narrow and already congested Richmond Street and then proceed onto the State maintained Hackney Road.

**APR page 36 - 37**

*6.11.2 Car Parking – Residential Flat Building*

The Code anticipates development that provides sufficient on-site car parking via the following provisions:

**Table 1 – General Off-Street Car Parking Requirements provides the following varied parking rates for land uses defined by the Code:**

| Class of Development | Car Parking Rate |
|---|---|
| *Residential Flat Building* | *Dwelling with 1 or 2 bedrooms (including rooms capable of being used as a bedroom) - 1 space per dwelling.* |
| | *0.33 spaces per dwelling for visitor parking where development involves 3 or more dwellings.* |
| *Tourist accommodation (other than a Caravan and Tourist Park)* | *1 car parking space per accommodation unit / guest room.* |
| *Shop (no commercial kitchen)* | *5.5 spaces per 100m2 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-* |

The Residential Flat Building contains 78 dwellings and therefore there should be at least 104 parking spaces (1.33/ dwelling). The development proposes only about one third of the requirement.

The Residential Flat Building is, in part, to be available for tourist accommodation and other short-term rentals in an Airbnb fashion. The Code calls for one space per unit for this activity. The proposed spaces for this is inadequate.

The shop has a gross area of 251m2 and so should provide about 14 spaces for patrons. There are only three dedicated spaces for the shop.

The parking provision for the Residential Flat Building and the shop is clearly insufficient.

**APR page 40**

## 6.13 Public Open Space

Open space contributions are controlled by Section 198 of the *Planning, Development and Infrastructure Act 2016* (the Act) which states:

***198 – Open space contribution scheme***

***(1) Where an application for a development authorisation provides for the division of land into more than 20 allotments, and 1 or more allotments is less than 1 hectare in area—***

***(a) the council in whose area the land is situated; or***

***(b) if the land is not situated within the area of a council—the Commission,***

***may require—***

***(c) that up to 12.5% in area of the relevant area be vested in the council or the Crown (as the case requires) to be held as open space; or***

The development plans show three areas as reserves.
Reserve 500 - 154m²  Reserve 600 - 478m²  Reserve 700 - 131m²
These three areas have a total area of 763m², which is only 5.45% of the total site area, well under the 12.5% desired by the Act.
Even allowing for the adjacent public reserves this is a meagre contribution.

Reserve 500
It should be noted that the site survey shows this reserve to be 154m², however the APR (page 41) says incorrectly that it is 279m²
A reserve area of 154m² is less that most front gardens of detached dwellings in the area.
The planning report says that –

> *This reserve is to be developed as an urban forest as detailed in Landskap's Richmond St. Masterplan. The urban forest will be established with large canopy trees and dense understory that require minimal maintenance.*

The applicant must have a sense of humour, as there is no way that 154m² could be construed as being capable of being an 'urban forest'!

Reserve 600
This strip of land extending from the top of the riverbank to the centreline of the river is an anomaly.
Historically the titles of land that backed onto the river extended to the centreline of the river. In about the 1980s the area from the top of the riverbank to the river centreline in these titles were transferred to the State Government. In 1985 the then owner of the Adelaide Caravan Park transferred all of the river front titles, with the exception of this portion of his land which he retained in order to preserve access rights to river water for irrigating the park. Refer to Certificates of Titles 1335/133, 4035/891 & 4255/290.

To include this section of land as part of the public open space is a little ridiculous as it is mostly inaccessible having a 45-degree slope down the bank to the river and then into the river itself.

**Street Naming**
While not forming a part of this DA, SPRA would like to suggest that the new Eastern public road proposed be named Bruton Street, this being name of the original road that now forms the entrance to the Adelaide Caravan Park, and that the Western road be named Park Street which was the historic name for this portion of Richmond Street.

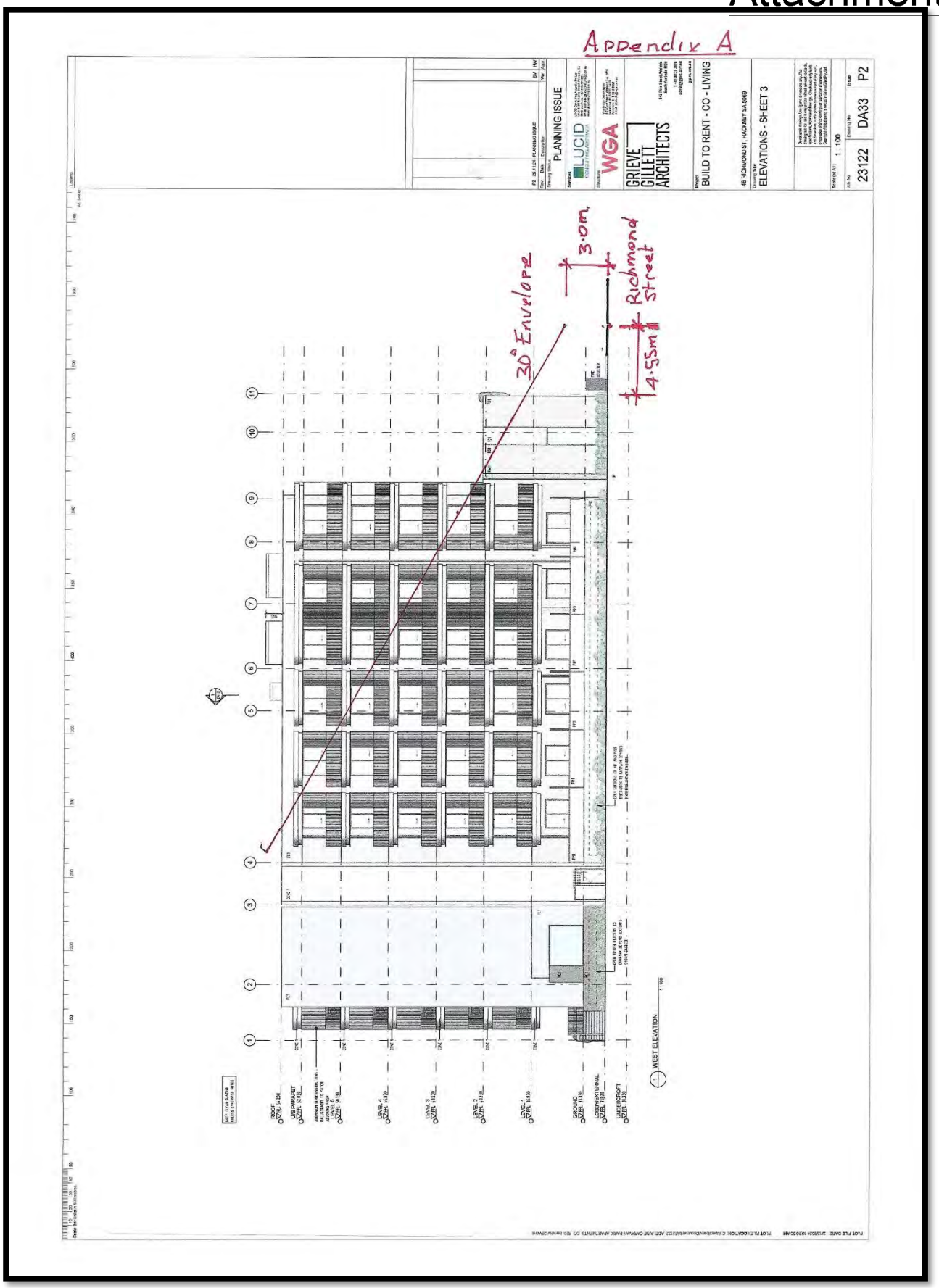
**Summary.**

The St Peters Residents Association does not support this development application in its current form and requests that it be refused.

There are a number of significant areas where the application fails to satisfy the relevant Planning & Design Code policies including, but not limited to: -

- The proposed development is clearly high density and not medium density as anticipated in the Zone provisions.
- The sizes and dimensions of the majority of the proposed allotments fail to meet the Zone provisions.
- The Residential Flat Building of 6 levels, and located in the proposed position, is not consistent with the land use anticipated in the Diversity Neighbourhood Zone.
- The use of the Botaniq development central building height as a precedent for the Residential Flat building is not supported.
- The area of the ground floor shop and café greatly exceeds the Zone provisions.
- The car parking proposed for the Residential Flat Building is grossly below the level anticipated for the Zone.
- The proposal will create additional congestion on the surrounding local streets and on Hackney Road
- The proposal is not compatible with the outcomes sought by Concept Plan 82 Hackney for the Adelaide Caravan Park site.
- The proposed Public Open Space proposed is neither functional nor adequate.

A representative of the St Peters Residents Association would like to speak to this submission when the Development Application is considered by the Council Assessment Panel


Appendix A
30° Envelope
3.0m
Richmond Street
4.55m
PLANNING ISSUE
LUCID
WGA
GRIEVE GILLETT ARCHITECTS
BUILD TO RENT - CO - LIVING
46 RICHMOND ST, HAGNEY SA 5069
ELEVATIONS - SHEET 3
1 : 100
23122
DA33
P2
WEST ELEVATION

**Representor 29** - shaun cleggett

| | |
|---|---|
| Name | shaun cleggett |
| Address | |
| Submission Date | 19/06/2025 04:40 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**
Richmond St, especially at its western end is already too narrow to deal with existing traffic, especially in the mornings prior to nine o' clock. They cannot even put trees on the footpath because it's too narrow. It will not cope with the extra demand. Situating a six storey building directly across the road and north to northwest from existing tenements will result in said tenements being in this building's shadow for most daylight hours during the winter. It will result in them being much colder and darker during winter as a consequence.

## Attached Documents

**Representations**

Attachment 5

**Representor 30** - Martin McMahon

| | |
|---|---|
| Name | Martin McMahon |
| Address | |
| Submission Date | 19/06/2025 04:50 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**

Submission Application 24040449 Dr Kerry Kavanagh & Phil McMahon (opposite the development) We are generally supportive of the proposed high density residential development outlined in Development Application 24040449. It will provide the opportunity for an increased number of people to enjoy this river precinct and nearby amenities of Melbourne St, playgrounds/parks and local/CBD services/cultural institutions. Of particular note is the Linear Park access, on the doorstep. We commend the Developers & Planning Authorities for making provision for the extension/connection of the Linear Park Path through the Development. We note that the Karrawirra Parri embankment (adjacent development) is currently fragile and at risk of further deteriorating. Reassuringly, the proposed Development Plans make provision for extensive Geotechnical Engineering. The Linear Park Path is a unique asset and one that should have prime consideration in the development. The stablisation of the bank will be very much appreciated by the existing local community & future residents. High density housing demands the provision of as much green space as possible. The River embankment adjacent the Development offers a unique opportunity to contribute to environmental sustainability and a cooler, greener Adelaide. The current remnant pipes/concrete tanks/pumping station visible on the embankment are to be removed and new infrastructure will be invisible. Their removal will be most welcome by locals & users of the Linear Park Path. The riverbank while currently infested with exotics, is a habitat for Rakali and Dusky Moorhen, and a range of other fauna. We anticipate that the bank will be cleared completely and there is an opportunity to establish small bird-attracting vegetation. There are Blue Wrens as far south on the river as Campbelltown, so it's possible to attract them to Gilberton with the right habitat. There are also many small birds near the St Peters Billabong eg Pardalotes & Silvereyes. The embankment opposite the Caravan Park Development (old Ch 10 site) was left as an unattended weed-lot post subdivision. In some areas it was an opportunistic 'dumping ground' for dolomite and other detritus from building sites. It polluted and diminished the aesthetic and local biodiversity. Continued clean-up by residents has been necessary to improve the soil to assist revegetation efforts. Various community groups currently operate (in collaboration with the Walkerville Council/Green Adelaide/Landcare SA eg Gilberton Mersey Slopes Revegetation Group – directly opposite 24040449 development, Walkerville Bush Care Group – Gilbert St/Swing Bridge) on the Western side of the river to revegetate sections with local indigenous plants. Volunteer residents have committed thousands of hours of voluntary labour to achieve some significant results over the last few years. The aim is to establish a self-sustaining biodiversity corridor that will provide a habitat for the local fauna & flora to flourish. The majestic gums that sit along the river rely on native grasses, groundcovers and understorey shrubs to keep them stable. It is critical that replanting adjacent the Caravan Park Development be undertaken as a matter of priority, in advance of any building works that limit site access. Revegetation to continue the biodiversity corridor will enhance the Developers ROI as prospective buyers will have the opportunity to fully appreciate the location's natural aesthetics. It is requested that 24040449 Development Application is approved subject to the following: 1. Removal of any existing remnant infrastructure such as pipes/cement tanks/pumps from the embankment and concealed new infrastructure 2.River embankment is revegetated from Mau Bridge to Hackney Bridge with indigenous vegetation 3 Assurances that the embankment will be protected from any rubbish dumping

**Representor 31** - Chris keightley

| | |
|---|---|
| Name | Chris keightley |
| Address | |
| Submission Date | 19/06/2025 06:13 PM |
| Submission Source | Online |
| Late Submission | No |
| Would you like to talk to your representation at the decision-making hearing for this development? | Yes |
| My position is | I support the development with some concerns |

**Reasons**
The building height is unreasonable. All other developments in the area have been limited to 3 stories. The current access from Richmond Road is already congested and would be the only way to access the property. Local amenities, including parks and open spaces are already under considerable pressure. On weekends the park adjacent to the caravan park is overflowing. Building height rules in Norwood Payneham & St Peter’s Under the Planning and Design Code (effective since July 2019), the Council area's maximum building height in medium-density zones is about 18.5?metres, which typically allows up to 4–5 storeys depending on floor-to-ceiling heights location.sa.gov.au plan.sa.gov.au However, in this circumstance, 3 stories would fit with other developments in the area, put less pressure on access roads, avoid overloading an already congested main arterial route (Hackney Road) and suit the local aesthetic expectations. I ask that this development not be approved for any higher than three stories, as are all other developments in this area. Kind Regards, Chris

## Attached Documents

**Representor 32** - Cathy Reid

| | |
|---|---|
| Name | Cathy Reid |
| Address | |
| Submission Date | 20/06/2025 10:13 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**
Traffic congestion from Hackney Road into Richmond Road would be a major issue going in and out. Richmond Road is not wide enough to support the volume of traffic a development such as the one proposed would create. There is insufficient parking at present on all the streets bordering this area so that would also create major issues for residents. Harrow Road is used as an access route for traffic at present so this would exacerbate problems particularly with a kindergarten on Harrow Road. During peak times traffic will be at a stop. There is a new complex on the corner of Hackney and Richmond Roads which is still not completed which will in itself add to the above traffic issues when fully occupied. To put another development so close by is an insane proposal. The land bordering the development should be acquired by council and used for recreational purposes only.

## Attached Documents

**Representor 33** - Tom Duffy

| | |
|---|---|
| Name | Tom Duffy |
| Address | |
| Submission Date | 20/06/2025 01:39 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 |

**Reasons**
This would be a great way to bring more housing options to the Hackney area, especially given how close it is to the city. The mix of townhouses and apartments is a smart choice and suits a wide range of people and incomes. Especially for students, with easy access to the uni via the bike path right out front. The design looks thoughtful, doesn't interrupt the landscape, and blends in well with the surroundings. The surrounding amenities of linear park, schools and botanic gardens are all desirable.

## Attached Documents

**Representor 34** - David Reid

| | |
|---|---|
| Name | David Reid |
| Address | |
| Submission Date | 20/06/2025 01:43 PM |
| Submission Source | Online |
| 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**
Traffic on Richmond Rd during peak periods currently involve long delays along Hackney and the approach from Richmond Road this will be exacerbated by the already soon to be completed apartment's on the Hackney Hotel sight which is almost opposite the caravan park. More highrise apartments in the area will significantly detract from the already impacted green image of the area. The caravan park should be converted into public space.

## Attached Documents

**Representor 35** - Charlie Dowling

| | |
|---|---|
| Name | Charlie Dowling |
| Address | |
| Submission Date | 20/06/2025 01:43 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 |

**Reasons**
I support the new development from Aspen Group because it provides much-needed affordable housing, makes smart use of underutilised land, and offers a mix of housing types that suit a range of people, from students to downsizers. It's well-located, close to transport and amenities, and has been thoughtfully designed to complement the existing community.

## Attached Documents

**Representor 36** - Trudi Newson

| | |
|---|---|
| Name | Trudi Newson |
| Address | |
| Submission Date | 20/06/2025 04:05 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 support the development |

**Reasons**
This development looks great. It will be good to have a cafe on the river and new connection to the walking path to allow more access to the river. The townhouses look terrific and provide some more housing supply in the area that will be very popular with my friends and family.

## Attached Documents

**Representor 37** - Tim Moore

| | |
|---|---|
| Name | Tim Moore |
| Address | |
| Submission Date | 20/06/2025 04:56 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**<br>See attached Representation | |

## Attached Documents

| |
|---|
| RepresentationFromTimMoore20June2025-11478110.pdf |

## Tala Aslat

**From:** Tim Moore
**Sent:** Friday, 20 June 2025 3:03 PM
**To:** Development Assessment
**Subject:** Richmond Road development proposal

We are vehemently opposed to this money-grabbing proposal

Here's why …

1) More traffic congestion along Richmond Street and Harrow Road in particular. This thoroughfare is already over-congested and is used as a "rat-run" in peak hours.
2) A unique caravan park with its central location to the CBD, Botanic Park, Adelaide Zoo, Adelaide Oval and major shopping precincts will be lost forever. Sure, it is small but that's what makes it unique. No other capital city in the country has anything like it.
3) Partial demolition of 2 Local Heritage Places? That admission itself is self explanatory! We cannot afford to lose any more historical buildings in this precinct.
4) Six stories high? Pity the other residents in the area being sun-blocked!

Instead of a very cynical grab for money by the council who seem to be in the pockets of developers, why not try something totally "out of the box"?
Here's an idea - if the caravans must go, turn it back into green space to join up with the other lovely little area which used to be the home of Company SA Flour Mill a hundred plus years ago.
You never know, this council may even be recognised and given due adulation for taking a major step in the opposite direction of "growth and development". The first council ever, to do so!

It's your call - the money or the green

Tim and Helen Moore

Richard and Amanda Warden

**Representor 38** - Evonne Moore

| | |
|---|---|
| Name | Evonne Moore |
| Address | |
| Submission Date | 23/06/2025 09:15 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**<br>Please find attached submission | |

## Attached Documents

| |
|---|
| RepresentationForm-EvonneMoore-11481452.pdf |

**Tala Aslat**

**From:** evonne Moore
**Sent:** Friday, 20 June 2025 1:50 PM
**To:** Townhall
**Subject:** Representation on Development Application for subdivision and new buildings on former Caravan Park site
**Attachments:** Richmond St. subdivision and new dwellings.docx

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Dear planners,

I am submitting this representation as an individual, not as a representative for the St. Peters Residents Association.

Please find this attached. It certainly is a huge development.

Thanks.

Evonne Moore

The Authorised Officer, Planning Department,
Norwood Payneham and St. Peters Council

Dear Sir,

**RE: RICHMOND STREET CARAVAN PARK SUB-DIVISION 48 Richmond St. Hackney, 36 Richmond St. Hackney and lot 41 Richmond St. Hackney.**

**Development application No. 24040449**

**Torrens Title land division creating 47 allotments from 11 existing, three public roads with associated footpaths, public open space reserves, together with associated earthworks (bank stabilisation works).**

**Construction of a six storey Mixed Use building comprising:-**

**78 serviced apartments (in the form of a residential flat building) across the five upper levels;**

**Associated office and amenities at ground level, with associated signage; a separate café tenancy at ground level with signage; a basement carpark; at grade parking and construction of a private road; together with associated earthworks and landscaping.**

**Partial demolition of two Local Heritage places and a change of use to detached dwellings**

---

Precincts proposed:

Riverfront precinct Twelve 2-3 storey dwellings facing river

Heritage precinct

Co-living precinct (6 storey tower) closest to Old Mill Reserve

Park Precinct (nearest Twelftree Reserve)

---

I submit that the issues of concern are:-

1. **DENSITY** : This proposal appears to be for an overly-dense development of the former Caravan Park site. The site areas and widths of allotments proposed appear to be at odds with minimum requirements for the Housing Diversity Neighbourhood Zone and possibly other zones involved.

   Is the set-back from the River Torrens adequate? Under the former St. Peters Council Development Plan a set-back of 60 metres was required for new development next to the River Torrens.

   This is an area of natural beauty and the panel should ensure that this natural beauty is not undermined by plonking a 6-storey monolith next to the Linear Park and cramming dense 3-storey dwellings next to the cliff-face. Cliffs erode over time. It is a natural process. Humans can fiddle at the edges but cliffs will continue to erode and housing too near the cliff will be threatened in this process, perhaps in 50 years time. Hopefully the local council will not be sued then by irate home-owners.

2. **MAXIMUM HEIGHT**: Former Planning Minister John Raul approved the rezoning of this site to a maximum 4 storey for new development but the applicant wants a 6 storey tower, a "Build to rent co-living building" which appears to violate DPF3.1 of the Housing Diversity Zone by exceeding the maximum height requirement.

3. **LANDSCAPING:** After examining the applicant's proposed landscaping, I submit that more native trees are needed to complement the natural environment of the riverine environment and to minimise deciduous leaf and seed fall into the river and its surrounds. How many trees are to be cut down (a) on private property and (b) on public land to facilitate this development?

   The applicant should be required to retain the perimeter hedging along Richmond Street, where possible, as a historic type of planting which contributes amenity to this locality and green infrastructure takes decades to establish

4. **HERITAGE**: The proposed changes to the two Local Heritage Places appear satisfactory.

5. **POLLUTION AND STORMWATER:** Pollution from site building works will enter the river. Pollution from front gardens of the suggested 12 2-3 storey dwellings in the proposed Riverfront Precinct (water, fertiliser, dissolved dog droppings) has the potential to run down adjacent cliff faces weakening them, plus deciduous leaves and seeds dropping into the river and spreading weeds (aka introduced trees) on cliff and surrounds is undesirable. Stormwater from other dwellings and car vehicles on three public roads and one private road are likely to pollute the river. The applicant should be required to maximise permeable surfaces to minimise runoff into streets and the river. Swales should be required to be

constructed on roads to direct stormwater on to growing trees. No stormwater should be allowed to be discharged on to the cliff face.

6. **VISUAL IMPACT ON LINEAR PARK** : The proposed 6 storey residential flat building appears particularly unsympathetic to the Linear Park and river. This flat building should be required to have vertical green infrastructure attached to the sides of the building such as hanging gardens. Developers have long promised vegetation on their buildings to soften their appearance but promises have not been kept in most cases.

7. The suggested twelve 2-3 storey dwellings in the Riverfront Precinct should be required to include some softening native trees planted on norther/riverside side of these properties to reduce the harsh visual impact of these buildings as they loom over the river below

Thank you for the opportunity to provide some comments.

I do wish to speak at the Panel meeting.

Evonne Moore

(former councillor for the St. Peters Ward)

.

**Representor 39** - Fay Patterson

| | |
|---|---|
| Name | Fay Patterson |
| Address | |
| Submission Date | 23/06/2025 10:56 AM |
| 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 support the development with some concerns |
| **Reasons**<br>See attached Submission | |

## Attached Documents

| |
|---|
| RepresentationForm-FayPatterson-11483899.pdf |

Fay Patterson

To: developmentassessment@npsp.sa.gov.au

Dear Sir/Madam,

**Development Proposal: 46 Richmond Street, Hackney (Adelaide Caravan Park) – Application 204040449**

On behalf of the Norwood Payneham & St Peters Bicycle Users Group (NPSP BUG), I wish to provide feedback on the above development proposal. NPSP BUG represents the interests of cyclists in NPSP Council area and has over 160 members. This response is informed not only by local experience, but my experience over 25+ years as a traffic engineer specialising in walking and cycling.

NPSP BUG's major interest in this Application in the development of a new section of the River Torrens Linear Path (RTLP). This is a key facility for cyclists and pedestrians, as part of the larger facility that extends across some nine Councils, and we are key stakeholders for this. We note that the provision of a pedestrian/bicycle path with linkage to the existing RTLP is an outcome sought by Concept Plan 82 in the Code.

While we welcome the inclusion of a new path, we have concerns about its design and placement. These are explained in detail in the following pages. This path is an important piece of infrastructure in an iconic facility in Adelaide that caters to recreational, commuter and utility path users. Given the proximity to Adelaide City Council, and Park Land events such as WOMADelaide and Parkour, it will also cater on occasions to event patrons and tourists.

Given priorities at both State and local government levels to encourages active transport and healthy communities, it is important that the new section of RTLP is not just adequate but well designed, and that its provision meets the strategic intent of planning requirements rather than just paying lip service to these. To this end, we strongly advocate for the new section of RTLP to be provided on the River Torrens side of buildings on the site.

We appreciate the opportunity to provide comment and trust that you will be able to use our constructive feedback as part of facilitating a development with long term benefit to not just the local area but the region.

Yours faithfully,

Fay Patterson BE, MAITPM (ret), PhD

**Feedback**

This new section of the River Torrens Linear Path (RTLP) has strategic value in providing a "missing link" connection from the southern RTLP at Old Mill Reserve to the ongoing section north of Harrow Road, via Twelftree Reserve and Torrens Street (a quiet local street). See our indicative diagram overleaf.

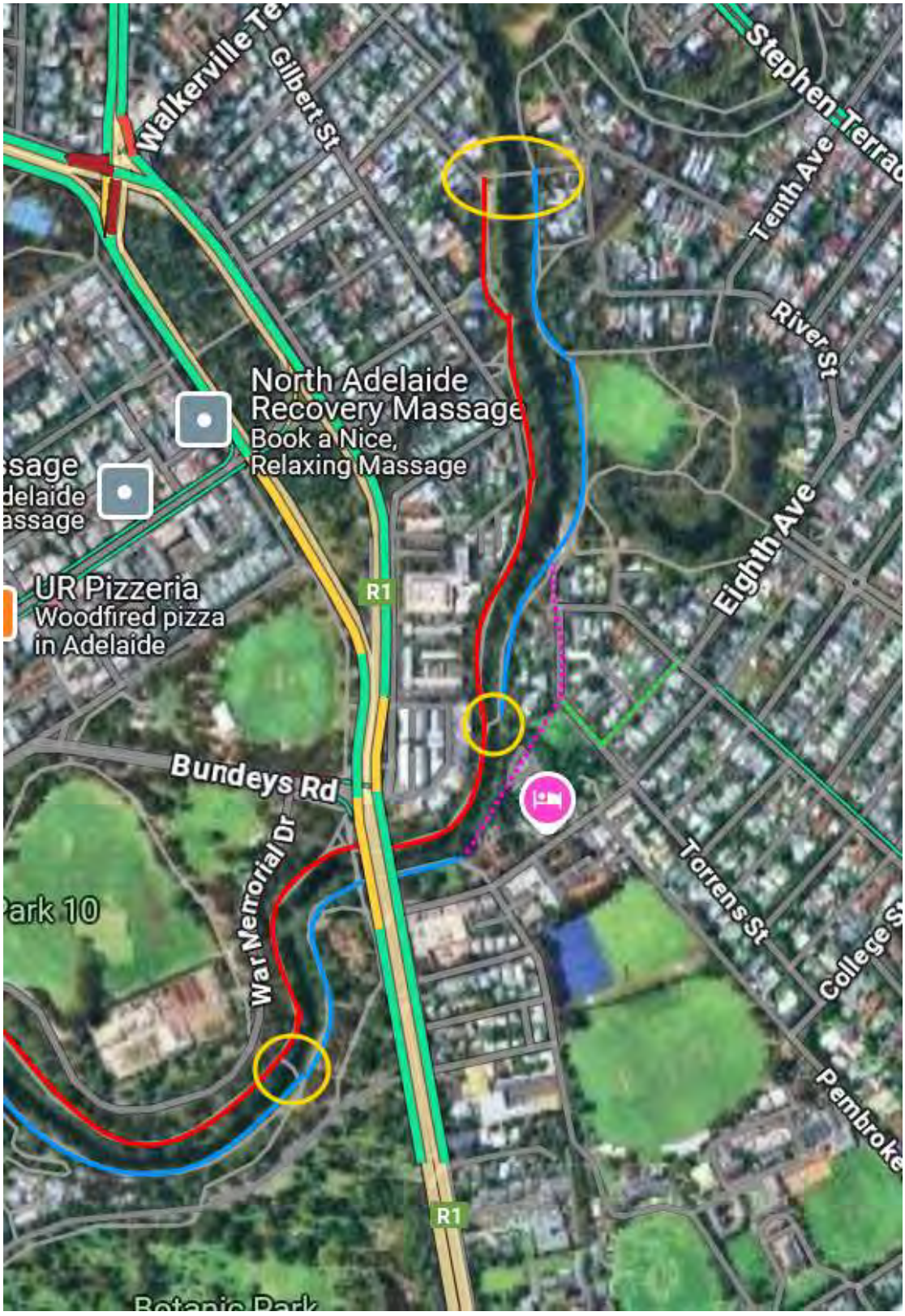
This is valuable because the RTLP on the "north" side of the River Torrens ends at the Gilberton Swing Bridge, which is not easy for cyclists to cross, so utility or commuter users of the path from east of this point can only feasibly use the southern RTLP up to the missing link. Here, they must currently cross a low-level footbridge to then use the northern RTLP – but at the best of times, this footbridge can be slippery, has a difficult sharp turn, ordinary surface and no safety railing across the River Torrens, and access to it is via a steep section of path. In heavy wet weather, it inundates and is completely unusable.

Many cyclists currently bypass this part of the RTLP by using Eighth Avenue – which, further east, feeds into River Street and NPSP Council's Ninth Avenue route. However, the lack of a permeable street network at Hackney forces these cyclists to use Richmond Street to travel west to Old Mill Reserve, where they can join the RTLP. Richmond Street has high traffic volumes but is too narrow to accommodate bike lanes or other infrastructure to provide protection and safety. The "missing link," however, would provide cyclists with a safe alternative to using Richmond Street, via Oriel Lane (almost a continuation of Eighth Avenue) and Torrens Street.

We therefore welcome the inclusion of a "missing link" for the RTLP as part of this development.

We are, however, concerned with the shared path as proposed, as this is essentially designed as a wide footpath along the edge of buildings. In terms of the proposed 2.5m width:

- In this area, the "missing link" RTLP can be expected to function as a high-speed, high demand commuter path for cyclists. Based on Super Tuesday bike counts, the expected demand from on-road cyclists shifting to this path would be some 120-130 cyclists during the two-hour peak – assuming no increase in cyclist numbers and excluding cyclists originating in the development, for whom a convenient path into the City should indeed be attractive.
- In wet weather, when the footbridge is unusable, cyclists who currently use the northern RTLP would also shift to the missing link path. As fewer people cycle in these conditions, this wouldn't mean that the number of cyclists would double compared to dry weather numbers. We think 150-175 cyclists in the two-hour peak would be a reasonable estimate.




**KEY**

Red line = north RTLP, blue = south RTLP, yellow = bridge crossings, pink dotted line = missing section of RTLP (shown indicative from the existing path through the site/ Twelftree Reserve/Torrens Street), green dotted line = connection to Eighth Avenue via Oriel Lane.

- Pedestrians also use the RTLP in peak periods, for both walking to work and recreational walking.

Together, these demands point to a minimum 3.0m width for a shared path under Austroads' *Guide to Road Design Part 6A: Paths for Walking and Cycling* (AGRD6A-17). This is also the minimum service standard under the *River Torrens Linear Park Strategic Integrated Asset Management Plan* adopted by RTLP precinct Councils, including NPSP. This Plan also indicates higher widths should be considered where demand dictates. We note that the last path constructed by Adelaide City Council at Bonython Park was 3.5m wide, as 3.0m is narrow for the heavy and concurrent demands experience in their Council area. We also note that increases in residential density over time or successful campaigns to increase cycling levels will increase the needed path width and a 3.5m path future-proofs for this in the context that future widening is difficult and expensive.

The proposed connection from the eastern end of the RTLP to the Twelftree Reserve path is poorly designed. Despite the presence of wheeling ramps, the demand from cyclists will not be to walk down the stairs to join the RTLP, but to travel across Twelftree Reserve to Torrens Street – a wide, quiet local street. The path geometry should reflect this. In particular, Table 5.6 of AGRD6A-17 gives a minimum radius of horizontal curves without superelevation of 25m for a travel speed of 30km/h – being the recommended (p31). The current design would present cyclists with an unnegotiable angle to join the Twelftree Reserve path. This should also be the minimum curvature of the shared use path.

(NPSP Council will also need to undertake some complementary work. The existing path at the northern end of Twelftree Reserve is too narrow at 2.0m for the new demand, and needs to be widened to 3.5m to suit. A kerb ramp from this path to Torrens Street is needed. The kerb ramp at Torrens Street/Harrow Road to a short section of path to the RTLP is designed as a pedestrian kerb ramp, i.e. is narrower than the path connection, and needs to be replaced with a wider access appropriately designed with a terminal treatment to discourage cars access as per section 7.5 of AGRD6A-17. The path connection needs to be reviewed for alignment to facilitate a higher commuter cyclist volume. Eton Lane, which gives onwards access to the south, should also be signed as a shared zone with contraflow cycling permitted. Wayfinding signage should also be erected. These are simple and straightforward infrastructure upgrades.)

The proposed location of the new path also creates conflicts, as follows (in no particular order). We strongly advocate for the shared use path to be provided on the River Torrens side of buildings, to eliminate these conflicts.

<u>Conflicts</u>

1) Parallel parking and front gates introducing pedestrian demands across the path. Fast commuter cyclists are travelling along the path are not compatible with residents exiting their front gates to cross the path to reach cars – or wheelie bins. Even with appropriate clearances to car doors (1.0m, as per Figure 5.8 of AGRD6A-17), front fences (1.0m, as per Figure 5.7 of AGRD6A-17), and trees (an absolute minimum of 0.3m to mature tree trunk edge), crossing demand will create conflict.

2) Pedestrian demand as a footpath. The buildings fronting the River Torrens do not have a footpath, meaning that residents will need to cross the road and parallel parking to use the shared path as their footpath.
   This situation could (and should) be improved by making the paving outside the houses a usable footpath, being continuous in material and gradient across driveway accesses, and continuing

both east to Twelftree Reserve's shared use path and West to the new shared use path. The shared use path also generally serves as a footpath.

3) The undercroft parking for dwellings 33 and 34 means cars reversing across the shared path. Adelaide crash data has found cars accessing driveways to be a major source of car crashes with bicycles. Having cars reversing from an undercroft car park, with the building constraining sight distances, across a major commuter cycling route, can only be considered to be unsafe. While this may only apply to four cars, the daily conflict with a high volume of cyclists makes this likely to result in a crash sooner or later.
   From the architectural drawings, clearance has been provided from the edge of the property to the edge of the path. Assuming that this clearance measures 2.5m, this would provide sight triangles for pedestrian visibility and safety as per the *Australian Standard for Off-street Parking* (AS 2890.1) – except that such sight triangles apply to vehicles exiting in a forward direction. As these vehicles would be reversing, even with the given clearances, a vehicle would need to intrude into the path before the driver would be able to clear the building sufficiently to have adequate sight distance to pedestrians. For cyclists, faster travel speed means greater required sight distances for safety. (For cyclists, the sight distance requirements at access driveways of AS2890.1 are more applicable, extrapolated to 30km/h and with a shared path configuration rather than a frontage roadway.)

4) Crossing traffic conflicts. Where the path crosses internal roads, a conflict between path users and cars is introduced. Being designed as a continuous footpath treatment, the eastern crossing reduces this and, if properly detailed, can provide convenience and priority for path users. The western crossing should similarly be provided as a continuous footpath treatment with priority for path users. The north-westernmost angled car park should also be removed, as drivers reversing from this space could intrude into the share path.

5) Terminal treatments. As the shared use path crosses roadways, traffic and asset managers will often seek to reduce the likelihood of vehicles accessing the path by installing bollards centrally in the path. Regarding bollards as terminal treatments or to exclude vehicles, we request compliance with AGRD6A-17, which states that bollards can create an unacceptable risk to cyclists and should not be used unless alternatives are infeasible (p64). At this site, alternative design is feasible.

6) In regard to parking, we question whether adequate turnaround area exists for the eastern parked car of property 35 to reverse and then proceed in a forward direction, without intruding onto the shared use path. (We assume the tandem parking shown for properties 19, 20, 21 and 22 are a drafting mistake, as this makes these properties unfeasibly small – similarly to the extra cars and walls shown in properties 33 and 34.)

Ref: 24ADL-0922

URPS

**Adelaide**
27 Halifax Street
Adelaide SA 5000
08 8333 7999

urps.com.au

**ADL | MEL | PER**

4 July 2025

Kieran Fairbrother
Senior Urban Planner
City of Norwood, Payneham and St Peters
175 The Parade
Norwood SA 5067

*Submitted via the PlanSA Portal*

Dear Kieran,

## Response to Representations – Application ID 24040449

URPS continues to act for Aspen Group, the Applicant for this application.

We have reviewed the representations received during public notification and provide a written response to the primary concerns below.

### Summary of Representations

A total of 39 representations were received during the public notification period, see Annexure A. This includes:

- 12 in support of the application
- 10 in support of the application with some concerns
- 17 opposed to the application

A total of ten representors want to be heard by the Council Assessment Panel (CAP). Two of these representors support the application with some concerns and eight oppose the application.

### Summary of Matters Raised by Representors

The concerns raised in the representations can be summarised into five key topics:

- Traffic
- Building Height and Density

- Land Use and Affordability
- Heritage Impacts
- Parking

## Response to Representations

### Traffic

The most cited concerns of the representors relate to traffic volumes along Richmond Street.

MFY's Traffic and Parking Report, and response letters to Council staff, provide an assessment of the anticipated traffic generation from the development. This considers:

- The existing traffic volumes and movements for the caravan park.
- Empirical data from similar caravan parks and co-living uses.
- The anticipated traffic volumes from the change in use to a variety of residential development sought by the Zone.
- Turning count data from the Department of Infrastructure and Transport (DIT) for the Hackney Road and Richmond Street intersection at peak hours.

MFY's report concludes that the anticipated increase in traffic on Richmond Street is 30 trips during the morning peak hour and 10 trips during the afternoon peak hour. This further translates to the following traffic movements at the Hackney Road and Richmond Street intersection, 125m east of the site:

- 14 additional movements during the morning peak hour.
- 6 additional movements during the afternoon peak hour.

This represents a less than 5% increase traffic volumes on Richmond Street and less than 0.5% of volumes using the intersection. This will have negligible impact to traffic volumes outside the site.

Vehicular access to the development will be via two crossovers. as desired in Concept Plan 82 – Hackney in the Planning and Design Code (the Code). These access points have been designed to accommodate the volume of traffic which will be generated by the development.

Several representors raised concern with the existing width of footpaths and the road corridor along Richmond Street. This road is outside of the development site and is the responsibility of the City of Norwood, Payneham and St Peters. Council's responsibilities include footpath maintenance and upgrades.

URPS

## Building Height and Density

Concerns were raised by representors about the height of the proposed Build-to-Rent co-living building.

The Zone provides the following provisions relevant to building height:

***PO 3.1*** ***Building height is consistent with the form expressed in any relevant Maximum Building Height (Levels) Technical and Numeric Variation layer and Maximum Building Height (Metres) Technical and Numeric Variation layer or is generally low rise, or complements the height of nearby buildings.***

***DPF 3.1*** ***Building height (excluding garages, carports and outbuildings) is no greater than:***

***Maximum building height is 2 levels***

***(Underlining added)***

The Concept Plan 82 – Hackney anticipates building heights of 2 to 4 levels at the site.

The proposal includes a land division to create 47 residential allotments within the majority of the site. These allotments will support the development of dwellings of between 1 to 3 levels.

The development also includes a 6-level co-living building. The height of this building is appropriate because:

- The building is located on the western portion of the site, diagonally opposite the Botaniq development. This existing development is in the same Zone and is also 6 levels. This means the co-living building compliments the height of nearby buildings as sought by PO 3.1.
- The proposed 6-level building is comparatively isolated from existing low-rise development i.e. it is not surrounded by low-rise development.
- The building includes a 2-level presentation to Richmond Street. Upper levels are setback a further 5.5m from this lower podium (or 10.5m from the Richmond Street boundary).

The Housing Diversity Neighbourhood Zone seeks medium-density housing and accommodation. In achieving the desired density, a portion of the site will include a multi-storey building.

The proposal comprises 78 dwellings within the co-living building and 46 residential allotments across a 13,990m² site. This achieves medium-density housing and accommodation.

## Land Use and Affordability

Some representors have raised concern with the proposed change of use and removal of the existing caravan park. Concerns relate to the perceived loss of short-term, affordable accommodation.

Aspen Group currently manages the caravan park and is aware of the demand for short to longer term accommodation in this locality. This is one of the drivers for providing diverse accommodation options at an affordable price point within the Build-to-Rent co-living building. It will continue to provide accommodation for tourists, like the caravan park. Support regional travellers on holidays or hospital visits as highlighted in the representations.

This Zone seeks a *"diverse range of medium density housing and accommodation complemented by a range of compatible non-residential uses supporting an active, convenient, and walkable neighbourhood."*

The proposed development of a 6-level co-living building (residential flat building) and residential land division is expressly anticipated by the Zone.

## Heritage Impacts

Several representors raised concerns that the development includes partial demolition of two Local Heritage Places. These heritage places include the former Uniting Church building and former Park Farm Barn.

The two original buildings have been altered over time, with additions to the side and rear of each building. This includes lean-to's, verandah structures and more modern extensions.

The proposed demolition is restricted to the removal of these non-original elements. This is detailed in the Heritage Impact Assessment prepared by Forum.

The proposal will also include works to restore the original stone and masonry facades, repainting and repointing once the partial demolition is complete.

The development provides for the retention and re-purposing of both Local Heritage Places to ensure their heritage value is preserved. This promotes their long-term preservation and maintenance. It also means they continue to contribute to the character of the locality.

## Parking

A couple of representors raised concerns with the provision of car parking spaces within the development. These concerns are related to the Build-to-Rent co-living building.

As noted above, this building and land use is designed to provide diverse accommodation for a wide variety of people. This will include tourists, students, workers and other forms of residential accommodation. All occupants will have the ability to determine their length of stay to suit their needs.

The unique nature of this accommodation option means the land use is not defined under the Code. This also means a parking rate is not provided by the Code.

Instead, the provision of on-site parking is proposed to respond to the dynamic nature of this accommodation type.

This is guided by the following provision in Transport, Access and Parking General Development Policy:

***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.***

***(Underlining added)***

Adequate on-site parking will be provided to meet the needs and anticipated demand of the Build-to-Rent co-living building.

This is confirmed in MFY's Traffic and Parking Report. Importantly, the parking rate has been informed by the same co-living properties owned and managed by Aspen Group in similar urban areas.

The provision of on-site parking also reflects the parking rate provided by the Code for affordable housing.

This evidence-based assessment confirms a suitable level of on-site parking has been provided.

There is a bus stop on Hackney Road approximately 200m from the site and a dedicated high-transit bus lane. Pedestrian and cycling access in a westerly direction along the Torrens River Linear Trail is excellent. These alternative moves of transport reduce reliance on private vehicles.

## Conclusion

The concerns raised in representations have been appropriately considered and addressed by the proposal noting that:

- The development will have a negligible impact to traffic volumes on Richmond Street and the intersection with Hackney Road.
- The development achieves a medium-density desired in the Housing Diversity Neighbourhood Zone.
- The Build-to-Rent co-living building provides housing and accommodation desired in the Zone and the 6-level height compliments nearby buildings.
- The Build-to-Rent co-living building will continue to provide affordable short-term accommodation at the site like the existing caravan park.
- The proposal retains and restores two Local Heritage Places, only partially demolishing non-original fabric.
- The development provides sufficient on site parking spaces to meet the needs of the Build-to-Rent co-living building.

We confirm that we will be available to appear in support of this development at the relevant CAP meeting. Please confirm the date and time of the meeting once this is known.

I can be contacted on 8333 7999 if you have any questions.

Yours sincerely

**Matilda Asser**
Consultant

## Annexure A – Summary of Representations

| No. | Representor | Representor's Address | Position | Wishes to be heard |
|---|---|---|---|---|
| 1 | Rebecca Madigan | | Opposes | No |
| 2 | Patrick Swanson | | Supports | No |
| 3 | Ewan Stewart | | Opposes | No |
| 4 | Kerrie Greve-Golding | | Opposes | No |
| 5 | Terry Healey | | Supports with some concerns | No |
| 6 | Derek Seret | | Supports with some concerns | No |
| 7 | Marysia Marchant | | Opposes | Yes |
| 8 | Helen Goldsworthy | | Opposes | No |
| 9 | Anne Mitchell | | Supports | No |
| 10 | David Elliot | | Supports with some concerns | No |
| 11 | Alan Green | | Supports with some concerns | No |
| 12 | Helen Beasley | | Opposes | Yes |
| 13 | Cuong Phan | | Opposes | Yes |
| 14 | Edwina Hicks | | Opposes | No |

| No. | Representor | Representor's Address | Position | Wishes to be heard |
|---|---|---|---|---|
| 15 | Tom Hicks | | Opposes | No |
| 16 | Lynette Davies * | | Opposes | Yes |
| 17 | Lynette Davies * | | Opposes | Yes |
| 18 | Bailey Feltus | | Supports | No |
| 19 | Isaac Feltus | | Supports | No |
| 20 | Shaghayegh Koosh | | Supports | No |
| 21 | Yiorgo Ormsby | | Supports | No |
| 22 | Sarah Fahlbusch | | Supports | No |
| 23 | Kym Perks | | Supports | No |
| 24 | Kathryn Quigley | | Supports | No |
| 25 | Brad Jackson | | Supports with some concerns | No |
| 26 | Greg Wilmot | | Supports with some concerns | Yes |
| 27 | Walking SA | | Supports with some concerns | No |
| 28 | St Peters Residents Association Inc | | Opposes | Yes |

| No. | Representor | Representor's Address | Position | Wishes to be heard |
|---|---|---|---|---|
| 29 | Shaun Clegett | | Opposes | No |
| 30 | Martin McMahon | | Supports with some concerns | No |
| 31 | Chris Keightley | | Supports with some concerns | Yes |
| 32 | Cathy Reid | | Opposes | No |
| 33 | Tom Duffy | | Supports | No |
| 34 | David Reid | | Opposes | Yes |
| 35 | Charlie Dowling | | Supports | No |
| 36 | Trudi Newson | | Supports | No |
| 37 | Tim Moore | | Opposes | No |
| 38 | Evonne Moore | | Opposes | Yes |
| 39 | Fay Patterson | | Supports with some concerns | No |

# Referral Snapshot

**Development Application number:**
24040449

**Consent:**
Planning and Land Division Consent

**Relevant authority:**
Assessment Panel at City of Norwood, Payneham and St. Peters

**Consent type for distribution:**
Planning

**Referral body:**
Commissioner of Highways

**Response type:**
Schedule 9 (3)(7) Development Affecting Transport Routes and Corridors

**Referral type:**
Direction

**Response date:**
29 Jul 2025

**Advice:**
No comment to make

**Reason/Comments:**
The development is gaining direct access to a local council road and the applicant has demonstrated that the Hackney Rd/Richmond St intersection will have sufficient capacity to cater for the traffic generated by the subject development.

# HERITAGE ADVISOR REFERRAL RESPONSE

## Kieran Fairbrother

**From:** David Brown
**Sent:** Tuesday, 13 January 2026 8:15 PM
**To:** Kieran Fairbrother
**Subject:** RE: Adelaide Caravan Park Development

Hi Kieran

It is definitely a later low quality addition. It is still partly old, but reworked many times, and makes no sense with its location. It probably dates from the early 1900s (as opposed to the rest of the building dating from just pre-1850). The small gable on the other side is original, and is centred on the building, unlike this gable being removed. The eaves don't line up, the columns are too heavy and made of masonry to be original, and the detailing is different to the older part of the building.

Regards

David Brown

bbarchitects

217 Gilbert Street Adelaide SA 5000

APBSA Architect Registration 2294

www.bbarchitects.com.au
Butcher Brown Architects Pty Ltd ABN 18 122 067 483
trading as BB Architects
APBSA Business Registration 3054

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**From:** Kieran Fairbrother
**Sent:** Saturday, 10 January 2026 9:25 AM
**To:** David Brown
**Subject:** Adelaide Caravan Park Development

Hi David,

I hope you enjoyed a good break!

Quick one for you. Last year I referred the attached plans to you (in the portal) asking for your view on the partial demolition proposed to the two LHPs on this site. In response you said "I am happy with what has been lodged for the two LHPs".

I am now writing my CAP report and I note that it isn't clear in the Heritage Impact Statement provided by the applicant whether the eastern gable entry for the Park Farm Barn is original fabric or not. I assume not since you support its removal, but can you please able to confirm if this is the case? Or, if this is actually original heritage fabric, can you please elaborate on why you support its demolition?

If you're able to provide a response before the end of the week (Friday 16th) that would be brilliant! Thanks in advance!

Regards,

Kieran Fairbrother
**SENIOR URBAN PLANNER**

**City of Norwood Payneham & St Peters**
175 The Parade, Norwood SA 5067

# CITY ARBORIST
# REFERRAL RESPONSE

City of Norwood Payneham & St Peters

# File Note

| | | | |
|---|---|---|---|
| **Date** | 15 April 2025 | **File Number** | DA 24040449 |
| **Subject** | Arb. Impact Assessment, 46 Richmond Street, Hackney. | | |

The Council has received an application proposing the complete removal of all existing vegetation on the site. My assessment will consider the trees located on adjacent Council and public land, with a brief consideration of those on the subject private property.

**Twelftree Reserve**

The Council Reserve is located adjacent to the northeastern boundary of the development site. Along the southern end of this boundary, there is a stand of six *Brachychiton* trees, spaced at approximately 10-metre intervals and situated around 6 metres from the property line. Of these, only the largest tree has a Tree Protection Zone (TPZ) that marginally encroaches into the development site; however, this encroachment is less than 10% and is considered minor. Provided that all construction works and associated activities remain confined within the designated development footprint, the trees (as shown in the image below) are not expected to be adversely impacted.

The northern section of the property boundary is delineated by a mesh fence separating the caravan park from the adjacent Council reserve. This area contains a mix of ten *Fraxinus angustifolia* (Desert Ash) trees and two *Schinus molle* (Peppercorn) Council trees, one of which is notably large. However, both species are exempt from protection under South Australian tree legislation. The trees shown in the image below are with 1-2m of the boundary line.

**Construction site trees (Adelaide Caravan Park)**

The caravan park features a relatively well-treed perimeter, with several additional trees located in the central southern portion of the site. The dominant species include *Fraxinus angustifolia* (Desert Ash) and *Fraxinus raywoodii* (Claret Ash). *Fraxinus angustifolia* is an exempt species under South Australian tree legislation, while several of the *Fraxinus raywoodii* specimens, with trunk diameters exceeding 1m at 1m above ground level, meet the criteria for classification as Regulated trees.

Images of the Regulated Claret Ash trees are provided on this page (entering dormancy).

**Old Mill Reserve, Council garden bed**

The image above shows the Council-maintained garden bed within Old Mill Reserve, located adjacent to the southwestern boundary of the proposed development site. Within this area, two mature *Casuarina cunninghamiana* (River She-oak) trees are present, each with a stem circumference exceeding 1m at 1m above natural ground level. I note this species is recognised for its moderate tolerance to root zone disturbance.

The remaining Council trees within the garden bed do not satisfy the Regulated tree criteria.

Of the two Regulated she oak trees, **Tree 1** (positioned to the left in the image below and located furthest north) has a trunk circumference of 1.25m at 1m above natural ground level and is situated approximately 3.3m from the boundary fence. The SRZ for this tree is 2.23m. While proposed works within the adjacent property would technically constitute a major encroachment into the TPZ, the tree is not anticipated to experience significant adverse impacts.

Tree 2 (visible to the right in the image below), the more southern of the two River She-oaks, is located approximately 2.95m from the boundary fence and has an SRZ of 2.78m. Provided appropriate care is taken during demolition and construction activities, the tree is not expected to be significantly impacted. Minor pruning will be required to accommodate the proposed development; however, this will involve the removal of no more than 30% of the tree's live crown and will not adversely affect its overall shape or form. As such, the pruning is deemed a 'maintenance prune'.

Matthew Cole
**CITY ARBORIST**

# EAST WASTE
# REFERRAL RESPONSES

EastWaste

12 August 2025

Mr Kieran Fairbrother
Senior Urban Planner
City of Norwood Payneham & St Peters Council
175 The Parade
NORWOOD SA 5000

Sent Via Email:

**RE: Redevelopment of Adelaide Caravan Park Site – Hackney – Waste Collection Serviceability**

Thank you for your emails dated 18 and 22 July 2025, providing East Waste with information regarding the proposed redevelopment of the Adelaide Caravan Park site on Richmond Street, Hackney. East Waste appreciates the opportunity to review the plans and provide feedback on kerbside waste collection serviceability before any development works commence.

Following our assessment, East Waste is satisfied that subject to certain conditions our drivers will be able to service the proposed properties shown on the enclosed masterplan using our standard collection vehicles. However, this is contingent upon:

- Appropriate parking controls being installed and enforced to ensure safe and efficient access.
- Sufficient space for our waste collection vehicles to safely undertake a three-point turn in the western turnaround area (marked “4” on the enclosed plan).

In particular, East Waste recommends:

- Installing No Stopping parking controls along the new public roads labelled 201 and 202, especially near the proposed bin presentation area (bin bank), to allow unobstructed access to the bins and adequate vehicle manoeuvring space.
- Implementing No Stopping parking controls in the area marked “4” to ensure vehicles can complete a safe three-point turn.

East Waste also note that the plans do not indicate:

- The size of the proposed bin bank.
- The number of bins expected to be placed at the proposed bin bank; and
- The specific bin collection location for all dwellings.

Our assessment assumes that bins will be presented in a manner that provides clear and unobstructed access for collection adjacent each property and/or at the proposed bin bank.

East Waste has no objection to the proposed raised section on Road 202 or to the use of a bin bank, however our recommendations include:

Eastern Waste Management Authority
1 Temple Court, Ottoway SA 5013 t 08 8347 5111
e east@eastwaste.com m PO Box 26, Mansfield Park SA 5012
eastwaste.com.au

EastWaste

- Ensuring the bin bank is sized appropriately to accommodate the required number of bins, in addition to ensuring that the bins are positioned so East Waste drivers can collect the bins directly without needing to exit the vehicle to reposition bins.
- Confirming the raised section's gradient is suitable for heavy vehicles (up to 23 tonnes) and does not pose any risk of our collection vehicles damaging the infrastructure.

East Waste is happy to review updated plans or provide further input as the project progresses. Addressing these considerations now will help ensure safe, reliable service delivery once the site becomes operational.

Thank you again for the opportunity to provide feedback. Please contact me if you require further information.

DN Maywald

Yours Sincerely

David Maywald
**Manager Business Services**

**Enclosed:** Masterplan for Adelaide Caravan Park Development.PDF

**Eastern Waste Management Authority**
1 Temple Court, Ottoway SA 5013 **t** 08 8347 5111
**e** east@eastwaste.com **m** PO Box 26, Mansfield Park SA 5012
eastwaste.com.au

## Kieran Fairbrother

**From:** Leonard Leyland
**Sent:** Friday, 5 September 2025 4:05 PM
**To:** Kieran Fairbrother
**Cc:** Brian Krombholz; David Maywald
**Subject:** FW: Waste Collection serviceability - Adelaide Caravan park development.
**Attachments:** 250805_ACP traffic letter.pdf; Waste Bin Locations.pdf

Good afternoon Kieran,

I tried to give you a call today following a review with our Ops lead Brian.

In reviewing the updated information there was no change to our initial position, that we can service this area.

Apologies we ran a little late against your preferred timeframe.

Thank you,

Leo

Leonard Leyland
**General Manager**

1 Temple Court, Ottoway SA 5013
t 08 8347 5109

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**From:** Kieran Fairbrother
**Sent:** Tuesday, 19 August 2025 8:57 AM
**To:** David Maywald
**Cc:** Adrian Ivanovic Geoff Parsons Brian Krombholz Shane Drury Leonard Leyland

Ian Lampre
**Subject:** RE: Waste Collection serviceability - Adelaide Caravan park development.

Good morning David,

We have now received the attached plan and traffic report from the applicant, that include details pertaining to waste collection. You will note that the bollards at the western turnaround area have been relocated further south to provide the room required for a 10.2m truck to undertake a three-point turn here.

I have annotated the site plan to include dimensions of the respect bin pads/collection areas for your ease of reference. The traffic report details which dwellings will utilise these areas.

Finally, please note that traffic controls (e.g. yellow line marking) will be subject to detailed design and review with Council's traffic engineer.

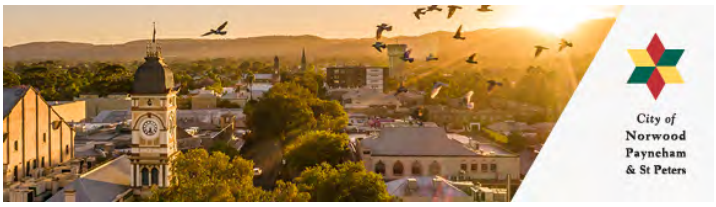
Can you please review the amended proposal and comments from their traffic engineer and advise us of East Waste's position? If I can please get your response within 2 weeks that would be great (by 2 September)!

Thank you in advance.

Regards,

Kieran Fairbrother
**SENIOR URBAN PLANNER**

**City of Norwood Payneham & St Peters**
175 The Parade, Norwood SA 5067

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**From:** Kieran Fairbrother
**Sent:** Wednesday, 13 August 2025 8:20 AM
**To:** 'David Maywald'
**Cc:** Geoff Parsons Brian Krombholz Shane Drury Leonard Leyland Ian Lampre
**Subject:** RE: Waste Collection serviceability - Adelaide Caravan park development.

Thank you very much David.

As previously mentioned, once we have the final set of plans and a traffic report from the applicant that answers the queries you've raised, I will send them through for your review.

Regards,

Kieran Fairbrother
**SENIOR URBAN PLANNER**

**City of Norwood Payneham & St Peters**
175 The Parade, Norwood SA 5067

**From:** David Maywald
**Sent:** Tuesday, 12 August 2025 11:27 AM
**To:** Kieran Fairbrother
**Cc:** Geoff Parsons Brian Krombholz Shane Drury Leonard Leyland Ian Lampre
**Subject:** Waste Collection serviceability - Adelaide Caravan park development.

Good Morning ,Kieran

Hope your week is going well thus far.

Following our previous correspondence regarding the waste collection serviceability of the proposed Adelaide Caravan Park development, I have now finalised our response. In summary, I can confirm that we will largely be able to service the proposed development. However, there are a few considerations to take into account, including the need for appropriate parking controls and adequate space for vehicle turnarounds etc.

I trust that the information provided helps with the Council's development assessment process, if you have any questions or require additional information please let me know.

Kind regards

David Maywald
**Manager Business Services**

1 Temple Court, Ottoway SA 5013
**t** 08 8347 5110

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# STORMWATER AND FLOODING REFERRAL RESPONSES

**Kieran Fairbrother**

**From:** Melinda Lutton
**Sent:** Friday, 17 January 2025 9:21 AM
**To:** Josef Casilla
**Cc:** Kieran Fairbrother
**Subject:** RE: Adelaide Caravan Park Development - Flooding and Stormwater Management Document Review

Hi Josef

Yes this does address my query.

Thanks and regards, Mel

**Melinda Lutton**
Principal Civil Engineer
Assistant Operations Manager

Kaurna Country
Level 2, 170 Frome Street
Adelaide SA 5000
Tonkin.com.au | LinkedIn

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**From:** Josef Casilla
**Sent:** Thursday, 16 January 2025 2:39 PM
**To:** Melinda Lutton
**Cc:** Kieran Fairbrother
**Subject:** RE: Adelaide Caravan Park Development - Flooding and Stormwater Management Document Review
**Importance:** High

Hi Mel

Thanks for the email below.

As discussed, in reference to the attached SMP, does Section 3.2.5 address your queries regarding the permeable paving?

If you are able to advise by COB today, that would be much appreciated. Happy to discuss over the phone if required.

Kind regards,

Josef Casilla
**PROJECT MANAGER, ASSETS**

**City of Norwood Payneham & St Peters**
175 The Parade, Norwood SA 5067

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**From:** Melinda Lutton
**Sent:** Wednesday, January 15, 2025 2:48 PM
**To:** Kieran Fairbrother Josef Casilla
**Subject:** RE: Adelaide Caravan Park Development - Flooding and Stormwater Management Document Review

Hi Kieran

I have added some comments to your Objectives and Considerations document – I think my outstanding comment would be around rate of infiltration. If WGA are using this as part of their required/ proposed stormwater attenuation, they would need to show simple calcs setting out what the drainage area is (unlined contact area with natural soil) and what the infiltration rate would be, based on their geotechnical information. There are boreholes on the site (from 5-10 years old) which indicate a mix of clay, silt, gravels and sands – this would need to be looked at in more detail with a reasonable/ conservative approach to looking at where the permeable/ infiltration areas were compared to soil qualities at the point of infiltration (bottom of the permeable paving construction). But it's not clay or rock, so this would be a reasonable approach.

They would also need to investigate and comment on what the requirements are (if any) for the area being "Groundwater Aquifer" – see comment on PO5.1.

Please let me know if you wanted further information.

Thanks and regards, Mel

**Melinda Lutton**
Principal Civil Engineer
Assistant Operations Manager

Kaurna Country
Level 2, 170 Frome Street
Adelaide SA 5000
Tonkin.com.au | LinkedIn

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**From:** Kieran Fairbrother
**Sent:** Wednesday, 15 January 2025 10:55 AM
**To:** Josef Casilla Melinda Lutton
**Subject:** RE: Adelaide Caravan Park Development - Flooding and Stormwater Management Document Review

Hi Melinda,

I don't mean to be a pain but is there any chance I can get your response to the below by COB tomorrow (Thurs 16th) at the latest?

I need to issue a Request for Information to the applicant before the end of the week, and I will need to include any comments or requests for further information from your end also so it would be good to have a full response before I do so.

Please let me know if this isn't achievable.

Regards,

Kieran Fairbrother
**SENIOR URBAN PLANNER**

**City of Norwood Payneham & St Peters**
175 The Parade, Norwood SA 5067

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**From:** Josef Casilla
**Sent:** Tuesday, January 14, 2025 4:55 PM
**To:** 'Melinda Lutton'

**Cc:** Kieran Fairbrother
**Subject:** RE: Adelaide Caravan Park Development - Flooding and Stormwater Management Document Review

Hi Melinda

Thanks for your email below.

With regards to the permeable paving, you should have just received access to a Dropbox folder which includes the applicant's Geotech documentation (you can also use this link:

Can you please advise if these documents will change your comments / advice?

Also, in reference to the attached flooding and stormwater management document review scope-of-works which I sent previously, do you have any commentary with regards to:

- PO 1.8
- PO 5.1
- PO 36.1
- PO 36.2
- PO 42.1
- PO 42.2
- PO 42.3
- PO 10.1
- PO 10.2

If you believe that the applicant has not supplied sufficient information, can you please advise.

Happy to chat over the phone or in an online meeting if required, thanks.

Kind regards,

Josef Casilla
**PROJECT MANAGER, ASSETS**

**City of Norwood Payneham & St Peters**
175 The Parade, Norwood SA 5067

---

**From:** Melinda Lutton
**Sent:** Friday, December 20, 2024 5:45 AM
**To:** Josef Casilla
**Cc:** Kieran Fairbrother
**Subject:** RE: Adelaide Caravan Park Development - Flooding and Stormwater Management Document Review

Hi Josef

Flood Management

- 1%AEP depth is approx. 0.1m depth at the proposed entrance from Richmond Street, so 1%AEP water level is approximately 32.2m
- The main area of flooding is the Twelfth Reserve, not where most of the houses are going
- Section 4 of WGA's report states "the estimated 1% AEP flood level is 29m AHD" and I don't know where this came from – this seems to be below background ground levels from their plans

Stormwater Detention

- Approach and calculations seem fine

Permeable paving

- No geotechnical information is included, but WGA's report states "clay subgrade" which wouldn't be effective for soaraway
- EGA would need to provide some consideration of rate of infiltration mm/h and relate this to the soil type following geotechnical investigation?
- Permeable paving is a sustainable approach, and can reduce loading on the stormwater network
- Will require ongoing maintenance and replacement of subbase as set out in WGA's report

Thanks, Mel

**Melinda Lutton**
Principal Civil Engineer
Assistant Operations Manager

Kaurna Country
Level 2, 170 Frome Street
Adelaide SA 5000
Tonkin.com.au | LinkedIn

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**From:** Josef Casilla
**Sent:** Tuesday, 10 December 2024 11:54 AM
**To:** Melinda Lutton
**Cc:** Kieran Fairbrother
**Subject:** Adelaide Caravan Park Development - Flooding and Stormwater Management Document Review
**Importance:** High

Hi Melinda

Please be advised that Council recently received a development application for the Adelaide Caravan Park site near Richmond Street in Hackney.

Please find attached the proposed flooding and stormwater management document review scope-of-works, and the DA stormwater management plan and associated email chain between Council and WGA (which was included in their development application documents). Are you able to please review the SMP against the objectives and considerations, and advise us of any concerns or queries.

Of note is their proposal to use permeable pavement for the roads, presumably to assist with the stormwater management of the whole site. Permeable pavers is not the standard material Council uses for its roads, so Council would need to be confident that:

- The benefits of the permeable pavers are significant
- The underlying soils etc is suitable for the intended use of the permeable pavers (i.e., road pavement)

Please note that I will be the main contact for this DA, but please keep Kieran copied in for all correspondences.

Would you be able to undertake this review by COB Thursday 19 December? If not, can you please advise the earliest-possible achievable date of completion for this review?

Kind regards,

Josef Casilla
**PROJECT MANAGER, ASSETS**

**City of Norwood Payneham & St Peters**
175 The Parade, Norwood SA 5067

Think before you print.

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ML comments in blue

Caravan Park address, 46 Richmond Street, Hackney

**Hazards (Flooding) Overlay**

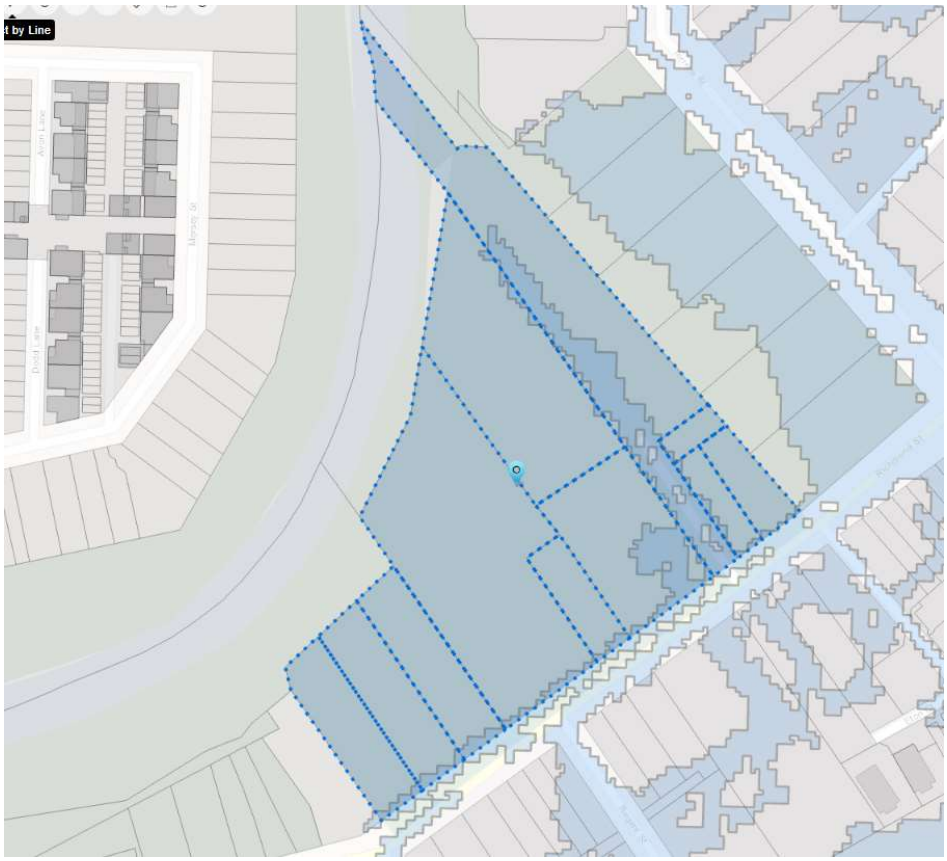
*Spatial Application*

The Overlay does not intersect any of the developable area of the land – it is only Lot 100 that extends over the river. I am therefore not concerned about this Overlay.

OK

**Hazards (Flooding – General) Overlay**

*Spatial Application*



This will need to be considered.

The relevant policy from the P&D Code is:

| Flood Resilience | |
|---|---|
| PO 2.1<br>Development is sited, designed and constructed to prevent the entry of floodwaters where the entry of flood waters is likely to result in undue damage to or compromise ongoing activities within buildings. | DTS/DPF 2.1<br>Habitable buildings, commercial and industrial buildings, and buildings used for animal keeping incorporate a finished ground and floor level not less than:<br><br>In instances where no finished floor level value is specified, a building incorporates a finished floor level at least 300mm above the height of a 1% AEP flood event. |

OK

**Stormwater Considerations**

The subject land is located within the Water Resources Overlay, which seeks:

Desired Outcome 1: *the protection of the quality of surface waters considering adverse water quality impacts associated with projected reductions in rainfall and warmer air temperatures as a result of climate change.*

Desired Outcome 2: *Maintain the conveyance function and natural flow paths of watercourses to assist in the management of flood waters and stormwater runoff.*

The relevant policies to consider in this Overlay are:

| | |
|---|---|
| PO 1.8<br>Watercourses, floodplains (1% AEP flood extent) and wetlands are protected and enhanced by stabilising watercourse banks and reducing sediments and nutrients entering the watercourse. | DTS/DPF 1.8<br>None are applicable. |

WGA's SMP states that MUSIC modelling has demonstrated adequate treatment through permeable paving. The design of the subdivisions has not been given, but should include cross sections to demonstrate whether any earthworks will affect the existing embankments. The proposed footprint in the SMP appears to follow the currently developed/ road area, and therefore will not encroach on the embankment.

Other relevant policies include:

*Design in Urban Areas module*:

| Water Sensitive Design | |
|---|---|
| PO 5.1<br>Development is sited and designed to maintain natural hydrological systems without negatively impacting:<br>(a) the quantity and quality of surface water and groundwater<br>(b) the depth and directional flow of surface water and groundwater<br>(c) the quality and function of natural springs. | DTS/DPF 5.1<br>None are applicable. |

Detention has been calculated for the post development 1 in 100 year ARI (1% AEP) storm event, with discharge being at the pre development 1 in 5 year ARI. Controlled release of surface water is to the pipe network, and MUSIC modelling has confirmed adequate treatment is achieved . The permeable paving is unlined, with the aim of some natural attenuation, and this needs to be quantified through calculation based on area of infiltration and properties of the soil.

The River Torrens is a prescribed watercourse which isn't directly affected by the works. The area is a Groundwater Aquifer, and not sure what is required here – you can find both of these things by turning layers on in this "Interactive layered maps of SA" map viewer https://location.sa.gov.au/viewer/#

| | |
|---|---|
| PO 36.1<br>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<br>None are applicable. |
| PO 36.2<br>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<br>None are applicable. |

36.1 The design doesn't include common driveways, and assume the new road will become a public road

36.2 As above, but the detention calcs and MUSIC modelling have addressed this

| All non-residential development | |
|---|---|
| Water Sensitive Design | |
| PO 42.1<br>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<br>None are applicable. |
| PO 42.2<br>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<br>None are applicable. |
| PO 42.3<br>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<br>None are applicable. |

For each of the above, the detention calcs and MUSIC modelling have addressed this

*Land Division module*:

| Water Sensitive Design | |
|---|---|
| PO 10.1<br>Land division creating 20 or more 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<br>None are applicable. |
| PO 10.2<br>Land division creating 20 or more allotments 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 10.2<br>None are applicable. |

The detention calcs and MUSIC modelling have addressed this – my only remaining query is around rate of infiltration. If WGA are using this as part of their required attenuation, they would need to show simple calcs setting out what the drainage area is (unlined contact area with natural soil) and what the infiltration rate would be, based on their geotechnical information. There are boreholes on the site (from 5-10 years old) which indicate a mix of clay, silt, gravels and sands – this would need to be looked at in more detail with a reasonable/ conservative approach to looking at where the permeable/ infiltration areas were compared to soil qualities at the point of infiltration (bottom of the permeable paving construction).

# TRAFFIC
# REFERRAL RESPONSES

Be Engineering Solutions Pty Ltd
19 Young Street, Adelaide, SA 5000
www.be-engsolutions.com.au

# DEVELOPMENT APPLICATION REVIEW
# ADELAIDE CARAVAN PARK, RICHMOND STREET, HACKNEY

## 1. BACKGROUND

Be Engineering Solutions (BEES) has been engaged to undertake a review of the traffic impact of the proposed redevelopment of the Adelaide Caravan Park, Hackney taking into consideration the provided MFY report (December 2024).

The proposed development includes the redevelopment of the existing site including the following:

1. The Torrens Title division of the land into 46 total allotments;
2. The construction of a six-storey serviced apartments tower, with basement and at-grade parking and a private road; and
3. The creation of 2 public roads and one laneway.

The following reports/plans have been reviewed for the assessment:

- Fyfe land division plans;
- WGA Civil Engineering Plans;
- MFY Traffic report;
- GGA architectural plans for the six storey building.

This assessment is for a traffic assessment only and excludes an assessment on other elements. The review will has focussed on the following items:

- Proposed access points to the site;
- The functionality of the proposed public roads and cross sections (e.g. waste collection, emergency service vehicle use, etc);
- Vehicle movements throughout the site;
- Impact of development on the surrounding road network;
- The proposed shared-use path connecting Twelftree Reserve to Old Mill Reserve;
- Comments on the use of retractable bollards to separate the public road from the private road on the site of the multi-storey building;
- Comments on the absence of a vehicle turnaround area in the northeast corner of the site (i.e. the dead-end road);
- Parking provision for the six-storey building; and
- Anything else considered relevant and/or potentially problematic in this design.

A site visit was undertaken on the 23 December 2024 to assess existing conditions and understand the impact such a proposal may have on the local street network and the adjacent reserves/paths.

Where a traffic issue/question has been identified this will be listed in **bold** for Council to request further information from the applicant to address.



We acknowledge and pay our respects to the Kaurna people, the traditional custodians whose ancestral lands we gather on. We pay our respects to the Elders of the past, present and future.

## 2. EXISTING CONDITIONS

The existing site consists of 45 cabins and 40 powered sites. All pedestrian and vehicular access to the site is provided via access point 1 in the location plan as shown in Figure 1. Another minor access point (access point 2) is provided to an old disused church (labelled as dating back to 1906).

*Figure 1– Location plan – existing site*

The existing site has a colourbond fence with an overhanging vine along part of the fence hard up against the property boundary which causes some sight distance issues at the two vehicular access points. Figure 3 (adjacent church driveway) and 4 shows these sight distance issues.

**Figure 2 – Existing sight distance issues- Access point 2**

**Figure 3 – Existing sight distance issues- Access point 1**

## 3. PROPOSED DEVELOPMENT

The proposed development will consist of a new apartment building ('build to rent' co-living) and a land division of the subject site creating 46 residential allotments.

### 3.1. PROPOSED ACCESS POINTS

According to the plans there will be two new access points onto Richmond Street (one for the new apartment carpark and one for the new road allotments). The new access point for the apartments is approx. 50m to the west of the existing access point 1. Access to the proposed 46 residential developments is approximately where access point 2 is located. The proposed land division site is shown in Figure 4 with approximate locations of the existing access points also shown (there is also an existing off-street carpark immediately west of the development).

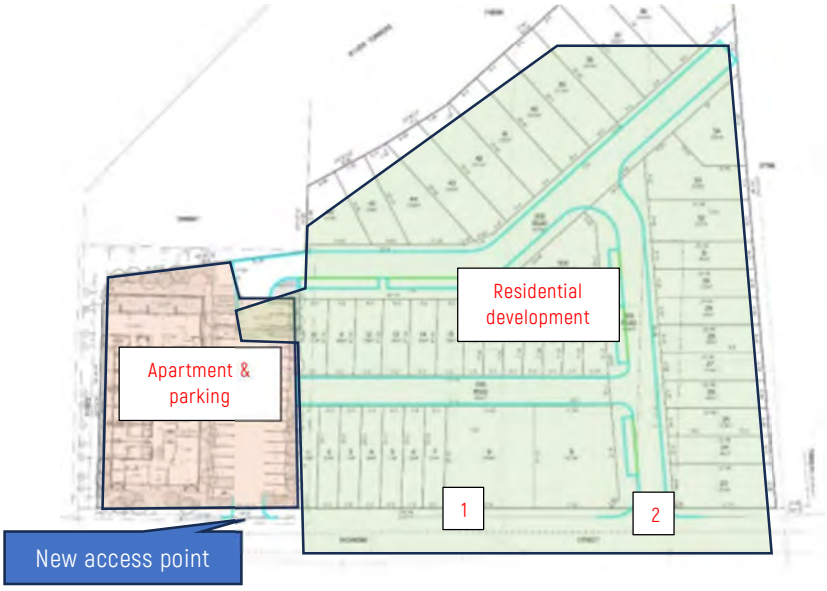



Figure 4 – Proposed land division (approx. location of existing access points identified as 1 and 2)

There are no details provided on what the new fence will consist of adjacent the new development. Furthermore, there is no discussion on emergency vehicle access for the development and how access will be provided given that bollards are proposed on the western most access road.

Recommendation:

1. Due to the very narrow verge (and footpath) width it is recommended that the corner cut-offs are increased to facilitate better sight distance (in accordance with Austroads requirements) from the main access to the new road development (new eastern access). The new western access point to the apartment building does appear to have some setback from the road but proposed tree planting at that location needs to be located so

as to not obscure sight distance for those motorists exiting the proposed development The sight lines for pedestrian safety as per AS 2890.1 (Figure 3.3) needs to demonstrate that requirement is met.

2. The applicant should be requested to provide some commentary on emergency vehicle access to the development taking into account how this would work with bollards installed within the western access road.

### 3.2. PROPOSED INFRASTRUCTURE & CARPARKING

The proposed development will have two new public roads (and one laneway) accessible from the eastern most access point and one new private road (assumed) with carparks for the new apartment building from the western most access point.

### 3.3. PROPOSED TRAFFIC GENERATION

The MFY report suggests a peak hour generation based on the RMS *Guide to Traffic Generating Developments (the 'Guide')* for the proposed development. This is an applicable guide to use to understand projected traffic generated by any development and has been referred to for other developments in South Australia. The 'Guide' suggests 0.65 trips/townhouse and 0.4 trips/dwelling for the build to rent apartments which equates to 61 movements in each of the peak hour (or as a guide an additional 610 vehicles/day noting that those volumes currently generated by the caravan park will be removed from the road network (ie approximately 200 vehicles/day), so an additional 410 vehicles/day are expected onto the surrounding road network. There is no discussion in the provided report of the existing traffic volumes in Richmond Street and the surrounding road network and what impact the proposed development will have on the operation of the local road network.

Recommendation:

1.Request the developer undertake a review of what impact the additional traffic generated by the proposed development would have on the surrounding road network.

### 3.4. PROPOSED SWEPT PATHS

The turn path templates to be used shall comply with the Australian Standard requirements which requires simultaneous movements to be provided for the B99 vehicle (with manoeuvring clearances) with the B85 vehicle (with clearances) to only be used for access to parking spaces. It is not clear that the B99 vehicle has been used for all turn path assessments. Also, some of the turn paths show 'overlap' with other turn paths. The swept paths need to ensure that they will accommodate simultaneous movements without conflict. Further swept paths and commentary shall be provided for the 90 degree carparks provided close to Richmond Street and the intersection of the western access point with Road 2 (refer Figure 5).

Further turn paths are required for access to some of the dwellings to demonstrate that access to the driveways can be met (including allotments 32 and 23 of which the MFY report states that driveways would be located outside the prohibited access zones but no justification on how access would be met is provided).

**Recommendation:**

**1.Request the applicant to confirm that the B99 vehicle has been used for all public spaces (including simultaneous movements) and that there are no conflicts as a result.**

**2. Further turn paths be provided demonstrating how access would be provided to some of the dwellings where access is tight and from the 90 degree carparks located close to intersections.**

## 3.5. PROPOSED APARTMENT BUILDING ('BUILD TO RENT' CO-LIVING)

The proposed apartment building will have 78 studio and one bedroom apartments, a café and co-working space.

### 3.5.1 Provided carparking

The apartment is proposed to have 26 publicly access carparks, 1 disabled park (external carpark) and 3 visitor carparks (presumably for café visitors) only accessed via the eastern most access point with 15 undercroft carparks only accessible by users of the apartment building (total 41 carparks for the apartment and 3 visitor spaces). The MFY report argues that as this is a 'build to rent' co-living apartment complex that less carparking provisions are needed for such a development quoting a similar arrangement in NSW of only a demand of **0.2** spaces per dwelling, meaning that the proposed ratio for the site per apartment/studio at **0.53 carparks/apartment** is satisfactory. Although it could be argued that less carparks could be justified for the site, there is no example quoted for South Australian conditions and any reference to public transport, location and likely take up or demand for off-street parking that may justify lower parking requirements for this development.

Furthermore, it is quoted in the MFY report that 'affordable housing' projects only require 0.3 parking spaces/dwelling under the Planning & Design Code (PDC) which is considered appropriate if the site is located within 200m of road reserve along for which a bus service operates (ie Hackney Road in this case).

The proposed carpark is proposed to be cordoned off with bollards towards the end of the carpark which means access to the visitor carparks for the café is not possible via the western most access. The new footpath adjacent the apartment complex is proposed at 2.0m wide. This width should be maintained by considering wheelstops in the carparks to stop the overhang of cars into the footpath.

Furthermore, there is no discussion on loading/delivery requirements for the proposed apartments/cafe. The applicant should provide commentary on the demand for this and how this could be accommodated.

#### 3.5.1.1 Carpark design

The MFY report states that the 'at grade' carpark will be proposed to the off-street parking standard requirements of AS 2890.1. However, the aisle width of 6.2m stated in the report conflicts with the aisle width of 7.2m in the WGA cross sections. Confirmation of the aisle width that will be provided noting that the wider aisle width is preferred given the high number of movements anticipated into and out of the carpark for the apartment complex and café (noting that the 6.2m aisle width still meets AS2890.1 requirements). One disabled parking (and shared area) space is proposed which meets the requirements of AS 2890.6, 2022 for the amount of parking proposed.

The carpark also has an access to the apartment complex carpark (15 spaces) via a 5.6m wide down ramp to an undercroft carpark with a maximum grade of 1 in 6 (with grade transitions). There are no details on how this carpark will operate (ie boom gate via a swipe card). The 90 degree undercroft carparks are proposed to be 2.5m wide, 5.4m long with a wheelstop and an aisle width of 6.8m which meets the requirements of AS2890.1. The last carpark (ie carparks 11 and 12) at the end of each aisle (ie a 'blind aisle as noted in the Australian Standard) should be increased in width by 300mm to 2.8m. A 1.0m extension is shown (as required by the standard) but the 300mm increase in width is not. A 2.2m head clearance is provided for the undercroft carparking area and as such 'low clearance' signs (and a 'flexible striker bar') shall be provided in accordance with AS 2890.1. It should be noted that the 2.2m headroom requirements is less than that required for people with disabilities but no disabled spaces are proposed within the undercroft carpark so this is not considered to be an issue.

It is also noted that 24 secure bike parking spaces is provided accessible from the undercroft carpark which exceed requirements under the PDC.

Recommendations:

1. It is recommended that the applicant provide a more relevant example to SA conditions for off-street parking requirements and a reference to public transport/active transport use to further justify the low number of carparks provided for the proposed development. Very little justification is provided for the reduced parking requirements for the café; an example should be quoted that justifies this low number of visitor parking proposed.

2. Also, it is suggested that the bollards remain 'down' at the northern end of the apartment 'open air' carpark when the cafe is open so that the visitor carparks are easily accessible as it would not be intuitive for users of the café to know they can access the provided carparks for the café from the eastern most access point.

3. Consider wheelstops for the western most 90 degree carparks to reduce the overhang of cars onto the footpath (noting that wheelstops are not without their disadvantages in relation to creating a potential trip hazard within the carpark).

4. It is recommended that the applicant provide further details on loading/delivery requirements for the proposed apartments/café.

5. The 'undercroft carpark' has the following amendments added:

    - An increase to the width of parking spaces 11 and 12 by 300mm
    - More information be provided on the operation (ie will a boom gate be provided?)
    - The carpark headroom height of 2.2m be signposted with a flexible striker bar (also confirmation that the minimum headroom of 2.2m will be provided throughout noting fire sprinkler, lighting fixtures, signs and other protrusions that may be applicable in this carpark)

#### 3.5.1.2 Waste Collection

The deliveries and waste collection for the café and the apartment complex is proposed via the western access point with the removal of bollards each time this is required. The waste collection for the apartment is proposed to be undertaken via a private contractor with waste collected from large bins from the ground floor via a roller door; there are no carparks provided for waste collection and for both it is assumed that they will block the aisle/road to accommodate these movements.

Recommendation:

1. It is recommended that the bollards remain down at the northern end of the carpark during business hours to enable easier deliveries to and from the site for waste collection for the apartments and associated café as it is assumed (there is no discussion in the report about how the waste collection would occur for the café) that waste collection for the café would need to be undertaken north of the 'bollarded' section (as per the turn path assessment provided in Figure 11 of the report).

2. It is recommended that a carpark be removed and a kerb ramp installed adjacent the roller door to the residential waste room to accommodate easy access to the residential bins for the private waste provider.

### 3.6. PROPOSED RESIDENTIAL DEVELOPMENT

The proposed residential development will consist of 46 individual residential development allotments with a footpath on both sides of each of the roads. There will be one laneway and two new roads that are proposed to be gifted to Council (assumed) as shown in Figure 5.

Figure 5 – Proposed residential development and access roads/laneway

### 3.6.1 Provided carparking

Although this cannot be confirmed as limited details have been provided on the housing type and driveway locations (WGA plans only provided), it has been reported that the residential development will have the following features:

1. Two-off street parking spaces/dwelling

2. 12 indent parking spaces throughout the entire development for visitor parking

Given that each block is of a reasonable size, it is assumed that each dwelling will consist of 3 bedrooms and as such the parking requirements have been assessed based on this type of development as described in the PDC.

The PDC states that for a residential dwelling with 2 or more bedrooms requires 2 spaces/dwelling with 1 to be covered which is shown to be the case on WGA plan number 230955-SK-CV-0001 (Rev D). The MFY report is silent on the provision of on-street visitor parking for such a development. The PDC (DTS/DPF 24.1) states that a minimum of 0.33 on-street car parking requirements is required per dwelling which equates to 16 carparks (rounded up as recommended in the DPC) required for 46 allotments (12 only has been provided); however, a slight amendment of the parking bays (see recommendation below) is likely to be able to accommodate additional parking close to the 16 required. If further parking is required then additional indented on-street parking could be provided outside the reserve (lot 500) on 'Road 2'.

It is considered that the proposed indent parking on Road 1 is located too close to the laneway (blocks sight distance) and also does not have tapers provided on the indents to facilitate easy access/egress from the carparks as shown in Figure 6.

**Recommendations:**

**1.It is recommended that the indented parking is located 10m from any intersections to ensure sight distance from roads/laneway is not reduced, 'joined' together where applicable (noting a need to provide landscaping/trees to balance amenity/greening with parking requirements) and tapers are provided at either end as shown indicatively in Figure 6 (additional indent parking on-street parking could be provided outside the 'Reserve' on 'Road 2' if required).**

**Figure 6 – Indent parking bay assessment and suggested recommendations**

### 3.6.2 Road reserve width

The road reserve width for the proposed two access roads and laneways needs to consider provision for the following:

1. Footpath and pedestrian/cyclist access (and connections);
2. Services;
3. Trees/landscaping; and
4. Streetlights.

The road reserve width is 12.3m where indent parking is provided and 10m wide where there is no indent parking with a 6.0m wide carriageway width for both scenarios. This width is considered satisfactory as the indent parking bay width is proposed at 2.3m. The 6.0m width will provide adequate width whilst encouraging lower speeds; however, the location of the driveways for each allotment should be provided to demonstrate how users will access their property and the location and design for each driveway noting that 'flared' driveways are also preferred to provide easy access/egress (it is assumed that as a result allotments 1-9, 23-32, 35-43 will all be one continuous driveway. The MFY report is silent on how this will look; will there be a rollover kerb or the access provided at road level?

#### 3.6.2.1 Footpaths and pedestrian/cyclist access

The two proposed access roads will require a continuous footpath (at a minimum width of 1.5m; desirable 1.8m; reference: *South Australia's Active Travel Design Guide* (ATDG) – Table 6) on one side of the road for the entire length in the location shown in Figure 7 with kerb ramps at crossing points (this is shown to a certain extent on WGA plan number 230955-SK-CV-001). In accordance with the ATDG, '*it is recommended to adopt a width of 1.8m as the desirable walking path in areas with low pedestrian volumes. Although a narrower width of 1.5 metres could allow a wheelchair and a parent with a pram to pass, 1.5m is considered a minimum and not an optimal design width*'. It is also suggested that footpaths link to Twelftree Reserve and Old Mill Reserve to encourage active transport use to and from the development (like that shown on the same WGA plan); this is particularly important given the low number of on-street carparks proposed as part of the entire development, the need to encourage active transport and the superior alternative of Richmond Street of linking Old Mill Reserve to Twelftree Reserve. It should also be noted that the link shown on the WGA plans show a new path link in Twelftree Reserve; this is important to link to the existing path network negating the need for some cyclists to divert onto the narrow Richmond Street footpath and/or road, noting that this would need to be installed on Council reserve. Although outside the development boundaries, the construction for that path should be provided by the applicant in liaison with Councils Parks and Gardens Manager (or equivalent).

The cross sections in the MFY report (Figures 4 and 5 of their report) show a shared path on one side of the road at a width of 2.5m; in reference to the ATDG, the desirable minimum of 3.0m in width should be adopted with a minimum lateral clearance of 0.5m for trees/light poles etc.

The road at the interface to Twelftree Reserve will need to set back from the property boundary for any services/footpath/access requirements as the current location shows the edge of the southeastern portion of road hard against the property boundary.

Figure 7 – Proposed footpaths/pedestrian desire lines

It is also suggested that a continuous footpath be provided across the laneway interface with 'Road 1' to encourage low speed entry/exit like that shown in Figure 8 (at Lightsview). It is assumed that as per WGA plan 230955-SK-CV-0001 that this treatment will be provided; however, such a treatment has not been shown for the western most access point (to the apartment complex carpark) from Richmond Street. Given the low traffic volumes in the area and to encourage active transport, further consideration should also be given to providing priority for pedestrians and cyclists with a continuous footpath at other locations where the footpath crosses the road.

Figure 8 – Suggested continuous footpath type treatment across laneway (and western entrance from Richmond Street)

Recommendation:

1. More information needs to be provided from the applicant on the road reserve details including services, footpaths (and associated connections noting the requirements for a footpath width minimum of 1.5m, desirably 1.8m), kerb ramps, landscaping and streetlighting as described above.

2. Consideration to be given to the provision of a 3.0m shared path corridor in lieu of 2.5m (with a lateral clearance of 0.5m from trees/light poles where required).

3. Consideration to be given to a continuous footpath treatment at any interface with laneways/private road as a minimum and it would be desirable to encourage low speeds and encourage active transport to have a continuous footpath at other path interfaces with road/s noting the importance of ensuring vehicle/pedestrian sight lines are considered.

#### 3.6.2.2 Turnaround area

It is also noted that the eastern leg of the east-west road (ie Road 2) terminates without a turnaround area approximately 40m from the north-south road with a turn path assessment provided by MFY that shows motorists would need to use the driveway of lot 35 to perform a turning manoeuvre. A cul-de-sac or hammerhead should usually be provided for these types of manoeuvres. However, other Councils have accepted that if the waste provider is satisfied that they are happy to reverse this distance (maximum generally in the order of 50m) then such a proposal could be acceptable as it would be unlikely that non-local motorists would use that section of road.

However, if Council requires a turnaround area, then a hammerhead could possibly fit in the location as shown in Figure 9 but will need to be mindful of turnaround requirements (and shared path conflict) for a large (99th percentile) car, avoiding existing trees and the provision of a footpath connection to Twelftree Reserve.

Figure 9 – Possible location for hammerhead turnaround area (source: WGA plan 230955-SK-CV-001)

Recommendation

1.Consideration be given to the provision of a hammerhead turnaround facility (avoiding conflict between the shared path and turnaround area) based on the above assessment.

#### 3.6.2.3 Services

There is no discussion on service requirements for the development and where they will be placed (except for a cross section on WGA plan 230955-SK-CV-003 which shows water, stormwater and sewer (but not power or telecommunications)). The road reserve width needs to consider these requirements for both the roads and the laneway to ensure they will fit within the proposed road reserve width.

Recommendation:

1. Ensure services can fit with required clearances within the proposed road reserve width.

#### 3.6.2.4 Trees/landscaping

It is supported that trees/landscaping be provided in the road reserve in strategic locations to improve greening (as shown on WGA plan 230955-SK-CV-0001); however, there is no discussion on how this will be achieved in relation to other potential conflicts. It is also noted that there are a number of existing trees on the site that would be required to be removed as part of this development and it is assumed that an arborist report has been undertaken identifying those trees requiring removal and associated offsets to accommodate.

Recommendation:

1. The location for trees needs to take into account potential conflicts with parking/door opening, footpath/shared path clearances and vehicle turn paths. There needs to be a discussion on how this will be achieved in the traffic report.
2. The species and suitability should be discussed with Councils Parks and Gardens Manager (or equivalent) taking into account maintenance and impact on infrastructure.

#### 3.6.2.5 Streetlights

Streetlights (and associated power requirements) have not been shown on any of the cross sections or plan views. This is essential infrastructure for the development and the layout and locations need to be designed to the appropriate Australian Standards requirements. Lighting tariff details also needs to be provided (and get the necessary approvals from SAPN) so that Council is aware of these additional assets and associated infrastructure.

Recommendation:

1. The applicant install streetlighting within the development and ensure the design is to SAPN's and Councils requirements.

#### 3.6.2.6 Waste Collection

The MFY report suggests that waste collection be undertaken at two locations only with residents required to wheel their bins excessive distances (up to 120m) to accommodate. It is suggested that such a proposal be discussed with Councils Waste Officer and Waste provider (eg Cleanaway) to discuss whether such a proposal is feasible. It is also not considered practical from a traffic perspective as the collection would block traffic at the intersection of the two roads whilst collection is occurring, and it is suggested that bin collection is done individually for each property rather than at two locations.

Furthermore, the location for the collection of the bins shown in the MFY report would be across the driveway of lot 32 so would not be feasible as shown in Figure 10 (extract from WGA plan 230955-SK-CV-0001).

No discussion has been made for the storage location for bins within each property and also how the waste will be collected from the laneways; it can't be expected that (say) a resident from allotment 10 would wheel their bins out onto Roads 1 or 2 each week.

Figure 10 – Intersection treatment of roads 1 & 2 and inset MFY plan showing potential location for bins (which contradicts WGA plan) (source: WGA plan 230955-SK-CV-0001)

Recommendation:

1. Suggest that waste collection be undertaken at each individual property rather than at two locations (to be confirmed by Councils Waste Officer and Waste Provider).

2. Consideration and discussion be given to how waste will be collected from the allotments within the laneway (eg could the laneway continue to the western most access point as an 'exit' only?)

#### 3.6.2.7 Open Space

There is no discussion on open space requirements for the development and what will be contained in the reserve area. There may be requirements to irrigate the reserve and as such water meters and associated irrigation infrastructure will need to be included in any service requirements within the road reserve.

## 4. CONCLUSION

An assessment has been undertaken of traffic requirements/issues taking into account the provided MFY traffic report that should be further considered for the proposed development. The assessment has identified a number of issues/questions of the applicant that should be addressed to Council's satisfaction.

It should be noted that the assessment has been undertaken on the traffic and pedestrian/cyclist requirements only (the planning report has not been provided for review and as such some of the items highlighted may have been addressed in that report) with some high level commentary on other items that need to be further considered to ensure that Council are satisfied that the development will be sustainable and ensure they are clear on the new assets they will be taking on.

Please do not hesitate to call me on 0400 290 233 or via email on cdunn@be-engsolutions.com.au below to discuss any of the above further.

Yours Sincerely,

**Chris Dunn**
**Technical Director**
**Be Engineering Solutions Pty Ltd**

## Kieran Fairbrother

**From:** Rebecca Van Der Pennen
**Sent:** Friday, 17 January 2025 4:41 PM
**To:** Kieran Fairbrother; Jared Barnes; Geoff Parsons
**Cc:** Josef Casilla
**Subject:** RE: RFI for Adelaide Caravan Park
**Attachments:** Hackney Bikeway - Richmond Street Overall Concept 2 for consultation.pdf

Hi Kieran,

Sorry I haven't given you much time to go through this email. My comments are as follows;

### Land Division

- If the Council requests a change in property boundary consideration will need to be given for the vehicle turnaround at the north-west corner of the site. I note that a reliance on private property to undertake this manoeuvre is not supported unless sufficient conditions are placed on the land to allow access.

### Civil Works (roads and footpaths)

- I note for your reference the DIT active design guide has a shared path minimum width of 2.5m so there may be push back on this. Through a desktop review the section of path that the footpath will connect into on the west side is currently 2.5m and the east side is 2m. The concept for the Richmond Street shared use path shows a 3.6m path which will likely cater to higher cyclist volumes.
- Waste collection for properties located on laneway should be undertaken within the laneway for properties facing Richmond Street (at a minimum).

### Traffic & Car Parking

- 1 B) ii) refers to the continuous shared use path. Where a continuous shared use path has not yet been provided. Suggest removal of the word continuous.
- 1 D) no dedicated loading area for deliveries either?
- 1 H) ii) and the spaces on the north side of the carpark labelled visitor.
- 2) and allotment 9. Safe vehicle and pedestrian sight distances.
- 3) Continuous footpath at **all** intersections, but at minimum, at access points to the private car park and laneway access. Whether a continuous footpath is required will need to be considered at this stage as it will likely impact the site drainage. I have shown the current concept plan for Richmond Street which shows that we are planning on implementing a continuous footpath at the current caravan park/Richmond Street intersection. Key reason for requesting this treatment is to improve pedestrian and cyclist safety throughout the development and ensure vehicle speeds are slow.
- 6) car park is to meet Australian standard (spaces 11 and 12 are not wide enough)
- The applicant should also indicate how the development will manage the private open-air car park to ensure spaces are utilised for visitors/residents of the complex. With no management there will likely be long-term parkers usings the spaces to commute to the city. There is also the potential that the development may feel the need to install a boom gate at the access off of Richmond Street to facilitate this or timed parking controls which will both impact the operation of the site. Timed parking controls will also likely need to be implemented on the public road spaces too. This should be addressed in the traffic report.
- Pedestrian sightlines also need to be provided at the laneway/footpath interface. The current property boundaries do not provide the necessary sightlines and should be amended. Refer AS2890.1 Figure 3.3.
- Reference to sufficient sightlines at the private road access in the traffic report however there are permanent obstructions (existing trees) within the shown sightline triangles (Figure 16) due to the road curve. Further justification on the suitability of this access location is required.

Let me know if you need any clarification on the above.

Thanks,

Rebecca van der Pennen
**Traffic Engineer**

**City of Norwood Payneham & St Peters**
175 The Parade, Norwood SA 5067

## Kieran Fairbrother

**From:** Rebecca Van Der Pennen
**Sent:** Monday, 2 June 2025 5:25 PM
**To:** Kieran Fairbrother
**Cc:** Jordan Ward; Geoff Parsons
**Subject:** RE: Adelaide Caravan Park DA - Response to RFI

Hi Kieran,

Sorry for the delay, traffic comments are as follows;

Waste Collection

- Bin collection location for allotmentsT10-22 is to be confirmed. A bin placement plan for the site should be considered to ensure that sufficient space has been provided within the verge to facilitate collection.
- The provided bin pad solution for the northeast corner of the site will only cater for a maximum 2 properties. It is still unclear how the bin collection is intended to operate at this location. More information is required on the waste collection at this location including;
    - Swept paths at the intersection
    - Side of the road bins will be collected on
    - Location of the bins
- The raised driveway adjacent to T34-37 is not supported due to potential conflicts with the shared use path.
- Can we include a planning condition that waste collection is to occur within the property boundary for the accommodation complex?

Car Parking

- Due to the location of the site the Council's preference is for the on-street car parking to be signed 3P 9am-5pm Mon-Fri.
- The applicant has provided justification for the planning code car parking shortfall and believes that the parking provision is suitable for this type of facility. Residents will not be able to access residential permits outside of their street. There is a lack of nearby on-street car parking available to be utilised by this development and therefore the parking provision is supported from a traffic perspective.

Road Cross Sections

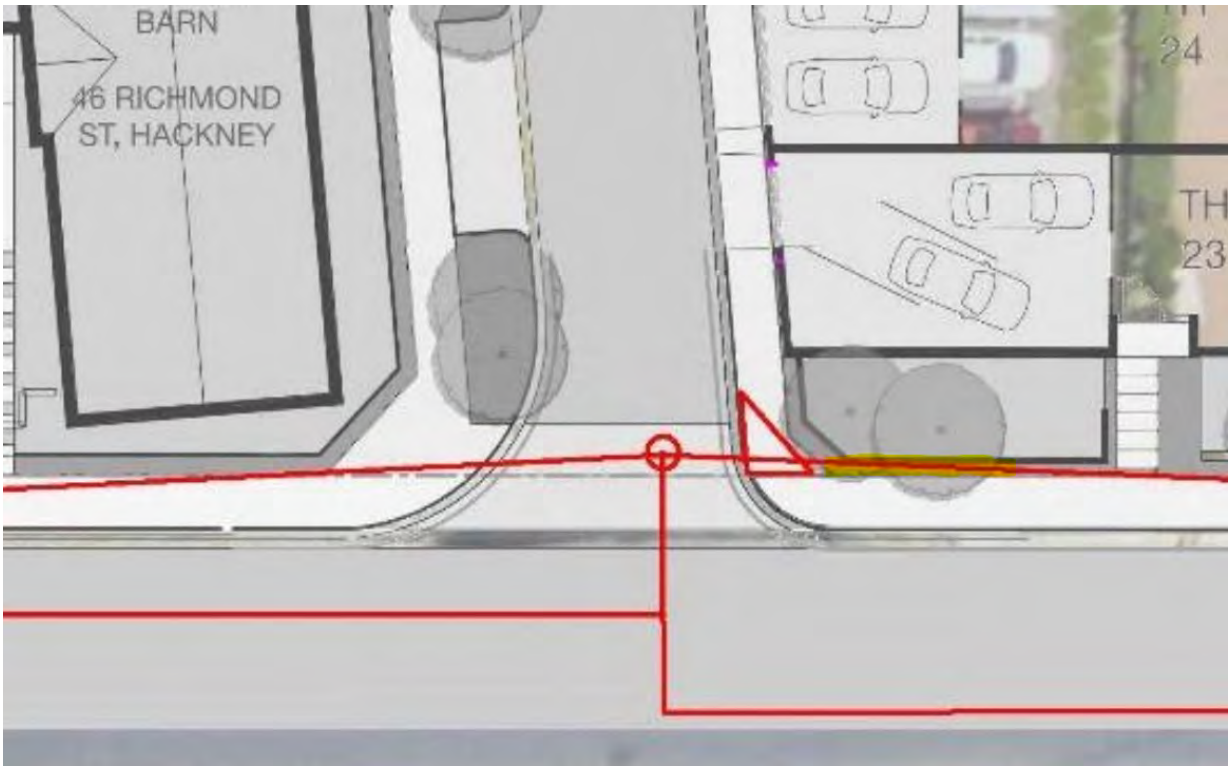
- The laneway cross section is shown to be 7.5m wide. The traffic lanes within this cross section should be between 2.7-3m wide. With the number of property access points along the laneway space for street lighting should be provided whilst considering access to the properties.
- The provided road cross sections indicate the width of on-street car parking bays to be 2.3m wide. On-street car parking bays should be 2.1m in wide to allow for additional space in the road verge.

Intersection Safety

- The Councils desired outcome at the intersection of the laneway and new road is for a continuous raised pedestrian crossing. It is uncertain whether this can be achieved in addition to the required pedestrian sightline triangle based on the information provided. The driveway from dwelling T22 is also shown to be located within the prohibited access zone as per Figure 3.1 Figure 2.1 AS2890.1. The applicant should provide further consideration at this intersection in order to meet these requirements. It is noted that the access to the laneway could be considered similar to a property crossover, example below showing pedestrian priority and sightlines. A mountable kerb profile may be required with the shown alignment of the footpath to meet levels.

*Laneway access example*

- Turn paths shown for service vehicle onto Richmond Street are to be confirmed. Richmond Street width not shown and it is uncertain whether the turn paths are contained within the road.
- There is the potential for vehicle conflicts at the turnaround due to the proposed visitor car parking (turn paths to access the car parks requires the full width of turnaround to exit). In addition sightlines have not been considered at this intersection and there is an on-street car parking space provided within 10m of the intersection. Please review intersection sightlines at this intersection and consider raising the turnaround (similar to the raise driveway link) to facilitate slower and safer vehicle movements. A raised turnaround will also assist in providing a consistent shared use path along the length of the new road and support a shared environment.
- At the intersection of the basement car park at private road pedestrian sightlines should be considered at the exit.
- Vehicle sightlines at the intersection with Richmond Street still show conflict with the property boundary on the eastern side as shown in the image below.




*Vehicle sightline conflict with property boundary at the New Road and Richmond Street intersection.*

Pedestrian Connectivity

- A footpath should be provided along the front of T23-34 in Twelftree Reserve. Access to the reserve should not be provided without sufficient connection.

Additional Comments

- Further information is required on service and delivery vehicles for the co-living building. Please clarify largest expected delivery vehicle for the site and what other service vehicles may require the bollards to be removed.
- Property access to allotments T44 and T45 to be demonstrated due to proposed angle of driveway.
- A traffic control plan shall be provided as part of the detailed design drawing set.

Let me know if you have any questions.

Thanks,
Rebecca van der Pennen
**Senior Traffic Engineer**

**City of Norwood Payneham & St Peters**
175 The Parade, Norwood SA 5067

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**From:** Kieran Fairbrother
**Sent:** Thursday, 15 May 2025 8:25 AM
**To:** Rebecca Van Der Pennen Josef Casilla Jared Barnes
**Cc:** Geoff Parsons
**Subject:** Adelaide Caravan Park DA - Response to RFI

Good morning all,

We have received a response to the extensive RFI issued for this development (attached). I have updated the Comments Register where I can, with the applicant's responses (where provided) – feel free to edit them as you see fit.

In short, it looks to me like the applicant has addressed a lot of our concerns, albeit some remain outstanding. Notably:

- For your benefit Jarred, we received advice from Norman Waterhouse that suggested:

*Advice of confidential nature, ommitted*

- The proposed Lot 500 reserve has not been removed from the plans despite me stating that we will not accept this vesting in Council. I will discuss this further with the applicant and get them to repurpose this land.
- The shared path appears to have some positive improvements (width, clearances, etc).
- No turnaround area has been provided to the NE dead-end road. The applicant has instead proposed an innovative solution for waste collection with a 'bin pad' – I have scaled this and measured it to be 2.9m wide, and I assume it will service 4 or 5 dwellings. I will clarify this with the applicant. (We will need to internally consider if this is acceptable – is it even big enough?).
- They wish to address street lighting, pit and pipe sizes, and pram ramps at detailed design stage.

I have linked below the relevant (amended) plans that have been provided in response to the RFI, grouped by the person responsible for helping me review certain aspects of the RFI.

| Jared | Josef | Rebecca |
|---|---|---|
| Updated Land Division Plan | Updated Land Division Plan | Updated Land Division Plan |
| Updated Landscape Plans | Geotech (response) | Traffic Report (response) |

| | | |
|---|---|---|
| Updated Civils & SMP | Updated Civils & SMP | Updated Master Plan Drawings |
| Updated Master Plan Drawings | Updated Master Plan Drawings | |

Would you all mind please reviewing your respective sections, and the applicant's responses, and letting me know if you have any further comments? Either by response email or by updating the comments register?

If there is any chance of getting comments back by Tuesday 27 May that would be great. If you can't achieve this, please let me know ASAP. I am also happy to facilitate another roundtable discussion to go through things if that is the preference (just note that within the next fortnight I only have Monday 19th and Tuesday 27th where I would be able to do this).

@Josef, please let me know if you think we need to flick any of this to Melinda (Tonkin) or Jordan (FMG) for their review. If so, I'd like to do that sooner rather than later. Similarly, @Rebecca, let me know if you think we need BE to look over any of this. Also happy for Jordan to be involved if you/he wish. And @Jared, if you think Matt Cole should be involved in discussions around street plantings feel free to involve him.

Thank you all in advance for your continued assistance and guidance with this one!

Regards,

Kieran Fairbrother
**SENIOR URBAN PLANNER**

**City of Norwood Payneham & St Peters**
175 The Parade, Norwood SA 5067

## Kieran Fairbrother

**From:** Rebecca Van Der Pennen
**Sent:** Tuesday, 26 August 2025 5:16 PM
**To:** Kieran Fairbrother
**Cc:** Jordan Ward
**Subject:** RE: Updates re: progress of Development Application 24040449

Hi Kieran,

My outstanding concerns are as follows;

Intersection Safety

- The Councils desired outcome at the intersection of the laneway and new road is for a continuous raised pedestrian crossing. It is uncertain whether this can be achieved in addition to the required pedestrian sightline triangle based on the information provided. The driveway from dwelling T22 is also shown to be located within the prohibited access zone as per Figure 3.1 Figure 2.1 AS2890.1. The applicant should provide further consideration at this intersection in order to meet these requirements. It is noted that the access to the laneway could be considered similar to a property crossover, example below showing pedestrian priority and sightlines. A mountable kerb profile may be required with the shown alignment of the footpath to meet levels.

- Th applicant has responded to vehicle sightlines at the intersection with Richmond Street in their traffic letter, however from a traffic perspective this answer is not sufficient. Vehicle sightlines should be provided within the road verge in order to ensure that no physical obstruction can be installed restricting sightlines.

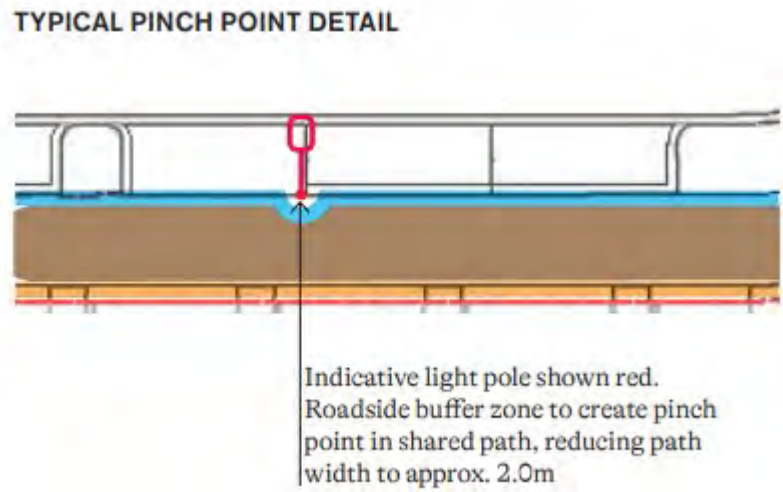
Waste Collection

- Bin presentation areas have been provided however further information is required on the following;
    - Clearance between the bins has not been shown on the plans. As per the east waste website, 1m clearance should be provided between other bins and obstacles.
    - Further information is required on the distances required for the properties to move their bins for collection and whether this is suitable (i.e. property TH 10 may have to wheel their bin the entire length of the laneway and around the front of the property to access the bin presentation location)
    - Potential consideration for parking controls in place on bin collection days to provide additional parking in the development in lieu of bin pads.

Road Cross Sections

- Further information is required on where the street lights will be located within the laneway in order to ensure that vehicle access to properties will not be restricted.
- A typical pinch point detail has been provided in the landscaping plans that indicates the path width will be reduced to 2m where light poles are present. This has been a concern from the start of the discussions that if sufficient space isn't provided in the road cross section for service we will have a low quality outcome.

Indicative street light locations have been shown on the plan with none shown in locations that require a pinch point so this should be clarified.




- Turn paths have been provided for the raised driveway link that demonstrate that a vehicle can enter/exit the properties without utilising the shared use path, however it is likely more convenient for this space to be utilised if all on the same level as shown in the cross section. The shared path should be constructed with trafficable pavement in order to address this concern at minimum. The conflict between pedestrians and vehicles is still present. Specifically the sightlines from dwelling TH 35 to the entry to the reserve will have the greatest conflict depending on the proposed treatment at the end of the link. In addition a treatment to restrict vehicles driving along the shared use path into the reserve should be considered.

Additional Comments

- Traffic plans shown in response to question 8 show conflicting parking arrangement compared to landscaping plans.
- Permanent bollards shown on the landscaping plans in two locations. To be clarified. If pedestrian connectivity from the laneway to the private property is proposed a safer pedestrian connection is required. The applicant should indicate the treatment at this location.
- At the intersection of the basement car park and private road pedestrian sightlines should be considered at the exit (figure 3.3 AS2890.1).

Let me know if you have any questions about the above comments.

Thanks,
Rebecca van der Pennen
**Senior Traffic Engineer**

**City of Norwood Payneham & St Peters**
175 The Parade, Norwood SA 5067

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**From:** Kieran Fairbrother
**Sent:** Tuesday, August 19, 2025 7:58 AM
**To:** Rebecca Van Der Pennen
**Subject:** FW: Updates re: progress of Development Application 24040449

Hi Rebecca,

In response to our last RFI, please see attached an updated traffic report from MFY for this development.

Can you please let me know if you have any outstanding concerns?

Regards,

Kieran Fairbrother
**SENIOR URBAN PLANNER**

**City of Norwood Payneham & St Peters**
175 The Parade, Norwood SA 5067

**From:** Matilda Asser
**Sent:** Wednesday, 13 August 2025 11:57 AM
**To:** Kieran Fairbrother Marcus Rolfe
**Cc:** Henry Perks | Aspen Group
**Subject:** RE: Updates re: progress of Development Application 24040449

Hi Kieran

Aspen have provided some updated documents. Could you please review and then any final changes can be made.

1. MFY have provided a further report which provides the additional turn path analysis, bin pad and waste collection detail, and sightline commentary.

2. An updated copy of the plan of division is provided. This includes a 3m wide easement for stormwater infrastructure.

3. Landskap's updated masterplan now includes light pole and street tree locations, as well as street species.

4. Landskap have also reconsidered the central Reserve 500 area. This will now include 4x public/visitor parking spaces and a reduced area of landscaping. The landscaped area continues to be very low maintenance, not unlike the areas of landscaping and tree planting along the shared path that would need to be maintained by Council.

   These changes respond to comments from you and Geoff regarding minimising maintenance obligations while still providing a functional space for the public.

   Note that the reserve area cannot be converted to a new allotment as this would not provide suitable access, sightlines etc. It is also not as simple as including this area within the adjacent allotments.

   Given that this is delegated to Council's CEO, could you please present this updated proposal to them for consideration.

   I note that this revised proposal for the central reserve is not captured in the land division documents just yet.

Kind regards

URPS SHAPING GREAT COMMUNITIES

**Matilda Asser** *(she/her)*
Consultant
High Rise & Commercial Development

27 Halifax Street
*Enter via Symonds Pl*
Adelaide SA 5000
08 8333 7999

## Kieran Fairbrother

**From:** Rebecca Van Der Pennen
**Sent:** Monday, 13 October 2025 3:27 PM
**To:** Kieran Fairbrother
**Subject:** RE: ACP queries from Council

Hi Kieran,

My comments in response to points 1 & 5 are below;

1. I am not fully convinced that there is sufficient space provided in the verge to meet these requirements, noting the footpath is shown at the back of kerb which indicates the change in level would need to be addressed in only a short length and the kerb returns have been squared off meaning vehicle the previously provided turn path would no longer work.

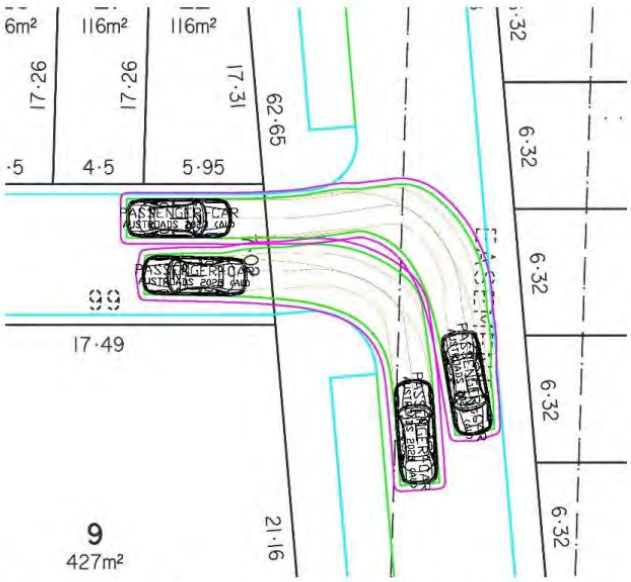


***Figure: 10 Simultaneous movements at laneway intersection***

However, as the applicant has indicated that there is sufficient space to provide a continuous footpath and the required pedestrian sightlines this can be further reviewed at detailed design with the intent that the applicant needs to meet the following;
- A continuous footpath treatment is provided
- Pedestrian sightlines are required to be provided as per AS2890.1 Figure 3.3. It is noted that this standard is for off-street parking however it is the minimum requirement expected by the Council for pedestrian safety.
-The laneway access should be sufficiently wide enough to cater for simultaneous passenger vehicles movements.

5. The indicative plans provided show *suggested* street lighting locations however the following concerns are still present;
- The street light has been shown by an icon, however there is no detail on dimensions or the provision of mechanical protection (Josef may have more requirements about this). This is important as the provided swept paths may be impacted.
- For the swept paths provided the garage door width assumed for the turn paths should be noted as supporting information (the garage door width can impact the required aisle width for manoeuvring requirements) and at the western end the following conflicts are present within the 300mm manoeuvring clearance;
    - The edge of the garage door/wall; and
    - The end of the laneway. The end of the laneway treatment is unclear if it is a fence or kerb or landscaping treatment.
- The street light on the eastern end has also been shown near/within the required pedestrian sightline triangle which is to be kept clear of obstructions. This is an additional considerations for point 1.

Let me know if you have any questions and sorry for getting back to you so late.

Thanks,

Rebecca van der Pennen
**Senior Traffic Engineer**

**City of Norwood Payneham & St Peters**
175 The Parade, Norwood SA 5067

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**From:** Kieran Fairbrother
**Sent:** Tuesday, September 30, 2025 11:06 AM
**To:** Rebecca Van Der Pennen
**Subject:** FW: ACP queries from Council

Hi Bec,

Please see attached and below.

I haven't reviewed yet, but have just flicked it on straight away to avoid delays. When you are back in the office can you please review and let me know your thoughts on their response?

Regards,

Kieran Fairbrother
**SENIOR URBAN PLANNER**

**City of Norwood Payneham & St Peters**
175 The Parade, Norwood SA 5067

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**From:** Henry Perks | Aspen Group
**Sent:** Tuesday, 30 September 2025 10:52 AM
**To:** Kieran Fairbrother
**Subject:** FW: ACP queries from Council

Hi Kieran,

Please see below and attached responses from MFY in relation to the traffic issues raised in your email on 23 September 2025.

I am addressing items 3, 4 and 6 and still being addressed.

Regards,
Henry

**Henry Perks**
Development Manager

aspengroup.com.au
Suite 21, 285A Crown Street, Surry Hills NSW 2010
aspen living aspen lifestyle aspen holidays

**From:** Melissa Mellen
**Sent:** Thursday, 25 September 2025 6:50 PM
**To:** Henry Perks | Aspen Group
**Subject:** RE: ACP queries from Council

Hi Henry,

As requested I have reviewed the matters below raised by Council as they relate to traffic and parking matters and provided additional response to the relevant queries. The responses are embedded within the email from Council.

Thanks,

Mel

**Melissa Mellen | Director | MFY Pty Ltd**

Unit 6/224 Glen Osmond Road, Fullarton SA 5063

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BUSINESS WOMEN'S AWARDS
2010 NATIONAL WINNER
2010 TELSTRA SOUTH AUSTRALIAN BUSINESS WOMAN OF THE YEAR

**From:** Henry Perks | Aspen Group
**Sent:** Tuesday, September 23, 2025 11:05 AM
**To:** Melissa Mellen
**Subject:** ACP queries from Council

Hi Mel,

See below final issues from Council.

I will give you a call to discuss but we really need to get back to them asap to progress the DA to the next possible CAP meeting.

Separate to those things:

1. Our senior traffic engineer has again raised the following:
    - The Councils desired outcome at the intersection of the laneway and new road is for a continuous raised pedestrian crossing. It is uncertain whether this can be achieved in addition to the required pedestrian sightline triangle based on the information provided. The driveway from dwelling T22 is also shown to be located within the prohibited access zone as per Figure 3.1 Figure 2.1 AS2890.1. The applicant should provide further consideration at this intersection in order to meet these requirements. It is noted that the access to the laneway could be considered similar to a property

crossover, example below showing pedestrian priority and sightlines. A mountable kerb profile may be required with the shown alignment of the footpath to meet levels.

The proposed lane will be a public road. It will have the characteristics of a lane and a slow speed traffic environment and the crossover access will reinforce the nature of the road but nonetheless it will be a public road.
It is appropriate when considering the design criteria of a trafficable area to consider the design function and adopt the relevant design guidelines.

If the road design criteria are to be considered, then the pedestrian sight distance triangle is not relevant as this relates to a driveway at its entry to the road.

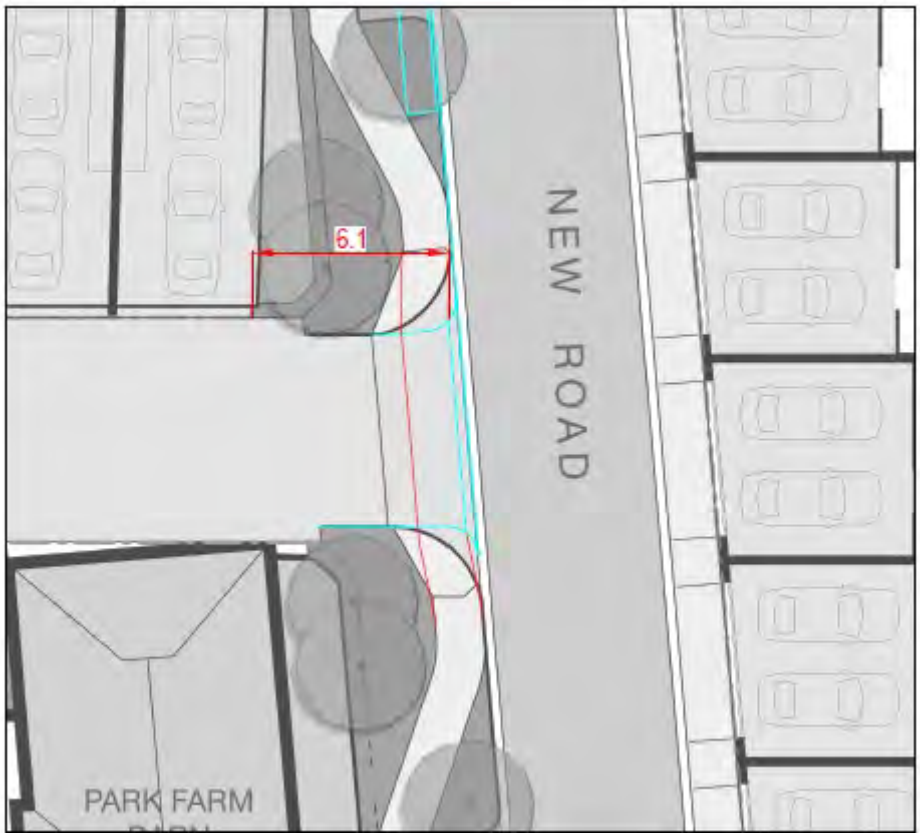
If the driveway design criteria are to be considered, then the prohibited access zone is not relevant in respect to the driveway to No 22 because it is a driveway exiting to a driveway.

When considering treatments for road elements that are not specifically considered in Austroads or Australian Standards (such as the design of lanes), it is best practice engineering to understand the intent of the facility and design it to be safe and convenient for all road users rather than attempt to apply conflicting Standards which may not result in the best outcome.

The construction of a continuous pedestrians treatment at the intersection adjacent Lot 22 can be readily achieved. The cyan lines on the plan below illustrate a crossover and raise footpath consistent with the image above.

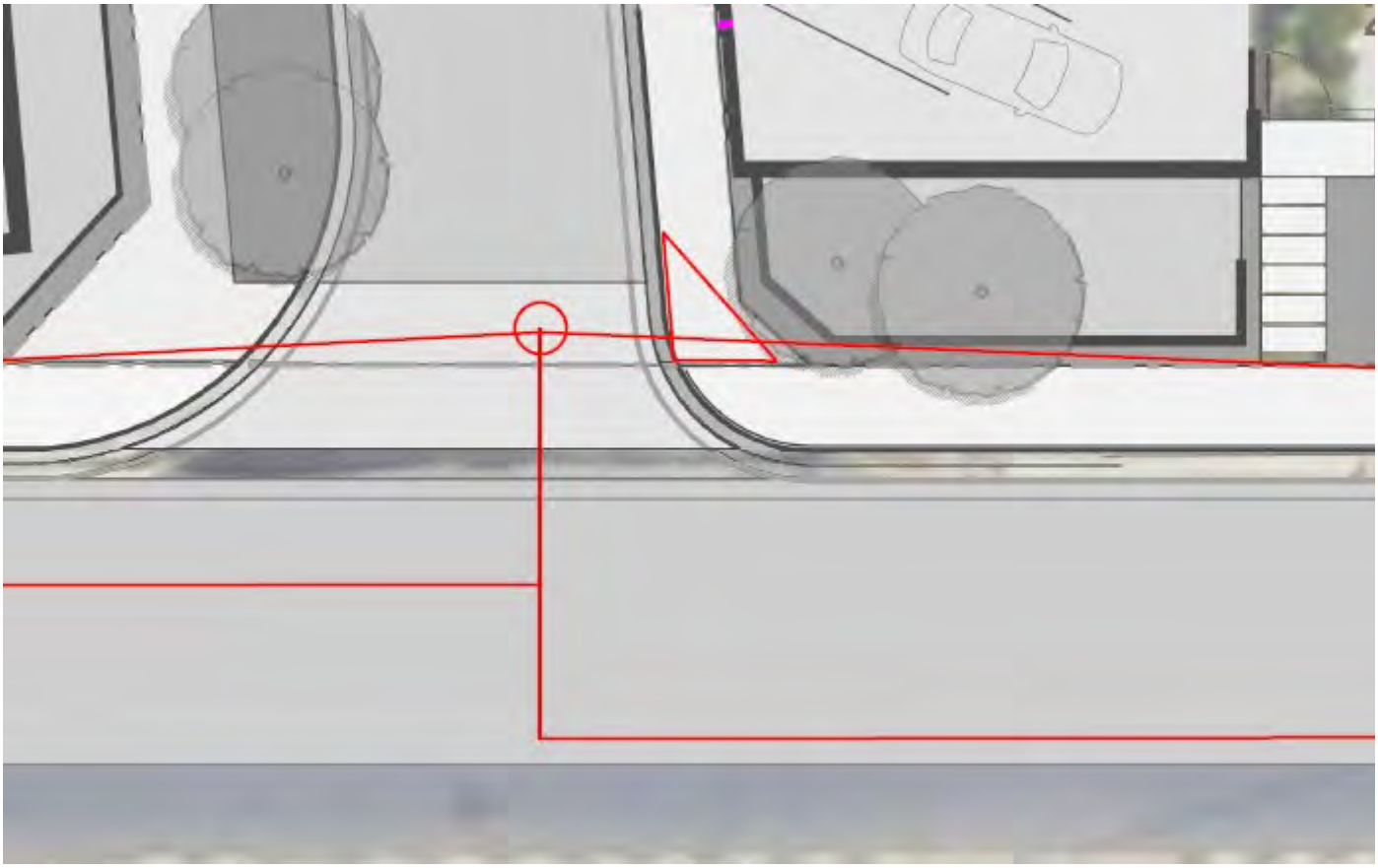
There is no boundary of a driveway with a road on which to measure pedestrian sight distance triangles. However, the intent of these sight distance triangles is to provide for vision to a pedestrian as a driver exits a private driveway to the road. The red lines on the plan illustrate the footpath and the sight distance triangle which would be applicable if the boundary was along the edge of the footpath. Importantly this means that the raised treatment can be provided and appropriate sight distance to pedestrians met.

In addition to the above, the prohibited access zone is measure to the TP. The construction of the crossover treatment will result in no TP at the intersection. Accordingly, the separation is measured to the crossover and hence the driveway for Lot 22 will not be within the prohibited access zone.



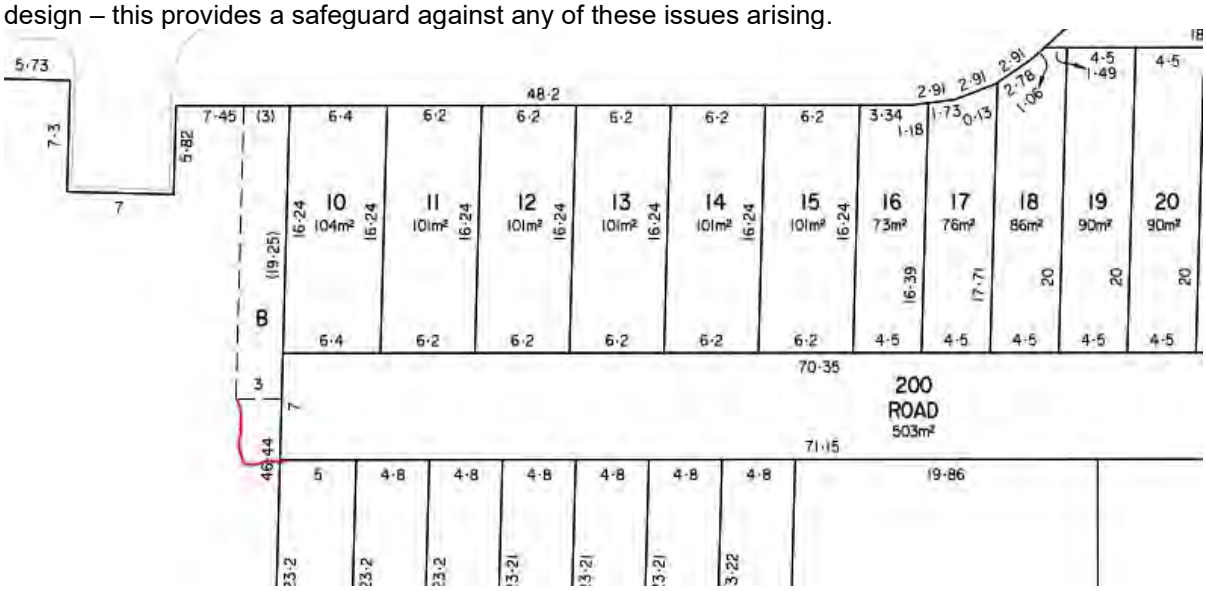

2. I believe the corner cut-off for Lot 23 still needs to be provided and reflected on the land division documents (to provide adequate vehicle sightlines).

The sight distance is achieved through the set-back of the fence. If Council would prefer this portion of land was converted to road reserve, it is suggested that a Condition be included to that effect.



3. The land division plans and masterplan documents also need updating to show the new bollard location/boundary alignment for Lot 47 to allow waste truck movements in the NW turnaround area. In so doing, please check for any other necessary updates to these plans.

4. With respect to the 3m-wide easement for stormwater (over Lot 47), Council requires that this is extended to align with the bottom end of the laneway (see below), so that the infrastructure can be wholly contained within the easement and noting that the infrastructure's precise location may change depending on the detailed design – this provides a safeguard against any of these issues arising.




5. Further information is required on where street lights will be located within the laneway (none are provided currently), to ensure that vehicle access to properties will not be restricted in future.

The attached plans illustrate suggested street light location in the lane and turning movements from adjacent garages. Note that the magenta lines are clearance lines.

6. A typical pinch point detail has been provided in the landscaping plans that indicates the path width will be reduced to 2m where light poles are present. This has been a concern from the start of the discussions that if sufficient space isn't provided in the road cross section for service we will have a low quality outcome. Indicative street light locations have been shown on the plan with none shown in locations that would require a pinch point so this should be clarified.

I will be in touch as soon as I have the draft conditions for you to review. And I will let you know if any other updates arise in the meantime. Please don't hesitate to contact me about any of the above if you have any questions.

**Henry Perks**
Development Manager

aspengroup.com.au
Suite 21, 285A Crown Street, Surry Hills NSW 2010
aspen living aspen lifestyle aspen holidays

# GEOTECHNICAL ENGINEER REFERRAL RESPONSES

## Kieran Fairbrother

**From:** Jordan Neis-Beer
**Sent:** Wednesday, 4 June 2025 9:06 AM
**To:** Josef Casilla
**Cc:** Kieran Fairbrother
**Subject:** Re: Adelaide Caravan Park Development DA - Geotechnical Engineering Document Review (RFI Response)
**Attachments:** 250111C01RevB_Geotechnical Review.pdf

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Hi Josef,

Please find attached our updated memo responding to WGA return comments. Ultimately, further assessment is still required during a detailed design phase, and the major residual risk we see is the piled foundations designed by developer/s affecting the performance of the reinforced slope treatment that will already have been constructed.

If you have any questions please let me know.

Thanks,

**Jordan Neis-Beer**
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Geotechnical Lead

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# Memorandum

| | | | |
|---|---|---|---|
| **To** | City of Norwood, Payneham & St Peters | | |
| **From** | Tonkin | **Date** | 4 June 2025 |
| **Ref Number** | 250111M001RevB | | |
| **Subject** | Adelaide Caravan Park Redevelopment Geotechnical Review | | |

## Introduction

Aspen Group are proposing to undertake the Adelaide Caravan Park Redevelopment, known as Hackney on Torrens (the development). The development consists of three components referred to as the River Front Dwellings, the Townhouses and the co-living precinct. The development is located in the City of Norwood, Payneham and St Peters (Council) local government area.

Due to the proximity of the River Front Dwellings to the River Torrens and previously observed scour/slope instability, slope remediation of the existing riverbank and high level-footing construction requirements have been proposed as a part of the documentation for the development. Council have engaged Tonkin to undertake a third-party review of the geotechnical reporting that has been prepared by WGA supporting the development.

*Following queries submitted by Council to Aspen Group (Request for Information submitted to Aspen Group by PlanSA dated 21 February 2025), a response from WGA related to some of the items addressed in Revision A of this memo has been provided to Tonkin (Ref: WGA230955-LT-GE-0001_C). The section WGA Response Review has been added to the end of this memo and provides commentary on these responses.*

## Objectives

The scope of this engagement has been developed to address Council's requirements outlined in the provided *Objectives and Considerations* document. In accordance with this document, the purpose of the geotechnical review is to; *'Ensure that the proposed bank stabilisation works (or any amended works following the initial review) will accommodate the proposed division of the land and allow the future development of these allotments in a manner that will not result in an increase in the rate of erosion of the slope (riverbank) or increase the potential for landslip or land surface instability.'*

Council would also like to:

1. Be assured that the proposed bank stabilisation works will result in allotments that are able to be reasonably developed for residential use – specifically, the River Front Dwellings (allotments 35 to 46)
2. Understand if there might be bank stabilisation works available that might avoid the need for any future geotechnical considerations for these 12 proposed allotments; and
3. If there might be a prescribed rear boundary setback that future development could adhere to, to avoid the need for any future geotechnical considerations, based on the proposed geotechnical works; and
4. If there might be a standard approach to footings for the development of these 12 proposed allotments (e.g. that could be tied into a Land Management Agreement).

## Relevant Planning and Design Code Policies

The Council *Objectives and Considerations* document lists the relevant policies within the Planning & Design Code which Council wishes to ensure compliance with. These policies are summarised below.

### Water Resources Overlay

The Water Resources Overlay seeks the following desired outcomes:

1. The protection of the quality of surface waters considering adverse water quality impacts associated with projected reductions in rainfall and warmer air temperatures as a result of climate change.
2. Maintain the conveyance function and natural flow paths of watercourses to assist in the management of flood waters and stormwater runoff.

Relevant policies are shown in the table below.

| Water Catchment | |
|---|---|
| PO 1.1<br>Watercourses and their beds, banks, wetlands and floodplains (1% AEP flood extent) are not damaged or modified and are retained in their natural state, except where modification is required for essential access or maintenance purposes. | DTS/DPF 1.1<br>None are applicable. |
| PO 1.2<br>Development avoids interfering with the existing hydrology or water regime of swamps and wetlands other than to improve the existing conditions to enhance environmental values. | DTS/DPF 1.2<br>None are applicable. |
| PO 1.8<br>Watercourses, floodplains (1% AEP flood extent) and wetlands are protected and enhanced by stabilising watercourse banks and reducing sediments and nutrients entering the watercourse. | DTS/DPF 1.8<br>None are applicable. |

### Design in Urban Areas Module

Relevant policies in the Urban Areas Module policy are shown in the table below.

| | |
|---|---|
| PO 8.5<br>Development does not occur on land at risk of landslip or increase the potential for landslip or land surface instability. | DTS/DPF 8.5<br>None are applicable. |

### Land Division Module

This section seeks the following desired outcomes:

1. Land division creates allotments suitable for their intended use

Relevant policies are shown in the table below.

| | |
|---|---|
| PO 2.1<br>Land division results in a pattern of development that minimises the likelihood of future earthworks and retaining walls. | DTS/DPF 2.1<br>None are applicable. |

## Reference Documentation

The following reference information has been provided by Council to be reviewed:

- WGA 2023. *Adelaide Caravan Park Redevelopment, Hackney, Geotechnical Review of Slope Remediation Options*, Revision A, 27 June 2023, Ref: WGA230955-RP-GE-0001_A
- WGA 2024a. *Adelaide Caravan Park Redevelopment – Proposed Co-Living Site, Hackney, Geotechnical Investigation,* Revision A, 2 May 2024, Ref: WGA230955-RP-GE-0002_A
- WGA 2024b. *Adelaide Caravan Park Redevelopment – Proposed Townhouse Development, Hackney, Preliminary Geotechnical Investigation* Revision A, 2 May 2024, Ref: WGA230955-RP-GE-0003_A
- WGA 2024c. *Adelaide Caravan Park Redevelopment – Proposed River Front Dwellings, Hackney, Geotechnical Investigation,* Revision A, 14 May 2024, Ref: WGA230955-RP-GE-0001_A
- Fyfe 2024. *Aspen Group, Proposed Subdivision, Hackney-On-Torrens, Richmond St, Hackney,* Revision 3, 28 November 2024, Drawing Ref: 66966-3-1-SV-PR1-R3.dwg
- *WGA 2025. Adelaide Caravan Park Redevelopment, Hackney, Response to Geotechnical Issues Raised by PlanSA, Revision C, 14 March 2025, Ref: WGA230955-LT-GE-0001_C*

## Documentation Review

Tonkin has reviewed the reference information provided in relation to the policies identified in the Council *Objectives and Considerations* document. Given the review specifically focuses on the River Front Developments section of the site, the geotechnical reports that primarily have been reviewed are WGA 2023 and WGA 2024c, with other reports reviewed for information only. The findings of the review of these two documents are outlined below.

### Slope Remediation Options (WGA 2023)

#### Report Summary

This report is the first WGA document provided for the redevelopment and provides a summary of previous investigations undertaken by another consultant. In this report WGA documents slope stability assessments undertaken for the existing bank of the River Torrens and identifies a number of options that may be feasible for remediation of the bank to facilitate future development.

This report identifies that the existing riverbank is built up partially of uncontrolled fill. In this report WGA infer from the depth of fill encountered in the boreholes that historically fill has been pushed over the existing riverbank to extend the usable land.

The report also summarises that site observations indicate early stages of shallow slope failures occurring, with observations including the rotation of retaining walls and slumping of soils at the surface. Modelling undertaken by WGA supports the unsuitable condition of the existing slope, with analyses indicating factors of safety ranging from 0.86 to 1.06 (where a factor of safety of 1.0 indicates slope failure may be imminent).

#### Review Commentary

The report includes several potential remediation options for the slope, including an option for removal of the uncontrolled fill and replacement at a flatter slope angle, including the potential for placement of reinforcing geogrid to improve the stability. As these options are built upon in following reporting, no specific commentary is made here.

### River Front Dwellings (WGA 2024c)

#### Report Summary

This document focuses on allotments 35 to 46 referred to as the river front dwellings. The report summarises further field investigations undertaken following the 2023 reporting and includes recommendations for the proposed footing system for the river front dwellings, and recommendations for the slope remediation along this section of the riverbank.

WGA state that the existing slope is unsuitable in the long term and to support permanent structures. The remediation methodology proposed consists of removal of the uncontrolled fill identified within the remediation zone and replacement with controlled fill at a batter angle of 1.25H:1V, incorporating five layers of reinforcing geogrid.

### Review Commentary

The following commentary is made based on the review of WGA Report 2024c. Comments are either General (Table 1) or relate specifically to a Planning & Design Code policy (Table 2).

**Table 1 WGA 2024c General Commentary**

| Item | Comment |
|---|---|
| 1 − Modelling Methodology and Factor of Safety | The modelling undertaken by WGA considered several scenarios including various water levels in the river. However it is unclear what flow scenarios were considered in selecting these water levels. The modelling indicates that the river level and corresponding assumed groundwater level adopted has an influence on the factor of safety of the slope. The assessment should consider:<br>• If a lower pool level may reasonably be anticipated and if this should be considered in the analysis. This is particularly important given the Factor of Safety passes only marginally for the current lowest assumed pool level.<br>• If a higher water level may be anticipated from flood events or upstream water releases, and if temporarily higher water levels could result in excess pore pressure developing within the slope when water levels draw down (e.g. rapid draw-down analysis). |
| 2 − Reuse of existing fill material in reinforced zone | The WGA remediation methodology (documented in the technical specification in Appendix E) assumes reuse of suitable components of the uncontrolled fill, noting that significant proportions of deleterious material such as brick, glass and other construction waste were logged in the fill by WGA.<br>Material testing should be undertaken to verify that the fill, post processing, is suitable for use in the reinforced slope including confirmation that interaction with the proposed geogrid product is suitable should be included in the technical specification. Alternatively imported material may need to be used in the zone of interaction with the geogrid. Further testing may also be required to ensure that the properties of the compacted fill are consistent with those assumed for the stability assessment.<br>Further, no environmental testing information has been provided to Tonkin as a part of this review, and review of environmental testing is out of scope. The WGA assessment assumes that the fill is suitable for reuse in accordance with SA EPA Guidelines. Testing to confirm this should be considered to qualify the fill prior to placement. |
| 3 − Slope stability case − piles installed in fill | Modelling showing piles installed and interruption to three geogrid layers (top two and lowest layers), concluding that the installation of building piles does not appreciably affect the long-term global stability of the riverbank, given the relatively wide spacing and small diameter of the piles. Given the actual pile design may vary from that assumed in this assessment, this conclusion may not remain true post development.<br>Otherwise, excavation through the reinforcement will compromise the performance of the reinforced slope and development controls may need to be put into place to prevent construction activities interfering with the performance of the reinforced slope, other than the installation of piles through the reinforcement as considered by WGA in their analysis. |

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| 4 – Interface with Co-Living site | The co-living site (adjacent to the river front dwellings) report (WGA 2024a) suggests an alternative slope remediation approach with a flatter design batter slope and different arrangement of the reinforcement. It is unclear if interfacing between design slope for the adjacent sites has been considered, and how this may impact on the respective developments. |
| **5 – Further Investigations** | **Should additional geotechnical investigations be required to inform detailed design of the footing structures, and where these occur post-slope stabilisation works, they will need occur without damaging the geogrid reinforcement.** |
| 6 – Pile Testing | Pile testing is recommended to be undertaken on at least 1% of the piles. Given that the development of the dwellings might occur by different parties, consideration should be given to the feasibility of undertaking pile testing as the total number of piles installed per development may be low. Alternative controls may be required. |
| 7 – Pile Design Parameters | WGA has suggested an ultimate shaft resistance of 45 kPa for CFA or Driven piles in new controlled fill. Other comments made regarding the material specification notwithstanding, this recommendation should be revisited following construction of the fill (and WGA suggest this). Consideration should be given to the risk of settlement of the controlled fill resulting in negative skin friction for piles within the new controlled fill. |

**Table 2 WGA 2024c Policy Commentary**

| Objective | Comment |
|---|---|
| Water Catchment PO 1.1: Watercourses and their beds, banks, and floodplains (1% AEP flood extent) are not damaged or modified and are retained in their natural state, except where modification is required for essential access or maintenance purposes. | Modification to the bank is proposed as a part of this development, although the 1% AEP flood extent has not been defined in the reporting provided to Tonkin.<br>While the bank modifications are not strictly proposed for essential access or maintenance purposes, for the development to proceed as proposed in the documentation we agree with the WGA conclusion that the existing bank is not in a suitable condition to allow for stable long-term development of the site. |
| Water Catchment PO 1.2: Development avoids interfering with the existing hydrology or water regime of swamps and wetlands other than to improve the existing conditions to enhance environmental values. | Modification to the bank is proposed as a part of this development. No hydrological information is provided as part of the reference information. Further consideration is required to the hydrological impacts caused by the proposed development. |

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| Water Catchment PO 1.8: Watercourses, floodplains (1% AEP flood extent) and wetlands are protected and enhanced by stabilising watercourse banks and reducing sediments and nutrients entering the water course. | WGA recommends that the exposed fill should be covered with a proprietary anti-erosion mat and seeded with ground cover plants to protect the exposed bank. The report also states that erosion protection works within the river channel may be required to prevent erosion of the riverbank and undermining of the controlled fill. Examples given are rock revetment, gabion walls, or rock pitching. We agree that this is required, however this is outside of the scope of the WGA reporting and still requires detailed design.<br><br>No hydrological information has been provided to Tonkin as a part of this exercise, but we suggest that the proposed erosion and bank stabilisation controls are developed considering the flow regime expected in the river. This still requires detailed design.<br><br>WGA also recommends that surface drainage works will also be required at the crest to manage surface water and prevent runoff flowing down the riverbank. We agree that this is required, however this is outside of the scope of the WGA reporting and still requires detailed design. Suitable development controls may need to be put in place to ensure that the surface drainage controls implemented can be maintained, and that allotment owners do not install unauthorised controls in the future which could compromise the stability of the slope. |
| Design in Urban Areas PO 8.5: Development does not occur on land at risk of landslip or increase the potential for landslip or land surface instability. | WGA 2023 indicates that the slopes on the subject land have a marginal factor of safety under existing conditions, and remedial works would be required to support any development. We agree with the WGA conclusion that the existing bank is not in a suitable condition to allow for stable long-term development of the site.<br><br>Refer earlier general commentary on the suitability of the slope stability modelling undertaken to determine the bank remediation works required. |
| Land Division Module PO 1.1: Land division results in a pattern of development that minimises the likelihood of future earthworks and retaining walls | The WGA proposed slope remediation and footing design recommendations require considerable earthworks, both to prepare the allotments for sale and subsequently during footing construction, however we believe that the proposed solution is suitable and likely necessary given the complex geotechnical conditions at the site.<br><br>Other potential treatment options are discussed in the following section of this report. |

### Alternative Development Options and Commentary

Based on the above review, we make the following commentary in relation to the specific queries raised by Council in the provided *Objectives and Considerations* document and as summarised in the Objectives section of this document.

| Objective | Comment |
|---|---|
| Ensure that the proposed bank stabilisation works (or any amended works following the initial review) will accommodate the proposed division of the land and allow the future development of these allotments in a manner that will not result in an increase in the rate of erosion of the slope (riverbank) or increase the potential for landslip or land surface instability | Provided the general commentary items in Table 1 are considered and incorporated as deemed necessary, we believe that the WGA proposed slope remediation solution is acceptable to allow the future development of these allotments in a manner that will not result in an increase in the rate of erosion of the slope (riverbank) or increase the potential for landslip or land surface instability. |
| If there might be bank stabilisation works available that might avoid the need for any future geotechnical considerations for these 12 proposed allotments | The WGA proposed slope remediation solution does not seek to replace uncontrolled fill outside of the zone of slope remediation. This drives the requirement for piled footing systems.<br>Even if the removal and replacement option was pursued, WGA 2024c suggests that in the area of deep controlled fill there is a risk that shallow footing systems will undergo differential settlement along the length of the building due to the extent and varying depth of controlled fill. Due to this, it is suggested that the river front dwellings should utilise piled footings regardless of whether the fill is controlled or uncontrolled. Tonkin supports this recommendation and agree that there is a high likelihood that structures with shallow footings founded on varying depth of new controlled fill would be subject to excessive differential settlement. |
| If there might be a prescribed rear boundary setback that future development could adhere to, to avoid the need for any future geotechnical considerations, based on the proposed geotechnical works | WGA 2023 included a 'do-nothing' option which states that without slope remediation permanent buildings should not be constructed within approximately 15 m of the existing riverbank crest to prevent them from contributing to slope failure, but that shallow slope failures may still be expected to occur. This recommendation should be reconfirmed by WGA and any prescribed setback would need to meet or exceed the final recommendation.<br>The depth of uncontrolled fill at a 15m setback may still be in the order of 1-2m based on the findings of historical geotechnical investigations. Removal and replacement of this depth of |

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| | uncontrolled fill with controlled fill may allow shallow footing systems or shallower piled footing systems to be constructed, however this will need to be determined by the individual building designer and structural loads imparted.<br><br>Regardless of the adopted setback, some depth of fill is expected to be encountered/required. Where these fill depths exceed that prescribed in AS 2870 Clause 2.5.3, the allotments will be classified as Class P 'Problem Site'. |
| If there might be a standard approach to footings for the development of these 12 proposed allotments (that could be tied into a Land Management Agreement, for example). | WGA reporting for the riverfront dwellings provides preliminary design parameters only and are based upon assumed construction methodologies, due to this additional investigation and interpretation will be required for detailed design of the dwellings.<br><br>Consistency in the construction type and methodology for the various residences would be required to develop a standard footing approach. There may be the opportunity to undertake investigations to inform the detailed design of footings for multiple residences to avoid the need for investigations to be undertaken on each allotment. This would be dependent on the way the design and construction of these dwellings is delivered. |

### WGA Response Review

Responses to the request for information submitted by Council via PlanSA have been received from WGA, documented in WGA (2025).

The table below provides responses to the additional information received by WGA, with any remaining risks highlighted.

| Tonkin Comment | WGA Response Summary | Tonkin Response |
|---|---|---|
| 1: Modelling Methodology and Factor of Safety. This item relates to water levels in the river adopted for the modelling. | WGA indicate that the water levels adopted in the analyses are assumed values and suggest that hydrological modelling and further slope stability modelling should be undertaken at detailed design. Any changes to the slope factor of safety from this modelling are anticipated to be relatively small and WGA suggest they could be controlled with the addition of another layer of geogrid instead of altering the slope geometry.<br><br>Justification is provided that floods and draw down of the water level has occurred in the past and the normal water level of the river is within the natural soils. | Agree with the WGA comment that additional hydrological modelling and slope stability assessment should be undertaken at detailed design.<br><br>Based upon these responses and the original documentation provided, we agree that the further assessment is unlikely to require fundamental changes to the preliminary slope treatment currently modelled but should be undertaken during detailed design to close this item out. |
| 2: Re-use of Existing Fill Material in Reinforced Zone. This item relates to reuse of the existing uncontrolled fill in reconstruction of the slope. | WGA state that they anticipate that at least some imported materials will be required for the construction, envisaged to consist of a pavement quality material or a DIT Type A fill material. WGA state that the geotechnical characteristics of this imported fill will be superior to the assumed site won fill properties.<br><br>WGA state that the environmental considerations for the fill are outside of the scope of their report. | Agree with WGA responses to this item. Material specification for imported fill should be provided during detailed design.<br><br>Environmental considerations for the fill should be addressed separately by an appropriate party. |
| 3: Slope Stability Case – Piles Installed in Fill. This item relates to damage to the geogrid layers during pile installation. | WGA states that the designs of the piles is preliminary only and may change once the designs of the townhouses is finalised.<br><br>WGA states that the upper two layers of the geogrid will be impacted by the pile installation, and the contribution of these layers to the slope stability is less critical than the lower layers. The analysis for the | Agree with the commentary provided by WGA regarding the slope stability assessment and the impact of pile installation to the geogrid.<br><br>We consider that the statement from WGA regarding seeking further advice from them if the pile design changes, and prohibiting excavation to/below the |

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| | case with the beneficial effect of the piles terminates the geogrid at the face of the pile.<br><br>WGA state that if the final pile design varies from that assumed and slope remediation works have been constructed, advice from them would need to be obtained to ensure the slope stability is not compromised.<br><br>WGA state Excavation of footing or service trenches through the geogrid will not be permitted, although given the uppermost geogrid is at a depth of 2 m this scenario would seem unlikely. | depth of the geogrid is important to the performance of the proposed development.<br><br>Suggest it is a condition that developers consider the pile design assumptions made by WGA and that proposed piled foundations match as closely as possible those assumed in the WGA assessment. |
| 4: Interface with Co-living: This item relates to the varying slope treatments and interface between the two areas. | WGA state that the conditions are anticipated to be variable and that the interfacing should be determined during construction. WGA state that it is intended that overview of the construction is required by WGA to ensure structural continuity between areas of fill. | Commentary regarding variable conditions requiring the interfacing to be confirmed during construction is considered reasonable. It does, however, leave this item to be confirmed during construction. |
| 5: Further Investigations: This item relates to the need for further geotechnical investigations and potential impact on the reinforcing layers. | WGA state that they envisage that any post-construction investigations would be conducted using small diameter drilling methodology and impacts to the geogrid would be expected to be localised and not appreciably impact the slope stability. | We agree with this commentary. |
| 6: Piles vs Rear Set Back: This item relates to prescribing a setback distance for the proposed townhouses from the slope such that deep foundations are not required. | WGA state that this issue was previously raised with Aspen and that a setback distance of around 12 to 15 m would be required which would impact development options to Aspen, due to this it was not pursued further. | This comment implies that a rear setback could be prescribed to prevent the need for deep foundations and that the reason this was not pursued is not related to the geotechnical conditions. |
| 7: Pile Design Parameters: This issue relates to the provided design parameters for the piles supporting the townhouses. | WGA state that the pile designs are preliminary only and may change during detailed design of the townhouses. If the final pile design varies from that assumed and slope remediation works were | Agree with the commentary related to detailed design of the piles being required, and if the detailed design differs from that considered in the slope stability |

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| | constructed, further advice would need to be obtained from WGA to confirm the stability of the slope.<br><br>Commentary is provided regarding pile design parameters provided in the original reporting, stating that design parameters will be confirmed during detailed design. | assessment, the need for the WGA slope stability assessment to be reviewed and confirmed.<br><br>Tonkin agrees with the commentary provided regarding pile design parameters and further detailed design works required. |

## Closure

If you have any queries or require further information, please do not hesitate to contact Jordan Neis-Beer on 8273 3100.

This geotechnical memorandum should be read along with the limitations statement attached.

# Attachment 1 - Limitations

## 1.1 Scope

This report has been prepared in accordance with the scope of services agreed between Tonkin Consulting and the Client. In some circumstances, the scope of services may have been limited by a range of factors such as time, budget, access, site disturbance or other constraints.

## 1.2 Reliance on Data

In preparing the report Tonkin Consulting has relied upon data, surveys and other information provided by other sources. Unless otherwise stated in the report, Tonkin Consulting has not verified the accuracy or completeness of that data. To the extent that the statements, facts, opinions, information, conclusions and/or recommendations in the report are based in whole or in part on the data, those conclusions are contingent on the accuracy and completeness of the data. Tonkin Consulting will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to Tonkin Consulting.

## 1.3 Geotechnical Investigation

Geotechnical engineering is based extensively on judgment and opinion. It is far less exact than other engineering disciplines. Geotechnical engineering reports are prepared to meet specific needs and individual situations. A report prepared for one purpose may not be adequate or suitable for others.

This report was prepared for the Client and for the purposes indicated by the Client or its representative. Use by any other person, or by the Client for a different purpose, might result in problems. This report should not be used by anyone, including the Client, for other than its intended purpose without seeking additional geotechnical advice.

## 1.4 Project-Specific Factors

This report is based on investigations designed to address project-specific factors. Unless further geotechnical advice is obtained, this report cannot be used when the nature of the proposed development is changed, or the size, configuration, location or orientation of any development component is amended.

This report applies only to the site investigated and not to adjoining sites.

## 1.5 Limitations of Investigations

This report is based on data collected at specific locations using specific investigation techniques. Only a finite amount of information has been collected to meet the specific financial and technical requirements of our Proposal and the Brief, and this report does not purport to completely describe all the site characteristics and properties. The nature and continuity of the ground between test locations has been inferred using experience and judgement. Actual conditions could vary from the assumed model, as no subsurface exploration programme, no matter how extensive, can reveal all subsurface details and conditions.

The borehole logs are the subjective interpretation of subsurface conditions at particular locations, made by trained personnel. The interpretation maybe limited by the method of investigation and may not always be definitive. Observations of a test pit or excavation allows a greater area of the subsurface conditions to be inspected than borehole locations although such methods are limited by depth and site disturbance restrictions. In borehole investigations, the actual interface between materials maybe more gradual or abrupt than the report indicates.

## 1.6 Time Dependency

Subsurface conditions are subject to change over time by natural forces and man-made influences. A geotechnical report is based on the conditions that existing at the time of the subsurface investigations. A geotechnical engineer's advice should be sought as to whether the report's conclusions remain valid.

## 1.7 Involvement during design and construction

A geotechnical engineer should be retained to work with other appropriate design professionals to explain the relevant geotechnical finding and review the adequacy of their plans and specifications relative to geotechnical issues.

Issues relevant to construction works should be assessed by contractors who can make their own interpretation of the factual data provided. They should perform any additional tests as necessary for their own purposes.

## 1.8 Whole report

This report is intended to be read as a whole. Parts of the report should not be separated out and used without reference to the whole of the report.

In particular borehole and excavation logs should not be redrawn or used in isolation from the report.

## 1.9 Report for the Benefit of the Client

This report has been prepared for the benefit of the Client and no other party. Tonkin Consulting assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including, without limitation, matters arising from any negligent act or omission of Tonkin Consulting or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in this report. Other parties should not rely on the report or the accuracy or completeness of any conclusion and should make their own enquiries and obtain independent advice in relation to such matters.

## 1.10 Other Limitations

Tonkin Consulting will not be liable to update or revise the report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of the report.

**6. DEVELOPMENT APPLICATIONS – DEVELOPMENT ACT**

**7. REVIEW OF ASSESSMENT MANAGER DECISIONS**

**8. ERD COURT APPEALS**

**9. OTHER BUSINESS**
(Of an urgent nature only)

**10. CONFIDENTIAL REPORTS**

**11. CLOSURE**