

Agenda Report for Decision

Meeting Date: 3 February 2022

Item Name	Albert Park Mixed Use Code Amendment – Approval to undertake consultation
Presenters	Brett Steiner, Jason Bailey and Nadia Gencarelli
Purpose of Report	Decision
Item Number	3.2
Strategic Plan Reference	5. Discharging Statutory Obligations
Work Plan Reference	5.2 Advise the Minister on Code Amendments
Confidentiality	Not Confidential (Release Delayed). To be released following receipt of State Planning Commission advice by the Minister for Planning and Local Government. Anticipated February 2022.
Related Decisions	29 April 2021: Item 3.2 – Code Amendment Initiation Advice to the Minister – Albert Park Mixed Use Code Amendment (Confidential item)

Recommendation

It is recommended that the State Planning Commission (the Commission) resolves to:

1. Approve the designation of this item as Not Confidential (Released Delayed). To be released following receipt of Commission advice by the Minister for Planning and Local Government (the Minister) on approval to undertake consultation on the Code Amendment (**Attachment 1**). Anticipated February 2022.
2. Note the preliminary advice from the Environment Protection Authority (EPA) provided in **Attachment 2**.
3. Advise the Minister that it has:
 - Determined that the Code Amendment (**Attachment 1**) demonstrates preparation in accordance with *Practice Direction 2 – Preparation and Amendment of Designated Instruments* (Practice Direction 2).
 - Chosen not to direct the Designated Entity to undertake any further action to comply with the conditions imposed by the Minister under section 73(5) of the *Planning, Development and Infrastructure Act 2016* (the Act).
 - Resolved to approve the Code Amendment for the purposes of consultation in accordance with conditions stipulated by the Minister under section 73(5) of the Act.
4. Approve and authorise the Chair of the Commission to sign the letter of approval to the Designated Entity as provided in **Attachment 3**.

5. Approve and authorise the Chair to sign the letter of advice to the Minister as provided in **Attachment 4**.
6. Authorise the Chair to finalise any minor amendments to the advice and attachments.

Background

On 12 May 2021, the former Minister for Planning and Local Government, the Hon Vickie Chapman MP, approved the Proposal to Initiate the Albert Park Mixed Use Code Amendment.

The Code Amendment has been prepared by the City of Charles Sturt (the Council), who is the Designated Entity responsible for undertaking the Code Amendment process pursuant to section 73(2)(b)(iv) of the Act.

The former Minister approved the initiation of the Code Amendment, specifying the following conditions under section 73(5) of the Act:

- The Designated Entity must obtain the approval of the Commission to undertake public consultation following preliminary consultation with the Environment Protection Authority.
- The scope of the proposed Code Amendment does not include the creation of new planning rules, and is limited to the spatial application of zones, subzones, overlays, or technical and numerical variations provided for under the published Planning and Design Code (on the date the Amendment is released for consultation).
- The Code Amendment is prepared by a person with qualifications and experience that is equivalent to an Accredited Professional—Planning Level 1 under the Act.

In addition, the Commission specified, under section 73(6)(e) of the Act, that the Designated Entity must consult with the following stakeholders:

- Department for Environment and Water
- Environment Protection Authority
- Department for Infrastructure and Transport
- SA Health (Department for Health and Wellbeing)
- Utility providers including SA Power Networks, ElectraNet Pty Ltd, APA Group, SA Water, EPIC Energy, NBN and other telecommunications providers
- State Members of Parliament for the electorates in which the proposed Code Amendment applies.

The Commission, under section 73(6)(f) of the Act, also resolved to specify the following further investigations and information requirements in addition to those outlined in the Proposal to Initiate:

- Completion of the interim audit report into site contamination to demonstrate the appropriateness (or otherwise) of the land for sensitive land uses.
- Consideration of potential interface issues between the employment/commercial activities and residential development, with particular regard to noise, air quality and vehicle movements along Port Road.
- Exploration of the opportunity for increased open space provision.

As the Designated Entity must obtain the Commission's approval prior to undertaking public consultation, the Commission may, if it is of the opinion that the Designated Entity has failed to adequately meet the conditions, direct the Designated Entity to undertake additional activities in order to comply.

The requirements for a Code Amendment are set out in Practice Direction 2 issued by the Commission under section 42 of the Act. A copy of Practice Direction 2, which includes the requirements for information that must be submitted by the Designated Entity, is provided in **Attachment 5** and discussed below.

The purpose of this report is to provide the Commission with advice on whether to approve the draft Code Amendment for consultation.

Discussion

Scope of the Amendment

The Amendment will rezone approximately 11 hectares of land adjacent Port Road, Albert Park to support mixed use, medium to high density residential and commercial development.

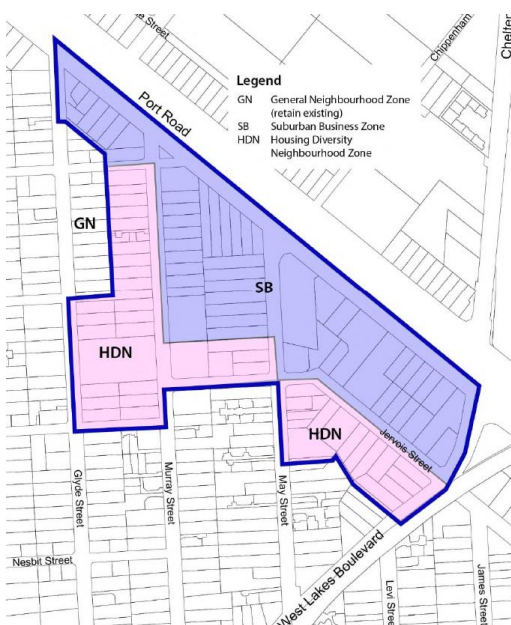
The affected area is currently within the Employment, Strategic Employment and General Neighbourhood Zones and is occupied by commercial, retail and industrial uses. A map of the affected area is provided in **Attachment 6**.

Proposed zoning comprises the Suburban Business Zone along Port Road and portion of the West Lakes Boulevard frontage, and the Housing Diversity Neighbourhood Zone over the remainder of the affected area. A Concept Plan is proposed to be introduced and Technical and Numerical Variations (TNVs) within each zone will be amended to reflect three and four storey maximum building heights. Refer to maps below.

The following additional Overlays will be applied to the affected area:

- Noise and Air Emissions Overlay
- Affordable Housing Overlay
- Interface Management Overlay
- Stormwater Management Overlay over the Housing Diversity Neighbourhood Zone
- Urban Tree Canopy Overlay over the Housing Diversity Neighbourhood Zone.

Proposed Zoning



Proposed TNVs



Further details on the Proposal to Initiate are included within the Commission's advice to the former Minister, dated 4 May 2021 (**Attachment 7**).

Conditions and requirements

Preliminary EPA advice

The former Minister approved the Proposal to Initiate subject to the condition, under 73(5)(b) of the Act, that the Designated Entity obtain the approval of the Commission to undertake public consultation following preliminary consultation with the EPA. The preliminary consultation was to be undertaken in order to determine whether the land can be appropriately remediated to accommodate more sensitive uses.

The EPA has advised that it has no objection to Council proceeding with the preparation of a draft Code Amendment for the affected area, having regard to the consultation undertaken with the EPA to date and the following reports:

- Amended Interim Audit Advice Site Remediation Plan and Code Amendment – Albert Park dated 24 September 2021 (the 'IAA'), prepared by Graeme Miller of Senversa
- Preliminary Environmental Assessment Development Plan Amendment Area, Albert Park South Australia (the 'PEA'), prepared by LBWco.

The EPA notes that the PEA was undertaken for the entire Code Amendment affected area, and the IAA relates only to the 24-30 Murray Street, Albert Park site.

A copy of the EPA's advice dated 1 October 2021 is provided in **Attachment 2**. A copy of the IAA prepared by Senversa and the PEA prepared by LBWco are provided in **Attachments 8** and **9** respectively.

Stakeholder Consultation

The Commission resolved under section 73(6)(e) of the Act that the Designated Entity must consult with the following stakeholders:

- Department for Environment and Water
- Environment Protection Authority
- Department for Infrastructure and Transport
- SA Health (Department for Health and Wellbeing)
- Utility providers including SA Power Networks, ElectraNet Pty Ltd, APA Group, SA Water, EPIC Energy, NBN and other telecommunications providers
- State Members of Parliament for the electorates in which the proposed Code Amendment applies.

The Engagement Plan is provided in **Attachment 10** and identifies all of the above stakeholders.

Condition for three additional investigations

The Commission resolved under section 73(6)(f) of the Act to specify three further investigations in addition to those outlined in the Proposal to Initiate, including:

- Completion of the interim audit report into site contamination to demonstrate the appropriateness (or otherwise) of the land for sensitive land uses.

- Consideration of potential interface issues between the employment/commercial activities and residential development, with particular regard to noise, air quality and vehicle movements along Port Road.
- Exploration of the opportunity for increased open space provision.

The three conditions have been addressed with details of the investigations outlined in the Code Amendment for consultation provided in **Attachment 1**.

- On 13 September 2021, Senversa prepared the IAA and is included within Attachment E of the Code Amendment. Interim auditor risk assessment is presented in section 9 of the IAA and has identified soil and groundwater contamination and soil vapour. Interim auditor outcomes and determinations are provided in section 13 and advise that the nature and extent of contamination on and under the site has been adequately assessed, and delineated and remediation remains necessary to make the site suitable for its proposed future residential and open space land uses.
- Consideration of potential interface issues has been detailed in section 4.4.4 'Interface with Non-Residential Land Uses and Noise Sources' of the Code Amendment for consultation. The Amendment proposes to apply the Interface Management Overlay and Noise and Air Emissions Overlay to the affected area.
- Further investigation into open space provision is provided in section 4.4.7 'Public Open Space/Green Space' of the Code Amendment for consultation, which notes that there is scope for the inclusion of public open space. A location between Murray and Glyde Streets has been identified as it would aid in facilitating an east-west pedestrian connection and drainage collection point. Identification of open space is proposed for the new Concept Plan.

A copy of the IAA prepared by Senversa and the PEA prepared by LBWco are provided in **Attachments 8** and **9** respectively.

Requirements for a draft Code Amendment

Practice Direction 2 is issued by the Commission and sets out the requirements for amendments to the Code and associated Engagement Plans.

The Attorney-General's Department (the Department) advises that the requirements for preparation of a Code Amendment as set out in sections 8 and 9 of Practice Direction 2, including the relevant investigations, have been satisfactorily met.

These requirements include provision of an Engagement Plan.

Engagement Plan

The requirements for preparation of an Engagement Plan are set out in section 6 of Practice Direction 2. The Designated Entity is responsible for preparing the Engagement Plan. The Engagement Plan does not need to be approved by the Commission or the Minister (unless conditioned to do so).

The Department advises that the Engagement Plan has been prepared and addresses the requirements of Practice Direction 2. The Engagement Plan is provided in **Attachment 10**.

Next steps

Following completion of the engagement on an amendment to the Code, the Designated Entity must prepare an Engagement Report in accordance with Practice Direction 2, showing that engagement activities were undertaken in accordance with the Engagement Plan and in alignment with the principles of the Community Engagement Charter.

The Amendment for approval and the Engagement Report may be referred to the Commission for consultation under section 73(10) of the Act to assist the Minister in making a decision on whether to adopt the Code Amendment.

Summary – Advice to the Minister

The draft Code Amendment has been prepared for consultation in accordance with Practice Direction 2. An Engagement Plan setting out the engagement process has been prepared by the Designated Entity.

It is not considered necessary to direct the Designated Entity to undertake any further action to comply with the conditions imposed by the Minister under section 73(5) of the Act. The Code Amendment is considered suitable to undertake consultation.

A draft letter to the Designated Entity is provided in **Attachment 3** and a draft letter of advice to the Minister is provided in **Attachment 4**.

Attachments:

1. Albert Park Mixed Use Code Amendment – Approval for consultation (#18066053).
2. Preliminary Environment Protection Authority advice, 1 October 2021 (#18172037).
3. Suggested letter of approval to the Designated Entity (#18188850).
4. Suggested letter of advice to the Minister for Planning and Local Government (#18190624).
5. *Practice Direction 2 – Preparation and Amendment of Designated Instruments* (#18171187).
6. Map of the Affected Area (#16945688).
7. Advice to the Minister for Planning and Local Government – Proposal to Initiate the Albert Park Mixed Use Code Amendment, 4 May 2021 (#17037823).
8. Interim Audit Advice by Senversa Pty Ltd, 13 September 2021 (#18066036).
9. Preliminary Environmental Assessment by LBWco Pty Ltd, 16 June 2020 (#18066057).
10. Engagement Plan – Albert Park Mixed Use Code Amendment (#18066100).

Prepared by: Catherine Hollingsworth

Endorsed by: Brett Steiner

Date: 14 January 2022

Albert Park Mixed Use Code Amendment

City of Charles Sturt (Part Privately Funded)

Date

For Consultation

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HAVE YOUR SAY

This Code Amendment is on consultation from [insert date] to [insert date].

During this time you are welcome to lodge a written submission about any of the changes proposed in this Code Amendment.

Submissions can be made via one of the following:

- a) Online on the SA Planning Portal
(https://plan.sa.gov.au/have_your_say/general_consultations)

(Insert QR Code here)

Use your smart phone to scan this code

- b) Via Council's [YourSay Charles Sturt site](#)

or

emailed to: (insert officer's email here)

or

Posted to:

Chief Executive Officer
City of Charles Sturt
PO Box 1, Woodville SA 5011

A copy of this draft Code Amendment is available for viewing at Council's offices, and libraries.

A public meeting at the conclusion of the consultation process will be held to give those who made a written submission and indicated their desire to attend a Public Meeting to make a verbal submission, as well as any other person who wishes to appear before Council's City Services Committee to make representations on the proposed amendments, or add further detail and clarification on a written submission.

The public meeting will be held at ondaydate,month, 2022 at Council's Civic Centre, 72 Woodville Road, Woodville.

Please note that if no submissions are made indicating a desire to be heard, then no public meeting will take place.

In the meantime, if you have any questions about the Code Amendment, please contact (TBA), Senior Policy Planner, on 8408 1111 or via email at (insert email address)

1. WHAT IS THE PLANNING AND DESIGN CODE?

The Planning and Design Code (the Code) sets out the rules that determine what landowners can do on their land.

For instance, if you want to build a house, the Code rules will tell you how high you can build and how far back from the front of your land your house will need to be positioned. The Code will also tell you if any additional rules apply to the area where your land is located. For example, you might be in a high bushfire risk area or an area with specific rules about protecting native vegetation.

1.1 Planning and Design Code Framework

The Code is based on a framework that contains various elements called overlays, zones, sub zones and general development policies. Together these elements provide all the rules that apply to a particular parcel of land. An outline of the Code Framework is available on the SA Planning Portal.

1.2 Overlays

Overlays contain policies and maps that show the location and extent of special land features or sensitivities, such as heritage places or areas of high bushfire risk.

They may apply across one or more zones. Overlays are intended to be applied in conjunction with the relevant zone. However, where policy in a zone conflicts with the policy in an overlay, the overlay policy trumps the zone policy.

1.3 Zones

Zones are areas that share common land uses and in which specific types of development are permitted. Zones are the main element of the Code and will be applied consistently across the state.

For example, a township zone for Andamooka can be expected to apply to similar townships like Carrieton. Each zone includes information (called classification tables) that describes the types of development that are permitted in that zone and how they will be assessed.

1.4 Sub zones

Sub zones enable variation to policy within a zone, which may reflect local characteristics. An example is Port Adelaide centre, which has many different characteristics to typical shopping centres due to its maritime activities and uses.

1.5 General Development Policies

General development policies outline functional requirements for development, such as the need for car parking or wastewater management. While zones determine what development can occur in an area, general development policies provide guidance on how development should occur.

1.6 Amending the Planning and Design Code

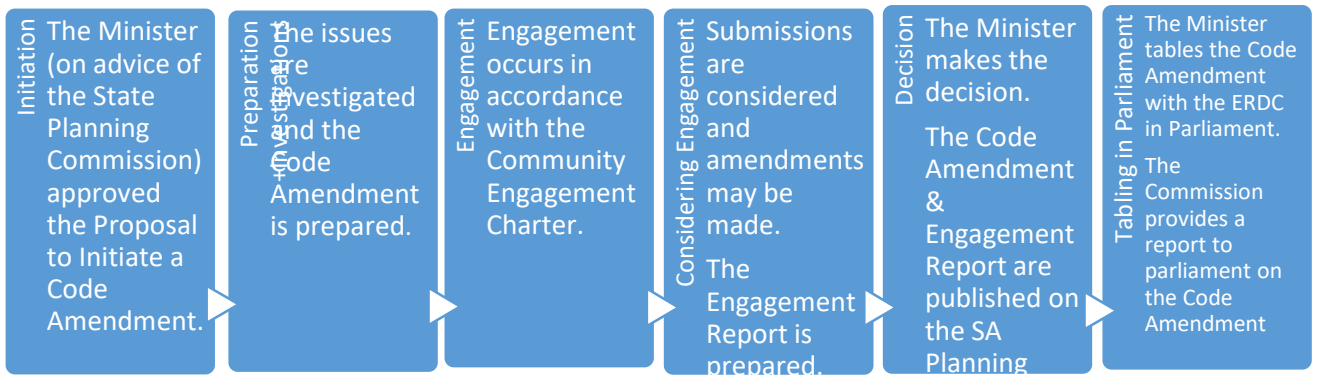
The Planning, Development and Infrastructure Act 2016 (the Act) provides the legislative framework for undertaking amendments to the Code. With approval of the Minister for Planning and Local Government (the Minister) a Council, Joint Planning Board, Government

Agency or private proponent may initiate an amendment to the Code and undertake a Code Amendment process.

An approved Proposal to Initiate will define the scope of the Amendment and prescribe the investigations which must occur to enable an assessment of whether the Code Amendment should take place and in what form.

The State Planning Commission (the Commission) is responsible under the Act for ensuring the Code is maintained, reflects contemporary values relevant to planning, and readily responds to emerging trends and issues.

The Commission provided independent advice to the Minister for Planning and Local Government on the Proposal to initiate this Code Amendment. The Commission will also provide a report on the Code Amendment (including compliance with the Community Engagement Charter) at the final stage of the Code Amendment process.



2. WHAT IS PROPOSED IN THIS CODE AMENDMENT?

2.1 Need for the amendment

The Council has agreed to a part privately-funded Code Amendment on the basis that in large sections of the Affected Area, industrial buildings have reached the end of their economic life and refurbishment or redevelopment for similar purposes would be commercially unviable given the existing policy and the modern expectations of neighbouring residents.

The Port Road transport corridor dominates the northeast boundary with much of the rest bordering low-density residential. It is this interface and residents' increased expectations for amenity which restricts the ability of the proponent and others within the zone to redevelop the land under the existing zoning.

The *30-Year Plan for Greater Adelaide* (the 30-Year Plan) (2017 update) details the government's aim to contain the urban footprint by increasing densities in appropriate areas such as "mass transit routes". Population growth will be housed largely by infill and regeneration rather than greenfield sites.

The City of Charles Sturt, which almost completely lacks greenfield sites, will host a portion of the State's population growth, using infill development around major centres and along key transit corridors. The Affected Area for this Code Amendment, being along a key transit corridor, qualifies as a site that has infill development potential and is close to existing services.

Parts of the site are discussed with a view to redevelopment for new uses in the Industrial Land Study (2008), the Strategic Directions Report (2014) and the Urban Employment Zone Land Review (2019) and a strategic consideration of the entire area is considered appropriate given this context.

2.2 Affected Area

The area affected by the proposed amendment is described as follows and as shown in Figure 1, below, and at **Attachment A**.

The Affected Area comprises approximately 11 hectares, of which about 4ha is owned by the proponent. Most is zoned for Employment (principally for properties fronting Port Road) and Strategic Employment, with the residual zoned General Neighbourhood.



Figure 1: Affected Area

2.3 Summary of proposed policy changes

2.3.1 Current Code Policy

The current use of the land in the Affected Area is predominantly a mixture of commercial, retail commercial and utilities/industry. There are small areas of residential land included in the north-western and parts of the southern central and eastern areas of the subject area.

The Affected Area currently falls within three zones; the Employment Zone, the Strategic Employment Zone and the General Neighbourhood Zone. There are no subzones. The policy content of the Zones is contained within **Attachment B**, and summarised below.

The intent of the current Employment Zones is that development provides for a range of industrial, commercial and logistic land uses at different intensities, which complement the land uses in the surrounding zones. The General Neighbourhood zone anticipates development will provide for low-rise housing at low and medium densities and some non-residential land uses which complement the residential amenity.

Collectively, the three zones envisage an area where Port Road remains a major employment arterial for large-scaled allotments with industrial/warehousing and commercial land uses which do not compromise the liveability of the surrounding and adjacent residential areas, which are to remain low-rise and low to medium-density.

There is a need to alter the zoning to facilitate mixed use development within the zone which is currently limited by the Employment Zones, and the forms of which are not specifically envisaged by the General Neighbourhood Zone.

A Technical and Numeric Variation (TNV) applies to those portions of the Affected Area within the Employment Zones and relates to maximum building heights of 12m. No specific TNV applies for building heights within the General Neighbourhood Zone for the affected area, although the Zone policy discusses heights of up to two levels and 9 metres height. These need to be changed to reflect the building forms envisaged, as well as appropriate transition heights to surrounding neighbourhood zone areas.

Twelve Overlays identified in the SA Planning and Design Code are currently applied to the area, including:

- Advertising Near Signalised Intersections
- Airport Building Heights (Regulated) – relates to buildings over 110m in height
- Future Road Widening
- Hazards (Flooding) – principally to small pockets within roads
- Hazards (Flooding – General) – covering portions of the southern part of the affected area
- Major Urban Transport Route
- Prescribed Wells Area
- Traffic Generating Development
- Urban Transport Routes
- Stormwater Management – General Neighbourhood zone areas only
- Regulated and Significant Tree
- Urban Tree Canopy – neighbourhood zone only

The majority of these overlays remain relevant to addressing these matters for future development and should continue to apply to the affected area.

A summary of the Overlay policy intent and coverage is summarised below. Full copies of the Overlay content can be found at Plan SA website (<https://code.plan.sa.gov.au/>).

Overlay	Policy Objectives and Coverage
Advertising Near Signalised Intersections	<p>Seeks to ensure a safe road environment by reducing driver distraction at key points of conflicts on roads.</p> <p>Addresses issues such as locations of advertisements, illumination and animation of advertisements.</p> <p>Triggers referral to Commissioner of Highways in certain circumstances.</p>

Overlay	Policy Objectives and Coverage
<p>Airport Building Heights (Regulated)</p>	<p>Seeks to manage the potential impacts of buildings and emissions from development in order to minimise operational and safety impacts on commercial and military airfields, airports, airstrips and helicopter landing sites.</p> <p>Covers issues such as ensuring buildings are below the designated OLS levels surrounding these facilities, as well as avoidance of plumes from stacks in these locations.</p> <p>Triggers referral to the airport operator company for the relevant airport or Secretary of the Minister responsible for the administration of the Commonwealth Airports Act, 1996.</p>
<p>Future Road Widening</p>	<p>Seeks to ensure that development does not compromise the efficient delivery of future road widening requirements.</p> <p>Seeks that development is not positioned within identified road widening areas on the Metropolitan Adelaide Road Widening Plan.</p> <p>Triggers referral to the Commissioner of Highways for developments in these scenarios.</p>
<p>Hazards (Flooding)</p>	<p>Seeks to ensure that impacts and risks to people, property and infrastructure are minimised by restricting development within identified high flood risk areas.</p> <p>Covers issues such as land division layouts, building placement, and avoiding certain uses that involved vulnerable and large assembly of people. Also identifies need to design development to avoid diverting floodwaters or impeding floodwaters, as well as preventing entry of floodwaters into buildings.</p>
<p>Hazards (Flooding – General)</p>	<p>Seeks to minimise the risk on people, property and infrastructure within general flood risk areas.</p> <p>Covers issues such as building locations, minimum finished floor levels for buildings and avoidance of storage of hazardous materials in flood prone locations.</p>
<p>Major Urban Transport Route</p>	<p>Seeks the safe and efficient operation of major urban transport routes, as well as safe and efficient access to and from these routes.</p> <p>Addresses issues of appropriate driveway locations, sight distances, as well as new road locations and junctions.</p> <p>Triggers referral to the Commissioner of Highways for certain development scenarios.</p>

Overlay	Policy Objectives and Coverage
Prescribed Wells Area	<p>Seeks the sustainable use of prescribed wells.</p> <p>Addresses issues associated with ensuring sustainable usage and supply of water without placing strain on groundwater sources.</p> <p>Triggers referral to the Chief Executive of the Department of the Minister responsible for the Landscape South Australia Act 2019.</p>
Traffic Generating Development	<p>Seeks the safe and efficient operation of urban transport routes and the safe and efficient access to and from these routes.</p> <p>Addresses issues of appropriate driveway locations, and access for certain large traffic generating types of developments adjacent to a State Maintained road.</p> <p>Triggers referral to the Commissioner of Highways for certain development scenarios.</p>
Urban Transport Routes	<p>Seeks the safe and efficient operation of urban transport routes and the safe and efficient access to and from these routes.</p> <p>Addresses issues of appropriate driveway locations, and access for developments to minimise traffic flow interruptions on State Maintained Roads.</p> <p>Triggers referral to the Commissioner of Highways for certain development scenarios.</p>
Stormwater Management	<p>Seeks that development incorporates water sensitive urban design techniques to capture and re-use stormwater.</p> <p>Addresses issues such as inclusion of water tanks and other retention and detention devices connected to dwellings for re-use.</p>
Regulated and Significant Tree	<p>Seeks the conservation of regulated and significant trees to provide aesthetic and environmental benefits and mitigate tree loss.</p> <p>Addresses issues protecting trees that make contribution of local amenity and character, limiting tree damaging activity through design and placement of development.</p>
Urban Tree Canopy	<p>Seeks residential development that preserves and enhances tree canopy through the planting of new trees and retention of existing mature trees.</p> <p>Suggests tree planting spaces and deep soil zones for development for different lot size scenarios.</p>

2.3.2 Proposed Code Policy

The future zoning for the Affected Area will need to support mixed use development, comprising of medium to high-density residential and commercial development that serves the local community. In order to achieve this it is proposed that the policy regime for the Affected Area be changed as follows.

- Rezone the land to the Suburban Business Zone along the Port Road and West Lakes Boulevard Frontage and Housing Diversity Neighbourhood Zone at the interface with surrounding General Neighbourhood Zone (Murray Street, Grace Street, Glyde Street and Jervois Street)

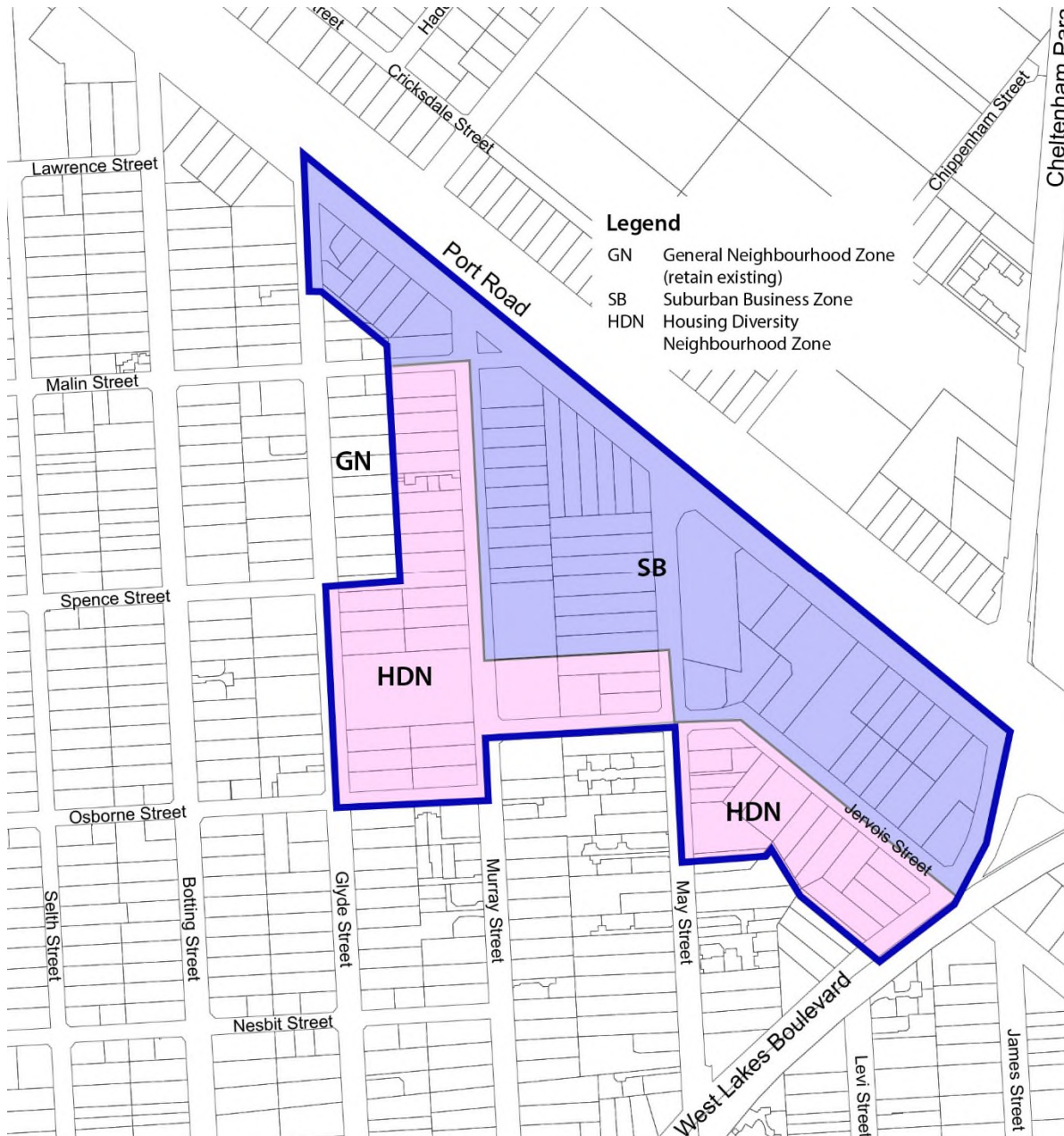


Figure 1: Proposed Zones

- Ensure Technical and Numerical Variations within each Zone (where relevant) reflect the four and three storey maximum building heights distributed throughout the Affected Area

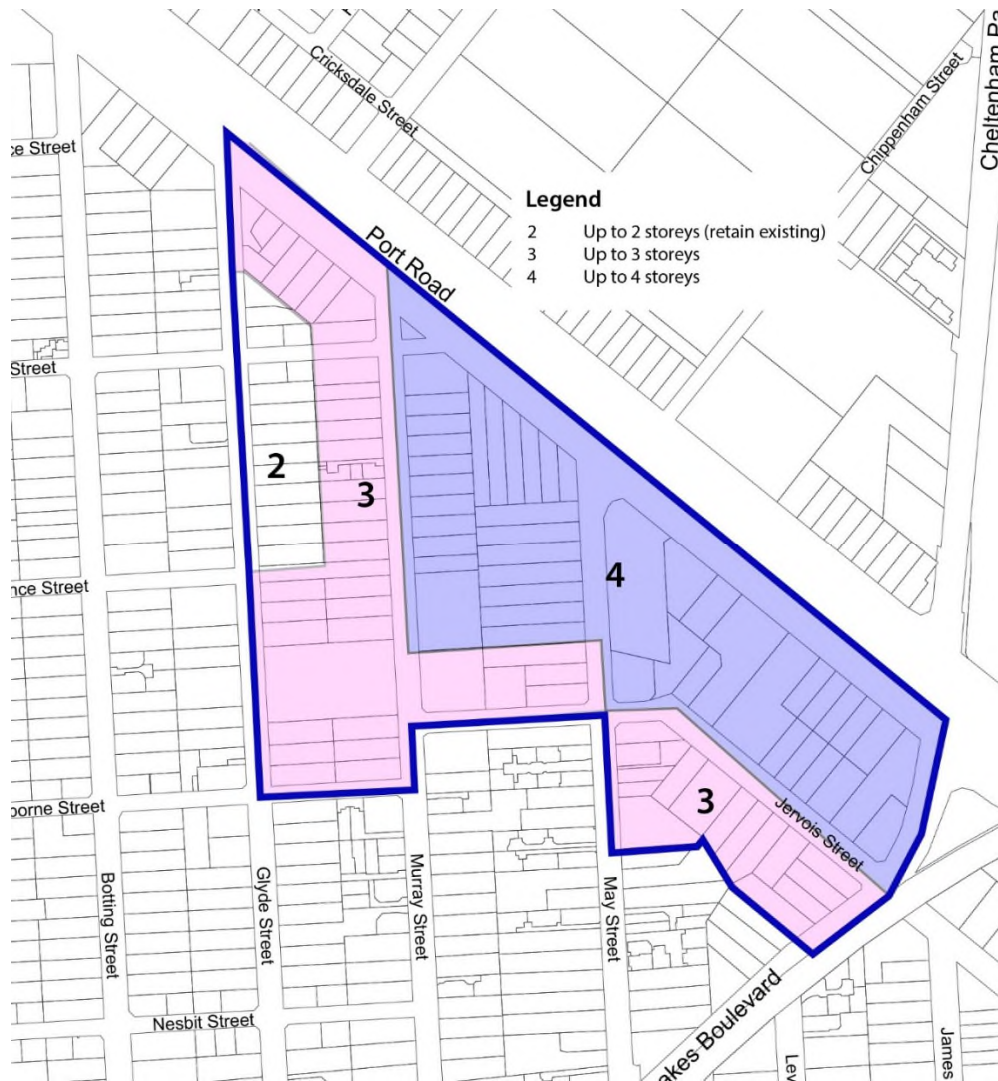


Figure 2: Proposed Building Heights

- Include a Concept Plan Map for the Affected Area which addresses the desired:
 - key vehicle access locations
 - key pedestrian and cycling movements
 - location of active frontages
 - location and extent of public open space
 - stormwater management infrastructure (eg detention and WSUD basins)
- Apply the Noise and Air Emissions Overlay to the Affected Area
- Apply the Affordable Housing Overlay to the Affected Area
- Apply the Interface Management Overlay to the Affected Area
- Extend the Stormwater Management Overlay to areas in the Affected Area proposed in the Housing Diversity Neighbourhood Zone
- Extend the Urban Tree Canopy Overlay to areas in the Affected Area proposed in the Housing Diversity Neighbourhood Zone

The proposed policy changes are shown in **Attachment C**.

3. WHAT ARE THE NEXT STEPS FOR THIS CODE AMENDMENT?

3.1 Engagement

Engagement on the draft Code Amendment must occur in accordance with the Community Engagement Charter principles, which required that:

- engagement is genuine
- engagement is inclusive and respectful
- engagement is fit for purpose
- engagement is informed and transparent
- engagement processes are reviewed and improved.

An Engagement Plan has been prepared for this draft Code Amendment to ensure that engagement will be conducted and measured against the principles of the Charter. For more information on the Community Engagement Charter go to the SA Planning Portal at (www.plan.sa.gov.au).

A summary of the engagement that is occurring for this draft Code Amendment is as follows:

- An 8-week consultation process
- A notice placed within The Advertiser
- A copy of the draft Code Amendment being placed on the SA Planning Portal (www.plan.sa.gov.au)
- Information on Council's 'Your Say Charles Sturt' website, with information on the Code Amendment including, but not limited to a copy of the draft Code Amendment, FAQs and information on how to make a submission.
- Copies of draft Code Amendment and information brochure to be made available at Council offices and libraries.
- A written notice to all property owners within the affected area and other property owners immediately surrounding the affected area inviting them to review and comment on the draft policy.
- Invitation to prepare submissions online or via post.
- Information brochure outlining what the Code Amendment is about, the proposed policy amendments, how interested persons can comment.
- City of Charles Sturt social media platforms.

A Public Meeting will be held at the conclusion of the consultation process, at which time any interested person may appear before Council's City Services Committee to make representations on the proposed amendment.

3.2 How can I have my say on the Code Amendment?

There are several ways in which you can provide feedback on the Code Amendment. This includes:

- a) Online on the SA Planning Portal
(https://plan.sa.gov.au/have_your_say/general_consultations)

(Insert QR Code here)

Use your smart phone to scan this code

- b) Via Council's [YourSay Charles Sturt website](#)

or

emailed to: (insert officer's email here)

or

Posted to:

Chief Executive Officer
City of Charles Sturt
PO Box 1, Woodville SA 5011

- c) Attending and speaking at the public meeting proposed for this draft Code Amendment
(please indicate in your written submission your desire to be heard at the Public Meeting).

3.3 What changes to the Code Amendment can my feedback influence?

There are ways in which feedback from respondents can influence the outcome of the proposed Code Amendment. These include decisions made associated with:

- a) The type of zone(s) selected for the affected area, and the extent of its spatial application across the affected area.
- b) Potential building heights and setbacks applicable to parts of the zones, as well as other applicable 'Technical and Numerical Variations' (TNV) that are available to the selected zone(s).
- c) The desired location and size (up to a maximum of 12.5% of the developable area) of future public open space.
- d) Desired pedestrian, cycle linkages

As the Planning and Design Code is a State Government document that applies to the whole State (and not just Council), there is no scope for changes to the specific policy content of Core Modules of the Code, other than where identified as a Technical and Numerical Variation (such as for building heights). In addition, the following elements cannot be influenced through this Code Amendment process:

- e) The geographic extent of the Code Amendment Affected Area.
- f) The creation or amendment of policy contained within the Planning and Design Code.
- g) The extent and placement of desired land uses.

- h) The percentage of physical public open space contribution (legislated).
- i) The design of future development proposals eg: dwelling applications.
- j) The type of future non-residential development proposals.
- k) The design of future public open space.

3.4 What will happen with my feedback?

The City of Charles Sturt is committed to undertaking consultation in accordance with the principles of the Community Engagement Charter and is genuinely open to considering the issues raised by people in the community.

All formal submissions will be considered by the City of Charles Sturt when determining whether the proposed Amendment is suitable and whether any changes should be made.

Each submission will be entered into a register and you will receive an email acknowledging receipt of your submission. Your submission will be published on the SA Planning Portal. Personal addresses, email and phone numbers will not be published, however company details will be.

The City of Charles Sturt will consider the feedback received in finalising the draft Code Amendment and will prepare an Engagement Report which will outline what was heard during consultation and how the proposed Code Amendment was changed in response to submissions.

The Engagement Report will be forwarded to the Minister, and then published on the SA Planning Portal.

3.5 Decision on the Code Amendment

Once the Engagement Report is provided to the Minister, the Commission may provide further advice to the Minister, at the Minister's request, if the Code Amendment is considered significant.

The Minister will then either adopt the Code Amendment (with or without changes) or determine that the Code Amendment should not proceed. The Minister's decision will then be published on the SA Planning Portal.

If adopted, the Code Amendment will be referred to the Environment Resources and Development Committee of Parliament (ERDC) for their review. The Commission will also provide the Committee with a report on the Code Amendment, including the engagement undertaken on the Code Amendment and its compliance with the Community Engagement Charter.

4. ANALYSIS

4.1 Strategic Planning Outcomes

4.1.1 Consistency with the State Planning Policies

State Planning Policies define South Australia's planning priorities, goals and interests. They are the overarching umbrella policies that define the state's interests in land use. There are 16 State Planning Policies and six special legislative State Planning Policies.

These policies are given effect through the Code, with referral powers assigned to relevant Government Agencies (for example, the Environmental Protection Agency for contaminated land). The Code (including any Code Amendments) must comply with any principle prescribed by a State Planning Policy.

This draft Code Amendment is considered to be consistent with the State Planning Policies as shown in **Attachment D**.

4.1.2 Consistency with the Regional Plan

The directions set out in Regional Plans provide the long-term vision and set the spatial patterns for future development within a region. This can include land use integration, transport infrastructure and the public realm.

The Commission has identified that the existing volumes of the South Australian Planning Strategy, prepared under the *Development Act 1993*, will apply until such time as the new Regional Plans are prepared and adopted. Refer to the SA Planning Portal for more information on the Commission's program for implementing Regional Plans throughout South Australia.

Where there is conflict between a Regional Plan and the State Planning Policies, the State Planning Policies will prevail.

This draft Code Amendment is considered to be consistent with the Regional Plan (30 Year Plan for Greater Adelaide) as shown in **Attachment D**.

4.1.3 Consistency with other key strategic policy documents

This Code Amendment aligns with other key policy documents in the following manner:

City of Charles Sturt Community Plan 2020-2027

The supports the following policies of the City's Community Plan by:

Theme/Objective	Comment
Our Liveability: A well-designed urban environment that is adaptive to a diverse and growing City	The draft Code Amendment proposes to rezone an area which is no longer fit for its current purpose, and will enable population growth to occur. It is therefore responsive to and supportive of a growing and changing city.
Enhance the diversity of open spaces to create innovative, accessible and flexible community spaces	The draft Code Amendment investigates the potential provision of a new public open space that will help address an identified lack of it in the area. A suggested

Our Environment
 Our city is greener to reduce heat island effects and enhance our biodiversity

location is identified and policy support provided to its provision.

Our Liveability
 Drive an integrated, responsive transport system and well maintained network of roads and paths that facilitate safe, efficient and sustainable connections

The draft Code Amendment proposes to encourage residents in a sustainable location near public transport. The investigations have regard to the implications of the potential development on the road network and any road infrastructure upgrades identified.

Our Economy:
 Businesses and industry sectors continue to grow and diversify

The site is not considered prime industrial land. The draft Code Amendment proposes a zone and policy support which enable new types of employment opportunities which are respectful of the current and proposed future residents.

4.3 Infrastructure planning

The following infrastructure planning is relevant to this Code Amendment:

Council Infrastructure Planning	Response/Comment
Stormwater	Existing pit and pipe infrastructure exists within the road network of the Affected Area. A level of on-site detention and detention will be required to manage stormwater resulting from anticipated future development of the Affected Area, noting that the sites are largely already completely impervious in nature.
Roads	<p>The surrounding road network is sufficient to support anticipated traffic movements from anticipated development of the affected Area.</p> <p>Recent intersection upgrades to West Lakes Boulevard and Port Road have been undertaken to improve conditions and capacity.</p> <p>New roads may be required within the Affected Area to service future development. The location and layout of the new roads will be subject to future design, but will connect into the existing road network and have regard to Council requirements. In particular, a desire to prevent movements from within the affected area south along Murray Street.</p>

Government Agency Infrastructure Planning	Response/Comment
Mains Water and Sewer	<p>The Affected Area is currently serviced by water mains and the network has capacity to cater for the development. SA Water have advised of no specific planning works within or affecting the affected area, however, there will likely be some localised augmentation works to some pipes.</p> <p>The Affected area is currently serviced by mains sewer and the network has capacity to cater for the development. SA Water have advised that of no specific planning works within or affecting the affected area, however, there will likely be some localised augmentation works to some pipes. Upgrades of the Queensbury Pump Station will be dependent on the scale of the future development, and would be at developer's cost.</p>
Electricity	<p>SA Power Networks have advised that the existing power supply network for the Affected Area has sufficient capacity to accommodate the anticipated additional loads from development. If additional loads are required as a result of development, then standard augmentation rates would apply.</p>
Gas	<p>APA have advised that the natural gas network has sufficient capacity to service future development and that no specific projects are required or planned.</p>
Communications	<p>NBN have advised that there is sufficient capacity in their network to support the development.</p>

The above upgrades to infrastructure can be economically provided to the Affected Area. As such no further agreements or other arrangements are required to fund the infrastructure. Infrastructure assets such as roads and open space that will ultimately be vested with Council will be subject to further agreement with the Council at the development application stage to ensure that relevant infrastructure is consistent with Council requirements.

Electricity, gas and water will be provided by the relevant service providers with any associated costs for connections to be met by applicants of future land use development applications.

4.4 Investigations

The extent of investigations that have been undertaken as part of the Code Amendment process have been agreed by the Minister in the Proposal to Initiate. In addition to this, the Commission has also specified certain investigations to be undertaken to support the Code Amendment.

The following investigations have been undertaken to inform this Code Amendment:

4.4.1 Industrial land study (2008)

This study considered the industrial land stock within the City of Charles Sturt by identifying existing industrial land supply and assessing its value in continuing with its current industrial use, or undergoing rezoning in order to potentially consider alternative land uses.

The study did not identify any of the Affected Area as 'Prime Industrial Area'; noting that little or no manufacturing occurs at Albert Park. In general terms the study suggested a complete rethinking of the zone may be warranted and in particular:

- *the balance of the precinct is of little broader industrial significance and may be best suited to service industry and service trades*
- *there are minor opportunities to rationalise boundaries on the southern side to integrate isolated commercial and industrial sites*
- *the old cold storage facility warrants review in anticipation of the demise of an aging facility*
- *residential interface along the southern boundary could be improved.*

Given the interface issues arising from the interface of some of this location, as well as the aging infrastructure of some of the uses (particularly along Murray Street), there is value in pursuing zoning that supports a broader range of small scale commercial and retail land uses to take advantage of the visual prominence of the affected areas and particularly Port Road and West Lakes Boulevard corner, and exposure to passing traffic.

Management of the residential interface is needed to be addressed through a policy setting that provides for transition to the established residential areas, and which seeks to ensure that future non-residential land uses are design and operated in a manner that mitigates impacts on established (and future) residential development.

Conversely, it is appropriate to consider a policy framework for the Affected Area that supports ensuring any future sensitive receivers (ie residential development) is designed having regard to the potential mixed use nature of future development.

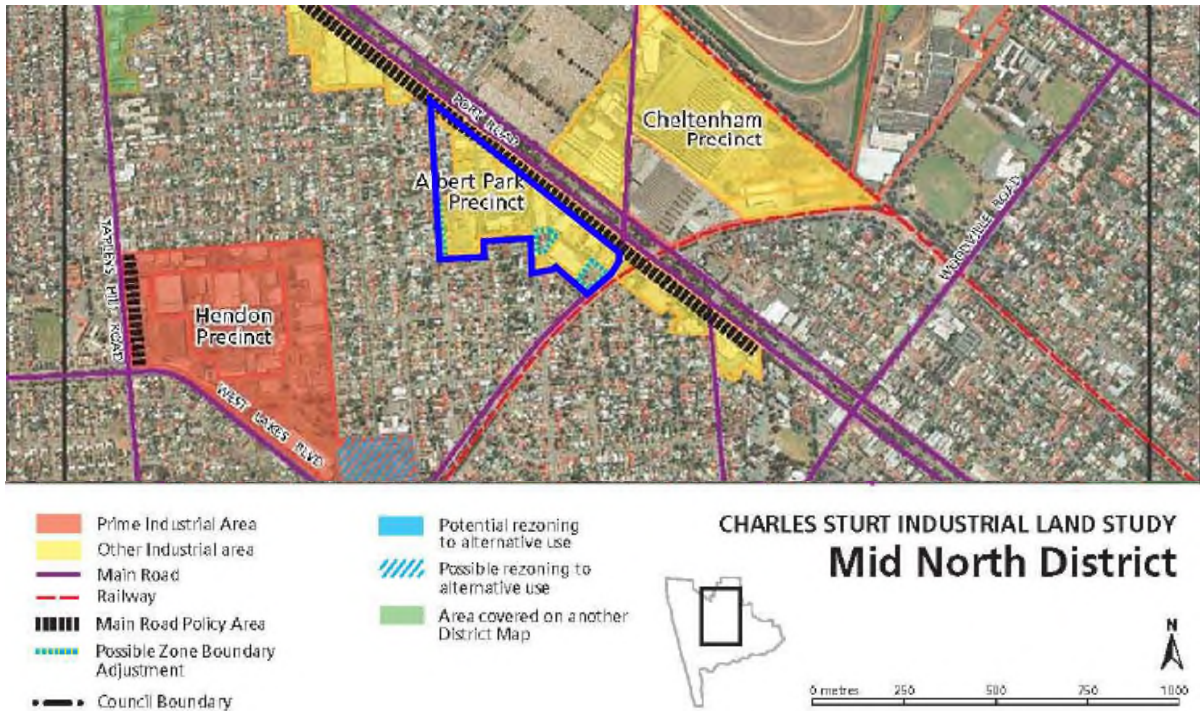


Figure 3: Representation of Albert Park Precinct within the Industrial Land Study (2008)

4.4.2 City of Charles Sturt Urban Employment Land Review (2019)

This review was undertaken to update the Council's understanding of its industrial land stock. Again, none of the Affected Area was identified as Prime Industrial Land, and the possibility of rezoning the former cold storage site (Figure 4) was similarly raised. In addition, the report mentions possible consolidation of the Gateway Church site (Figure 5) into the residential zone (where such a use is an envisaged use). It is clear that the affected area has marginal utility in its current zone and benefit could be derived from changing the land uses. However, the Study had too narrow a scope to make strategic recommendations for entire precincts.

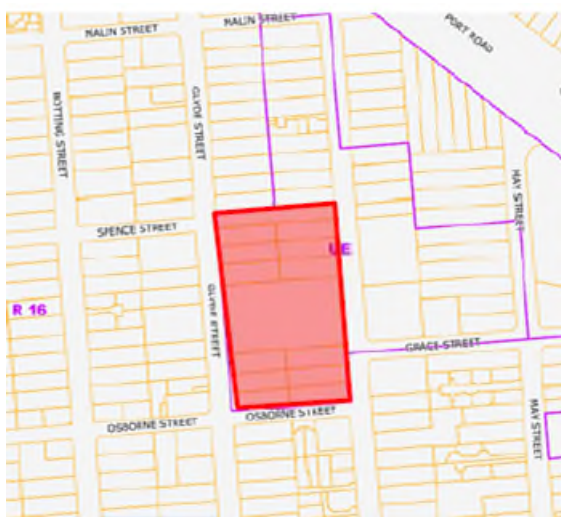


Figure 4: Former Cold Storage site



Figure 5: Gateway Church site

4.4.3 Proponent's Statement of Justification

A statement of justification was presented to Council to seek endorsement to initiate a Code Amendment process in accordance with the requirements of Council's privately-funded Code Amendment policy.

The statement of justification requested that the City of Charles Stuart initiate a part privately-funded Code Amendment in order to establish a more supportive planning policy framework for the Affected Area.

Several key justifications for the proposed rezoning were provided as follows:

- The Affected Area is not a Prime Industrial Area identified in Council's 'Industrial Land Use Study 2008';
- The buildings on the sites within the Affected Area have or are reaching the end of their economic life and complete redevelopment will be required under a more restrictive zoning regime than the original development;
- The configuration and fragmentation of the sites and ownership does not support their efficient and economic use for industrial, commercial or bulky goods retail uses;
- The change of zoning will not impact adversely on the continuing operation of existing business but will facilitate the redevelopment of the Affected Area to more appropriate land uses at the residential interface; and
- The interface issues with adjacent and nearby residential properties cannot be adequately overcome without further reducing the utility of the Affected Area sites.

Implications for Policy

The above previous studies undertaken prior to the Code's initiation identify an appropriateness to consider other higher and better land uses for the affected area. This implies a need to rezone the land to facilitate mixed use development and residential development.

4.4.4 Interface with Non-Residential Land Uses and Noise Sources

The interface between the Affected Area and nearby non-residential land uses is an important consideration as part of this Code Amendment, particularly as it seeks to introduce sensitive land uses (ie residential) in the affected area. EPA-licenced facilities identified within 800m of the affected area and the recommended evaluation distances applicable to them are summarised below.

Licenced activity	Address	Recommended evaluation distance	Distance from Affected Area
50940 - Petroleum – petrol filling station	OTR, 938-942 Port Road Woodville West	All other 24 hours operations – 200m	70 metres
50854 - Manufacturing – powder coating	Betta Powder Coating, 17 Circuit Drive, Hendon	300m – where capacity is more than 100 litres of paint or 10kg of dry powder a day	350 metres

Licensed activity	Address	Recommended evaluation distance	Distance from Affected Area
		100m – where capacity is less than 100 litres of paint or 10kg of dry powder a day	
50576 - Petroleum – petrol filling station	Coles Express, 827/837 Port Road, Woodville	Normal hours of operation – 50m	380 metres
797 - Resource Recovery/Waste Disposal – semiconductors (activity producing listed waste)	Hendon Semiconductors, 1 Butler Drive, Hendon		470 metres
50867 - Petroleum – petrol filling station	Liberty, 801 Port Road, Woodville	Normal hours of operation – 50m	650 metres

Table 1: Nearby Licensed Activities and Evaluation Distances

All but one of the petrol filling stations are outside of the recommended evaluation distance and therefore not likely to impact on potential residential land uses through noise and air quality impacts.

The other two licenses are within the Hendon business park and given access is only onto Tapleys Hill Road and the existing intervening residential development, are not assessed as having potential to impact on new residential development within the affected area.

The existing OTR petrol filling station is within the evaluation distance designated due to its 24-hour operation. However, notwithstanding this, it is considered the likely noise sources and impacts would not be dissimilar from that emanating from Port Road and such impacts could be suitably addressed through the *Ministerial Building Standard 010 - Construction requirements for the control of external sound*, triggered by the Noise and Air Emissions Overlay.

While not requiring a license, there are other potential noise and air emission activities within 800 metres of the affected area which may impact residential amenity. These include:

- Festival City - bulk wine storage (within the affected area)
- Statesman's Windows – Door and Window fabrication
- National Storage, Cheltenham – 24-hour storage facility
- CMI Toyota Cheltenham – car dealership and service centre
- Moyle Bendale Timber – timber importer and moulding specialists
- Bunnings Woodville – Bulky goods retail
- Harvey Norman Woodville – Bulky goods retail
- Portside Mitsubishi – car dealership and service centre (within the affected area)

- Ripper Print – printing
- Sola Seal – Window tinting
- Moores - Saw Sharpening
- Cast Stone – stone and concrete residential fencing products (within the affected area)
- Tradelink – retail and warehouse (within the affected area)
- Spotlight – retail (within the affected area)
- Gateway Baptist Church (within the affected area)
- Numerous warehouses and engineering businesses (mostly within affected area)

Most of these activities produce little noise and air emissions that would impact on residential development. In fact, most activities currently adjoin residential development. As such, the potential for unreasonable amenity impacts of these activities on potential future residential land uses are considered to be able to be managed through policy and appropriate design and construction responses, such as those found within the *Ministerial Building Standard 010 - Construction requirements for the control of external sound*, triggered by the Noise and Air Emissions Overlay.

The presence of both Port Road, West Lakes Boulevard and the Adelaide – Grange rail corridor in themselves present as noise and air pollution sources. It is important that the potential impacts from these noise and air sources are mitigated to maintain an appropriate residential amenity for any new residential development within the affected area.

It is also acknowledged that there will continue to be small scale lawful businesses within the affected area that will be potential sources of noise directly adjacent to the potential future sensitive uses. In this circumstance, it is important to ensure that the sensitive use is suitably designed and located to mitigate known impacts of these uses, so that they are not compromised into the future and can continue to operate without further restrictions imposed. In this regard, there is value in applying the Interface Management Overlay to the affected area. This overlay also addresses the appropriate design and placement of sensitive receiver development against the potential noise sources of adjacent development. This overlay, together with the Noise and Air Emissions Overlay would provide the appropriate balanced policy approach to mitigating conflicts between non-residential and residential development.

Implications for Policy

There is existing policy coverage within the P&D Code which ensures activities are consistent with the Environment Protection (Noise) Policy. This applies to both new sensitive receivers and noise sources.

The Noise and Air Emissions Overlay should be engaged where the impacts of existing high-volume transport corridors and mixed land use may need to be mitigated on new sensitive development in the area.

The overlay applies to all areas that are likely to be affected by noise and air emissions, including zones which allow for mixed uses. Port Road, a Type A Road, borders the area, and a section is adjacent the Grange railway. Therefore, the overlay is applicable for the affected area and will mitigate potential impacts for the interface with non-residential land uses.

The Interface Management Overlay should also be applied to the Affected Area to ensure new sensitive receiver development is appropriately designed to mitigate impacts on lawful non-residential development within the affected area.

4.4.5 Traffic Impact Assessment

A Traffic Assessment has been undertaken by GTA Consultants based on the potential development scenario for the Affected Area. The report examines the existing traffic and parking conditions, alternative transport capacity (cycling, pedestrian, public transport), likely traffic generation and parking demands as a result of the potential development, proposed access arrangements, as well as the potential impact on traffic volumes on the performance of the surrounding road network. The full report is contained within **Attachment E** and is summarised below.

Traffic Generation

GTA have modelled potential post development traffic generation from indicative development within the Affected Area on the assumption that the Affected Area could accommodate:

- a total of up to 550 dwellings;
- 35 existing standard dwellings will remain;
- up to 10,500m² of commercial floor space; and
- up to 3,500m² of retail floor space.

Based on the above full development capacity, the Affected Area is expected to generate in order of 822 peak hour trips and 6,973 daily trips across the entire day post development. This equates to a net increase of 208 vehicle trips in peak hour traffic generation, of which, 55% of these additional trips are associated with retail / commercial properties.

In terms of the impact of the additional traffic generation on the adjacent road network, it was concluded by GTA that the impact is likely to be minimal during the peak periods with a net increase of only:

- 60 vehicles at the intersection of May Street / Port Road
- 25 vehicles at the intersection of Jervois Street / West Lakes Boulevard
- 6 vehicles at the intersection of May Street / West Lakes Boulevard
- an additional 35 vehicles along Murray Street (noting closure to through movements south currently in place will be retained) with 21 southbound and 14 northbound
- 18 vehicle movements along Glyde Street, with 6 being southbound and 12 northbound.

High level traffic modelling has predicted that each key intersection in the surrounding network of the Affected Area will continue to operate satisfactorily with the anticipated additional post development traffic volumes, with minor increase in queue length and degree of saturation.

Car Parking

GTA concluded that there are no existing parking issues within the Affected Area. The ratios to accommodate parking demand are identified within the SA Planning and Design Code for different types of development as summarised in the table below. All proposed developments are expected to provide parking on site in accordance with the Code's requirements as per Table 1- General Off-Street Car Parking Requirements as detailed below.

Class of Development	Car Parking Rate Where a development comprises more than one development type, then the overall car parking rate will be taken to be the sum of the car parking rates for each development type.
Residential Development	
Detached Dwelling	Dwelling with 1 bedroom (including rooms capable of being used as a bedroom) - 1 space per dwelling. Dwelling with 2 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling, 1 of which is to be covered.
Group Dwelling	Dwelling with 1 or 2 bedrooms (including rooms capable of being used as a bedroom) - 1 space per dwelling. Dwelling with 3 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling, 1 of which is to be covered. 0.33 spaces per dwelling for visitor parking where development involves 3 or more dwellings.
Residential Flat Building	Dwelling with 1 or 2 bedrooms (including rooms capable of being used as a bedroom) - 1 space per dwelling. Dwelling with 3 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling, 1 of which is to be covered. 0.33 spaces per dwelling for visitor parking where development involves 3 or more dwellings.
Row Dwelling where vehicle access is from the primary street	Dwelling with 1 bedroom (including rooms capable of being used as a bedroom) - 1 space per dwelling. Dwelling with 2 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling, 1 of which is to be covered.
Row Dwelling where vehicle access is not from the primary street (i.e. rear-loaded)	Dwelling with 1 or 2 bedrooms (including rooms capable of being used as a bedroom) - 1 space per dwelling. Dwelling with 3 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling, 1 of which is to be covered.
Semi-Detached Dwelling	Dwelling with 1 bedroom (including rooms capable of being used as a bedroom) - 1 space per dwelling. Dwelling with 2 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling, 1 of which is to be covered.
Aged / Supported Accommodation	
Retirement village	Dwelling with 1 or 2 bedrooms (including rooms capable of being used as a bedroom) - 1 space per dwelling. Dwelling with 3 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling. 0.2 spaces per dwelling for visitor parking.
Supported accommodation	0.3 spaces per bed.
Residential Development (Other)	
Ancillary accommodation	No additional requirements beyond those associated with the main dwelling.
Residential park	Dwelling with 1 or 2 bedrooms (including rooms capable of being used as a bedroom) - 1 space per dwelling.

Class of Development	Car Parking Rate
	Where a development comprises more than one development type, then the overall car parking rate will be taken to be the sum of the car parking rates for each development type.
	Dwelling with 3 or more bedrooms (including rooms capable of being used as a bedroom) - 2 spaces per dwelling. 0.2 spaces per dwelling for visitor parking.
Student accommodation	0.3 spaces per bed.
Workers' accommodation	0.5 spaces per bed plus 0.2 spaces per bed for visitor parking.
Tourist	
Caravan park / tourist park	Parks with 100 sites or less - a minimum of 1 space per 10 sites to be used for accommodation. Parks with more than 100 sites - a minimum of 1 space per 15 sites used for accommodation. A minimum of 1 space for every caravan (permanently fixed to the ground) or cabin.
Tourist accommodation	1 car parking space per accommodation unit / guest room.
Commercial Uses	
Auction room/ depot	1 space per 100m ² of building floor area plus an additional 2 spaces.
Automotive collision repair	3 spaces per service bay.
Call centre	8 spaces per 100m ² of gross leasable floor area.
Motor repair station	3 spaces per service bay.
Office	4 spaces per 100m ² of gross leasable floor area.
Retail fuel outlet	3 spaces per 100m ² gross leasable floor area.
Service trade premises	2.5 spaces per 100m ² of gross leasable floor area 1 space per 100m ² of outdoor area used for display purposes.
Shop (no commercial kitchen)	5.5 spaces per 100m ² of gross leasable floor area where not located in an integrated complex containing two or more tenancies (and which may comprise more than one building) where facilities for off-street vehicle parking, vehicle loading and unloading, and the storage and collection of refuse are shared. 5 spaces per 100m ² of gross leasable floor area where located in an integrated complex containing two or more tenancies (and which may comprise more than one building) where facilities for off-street vehicle parking, vehicle loading and unloading, and the storage and collection of refuse are shared.
Shop (in the form of a bulky goods outlet)	2.5 spaces per 100m ² of gross leasable floor area.
Shop (in the form of a restaurant or involving a commercial kitchen)	Premises with a dine-in service only (which may include a take-away component with no drive-through) - 0.4 spaces per seat. Premises with take-away service but with no seats - 12 spaces per 100m ² of total floor area plus a drive-through queue capacity of ten vehicles measured from the pick-up point. Premises with a dine-in and drive-through take-away service - 0.3 spaces per seat plus a drive through queue capacity of 10 vehicles measured from the pick-up point.
Community and Civic Uses	
Childcare centre	0.25 spaces per child

Class of Development	Car Parking Rate
	Where a development comprises more than one development type, then the overall car parking rate will be taken to be the sum of the car parking rates for each development type.
Library	4 spaces per 100m ² of total floor area.
Community facility	10 spaces per 100m ² of total floor area.
Hall / meeting hall	0.2 spaces per seat.
Place of worship	1 space for every 3 visitor seats.
Pre-school	1 per employee plus 0.25 per child (drop off/pick up bays)
Educational establishment	For a primary school - 1.1 space per full time equivalent employee plus 0.25 spaces per student for a pickup/set down area either on-site or on the public realm within 300m of the site. For a secondary school - 1.1 per full time equivalent employee plus 0.1 spaces per student for a pickup/set down area either on-site or on the public realm within 300m of the site. For a tertiary institution - 0.4 per student based on the maximum number of students on the site at any time.
Health Related Uses	
Hospital	4.5 spaces per bed for a public hospital. 1.5 spaces per bed for a private hospital.
Consulting room	4 spaces per consulting room excluding ancillary facilities.
Recreational and Entertainment Uses	
Cinema complex	0.2 spaces per seat.
Concert hall / theatre	0.2 spaces per seat.
Hotel	1 space for every 2m ² of total floor area in a public bar plus 1 space for every 6m ² of total floor area available to the public in a lounge, beer garden plus 1 space per 2 gaming machines, plus 1 space per 3 seats in a restaurant.
Indoor recreation facility	6.5 spaces per 100m ² of total floor area for a Fitness Centre 4.5 spaces per 100m ² of total floor area for all other Indoor recreation facilities.
Industry/Employment Uses	
Fuel depot	1.5 spaces per 100m ² total floor area 1 spaces per 100m ² of outdoor area used for fuel depot activity purposes.
Industry	1.5 spaces per 100m ² of total floor area.
Store	0.5 spaces per 100m ² of total floor area.
Timber yard	1.5 spaces per 100m ² of total floor area 1 space per 100m ² of outdoor area used for display purposes.
Warehouse	0.5 spaces per 100m ² total floor area.
Other Uses	
Funeral Parlour	1 space per 5 seats in the chapel plus 1 space for each vehicle operated by the parlour.
Radio or Television Station	5 spaces per 100m ² of total building floor area.

The Code provides off-street car parking policy within two tables which have differing ratios for selected land uses, depending on whether the location is within a designated area.

The identification of the affected area as a Designated Area is not considered appropriate as it does not achieve the conditions within Table 2 – Off Street Parking Requirements for Designated Areas as contained within the Transport, Access and Parking General Development Module of the Planning and Design Code (and the identified exception Zones are not envisaged to be utilised within the proposed Code Amendment) due to the intensity, scale and forms they envisage. These conditions relate to a site that:

- a) is within 200 metres of any section of road reserve along which a bus service operates as a high frequency public transit service (ie a Go Zone)
- b) is within 400 metres of a bus interchange
- c) is within 400 metres of an O-Bahn interchange
- d) is within 400 metres of a passenger rail station
- e) is within 400 metres of a passenger tram station
- f) is within 400 metres of the Adelaide Parklands.

The affected area is outside of 400 metres from the nearest rail station, as well as greater than 200 metres from a Go Zone bus route (Port Road is not identified as a Go Zone),

Implication for Policy

The potential future development of the Affected Area is not likely to warrant any significant upgrade of any road infrastructure or junctions, and as such there is no need to cover this need through local addition policy. There is sufficient coverage within existing policies contained in the P & D Code to address safe and efficient access for future development, as well as provision of suitable on-site car parking and servicing of development.

The Code would apply the typical car parking ratios for development within Table 1 – Off Street Vehicle Parking Requirements (this will be automatically triggered by virtue of not achieving the designated area conditions and the affected area not applying the exclusions type Zones).

4.4.6 Pedestrian & Bicycle Planning/Integration with Public Transport

The existing pedestrian infrastructure within the Affected Area comprises sealed pedestrian paths, always on at least one side of the street and where more clearly residential in character, often both sides of the carriageway. Apart from the intersection of Port Road and West Lakes Boulevard, there are no signalised pedestrian crossing points on the Port Road frontage, although there are recently installed (compliant) pram ramps at the entrances to May and High Streets. There is not a great diversity of use within the Affected Area at present and the main attractors of pedestrian activity are along Port Road, aside from the train station on West Lakes Boulevard.

The opportunity exists to extend Spence Street beyond Glyde Street to Murray Street, creating additional permeability (**as a pedestrian/cycle only connection**). Some other blocks may likewise lend themselves to the creation of new streets or laneways, which would be desirable as the existing street grid tends to have large blocks that discourage walking and make routes longer. In terms of being a walkable neighbourhood, there already exist a number of local businesses and services – food and drink, convenience retail and a supermarket, childcare and schooling, a post office – within 800m which would enable residents to meet a good portion of their daily needs within reasonable walking distance. The intended proposed zoning would encourage a greater diversity within the site itself, enabling a more sustainable community.

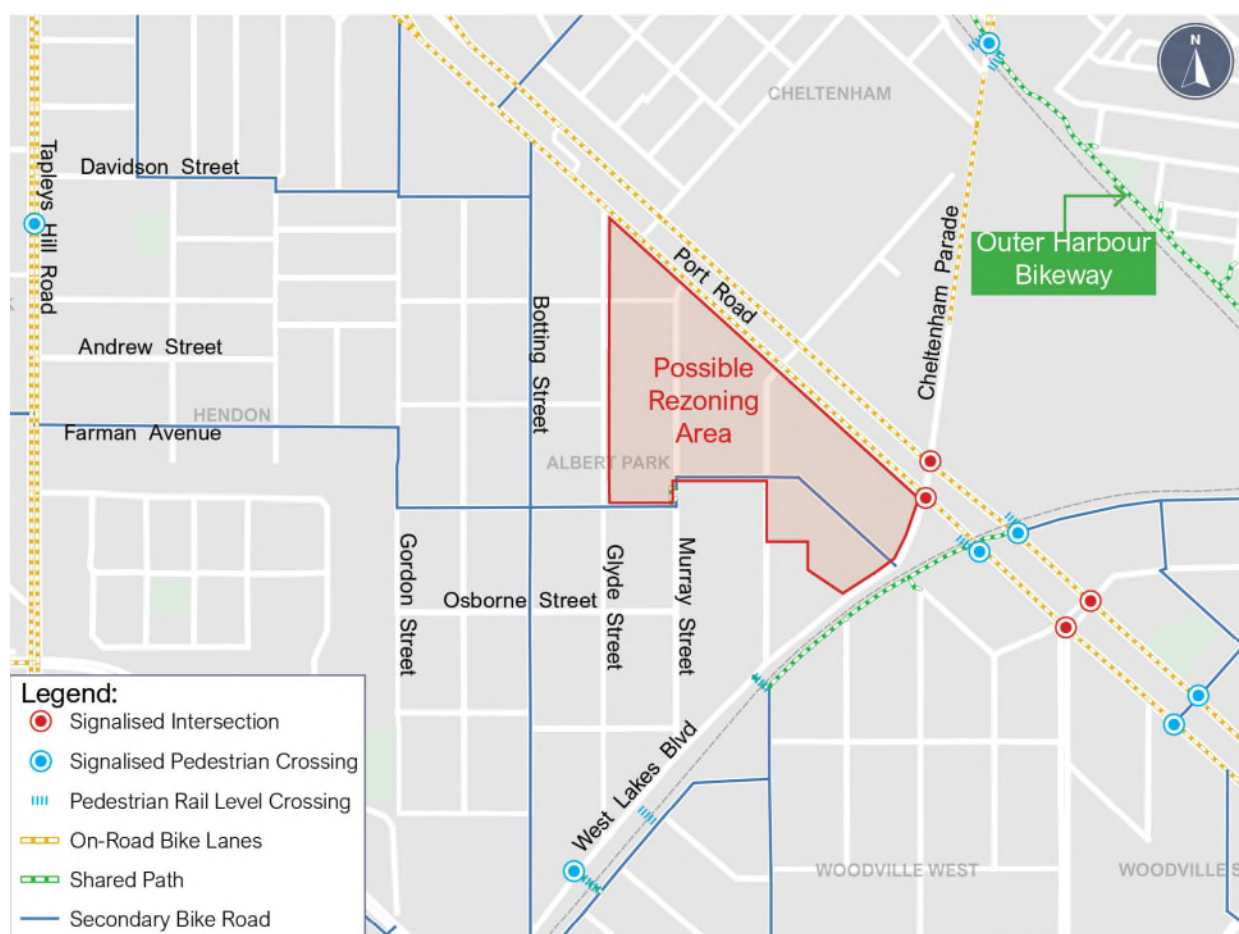


Figure 6: Pedestrian and cycling infrastructure in place surrounding the affected area.

Almost the entire Affected Area is within 800m of the Albert Park train station, the major attractor nearby. Due to the nature of West Lakes Boulevard at this stretch between Port Road and Glyde Street, and the provision of pedestrian refuges, this is easily accessible. The small area beyond this 800 metres has good access to a bus route on West Lakes Boulevard, and – subject to crossing Port Road – adequate access to bus routes on Port Road and even the Cheltenham or St Clair train stations beyond.

The Bike Direct network (see Figure 6) identifies Osborne Street, Grace and Jervis Streets as a secondary road with a bike function, providing an east-west connection through the suburb to Tapleys Hill Road. Botting Street to the west of the affected area is identified as a north-south secondary road route between Port Road and West Lakes Boulevard. Port Road has on-road bicycle lanes and a shared path runs along the southern side of the Adelaide to Grange rail line (the greenway). Bike lanes run along West Lakes Boulevard, further south of the affected area (May Street).

Implications for Policy

There is already suitable policy coverage to support the further safety and comfort of walking and cycling within the Affected area, particularly for new development. This includes policies for end of journey facilities, bicycle parking ratios for development and provision of a comfortable walking environment from development.

However, there may be a desire to reinforce a desire to provide pedestrian connections through an extension of Spence Street to aid in better permeability in this location. This can potentially be delineated in a Concept Plan map for the site, as these are likely to be able to be referenced within the Code Zone.

4.4.7 Public Open Space/Green Space

The Council's Open Space Strategy 2025 (2015) identifies a lack of provision in Albert Park, both objectively and by resident survey. It finds that due to the lack, the Council should invest money in ensuring what open space exists is high quality, but also that somewhere like Albert Park could justify land acquisition for this purpose, and this ought to be a priority for the Council.



Figure 7: Extract from Council's Open Space Strategy – Precinct D: The Central Area Directions

The draft Code Amendment intends to create a framework which supports intensification of development in the Affected Area through a mixed-use policy. It is anticipated that the draft Code Amendment will facilitate an increase in the local residential population and allow for higher density housing forms than currently permitted. As the anticipated residential form has a reduced capacity to provide large areas of private open space, it will be important that an adequate level of public open space is available to service both the established and additional population.

Nearest local or neighbourhood open spaces to the affected area are at the St Clair development (more than 800 metres away), Clarice Sutherland Reserve (at least 800 metres walk away) or Woodville West Reserve (more than 1km away). Significant distance aside, these are also difficult to access due to the need to cross larger roads such as Port Road, West Lakes Boulevard or the rail corridor.

There is therefore an opportunity to use redevelopment within the Affected Area to address nearby lack of public open space (coloured pink in Figure 7 above) identified in the Council's

Strategy. Whilst the location of the affected area is not directly within the identified area lacking open space, the provision of public open space within the affected area would, both reduce the extent of the neighbourhood outside of the desired walking distance to local open space, and remove what is a more difficult and costly arrangement for Council in the acquisition of land for this purpose.

Council and the Local Government Association (LGA) commissioned the Best Practice Open Space in Higher Density Developments Project in 2011 that explored whether the 12.5% legislative public open space requirement for land divisions was suitable for application to medium- and high-density urban environments. A key conclusion of the study confirmed that a 'one size fits all' approach is not appropriate and a needs-based assessment should be made. In some higher-density developments, there will be justification for more than 12.5% of land to be allocated to open space. The nature of the Affected Area as a largely fragmented location under multiple ownerships means a departure from the legislated requirement is unlikely at the zone level. However, as the proponent owns a significant portion of the site, some of which is likely to be developed together (particularly the land fronting Glyde / Murray Streets), there is scope for the inclusion of public open space within the future development of those land parcels.

A location between Murray and Glyde Streets seems the most appropriate location, particularly on the northern side of the former cold storage site. This is because this location would aid in facilitating an east-west pedestrian connection provide further permeability in this location; and is a logical drainage collection point (see Section 4.4.8 below).

Implications for Policy

Whilst there is policy coverage for the provision of public open space within the policies contained in the Planning + Design Code, it is worth identifying through a Concept Plan Map that development should make provision for local public open space in a location that suitably services the future and current populations, improves permeability and facilitates future stormwater management. The specific location and configuration of desired future public open space would ultimately be assessed as part of a future land division application should the Code Amendment be authorised.

4.4.8 Infrastructure Assessment

KBR have undertaken a preliminary infrastructure investigation of the existing infrastructure capacity for the Affected Area to identify any need for upgrades to accommodate the anticipated future development scenario. The full report is contained within **Attachment E** and is summarised below.

Flooding and Stormwater Management

The capacity of the existing stormwater system and flood susceptibility of the Affected Area and surrounding land has been investigated based on Council's stormwater detention criteria which prescribes that the pre-development flows for the 0.2 Event Year (EY) (1 in 5 year ARI) rainfall event cannot be exceeded by the post-development flows for the 1% Annual Exceedance Probability (AEP) (1 in 100 year ARI) rainfall event.

The analysis divided the Affected Area into two catchments to reflect the existing flow paths and drainage layout. The results of the hydrological calculations indicate that onsite detention of approximately 2,700m³ is required to meet Council's criteria to limit flows to less than that existing catchment. The results are summarised in the table below:

Catchment	Area	Pre-Development 0.2 EY	Post-Development 1% AEP	Storage Required
May Street	6.40 ha	560 L/s	1,400 L/s	1,300 m ³
Glyde & Botting Streets	5.80 ha	430 L/s	1,300 L/s	1,400 m ³

The assessment reveals that the existing roads and the existing pit and pipe network within the Affected Area will likely need to remain (or at least rerouted along a similar alignment) as they convey runoff through the site from significant catchments upstream and will likely dictate the need for smaller detention areas within each of the sub-catchments prior to discharge to the existing drainage network. Therefore, the detention required for both catchments will need to be split across several outfalls depending on the proposed development layout and connections to the existing stormwater drainage.

The figure below summarises how KBR envisage the proposed development draining with suggestions for potential connections to existing infrastructure including allowances for detention storage locations within each catchment area. Hydraulics of these connections needs to be investigated and confirmed during detailed design. The detention volume could be attained by detention basins, underground tanks, oversized pipes, or a combination of these noting that the bioretention system (discussed below) could account for some of the detention volume. There is sufficient policy support within the Code for these measures to be implemented within any future development.

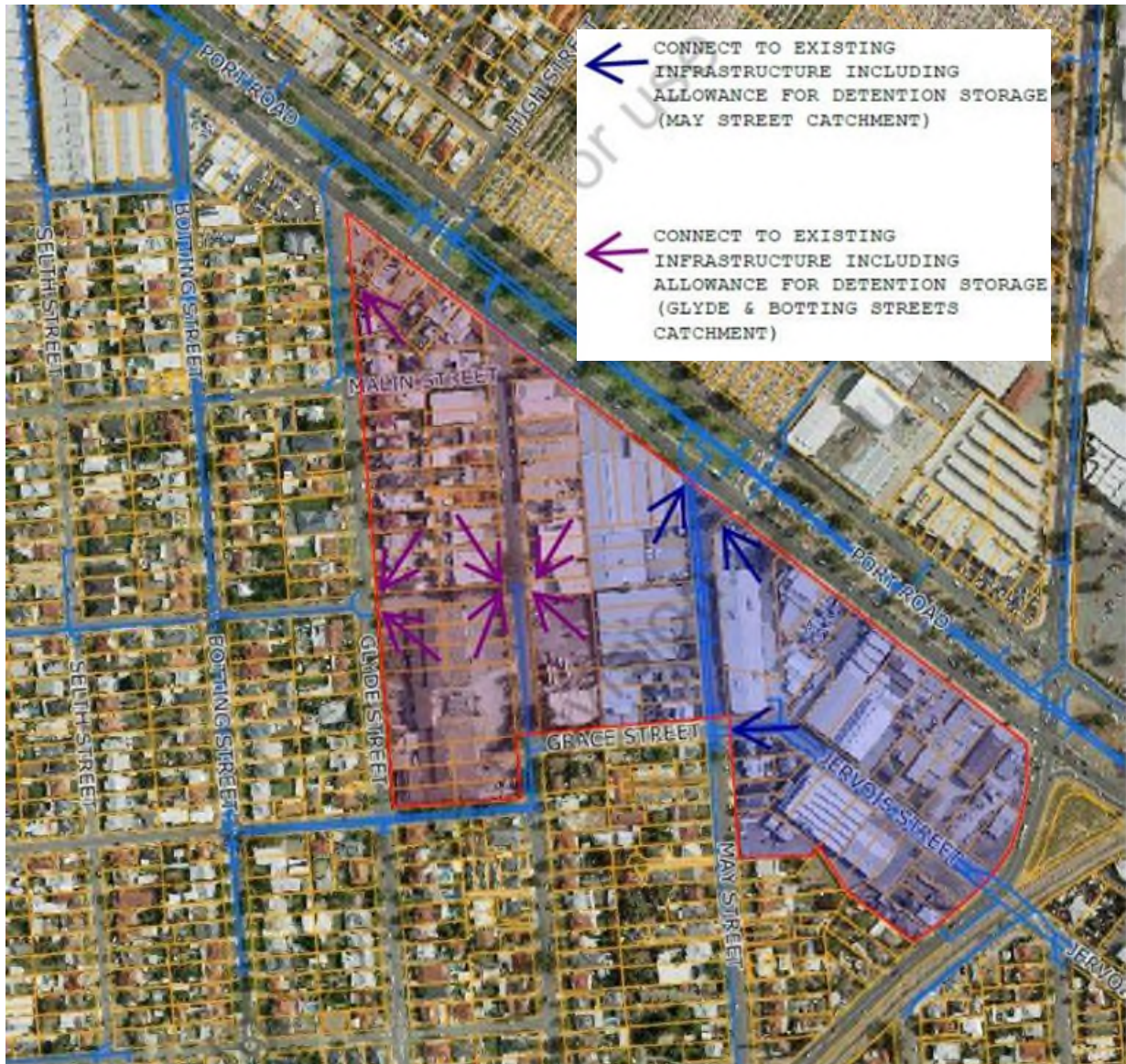


Figure 8: Stormwater catchment locations and potential drainage collections and detention storage locations

In order to achieve the principles of Water Sensitive Urban Design (WSUD), approximately 840m³ of bioretention area is required to ensure that runoff generated by the proposed development is treated within the site before being discharged into the existing Council drainage network. The required bioretention area could be achieved by multiple small ponds at inlet pits or larger ponds incorporated into detention basins. The bioretention area could be reduced with the use oil and sediment traps or the use other WSUD devices such as tree pits, vegetated swales or buffer strips.

Council's floodplain mapping data confirms that the site is affected by flooding. The recent upgrade of the Port Road Drain has improved this for a 0.2 EY event but flooding will still occur, particularly in the 1% Average Exceedance Probability (AEP) (1 in 100 year flood). The flooding in the 1% AEP is most significant between Murray Street and Botting Street (with depths up to 300 mm) and south of Jervois Street on the Baptist Church site (with depths up to 200 mm) (see figure below).



Figure 9: 1% AEP flood map of the Affected Area

KBR recommends the following stormwater master planning requirements in response to the flooding potential:

- Finished floor levels of the proposed buildings within the development must be 300mm above the anticipated 1% AEP flood level;
- Flow paths within the development will need to ensure safe conveyance of major flows and capture into the proposed detention facilities; and
- Consideration of possible displacement of stormwater volume that would currently be 'detained' in flooding on private property at trapped low points.

These areas align with the existing Hazards (Flooding – General) Overlay that currently applies to this land, and which provides the policy support needed to address the recommendations made by KBR in relation to mitigating flooding impacts to future development.

Consultation with service authorities has been undertaken to determine the infrastructure capacity of key infrastructure in the vicinity of the Affected Area.

Potable Water

SA Water have advised that the established network has sufficient capacity to support the development.

Some existing branch mains off Port Road may need replacing with slightly larger capacity main pipe to feed through the development and linkup to existing at West Lakes Boulevard and Glyde Street.

Depending on layout of future development, some existing mains may need to be abandoned or resized accordingly and fire service requirements will need further assessment and consideration.

Sewer

SA Water have advised that the existing network has sufficient capacity to support the development.

The existing mains along streets within and abutting the affected area will require upgrading to comply with the WSA Gravity Sewerage Code. In doing so, this will require reestablishment of any existing property connections outside the affected area into the respective reticulation sewer.

If the developer identifies the northern-most development is to discharge into the Glyde Street/Port Road main, further upgrades mains along Port Road, Hawke Street, Lawton Street and up to Avro Avenue are required.

The WWPS 458 Queensbury Pump Station will not require a physical upgrade, but will require an earlier onset of pump operation, extended run times during peak discharge periods and increased frequency during the day to accommodate flows from the proposed development.

Electricity

SA Power Networks have advised that the Woodville substation supplies the development area and has adequate capacity to accommodate additional load to the order of 8 MVA at present.

Indicative loads from the development of the affected area indicate sufficient capacity within the additional load.

SA Power Networks request that two 11 kV HV feeders which pass the development area would be the connection points for this development with reasonable capacity.

Gas

APA have advised that the natural gas networks surrounding this development have adequate capacity to service natural gas requirements for the proposed development.

Adjustments (extensions or relocations etc.) to the existing gas infrastructure to suit the specifics of a future proposed development such as changes in road layout and timing of various stages may be required within the Affected Area.

Communications

NBN Co. have advised that there is enough capacity in their network to support this development.

Implications for Policy

Both flooding and stormwater management matters can be better addressed as part of any detailed development proposal, and there is already sufficient policy coverage addressing this matter within the Planning and Design Code. There may be value in showing potential seeking water sensitive urban design basins within the future open space areas on a Concept Plan within the affected area to aid in addressing the broader catchment requirements for new development in this location and further support the existing policy.

No specific policy on the provision of infrastructure is considered necessary given the suitability of the infrastructure to cater for further development on the site.

4.4.9 Site Contamination

LBW undertook a preliminary environmental assessment (PEA) of the Affected Area as per Council requirements that a broad assessment of contamination issues be carried out to inform future constraints or otherwise on the location of public open space, under-croft parking, sensitive land uses and development plan / planning and design code policy. The full report is contained within **Attachment E** and is summarised below. The key findings of the assessment are identified as follows:

- the majority of the Affected Area includes commercial / industrial land uses with potentially contaminating activities (PCAs) inferred to have occurred at 65 of the 118 land parcels within the Affected Area.
- 55 land parcels were subject to a Class 1 – High Risk PCA and some of these were subject to multiple PCAs. Ten land parcels were identified or inferred to be subject to a Class 2 – Moderate Risk PCA only. No Class 3 – Low Risk PCAs were identified within the Affected Area. This reveals that a relatively large proportion of the Affected Area has been subject to Class 1 and/or 2 PCAs, indicating a generally high risk posed by site contamination for the types of redevelopment contemplated for the re-zoning (see Figure 10 below).
- With the exception of 24-30 Murray Street in the western portion of the area, the contamination status of the Affected Area is unknown. Remediation of 24-30 Murray Street will be needed to make the site suitable for sensitive land use and remediation may be necessary to make the northern part of the site suitable for commercial land use.
- Areas where no PCAs have been recorded are more likely to be suitable for sensitive land uses, however, impacts to groundwater and soil vapour beneath these sites cannot be discounted due to their proximity to known PCA sites.
- EPA investigations into soil vapour impacts from 24-30 Murray Street have identified soil vapour across a significant portion of the western area of the Affected Area, including beneath both commercial and residential properties. EPA investigations are currently ongoing. Once complete, potential vapour risk to properties on this part of the site will be better understood and will help to define any future intrusive investigation scope and potential remediation needs to make sites suitable for their current use or to support change in land use.

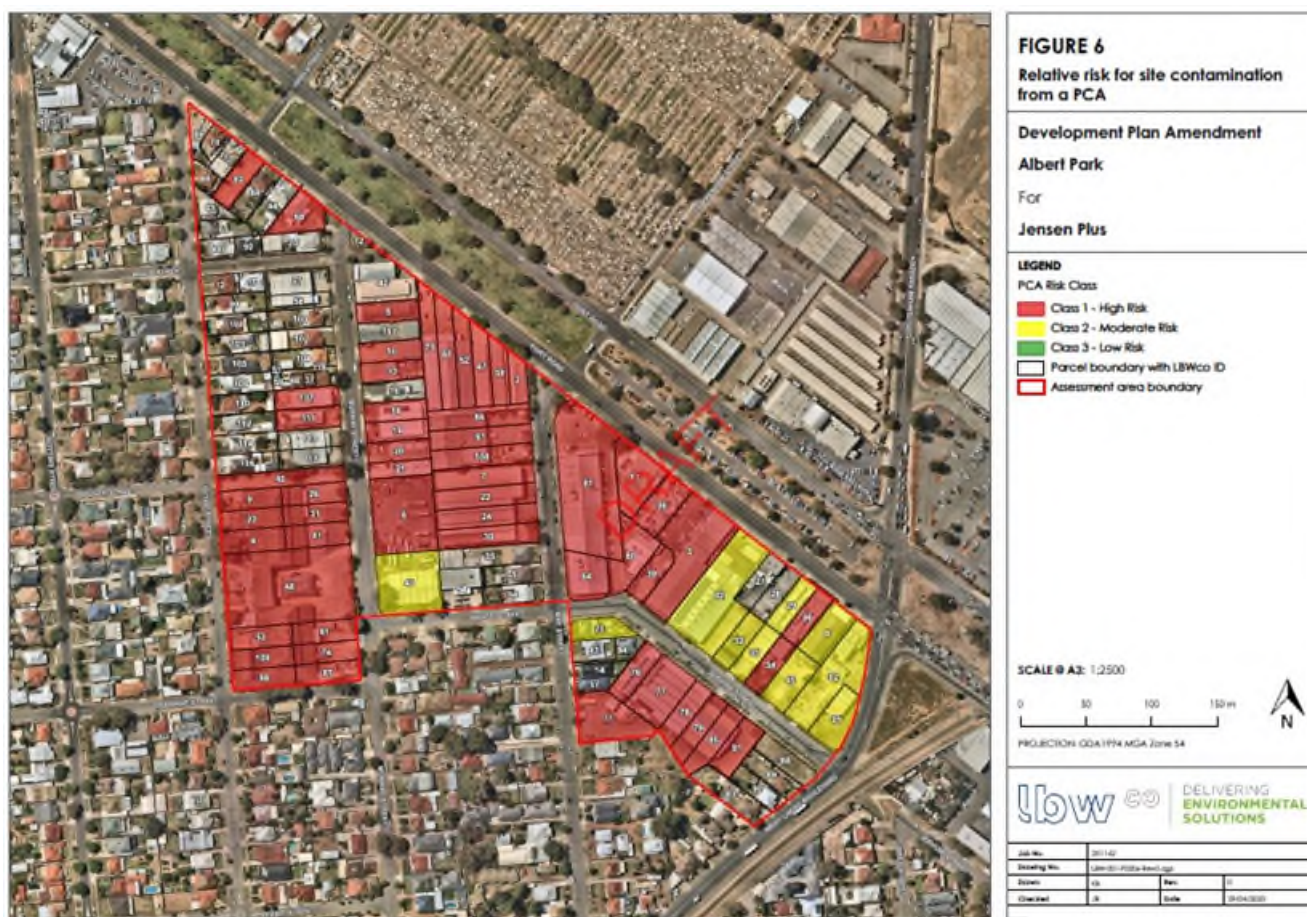


Figure 10: Land parcels identified with relative risk for the site contamination from PCA

In addition to LBW’s assessment, the proponent has undertaken their own investigations for the 24-30 Murray Street site. This includes an Interim Auditor’s Advice (**Attachment E**) which confirms the following specifically for that site:

- Soil contamination was identified in the central, eastern and western portion of the site, comprising elevated concentrations of lead benzo(a)pyrene TEQ, TRH (C16-C34), copper and zinc greater than adopted investigation and screening levels for Human Health and Ecology
- Groundwater contamination was present below the site (northern portion) and beyond the site to the north-west, north and north-east, reflective of ground water flow directions. Elevated concentrations included CHCs, TRH, PFAS and selected metals. Notwithstanding this, the potential for contamination of the Q2 Aquifer is considered to be low
- Soil Vapour is detected on the north-east quadrant of the site and immediate east of the site in Murray Street. Elevated concentrations comprised TCE and other VOCs.

The following outcomes of the auditor were made in relation to the site:

- the nature and extent of contamination has been adequately assessed and delineated
- remediation is and remains necessary to make the site suitable for its proposed future residential and open space land uses
- the remediation approach presented is likely to make the site suitable for the proposed future residential and open space land uses, as well as eliminate as far as reasonably practicable actual or potential harm to water and the environment

remediation will also remove a key source of site and future off-site (down hydraulic gradient) groundwater and soil vapour contamination associated with TCE (and to a lesser extent other CHCs).

The Interim Audit Advice has been referred to the EPA for information and the EPA have confirmed that the Interim Audit Advice meets the legislative and administrative framework established within the Environment Protection Act, 1993 and Environment Protection Regulations 1999.

Implications for Policy

It is clear from the above investigation that a level of site contamination is apparent within the Affected Area which will require remediation prior to being appropriate for sensitive land uses. These investigations and remediation processes can be further advanced as part of future development applications for the relevant land parcels (noting that some sensitive uses already exist on several of the identified Class 1 parcels).

Development for a more sensitive land use on sites where potentially contaminating activities are known to have occurred will trigger a referral to the EPA, and require a Statement of Site suitability (or potentially an Auditor's statement). As such, the Planning, Development and Infrastructure Act, 2016 and supporting Regulations, 2017 provide sufficient rigour to ensure contamination is appropriately addressed as part of the development application stage.

The Planning and Design Code's Site Contamination General Development Policies provide suitable policy support for relevant authorities in ensuring this matter is addressed for sensitive land uses.

4.4.10 Non-Residential Development

The Affected Area already contains a number of non-residential uses in the form of offices and shops, including a Spotlight bulky goods tenancy. However, the location does not, and is not intended to operate as an activity centre with larger scale retail facilities into the future. This has been derived having regard to:

- a Coles supermarket within 800m
- Drakes, Aldi and Woolworths supermarkets within 2 km

It is unlikely that a supermarket would be envisaged within the affected area, due to the saturation within the catchment, as well as limited opportunities due to the fragmented nature of the sites and ownership within the affected area.

Notwithstanding this, the provision of some small scale retail, office and other supporting commercial and community services is supported in this location, principally along the Port Road frontage, as it would support the principles of achieving a walkable neighbourhood.

It is important that the zone selected for the Affected Area supports mixed use development, including retail and commercial development, however maintains a limitation on scale and intensity to ensure that it performs a local function only, and better aligns to the intent of this location and the management of interfaces with both busy local road network and surrounding residential development.

Implications for policy

The resultant zoning should seek to ensure that only smaller scale shops, offices and consulting rooms are supported, with larger scale retail facilities identified as restricted development.

4.4.11 Community Facilities

The Affected Area is well located for community facilities, albeit containing only a place of worship. An analysis of the existing offering (800m walking and 2km cycle/easy travel distance) has been undertaken and is laid out in the table below. Places of worship have been excluded but are prevalent and often serve many of the same social purposes as secular community facilities. A good number of them represent specific ethnic or cultural groups and display the multicultural nature of the area.

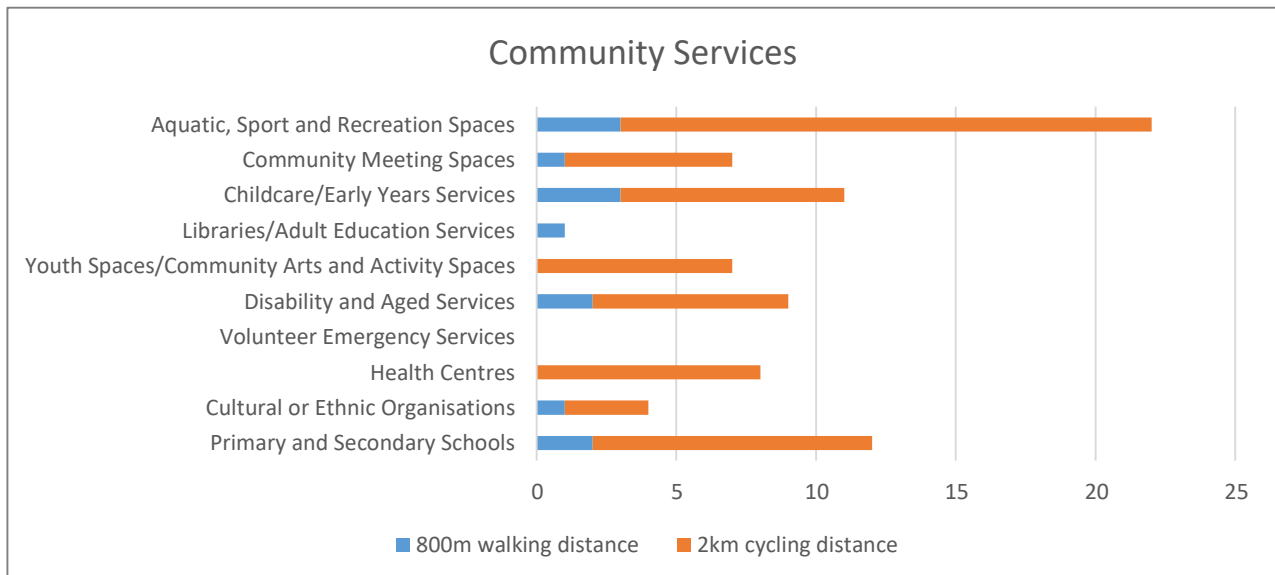


Figure 11: Proximity of community services

It is evident that a wide spectrum of facilities is available within proximity of the Affected Area. There is an enormous variety of sports and recreation opportunities, both formal and informal, (note this does not contradict local scarcity in some geographic locations and should be seen in the context of the size of population they are intended to serve) as well as choice of childcare, school, and out-of-hours activities. Further to the places of worship mentioned above, there are secular cultural and ethnic community groups representing the cultural diversity of the area. The Queen Elizabeth Hospital and several aged care facilities anchor a broad selection of high-quality medical practices in many specialties. The need for volunteer emergency services within metropolitan Adelaide is not considered significant.

In addition, the Community Facilities Spatial Plan Scenario for the City of Charles Sturt produced by Elton Consulting (2011) shows that Woodville Village at the Woodville train station currently operates as a regional-level facility with a central library, multipurpose community/civic centre and youth space. This is only just beyond the 800m walking distance from the Affected Area but the regional nature of the services will reflect the additional travel required and is anyway accessible by public transport or bike. These services would be additional to the 2km band on the chart above.

4.4.12 Flightpath Building Height Limits

Development near airports needs to take account of the needs of aviation so as not to prejudice air traffic. The location of the Affected Area, roughly due north of Adelaide Airport, is not below a flightpath. It falls entirely within an area identified by the SA Planning and Property Atlas as requiring notification for all structures exceeding 110 metres in height. This is well in excess of anything envisaged for the Affected Area. Similarly, there are no impacts from Parafield Airport. Development in the Affected Area is therefore not restricted by flightpaths or airport operations.

4.4.13 Affordable Housing Overlay

The affordable housing policy sets a target of 15% of new development that meets a set of criteria to enable low- and middle-income households to purchase their own home. The State's affordable housing policy requires the overlay should be engaged, among other triggers, where areas are subject to re-zoning that "substantially increases dwelling potential". This draft Code Amendment will substantially increase the dwelling potential, including allowing several individual sites with the potential to support at least 20 dwellings and is therefore relevant to the new zoning.

Implications for policy

The Affordable Housing Overlay should be applied to the extent of the affected area as part of this rezoning process.

4.4.14 Urban Form & Densities

Densities

Any area of mixed-use requires higher density residential development to support the range of facilities residents expect to use daily within walking distance.

The adjacent General Neighbourhood Zone to the south and west of the affected area supports net residential densities generally in the order of up to 35 dwellings per hectare (equates to 300m² minimum allotment size). This is considered to be low density, with the Planning and Design Code defining medium density to be net residential densities of between 35 and 70 dwellings per hectare.

A number of other locations within the City of Charles Sturt where mixed use precincts are envisaged have a range of densities that fall within both the medium and high (more than 70 dwellings per hectare) density ranges. These are found at Bowden, West Lakes, Woodville West, Seaton and also proposed at Kilkenny. The high densities envisaged at both Bowden and West Lakes are not considered appropriate for this location, given the smaller scale, fragmented nature of ownership and lack of master planned approach to the affected area.

The nearby Woodville West development is located within the Urban Renewal Neighbourhood Zone and supports densities of up to 70 dwellings per hectare and seeks to achieve medium density housing outcomes. This is also consistent with the outcomes and densities provided for at Seaton, which has a similar scale and context.

A medium density outcome is appropriate for the Affected Area, taking into account the desire to increase densities for this location, yet transition appropriately to the surrounding established residential neighbourhood to the west and south.

Building heights

An increased urban form is envisaged within the Affected Area, reflective of the increase in intensity and density of development, and to support the achievement of mixed use development outcomes (where one or two or more levels of housing would occur above a non-residential ground level). The highest intensity of form would be anticipated to occur along the arterial road frontages of Port Road and West Lakes Boulevard, given their width and attractiveness for mixed use development outcomes. These locations are also set further from neighbouring low scale housing and therefore, the difference in form can suitably be mitigated in terms of visual and amenity impacts. Potentially, height of up to 4 levels can be achieved in these locations where this would align to other similar locations at Seaton and

Woodville West (and proposed at Kilkenny). The adjacent General Neighbourhood Zone supports buildings of up to 2 levels and 9 metres in height.

The character of the Affected Area is largely industrial, but on a relatively low-rise scale, with most bulky warehouse-type construction staying below the equivalent three levels (approximately 10m). This is despite the Strategic Employment and Employment Zones covering these locations enabling buildings up to 12 metres in height (as a Technical and Numerical Variation). In some cases the transition from warehouse to single-storey dwelling is sudden and jarring. Notwithstanding this, it is appropriate that the building heights transition from the higher locations supporting four levels, down to the surrounding residential neighbourhoods. In this instance, the edges of the affected area should be limited to 3 levels, which aligns with the heights of some of the industrial buildings currently within these locations.

The suggested height distribution and transition is reflected within Figure 12 below.

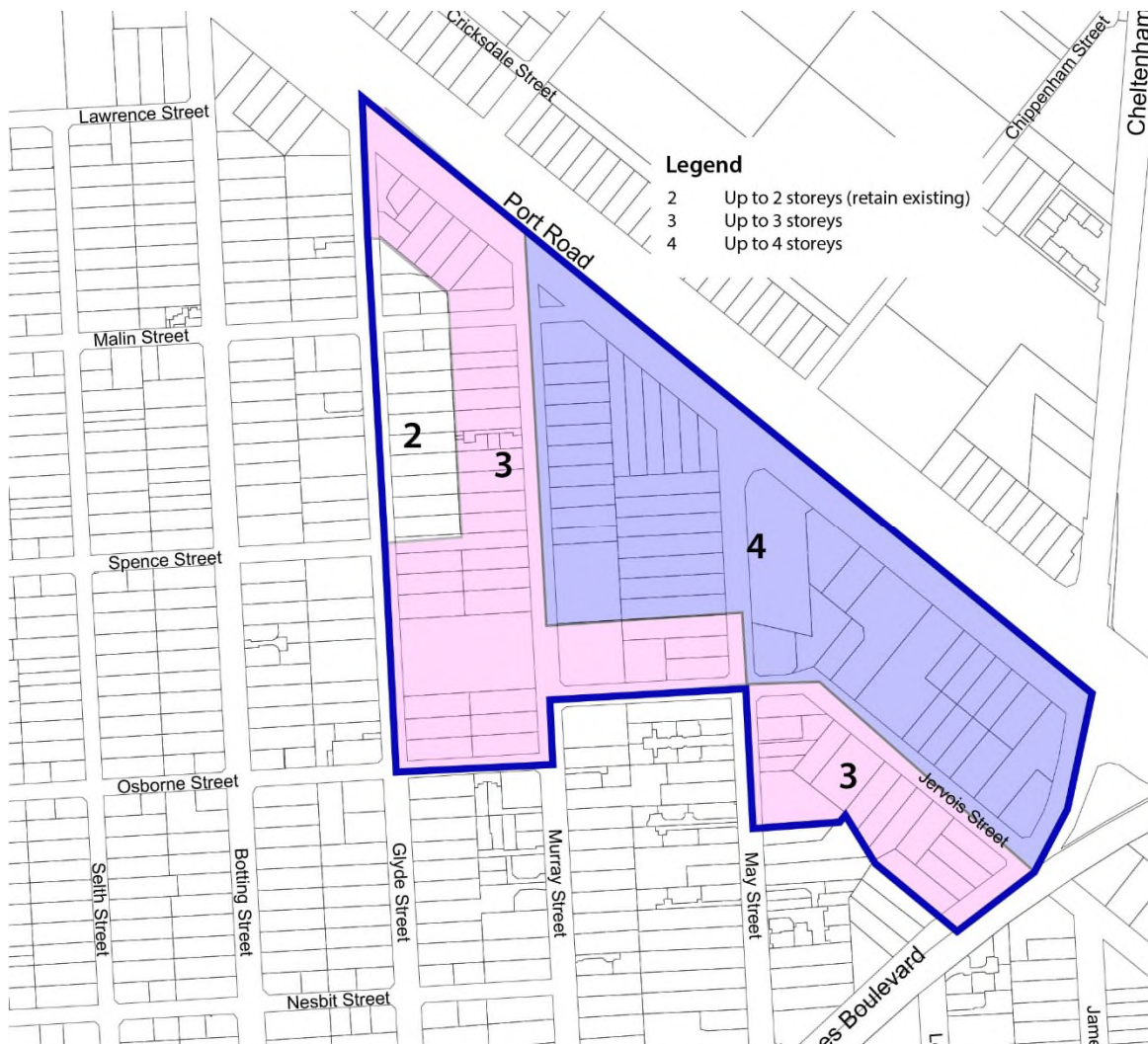


Figure 12: Proposed heights across the Affected Area

Setbacks

Given that there is a desire for a more compact form of development within the Affected Area there is a need for reduced setback compared to the surrounding area. Where non-residential uses will be on the ground floor, especially on main road frontages or facing the new public open space, the preferred option would be to build to the street frontage. On West Lakes Boulevard it will be necessary to accommodate the projected road widening; new development should occur at the proposed new boundary to frame the street and rail corridor. Away from these frontages, isolated non-residential development may justify a different setback with appropriate regard to street scene and neighbouring amenity.

Elsewhere, a setback of 3m from the street frontage is considered appropriate to frame the street with denser building forms whilst providing an area of transition between the street and building that facilitates some landscaping.

For side and rear setbacks, greater flexibility needs to be provided, including larger and taller expanses on boundaries to provide for more diverse housing forms. In this regard, the bulk and scale of buildings within a streetscape (including their cumulative form) and the impacts of the built form on the amenity of occupants and neighbours (in terms of overbearing nature; overshadowing and privacy) are considered more important design attributes than arbitrary distance. In some circumstances, this approach may require larger setbacks than a standard setback distance, and therefore is considered a more appropriate policy response to these more complex design issues.

Implications for Policy

The preferred zone should facilitate medium density development with densities in the range of 35 – 70 dwellings per hectare.

The preferred zone application to the affected area should support buildings up to 4 storeys in height along the Port Road and West Lakes Boulevard frontage, with a transition in built form up to 3 storeys at the interface with adjacent residential zones. This can potentially be reflected as Technical Numeric Variations as well as within a Concept Plan Map.

Policy should support reduced setbacks to street frontages, particularly for non-residential development, and side and rear setbacks. Emphasis, and sufficient policy support should instead be provided to amenity implications of built form.

4.4.15 Albert Park Streetscape Character Area Investigations

A portion of the Affected Area's eastern boundary along Glyde Street was previously subject to investigations undertaken by Council in 2014 as part of the Residential Streetscape Analysis Study. The Study identified a portion of Albert Park (including Glyde Street within the affected area (highlighted in RED) as a potential character area. This was derived from the consistency within the streetscape of interwar housing and consistent streetscape patterns and rhythms considered to be of value.



Figure 13: Area 3A from Residential Streetscape Analysis study, comprising Albert Park, including Glyde Street

Council sought to rezone the identified areas in response to the study outcomes, however the proposed Statement of Intent was not accepted by the then Minister at the time. Council remains eager to explore avenues for managing these identified character areas into the future and where the recommendations from the study remain valid, pursue the appropriate policy support available within the Planning and Design Code.

Since the survey work was done and recommendations were formed for this portion of Glyde Street, as much of the housing remains in place unchanged. Notwithstanding this, it is outside of the scope of this Code Amendment to introduce character provisions for this location. However, as a result, it is desirable that the section of Glyde Street that sits within the identified potential character area not be rezoned as part of this Code Amendment as the resultant density and housing forms sought by the Code Amendment are likely to conflict with the intended outcomes of managing character attributes or this location. An exception to this is the property at 1 Glyde Street. This is proposed to be rezoned as part of the Suburban Business Zone to facilitate a more logical future development site at this location that aligns with the rear of neighbouring properties along Port Road, noting that this location has recently undergone improvements to accommodate a retail showroom and has common ownership (making a consolidated development site feasible).

Policy Implications

Exclude the portion of Glyde Street (aside from 1 Glyde Street) identified as having residential character value from the proposed rezoning and retain within existing General Neighbourhood Zone.

4.4.16 Assessment of suitable applicable Planning and Design Code Zones

The future zoning for the Affected Area will need to support mixed use development, comprising of medium density residential and commercial development that serves the local community. There are a number of potential zones within the Planning and Design Code which may accommodate the envisaged development scenario. The Urban Neighbourhood Zone is considered to support too intense a development outcome (both in terms of densities and heights) and is not considered appropriate for this location (it is used at both Bowden and West Lakes which are larger, more intense development locations).

In considering the nature of the affected area, its desired transition in intensity of use, mixture of use and heights from the arterial road frontages and the surrounding established low density, low form residential neighbourhoods, it is considered that two different zones apply to the affected area. The two zones identified to be of best fit are summarised below, with their extents outlined in the figure below.

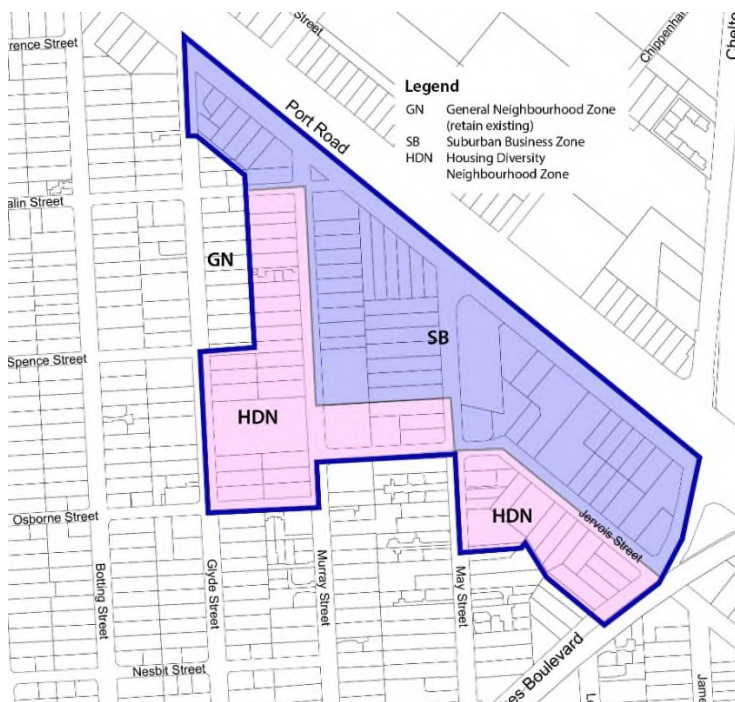


Figure 14: Extent of proposed zones to the Affected Area.

Suburban Business Zone

- Supports business and innovation uses, along with residential development as secondary element (ie where it complements the non-residential use)
- Supports medium density development
- Supports heights of up to 4 storeys (through Technical and Numerical Variation)
- Supports retail, business and commercial development of a local convenience and scale (shops up to 500m² for deemed-to-satisfy criteria, with over 1,000m² identified as restricted development)
- Includes policy support seeking transition of heights to adjacent zone boundaries
- Supports inclusion of a Concept Plan.

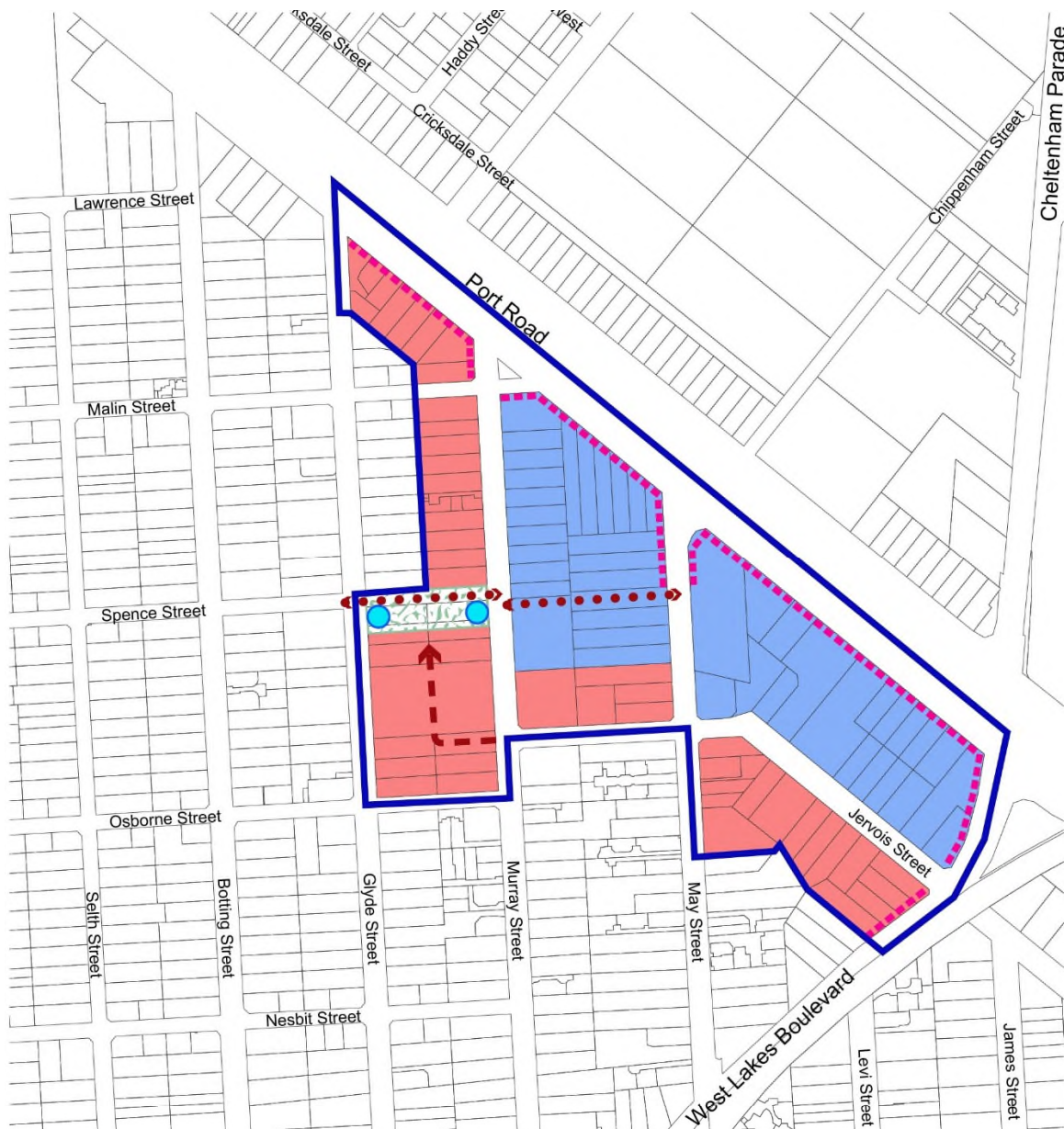
Housing Diversity Neighbourhood Zone

- Supports medium density residential development
- Allows for small scale retail, commercial and community facilities
- Supports heights of up to 3 storeys (through Technical and Numerical Variation)
- Includes setback policy that both provides flexibility or alternative housing forms, yet also considers established character elements which is useful for the transition to surrounding neighbourhood
- Supports inclusion of a Concept Plan.

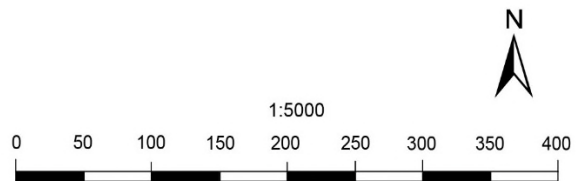
4.5 Recommended policy changes

Following is a list of the recommended policy changes which are proposed in response to the investigations undertaken in support of this Code Amendment:

- Rezone the land to the Suburban Business Zone along the Port Road and West Lakes Boulevard Frontage and Housing Diversity Neighbourhood Zone at the interface with surrounding General Neighbourhood Zone (Murray Street, Glyde Street, Grace Street and Jervois Street)
- Ensure Technical and Numerical Variations within each Zone (where relevant) reflect the four and three storey maximum building heights distributed throughout the Affected Area
- Include a Concept Plan Map for the Affected Area which addresses:
 - key vehicle access locations
 - key pedestrian and cycling movements
 - where active frontages are desired
 - preferred location and extent of public open space
 - stormwater management basins
- Apply the Noise and Air Emissions Overlay to the Affected Area
- Apply the Affordable Housing Overlay to the Affected Area
- Apply the Interface Management Overlay to the Affected Area
- Extend the Stormwater Management Overlay to areas in the Affected Area proposed in the Housing Diversity Neighbourhood Zone
- Extend the Urban Tree Canopy Overlay to areas in the Affected Area proposed in the Housing Diversity Neighbourhood Zone



- ⋯⋯⋯ Activated Frontage
- Building Height up to 4 levels (16.5 metres)
- Building Height up to 3 levels (12 metres)
- Public Open Space
- WSUD Basin
- ↔ Vehicular Access
- ⋯⋯⋯↔ Pedestrian / Cycle Linkage
- Concept Plan Boundary



Concept Plan XXX

ALBERT PARK

Version B - 02 November 2021

Figure 15: Proposed Concept Plan to Apply to the Affected Area

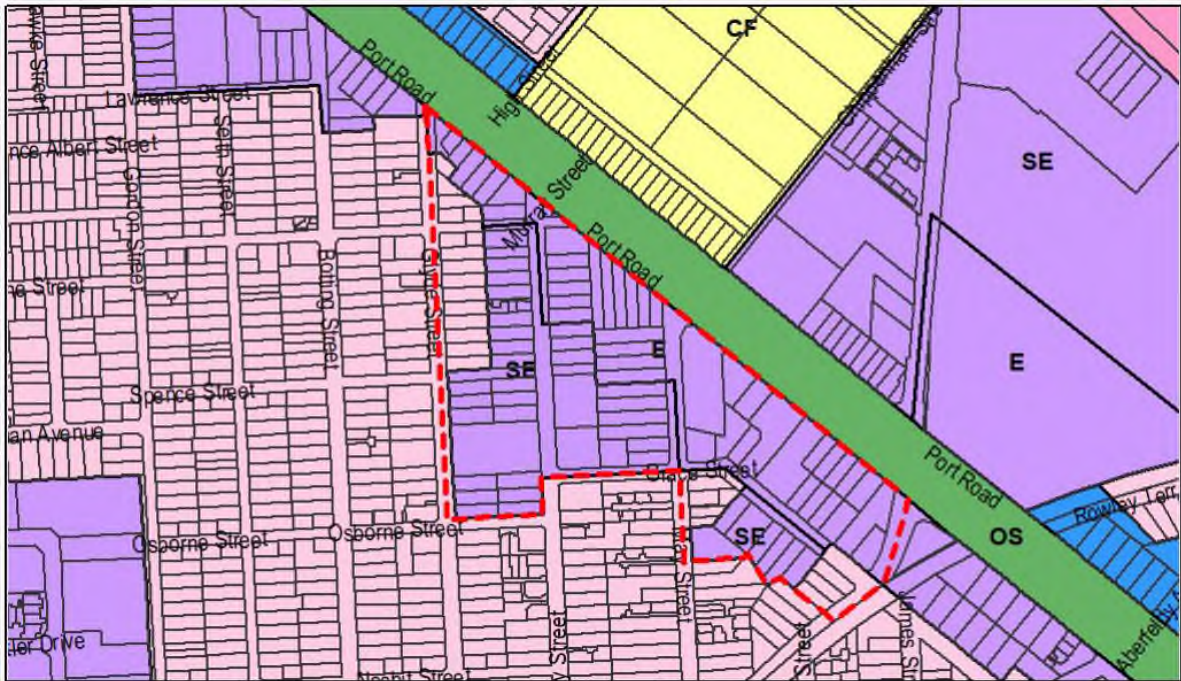
ATTACHMENT A – AFFECTED AREA MAPPING



ATTACHMENT B – CURRENT CODE POLICY

The following Zones currently apply to the Affected Area. Note for the purposes of brevity and ease of use, Assessment Tables 1 to 5 applying to each Zone have not been included (just the policies). Please refer to the Planning and Design Code (https://code.plan.sa.gov.au/home/browse_the_planning_and_design_code?code=browse) to view each of the tables applying to each zone.

Spatial Application of Existing Zones



Strategic Employment Zone (SE)

Desired Outcome	
DO 1	A range of industrial, logistical, warehousing, storage, research and training land uses together with compatible business activities generating wealth and employment for the state.
DO 2	Employment-generating uses are arranged to: <ul style="list-style-type: none"> a) support the efficient movement of goods and materials on land in the vicinity of major transport infrastructure such as ports and intermodal freight facilities b) maintain access to waterfront areas for uses that benefit from direct water access including harbour facilities, port related industry and warehousing, ship building and related support industries c) create new and enhance existing business clusters d) support opportunities for the convenient co-location of rural related industries and allied businesses that may detract from scenic rural landscapes

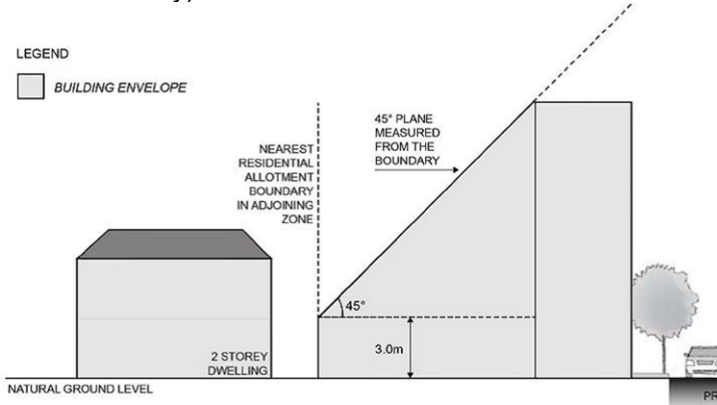
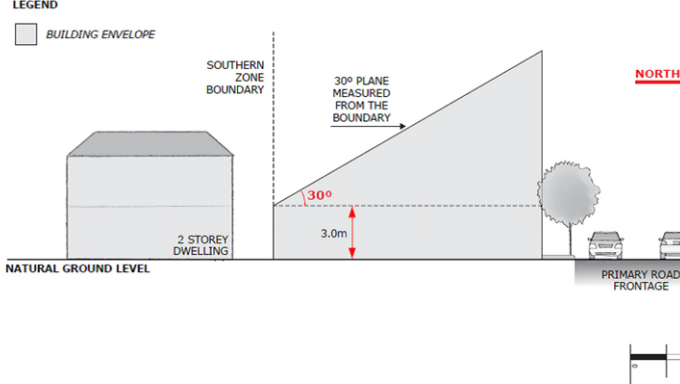
	e) be compatible with its location and setting to manage adverse impacts on the amenity of land in adjacent zones.
DO 3	A pleasant visual amenity from adjacent arterial roads, adjoining zones and entrance ways to cities, towns and settlements.

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	
<p>PO 1.1</p> <p>Development primarily for a range of higher-impacting land uses including general industry, warehouse, transport distribution and the like is supplemented by other compatible development so as not to unduly impede the use of land in other ownership in the zone for employment-generating land uses, particularly those parts of the zone unaffected by an interface with another zone that would be sensitive to impact-generating uses.</p>	<p>DTS/DPF 1.1</p> <p>Development comprises one or more of the following:</p> <ul style="list-style-type: none"> a) Advertisement b) Automotive collision repair c) Electricity substation d) Energy generation facility e) Energy storage facility f) Fuel depot g) General industry h) Intermodal facility i) Light Industry j) Motor repair station k) Public service depot l) Rail marshalling yard m) Renewable energy facility (other than a wind farm) n) Retail fuel outlet o) Service trade premises p) Shop q) Store r) Telecommunications facility s) Training facility t) Warehouse
<p>PO 1.2</p> <p>Development on land adjacent to another zone which is used for residential purposes incorporates a range of low-impact, non-residential uses to mitigate adverse amenity and safety impacts on the adjoining zone.</p>	<p>DTS/DPF 1.2</p> <p>Development involving any of the following uses on a site adjacent land in another zone used for or expected to be primarily used for residential purposes:</p> <ul style="list-style-type: none"> a) Bulky goods outlet b) Consulting room c) Indoor recreation facility d) Light industry e) Motor repair station f) Office g) Place of worship h) Research facility i) Service trade premises j) Store k) Training facility l) Warehouse.

<p>PO 1.3</p> <p>Shops provide convenient day-to-day services and amenities to local businesses and workers, support the sale of products manufactured on-site and otherwise complement the role of Activity Centres.</p>	<p>DTS/DPF 1.3</p> <p>Shop where one of the following applies:</p> <ul style="list-style-type: none"> a) with a gross leasable floor area up to 250m² b) is a bulky goods outlet c) is a restaurant d) is ancillary to and located on the same allotment as an industry.
<p>PO 1.4</p> <p>Residential development is subordinate and necessary to support the efficient management, security and/or operational aspects of a non-residential land use.</p>	<p>DTS/DPF 1.4</p> <p>None are applicable.</p>
<p>PO 1.5</p> <p>Telecommunication facilities are located to mitigate impacts on visual amenity on residential areas.</p>	<p>DTS/DPF 1.5</p> <p>Telecommunications facility in the form of a monopole:</p> <ul style="list-style-type: none"> a) up to a height of 30m b) no closer than 50m to neighbourhood-type zone.
<p>PO 1.6</p> <p>Bulky good outlets and standalone shops are located to provide convenient access.</p>	<p>DTS/DPF 1.6</p> <p>Bulky goods outlets and standalone shops are located on sites with a frontage to a State Maintained Road.</p>
<p>Site Dimensions and Land Division</p>	
<p>PO 2.1</p> <p>Land division creates allotments of a size and shape suitable for a range of industrial, transport, warehouse and other similar or complementary land uses that support employment generation.</p>	<p>DTS/DPF 2.1</p> <p>Allotments:</p> <ul style="list-style-type: none"> a) connected to an approved common waste water disposal service have and an area of 2500m² or more and a frontage width of 30m or more b) that will require the disposal of waste water on-site have an area of 3000m² or more and a frontage width of 30m or more.
<p>Built Form and Character</p>	
<p>PO 3.1</p> <p>Development includes distinctive building, landscape and streetscape design to achieve high visual and environmental amenity particularly along arterial roads, zone boundaries and public open spaces.</p>	<p>DTS/DPF 3.1</p> <p>None are applicable.</p>
<p>PO 3.2</p>	<p>DTS/DPF 3.2</p>

<p>Building facades facing a boundary of a zone primarily intended to accommodate sensitive receivers, a public road, or public open space incorporate design elements to add visual interest by considering the following:</p> <p>using a variety of building finishes</p> <p>avoiding elevations that consist solely of metal cladding</p> <p>using materials with a low reflectivity</p> <p>using techniques to add visual interest and reduce large expanses of blank walls including modulation and incorporation of offices and showrooms along elevations visible to a public road.</p>	<p>None are applicable.</p>
<p>PO 3.3</p> <p>Buildings are set back from the primary street boundary to contribute to a consistent streetscape.</p>	<p>DTS/DPF 3.3</p> <p>The building line of a building is no closer to the primary street frontage than:</p> <ul style="list-style-type: none"> a) the average of existing buildings on adjoining sites with the same primary street frontage and, if there is only one such building, the setback of that building or b) where no building exists on an adjoining site: <ul style="list-style-type: none"> 1. 8m or more for buildings up to 6m high 2. not less than 10m for buildings greater than 6m high.
<p>PO 3.4</p> <p>Buildings are set back from secondary street boundaries to accommodate the provision of landscaping between buildings and the road to enhance the appearance of land and buildings when viewed from the street.</p>	<p>DTS/DPF 3.4</p> <p>Building walls are set back 4m or more from a secondary street boundary.</p>
<p>PO 3.5</p> <p>Buildings are sited to accommodate vehicle access to the rear of a site for deliveries, maintenance and emergency purposes.</p>	<p>DTS/DPF 3.5</p> <p>Building walls are set back 3m or more from at least one side boundary, unless an alternative means for vehicular access to the rear of the site is available.</p>

Interface Height	
<p>PO 4.1</p> <p>Buildings mitigate visual impacts of building massing on residential development within a neighbourhood-type zone.</p>	<p>DTS/DPF 4.1</p> <p>Buildings are constructed within a building envelope provided by a 45 degree plane measured from a height of 3m above natural ground level at the boundary of an allotment used for residential purposes within a neighbourhood-type zone as shown in the following diagram (except where this boundary is a southern boundary or where this boundary is the primary street boundary):</p> 
<p>PO 4.2</p> <p>Buildings mitigate overshadowing of residential development within a neighbourhood-type zone.</p>	<p>DTS/DPF 4.2</p> <p>Buildings on sites with a southern boundary adjoining an allotment used for residential purposes within a neighbourhood-type zone are constructed within a building envelope provided by a 30 degree plane grading north measured from a height of 3m above natural ground level at the southern boundary, as shown in the following diagram:</p> 
<p>PO 4.3</p> <p>Buildings on an allotment fronting a road that is not a State maintained</p>	<p>DTS/DPF 4.3</p> <p>None are applicable.</p>

<p>road, and where land on the opposite side of the road is within a neighbourhood-type zone, provides an orderly transition to the built form scale envisaged in the adjacent zone to complement the streetscape character.</p>													
<p>Landscaping</p>													
<p>PO 5.1</p> <p>Landscaping is provided along public roads and thoroughfares and zone boundaries to enhance the visual appearance of development and soften the impact of large buildings when viewed from public spaces and adjacent land outside the zone.</p>	<p>DTS/DPF 5.1</p> <p>Other than to accommodate 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, a landscaped area is provided within the development site (excluding any land required for road widening purposes):</p> <p>where a building is set back less than 3m from the street boundary - within the area remaining between a relevant building and the street boundary or</p> <p>in accordance with the following:</p> <table border="1"> <thead> <tr> <th>Minimum width</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>8m</td> <td>Along any boundary with the Open Space Zone associated with the River Torrens.</td> </tr> <tr> <td>5m</td> <td>Along any boundary with a Highway, Freeway or Expressway.</td> </tr> <tr> <td>5m</td> <td>Along and boundary on the perimeter of the zone not fronting a public road or thoroughfare except where the adjacent zone is one of the following: a) Employment (Bulk Handling) Zone; b) Commercial and Business Zone; c) Resource Extraction Zone.</td> </tr> <tr> <td>3m</td> <td>Along the any boundary on the perimeter of the zone that fronts a public road or thoroughfare.</td> </tr> <tr> <td>3m</td> <td>Along an arterial or main road frontage within the zone (and not on the perimeter of the zone).</td> </tr> </tbody> </table>	Minimum width	Description	8m	Along any boundary with the Open Space Zone associated with the River Torrens.	5m	Along any boundary with a Highway, Freeway or Expressway.	5m	Along and boundary on the perimeter of the zone not fronting a public road or thoroughfare except where the adjacent zone is one of the following: a) Employment (Bulk Handling) Zone; b) Commercial and Business Zone; c) Resource Extraction Zone.	3m	Along the any boundary on the perimeter of the zone that fronts a public road or thoroughfare.	3m	Along an arterial or main road frontage within the zone (and not on the perimeter of the zone).
Minimum width	Description												
8m	Along any boundary with the Open Space Zone associated with the River Torrens.												
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3m	Along the any boundary on the perimeter of the zone that fronts a public road or thoroughfare.												
3m	Along an arterial or main road frontage within the zone (and not on the perimeter of the zone).												
<p>PO 5.2</p>	<p>DTS/DPF 5.2</p> <p>Landscape areas comprise:</p>												

Development incorporates areas for landscaping to enhance the overall amenity of the site and locality.	<ul style="list-style-type: none"> a) not less than 10 percent of the site b) a dimension of at least 1.5m.
<p>PO 5.3</p> <p>Landscape areas incorporate a range of plant species of varying heights at maturity, including tree species with a canopy above clear stems, to complement the scale of relevant buildings.</p>	<p>DTS/DPF 5.3</p> <p>None are applicable.</p>
Fencing	
<p>PO 6.1</p> <p>Fencing exceeding 2.1m in height is integrated and designed to complement the appearance of land and buildings and does not form a dominant visual feature from adjacent streets to enhance the character of employment areas.</p>	<p>DTS/DPF 6.1</p> <p>Fencing exceeding 2.1m in height is:</p> <ul style="list-style-type: none"> a) located behind a façade of an associated building located on the same site or b) located behind a landscaped area along relevant street frontages or c) consists of visually permeable materials with landscaping behind.
Advertisements	
<p>PO 7.1</p> <p>Freestanding advertisements do not create a visually dominant element within the locality.</p>	<p>DTS/DPF 7.1</p> <p>Freestanding advertisements:</p> <ul style="list-style-type: none"> a) do not exceed 6m in height b) do not have a sign face exceeding 8m² per side.
Concept Plans	
<p>PO 8.1</p> <p>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.</p>	<p>DTS/DPF 8.1</p> <p>The site of the development is wholly located outside any relevant Concept Plan boundary. The following Concept Plans are relevant:</p> <p>In relation to DTS/DPF 8.1, in instances where:</p> <ul style="list-style-type: none"> a) one or more Concept Plan is returned, refer to Part 12 - Concept Plans in the Planning and Design Code to determine if a Concept Plan is relevant to the site of the proposed development. Note: multiple concept plans may be relevant. b) in instances where 'no value' is returned, there is no relevant concept plan and DTS/DPF 8.1 is met.

Employment Zone (E)

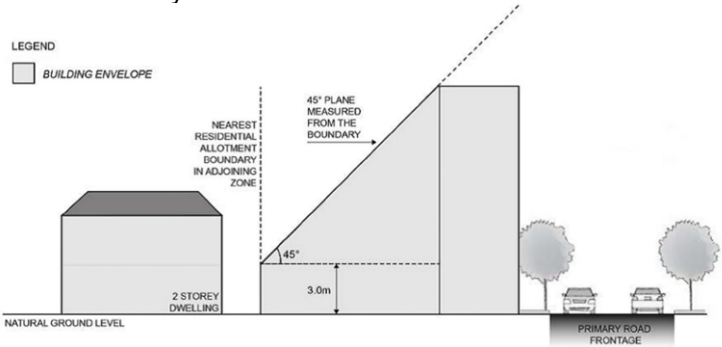
Desired Outcome	
DO 1	A diverse range of low-impact light industrial, commercial and business activities that complement the role of other zones accommodating significant industrial, shopping and business activities.
DO 2	Distinctive building, landscape and streetscape design to achieve high visual and environmental amenity particularly along arterial roads, zone boundaries and public open spaces.

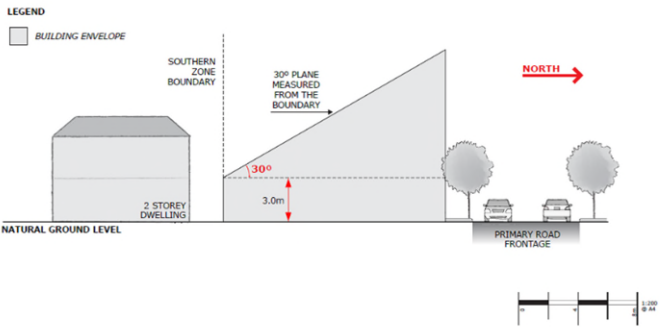
Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Land Use and Intensity	
<p>PO 1.1</p> <p>A range of employment-generating light industrial, service trade, motor repair and other compatible businesses servicing the local community that do not produce emissions that would detrimentally affect local amenity.</p>	<p>DTS/DPF 1.1</p> <p>Development comprises one or more of the following:</p> <ul style="list-style-type: none"> a) Advertisement b) Consulting room c) Indoor recreation facility d) Light industry e) Motor repair station f) Office g) Place of worship h) Research facility i) Retail fuel outlet j) Service trade premises k) Shop l) Store m) Telecommunications facility n) Training facility o) Warehouse.
<p>PO 1.2</p> <p>Shops provide convenient day-to-day services and amenities to local businesses and workers, support the sale of products manufactured on-site and otherwise complement the role of Activity Centres.</p>	<p>DTS/DPF 1.2</p> <ul style="list-style-type: none"> a) Shop where one of the following applies: b) with a gross leasable floor area up to 100m² c) is a bulky goods outlet d) is a restaurant a) is ancillary to and located on the same allotment as an industry and primarily involves the sale by retail of goods manufactured by the industry.
<p>PO 1.3</p> <p>Telecommunication facilities located to mitigate impacts on visual amenity in residential areas.</p>	<p>DTS/DPF 1.3</p> <p>Telecommunications facility in the form of a monopole:</p> <ul style="list-style-type: none"> a) up to a height of 30m b) no closer than 50m to a neighbourhood-type zone.

<p>PO 1.4</p> <p>Bulky good outlets and standalone shops are located to provide convenient access.</p>	<p>DTS/DPF 1.4</p> <p>Bulky goods outlets and standalone shops are located on sites with a frontage to a State Maintained Road.</p>
<p>Built Form and Character</p>	
<p>PO 2.1</p> <p>Development achieves distinctive building, landscape and streetscape design to achieve high visual and environmental amenity particularly along arterial roads, zone boundaries and public open spaces.</p>	<p>DTS/DPF 2.1</p> <p>None are applicable.</p>
<p>PO 2.2</p> <p>Building facades facing a boundary of a zone primarily intended to accommodate residential development, public roads, or public open space incorporate design elements to add visual interest by considering the following:</p> <ul style="list-style-type: none"> a) using a variety of building finishes b) avoiding elevations that consist solely of metal cladding c) using materials with a low reflectivity d) using techniques to add visual interest and reduce large expanses of blank walls including modulation and incorporation of offices and showrooms along elevations visible to a public road. 	<p>DTS/DPF 2.2</p> <p>None are applicable.</p>
<p>Building height and setbacks</p>	
<p>PO 3.1</p> <p>Buildings are set back from the primary street boundary to contribute to the</p>	<p>DTS/DPF 3.1</p> <p>The building line of a building set back from the primary street boundary:</p>

<p>existing/emerging pattern of street setbacks in the streetscape.</p>	<ul style="list-style-type: none"> a) at least the average setback to the building line of existing buildings on adjoining sites which face the same primary street (including those buildings that would adjoin the site if not separated by a public road or a vacant allotment) b) where there is only one existing building on adjoining sites which face the same primary street (including those that would adjoin if not separated by a public road or a vacant allotment), not less than the setback to the building line of that building c) or d) not less than 3m where no building exists on an adjoining site with the same primary street frontage. 		
<p>PO 3.2</p> <p>Buildings are set back from a secondary street boundary to accommodate the provision of landscaping between buildings and the street to enhance the appearance of land and buildings when viewed from the street.</p>	<p>DTS/DPF 3.2</p> <p>Building walls are no closer than 2m to the secondary street boundary.</p>		
<p>PO 3.3</p> <p>Buildings are set back from rear access ways to provide adequate manoeuvrability for vehicles to enter and exit the site.</p>	<p>DTS/DPF 3.3</p> <p>Building walls are set back from the rear access way:</p> <ul style="list-style-type: none"> a) where the access way is 6.5m wide or more, no requirement b) where the access way is less than 6.5m wide, the distance equal to the additional width required to make the access way at least 6.5m wide. 		
<p>PO 3.4</p> <p>Buildings are sited to accommodate vehicle access to the rear of a site for deliveries, maintenance and emergency purposes.</p>	<p>DTS/DPF 3.4</p> <p>Building walls are set back at least 3m from at least one side boundary, unless an alternative means for vehicular access to the rear of the site is available.</p>		
<p>PO 3.5</p> <p>Building height is consistent with the form expressed in any relevant <i>Maximum Building Height (Levels) Technical and Numeric Variation</i> layer, and is otherwise generally low-rise to complement the established streetscape and local character.</p>	<p>DTS/DPF 3.5</p> <p>Building height is not greater than:</p> <ul style="list-style-type: none"> a) the following: <table border="1" style="margin-left: 20px;"> <tr style="background-color: #0056b3; color: white;"> <td>Maximum Building Height (Metres)</td> </tr> <tr> <td>Maximum building height is 12m</td> </tr> </table> b) in all other cases (i.e. there are blank fields for both maximum building height (metres) and 	Maximum Building Height (Metres)	Maximum building height is 12m
Maximum Building Height (Metres)			
Maximum building height is 12m			

	<p>maximum building height (levels)) - 2 building levels up to a height of 9m.</p> <p>In relation to DTS/DPF 3.5, in instances where:</p> <ul style="list-style-type: none"> a) more than one value is returned in the same field for DTS/DPF 3.5(a) refer to the <i>Maximum Building Height (Levels) Technical and Numeric Variation layer</i> or <i>Maximum Building Height (Metres) Technical and Numeric Variation layer</i> in the SA planning database to determine the applicable value relevant to the site of the proposed development b) 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.
<p>PO 3.6</p> <p>Buildings mitigate visual impacts of building massing on residential development within a neighbourhood-type zone.</p>	<p>DTS/DPF 3.6</p> <p>Buildings are constructed within a building envelope provided by a 45 degree plane, measured from a height of 3m above natural ground level at the boundary of an allotment used for residential purposes in a neighbourhood-type zone as shown in the following diagram, except where the relevant boundary is a southern boundary or where this boundary is the primary street boundary.</p>  <p>LEGEND</p> <p>□ BUILDING ENVELOPE</p> <p>NEAREST RESIDENTIAL ALLOTMENT BOUNDARY IN ADJOINING ZONE</p> <p>45° PLANE MEASURED FROM THE BOUNDARY</p> <p>45°</p> <p>3.0m</p> <p>NATURAL GROUND LEVEL</p> <p>2 STOREY DWELLINGS</p> <p>PRIMARY ROAD FRONTAGE</p>
<p>PO 3.7</p> <p>Buildings mitigate overshadowing of residential development within a neighbourhood-type zone.</p>	<p>DTS/DPF 3.7</p> <p>Buildings on sites with a southern boundary adjoining an allotment used for residential purposes within a neighbourhood-type zone are constructed within a building envelope provided by a 30 degree plane grading north measured from a height of 3m above natural ground level at the southern boundary, as shown in the following diagram:</p>

	
<p>PO 3.8</p> <p>Buildings on an allotment fronting a road that is not a State maintained road, and where land on the opposite side of the road is within a neighbourhood-type zone, provides an orderly transition to the built form scale envisaged in the adjacent zone to complement the streetscape character.</p>	<p>DTS/DPF 3.8</p> <p>None are applicable.</p>
<p>Site Dimensions and Land Division</p>	
<p>PO 4.1</p> <p>Land division creates allotments that vary in size and are suitable for a variety of commercial and business activities.</p>	<p>DTS/DPF 4.1</p> <p>Allotments:</p> <ul style="list-style-type: none"> a) connected to an approved common wastewater disposal service have an area of 1250m² or more and a frontage width of 20m or more b) that will require the disposal of wastewater on-site have an area of 2000m² or more and a frontage width of 20m or more.
<p>Landscaping</p>	
<p>PO 5.1</p> <p>Landscaping is provided to enhance the visual appearance of development when viewed from public roads and thoroughfares.</p>	<p>DTS/DPF 5.1</p> <p>Other than to accommodate 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, a landscaped area is provided within the development site:</p> <ul style="list-style-type: none"> a) where a building is set back less than 3m from the street boundary - 1m wide or the area remaining between the relevant building and the street boundary where the building is less than 1m from the street

	<p>boundary or</p> <p>b) in any other case - at least 1.5m wide.</p>
<p>PO 5.2</p> <p>Development incorporates areas for landscaping to enhance the overall amenity of the site and locality.</p>	<p>DTS/DPF 5.2</p> <p>Landscape areas comprise:</p> <p>a) not less than 10 percent of the site</p> <p>b) a dimension of at least 1.5m.</p>
<p>Advertisements</p>	
<p>PO 6.1</p> <p>Freestanding advertisements are not visually dominant within the locality.</p>	<p>DTS/DPF 6.1</p> <p>Freestanding advertisements:</p> <p>a) do not exceed 6m in height above natural ground level</p> <p>b) do not have a face that exceeds 8m².</p>
<p>Concept Plans</p>	
<p>PO 7.1</p> <p>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.</p>	<p>DTS/DPF 7.1</p> <p>The site of the development is wholly located outside any relevant Concept Plan boundary. The following Concept Plans are relevant:</p> <p>In relation to DTS/DPF 7.1, in instances where:</p> <p>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.</p> <p>b) in instances where 'no value' is returned, there is no relevant concept plan and DTS/DPF 7.1 is met.</p>

General Neighbourhood Zone (GN)

Desired Outcome	
DO 1	Low-rise, low and medium-density housing that supports a range of needs and lifestyles located within easy reach 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	
<p>PO 1.1</p> <p>Predominantly residential development with complementary non-residential uses that support an active, convenient, and walkable neighbourhood.</p>	<p>DTS/DPF 1.1</p> <p>Development comprises one or more of the following:</p> <ul style="list-style-type: none"> a) Ancillary accommodation b) Community facility c) Consulting room d) Dwelling e) Educational establishment f) Office g) Place of Worship h) Pre-school i) Recreation area j) Residential flat building k) Retirement facility l) Shop m) Student accommodation n) Supported accommodation
<p>PO 1.2</p> <p>Non-residential development located and designed to improve community accessibility to services, primarily in the form of:</p> <ul style="list-style-type: none"> a) small scale commercial uses such as offices, shops and consulting rooms b) community services such as educational establishments, community centres, places of worship, pre-schools, and other health and welfare services c) services and facilities ancillary to the function or operation of supported 	<p>DTS/DPF 1.2</p> <p>None are applicable.</p>

<p>accommodation or retirement facilities</p> <p>d) open space and recreation facilities.</p>	
<p>PO 1.3</p> <p>Non-residential development sited and designed to complement the residential character and amenity of the neighbourhood.</p>	<p>DTS/DPF 1.3</p> <p>None are applicable.</p>
<p>PO 1.4</p> <p>Commercial activities improve community access to services are of a scale and type to maintain residential amenity.</p>	<p>DTS/DPF 1.4</p> <p>A shop, consulting room or office (or any combination thereof) satisfies any one of the following:</p> <ul style="list-style-type: none"> a) it is located on the same allotment and in conjunction with a dwelling where all the following are satisfied: <ul style="list-style-type: none"> a. does not exceed 50m² gross leasable floor area b. does not involve the display of goods in a window or about the dwelling or its curtilage 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: <ul style="list-style-type: none"> a. the building is a State or Local Heritage Place b. is in conjunction with a dwelling and there is no increase in the gross leasable floor area previously used for non-residential purposes b) is located more than 500m from an Activity Centre and satisfies one of the following: <ul style="list-style-type: none"> a. 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 b. does not exceed 200m² gross leasable floor area (individually or combined, in a single building) where the site has a frontage to a State Maintained Road c) the development site abuts an Activity Centre and all the following are satisfied: <ul style="list-style-type: none"> a. it does not exceed 200m² gross leasable floor area (individually or combined, in a single building)

	<p>b. 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:</p> <ul style="list-style-type: none"> i. 50% of the existing gross leasable floor area within the Activity Centre ii. 1000m². 									
<p>PO 1.5</p> <p>Expansion of existing community services such as educational establishments, community facilities and pre-schools in a manner which complements the scale of development envisaged by the desired outcome for the neighbourhood.</p>	<p>DTS/DPF 1.5</p> <p>Alteration of or addition to existing educational establishments, community facilities or pre-schools where all the following are satisfied:</p> <ul style="list-style-type: none"> a) set back at least 3m from any boundary shared with a residential land use b) building height not exceeding 1 building level c) the total floor area of the building not exceeding 150% of the total floor area prior to the addition/alteration 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. 									
<p>Site Dimensions and Land Division</p>										
<p>PO 2.1</p> <p>Allotments/sites created for residential purposes are of suitable size and dimension to accommodate the anticipated dwelling form and remain compatible with the pattern of development in a low-rise and predominantly low-density neighbourhood, with higher densities closer to public open space, public transport stations and activity centres.</p>	<p>DTS/DPF 2.1</p> <p>Development will not result in more than 1 dwelling on an existing allotment</p> <p>or</p> <p>Allotments/sites for residential purposes accord with the following:</p> <table border="1"> <thead> <tr> <th>Dwelling Type</th> <th>Minimum site/allotment area per dwelling</th> <th>Minimum site/allotment frontage</th> </tr> </thead> <tbody> <tr> <td>Detached dwelling (not in a terrace arrangement)</td> <td>300m² (exclusive of any battle-axe allotment 'handle')</td> <td>9m where not on a battle-axe site 5m where on a battle-axe site</td> </tr> <tr> <td>Semi-detached dwelling</td> <td>300m²</td> <td>9m</td> </tr> </tbody> </table>	Dwelling Type	Minimum site/allotment area per dwelling	Minimum site/allotment frontage	Detached dwelling (not in a terrace arrangement)	300m ² (exclusive of any battle-axe allotment 'handle')	9m where not on a battle-axe site 5m where on a battle-axe site	Semi-detached dwelling	300m ²	9m
Dwelling Type	Minimum site/allotment area per dwelling	Minimum site/allotment frontage								
Detached dwelling (not in a terrace arrangement)	300m ² (exclusive of any battle-axe allotment 'handle')	9m where not on a battle-axe site 5m where on a battle-axe site								
Semi-detached dwelling	300m ²	9m								

	Row dwelling (or detached dwelling in a terrace arrangement)	250m ²	7m (averaged)
	Group dwelling	300m ² (average, including common areas)	15m (total)
	Dwelling within a residential flat building	300m ² (average, including common areas)	15m (total)
<p>PO 2.2</p> <p>Development creating new allotments/sites in conjunction with retention of an existing dwelling ensures the site of the existing dwelling remains fit for purpose.</p>	<p>DTS/DPF 2.2</p> <p>Where the site of a dwelling does not comprise an entire allotment:</p> <ul style="list-style-type: none"> a) the balance of the allotment accords with site area and frontage requirements specified in General Neighbourhood Zone DTS/DPF 2.1 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: <ul style="list-style-type: none"> a. Private open space requirements specified in Design in Urban Areas Table 1 - Private Open Space b. off-street vehicular parking exists 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. 		
<p>PO 2.3</p> <p>Land division results in sites that are accessible and suitable for their intended purpose.</p>	<p>DTS/DPF 2.3</p> <p>Division of land satisfies (a), (b) or (c):</p> <ul style="list-style-type: none"> a) reflects the site boundaries illustrated and approved in an existing development authorisation under the Development Act 1993 or Planning, Development and Infrastructure Act 2016 where the allotments are used or are proposed to be used solely for residential purposes b) is proposed as part of a combined land division application with deemed-to-satisfy dwellings on the proposed allotments c) satisfies all of the following: 		

	<ul style="list-style-type: none"> a. No more than 5 additional allotments are created b. Each proposed allotment has a minimum site area of 300m² and frontage of 9m c. Each proposed allotment has a slope less than 12.5% (1-in-8) d. There are no regulated trees on or within 20m of the subject land, with the distance measured from the base of the trunk of the tree (or the nearest trunk of the tree) to the subject land e. The division does not involve creation of a public road f. Vehicle access from a public road can be provided to all proposed allotments which satisfies Design in Urban Areas DTS/DPF 23.3, 23.4 and 23.6, and would be located wholly on one side of the allotment, or located no more than 1m from the side boundary alignment g. No allotments are in a battle-axe configuration <p>d) and</p> <ul style="list-style-type: none"> a. Each proposed allotment is of a size and dimension capable of containing a rectangle 9m in width and 15m in depth.
<p>Site Coverage</p>	
<p>PO 3.1</p> <p>Building footprints allow sufficient space around buildings to limit visual impact, provide an attractive outlook and access to light and ventilation.</p>	<p>DTS/DPF 3.1</p> <p>The development does not result in site coverage exceeding 60%.</p>
<p>Building Height</p>	
<p>PO 4.1</p> <p>Buildings contribute to a low-rise suburban character.</p>	<p>DTS/DPF 4.1</p> <p>Building height (excluding garages, carports and outbuildings) no greater than:</p> <ul style="list-style-type: none"> a) 2 building levels and 9m <p>and</p> <ul style="list-style-type: none"> b) wall height that is no greater than 7m except in the case of a gable end.

Primary Street Setback	
<p>PO 5.1</p> <p>Buildings are setback from primary street boundaries to contribute to the existing/emerging pattern of street setbacks in the streetscape.</p>	<p>DTS/DPF 5.1</p> <p>The building line of a building set back from the primary street boundary:</p> <ul style="list-style-type: none"> a) no more than 1m in front of the average setback to the building line of existing buildings on adjoining sites which face the same primary street (including those buildings that would adjoin the site if not separated by a public road or a vacant allotment) b) where there is only one existing building on adjoining sites which face the same primary street (including those that would adjoin if not separated by a public road or a vacant allotment), no more than 1m in front of the setback to the building line of that building <p>or</p> <ul style="list-style-type: none"> c) not less than 5m where no building exists on an adjoining site with the same primary street frontage.
Secondary Street Setback	
<p>PO 6.1</p> <p>Buildings are set back from secondary street boundaries to achieve separation between building walls and public streets and contribute to a suburban streetscape character.</p>	<p>DTS/DPF 6.1</p> <p>Building walls are set back from the boundary of the allotment with a secondary street frontage:</p> <ul style="list-style-type: none"> a) at least 900mm <p>or</p> <ul style="list-style-type: none"> b) if a dwelling on any adjoining allotment is closer to the secondary street than 900mm, at least the distance of that dwelling from the boundary with the secondary street.
Boundary Walls	
<p>PO 7.1</p> <p>Dwelling boundary walls are limited in height and length to manage visual and overshadowing impacts on adjoining properties.</p>	<p>DTS/DPF 7.1</p> <p>Except where the dwelling is located on a central site within a row dwelling or terrace arrangement, side boundary walls occur only on one side boundary and satisfy (a) or (b) below:</p> <ul style="list-style-type: none"> a) side boundary walls adjoin or abut a boundary wall of a building on adjoining land for the same or lesser length and height b) side boundary walls do not: <ul style="list-style-type: none"> a. exceed 3m in height from the top of footings b. exceed 11.5m in length

	<ul style="list-style-type: none"> c. when combined with other walls on the boundary of the subject development site, exceed a maximum 45% of the length of the boundary d. encroach within 3m of any other existing or proposed boundary walls on the subject land.
<p>PO 7.2</p> <p>Dwellings in a semi-detached, row or terrace arrangement maintain space between buildings consistent with a suburban streetscape character.</p>	<p>DTS/DPF 7.2</p> <p>Dwelling walls in a semi-detached, row or terrace arrangement are setback at least 900mm from side boundaries shared with allotments outside the development site.</p>
<p>Side boundary setback</p>	
<p>PO 8.1</p> <p>Building walls are set back from side boundaries to provide:</p> <ul style="list-style-type: none"> a) separation between dwellings in a way that contributes to a suburban character <p>and</p> <ul style="list-style-type: none"> b) access to natural light and ventilation for neighbours. 	<p>DTS/DPF 8.1</p> <p>Other than walls located on a side boundary, building walls are set back from side boundaries:</p> <ul style="list-style-type: none"> a) at least 900mm where the wall height is up to 3m b) other than for a wall facing a southern side boundary, at least 900mm plus 1/3 of the wall height above 3m <p>and</p> <ul style="list-style-type: none"> c) at least 1900mm plus 1/3 of the wall height above 3m for walls facing a southern side boundary.
<p>Rear boundary setback</p>	
<p>PO 9.1</p> <p>Dwelling walls are set back from rear boundaries to provide:</p> <ul style="list-style-type: none"> a) separation between dwellings in a way that contributes to a suburban character b) access to natural light and ventilation for neighbours c) private open space d) space for landscaping and vegetation. 	<p>DTS/DPF 9.1</p> <p>Dwelling walls are set back from the rear boundary at least:</p> <ul style="list-style-type: none"> a) if the size of the site is less than 301m²— <ul style="list-style-type: none"> a. 3m in relation to the ground floor of the dwelling b. 5m in relation to any other building level of the dwelling b) if the size of the site is 301m² or more— <ul style="list-style-type: none"> a. 4m in relation to the ground floor of the dwelling b. 6m in relation to any other building level of the dwelling.

Concept Plans	
<p>PO 10.1</p> <p>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.</p>	<p>DTS/DPF 10.1</p> <p>The site of the development is wholly located outside any relevant Concept Plan boundary. The following Concept Plans are relevant:</p> <p>In relation to DTS/DPF 10.1, in instances where:</p> <ul style="list-style-type: none"> a) one or more Concept Plan is returned, refer to Part 12 - Concept Plans in the Planning and Design Code to determine if a Concept Plan is relevant to the site of the proposed development. Note: multiple concept plans may be relevant. b) in instances where 'no value' is returned, there is no relevant concept plan and DTS/DPF 10.1 is met.
Ancillary Buildings and Structures	
<p>PO 11.1</p> <p>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.</p>	<p>DTS/DPF 11.1</p> <p>Ancillary buildings:</p> <ul style="list-style-type: none"> a) are ancillary to a dwelling erected on the same site b) have a floor area not exceeding 60m² c) are not constructed, added to or altered so that any part is situated: <ul style="list-style-type: none"> a. in front of any part of the building line of the dwelling to which it is ancillary or b. 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: <ul style="list-style-type: none"> a. is set back at least 5.5m from the boundary of the primary street b. have a door / opening not exceeding: <ul style="list-style-type: none"> i. for dwellings of single building level - 7m in width or 50% of the site frontage, whichever is the lesser ii. for dwellings comprising two or more building levels at the building

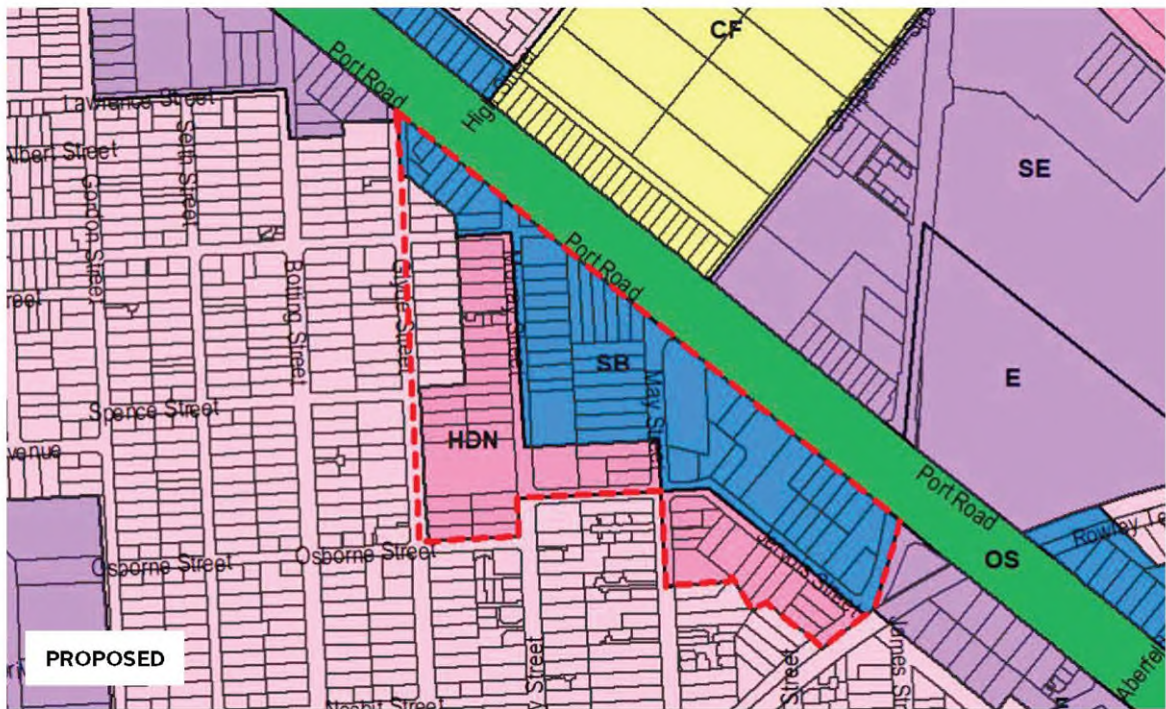
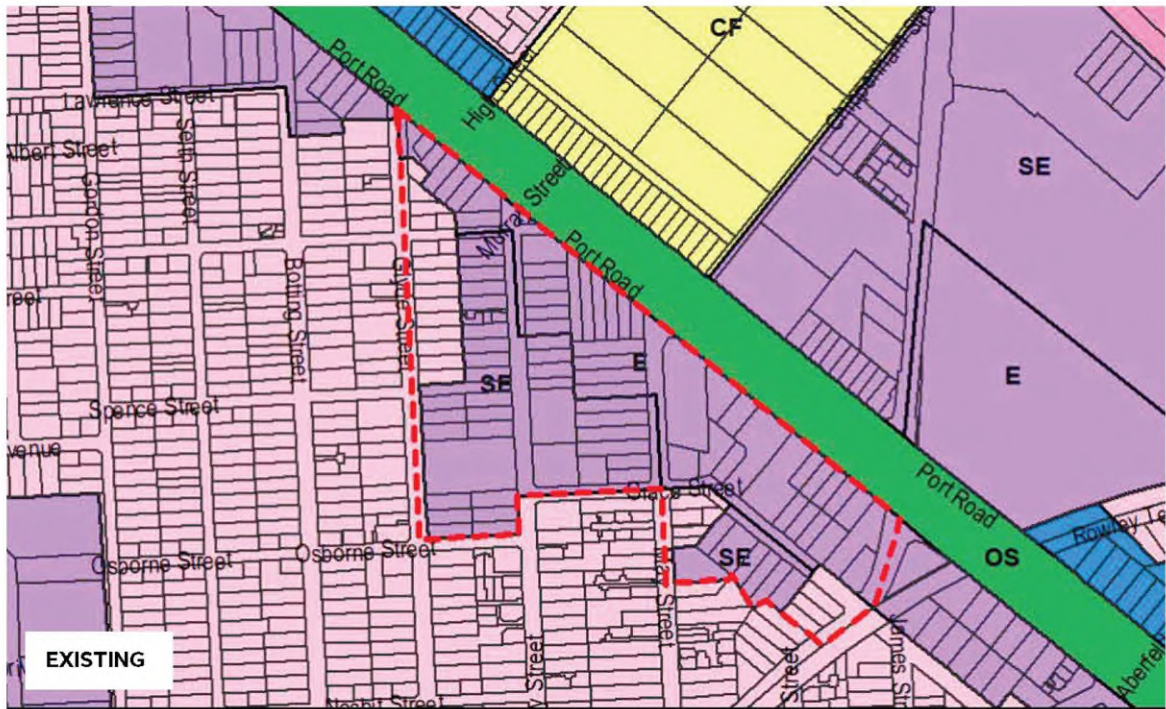
	<p style="text-align: center;">line fronting the same public street - 7m in width</p> <p>e) if situated on a boundary (not being a boundary with a primary street or secondary street), do not exceed a length of 11.5m unless:</p> <ul style="list-style-type: none"> a. a longer wall or structure exists on the adjacent site and is situated on the same allotment boundary and b. 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 <p>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</p> <p>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</p> <p>h) have a wall height (or post height) not exceeding 3m</p> <p>i) have a roof height where no part of the roof is more than 5m above the natural ground level</p> <p>j) if clad in sheet metal, is pre-colour treated or painted in a non-reflective colour</p> <p>k) retains a total area of soft landscaping in accordance with (i) or (ii), whichever is less:</p> <ul style="list-style-type: none"> a. a total area as determined by the following table: <table border="1" style="margin-left: 40px;"> <thead> <tr> <th style="background-color: #1a3d54; color: white;"> Dwelling site area (or in the case of residential flat building or group dwelling(s), average site area) (m²)</th> <th style="background-color: #1a3d54; color: white;"> Minimum percentage of site</th> </tr> </thead> <tbody> <tr> <td><150</td> <td>10%</td> </tr> <tr> <td>150-200</td> <td>15%</td> </tr> <tr> <td>201-450</td> <td>20%</td> </tr> <tr> <td>>450</td> <td>25%</td> </tr> </tbody> </table> <ul style="list-style-type: none"> b. the amount of existing soft landscaping prior to the development occurring. 	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%
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%										

<p>PO 11.2</p> <p>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.</p>	<p>DTS/DPF 11.2</p> <p>Ancillary buildings and structures do not result in:</p> <ul style="list-style-type: none"> 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.
<p>Advertisements</p>	
<p>PO 12.1</p> <p>Advertisements identify the associated business activity, and do not detract from the residential character of the locality.</p>	<p>DTS/DPF 12.1</p> <p>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.</p>

ATTACHMENT C – PROPOSED CODE POLICY

Zone Changes are mapped on the following pages, with the Zone Policies following.

Note for the purposes of brevity and ease of use of this document, Assessment Tables 1 to 5 applying to each Zone have not been included (just the policies). Please refer to the Planning and Design Code (https://code.plan.sa.gov.au/home/browse_the_planning_and_design_code?code=browse) to view each of the tables applying to each zone.



Zoning

- SE Strategic Employment
- E Employment
- GN General Neighbourhood
- HDN Housing Diversity
- OS Open Space
- CF Community Facilities
- SB Suburban Business

Version A
2 November 2021

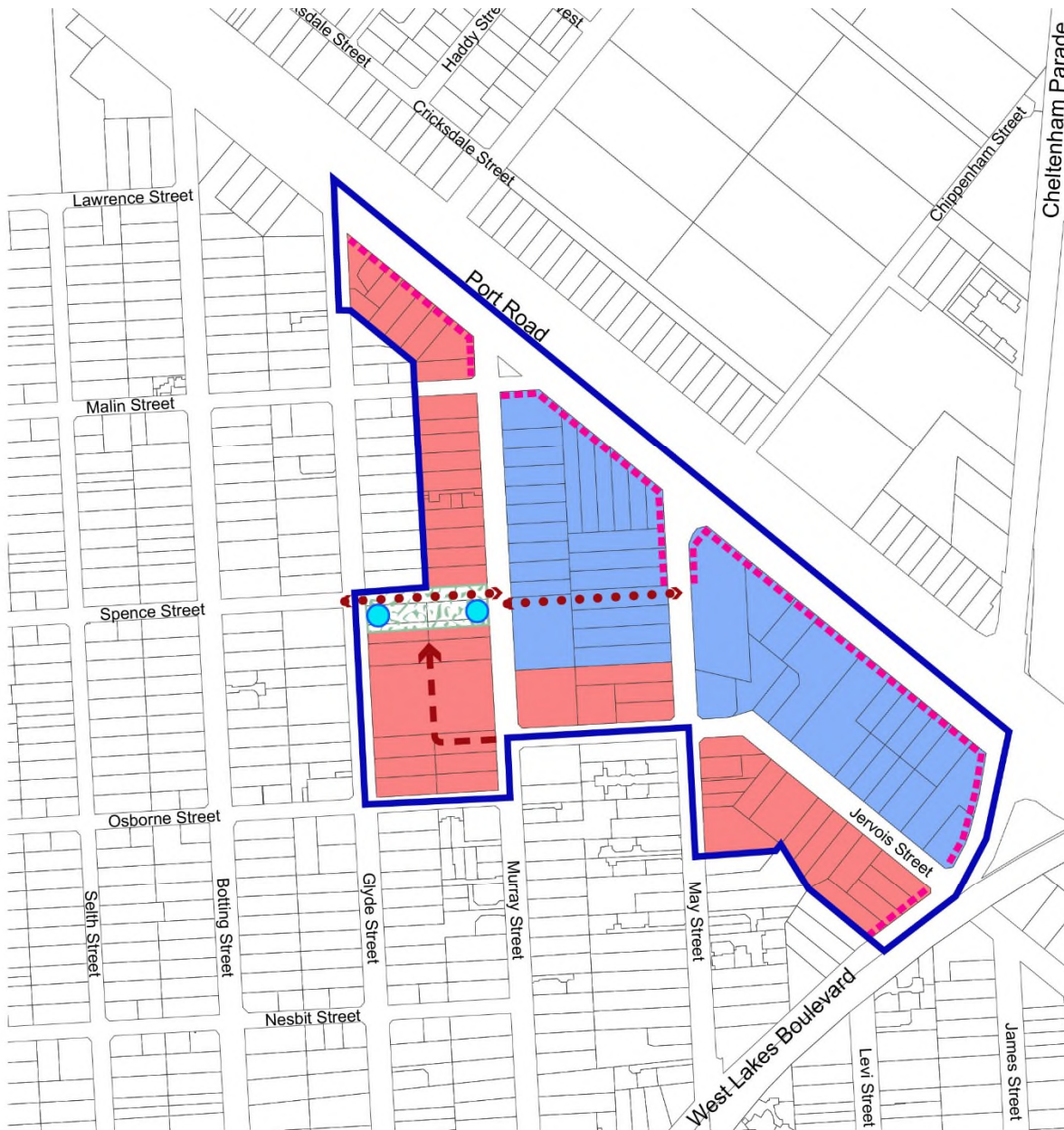




Version A
2 November 2021

Technical and Numerical Variation

Maximum Building Height (Metres)



- ⋯⋯⋯ Activated Frontage
- Building Height up to 4 levels (16.5 metres)
- Building Height up to 3 levels (12 metres)
- Public Open Space
- WSUD Basin
- ↔ Vehicular Access
- ⋯⋯⋯ Pedestrian / Cycle Linkage
- Concept Plan Boundary



1:5000



Concept Plan XXX

ALBERT PARK

SUBURBAN BUSINESS ZONE

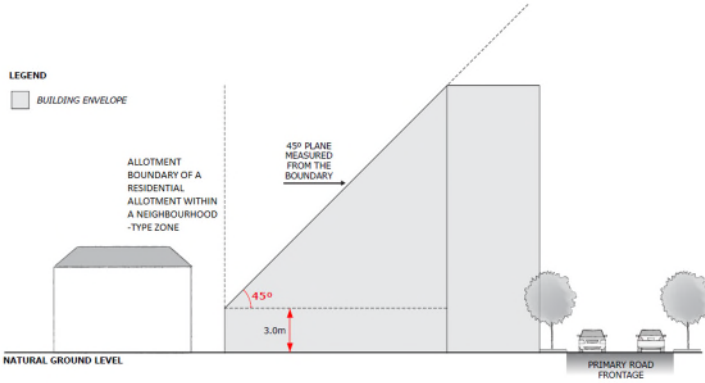
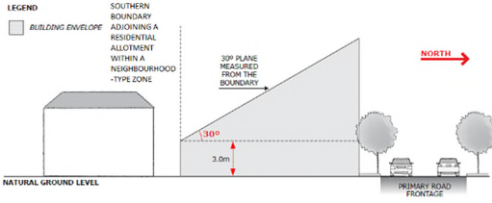
Desired Outcome	
DO 1	A business and innovation precinct that includes a range of emerging businesses which have low level off-site impacts. Residential development within the area is subordinate to employment uses and generally includes medium-density housing designed to complement and not prejudice the operation of existing businesses.
DO 2	A zone characterised by low-rise buildings with additional height in well serviced and accessible locations.

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	
<p>PO 1.1</p> <p>Shops, office, consulting room, low-impact industry and other non-residential uses are supported by a variety of compact, medium density housing and accommodation types.</p>	<p>DTS/DPF 1.1</p> <p>Development comprises one or more of the following:</p> <ul style="list-style-type: none"> a) Consulting room b) Dwelling c) Institutional facility d) Light industry e) Motor repair station f) Office g) Residential flat building h) Retail fuel outlet i) Service trade premises j) Shop k) Store l) Warehouse
<p>PO 1.2</p> <p>Retail, business and commercial development is of a scale that provides a local convenience service without undermining the vibrancy and function of zones primarily intended to accommodate such development.</p>	<p>DTS/DPF 1.2</p> <p>Shops, offices and consulting rooms do not exceed 500m² in gross leasable floor area.</p>
<p>PO 1.3</p> <p>Compact, medium density residential development does not prejudice the operation of non-residential activity within the zone.</p>	<p>DTS/DPF 1.3</p> <p>None are applicable.</p>
<p>PO 1.4</p>	<p>DTS/DPF 1.4</p>

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
<p>Changes in the use of land between similar businesses encourages the efficient reuse of commercial premises and supports continued local access to a range of services compatible to the locality.</p>	<p>A change of use to a shop, office or consulting room or any combination of these uses where all of the following are achieved:</p> <ul style="list-style-type: none"> a) the area to be occupied by the proposed development is in an existing building and is currently used as a shop, office, consulting room or any combination of these uses b) if the proposed the change in use is for a shop: <ul style="list-style-type: none"> i. the total gross leasable floor area of the shop will not exceed 500m² ii. if primarily involving the handling and sale of foodstuffs, areas used for the storage and collection of refuse are sited at least 10m from the site of a dwelling (other than a dwelling directly associated with the proposed shop) iii. if primarily involving heating and cooking of foodstuffs in a commercial kitchen and is within 30m of any residential allotment within a neighbourhood-type zone boundary or a dwelling (other than a dwelling directly associated with the proposed shop), an exhaust duct and stack (chimney) exists or is capable of being installed for discharging exhaust emissions c) off-street vehicular parking exists 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, except where: <ul style="list-style-type: none"> i. the required contribution will be made into a relevant car parking offset scheme (other than where a relevant contribution has previously been made) or ii. the building is a local heritage place.
<p>Built Form and Character</p>	
<p>PO 2.1</p> <p>Building scale and design complement surrounding built form, streetscapes and local character.</p>	<p>DTS/DPF 2.1</p> <p>None are applicable.</p>
<p>PO 2.2</p> <p>Development with high visual and environmental amenity, particularly along arterial roads and the boundaries of</p>	<p>DTS/DPF 2.2</p> <p>None are applicable.</p>

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature				
adjoining zones is primarily intended to accommodate sensitive receivers.					
Building height and setbacks					
<p>PO 3.1</p> <p>Buildings are generally of low-rise construction, with taller buildings positioned towards the centre of the zone and away from any adjoining neighbourhood-type zone to positively contribute to the built form character of a locality.</p>	<p>DTS/DPF 3.1</p> <p>Building height (excluding garages, carports and outbuildings) is no greater than:</p> <p>a) the following:</p> <table border="1"> <thead> <tr> <th>Maximum Building Height (Metres)</th> </tr> </thead> <tbody> <tr> <td>Maximum building height is 16.5m</td> </tr> <tr> <th>Maximum Building Height (Levels)</th> </tr> <tr> <td>Maximum building height is 4 levels</td> </tr> </tbody> </table> <p>b) in all other cases (ie there is a blank field for both values):</p> <ol style="list-style-type: none"> i. 2 building levels or 9m where the development is located adjoining a different zone that primarily envisages residential development ii. 3 building levels or 12m in all other cases. <p>In relation to DTS/DPF 3.1, in instances where:</p> <p>c) more than one value is returned in the same field:</p> <ol style="list-style-type: none"> i. for the purpose of DTS/DPF 3.1(a), refer to the Maximum Building Height (Metres) Technical and Numeric Variation layer or Maximum Building Height (Levels) Technical and Numeric Variation layer in the SA planning database to determine the applicable value relevant to the site of the proposed development ii. 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. 	Maximum Building Height (Metres)	Maximum building height is 16.5m	Maximum Building Height (Levels)	Maximum building height is 4 levels
Maximum Building Height (Metres)					
Maximum building height is 16.5m					
Maximum Building Height (Levels)					
Maximum building height is 4 levels					
<p>PO 3.2</p> <p>Buildings mitigate visual impacts of building massing on residential</p>	<p>DTS/DPF 3.2</p> <p>Buildings constructed within a building envelope provided by a 45 degree plane measured from a height of 3m above</p>				

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
<p>development within a neighbourhood-type zone.</p>	<p>natural ground level at the boundary of an allotment used for residential purposes within a neighbourhood-type zone as shown in the following diagram (except where this boundary is a southern boundary, or where this boundary is the primary street boundary)</p> 
<p>PO 3.3</p> <p>Buildings mitigate overshadowing of residential development within a neighbourhood-type zone.</p>	<p>DTS/DPF 3.3</p> <p>a) Buildings on sites with a southern boundary adjoining an allotment used for residential purposes within a neighbourhood-type zone are constructed within a building envelope provided by a 30 degree plane grading north measured from a height of 3m above natural ground level at the southern boundary, as shown in the following diagram</p> 
<p>PO 3.4</p> <p>Buildings are set back from primary street boundaries to contribute to a consistent streetscape.</p>	<p>DTS/DPF 3.4</p> <p>The building line of a building is set back from the primary street frontage:</p> <p>a) the average of any existing buildings on either of the adjoining sites having frontage to the same street or</p> <p>b) not less than 6m where no building exists on an adjoining site.</p>
<p>PO 3.5</p> <p>Buildings are set back from secondary street boundaries (other than rear</p>	<p>DTS/DPF 3.5</p>

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
laneways) to contribute to a consistent streetscape.	Building walls are set back from the secondary street frontage: <ul style="list-style-type: none"> a) the average of any existing buildings on adjoining sites having frontage to the same street or b) not less than 900mm where no building exists on an adjoining site.
PO 3.6 Buildings are set back from side boundaries to maintain adequate separation and ventilation.	DTS/DPF 3.6 Other than walls located on a side boundary, building walls are set back at least 900mm from side boundaries.
PO 3.7 Buildings are set back from rear boundaries to minimise adverse impacts on adjoining land uses.	DTS/DPF 3.7 Building walls are set back from the rear boundary at least 3m.
PO 3.8 Buildings on an allotment fronting a road that is not a State maintained road, and where land on the opposite side of the road is within a neighbourhood-type zone, provides an orderly transition to the built form scale envisaged in the adjacent zone to complement the streetscape character.	DTS/DPF 3.8 None are applicable.
Land Division	
PO 4.1 Land division and / or site amalgamation create allotments that vary in size and are suitable for a variety of residential and commercial activities and improve the level of development integration.	DTS/DPF 4.1 None are applicable.
Advertisements	
PO 5.1 Freestanding advertisements identify the associated business without creating a visually dominant element within the streetscape.	DTS/DPF 5.1 Freestanding advertisements: <ul style="list-style-type: none"> a) do not exceed 6m in height b) do not have a sign face that exceeds 4m² per side
Concept Plans	

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature				
<p>PO 6.1</p> <p>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.</p>	<p>DTS/DPF 6.1</p> <p>The site of the development is wholly located outside any relevant Concept Plan boundary. The following Concept Plans are relevant:</p> <table border="1"> <thead> <tr> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Concept Plan 3 - Mount Barker and Littlehampton</td> </tr> <tr> <td>Concept Plan 92 - Meadows</td> </tr> <tr> <td>Concept Plan 91 - Nairne West</td> </tr> </tbody> </table> <p>In relation to DTS/DPF 6.1, in instances where:</p> <ul style="list-style-type: none"> a) one or more Concept Plan is returned, refer to Part 12 - Concept Plans in the Planning and Design Code to determine if a Concept Plan is relevant to the site of the proposed development. Note: multiple concept plans may be relevant. b) in instances where 'no value' is returned, there is no relevant concept plan and DTS/DPF 6.1 is met. 	Description	Concept Plan 3 - Mount Barker and Littlehampton	Concept Plan 92 - Meadows	Concept Plan 91 - Nairne West
Description					
Concept Plan 3 - Mount Barker and Littlehampton					
Concept Plan 92 - Meadows					
Concept Plan 91 - Nairne West					
Ancillary Buildings and Structures					
<p>PO 7.1</p> <p>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.</p>	<p>DTS/DPF 7.1</p> <p>Ancillary buildings and structures:</p> <ul style="list-style-type: none"> a) are ancillary to a dwelling erected on the same site b) have a floor area not exceeding 60m² c) are not constructed, added to or altered so that any part is situated <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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: 				

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature				
	<p>A. for dwellings of single building level - 7m in width or 50% of the site frontage, whichever is the lesser</p> <p>B. for dwellings comprising two or more building levels at the building line fronting the same public street - 7m in width</p> <p>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:</p> <ul style="list-style-type: none"> 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 <p>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</p> <p>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</p> <p>h) have a wall height or post height not exceeding 3m above natural ground level</p> <p>i) have a roof height where no part of the roof is more than 5m above the natural ground level</p> <p>j) if clad in sheet metal, is pre-colour treated or painted in a non-reflective colour</p> <p>k) retains a total area of soft landscaping in accordance with (i) or (ii), whichever is less:</p> <ul style="list-style-type: none"> i. a total area as determined by the following table: <table border="1"> <thead> <tr> <th>1. Dwelling site area (or in the case of residential flat building or group dwelling(s), average site area) (m²)</th> <th>2. Minimum percentage of site</th> </tr> </thead> <tbody> <tr> <td><150</td> <td>10%</td> </tr> </tbody> </table>	1. Dwelling site area (or in the case of residential flat building or group dwelling(s), average site area) (m ²)	2. Minimum percentage of site	<150	10%
1. Dwelling site area (or in the case of residential flat building or group dwelling(s), average site area) (m ²)	2. Minimum percentage of site				
<150	10%				

Performance Outcome		Deemed-to-Satisfy Criteria / Designated Performance Feature	
	150-200	15%	
	201-450	20%	
	>450	25%	
	ii. the amount of existing soft landscaping prior to the development occurring.		
PO 7.2	DTS/DPF 7.2		
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.	Ancillary buildings and structures do not result in: <ul style="list-style-type: none"> 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. 		

HOUSING DIVERSITY NEIGHBOURHOOD ZONE

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	
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Land Use and Intensity	
PO 1.1	DTS/DPF 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.	Development comprises one or more of the following: <ul style="list-style-type: none"> a) Ancillary accommodation b) Consulting room c) Community facility

	<ul style="list-style-type: none"> d) Dwelling e) Educational establishment f) Office g) Place of Worship h) Pre-school i) Recreation area j) Residential flat building k) Retirement facility l) Shop m) Supported accommodation.
<p>PO 1.2</p> <p>Commercial activities improve community access to services are of a scale and type to maintain residential amenity.</p>	<p>DTS/DPF 1.2</p> <p>A shop, consulting room or office (or any combination thereof) satisfies any one of the following:</p> <ul style="list-style-type: none"> a) it is located on the same allotment and in conjunction with a dwelling where all the following are satisfied: <ul style="list-style-type: none"> i) does not exceed 50m² gross leasable floor area ii) does not involve the display of goods in a window or about the dwelling or its curtilage 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: <ul style="list-style-type: none"> i) the building is a State or Local Heritage Place ii) is in conjunction with a dwelling and there is no increase in the gross leasable floor area previously used for non-residential purposes c) is located more than 500m from an Activity Centre and satisfies one of the following: <ul style="list-style-type: none"> 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 ii) does not exceed 200m² gross leasable floor area (individually or combined, in a single building) where the site has a frontage to a State Maintained Road d) the development site abuts an Activity Centre and all the following are satisfied:

	<ul style="list-style-type: none"> i) it does not exceed 200m² gross leasable floor area (individually or combined, in a single building) 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: <ul style="list-style-type: none"> 1. 50% of the existing gross leasable floor area within the Activity Centre 2. 1000m².
<p>PO 1.3</p> <p>Non-residential development located and designed to improve community accessibility to services, primarily in the form of:</p> <ul style="list-style-type: none"> a) small-scale commercial uses such as offices, shops and consulting rooms b) community services such as educational establishments, community centres, places of worship, pre-schools and other health and welfare services c) services and facilities ancillary to the function or operation of supported accommodation or retirement facilities d) open space and recreation facilities. 	<p>DTS/DPF 1.3</p> <p>None are applicable.</p>
<p>PO 1.4</p> <p>Expansion of existing community services such as educational establishments, community facilities and pre-schools in a manner which complements the scale of development envisaged by the desired outcome for the neighbourhood.</p>	<p>DTS/DPF 1.4</p> <p>Alteration of or addition to existing educational establishments, community facilities or pre-schools where all the following are satisfied:</p> <ul style="list-style-type: none"> a) set back at least 3m from any boundary shared with a residential land use b) building height not exceeding 1 building level c) the total floor area of the building not exceeding 150% of the total floor area prior to the addition/alteration 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.

<p>PO 1.5</p> <p>Non-residential development sited and designed to complement the residential character and amenity of the neighbourhood.</p>	<p>DTS/DPF 1.5</p> <p>None are applicable.</p>
<p>Site Dimensions and Land Division</p>	
<p>PO 2.1</p> <p>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.</p>	<p>DTS/DPF 2.1</p> <p>Development will not result in more than 1 dwelling on an existing allotment</p> <p>or</p> <p>Allotments/sites for residential purposes accord with the following:</p> <p>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):</p> <div style="background-color: #003366; color: white; padding: 2px;">Minimum Site Area</div> <p>Minimum site area for a detached dwelling is 150 sqm; semi-detached dwelling is 150 sqm; row dwelling is 150 sqm; group dwelling is 150 sqm; residential flat building is 150 sqm</p> <p>and</p> <p>b) site frontages (or allotment frontages in the case of land division) are not less than:</p> <div style="background-color: #003366; color: white; padding: 2px;">Minimum Frontage</div> <p>Minimum frontage for a detached dwelling is 9m; semi-detached dwelling is 6m; row dwelling is 6m; group dwelling is 18m; residential flat building is 18m</p> <p>In relation to DTS/DPF 2.1, in instances where:</p> <p>a) more than one value is returned in the same field, refer to the <i>Minimum Frontage Technical and Numeric Variation</i> layer or <i>Minimum Site Area Technical and Numeric Variation</i> layer in the SA planning database to determine the applicable value relevant to the site of the proposed development.</p> <p>b) no value is returned in DTS/DPS 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.</p>

	<p>c) no value is returned in DTS/DPS 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.</p>				
<p>PO 2.2</p> <p>Development creating new allotments/sites in conjunction with retention of an existing dwelling ensures the site of the existing dwelling remains fit for purpose.</p>	<p>DTS/DPF 2.2</p> <p>Where the site of a dwelling does not comprise an entire allotment:</p> <p>a) the balance of the allotment accords with the requirements specified in Housing Diversity Neighbourhood Zone DTS/DPF 2.1</p> <p>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:</p> <p style="padding-left: 40px;">i) private open space requirements specified in Design in Urban Areas Table 1 - Private Open Space</p> <p style="padding-left: 40px;">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.</p>				
<p>Building Height</p>					
<p>PO 3.1</p> <p>Building height is consistent with the form expressed in any relevant Maximum Building Height Levels Technical and Numeric Variation and Maximum Building Height Metres Technical and Numeric Variation, and is otherwise generally low rise, or complements the height of nearby buildings.</p>	<p>DTS/DPF 3.1</p> <p>Building height (excluding garages, carports and outbuildings) is no greater than:</p> <p>a. the following:</p> <table border="1"> <tr> <td style="background-color: #2e5496; color: white;">Maximum Building Height (Metres)</td> </tr> <tr> <td>Maximum building height is 12m</td> </tr> <tr> <td style="background-color: #2e5496; color: white;">Maximum Building Height (Levels)</td> </tr> <tr> <td>Maximum building height is 3 levels</td> </tr> </table> <p>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.</p> <p>In relation to DTS/DPF 3.1, in instances where:</p> <p>a) more than one value is returned in the same field, refer to the <i>Maximum Building Height (Levels) Technical and Numeric Variation</i> layer or <i>Maximum Building Height (Meters) Technical and Numeric Variation</i> layer in the SA planning database to determine the applicable value relevant to the site of the proposed development</p>	Maximum Building Height (Metres)	Maximum building height is 12m	Maximum Building Height (Levels)	Maximum building height is 3 levels
Maximum Building Height (Metres)					
Maximum building height is 12m					
Maximum Building Height (Levels)					
Maximum building height is 3 levels					

	b) 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 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 The building line of a building set back from the primary street boundary not less than 3m.
Secondary Street Setback	
PO 5.1 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 Buildings walls are set back at least 900mm from the boundary of the allotment with the secondary street frontage, or if a dwelling on any adjoining allotment is closer to the secondary street than 0.9m, the distance of that dwelling from the boundary with the secondary street (being, if relevant, the lesser of the 2 distances).
Boundary Walls	
PO 6.1 Dwelling boundary walls are limited in height and length to manage visual and overshadowing impacts on adjoining residential properties.	DTS/DPF 6.1 Except where the dwelling 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: a) side boundary walls adjoin or abut a boundary wall of a building on adjoining land for the same or lesser length and height b) side boundary walls do not: i) exceed 3m in height from the top of footings ii) exceed 11.5m in length iii) when combined with other walls on the boundary of the subject development site, exceed a maximum 45% of the length of the boundary iv) encroach within 3m of any other existing or proposed boundary walls on the subject land.
PO 6.2 Dwellings in a semi-detached, row or terrace arrangements maintain space between buildings consistent with a suburban streetscape character.	DTS/DPF 6.2 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	

<p>PO 7.1</p> <p>Buildings walls are set back from side boundaries to provide:</p> <p>a) separation between dwellings in a way that complements the established character of the locality</p> <p>b) access to natural light and ventilation for neighbours.</p>	<p>DTS/DPF 7.1</p> <p>Other than walls located on a side boundary, building walls are set back from side boundaries:</p> <ol style="list-style-type: none"> 1. at least 900mm for a wall height less than 3m 2. at least 900mm m plus 1/3 of the wall height above 3m. 		
<p>Rear Boundary Setback</p>			
<p>PO 8.1</p> <p>Dwelling walls are set back from rear boundaries to provide:</p> <p>a) separation between dwellings in a way that complements the established character of the locality</p> <p>b) access to natural light and ventilation for neighbours</p> <p>c) open space recreational opportunities</p> <p>d) space for landscaping and vegetation.</p>	<p>DTS/DPF 8.1</p> <p>Dwelling walls are set back from the rear boundary at least:</p> <ol style="list-style-type: none"> 1. 3m for the first building level or 0m where the rear boundary abuts a laneway 2. 5m for any second building level 3. 5m plus any increase in wall height over 7m for buildings of 3 building levels and above. 		
<p>Concept Plans</p>			
<p>PO 9.1</p> <p>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.</p>	<p>DTS/DPF 9.1</p> <p>The site of the development is wholly located outside any relevant Concept Plan boundary. The following Concept Plans are relevant:</p> <table border="1"> <thead> <tr> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Concept Plan XXX – Albert Park</td> </tr> </tbody> </table> <p>In relation to DTS/DPF 9.1, in instances where:</p> <ol style="list-style-type: none"> a) one or more Concept Plan is returned, refer to Part 12 - Concept Plans in the Planning and Design Code to determine if a Concept Plan is relevant to the site of the proposed development. Note: multiple concept plans may be relevant. b) in instances where 'no value' is returned, there is no relevant concept plan and DTS/DPF 9.1 is met. 	Description	Concept Plan XXX – Albert Park
Description			
Concept Plan XXX – Albert Park			
<p>Ancillary buildings and structures</p>			
<p>PO 10.1</p>	<p>DTS/DPF 10.1</p>		

<p>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.</p>	<p>Ancillary buildings:</p> <ul style="list-style-type: none">a) are ancillary to a dwelling erected on the same siteb) have a floor area not exceeding 60m²c) are not constructed, added to or altered so that any part is situated:<ul style="list-style-type: none">i. in front of any part of the building line of the dwelling to which it is ancillary orii. within 900mm of a boundary of the allotment with a secondary street (if the land has boundaries on two or more roads)c) in the case of a garage or carport, the garage or carport:<ul style="list-style-type: none">i) is set back at least 5.5m from the boundary of the primary streetii) when facing a primary street or secondary street, has a total door / opening not exceeding:<ul style="list-style-type: none">1. for dwellings of single building level - 7m in width or 50% of the site frontage, whichever is the lesser2. for dwellings comprising two or more building levels at the building line fronting the same public street - 7m in widthd) 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:<ul style="list-style-type: none">i. a longer wall or structure exists on the adjacent site and is situated on the same allotment boundary andii. 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 extente) 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 boundaryf) 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 structureg) have a wall height (or post height) not exceeding 3m
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	<p>h) have a roof height where no part of the roof is more than 5m above the natural ground level</p> <p>i) if clad in sheet metal, is pre-colour treated or painted in a non-reflective colour</p> <p>j) retains a total area of soft landscaping in accordance with (i) or (ii), whichever is less:</p> <p style="padding-left: 40px;">i. a total area as determined by the following table:</p> <table border="1"> <thead> <tr> <th style="background-color: #1a3d54; color: white;">Dwelling site area (or in the case of residential flat building or group dwelling(s), average site area) (m²)</th> <th style="background-color: #1a3d54; color: white;">Minimum percentage of site</th> </tr> </thead> <tbody> <tr> <td><150</td> <td>10%</td> </tr> <tr> <td>150-200</td> <td>15%</td> </tr> <tr> <td>201-450</td> <td>20%</td> </tr> <tr> <td>>450</td> <td>25%</td> </tr> </tbody> </table> <p style="padding-left: 40px;">ii. the amount of existing soft landscaping prior to the development occurring.</p>	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%
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%										
<p>PO 10.2</p> <p>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.</p>	<p>DTS/DPF 10.2</p> <p>Ancillary buildings and structures do not result in:</p> <p>a. less private open space than specified in Design in Urban Areas Table 1 - Private Open Space</p> <p>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.</p>										
<p>Advertisements</p>											
<p>PO 11.1</p> <p>Advertisements identify the associated business activity, and do not detract from the residential character of the locality.</p>	<p>DTS/DPF 11.1</p> <p>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.</p>										



Version A
2 November 2021

Affordable Housing Overlay



AFFORDABLE HOUSING OVERLAY

Desired Outcome	
DO 1	Affordable housing is integrated with residential and mixed use development.
DO 2	Affordable housing caters for a variety of household structures.

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

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Land Division	
PO 1.1 Development comprising 20 or more dwellings / allotments incorporates affordable housing.	DTS/DPF 1.1 Development results in 0-19 additional allotments / dwellings.
PO 1.2 Development comprising 20 or more dwellings or residential allotments provides housing suited to a range of incomes including households with low to moderate incomes.	DTS/DPF 1.2 Development comprising 20 or more dwellings / or residential allotments includes a minimum of 15% affordable housing except where: a) it can be demonstrated that any shortfall in affordable housing has been provided in a previous stage of development or b) it can be demonstrated that any shortfall in affordable housing will be accommodated in a subsequent stage or stages of development.
PO 1.3 Affordable housing is distributed throughout the development to avoid an overconcentration.	DTS/DPF 1.3 None are applicable.
Built Form and Character	
PO 2.1 Affordable housing is designed to complement the design and character of residential development within the locality.	DTS/DPF 2.1 None are applicable.
Affordable Housing Incentives	
PO 3.1 To support the provision of affordable housing, minimum allotment sizes may be reduced below the	DTS/DPF 3.1 The minimum site area specified for a dwelling can be reduced by up to 20%, or the maximum

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
<p>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.</p>	<p>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.</p>
<p>PO 3.2</p> <p>To support the provision of affordable housing, building heights may be increased above the maximum specified in a zone.</p>	<p>DTS/DPF 3.2</p> <p>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:</p> <ul style="list-style-type: none"> a) Business Neighbourhood Zone b) City Living Zone c) Established Neighbourhood Zone d) General Neighbourhood Zone e) Hills Neighbourhood Zone f) Housing Diversity Neighbourhood Zone g) Neighbourhood Zone h) Master Planned Neighbourhood Zone i) Master Planned Renewal Zone j) Master Planned Township Zone k) Rural Neighbourhood Zone l) Suburban Business Zone m) Suburban Neighbourhood Zone n) Township Neighbourhood Zone o) Township Zone p) Urban Renewal Neighbourhood Zone q) Waterfront Neighbourhood Zone <p>and up to 30% in any other zone, except where:</p> <ul style="list-style-type: none"> a) the development is located within the Character Area Overlay or Historic Area

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
	<p>Overlay or</p> <p>b) other height incentives already apply to the development.</p>
Movement and Car Parking	
<p>PO 4.1</p> <p>Sufficient car parking is provided to meet the needs of occupants of affordable housing.</p>	<p>DTS/DPF 4.1</p> <p>Dwellings constituting affordable housing are provided with car parking in accordance with the following:</p> <p>a) 0.3 carparks per dwelling within a building which incorporates dwellings located above ground level within either:</p> <ul style="list-style-type: none"> i) 200 metres of any section of road reserve along which a bus service operates as a high frequency public transit service⁽²⁾ ii) is within 400 metres of a bus interchange⁽¹⁾ iii) is within 400 metres of an O-Bahn interchange⁽¹⁾ iv) is within 400 metres of a passenger rail station⁽¹⁾ v) is within 400 metres of a passenger tram station⁽¹⁾ vi) is within 400 metres of the Adelaide Parklands. <p>or</p> <p>b) 1 carpark per dwelling for any other dwelling.</p> <p>[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.]</p>

Procedural Matters (PM) - Referrals

The following table identifies classes of development / activities that require referral in this Overlay and the applicable referral body. It sets out the purpose of the referral as well as the relevant statutory reference from Schedule 9 of the Planning, Development and Infrastructure (General) Regulations 2017.

Class of Development / Activity	Referral Body	Purpose of Referral	Statutory Reference
Development for the purposes of the provision of affordable housing (applying the criteria determined under regulation 4 of the <i>South Australian Housing Trust Regulations 2010</i>).	Minister responsible for administering the <i>South Australian Housing Trust Act 1995</i> .	To provide direction on the conditions required to secure the provision of dwellings or allotments for affordable housing.	Development of a class to which Schedule 9 clause 3 item 20 of the Planning, Development and Infrastructure (General) Regulations 2017 applies.



Version A
2 November 2021

Noise and Air Emissions Overlay



NOISE AND AIR EMISSIONS OVERLAY

Desired Outcome

DO 1	Community health and amenity is protected from adverse impacts of noise and air emissions.
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Performance Outcomes (PO) and Deemed-to-Satisfy (DTS) Criteria / Designated Performance Feature (DPF)

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
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Siting and Design

<p>PO 1.1</p> <p>Sensitive receivers adjoining high noise and/or air pollution sources are designed and sited to shield sensitive receivers from the emission source using measures such as:</p> <ul style="list-style-type: none"> a) placing buildings containing non-sensitive receivers (such as retail and commercial) between the emission source and sensitive receivers b) within individual buildings, placing rooms more sensitive to air quality and noise impacts (such as living rooms and bedrooms) further away from the emission source c) providing appropriate separation or erecting noise attenuation barriers, provided the requirements for safety, urban design and access can be met d) the use of building design elements such as podiums and jutting, deep or enclosed balconies (including with solid balustrades). 	<p>DTS/DPF 1.1</p> <p>Sensitive receivers satisfy all of the following:</p> <ul style="list-style-type: none"> a) do not adjoin a: <ul style="list-style-type: none"> i) Designated Road: Type A ii) Designated Road Corridor: Type B iii) Designated Road: Type R iv) Train Corridor v) Tram Corridor b) adjoining development incorporating music includes noise attenuation measures to achieve a noise level in any bedroom exposed to music noise (L10) less than: <ul style="list-style-type: none"> i) 8 dB above the level of background noise (L90,15 min) in any octave band of the sound spectrum; and ii) 5 dB(A) above the level of background noise (LA90,15 min) for the overall (sum of all octave bands) A-weighted levels.
<p>PO 1.2</p> <p>Development incorporating a sensitive receiver adjoining high air pollution sources use building design elements such as varying building heights, widths, articulation, setbacks and shapes to increase wind turbulence and the dispersion of air pollutants.</p>	<p>DTS/DPF 1.2</p> <p>Sensitive receivers do not adjoin any of the following:</p> <ul style="list-style-type: none"> a) Designated Road: Type A b) Designated Road: Type B c) Designated Road: Type R d) Train Corridor

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
	e) Tram Corridor.
<p>PO 1.3</p> <p>Development incorporating a sensitive receiver adjoining high noise and/or air pollution sources locates private open space (including ground level courtyards and balconies), common open space and outdoor play areas within educational establishments and pre-schools away from the emission source.</p>	<p>DTS/DPF 1.3</p> <p>Open space associated with a sensitive receiver is not adjoining any of the following:</p> <ul style="list-style-type: none"> a) Designated Road: Type A b) Designated Road: Type B c) Designated Road: Type R d) Train Corridor e) Tram Corridor f) Development incorporating music.



Version A
2 November 2021

Interface Management Overlay



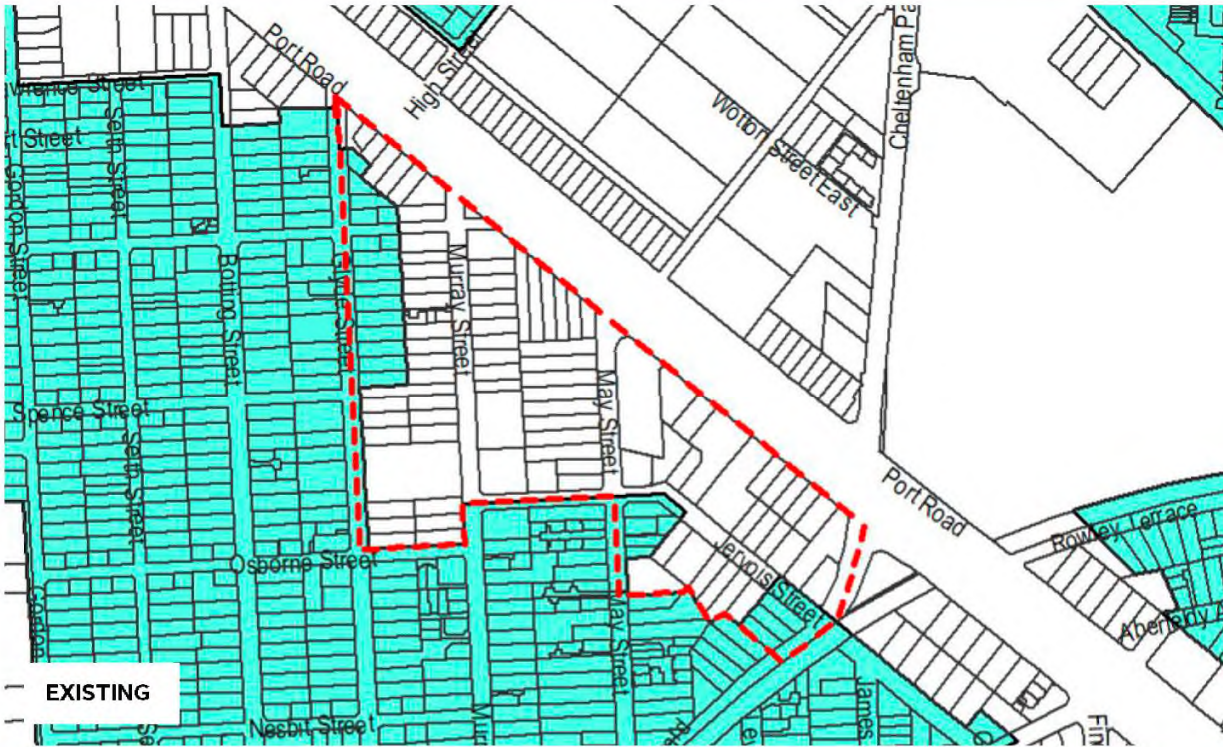
INTERFACE MANAGEMENT OVERLAY

Desired Outcome	
DO 1	Development of sensitive receivers in a manner that mitigates potential adverse environmental and amenity impacts generated by the lawful operation of neighbouring and proximate land uses.

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

Performance Outcome	Deemed-to-Satisfy Criteria / Designated Performance Feature
Land Use and Intensity	
<p>PO 1.1</p> <p>Sensitive receivers are carefully sited and designed to mitigate adverse impacts of hazards, noise, dust, odour, light spill or other emissions from existing legally operating land uses through design techniques such as:</p> <ul style="list-style-type: none"> a) locating residential accommodation the greatest distance practicable from the source of the impacts b) locating buildings containing non-sensitive receivers between the source of the impacts and sensitive receivers c) placing rooms more sensitive to air, noise and odour impacts (e.g. bedrooms) further away from the source of the impacts d) providing private or common open space adjacent a building elevation that shields the space from the source of the impacts. 	<p>DTS/DPF 1.1</p> <p>None are applicable.</p>

Albert Park Mixed Use Draft Code Amendment



Version A
2 November 2021

Stormwater Management Overlay



STORMWATER MANAGEMENT OVERLAY

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												
<p>PO 1.1</p> <p>Residential development is designed to capture and re-use stormwater to:</p> <ul style="list-style-type: none"> 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. 	<p>DTS/DPF 1.1</p> <p>Residential development comprising detached, semi-detached or row dwellings, or less than 5 group dwellings or dwellings within a residential flat building:</p> <ul style="list-style-type: none"> a. includes rainwater tank storage: <ul style="list-style-type: none"> a. connected to at least: <ul style="list-style-type: none"> i. in relation to a detached dwelling (not in a battle-axe arrangement), semi-detached dwelling or row dwelling, 60% of the roof area ii. in all other cases, 80% of the roof area b. connected to either a toilet, laundry cold water outlets or hot water service for sites less than 200m² c. connected to one toilet and either the laundry cold water outlets or hot water service for sites of 200m² or greater d. with a minimum total capacity in accordance with Table 1 e. where detention is required, includes a 20-25 mm diameter slow release orifice at the bottom of the detention component of the tank b. incorporates dwelling roof area comprising at least 80% of the site's impervious area <p>Table 1: Rainwater Tank</p> <table border="1"> <thead> <tr> <th>Site size (m²)</th> <th>Minimum retention volume (Litres)</th> <th>Minimum detention volume (Litres)</th> </tr> </thead> <tbody> <tr> <td><200</td> <td>1000</td> <td>1000</td> </tr> <tr> <td>200-400</td> <td>2000</td> <td>Site perviousness <30%: 1000 Site perviousness ≥30%: N/A</td> </tr> <tr> <td>>401</td> <td>4000</td> <td>Site perviousness <35%: 1000 Site perviousness ≥35%: N/A</td> </tr> </tbody> </table>	Site size (m ²)	Minimum retention volume (Litres)	Minimum detention volume (Litres)	<200	1000	1000	200-400	2000	Site perviousness <30%: 1000 Site perviousness ≥30%: N/A	>401	4000	Site perviousness <35%: 1000 Site perviousness ≥35%: N/A
Site size (m ²)	Minimum retention volume (Litres)	Minimum detention volume (Litres)											
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>401	4000	Site perviousness <35%: 1000 Site perviousness ≥35%: N/A											



Version A
2 November 2021

Urban Tree Canopy Overlay

URBAN TREE CANOPY

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 Trees are planted or retained to contribute to an urban tree canopy.	<p>DTS/DPF 1.1</p> <p>Tree planting is provided in accordance with the following:</p> <table border="1"> <thead> <tr> <th>Site size per dwelling (m²)</th> <th>Tree size* and number required per dwelling</th> </tr> </thead> <tbody> <tr> <td><450</td> <td>1 small tree</td> </tr> <tr> <td>450-800</td> <td>1 medium tree or 2 small trees</td> </tr> <tr> <td>>800</td> <td>1 large tree or 2 medium trees or 4 small trees</td> </tr> </tbody> </table> <p>*refer Table 1 Tree Size</p> <table border="1"> <thead> <tr> <th colspan="4">Table 1 Tree Size</th> </tr> <tr> <th>Tree size</th> <th>Mature height (minimum)</th> <th>Mature spread (minimum)</th> <th>Soil area around tree within development site (minimum)</th> </tr> </thead> <tbody> <tr> <td>Small</td> <td>4 m</td> <td>2m</td> <td>10m² and min. dimension of 1.5m</td> </tr> <tr> <td>Medium</td> <td>6 m</td> <td>4 m</td> <td>30m² and min. dimension of 2m</td> </tr> <tr> <td>Large</td> <td>12 m</td> <td>8m</td> <td>60m² and min. dimension of 4m</td> </tr> </tbody> </table> <p>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.</p> <table border="1"> <thead> <tr> <th colspan="4">Table 2 Tree Discounts</th> </tr> <tr> <th>Retained tree height (Column A)</th> <th>Retained tree spread (Column B)</th> <th>Retained soil area around tree within development site</th> <th>Discount applied (Column D)</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	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	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	Table 2 Tree Discounts				Retained tree height (Column A)	Retained tree spread (Column B)	Retained soil area around tree within development site	Discount applied (Column D)				
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			(Column C)	
	4-6m	2-4m	10m ² and min. dimension of 1.5m	2 small trees (or 1 medium tree)
	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.

ATTACHMENT D – STRATEGIC PLANNING OUTCOMES

South Australia’s Planning Policies

SA Planning Policy	Comment/Response
<p>SPP 1 Integrated Planning</p> <p>Co-ordinate strategic use of land with necessary services and infrastructure.</p>	<p>This Code Amendment encourages a higher density and better mix of land uses in this location to what is currently potentially underutilised land within a strategic location adjacent a rail corridor. This will be integrated with consideration of infrastructure in place, and required as part of the investigations.</p>
<p>SPP 2 Design Quality</p> <p>Better design improves sustainability, accessibility, safety and health.</p>	<p>The Code Amendment adopts the SA Planning Policy Library content for the potential forms of development envisaged (potentially above 3 storeys) in some locations. The Code Amendment examines built form and design against the principles of Good Design, particularly contextual development outcomes which appropriately manage the interface with established residential areas.</p>
<p>SPP 6 Housing Supply and Diversity</p> <p>Expand the number and variety of homes on offer in the marketplace.</p>	<p>The Code Amendment will boost supply and increase the local diversity of housing types and sizes available in the market through more flexible zoning. This includes provision for apartments above retail and commercial uses.</p>
<p>SPP 9 Employment Land</p> <p>Ensure sufficient land is set aside for a diverse range of modern jobs.</p>	<p>The Code Amendment includes an assessment of the value of the employment land and ensure that there remains suitable strategically positioned and serviced employment land within the Council area. It builds on the extensive work already undertaken by Council examining this issue. The new zoning will enable a wider range of low-impact employment options that are more appropriate to this setting and interface.</p>
<p>SPP 16 Emissions and Hazardous Activities</p> <p>Protect communities and the environment from pollution.</p>	<p>The Code Amendment has regard to existing contamination of the land parcels in question. Investigations specifically address the risks associated with the sites for sensitive uses such as residential development. The EPA’s ongoing work and the proponent’s Interim Audit Advice have been considered in informing a suitable policy response.</p>

30 Year Plan for Greater Adelaide

- a) Target 1 – 85% of all new housing in metropolitan Adelaide built in established urban areas by 2045.
- b) Target 2 – 60% of all new housing in metropolitan Adelaide is built within close proximity to current and proposed fixed-line (rail/tram/O-Bahn) and high-frequency bus routes by 2045.
- c) Target 4 – Increase the percentage of residents living in walkable neighbourhoods in Inner, Middle and Outer Metropolitan Adelaide by 25% by 2045.
- d) Target 5 – Urban green cover is increased by 20% in metropolitan Adelaide by 2045.
- e) Target 6 – Increasing housing choice by 25% to meet changing household needs in Greater Adelaide by 2045.

Policy	How the policy will be implemented:
Principles of the Plan	
Principle 1: A compact and carbon-neutral city	Providing additional housing opportunities at increased densities which can be adequately serviced by infrastructure such as public transport within the footprint of the existing metropolitan area.
Principle 2: Housing diversity and choice	
Principle 3: Accessibility	Providing policy to encourage permeability between adjoining residential areas and transport connections.
Principle 4: A transit-focused and connected city	Providing additional housing opportunities in close proximity to public transport with good pedestrian connectivity.
Principle 8: Healthy, safe and connected communities	Providing policy to encourage permeability between adjoining residential areas and open space.
	Providing policy which encourages walking and use of active transit options

Policy	How the policy will be implemented:
	<p>Integrating Crime Prevention Through Environmental Design (CPTED) principles into policy</p> <p>Establishing policy that ensures newly developed areas are well integrated with existing neighbourhood in their design, accessibility, and character.</p>
Principle 9: Affordable living	Seeking that a minimum of 15 per cent of future housing over the investigation area will be affordable.
Our policy themes – Transit corridors, growth areas and activity centres	
Policy 1. <i>Deliver a more compact urban form by locating the majority of Greater Adelaide’s urban growth within existing built-up areas by increasing density at strategic locations close to public transport. (Map 2)</i>	The draft Code Amendment proposes to investigate an increase in residential density in close proximity to a Mass Transit Station (Grange to City railway line and Albert Park Train Station) and Transit Corridor (Port Road) (refer to Map 2 – Activity centres and mass transit routes).
Policy 2. <i>Increase residential and mixed use development in the walking catchment of:</i> <ul style="list-style-type: none"> ▪ <i>Strategic activity centres</i> ▪ <i>Appropriate transit corridors</i> ▪ <i>Strategic railway stations.</i> 	The draft Code Amendment proposes to investigate a mixed use environment in close proximity to identified Mass Transit Station (Grange to City railway line and Albert Park Train Station) and Transit Corridor (Port Road) (refer to Map 2 – Activity centres and mass transit routes).
Policy 3. <i>Increase average gross densities of development within activity centres and transit corridor catchments from 15 to 25 dwellings per hectare to 35 dwellings per hectare.</i>	The draft Code Amendment proposes to investigate greater residential density in close proximity to identified Mass Transit Station (Grange to City railway line and Albert Park Train Station) and Transit Corridor (Port Road) (refer to Map 2 – Activity centres and mass transit routes).
Policy 5. <i>Encourage medium rise development along key transport corridors, within activity centres and in urban renewal areas that support public transport use.</i>	
Policy 8. <i>Provide retail and other services outside designated activity</i>	The draft Code Amendment proposes to investigate policy that envisages mixed-use

Policy	How the policy will be implemented:
<p><i>centres where they will contribute to the principles of accessibility, a transit-focused and connected city. High quality urban design, and economic growth and competitiveness.</i></p>	<p>development including commercial land uses to service the proposed residential uses and provide potential employment opportunities.</p>
<p>Action 4. <i>Rezone strategic sites to unlock infill growth opportunities that directly support public transport infrastructure investment.</i></p>	<p>The draft Code Amendment proposes to investigate greater residential density in close proximity to identified Mass Transit Station (Grange to City railway line and Albert Park Train Station) and Transit Corridor (Port Road) (refer to Map 2 – Activity centres and mass transit routes).</p>
<p>Our policy themes – Design quality</p>	
<p>Policy 29. <i>Encourage development that positively contributes to the public realm by ensuring compatibility with its surrounding context and provides active interfaces with streets and public open spaces.</i></p>	<p>The draft Code Amendment proposes to investigate the inclusion of policy and a site specific Concept Plan to guide development within the investigation area with regard to design issues including, setbacks, building heights that can transition from nearby adjacent low density residential areas. Other issues which will be investigated include but not limited to desired pedestrian and vehicle access and consideration of public open space. The draft Code Amendment will also investigate policy opportunities to encourage activation within the Affected Area along the existing road systems and take advantage of its accessibility with the adjacent proposed Grange Greenway.</p>
<p>Action 16. <i>Ensure that the local area planning process adequately address interface issues in the local context and identify appropriate locations for:</i></p> <ul style="list-style-type: none"> ▪ <i>Medium and high rise buildings</i> ▪ <i>Where there should be minimum and maximum height limits.</i> 	
<p>Our policy themes – Housing mix, affordability and competitiveness</p>	
<p>Policy 36. <i>Increase housing supply near jobs, services and public transport to improve affordability and provide opportunities for people to reduce their transport costs.</i></p>	<p>The draft Code Amendment proposes to investigate greater residential density in close proximity to identified Mass Transit Station (Grange to City railway line and Albert Park Train Station) and Transit Corridor (Port Road) (refer to Map 2 – Activity centres and mass transit routes).</p>
<p>Policy 37. <i>Facilitate a diverse range of housing types and tenures (including affordable housing) through increased policy flexibility in residential and mixed-use areas.....</i></p>	<p>It is anticipated that the investigation area will accommodate a mix of housing densities and types that complement the existing residential locality and maximise its location to proximity to identified Mass Transit Station (Grange to City railway line and Albert Park Train Station) and</p>

Policy	How the policy will be implemented:
	Transit Corridor (Port Road) (refer to Map 2 – Activity centres and mass transit routes).
Policy 45. <i>Promote affordable housing in well located areas close to public transport and which offers a housing mix (type and tenure) and quality built form that is well integrated into the community.</i>	The draft Code Amendment proposes to investigate policy that envisages mix of housing densities and types to suit a variety of households and investigate affordable housing through the use of the Planning and Design Code – Affordable Housing Overlay
Our policy themes – The economy and jobs	
Policy 56. <i>Ensure there are suitable land supplies for the retail, commercial and industrial sectors.</i>	The draft Code Amendment proposes policy that envisages mix-use development including commercial land uses to service the proposed residential uses and provide potential employment opportunities.
Policy 73. <i>Provide sufficient strategic employment land options with direct access to major freight routes to support activities that require separation from housing and other sensitive land uses.</i>	The City of Charles Sturt Industrial Land Study, 2008 reviewed the future of industrial land within the Council area. Industrial areas were assessed against the Prime Industrial Area Assessment Matrix, developed from the Metropolitan Adelaide Industrial Land Study to determine their importance as ongoing industrial land. The areas were also assessed against a Rezoning Potential Assessment Matrix to determine their suitability to being rezoned to an alternative use. The recommendations and findings from the Study in related to the Affected Area will be considered as part of the draft Code Amendment investigations.
Our policy themes – Transport	
Policy 76. <i>Improve the amenity and safety of public transport stops, stations and interchanges by improving their connections to adjacent development and encouraging mixed-use development and housing diversity in close proximity.</i>	The draft Code Amendment proposes to investigate greater residential density in close proximity to identified Mass Transit Station (Grange to City railway line and Albert Park Train Station) and Transit Corridor (Port Road) (refer to Map 2 – Activity centres and mass transit routes).
Policy 78. <i>Improve, prioritise and extend walking and cycling infrastructure by providing safe, universally accessible and</i>	The Affected Area is adjacent to the proposed Grange Greenway and its integration to the site will be investigated.

Policy	How the policy will be implemented:
<i>convenient connections to activity centres, open space and public transport (see Map 8)</i>	
Our policy themes – Open space, sport and recreation	
Policy 104. <i>Investigate opportunities to increase the amount and/or quality of public open space provision in areas of low open space provision and areas of increasing population growth.</i>	Consideration on the need for public open space will be investigated including appropriate size and location to ensure visibility and accessibility to the broader locality. The draft Code Amendment will also investigate policy opportunities to encourage activation within the Affected Area to take advantage of its accessibility with the adjacent proposed Grange Greenway.
Our policy themes – Climate change	
Policy 105. <i>Deliver a more compact urban form to: Reduce vehicle travel and associated greenhouse gas emissions.</i>	The draft Code Amendment proposes to facilitate a higher density housing form within the Affected Area that will result in a more efficient development footprint. The site's location adjacent to an identified Mass Transit Station (Grange to City railway line and Albert Park Train Station) and Transit Corridor (Port Road) (refer to Map 2 – Activity centres and mass transit routes), and the proposed Grange Greenway provides an alternative to car dependency.
Policy 111. <i>Create a more liveable urban environment through establishing a network of greenways, bicycle boulevards and tree-lined streets.</i>	
Our policy themes – Water	
Policy 117. <i>Increase the provision of stormwater infrastructure (including water sensitive urban design) to manage and reduce the impacts of: Run-off from infill development</i>	The draft Code Amendment proposes to investigate stormwater management to inform the preparation of policies including the consideration of stormwater management systems and Water Sensitive Urban Design Techniques for future development proposals specific to the Affected Area.
Our policy themes – Emergency management and hazard avoidance	
Policy 121. <i>Ensure risk posed by known or potential contamination of sites is adequately managed to</i>	The draft Code Amendment proposes to undertake environmental investigations to identify any potentially contaminating activities to inform the preparation of policy to acknowledge potential

Policy	How the policy will be implemented:
<i>enable appropriate development and safe use of the land.</i>	requirements relating to site contamination investigations and remediation.

ATTACHMENT E – INVESTIGATIONS

From: Cother, James (EPA) <James.Cother@sa.gov.au>
Sent: Friday, 1 October 2021 5:51 PM
To: John Tagliaferri <jtagliaferri@charlesturt.sa.gov.au>
Cc: Bradford, Geoffrey (EPA) <Geoffrey.Bradford@sa.gov.au>
Subject: Albert Park Mixed Use Code Amendment [SEC=OFFICIAL]

OFFICIAL

Hi John,

Albert Park Mixed Use Code Amendment

I note the Minister for Planning and Local Government specified in correspondence 21MPL1469 (dated 12 May 2021) that:

- the City of Charles Sturt (as the 'Designated Entity') *must undertake preliminary consultation with the EPA in order to determine whether the land can be appropriately remediated to accommodate more sensitive land uses.*
- *The Designated Entity must obtain the approval of the Commission to undertake public consultation following preliminary consultation with the EPA.*
- *Completion of the interim audit report into site contamination to demonstrate the appropriateness (or otherwise) of the land for sensitive land uses.*

The EPA has no objection to Council proceeding with the preparation of a draft Code Amendment for the subject and adjacent land (collectively known as the 'Affected Area') as outlined in the initial proposal, having regard to the consultation undertaken with the EPA to date and the following reports:

1. *Amended Interim Audit Advice Site Remediation Plan and Code Amendment – Albert Park* dated 24 September 2021 (the 'IAA'), prepared by Graeme Miller of Senversa
2. *Preliminary Environmental Assessment Development Plan Amendment Area, Albert Park South Australia* (the 'PEA'), prepared by LBW.

The EPA notes that the PEA was undertaken for the entire Code Amendment Affected Area, and the IAA relates only to the 24 - 30 Murray Street, Albert Park site.

Regards

James Cother

Principal Adviser, Planning Policy & Projects

Strategy and Assessment | Planning and Impact Assessment
Environment Protection Authority

██████████
211 Victoria Square, Adelaide 5000

18188850

February 2022

Level 5, 50 Flinders Street
Adelaide SA 5000GPO Box 1815
Adelaide SA 500108 7109 7466
saplanningcommission@sa.gov.au

Mr Paul Sutton
Chief Executive Officer
City of Charles Sturt

By email: psutton@charlessturt.sa.gov.au

Dear Mr Sutton

Albert Park Mixed Use Code Amendment – Approval for Consultation

I write to advise that, under section 73(5) of the *Planning, Development and Infrastructure Act 2016* (the Act), the State Planning Commission (the Commission) has resolved to approve the draft Albert Park Mixed Use Code Amendment for the purposes of public consultation.

The Minister for Planning and Local Government (the Minister) approved the Proposal to Initiate subject to the condition that, under 73(5)(b) of the Act, the Designated Entity obtain the approval of the Commission to undertake public consultation following preliminary consultation with the Environment Protection Authority (EPA).

The Commission has noted that preliminary advice was forwarded from the EPA to the Designated Entity by way of email, dated 1 October 2021.

In addition, the Commission has noted that, under section 73(6)(e) of the Act, the Designated Entity has included the following stakeholders, as specified by the Commission, within the Engagement Plan:

- Department for Environment and Water
- Environment Protection Authority
- Department for Infrastructure and Transport
- SA Health (Department for Health and Wellbeing)
- Utility providers including SA Power Networks, ElectraNet Pty Ltd, APA Group, SA Water, EPIC Energy, NBN and other telecommunications providers
- State Members of Parliament for the electorates in which the proposed Code Amendment applies.

Further, under section 73(6)(f) of the Act, the following investigations, in addition to those outlined in the Proposal to Initiate, have been included within the draft Code Amendment for consultation, as required by the Commission:

- Completion of the interim audit report into site contamination to demonstrate the appropriateness (or otherwise) of the land for sensitive land uses.
- Consideration of potential interface issues between the employment/commercial activities and residential development, with particular regard to noise, air quality and vehicle movements along Port Road.
- Exploration of the opportunity for increased open space provision.

The Commission requests that you contact the Attorney-General's Department a minimum of two weeks prior to the commencement of consultation to provide the information required for publication on the SA Planning Portal. This may include mapping changes and/or consultation material in PDF format for publishing, together with a copy of the Code Amendment, publication instructions and Engagement Plan.

Templates for mapping and publication instructions are available via the SA Planning Portal. Please note that these are evolving documents and may be subject to further change. Feedback on the templates is welcome.

The Minister will make a determination on whether to approve the proposed amendments at the completion of the Code Amendment process.

For further information, please do not hesitate to contact Mr Jason Bailey, Manager Planning and Design Code, on 08 7109 7161 via email at: Jason.Bailey@sa.gov.au.

Yours sincerely

Craig Holden
Chair

Cc: jtagliaferri@charlessturt.sa.gov.au

18190624

4 February 2022

Level 5, 50 Flinders Street
Adelaide SA 5000GPO Box 1815
Adelaide SA 500108 7109 7466
saplanningcommission@sa.gov.au

Hon Josh Teague MP
Minister for Planning and Local Government

By email: AttorneyGeneral@sa.gov.au

Dear Minister

Albert Park Mixed Use Code Amendment – Approval for Consultation

I write to advise that, under section 73(5) of the *Planning, Development and Infrastructure Act 2016* (the Act), the State Planning Commission (the Commission) has resolved to approve the draft Albert Park Mixed Use Code Amendment for the purposes of public consultation. A copy of the Commission's report dated 3 February 2022 is attached for your reference (**Attachment 1**).

The former Minister for Planning and Local Government, the Hon Vickie Chapman MP, approved the Proposal to Initiate subject to the condition that, under 73(5)(b) of the Act, the Designated Entity obtain the approval of the Commission to undertake public consultation following preliminary consultation with the Environment Protection Authority (EPA).

The Commission has noted that preliminary advice was forwarded from the EPA to the Designated Entity by way of email, dated 1 October 2021.

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- Consideration of potential interface issues between the employment/commercial activities and residential development, with particular regard to noise, air quality and vehicle movements along Port Road.
- Exploration of the opportunity for increased open space provision.

Copies of the advice from the EPA, the Engagement Plan and the draft Code Amendment are provided as **Attachments 2, 3 and 4** respectively.

For further information, please do not hesitate to contact Mr Jason Bailey, Manager Planning and Design Code, on 08 7109 7161 via email at: Jason.Bailey@sa.gov.au.

Yours sincerely



Craig Holden
Chair

Att 1. State Planning Commission Report, 3 February 2022
 2. Advice from the Environment Protection Authority, 1 October 2021
 3. Engagement Plan for the Albert Park Mixed Use Code Amendment
 4. Draft Albert Park Mixed Use Code Amendment

This practice direction is issued by the State Planning Commission under section 42 of the *Planning, Development and Infrastructure Act 2016*.

Introduction

Section 42 of the *Planning, Development and Infrastructure Act 2016* (the Act) allows the State Planning Commission (the Commission) to issue practice directions for the purposes of the Act. Generally, practice directions specify procedural requirements or steps in connection with a matter arising under the Act. In certain cases, the Act requires a particular matter to be addressed or dealt with by a practice direction.

This practice direction is provided by the Commission to support the operation of Part 5 Division 2 Subdivision 5 of the Act with respect to the requirements for:

1. Amendments to the Planning and Design Code (the Code).
2. Engagement required by the Community Engagement Charter (the Charter), which is to be undertaken and reported on under section 73 of the Act.
3. The information requirements for requesting a Complying Change to the Code after completing a Regional Plan under section 75 of the Act.
4. The information requirements for requesting early commencement of a Code Amendment under section 78 of the Act.

Part 1 – Preliminary

1 – Citation

This practice direction may be cited as the *State Planning Commission Practice Direction – 2 Preparation and Amendment of Designated Instruments*.

2 – Commencement of operation

This practice direction will come into operation on the day on which it is published on the SA Planning Portal.

3 – Object of practice direction

The object of this practice direction is to specify:

1. Requirements under section 73 of the Act for the preparation of a proposal to initiate, consult and lodge for approval an amendment to the Code.
2. How, under section 73 of the Act, engagement (as required by the Charter) is to be undertaken and reported on in relation to the preparation or proposed amendment of a designated instrument.
3. Requirements under section 75 of the Act for requesting a complying change to the Code.

4. Requirements under section 78 of the Act for requesting early commencement of a Code Amendment.

4 – Interpretation

In this practice direction, unless the contrary intention appears –

Act means the *Planning, Development and Infrastructure Act 2016*.

Affected Area means an area of land to which a proposed Code Amendment applies.

Charter means the Community Engagement Charter.

Code means the Planning and Design Code.

Code Amendment means an amendment to the Planning and Design Code.

Department means the Attorney General’s Department.

Designated Instrument means the instruments set out in section 70 of the Act.

Designated Entity means a person or entity authorised or approved to prepare a draft of a proposal to prepare or amend a designated instrument under section 73 of the Act.

Local Heritage Criteria means the criteria for designation as a place of local heritage value in the Code, as provided under section 67(1) of the Act.

Proponent means the Chief Executive of the Attorney-General’s Department (the Department), another agency or instrumentality of the Crown, a joint planning board, a council, a provider of essential infrastructure, a scheme coordinator, or a person who has an interest in land, as listed in section 73(2)(b) of the Act.

Proposal to Initiate means a “Proposal to Initiate a Code Amendment” document, prepared in accordance with this practice direction for the purpose of initiation of amendments to the Code under section 73 of the Act.

Private Proponent means a provider of essential infrastructure or a person who has an interest in the land, as listed in section 73(2)(b)(v) or (vii) of the Act.

Significant Tree Criteria means the criteria for declaration of a tree or stand of trees as significant tree(s) in the Code, as provided under section 68(1) of the Act.

Note: Section 14 of the Acts Interpretation Act 1915 provides that an expression used in an instrument made under an Act has, unless the contrary intention appears, the same meaning as in the Act under which the instrument was made.

Part 2 – Consultation for Designated Instruments

5–Preparation of an Engagement Plan (prior to consultation)

- (1) The Designated Entity is responsible for preparing an engagement plan that:
 - (a) meets the principles and performance outcomes of the Charter;
 - (b) describes the persons or bodies to be consulted on the proposed amendment of the Designated Instrument, which must include any persons or bodies:

- (i) required to be consulted with under a condition imposed by the Minister under section 73(5) of the Act;
 - (ii) specified by the Commission under section 73(6)(e) of the Act; and
 - (iii) who must be consulted with under the Charter.
- (c) outlines any relevant previous engagement undertaken to inform the proposal;
- (d) describes the evaluation framework for the engagement.
- (2) All engagement plans which relate to proposed preparation of or amendment to a State Planning Policy or a Regional Plan must be submitted to the Commission for approval prior to commencement of formal engagement on the proposal.
- (3) An engagement plan relating to a proposed amendment to the Code or a Design Standard does not need to be approved by the Commission or the Minister, unless a condition has been imposed by the Minister under section 73(5) of the Act which requires such approval (in which case the condition will apply).

6– Preparation of an Engagement Report (following consultation)

- (1) At the completion of engagement on a proposal to prepare or amend a Designated Instrument, the Designated Entity must provide the Department with:
- (a) if amendments to the proposal are required:
 - (i) written instructions (in a form acceptable to the Department) that set out any changes to the draft Designated Instrument for the purposes of the Department updating and providing the draft policy for inclusion in the draft Designated Instrument; and/or
 - (ii) mapping instructions or a description of the Affected Area (in a form acceptable to the Department) in order to enable the Department to prepare and provide to the Designated Entity, mapping which is suitable for inclusion in the draft Designated Instrument;
 - (b) the updated draft Designated Instrument (once finalised by the Designated Entity, incorporating any amendments); and
 - (c) a final engagement report as required under section 73(7) of the Act and prepared in accordance with these Practice Directions, for the purpose of the Department arranging for the engagement report and draft Designated Instrument to be furnished on the Minister.
- (2) An engagement report required under section 73(7) of the Act must set out:
- (a) details of the engagement undertaken and how that engagement met the engagement plan and reasons for variations (if any) to the engagement plan;
 - (b) the outcome of the engagement including a summary of the written submissions or feedback received;
 - (c) any proposed changes to the proposal to prepare or amend a Designated Instrument (when compared with the proposal that was engaged on) and the reasons for those proposed changes. This should specifically indicate:

- (i) where changes are proposed to the Designated Instrument based on or as a result of the engagement; and
 - (ii) any other changes which are proposed based on or as a result of additional investigations or information which was not available when the proposal was released for engagement.
- (3) The engagement report must also include an evaluation of the effectiveness of the engagement that considers whether:
- (a) the principles of the Charter have been achieved; and
 - (b) all mandatory requirements identified in the Charter have been met (where the consultation category is applicable).
- (4) The engagement report will be placed on the SA Planning Portal by the Department:
- (a) in relation to a regional plan, the Code or a design standard – five business days after the Minister has made a decision on the proposal to prepare or amend the Designated Instrument under section 73(10) of the Act; or
 - (b) in relation to a State Planning Policy – five business days after the Governor has approved the preparation or amendment of a State Planning Policy under section 73(12)(a) of the Act.

Part 3 – Planning and Design Code Amendments

7–Initiating a Code Amendment

- (1) To initiate an amendment to the Code, the proponent must lodge a Proposal to Initiate with the Department via the SA Planning Portal.

- (2) The Proposal to Initiate must set out:

Designated Entity

- (a) With respect to proposals from Private Proponents, a request for either the Private Proponent or the Chief Executive of the Department to be the Designated Entity responsible for undertaking the Code Amendment process.

Professional Expertise

- (b) Where the Private Proponent will be the Designated Entity responsible for undertaking the Code Amendment process, the name, qualifications and experience of practitioner/s that will undertake the Code Amendment process (including any engagement) for or on behalf of the Private Proponent. In this case, the relevant practitioners must have qualifications and experience that is equivalent to an Accredited Professional – Planning Level 1 under the Act.

Code Policy

- (c) An outline of:
- (i) any overlay, general policy, zone or subzones in the Code being proposed for amendment; and/or

- (ii) the intended spatial application of an overlay, general policy, zone or subzone in the Code over an identified area.

Affected Area

- (d) A map or description of the Affected Area.

State Planning Policies

- (e) Identification of the relevant principles or objectives of the State Planning Policies and an assessment of the proposed Code Amendment's alignment with those State Planning Policies.

Regional Plan

- (f) Identification of relevant regional plans and assessment of how the matters or issues proposed to be addressed by the proposed Code Amendment will relate to the relevant regional plan.

Consultation

- (g) Evidence that the Private Proponent has undertaken preliminary consultation with the Chief Executive Officer of the relevant Council and/or with a relevant Joint Planning Board on the Proposal to Initiate and details of any matters raised on the Proposal to Initiate as a result. If consultation with the Chief Executive Officer of the relevant Council or with the relevant Joint Planning Board has not been undertaken by the Private Proponent, consultation will be undertaken by the Department.
- (h) Information regarding any consultation that has already occurred with respect to the proposed Code Amendment.
- (i) Details of further consultation proposed to be undertaken with respect to the proposed Code Amendment.

Investigations

- (j) Information regarding any investigations which have already been undertaken with respect to the proposed Code Amendment.
- (k) An outline of the further investigations that will be undertaken to support the proposed Code Amendment.
- (l) Details of any infrastructure required to support development arising through proposed Code Amendment and how the infrastructure will be provided.
- (m) Details of any infrastructure agreement (or agreements) or infrastructure scheme which will need to be established or entered into in connection with the proposed Code Amendment.

Timetable

- (n) An outline of the proposed timetable for each step of the Code Amendment process (ensuring that the process is completed within reasonable time limits), and a commitment from the Proponent (where it is also the Designated Entity) that it will take steps to update the timetable and seek approval from the Department if it appears that timeframes will not be met.

- (3) To initiate a Code Amendment which is intended to designate a place as a place of local heritage value, the Proponent must provide a report which:
 - (a) includes a heritage datasheet for each proposed Local Heritage Place, which includes:
 - (i) all relevant property details and descriptions (including images);
 - (ii) historical background and thematic analysis;
 - (iii) a statement of heritage value;
 - (iv) an assessment against the Local Heritage Criteria; and
 - (v) the extent of listing (including any exclusions).
 - (b) includes an analysis of historic themes of importance to the area;
 - (c) is prepared by a heritage architect, historian or person with similar qualifications, skills or experience; and
 - (d) is otherwise prepared in accordance with any guidelines prepared and published by the Commission under section 67(2)(c) of the Act.
- (4) To initiate a Code Amendment which is intended to designate a tree (or stand of trees) as a significant tree (or trees), the Proponent must provide a report which:
 - (a) includes relevant details and descriptions of the tree or stand of trees (including images as necessary).
 - (b) includes an assessment of the tree (or stand of trees) against the Significant Tree Criteria;
 - (c) is prepared by an urban planner, arborist or person with qualifications, skills or experience relevant to the assessment in the report.

8–Preparation of a draft Code Amendment (prior to consultation)

- (1) Where the Designated Entity is any party other than the Commission or the Chief Executive of the Department, then prior to consultation occurring on a draft Code Amendment, the Designated Entity must:
 - (a) carry out investigations and obtain such information:
 - (i) as provided in the Proposal to Initiate approved by the Minister;
 - (ii) as required under any conditions imposed by the Minister under section 73(5)(b) of the Act; and
 - (iii) as specified by the Commission under sections 73(6)(e) or 73(6)(f) of the Act;
 - (b) provide the Department with:
 - (i) written instructions (in a form acceptable to the Department) that set out the intent of the proposed Code Amendment for the purposes of the Department writing the draft policy for inclusion in the draft Code Amendment; and

- (ii) mapping instructions or a description of the Affected Area (in a form acceptable to the Department) in order to enable the Department to prepare and provide to the Designated Entity, mapping which is suitable for inclusion in the draft Code Amendment;
 - (c) prepare the draft Code Amendment in accordance with the approved Proposal to Initiate and any conditions imposed by the Minister under section 73(5)(b) of the Act and the requirements of this Practice Direction;
 - (d) provide the Department with written instructions (in a form acceptable to the Department) to prepare the SA Planning Portal for consultation on the draft Code Amendment; and
 - (e) provide the Department with the engagement plan prepared (and approved, if required) under these Practice Directions, for the purpose of the Department publishing the engagement plan on the SA Planning Portal.
- (2) Where an engagement plan is amended by a Designated Entity during any period of consultation or at any time prior to finalisation of the engagement report under these Practice Directions, the Designated Entity will provide the Department with the engagement plan (as updated) for the purpose of the Department publishing the updated engagement plan on the SA Planning Portal.

9–Requirements for a draft Code Amendment

- (1) A draft Code Amendment must be supported by the following information:
 - (a) an explanation of the current code policy as it applies to the Affected Area (at the time of preparation of the draft Code Amendment);
 - (b) an explanation of the amendments to the Code policy proposed for the Affected Area;
 - (c) an assessment of the strategic planning outcomes intended to be achieved through the draft Code Amendment, including an analysis of the consistency of the draft Code Amendment with the relevant provisions of State Planning Policies, the Regional Plan and any other relevant strategic plans;
 - (d) a summary and explanation of the investigations undertaken and how these support the draft Code Amendment; and
 - (e) an explanation of any infrastructure or services required to support development facilitated by the proposed Code Amendment, and an explanation of how and when the infrastructure will be provided.

10–Objectors to local heritage listings

- (1) In the case of a Code Amendment that proposes to designate a place as a Local Heritage Place under section 67(1) of the Act, the Commission will give the owner of the land (if an objection was received) reasonable opportunity to make a submission to the Commission on the proposed designation.

11–Complying Changes to the Code

- (1) A request for the Minister to agree to a complying change to the Code under section 75 of the Act must be provided to the Department and must include the following information:

- (a) description of the relevant recommendations in the Regional Plan which relate to the proposed Code Amendment, including any specific maps or other specific information which clearly and expressly identify the changes relevant to the proposed Code Amendment;
- (b) a summary of any consultation which has occurred in accordance with the Charter in relation to the proposed Code Amendment or the relevant Regional Plan. This should include a copy of the engagement report prepared for the relevant Regional Plan and any additional consultation that has occurred for the proposed Code Amendment;
- (c) written instructions (in a form acceptable to the Department) that set out the intent of the proposed Code Amendment for the purposes of the Department writing the draft policy for inclusion in the draft Code Amendment; and
- (d) mapping instructions or a description of the Affected Area (in a form acceptable to the Department) in order to enable the Department to prepare and provide to the Designated Entity, mapping which is suitable for inclusion in the draft Code Amendment.

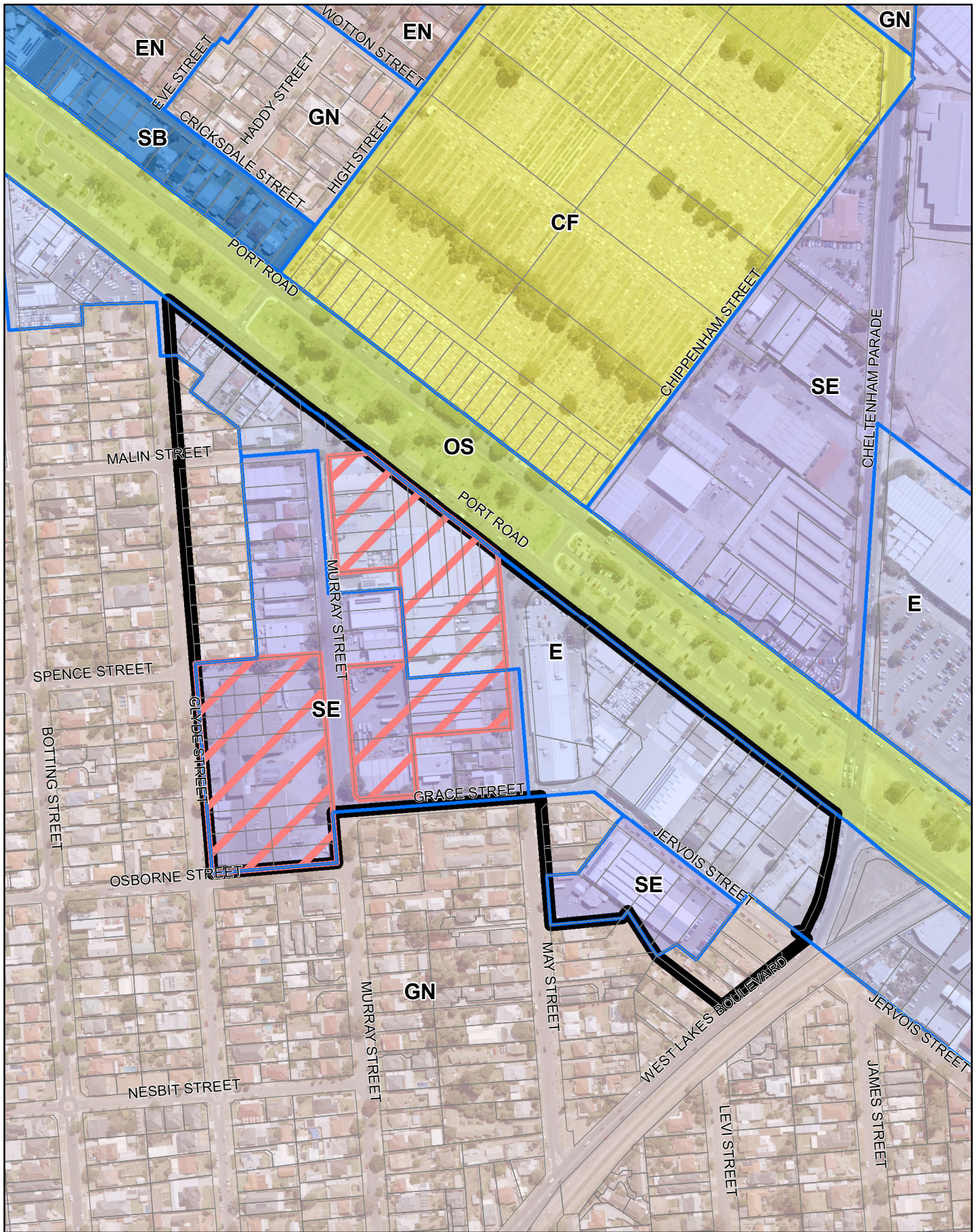
12–Early Commencement of a Code Amendment











- (1) A request for early commencement of a Code Amendment under section 78 of the Act must be provided to the Department and must include:
 - (a) explanation, justification and evidence as necessary to demonstrate how early commencement of the Code Amendment is:
 - (i) necessary in the interest of the orderly and proper development of an area of the state; and
 - (ii) required in order to counter applications for undesirable development (which should identify possible future development that would detract from or negate the object of the proposed Code Amendment) ahead of the outcome of consideration of the Code Amendment;
 - (b) written instructions (in a form acceptable to the Department) that set out the intent of the proposed Code Amendment for the purposes of the Department writing the draft policy for inclusion in the draft Code Amendment; and
 - (c) mapping instructions or a description of the Affected Area (in a form acceptable to the Department) in order to enable the Department to prepare and provide to the Designated Entity, mapping which is suitable for inclusion in the draft Code Amendment.

Practice Direction 2 *Preparation and Amendment of Designated Instruments* issued by the Commission on 1 April 2021 is revoked.

Issued by the State Planning Commission on 27 May 2021

Version 4: Commences operation on 27 May 2021
 Version 3: Commences operation on 1 April 2021
 Version 2: Commenced operation on 28 November 2019
 Version 1: Commenced operation on 9 August 2018



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|---|--|
|  PD Code Zones And Subzones |  CF - Community Facilities - Z0903 |
|  Totino land |  E - Employment - Z1501 |
|  Area Affected |  EN - Established Neighbourhood - Z1506 |
| |  GN - General Neighbourhood - Z2102 |
| |  OS - Open Space - Z4501 |
| |  SB - Suburban Business - Z5719 |
| |  SE - Strategic Employment - Z5720 |

Albert Park

N



13 September 2021

Rebecca Hughes
Acting Manager, Site Contamination Branch
Environment Protection Authority

via email: EPAsitecontam@epa.sa.gov.au

Dear Rebecca,

Re: Interim Audit Advice Site Remediation Plan and Code Amendment - Albert Park

1. Introduction

This letter forms Interim Audit Advice (IAA) for the site described in **Table 1** (below). The IAA has been prepared for the following purposes:

- Supporting a remediation strategy and plan; and
- Addressing planning requirements for a proposed Code Amendment¹ for a portion of Albert Park.

The requirement for IAA to support the Code Amendment was discussed in a meeting with the Environment Protection Authority (EPA) on 13 May 2020 and described in an EPA email of 21 May 2020, which is included in **Attachment A**. A copy of a letter from the relevant government minister in relation to the code amendment is also included in **Attachment A**.

This IAA has been prepared consistent with the requirements of the *Guidelines for the site contamination audit system (EPA, August 2019 revision)* (Audit Guidelines).

¹ Under the Planning, Development and Infrastructure Act 2016



Table 1: Site details

Item	Description
Site address	24 – 30 Murray Street, Albert Park, SA
Site owner	DFJ Holdings
Site area	1.6 hectares
Site land titles	Allotment: F108085AL1 Title: CT5957/139 Allotment: F108082AL2 Title: CT5191/397 Allotment: F108085AL2 Title: CT5957/139 Allotment: F108085AL3 Title: CT5957/139 Allotment: F108085AL10 Title: CT5957/140 Allotment: F108085AL11 Title: CT5957/140 Allotment: F108085AL12 Title: CT5191/507 Allotment: F108085AL13 Title: CT5191/507
Current site zoning	Strategic Employment
Council	City of Charles Sturt
Current / former site land use	Commercial and industrial. The auditor understands the majority of the buildings on-site are unoccupied and will be demolished to allow re-development of the site.
Proposed site land use and zoning	Residential with garden accessible soil and public open space; zoning to be confirmed.
Appointed consultant	Land and Water Consulting (LWC)
EPA Ref. No.	61909

The location of the site and the proposed Code Amendment area are shown in figures included in **Attachment B**. A completed *Site Contamination Audit System Interim Audit Advice Form* is provided in **Attachment C**.



2. Information reviewed

This IAA is based on information provided in the investigation and remediation planning reports listed in **Table 2**.

Table 2: Reports considered

Author	Report title
AGC Woodward-Clyde Pty Ltd (WWC), 18 September 1997	Site history report, 24 – 30 Murray Street, Albert park, South Australia
AGC Woodward-Clyde Pty Ltd, 6 March 1998	Phase II Environmental site assessment – soil investigation, portion of 24 – 30 Murray Street, Albert Park
SKM, 18 May 2013	City of Charles Sturt Site history assessment, 24 – 30 Murray Street, Albert Park
LWC, 1 December 2017	Sampling & analysis quality plan, 24 – 30 Murray Street, Albert Park. Note: this report also included a supporting preliminary site investigation (PSI)
LWC, 3 April 2018	Re: Addendum to SAQP for No.1, 24-30 Murray Street, Albert Park, South Australia
LWC, 6 July 2018	Detailed site investigation, 24 – 30 Murray Street, Albert Park, South Australia.
LWC, 27 November 2018	Sampling & analysis quality plan: TCE delineation works, Murray Street, Albert Park, South Australia.
EPA, August 2019	Groundwater Prohibition Area - Portions of Hendon, Royal Park, Seaton and Albert Park
JBS&G, 23 August 2019	Environment Protection Authority, Albert Park Environmental Assessment, Albert Park SA
Golder Associates Pty Ltd, 11 February 2020	Environmental Site Assessment Albert Park Stage 2 Submitted to: Environment Protection Authority.
LBW Co, 16 June 2020	Preliminary Environmental Assessment Development Plan Amendment Area Albert Park, South Australia
LWC, 1 September 2020	Sampling & analysis quality plan: TCE delineation works, Murray Street, Albert Park, South Australia.
JBS&G, 3 December 2020	Environment Protection Authority, Albert Park Environmental Assessment – Stage 3, EPA Assessment Area - Albert Park
JBS&G, 16 April 2021	Environment Protection Authority, Albert Park Stage 4 – Soil Vapour Monitoring Event Albert Park Assessment Area
LWC, 31 August 2021	Site specific risk assessment, 26 Murray Street, Albert Park, South Australian
LWC, 7 September 2021	Site Remediation Plan 24 – 30 Murray Street, Albert Park, SA.

A copy of the Site Remediation Plan (LWC, 7 September 2021) is provided in **Attachment D**.



3. Notifications and EPA directives and regulation

Table 3 summarises notifications, regulation and guidance by EPA relating to the site contamination audit and IAA.

Table 3: Notifications, directives and regulation

Item	Summary information
Notifications	<p>LWC (11 January 2018) – notification of groundwater contamination by the appointed consultant under Section 83A of the <i>Environment Protection Act 1993</i> (the Act). The notification related to the detection of chlorinated hydrocarbons (principally trichloroethene, TCE) in groundwater sampled at the site. The notification indicated the potential for groundwater contamination to extend off-site. EPA (24 January 2018) deemed the notification complying.</p> <p>Senversa (24 January 2018) - notification of a hazardous circumstance by the auditor related to detection of TCE at concentrations greater than residential and commercial land use investigation levels in passive soil vapour samplers installed at the site by LWC. EPA acknowledged the receipt of the notification in its letter of 25 January 2018, and requested that the site owner engage suitably qualified consultants to determine the following:</p> <ul style="list-style-type: none"> • Nature and extent of site contamination; and • Any potential risks to human health and the environment. <p>Senversa (22 May 2018) – notification of a hazardous circumstance by the auditor related to detection of TCE at concentrations greater than residential and commercial land use investigation levels in a second batch of passive soil vapour samplers installed at the site by LWC. EPA acknowledged the receipt of the notification in its letter of 26 June 2018.</p> <p>LWC (22 May 2019) - notification of groundwater contamination by the appointed consultant under Section 83A of the Act. The notification related to possible groundwater contamination in the Q2 Aquifer under the site – based on the results of membrane interface probe (MIP) investigations. EPA (27 June 2019) deemed the notification complying. It is noted that subsequent investigations by LWC (as documented in the LWC, 31 August 2021) found that the MIP responses observed at depth were in deeper sections of the Q1 Aquifer, rather than the Q2 Aquifer.</p> <p>LWC (19 October 2020) - notification of groundwater contamination by the appointed consultant under Section 83A of the Act. The notification related to the detection of several chemical substances reported at concentrations greater than adopted investigation levels (or limit of reporting where investigation level is available) – including per- and polyfluoroalkyl substances (PFAS), metals, nitrogen species and phosphorous. EPA (2 November 2020) deemed the notification complying.</p>
Groundwater Prohibition Area	<p>A groundwater prohibition area (GPA) covering portions of Hendon, Royal Park, Seaton and Albert Park was gazetted by the state government on 12 September 2019. The GPA prohibits extraction of groundwater from the first and second Quaternary aquifers (Q1 and Q2 Aquifers) due to the presence of chlorinated hydrocarbons, petroleum hydrocarbons, nitrates and metals at concentrations which could cause actual or potential harm to human health or safety. The site and surrounding areas are within the GPA; the extent of the GPA is shown in a figure in Attachment B. Information provided in EPA (August 2019) indicates that the GPA was established in part because of the groundwater contamination associated with the site.</p>
Limit of liability for site contamination	<p>The EPA (16 March 2018) (refer to Attachment E) determined that DFJ Holdings is not responsible for site contamination beyond the boundaries of the site. However, EPA (16 March 2018) also noted that the audit <i>must still consider the impacts of any on-site contamination to on and off-site receptors</i>. This directive has been addressed in this IAA.</p>



4. Scope and adequacy of investigations

The scopes of work and methodologies applied by LWC during its investigations are considered to have been generally consistent with the guidance provided in the *National Environment Protection (Assessment of Site Contamination) Measure (NEPC, 1999 as amended May 2013)* (ASC NEPM), the *Guidelines for the assessment and remediation of site contamination (EPA, November 2019 revision)* (GAR) and other relevant guidance and policies made or endorsed by EPA.

Each phase of intrusive investigation was:

- preceded and planned by a sampling and analysis quality plan (SAQP), which utilised the seven-step data quality objectives (DQO) process; and
- informed by the results of the previous phase of investigation.

The SAQPs were reviewed and approved by the auditor prior to commencement of the investigation programs. Each of the investigation reports prepared by the consultant have also been reviewed and approved by the auditor. The final versions of the SAQPs and investigation reports are listed in **Section 2**. The reports and associated data are of satisfactory quality and reliability for the purpose of the audit and this IAA.

The following table provides a summary of the scope of the site investigations and the auditor's opinion on the adequacy of the work. The auditor and/or his assistants also observed the assessing consultant complete various field tasks on four different occasions. In each instance, the consultant appeared to comply with the approved investigation scope and methodologies described in the SAQPs and completed the work in a satisfactory manner.



Table 4: Investigation scope and adequacy.

Media / aspect	Scope	Commentary on adequacy of assessment
PSI	Review of publicly available records	<p>The PSI (LWC, 1 December 2017) was prepared in a manner consistent with the guidance provided in the ASC NEPM and included review of the following information: publicly available records on the environmental setting and groundwater utilisation in the area of the site; service (utilities) plans; previous investigations completed at the site; certificates of title; EPA Section 7 and public register records; historical aerial photographs; historical business directories; and a dangerous goods search. The PSI also included interviews with site owner and a site inspection.</p> <p>The information review, interviews and site inspection were used to identify potentially contaminating activities (PCAs), areas of suspected contamination (based on visual indicators) and chemicals of interest (COIs) associated with the site and surrounding areas. The COIs identified by LWC included: metals, total or recoverable petroleum hydrocarbons (TPH/TRH), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), asbestos, chlorinated hydrocarbons (CHCs), monoaromatic hydrocarbons (MAHs), polychlorinated biphenyls (PCBs), organochlorine and organophosphorus pesticides (OPPs and OCPs), phenols and alkalinity/acidity. The auditor subsequently requested (in October 2019) that LWC include PFAS as COIs and test for these chemicals in the final round of groundwater sampling completed in September 2020.</p> <p>The results of the PSI were used to develop the scope for the subsequent intrusive investigations.</p>
Soil	32 soil bores advanced 42 soil samples analysed	<p>The soil bores were placed on an approximate grid across the site area, with some judgemental samples targeting suspected areas of soil contamination and where PCAs were known or suspected to have occurred. The locations of the soil bores are illustrated in a figure provided in Attachment B. The number of soil bores advanced was more than the number recommended in AS4482.1 for land areas of the size of the site.</p> <p>The soil bores were advanced beyond the filled profile and below indicators of soil contamination. Samples collected for analysis were submitted for COIs identified as potentially relevant to the site based on the outcomes of the PSI and observations made during sampling. The scope and approach to the soil investigations is considered to be adequate and appropriate.</p>



Media / aspect	Scope	Commentary on adequacy of assessment
Soil vapour	Deploy 17 passive soil vapour samplers Install and sample two sets of nested soil vapour probes Utilities screening	<p>Soil vapour sampling was completed in four stages consisting of the following:</p> <ul style="list-style-type: none"> • Stage 1 - initial deployment in December 2017 of five passive soil vapour samplers, which were broadly spaced across the site. Concentrations of TCE were reported greater than the investigation levels in two of the five initial passive samplers, both of which were installed in the northern building formerly used for tin can production. • Stage 2 – deployment in May 2018 of 11 additional passive soil vapour samplers to better define the nature and extent of TCE contamination identified under the northern portion of the site during the first stage of soil vapour assessment. • Stage 3 – installation and sampling in June 2019 of two pairs of nested soil vapour probes to allow collection and quantitative analysis of TCE (and other COIs) in soil vapour. The probes were installed in areas of the site where the highest concentrations of soil vapour were reported in the passive samplers, including close to the northern boundary of the site (beyond which are residential dwellings). • Stage 4: <ul style="list-style-type: none"> ▪ Deployment in August 2020 of one additional passive soil vapour sampler better define the southerly extent of TCE soil vapour contamination under the site. ▪ Screening for the presence of volatile organic compounds (VOCs) using a photoionisation detector (PID) at approximately 35 utility inspection pits present on-site and in areas immediately surrounding the site. <p>The passive and active soil vapour samples were analysed for volatile fraction TRH, BTEX and VOCs, all of which represent COIs for the site. The locations of the passive soil vapour samplers and active soil vapour probes are shown in a figure in Attachment B. The scope and approach to the soil vapour investigations is adequate and appropriate.</p>
Groundwater	Nine Q1 Aquifer Monitoring Wells One Q2 Monitoring Well Four rounds of gauging and sampling	<p>Groundwater investigations were completed in three stages consisting of the following:</p> <ul style="list-style-type: none"> • Stage 1 - initial installation in December 2017 of six shallow (Q1 Aquifer) groundwater monitoring wells (GW01 – GW06), positioned along up and down hydraulic gradient boundaries of the site and adjacent to the northern site building (former tin can manufacturing plant and suspected key source area). The wells were installed to approximately 5 – 5.5 mbgl and were gauged, sampled and analysed for relevant COIs (metals, TPH/TRH, BTEX, PAHs and VOCs) in December 2017 and April 2018. • Stage 2 – installation in May 2019 of two additional monitoring wells close to the northern site boundary (GW07) and in the north-eastern corner of the northern building (GW08). The new wells were installed at the locations which reported the highest TCE concentrations in the passive soil vapour samplers and had high MIP responses for CHCs (refer below); GW08 was also positioned near to the suspected TCE (and other VOC) source area. The wells were installed to approximately 5.5 mbgl, which was approximately 5 m above the highest MIP responses (which were inferred at the time to represent responses in the Q2 Aquifer). The new and existing monitoring wells were sampled in June 2019 and tested for the COIs, noting the following changes from the analytical schedule applied in the first two rounds of sampling: <ul style="list-style-type: none"> • PAHs were removed since they had not been detected in the prior rounds of sampling. • Indicators of natural attenuation (nitrate, sulfate, ferrous iron and methane) and phosphorous were tested in select samples.



Media / aspect	Scope	Commentary on adequacy of assessment
Other – MIP	11 MIP Bores	<ul style="list-style-type: none"> • Stage 3 – installation in August 2020 of one deeper Q1 Aquifer monitoring well down hydraulic gradient of the inferred TCE source (GW10, installed to 12.5 mbgl - near the down hydraulic site boundary in the north-western corner of the site and where high MiHPT responses were reported at 10 mbgl) and one Q2 Aquifer monitoring well (GW09, installed to 30 mbgl near the northern site boundary - immediately north of the northern building and near the inferred TCE source area, and where high MIP responses were recorded at 10 – 11 mbgl). The new and existing monitoring wells were sampled in September 2020 and analysed for the COIs applied in the first two rounds of monitoring, plus indicators of natural attenuation, nutrients and PFAS. <p>The locations of the monitoring wells are shown in a figure in Attachment B.</p> <p>The scope and approach to the groundwater investigations was generally adequate and appropriate. However, the results of the MIP and deeper Q1 monitoring well (GW10) indicate that higher concentrations of TCE may be present in deeper portions of the Q1 Aquifer (where present) than currently intersected in the majority of site monitoring wells. This has been considered in assessing:</p> <ul style="list-style-type: none"> • The current understanding of the nature and extent of groundwater and soil vapour contamination; • Potential risks to on-site and off-site receptors; • The proposed remedial strategy; and • Information gaps which are required to be addressed. <p>It is noted that at the time of the MIP works, the Q2 aquifer was considered likely to be at approximately 10 mbgl. Subsequent drilling of monitoring wells GW09 and GW10 determined that the Q2 aquifer is present at approximately 25 mbgl, and the Q1 aquifer appears to consist of a series of interbedded sand and clay units from approximately 3.5 mbgl to 12 mbgl.</p>
Surface water	NA	Surface bodies are not present on or in close proximity to the site, and therefore investigation of surface water quality was not required.



Investigations were also commissioned by others (and completed by other assessing consultants) for areas surrounding the site. The information obtained from these investigations has been used by the auditor to support assessing:

- The potential locations and types of contamination sources.
- The nature and extent of site-related contamination.
- Contamination potentially associated with off-site sources.
- The potential risk which:
 - contamination on and under the site may pose to future residential occupants of the site;
 - site-related contamination may pose to off-site human and ecological receptors now and in the future; and
 - off-site contamination could pose to the occupants of the site in the future.

The scopes of the investigations completed in areas surrounding the site are summarised in the following table. The reports are listed in **Section 2**.

Table 5: Off-site investigation scopes

Media / aspect & investigation	Summary of investigation scope
PSI	<p>LBW Co (16 June 2020) was commissioned by Jensen Plus to complete a PSI for the properties located in the proposed Development Plan Amended (now Code Amendment) area (refer to a figure in Attachment B showing the Code Amendment Area). The area contains 118 separate site addresses. The PSI included review of the following information:</p> <ul style="list-style-type: none">• Publicly records on the environmental setting and groundwater utilisation in the area;• Services (utilities) plans;• Previous investigations;• Certificates of title;• EPA public register records;• Historical aerial photographs;• Historical business directories; and• Dangerous goods search. <p>The PSI also included interviews with property owners and workers and an area inspection. The information review, interviews and site inspection were used to identify PCAs, areas of suspected contamination (based on visual indicators) and COIs associated with the Code Amendment area. The COIs identified by LBW Co included: metals, TPH/TRH, BTEX, PAHs, asbestos, CHCs, MAHs, solvents (VOCs), PFAS, PCBs, OPPs, OCPs, nutrients, phenols, cyanide, sulfate and alkalinity/acidity.</p>



Media / aspect & investigation

Summary of investigation scope

Albert Park Environmental assessment

EPA commissioned JBS&G (23 August 2019) to complete (Stage 1) investigations into the nature and extent of soil vapour contamination (and associated potential risks to human health) in areas of Albert Park surrounding the site. The scope of works included the following: installation of 11 passive soil vapour samplers; installation and sampling of 11 soil vapour probes (six of which were sampled on two occasions); analysis of the passive and active soil vapour samples for CHCs; and completion of a vapour intrusion risk assessment. The passive soil vapour samplers and soil vapour probes were predominantly installed to the west and north of the site – down and across hydraulic gradient, respectively. The investigation locations are illustrated in a figure in **Attachment B**.

Stage 2 Environmental assessment Albert Park Stage 2

EPA commissioned Golder (11 February 2020) to complete Stage 2 investigations into the nature and extent of soil vapour and groundwater contamination (and associated potential risks to human health) in areas of Albert Park surrounding the site. The scope of works included the following: installation of 10 new active soil vapour probes; collection of soil vapour samples from the 10 new and five existing soil vapour probes for analysis of CHCs; deployment of nine passive soil vapour samplers into service pits with analysis for CHCs; installation and sampling of five new groundwater monitoring wells, with samples analysed for TRH, BTEX, PAHs, VOCs, natural attenuation indicator parameters and metals; and completion of an update to the vapour intrusion risk assessment.

The new passive soil vapour samplers, soil vapour probes and monitoring wells were predominantly installed to the west and north of the site – down and across hydraulic gradient, respectively. The Stage 2 investigation locations are illustrated in a figure in **Attachment B**.

**Albert Park Environmental Assessment - Stage 3
EPA Assessment Area Albert Park**

EPA commissioned JBS&G (3 December 2020) to complete Stage 3 investigations into the nature and extent of soil vapour and groundwater contamination (and associated potential risks to human health) in areas of Albert Park surrounding the site. The scope of works included the following: installation of six new active soil vapour probes; collection of soil vapour samples from the six new and 15 existing soil vapour probes for analysis of CHCs; sampling of the five existing groundwater monitoring wells, with samples analysed for TRH, BTEX, and CHCs; and completion of an update to the vapour intrusion risk assessment.

The new soil vapour probes were predominantly installed to the west and north of the site – down and across hydraulic gradient, respectively. The Stage 3 investigation locations are illustrated in a figure in **Attachment B**.

Albert Park Stage 4 – Soil Vapour Monitoring Event Albert Park Assessment Area

EPA commissioned JBS&G (16 April 2021) to complete Stage 4 investigations to assess the temporal (seasonal) variability soil vapour concentrations and associated to risks to the health of residents in areas of Albert Park surrounding the site. The scope of works included the following: collection of soil vapour samples from 18 existing soil vapour probes for analysis of CHCs and assessment of vapour intrusion risks using attenuation factors derived from the previous off-site investigation programs.

The Stage 4 sample locations are illustrated in a figure in **Attachment B**.



5. Environmental setting

The following table presents a summary of the key aspects of the site environmental setting – as presented in in the reports completed at the site by LWC and by others in areas surrounding the site (refer to **Section 2** and **Section 4**).

Table 6: Site environmental setting

Aspect	Summary information
Site and surrounding land use	<p>There are a limited number of tenants remaining at the site. The current or most recent uses of the site consist of the following:</p> <ul style="list-style-type: none"> • Northern half: former indoor cricket and beach volleyball centre and storage area for a scaffolding firm. • Southern half: offices and cold storage warehouse for smallgoods/ transport. • Southwestern corner: car restoration (small-scale/hobby) and electrical transformer. <p>The site is proposed to be developed for mixed residential and open space uses – under the proposed Code Amendment which will support rezoning of the site and surrounding areas for mixed uses.</p> <p>The land use surrounding the site consists of the following:</p> <ul style="list-style-type: none"> • North – residential, commercial and light industrial. • East – commercial and light industrial. • South and west – residential. <p>Current and historical commercial and light industrial uses of the site and surrounding areas and associated PCAs are provided in Section 6.</p>
Topography and hydrology	<p>A LocationSA Mapview (Topographic Map) provided in LWC (1 December, 2017) indicates the area of Albert Park in which the site is located is approximately level, with the regional topography sloping gently towards the northwest – which is consistent with observations made by the auditor during site inspections. The elevation of the site is approximately 5 m AHD based on survey data provided in LWC (31 August 2021).</p> <p>The closest surface water body to the site is the Old Port Road wetland, located approximately 300 m to the north/northeast of the site. Surface water falling on the site is likely to be run-off and flow into the local stormwater network (refer to Attachment B alignment of stormwater network surrounding the site).</p> <p>The nearest down gradient surface water receptor is more than 2 km from the site.</p>
Geology	<p>The geological profile under the site consists of the following:</p> <ul style="list-style-type: none"> • Surface – 0.4 mbgl (eastern portion of site): Fill – gravelly silt, sands and clays, brown/grey, with minor organic matter at some locations. Overlain by bitumen or concrete surface in sealed areas. Absent at some soil bores. • Surface – 0.7 mbgl (western portion of site): Fill – gravelly silt, sands and clays, grey/brown/black, inclusions of ash, bitumen, bricks and glass at some locations. Overlain by bitumen or concrete surface in sealed areas. Absent at some soil bores. • 0.15 - 30 m bgl: Natural soils: <ul style="list-style-type: none"> ▪ 0.15 – 3 mbgl: silty clay, brown, low to medium plasticity, with no visual or olfactory indicators of contamination. Trace gravels and sand at some locations. ▪ 2 – 7 mbgl: silty clay, brown, low to medium plasticity, with no visual or olfactory indicators of contamination. Fine sand and gravel inclusions reported at a number of locations above and coincident with the upper water bearing zone (Q1 Aquifer). ▪ 5 – 30 mbgl: interbedded clays, silty clays, silty sands and sands with varying gravel content. A second water bearing unit (inferred to be a lower portion / zone of the Q1 Aquifer) was intersected at 9 – 12 mbgl at GW10, and a third (inferred to be the Q2 Aquifer) at approximately 20 – 28 mbgl at GW09.



Aspect**Summary information**

The shallow natural soil profile reported by JBS&G (23 August 2019 and 3 December 2020) and Golder (11 February 2020) in surrounding areas was consistent with that observed under the site.

Hydrogeology

LWC (July 2018) reported that the depth to groundwater in the upper water bearing zone (Q1 Aquifer) ranged from 3.338 mbgl to 3.965 mbgl, with elevations ranging from 1.222 mAHD to 1.809 mAHD. Groundwater was inferred to move towards the west and northwest. Similarly, LWC (31 August, 2021) reported that the depth to groundwater in the Q1 Aquifer ranged from 3.544 mbgl to 3.990 mbgl, with elevations ranging from 1.201 mAHD to 1.652 mAHD and groundwater moving towards the west and northwest. The groundwater depths and elevations in the Q1 Aquifer reported by Golder (11 February 2020) and JBS&G (3 December 2020) in the off-site investigation reports were also similar to that reported by LWC (July 2018 and 31 August 2021), with the direction of groundwater movement inferred to be predominantly westerly. The EPA (August 2019) report on the GPA also indicates similar depths to groundwater and directions of groundwater movement in the Q1 Aquifer.

LWC (31 August, 2021) inferred that a deeper portion the Q1 Aquifer is present at approximately 9 mbgl – 12 mbgl, with a depth to groundwater and groundwater elevation similar to that of the Q1 Aquifer other wells (which were generally installed to 5 – 6 mbgl). The EPA (August 2019) GPA report indicates water bearing zones at approximately 10 mbgl are likely to represent the Q2 Aquifer – which is present at 8 to 9 mbgl and is under semi-confined conditions in this area of Adelaide. However, Gerges (2006) indicates the Q2 Aquifer is typically present at 16 – 30 mgl, and discussions between the auditor and EPA (G. Wigley, pers comm., July 2021) suggests that groundwater intersected at GW10 is likely to form part of the Q1 Aquifer.

LWC (31 August, 2021) also installed a monitoring well (GW09) to 30 mbgl (screened from 22 mbgl – 30 mbgl). The depth to groundwater (3.818 mAHD) and groundwater elevation (1.259 mAHD) are similar to other wells, indicating groundwater in this aquifer is under confining pressure. LWC (31 August, 2021) indicated that this well intersects the Q2 Aquifer, which is consistent with the inferred depth of this water bearing zone as presented in Gerges (2006) and discussions with EPA. The bore log for this monitoring well indicates the presence of dry silty and sandy clay soils from approximately 12 mbgl to 20 mbgl, which is inferred to be an aquitard separating the Q1 and Q2 Aquifers. Laboratory hydraulic conductivity testing of soils from this zone and differences in groundwater quality between wells screening the Q1 and Q2 Aquifers support the presence of an aquitard as a confining unit for the Q2 Aquifer.

The site and surrounding area are within a GPA which prohibits extraction and use of groundwater from the Q1 and Q2 Aquifers – noting that the GPA (EPA, August 2019) indicates the Q2 is present at 0 – 10 mbgl.

Services and utilities

Plans presented in JBS&G (3 December 2020) indicate a number of potential sewer lines under the western half of the site, which appear to connect into an external network that runs along the western boundary of the site – under Glyde Street. Sewer and stormwater are also shown on along and under the southern and eastern boundaries of the site. A plan provided in LWC (31 August, 2021) also shows Telstra cables under the northern and eastern parts of the site and to the south, east and west of the site.

Figures illustrating the layout of the site, inferred directions of groundwater movement and the locations and types of underground services at the site and surrounding areas are included in **Attachment B**.



6. Site and surrounding history and PCAs

Potential sources of contamination (and associated COIs listed in **Section 4, Table 4** and **Table 5**) were identified for the site and surrounding areas in the PSIs completed by LWC (1 December 2017) and LBW Co (16 June 2020), and by the auditor (Senversa, 17 October 2019).

The following table presents a summary of the PCAs associated with the current and/or historical use of the site and surrounding areas. The associated COIs are also listed.

Table 7: Summary of PCAs

Area	Known or Possible Historical Use	Relevant PCAs	COIs
Site	Tin can and plating	Metal forging	Metals, TRH, BTEX, PAHs, CHCs, acids, bases, PFAS.
		Liquid organic chemical substances - storage	TRH, BTEX, PAHs, phenols, CHCs, acids, bases, PFAS.
		Metal coating, finishing or spray painting	Metals, TRH, BTEX, CHCs.
	Motor vehicle assembly and workshop	Manufacture of motor vehicles & Motor vehicle repair or maintenance.	Metals, TRH, BTEX, PAHs, CHCs.
		Metal coating, finishing or spray painting	Metals, TRH, BTEX, CHCs.
	High voltage transformer	Electrical substation	TRH and PCBs.
	Levelling of ground surface	Fill or soil importation	Metals, TRH, BTEX, PAH, asbestos containing materials (ACM).
	Stained ground	Liquid organic chemical substances - storage	TRH, BTEX, PAHs, phenols, CHCs, acids, bases, PFAS.
General maintenance	Not applicable	OCPs and OPPs.	



Area	Known or Possible Historical Use	Relevant PCAs	COIs
Off-site	Mixed commercial and industrial	Fertiliser manufacture; Foundry; Furniture restoration; Iron or steel works; Liquid organic chemical substances – storage; Manufacture of motor vehicles; Metal coating, finishing or spray painting; Metal forging; Metal processing, smelting, refining or metallurgical works; Motor vehicle repair or maintenance; Paint manufacture; Scrap metal recovery; and Transport depots or loading sites.	Metals, TPH, BTEX, PAHs, ACM, CHCs, MAHs, solvents (VOCs), PFAS, PCBs, OPPs, OCPs, nutrients, phenols, cyanide, sulfate and alkalinity/acidity.

Figures illustrating the possible historical site-related sources of contamination and potential off-site sources are provided in **Attachment B**.

7. Nature and extent of contamination

The nature and extent of contamination on and under the site and known contamination surrounding the site is described in **Table 8**, along with the likely sources of the identified contamination. Figures illustrating the inferred extent of contamination in the relevant media (taken from the reports listed in **Section 2**) are provided in **Attachment B**.

The nature and extent of contamination is based on the following:

- Land use - the proposed future residential and open space use of the site and the predominantly residential land use adjacent and down hydraulic of the site.
- Environmental values of groundwater² - noting that extraction and use of groundwater at and surrounding the site is currently prohibited under the GPA.
- Relevant and applicable guideline and screening values for the relevant environmental media.

² Potable, primary contact recreation, primary industry (irrigation), industrial and non-contact scenarios (vapour inhalation – noting that this has been assessed directly by soil vapour assessment).



Table 8: Nature and extent of contamination

Media / element	Summary of nature and extent of contamination	Likely sources
Soil	<p>Soil contamination was identified in the central, eastern and western portion of the site, with the relevant site areas referred to by LWC (6 July 2018) as the following:</p> <ul style="list-style-type: none"> • Area A – eastern portion of the site with the following COIs reported at concentrations greater than the adopted investigation and screening levels in the upper approximately 0.2 – 0.5 m of the soil profile: <ul style="list-style-type: none"> ▪ Human health – lead. ▪ Ecology – copper, lead and zinc. • Area B – central portion of the site with the following COIs reported at concentrations greater than the adopted investigation and screening levels in the upper approximately 0.2 m of the soil profile: <ul style="list-style-type: none"> ▪ Human health – lead. ▪ Ecology – copper, lead and zinc. • Area C – western portion of the site with the following COIs reported at concentrations greater than the adopted investigation and screening levels in the upper approximately 0.2 – 0.5 m of the soil profile: <ul style="list-style-type: none"> ▪ Human health – benzo(a)pyrene TEQ and lead. ▪ Ecology – benzo(a)pyrene, TRH (C16-C34), copper, lead and zinc. 	<ul style="list-style-type: none"> • Fill or soil importation. • General commercial / industrial use of the site. • Historical use of lead-based paints. • Metal forging - former tin can manufacturing plant in northern building.
Groundwater	<p>CHCs:</p> <ul style="list-style-type: none"> • Q1 Aquifer: <ul style="list-style-type: none"> ▪ TCE is present at concentrations greater than the adopted criteria in groundwater under the northern portion of the site and to the northeast, north, northwest and west of the site. The highest concentrations of TCE under the site are reported at and down hydraulic gradient of the northern portion of the northern building. The maximum TCE concentration reported in groundwater under the site across four rounds of sampling was 508 ug/L – at GW10, which is located at the north-western corner of the site and in the deeper portion of the Q1 Aquifer. TCE is also reported greater than the adopted criteria at GW06 – which is located along the up hydraulic gradient boundary of the site. ▪ Similar and higher concentrations were reported by JBS&G (11 February 2020) and Golder (3 December 2020) to the north (across hydraulic gradient) and west (up hydraulic gradient) of the site (maximum of 1,130 ug/L approximately 100 m west of the site). The off-site wells are installed in the upper portion of the Q1 Aquifer (which are also sampled by the site Q1 Aquifer wells – except Q10). ▪ 1,1-dichloroethene, 1,1-dichloroethane, 1,2-dichloroethane, cis-1,2-dichloroethene, tetrachloroethene (PCE), chloroform and trans-1,2-dichloroethene were also detected in groundwater under the site, but at concentrations less than the adopted assessment criteria. Most of these chemicals, as well as vinyl chloride, were detected at some of the off-site monitoring wells – and generally less than the adopted criteria. The general absence or low concentrations of these chemicals (many of which represent degradation products of TCE) indicates limited bio-degradation of TCE and CHCs is occurring in groundwater within the Q1 Aquifer. 	<ul style="list-style-type: none"> • Site – former tin can manufacturing plant in northern building. • Off-site – current and former industrial activities identified in LBW Co (16 June 2020) to the northeast and east of the site.



Media / element Summary of nature and extent of contamination

Likely sources

- Q2 Aquifer – TCE was reported at 2 ug/L (slightly greater than the LOR of 1 ug/L) in a sample collected from GW09. This concentration is less than the adopted assessment criteria. No other CHCs were detected.
- Q1 and Q2 Aquifers – there is no evidence of dense non-aqueous phase liquids (DNAPL) in either aquifer, based on visual observations and dissolved chemicals concentrations.

TRH:

- Q1 Aquifer – TRH C6-C10 was reported greater than the direct contact criteria at site monitoring wells located adjacent and to the north and northwest of the northern building, and at off-site monitoring wells located to the northeast, northwest and west of the site. The concentrations of TRH C6-C10 were similar to the concentrations to TCE reported at the same monitoring wells, suggesting that the TRH is representative predominantly of TCE. Longer chain TRH fractions were only detected greater than the LOR (and slightly above the guideline value) on one occasion at site monitoring well GW05 – which is located in the southwestern portion of the site, near to where small-scale vehicle maintenance occurs and near to the electrical transformer.
- Q2 Aquifer – TRH was reported at this monitoring well at concentrations greater than the adopted criteria. It is noted that this well has been sampled on only one occasion and was drilled with mud techniques – which introduces fluids into the formation. Further sampling is required to assess whether the TRH represents groundwater contamination or an artifact of the drilling process.

- Site – former tin can manufacturing plant in northern building.
- Off-site – current and former industrial activities identified in LBW Co (16 June 2020) to the northeast and east of the site.

PFAS³:

- Q1 Aquifer – the sum of PFHxS and PFOS was detected at concentrations greater than the adopted criteria in samples collected from monitoring wells located in the northern portion of the site (adjacent and down hydraulic gradient of the north building) and along the eastern (up hydraulic gradient) boundary. The concentrations near northern site building were higher than those reported along the upgradient (northern) portion of the site boundary, but similar to those reported across and up hydraulic gradient along the southern portion of the eastern boundary.
- Q2 Aquifer – not detected.

- Site – former tin can manufacturing plant in northern building.
- Off-site – current and former industrial activities identified in LBW Co (16 June 2020) to the northeast and east of the site.

Metals:

- Q1 Aquifer:
 - Boron was reported greater than the adopted criteria and at similar concentrations in the majority of monitoring wells sampled at on-site and off-site locations (0.08 mg/L to 1.74 mg/L on-site and 1.18 mg/L to 2.59 mg/L off-site).
 - Manganese was reported greater than the adopted criteria at one monitoring well located adjacent to the northern site building and at one monitoring well located along the eastern site boundary – up hydraulic gradient of the northern building. It was not reported greater than the adopted criteria in groundwater in the one round it was tested (Golder, 11 February 2020) at off-site monitoring wells.

- Boron – background water quality.
 Manganese, nickel and selenium – possibly associated with one or more of the following:
- Ambient background water quality.
 - Site – former tin can manufacturing plant in northern building.

³ Not assessed as part of EPA off-site investigations.



Media / element Summary of nature and extent of contamination

Likely sources

- Nickel - was reported slightly greater than the adopted criteria at monitoring wells located within and adjacent to the northern site building, in the southwestern portion of the site at one monitoring well, and at one monitoring well located along the eastern site boundary – up hydraulic gradient of the northern building. It was not reported greater than the adopted criteria in groundwater in the one round it was tested (Golder, 11 February 2020) at off-site monitoring wells.
 - Selenium was reported slightly greater than the adopted criteria at three monitoring wells located within and adjacent to the northern site building, and at one monitoring well (at similar concentrations) more than 200 m northwest of the site.
 - Q2 Aquifer:
 - Manganese was reported greater than the adopted criteria at the one site Q2 Aquifer monitoring well located adjacent to the northern site building and at concentrations greater (by approximately 2 mg/L) than those reported in the Q1 Aquifer.
 - Nickel - was reported greater than the adopted criteria at the one site Q2 Aquifer monitoring well located adjacent to the northern site building and at concentrations greater than those reported in the Q1 Aquifer.
-

Inorganics:

Ambient background

- Q1 Aquifer – total nitrogen and phosphorous were reported greater than the adopted criteria at monitoring wells located in the northern, western and eastern portions of the site, including along the up hydraulic gradient boundary (at which some of the higher concentrations were reported).
 - Q2 Aquifer - total nitrogen and phosphorous were reported greater than the adopted criteria at generally similar concentrations to those reported in the Q1 Aquifer at the site.
-

Q2 Aquifer – general comment on the potential for contamination:

- One monitoring well has been installed in the Q2 Aquifer, close to where the highest concentrations of TCE were reported in the Q1 Aquifer. Whilst only one well has been installed, the potential for contamination in the Q2 Aquifer is considered to be low - based on:
 - The low concentrations of the primary site-related COI (TCE) in the one Q2 Aquifer well and absence of PFAS – despite being near the inferred source area.
 - There being no indication of a significant primary or second source of TCE contamination (e.g. DNAPL) remaining at the site.
 - The apparently confined nature of the Q2 Aquifer.
 - Notwithstanding the above, further sampling of the Q2 monitoring wells is required to confirm the presence of contamination - based on the detection of TRH and bromomethane on the one occasion it was sampled.
-



Media / element **Summary of nature and extent of contamination**

Likely sources

Soil vapour

TCE was reported by LWC (6 July 2018 and 31 August 2021) in soil vapour at concentrations greater than the adopted investigation levels under the north-eastern quadrant of the site, with the highest concentrations under the northern end of the northern building and adjacent to the central northern site boundary. An above-guideline TCE was also reported in soil vapour immediately to the east of the site along Murray Street.

The presence of TCE contamination in soil vapour under the north-eastern portion of the site generally coincides with:

- The inferred source of the contamination (former tin can manufacturing in the northern site building); and
- The highest TCE concentrations in groundwater.

The above-guideline concentrations of TCE under the northern portion of the site ranged from 25 µg/m³ to 7,900 µg/m³ (compared to a guideline value of 20 µg/m³). Screening of utilities under and adjacent to the site did not indicate that TCE in soil vapour is accumulating or migrating within these structures – with the majority of PID readings being 0 parts per million (ppm) and a maximum recorded value of 0.2 ppm.

Other VOCs (1,2 dichloroethane and cis-1,2 dichloroethene, 1,2,4 trimethylbenzene and 1,3,5 trimethylbenzene) were also reported greater than the adopted investigation levels in soil vapour samples collected from nested soil vapour probes installed in the northern portion of the site (locations AV-1S&D and AV-2S&D).

TCE contamination in soil vapour was reported to the north, northeast and west of the site – across and down hydraulic gradient.

The most recent investigation by JBS&G (16 April 2021) presents the results from the four rounds of soil vapour sampling completed in off-site areas. The most recent sampling at each location found the following:

- Above guideline TCE concentrations in shallow soil vapour probes ranged from < 7 µg/m³ to 11,000 µg/m³, which is a similar range to that reported under the northern portion of the site.
- Above guideline TCE concentrations were reported up to approximately 200 m to the north and 200 m to the west of the site. Above guideline TCE concentrations were also reported up to 120 m northeast of the site along Murray Street.
- Concentrations of TCE in deeper soil vapour probes were similar to and in some instances greater than those reported at the on-site deep soil vapour probes.
- The above guideline concentrations of TCE reported by JBS&G (3 December 2020) and LWC (6 July 2019) to the east, north and northeast of the site are indicative of a source unrelated to the site. Those to the west and northwest are considered likely to be associated with the site and possibly another off-site source.

Cis-1,2 dichloroethene was also reported JBS&G (16 April 2021) greater than the adopted assessment criteria in four soil vapour probes sampled to the north and northeast of the site.

Primary sources:

- Site – former tin can manufacturing plant in northern building.
- Off-site – current and former industrial activities identified in LBW Co (16 June 2020) to the northeast and east of the site.

Secondary sources:

- Site – soil and groundwater contamination under the northern portion of the site.
- Off-site (north and east, commercial areas) - soil and groundwater contamination.
- Off-site (west and northwest) – groundwater contamination.

The nature and extent of contamination on and under the site has been adequately and appropriately assessed, noting that:

- DFJ Holdings is not responsible for off-site contamination; and
- Further sampling is required to assess the contamination status of groundwater in the Q2 Aquifer.



8. Conceptual site model

The following table presents the auditor's CSM for the site – which is based on review of the information provided in the reports and documents listed **Section 2** and inspections and observations made by the auditor and his support team.

Table 9: Auditor CSM

CSM element	Detail
Contamination sources	<p>Primary</p> <ul style="list-style-type: none"> • Site: <ul style="list-style-type: none"> ▪ Shallow soils - fill or soil importation, general commercial / industrial use of the site and historical use of lead-based paints. ▪ Groundwater and soil vapour - former tin can manufacturing plant in northern building (possible tanks, sumps, liquid waste disposal). • Off-site: <ul style="list-style-type: none"> ▪ Groundwater and soil vapour – former tin can manufacturing plant in at the site, up gradient and across gradient former and current industrial and commercial activities. <hr/> <p>Secondary Sources</p> <ul style="list-style-type: none"> • Site: <ul style="list-style-type: none"> ▪ Groundwater – possible residual CHC soil contamination under northern portion of site. ▪ Soil vapour – possible residual CHC soil contamination under northern portion of site and groundwater contamination. • Off-site: <ul style="list-style-type: none"> ▪ Groundwater – possible residual CHC soil contamination at the site, and under upgradient and across gradient former and current industrial and commercial properties. ▪ Soil vapour – possible residual CHC soil contamination at the site, and under upgradient and across gradient former and current industrial and commercial properties and groundwater contamination. <hr/> <p>Ambient Background</p> <ul style="list-style-type: none"> • Some metals and nutrients in groundwater under the site and surrounding areas are likely to be associated with ambient background water quality.



CSM element	Detail
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Affected media and contamination extent	Contamination is present in the following media: <ul style="list-style-type: none">• Soils:<ul style="list-style-type: none">▪ Metals, TRH and PAHs in shallow soils (generally fill material) on and under parts of the eastern, central and western portions of the site.• Groundwater:<ul style="list-style-type: none">▪ Site: groundwater in the Q1 Aquifer under the site is contaminated with CHCs (principally TCE), TRH, PFAS, metals and nutrients, with contamination mainly under the northern half of the site. The presence of contamination in the Q2 Aquifer requires confirmation.▪ Off-site: groundwater in the Q1 Aquifer to the northeast, north and west of the site is also contaminated with CHCs (principally TCE) and metals associated with off-site and site sources and ambient background conditions.• Soi Vapour:<ul style="list-style-type: none">▪ Site: soil vapour under the northern half of the site is contaminated with CHCs (principally TCE).▪ Off-site: soil vapour to the east, northeast, north and west of the site is also contaminated with CHCs (principally TCE) associated with off-site and site sources.• General:<ul style="list-style-type: none">▪ CHC contamination in groundwater and soil vapour associated with site-related sources has already migrated off-site to the west and northwest (and possibly to the north) and has the potential to continue to migrate off-site into the future.▪ CHC contamination in groundwater and soil vapour in some off-site areas appears to be associated the off-site sources, some of which have the potential to move under the site in the future – based on the presence of groundwater and soil vapour contamination along the up hydraulic gradient boundary of the site.
--	--

Receptors	The following are considered to represent potential receptors for site-related contamination – based on: <ul style="list-style-type: none">• Land use - the proposed residential and open space land use for the site and existing residential and open space land use in downgradient areas.• The environmental values of groundwater (noting the restrictions on groundwater use imposed by the GPA).• The nature and extent of site-related contamination. <p>Human:</p> <ul style="list-style-type: none">• Future construction/maintenance workers (on-site and off-site).• Future residents and open space users (on-site and off-site).• Future users of groundwater for potable, primary contact recreation and industrial purposes (on-site and off-site). <p>Ecology⁴:</p> <ul style="list-style-type: none">• Future planting and unsealed areas of the site.• Future on-site and off-site areas irrigated with groundwater. <p>Aesthetics and Built Environments:</p> <ul style="list-style-type: none">• Exposed soil and groundwater.• Building foundations and footings.
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⁴ Aquatic ecosystems and ecology are not relevant as the nearest down gradient surface water receptor is more than 2 km from the site.



CSM element	Detail
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Exposure pathways	
--------------------------	--

	Human:
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- | | |
|--|--|
| | <ul style="list-style-type: none">• Future construction/maintenance workers (on-site and off-site):<ul style="list-style-type: none">▪ Soils - direct contact, ingestion and inhalation of contaminated soils (site only).▪ Groundwater – direct incidental contact and ingestion during construction activities.▪ Soil vapour – exposure to toxic vapour in shallow trenches and confined construction spaces.• Future residents and open space users (on-site and off-site):<ul style="list-style-type: none">▪ Soils – direct contact, ingestion and inhalation of contaminated soils (site only).▪ Soil vapour – exposure to toxic vapour within enclosed building spaces of the future residential dwellings on-site and existing off-site residences.• Future users of groundwater for potable, primary contact recreation and industrial purposes (on-site and off-site) – noting this is unlikely based on the GPA.<ul style="list-style-type: none">▪ Groundwater – potable consumption, recreational and industrial contact and incidental ingestion. |
|--|--|

	Ecology:
--	-----------------

- | | |
|--|---|
| | <ul style="list-style-type: none">• Future planting and unsealed areas of the site - direct contact with contaminated shallow soils.• Future on-site and off-site areas irrigated with groundwater – direct contact with contaminated groundwater, noting this is unlikely based on the presence of the GPA. |
|--|---|

	Aesthetics and Built Environments:
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- | | |
|--|--|
| | <ul style="list-style-type: none">• Aesthetics:<ul style="list-style-type: none">▪ Soil – the potential for inclusions and odorous shallow fill soils to impact on the aesthetic aspects of the site.▪ Groundwater – the potential for odorous and turbid groundwater to impact on the aesthetic aspects water uses, noting this is unlikely to be realised based on the GPA.• Built structures:<ul style="list-style-type: none">▪ TRH – organic contaminants may pose a risk to built structures.▪ Groundwater – organic contaminants may pose a risk to built structures installed into groundwater. |
|--|--|
-



9. Interim auditor risk assessment

The following table presents the auditor’s interim qualitative risk assessment for the site, which is based upon the following:

- proposed future residential use of the site and current residential and commercial use of the land surrounding the site;
- environmental values of groundwater;
- understanding of the nature and extent of contamination;
- the results of vapour intrusion modelling prepared for the surrounding areas; and
- EPA regulatory instruments (i.e. limitations on groundwater use imposed by the GPA).

Table 10: Potential risks to receptors

Contaminated media	Risk assessment
Soil	<p>Site: soil is contaminated with copper, lead, zinc, benzo(a)pyrene and TRH in the central, eastern and western portion of the site and has the potential to form a risk to future human and terrestrial ecological receptors under the proposed future residential land use. TRH may also pose a risk to built structures.</p> <p>The soil under and immediately to the north of the northern building may also be contaminated by TCE / CHCs (based on reported soil vapour contamination in this area of the site).</p> <p>Off-site: unknown and not applicable. Soil contamination is unlikely to move or have migrated off-site.</p>
Groundwater	<p>Site: groundwater is contaminated with organic and inorganic chemicals substances. Extraction and use of groundwater may pose a risk to human and irrigated (terrestrial) receptors. Groundwater poses a risk to human health via non-contact (vapour intrusion) scenarios – which has been directly assessed through soil vapour sampling (refer below). Organic contaminants may also pose a risk to built structures installed into groundwater and should be subject to an engineering assessment.</p> <p>Off-site: groundwater is contaminated with organic and inorganic chemicals substances. Extraction and use of groundwater may pose a risk to human and irrigated (terrestrial) receptors. Groundwater also poses a human health risk via non-contact (vapour intrusion) scenarios – which has been directly assessed through soil vapour sampling (refer below). Organic contaminants may also pose a risk to built structures installed into groundwater.</p> <p>GPA: it is noted that whilst the risk assessment indicates that groundwater could pose a risk to the environmental values of groundwater (and associated human and irrigated/terrestrial receptors) for direct contact (extraction and use) scenarios, the implementation of the GPA should effectively mitigate this risk by prohibiting the pathway for exposure (use).</p>
Soil vapour	<p>Site: TCE and other VOCs in soil vapour under the northern portion of the site have the potential to pose a risk to human occupants of proposed future residential dwellings if constructed on this portion of the site. This assessment is based on:</p> <ul style="list-style-type: none"> • Comparison of the soil vapour concentrations to the adopted assessment criteria. • The results of vapour intrusion risk assessments – completed for off-site investigations conducted by others and which utilised soil vapour concentrations similar to those present on site (refer below). <p>Soil vapour contamination does not appear to be present (nor pose a risk to human health) under the southern half of the site.</p> <p>Off-site: TCE in soil vapour to the northeast, north and west of the site has the potential to pose a risk to occupants of residential dwellings (slab on ground, crawl space and basement settings) - and intrusive maintenance workers and commercial workers in some localised areas.</p>



10. Remediation scope and approach

The following table provides a summary of the scope and methodology proposed for remediation of site contamination present on and under the site – as described in LWC (7 September, 2021) Site Remediation Plan (SRP). The scope of works and methods are generally consistent with the guidance provided in the GAR, the ASC NEPM and other relevant guidance and policies made or endorsed by EPA. The SRP includes a remediation options assessment (ROA).

Table 11: Site remediation plan review (LWC, 2021b)

Site remediation plan element	Auditor comments and opinion
<p>General content</p>	<p>The SRP has been prepared in a manner generally consistent with the GAR, and includes a sufficient level of information on the following key elements:</p> <ul style="list-style-type: none"> • Site details and environmental setting. • Current and proposed future land use. • Nature and extent of contamination and potential associated risks. • Remedial goals and objectives. • Remedial options assessment and nominated remedial options. • Validation approaches and reporting. • Environmental management and engagement.
<p>Remediation approach</p> <p>The nominated remedial approach consists of the following elements:</p> <ul style="list-style-type: none"> • Supplementary Assessment – collection of additional soil samples under building footprints following demolition (which were currently not fully accessible at the time of the investigations). • Infrastructure: identification and removal of a possible remaining primary source of TCE contamination (tank, sump) under the northern portion of the northern building. • Soil - removal of soil contamination: <ul style="list-style-type: none"> ▪ in shallow fill in the eastern, western and central parts of the site. ▪ suspected to be present under the northern portion of the northern building - which may form a secondary source of TCE (and other VOCs and possible PFAS, TRH) contamination in groundwater and soil vapour. 	<p>The remedial approaches proposed in the SRP are considered appropriate and sufficient to:</p> <ul style="list-style-type: none"> • Eliminate or prevent harm to the health of future site users posed by site contamination; and • Eliminate or prevent as far as reasonably practicable, harm to water and the environment – including reducing the potential for future off-site migration of site-related groundwater and soil vapour contamination. <p>This will be achieved by:</p> <ul style="list-style-type: none"> • Primary and secondary (soil) source removal. • Implementation of post-remediation groundwater and soil vapour management measures and monitoring to address residual groundwater and soil vapour contamination that are likely to remain. • The existing administration controls under the GPA.



Site remediation plan element

Auditor comments and opinion

• Groundwater:

- excavation and off-site disposal of primary and residual soil sources of TCE (and other VOCs and possible PFAS, TRH) contamination in groundwater suspected to be present under the northern portion of the northern building.
- implementation of a groundwater management and monitoring plan following remediation – which is considered necessary to assess the benefits of source removal and potential risks posed by residual groundwater contamination.

• Soil vapour:

- excavation and off-site disposal of primary and residual soil sources of TCE (and other VOC) contamination in soil vapour suspected to be present under the northern portion of the northern building.
- implementation of vapour intrusion mitigation and monitoring measures (if required) – to address residual soil vapour contamination (and risk) which may remain under the site and/or migrate under the site from off-site sources in the future.

Remediating groundwater under the site by means other than source removal is considered impracticable – particularly in the context of:

- Benefits – which would be undermined and potentially completely negated by the presence of TCE in groundwater from other sources in areas surrounding the site – including that which may move under the site from up hydraulic gradient areas in the future.
- Technical limitations – the complex hydrogeological conditions under the site and surrounding areas (interbedded water bearing zones of varying and limited lateral and vertical extent and connection), which are likely to render treatment by extraction or injection (of ameliorants) problematic and unlikely to be successful. EPA (August 2019) notes the complex and highly variable aquifer conditions in its GPA report.

Remediation validation

The following validation measures are proposed in the SRP:

- Soil sampling of the base and walls of remedial excavations, excavated and imported soils and analysis for the relevant COIs.
- Post-remediation sampling of soil vapour and groundwater and analysis for the relevant COIs
- Remediation validation report (RVR) – preparation of an RVR to document the results of remedial and validation works.

Validation methods and criteria are provided in the SRP for soil and soil vapour – which are required to be achieved to demonstrate the suitability of the site for use.

The proposed scope, approach and nominated validation criteria and content of the validation report are appropriate and generally consistent with guidance and values provided in the GAR and ASC NEPM.

Provision for possible design, testing and validation of vapour mitigation measures is also noted in the SRP – should excavation of the inferred soil source not be successful in remediating soil vapour contamination under the site.



Site remediation plan element**Auditor comments and opinion**

Remediation timeframes

Included, but will require confirmation based on the Code Amendment process and client

Environmental management

The SRP also includes the following:

- Roles and responsibilities
- An unexpected finds protocol.
- Proposed hours of operation.
- Environmental management requirements, including for:
 - Site access, security and hours of operation.
 - Sediment, noise, dust and waste management.
 - Community and complaints handling.
 - Occupational health and safety.
 - Contingencies and emergencies.

Appropriate and adequate in the context of the site contamination and proposed remedial scope of works. A construction environmental management plan (EMP) should be prepared by the remediation contractor and consultant prior to remediation and once the following are finalised:

- Staging of remediation.
- Any relevant consent conditions.

The CEMP must also include methods, frequencies and criteria for monitoring the adequacy of proposed environmental management measures.



11. Engagement

The auditor is aware of the following engagement which has been conducted in relation to contamination on and under the site and surrounding areas.

Table 12: Engagement activities

Entity	Nature of engagement
Auditor	Notification to EPA of hazardous circumstances (refer to Section 3).
LWC	Notification to EPA of groundwater contamination under Section 83A of the Act (refer to Section 3). Provision for future engagement during remediation is also included in the SRP (LWC, 7 September 2021).
Council	Meeting of 13 May 2020 between council, auditor, landowner and EPA (and subsequent EPA email of 21 May 2020) discussing the requirements and rationale for IAA for the site to support the proposed Code Amendment.
EPA	Written directives to landowner and auditor in relation to the following (refer to Section 3): <ul style="list-style-type: none"> • Limit of liability for site contamination. • Goals for the investigations. • Requirements to consider risks posed to off-site receptors by site-related contamination. Community engagement in relation the status of off-site assessments commissioned by EPA (updates issued March and October 2019, March and September 2020, and January 2021). Community engagement in relation to the imposition of the GPA (as described in <i>Groundwater Prohibition Area – Hendon and surrounding areas Community engagement report (EPA, August 2019)</i>).



12. Information gaps

Table 11 describes the information gaps which remain in relation to understanding the nature and extent of contamination on and under the site, associated risks posed to current and future occupants of the site and surrounding properties, and management during remediation. For the reasons described below, the presence of these information gaps has not precluded or prevented development of suitable and appropriate remedial strategies to allow the site to be made suitable for use.

Table 11: Information gaps

Element	Information gap	Status
TCE source	<p>Whilst the approximate location of the source of TCE in soil vapour and groundwater under the site has been determined (under the northern end of the northern building, in which the tin can plant previously operated), its exact location and nature has not been identified – due to the presence of surface coverings within the building, including:</p> <ul style="list-style-type: none"> • Sand and artificial turf forming playing surfaces of former volleyball and indoor cricket pitches. • Concrete foundations. • Equipment storage. <p>Further investigation of the source is required following demolition of the building (and removal of the ground surface cover and obstructions) to support targeting the remedial activities (primary and secondary source removal / treatment).</p>	<p>Provision is made in the SRP (LWC, 7 September 2021) for further investigation and removal of suspected primary and secondary (soil) sources of contamination under the northern portion of the northern building following site demolition.</p>
Q1 Aquifer conditions	<p>The majority of the site and off-site shallow (Q1 Aquifer) monitoring wells were installed to approximately 5 mbgl. One site monitoring well (GW10) intersected a deeper Q1 Aquifer zone (at approximately 10 mbgl) and reported the highest TCE concentrations under the site. MIP bore holes also indicate the highest responses for CHCs are in the deeper in portions of the soil profile (at approximately 10 mbgl) – below the base of eight of the nine site Q1 Aquifer monitoring wells.</p> <p>The Q1 Aquifer is known to be highly variable in its depth and lateral continuity, and it is therefore possible that a deeper Q1 Aquifer zone does not exist under the broader site. However, further investigation is considered appropriate to assess the concentrations of TCE (and other COIs) at the base of the Q1 Aquifer (if present) – particularly in the inferred source area (the existing deeper Q1 Aquifer monitoring well is located at the down hydraulic gradient site boundary).</p>	<p>The concentrations of TCE and other site related COIs in the basal sections of the Q1 Aquifer (if present) should be assessed following remediation of the inferred source area.</p>



Element	Information gap	Status
	<p>Notwithstanding this information gap, the following existing information is considered sufficient and adequate to assess risk and develop remedial strategies to address contamination on and under the site:</p> <ul style="list-style-type: none"> Extraction and use of groundwater from the Q1 Aquifer is prohibited under the GPA. The existing deeper Q1 Aquifer well provides an understanding of groundwater quality in this zone at down gradient boundary of the site – which is less than the highest concentration of TCE (the key COI) in groundwater down hydraulic gradient of the site. Risks posed by groundwater in the Q1 Aquifer under non-contact (vapour intrusion) scenario will be driven by chemical concentrations in the upper zones of the aquifer – which have been assessed adequately assessed by the existing well network on-site. Soil vapour data is available to assess the potential risks to posed by groundwater sources of TCE soil vapour contamination. 	
Q2 Aquifer and contamination	Further sampling is proposed to confirm groundwater quality at the one Q2 Aquifer monitoring well.	To be completed during or following demolition.
CEMP	Final environmental monitoring methods and frequencies	To be developed once project staging and consent conditions known, and to be included in an update to the existing EMP included within the SRP.



13. Interim auditor outcomes and determinations

Based on the information provided in the investigation and remediation planning documents prepared for the site and surrounding areas, the following interim auditor outcomes and determinations are made:

- **Nature and extent of contamination** - the nature and extent of contamination on and under the site has been adequately assessed and delineated in the context of the liability for site contamination being restricted to within the site boundaries.
- **Suitability of the site for a sensitive use or another use or range of uses and what remediation is or remains necessary** -
 - Remediation is and remains necessary to make the site suitable for its proposed future residential and open space land uses.
 - If implemented appropriately, the remedial approach presented in LWC (7 September, 2021) is likely to:
 - make the site suitable for the proposed future residential and open space land uses (and eliminate actual or potential harm to human health); and
 - eliminate as far as reasonably practicable actual or potential harm to water and the environment; and
 - remove a key source of site and future off-site (down hydraulic gradient) groundwater and soil vapour contamination associated with TCE (and to a lesser extent other CHCs).

Some information gaps are required to be assessed – but can reasonably be completed during or following planned demolition and remedial works.

If you have any comments or questions, please do not hesitate to contact me on 08 8212 0070.

Yours sincerely,

Graeme Miller

Site Contamination Auditor (no. 201131)

GM/JH

- Enclosures: Attachment A: Code amendment advice
Attachment B: Site plans
Attachment C: Site contamination audit system Interim Audit Advice Form
Attachment D: Site Remediation Plan
Attachment E: Limit of liability advice

Technical Limitations and Uncertainty – Interim Audit Advice has been provided based on the information provided in Section 2 and the approach to remediation described in Section 7. This Interim Audit Advice does warrant the outcomes of the proposed remediation and does not itself constitute a site contamination audit report. Interim advice should be followed by completion of a subsequent audit report for the site. Interim audit advice does not pre-empt or constrain the final outcome(s) of the audit or any conditions that may be placed by the auditor in the audit report.

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Attachment A: Code amendment advice

Ian Lightfoot

From: Bradford, Geoffrey (EPA) <Geoffrey.Bradford@sa.gov.au>
Sent: Thursday, 21 May 2020 7:37 PM
To: 'Dontotino@totinowines.com.au'; Graeme Miller; 'Lou Fantasia'; 'Jim Gronthos';
Craig Daniel; 'db@jensenplus.com.au'
Cc: Thompson, Shannon (EPA); Boyce, Wendy (EPA); Cother, James (EPA)
Subject: Albert Park Mixed Use DPA - Site Contamination [DLM=For-Official-Use-Only]

For Official Use Only

Everyone,

Thank you for meeting on 13 May 2020 to discuss site contamination issues in relation to the Albert Park Mixed Use Development Plan Amendment (DPA).

The primary areas of discussion were the site contamination audit that is being undertaken for 24-30 Murray Street and the report, *Preliminary Environmental Assessment Development Plan Amendment Area, Albert Park South Australia*, prepared by LBW.

Site Contamination Audit 24-30 Murray Street

During the meeting the EPA advised that interim audit advice should be provided to assist the planning process.

The area for which the audit is being undertaken is recognised as a high-risk site. Intrusive works, including soil, soil vapour and groundwater assessments have been undertaken and have identified concentrations of trichloroethylene in groundwater and soil vapour exceeding relevant guidelines.

As a high-risk site it becomes necessary for additional actions (that may not be necessary for lower-risk sites) to be undertaken to ensure that the planning process is fully informed. Interim audit advice can inform planners as to whether particular policies need to be applied to the area or what rezoning may be required to enable development that is suitable for that site to be undertaken.

The interim audit advice can be provided when sufficient assessment had been undertaken to enable the risks and any remediation options to be understood. Interim audit advice can be provided prior to completion of the audit.

It was advised by Graeme Miller at the meeting that interim audit advice could be completed in 3-6 months.

Preliminary Environmental Assessment Development Plan Amendment Area, Albert Park South Australia

As requested at the meeting, the EPA has reviewed the *Preliminary Environmental Assessment Development Plan Amendment Area, Albert Park South Australia* (the 'PEA') prepared by LBW.

The EPA notes that the PEA was undertaken for the entire area affected by the DPA, including the area subject to the site contamination audit. The PEA was undertaken in general accordance with the Preliminary Site Investigation process identified in the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)*.

For those areas affected by the DPA that are outside of the area affected by the site contamination audit, the EPA considers that the PEA is suitable for informing preparation of planning policies for the DPA to ensure site contamination is able to be assessed in any future development applications. Preparation of policies for the area affected by the site contamination audit would need to wait the interim audit advice.

If you would like to add any further points to the notes above or have any further questions please let me know.

Regards,

Geoff

Geoffrey Bradford

Senior Planning Officer (Policy and Projects)
Work Phone (08) 8204 9821 Work Fax (08) 8124 4673

Environment Protection Authority

GPO Box 2607, Adelaide, S.A. 5001, AUSTRALIA



www.epa.sa.gov.au

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The Hon Vickie Chapman MP



21MPL1469

12 May 2021

Mr Paul Sutton
Chief Executive Officer
City of Charles Sturt

By email: jtagliaferri@charlessturt.sa.gov.au

**Government
of South Australia**

Deputy Premier

Attorney-General

Minister for Planning
and Local Government

GPO Exchange
10 Franklin Street
Adelaide SA 5000

GPO Box 464
Adelaide SA 5001
DX 336

Tel 08 8207 1723
Fax 08 8207 1736

Dear Mr Sutton

I write to advise that under section 73(2)(b)(iv) of the *Planning, Development and Infrastructure Act 2016* (the Act), I have considered the advice of the State Planning Commission (the Commission) and approved the Proposal to Initiate the Albert Park Mixed Use Code Amendment.

The initiation approval is on the basis that, under section 73(4)(a) of the Act, the City of Charles Sturt will be the Designated Entity responsible for undertaking the Code Amendment process.

I also advise that the Commission has, under section 73(6)(e) of the Act, specified that the Designated Entity must undertake preliminary consultation with the Environment Protection Authority (EPA) in order to determine whether the land can be appropriately remediated to accommodate more sensitive land uses.

Under section 73(5) of the Act, the approval is also subject to the following conditions:

- The Designated Entity must obtain the approval of the Commission to undertake public consultation following preliminary consultation with the EPA.
- The scope of the proposed Code Amendment does not include the creation of new planning rules, and is limited to the spatial application of zones, subzones, overlays, or technical and numerical variations provided for under the published Planning and Design Code (on the date the Amendment is released for consultation).
- The Code Amendment is prepared by a person with qualifications and experience that is equivalent to an Accredited Professional – Planning Level 1 under the Act.

In addition, the Commission has specified, under section 73(6)(e) of the Act, that the Designated Entity must consult with the following stakeholders:

- Department for Environment and Water
- Environment Protection Authority
- Department for Infrastructure and Transport

- SA Health (Department for Health and Wellbeing)
- Utility providers including SA Power Networks, ElectraNet Pty Ltd, APA Group, SA Water, EPIC Energy, NBN and other telecommunications providers
- State Members of Parliament for the electorates in which the proposed Code Amendment applies.

Further, the Commission has, under section 73(6)(f) of the Act, resolved to specify the following further investigations or information requirements in addition to that outlined in the Proposal to Initiate:

- Completion of the interim audit report into site contamination to demonstrate the appropriateness (or otherwise) of the land for sensitive land uses.
- Consideration of potential interface issues between the employment / commercial activities and residential development, with particular regard to noise, air quality and vehicle movements along Port Road.
- Exploration of the opportunity for increased open space provision.

In addition, it should be noted that further investigations may be required in response to feedback or advice received through the engagement process.

Notes

1. In accordance with sections 44(6) and 73(6)(d) of the Act, consultation in writing must be undertaken with:
 - Owners or occupiers of the land and adjacent land in accordance with Regulation 20 of the Planning, Development and Infrastructure (General) Regulations 2017.
2. Engagement must meet the Community Engagement Charter as guided by the Community Engagement Charter toolkit at:
https://plan.sa.gov.au/resources/learning_and_toolkits/community_engagement_charter_toolkit/overview

I will make a determination on whether to approve the proposed amendments at the completion of the Code Amendment process.

Please contact Ms Nadia Gencarelli, A/Team Leader, Code Amendments, from the Attorney-General's Department on 7109 7036 or email nadia.gencarelli@sa.gov.au if you would like to discuss further.

Yours sincerely



VICKIE CHAPMAN MP
DEPUTY PREMIER
MINISTER FOR PLANNING AND LOCAL GOVERNMENT

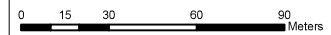


Attachment B: Site plans



Legend

 Site Boundary



Land & Water Consulting Pty Ltd
 Email: enquiries@lwcconsulting.com.au
 Web: www.lwcconsulting.com.au

Date: June 2018

Projection: GDA 1994, Zone 54

Project:

Detailed Site Investigation -
 24 - 30 Murray Street, Albert Park,
 South Australia

Site Address:

24 - 30 Murray Street, Albert Park, South Australia

Figure Title:

Site Location Plan

Appendix in Set 1 of 6

Scale: See Plan

Drawing Reference

AAAA

N



Figure

1

Revision

A



FIGURE 1

Assessment Area

Development Plan Amendment
Albert Park
 For
Jensen Plus

LEGEND
 Assessment area boundary

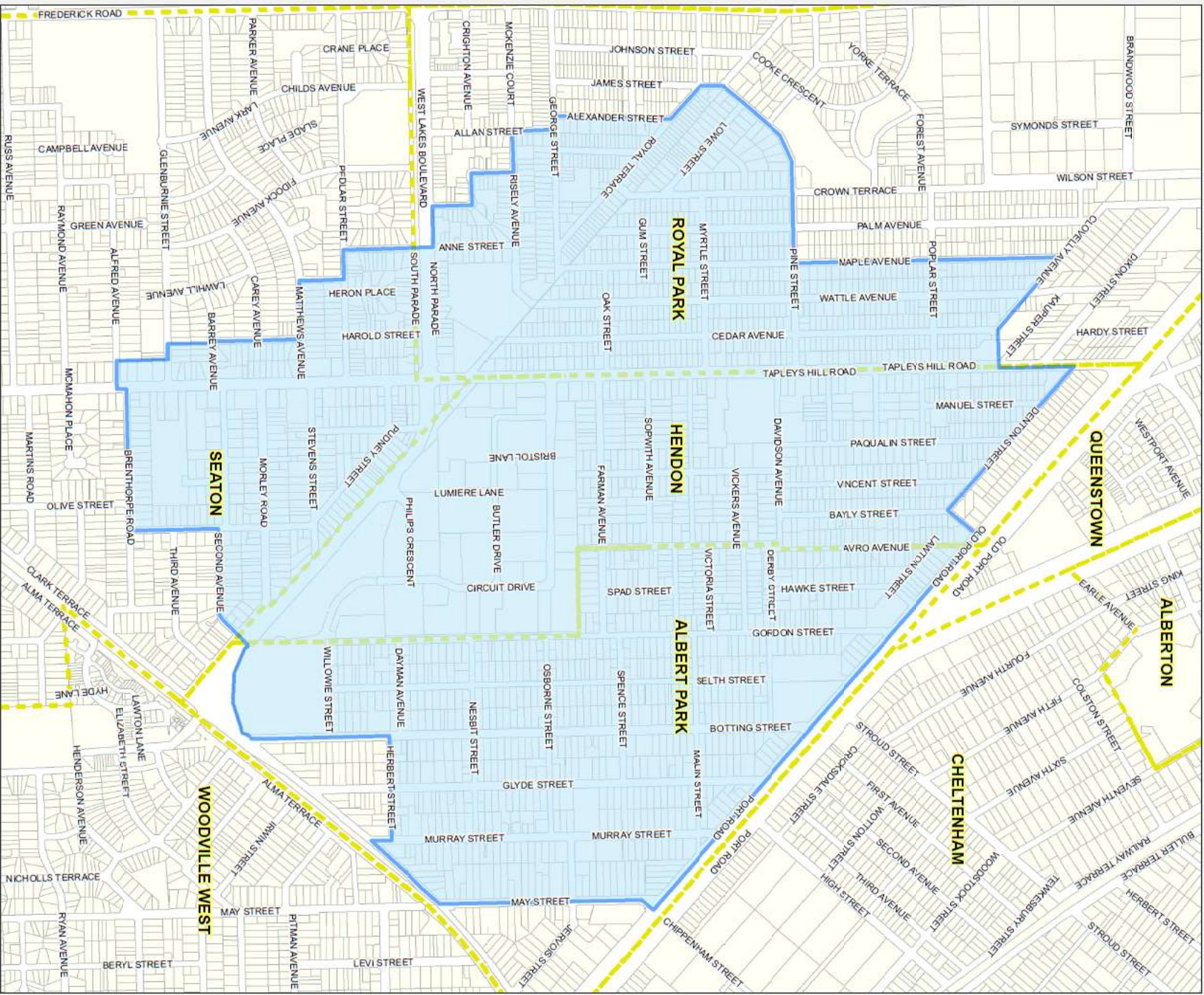
SCALE @ A3: 1:2500



PROJECTION: GDA1994 MGA Zone 54



Job No.	201162		
Drawing No.	LBW-001-F001-Rev0.ags		
Drawn	KB	Rev.	0
Checked	JB	Date	24/04/2020



 Groundwater Prohibition Area
 Suburb



Produced by Knowledge, Information & Strategy
 Environment Protection Authority
 GPO Box 2667 Adelaide SA 5001
 www.epa.sa.gov.au

Data Source: DEW, EPA

Completed: 25 February 2019

Author: Chris

Project: Groundwater Prohibition of Australia, 1994

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Legend

- ◆ Soil Bore Investigation Location
- Site Features
- Site Boundary

0 5 10 20 30 Meters

Land & Water Consulting Pty Ltd
 Email: enquiries@lwcconsulting.com.au
 Web: www.lwcconsulting.com.au

Date: June 2018
 Projection: GDA 1994, Zone 54

Project:
 Detailed Site Investigation -
 24 - 30 Murray Street, Albert Park,
 South Australia

Site Address:
 24 - 30 Murray Street, Albert Park, South Australia

Figure Title:
 Soil Bore Investigation Location Plan

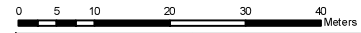
Appendix in Set	3 of 6	Figure	3
Scale:	See Plan	Revision	A
Drawing Reference	AAAA		



Legend

- Site Boundary
- Site Features
- ◆ Soil Vapour Investigation Location (Passive Sampler) (LWC, Aug 2020)
- ◆ Soil Vapour Location (Golder, 2019)
- ◆ Soil Vapour Investigation Location (Passive Sampler) (LWC, May 2018)
- ◆ Soil Vapour Investigation Location (Passive Sampler) (LWC, Dec 2017)
- ▲ Active Vapour Sampling Locations (June 2019)
- Inferred TCE Source Zone

Note: Basemap sourced from Nearmap dated October 2020



LWC
Land & Water Consulting

Land & Water Consulting
Email: admin@lwiconsulting.com.au
Web: www.lwiconsulting.com.au

Date: July 2021
Projection: GDA1994, Zone 54

Project:
Detailed Site Investigation (SSRA)

Site Address:
24 - 30 Murray Street, Albert Park, South Australia

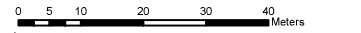
Figure Title:
TCE Soil Vapour Concentrations (All data)



Figure in Set	6 of 7	Figure
Scale: See Plan		6
Drawing Reference		Revision
A		A



- Legend**
- Site Boundary
 - Railway
 - Site Features
 - Telstra
 - Sewer
 - Stormwater
 - ◆ Soil Vapour Investigation Location (LWC, Aug 2020)
 - ◆ Soil Vapour Location (Golder, 2019)
 - ◆ Soil Vapour Investigation Location (LWC, May 2018)
 - ◆ Soil Vapour Investigation Location (LWC, Dec 2017)
 - Service Screening Point

Note: Basemap sourced from Nearmap dated October 2020



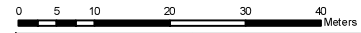
 Land & Water Consulting Email: admin@lwconsulting.com.au Web: www.lwconsulting.com.au		N 
Date: November 2020		
Projection: GDA 1994, Zone 54		
Project: Detailed Site Investigation		
Site Address: 24 - 30 Murray Street, Albert Park, South Australia		
Figure Title: Services Plan and Preferential Pathway Assessment Results (August 2020)		
Figure in Set	7 of 7	Figure
Scale:	See Plan	7
Drawing Reference		Revision
A		A



Legend

- Site Boundary
- Site Features
- + Groundwater Investigation Location (LWC, 2020)
- + Existing Groundwater Investigation Location (LWC)

Note: Basemap sourced from Nearmap dated October 2020



LWC
Land & Water Consulting

Land & Water Consulting
Email: admin@lwiconsulting.com.au
Web: www.lwiconsulting.com.au

Date: July 2021
 Projection: GDA1994, Zone 54

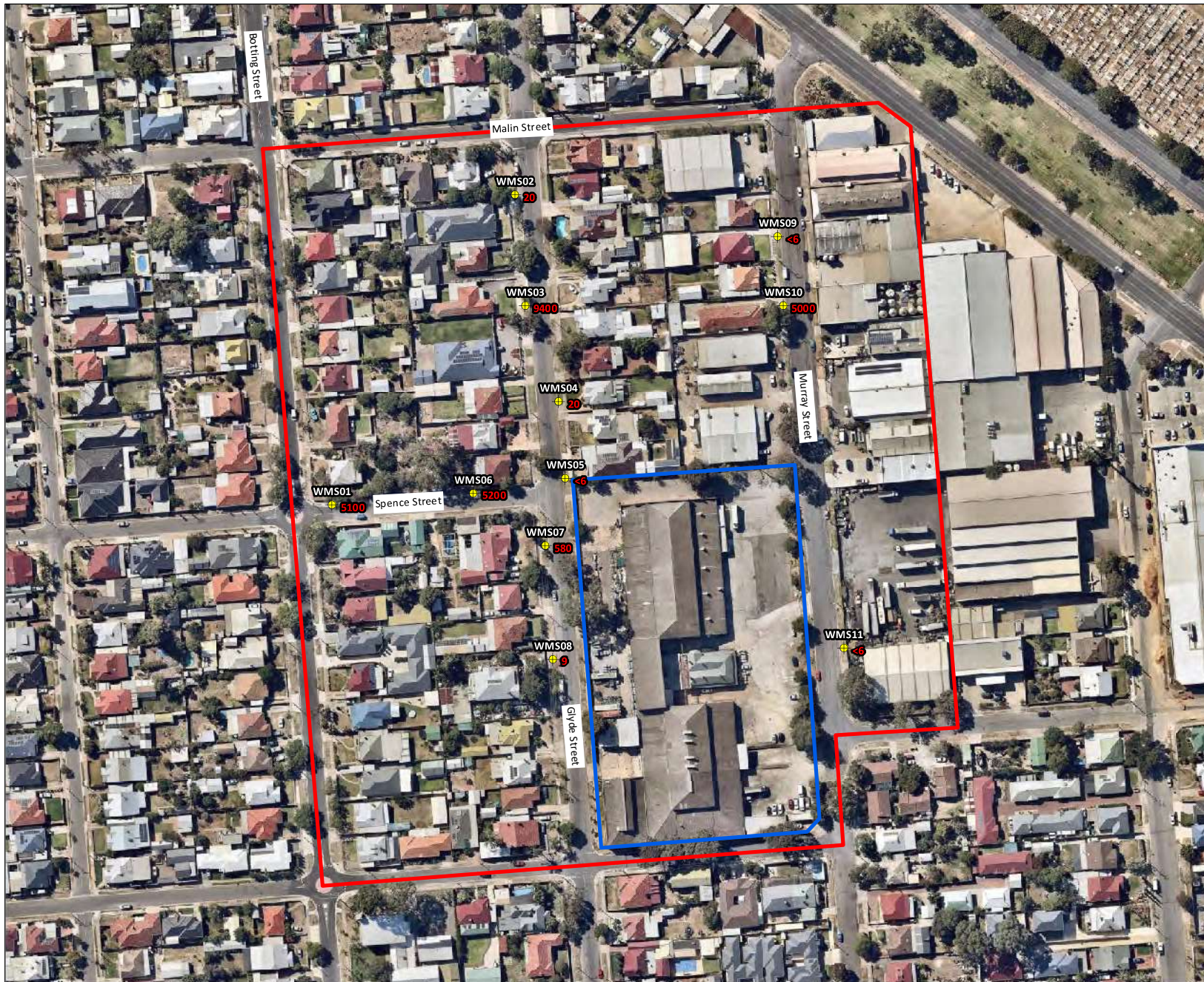


Project:
 Detailed Site Investigation (SSRA)

Site Address:
 24 - 30 Murray Street, Albert Park, South Australia

Figure Title:
 Groundwater Monitoring Wells

Figure in Set	3 of 7	Figure
Scale: See Plan		3a
Drawing Reference		Revision
A		A



- Legend:**
- Site Boundary
 - EPA Assessment Area
 - + Proposed WMS Location
 - 5000 Trichloroethene Concentration (ug/m3)



Job No: 55976

Client: EPA

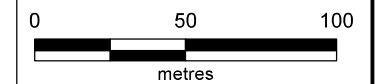
Version: DRAFT

Date: 04-Jun-2019

Drawn By: HF

Checked By: DM

Scale at A4 1:2,500



Coor. Sys. GDA 1994 MGA Zone 54

**24 Murray Street, Albert Park,
South Australia**

**WATERLOO MEMBRANE SAMPLER
LOCATIONS AND DATA**

FIGURE 3



- Legend:**
- EPA Assessment Area
 - Site Boundary
 - + Soil Vapour Location



Job No: 55976

Client: EPA

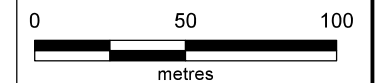
Version: RevA

Date: 03-Jul-2019

Drawn By: PN

Checked By: DM

Scale at A4 1:2,500

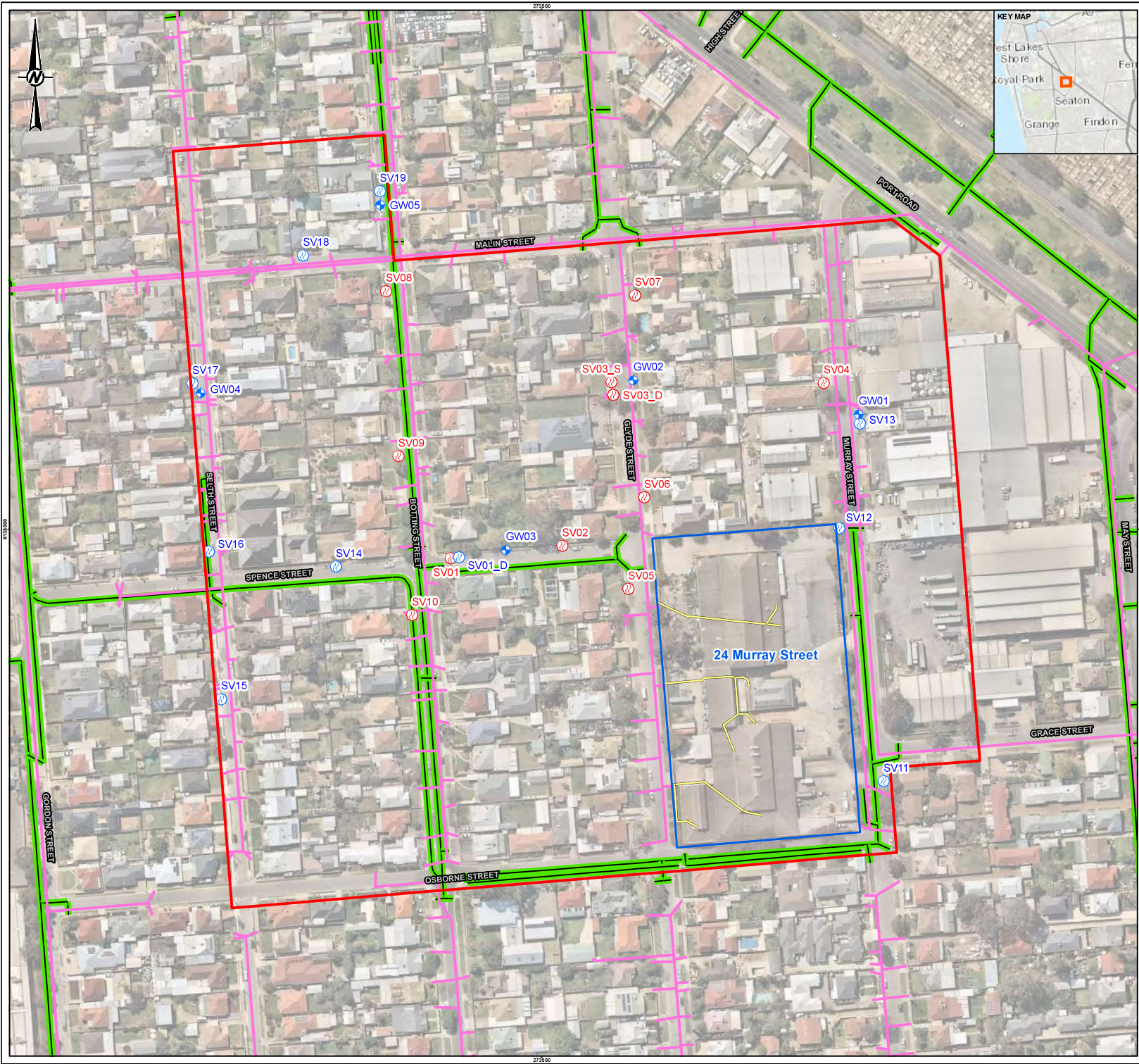


Coor. Sys. GDA 1994 MGA Zone 54

**24 Murray Street, Albert Park,
South Australia**

**SOIL VAPOUR SAMPLE LOCATIONS
AND TCE CONCENTRATIONS**

FIGURE 4



LEGEND

- Stage 2 Assessment Area
- + GW Well (Golder)
- ⊗ Active Soil Vapour Bore (Golder)
- ⊗ Active Soil Vapour Bore (JBS&G)
- Sewer pipeline
- Stormwater pipeline
- Suspected remnant sewer pipeline at 24 Murray Street

NOTE(S)
1. COORDINATE SYSTEM: GDA 1994 MGA ZONE 54

REFERENCE(S)
AERIAL PHOTO (C) NEARMAP. KEYMAP PROVIDED BY ESRI ONLINE BASEMAPS.

CLIENT
ENVIRONMENT PROTECTION AUTHORITY

PROJECT
ALBERT PARK - STAGE 2

TITLE
GROUNDWATER AND SOIL VAPOUR BORE PLAN

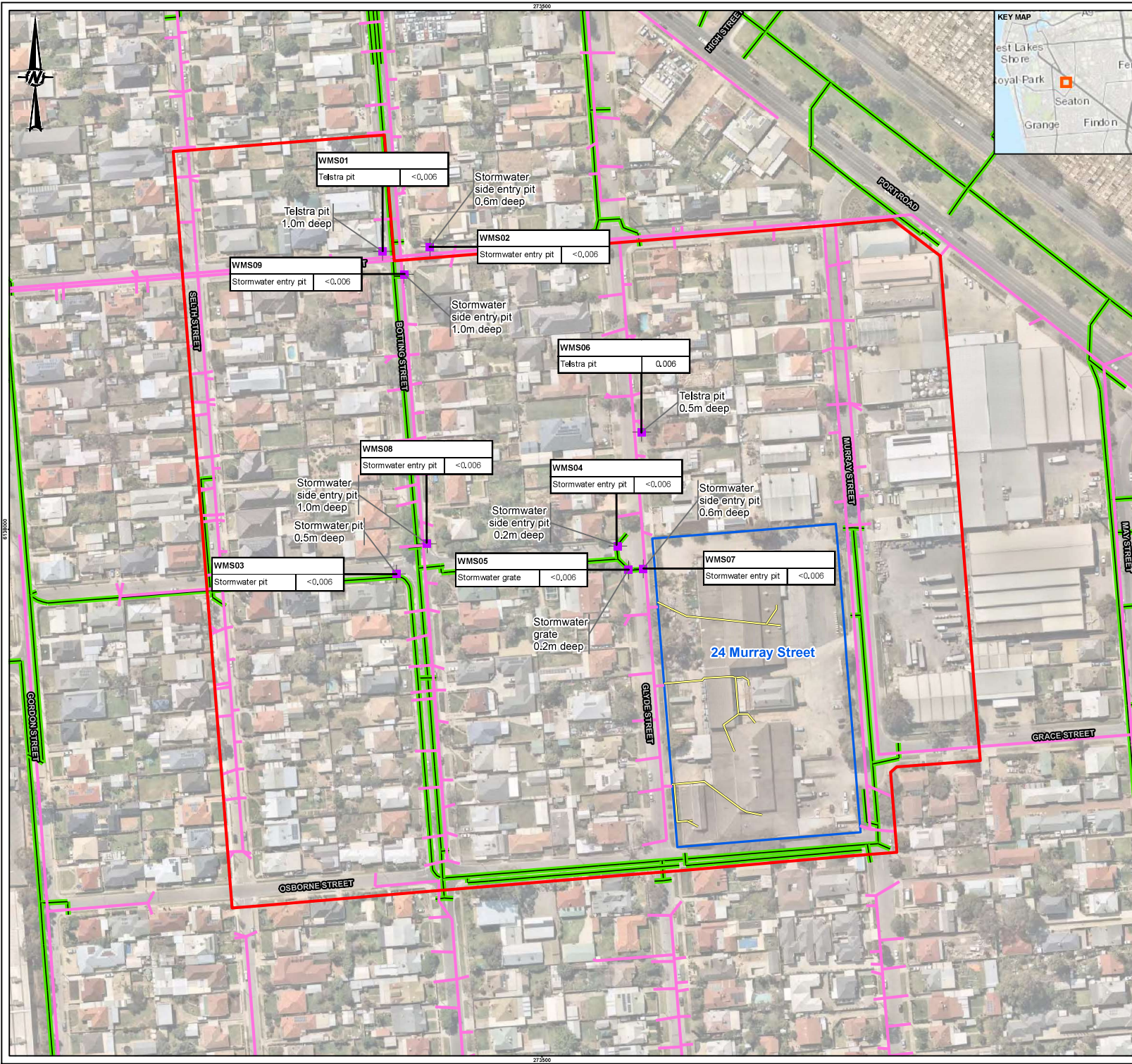
CONSULTANT	DD-MM-YYYY	10-01-2020
	DESIGNED	EAA
	PREPARED	EAA
	REVIEWED	JGC
	APPROVED	JGC

0 50 100 150
1:2,000 METRES

GOLDER

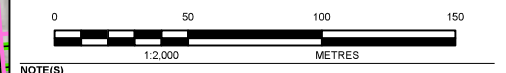
PROJECT NO. 19131233 CONTROL 001-R REV. 0 FIGURE 2

PATH: V:\EPA\Albert Park\Stage 2\19131233-01-R-F002-Rev01.mxd PRINTED ON: 20/04/10 AT 1:04:39 PM
 20mm



- LEGEND**
- ▭ Stage 2 Assessment
 - Sewer pipeline
 - Stormwater pipeline
 - - - Suspected remnant sewer pipeline at 24 Murray Street

NOTE:
Trichloroethene results reported in mg/m³



NOTE(S)
1. COORDINATE SYSTEM: GDA 1994 MGA ZONE 54

REFERENCE(S)
AERIAL PHOTO (C) NEARMAP, KEYMAP PROVIDED BY ESRI ONLINE BASEMAPS.

CLIENT
ENVIRONMENT PROTECTION AUTHORITY

PROJECT
ALBERT PARK - STAGE 2

TITLE
TCE AIR CONCENTRATIONS RECORDED WITHIN SERVICE PITS

CONSULTANT	DD-MM-YYYY	10-01-2020
	DESIGNED	EAA/KB
	PREPARED	EAA/KB
	REVIEWED	JGC
	APPROVED	JGC

PROJECT NO. 19131233 CONTROL 001-R REV. 0 FIGURE 3

PATH: V:\Environ\Albert Park\Project\19131233\01-400-Review\PRINTED ON 2020-01-14 AT 1:02:39 PM

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM 180x30



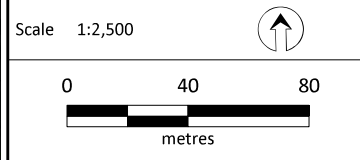
- Legend**
- ▭ EPA Assessment Area
 - ▭ 24 Murray Street Boundary
 - ▬ Groundwater Prohibition Area
 - ▬ Stormwater Pipe
 - ▬ Sewer
 - ▬ Suspected Remnant Sewer Pipe (24 Murray St)
 - Groundwater Monitoring Well
 - Soil Vapour Probe
 - Existing
 - Newly Installed



Job No: 59749

Client: SA EPA

Version: DRAFT	Date: 01-Dec-2020
Drawn By: AS	Checked By: DM



Coord. Sys. GDA 1994 MGA Zone 54

Stage 3 - EPA Assessment Area, Albert Park, South Australia

ALL INVESTIGATION LOCATIONS

FIGURE 2

File Name: C:\Users\ASmith\OneDrive - JBS&G Australia\1_Arc Pro\EPA\1_GIS\1_ArcGISPro_201117\59749_Stage3.aprx; Name:59749_02_All_Investogation_Locations
 Reference: www.nearmap.com - Imagery Date: 01/10/2020



- Legend**
- EPA Assessment Area
 - 24 Murray Street Boundary
 - Soil Vapour Probe**
 - ◆ Sampled - Shallow
 - ◆ Sampled - Deep
 - ◆ Not Sampled



Job No: 60523

Client: SA EPA

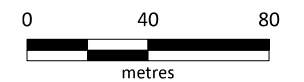
Version: DRAFT

Date: 26-Mar-2021

Drawn By: AS

Checked By: DM

Scale 1:2,500



Coord. Sys. GDA 1994 MGA Zone 54

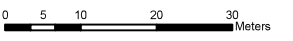
**Stage 4 - EPA Assessment Area,
Albert Park, South Australia**

**SOIL VAPOUR PROBE
LOCATIONS**

FIGURE 2



- Legend**
- Site Boundary
 - Site Features
 - + Groundwater Investigation Location
 - Interpreted Groundwater Elevation Contours (m AHD)
 - - - Inferred Groundwater Elevation Contours (m AHD)
 - Inferred Groundwater Flow Direction
 - 30 Groundwater TCE Concentration (µg/L) Exceeding the NHMRC (2011) Recreational Water - Health (Primary Contact) (30 µg/L)



Land & Water Consulting Pty Ltd
 Email: enquiries@lwcconsulting.com.au
 Web: www.lwcconsulting.com.au

Date: June 2018
 Projection: GDA 1994, Zone 54



Project:
 Detailed Site Investigation -
 24 - 30 Murray Street, Albert Park,
 South Australia

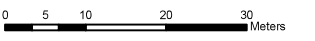
Site Address:
 24 - 30 Murray Street, Albert Park, South Australia

Figure Title:
 Interpreted Groundwater Contours and Inferred
 Direction of Groundwater Flow with Reported
 TCE Concentrations (December 2017)

Appendix in Set	6 of 6	Figure	6a
Scale:	See Plan	Revision	
Drawing Reference	AAAA	A	



- Legend**
- Site Boundary
 - Site Features
 - + Groundwater Investigation Location
 - Interpreted Groundwater Elevation Contours (m AHD)
 - ⋯ Inferred Groundwater Elevation Contours (m AHD)
 - Inferred Groundwater Flow Direction
 - 30 Groundwater TCE Concentration (µg/L) Exceeding the NHMRC (2011) Recreational Water - Health (Primary Contact) (30 µg/L)



Land & Water Consulting Pty Ltd
 Email: enquiries@lwcconsulting.com.au
 Web: www.lwcconsulting.com.au

Date: June 2018
 Projection: GDA 1994, Zone 54



Project:
 Detailed Site Investigation -
 24 - 30 Murray Street, Albert Park,
 South Australia

Site Address:
 24 - 30 Murray Street, Albert Park, South Australia

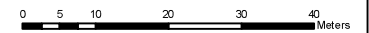
Figure Title:
 Interpreted Groundwater Contours and Inferred
 Direction of Groundwater Flow with Reported
 TCE Concentrations (April 2018)

Appendix in Set	6 of 6	Figure	6b
Scale:	See Plan	Revision	
Drawing Reference	AAAA	A	



- Legend**
- Site Boundary
 - Railway
 - Site Features
 - X Existing Groundwater Investigation Location
 - X Groundwater Investigation Location (LWC, 2020)
 - X Groundwater Investigation Location (Golder, 2019)
 - Inferred Groundwater Elevation
 - Interpreted Groundwater Elevation
 - Interpreted Groundwater Flow Direction

Note: Basemap sourced from Nearmap dated May 2021



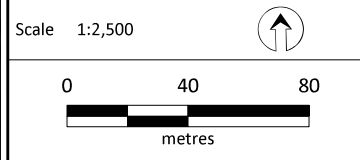
 LWC Land & Water Consulting <small>Land & Water Consulting Email: admin@lwcconsulting.com.au Web: www.lwcconsulting.com.au</small>		 N
Date: August 2021		
Projection: GDA 1994, Zone 54		
Project: Detailed Site Investigation		
Site Address: 24 - 30 Murray Street, Albert Park, South Australia		
Figure Title: Interpreted Groundwater Contours and Inferred Direction of Groundwater Flow (June 2019) - Q1 Aquifer		
Figure in Set	4 of 7	Figure
Scale: See Plan		4a
Drawing Reference		Revision
A		A



- Legend**
- ▭ EPA Assessment Area
 - ▭ 24 Murray Street Boundary
 - ▭ Groundwater Prohibition Area
 - Groundwater Monitoring Well
 - Inferred Groundwater Contour
 - Inferred Groundwater Flow Direction
 - 1.481 Reduced Groundwater Level (mAHD)



Job No: 59749
 Client: SA EPA
 Version: DRAFT Date: 01-Dec-2020
 Drawn By: AS Checked By: DM



Coord. Sys. GDA 1994 MGA Zone 54
**Stage 3 - EPA Assessment Area,
 Albert Park, South Australia**

**INFERRED GROUNDWATER FLOW
 DIRECTION**

FIGURE 3

File Name: C:\Users\ASmith\OneDrive - JBS&G Australia\1_Arc Pro\EPA\1_GIS\1_ArcGISPro_201117\59749_Stage3.aprx; Name:59749_03_Groundwater_Flow
 Reference: www.nearmap.com - Imagery Date: 01/10/2020



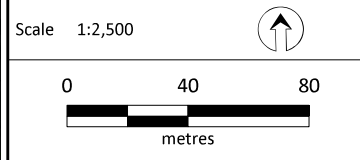
- Legend**
- ▭ EPA Assessment Area
 - ▭ 24 Murray Street Boundary
 - ▬ Groundwater Prohibition Area
 - ▬ Stormwater Pipe
 - ▬ Sewer
 - ▬ Suspected Remnant Sewer Pipe (24 Murray St)
 - Groundwater Monitoring Well
 - Soil Vapour Probe
 - Existing
 - Newly Installed



Job No: 59749

Client: SA EPA

Version: DRAFT	Date: 01-Dec-2020
Drawn By: AS	Checked By: DM



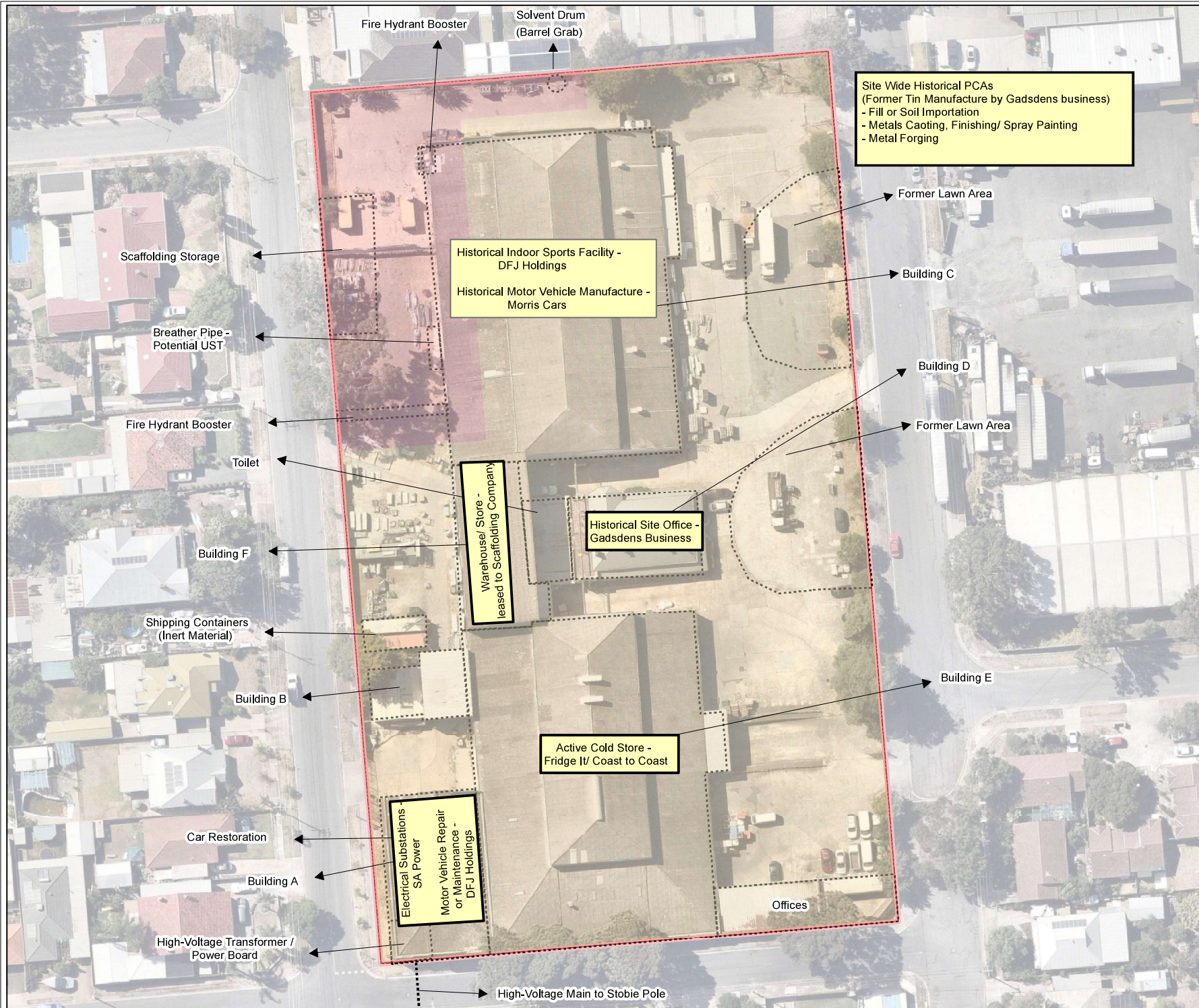
Coord. Sys. GDA 1994 MGA Zone 54

Stage 3 - EPA Assessment Area, Albert Park, South Australia

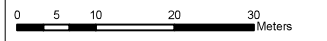
ALL INVESTIGATION LOCATIONS

FIGURE 2

File Name: C:\Users\ASmith\OneDrive - JBS&G Australia\1_Arc Pro\EPA\1_GIS\1_ArcGISPro_201117\59749_Stage3.aprx; Name:59749_02_All_Investogation_Locations
 Reference: www.nearmap.com - Imagery Date: 01/10/2020



- Legend**
- Site Boundary
 - Site Features
 - Area A as per Woodward-Clyde (1997)
 - Area B as per Woodward-Clyde (1997)



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 Email: enquiries@lwcconsulting.com.au
 Web: www.lwcconsulting.com.au

Date: June 2018

Projection: GDA 1994, Zone 54

Project:

Detailed Site Investigation -
 24 - 30 Murray Street, Albert Park,
 South Australia

Site Address:

24 - 30 Murray Street, Albert Park, South Australia

Figure Title:

Site Features

Appendix in Set	2 of 6	Figure	2
Scale:	See Plan	Revision	A
Drawing Reference	AAAA		

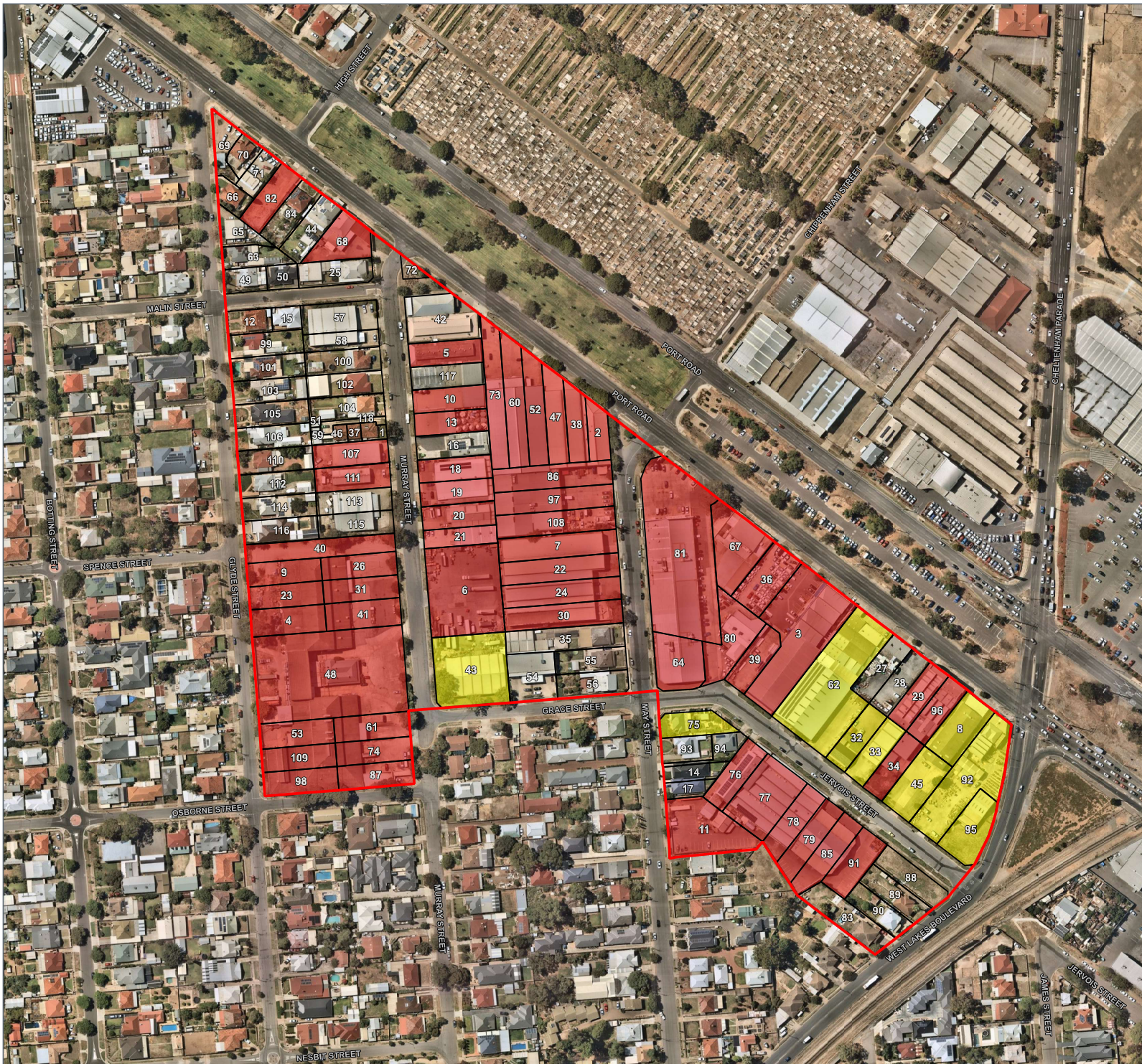


FIGURE 6
Relative risk for site contamination
from a PCA

Development Plan Amendment
Albert Park
For
Jensen Plus

- LEGEND**
PCA Risk Class
- Class 1 - High Risk
 - Class 2 - Moderate Risk
 - Class 3 - Low Risk
 - ▭ Parcel boundary with LBWco ID
 - ▭ Assessment area boundary

SCALE @ A3: 1:2500



PROJECTION: GDA1994 MGA Zone 54



Job No.	201162		
Drawing No.	LBW-001-F0006-Rev1.dwg		
Drawn	KB	Rev.	1
Checked	JB	Date	07/05/2020

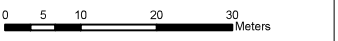


Legend

- ◆ Soil Bore Investigation Location
- Site Features
- Site Boundary

Indicative Extent of Fill Areas of Interest

- Area A
- Area B
- Area C



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 Email: enquiries@lwcconsulting.com.au
 Web: www.lwcconsulting.com.au

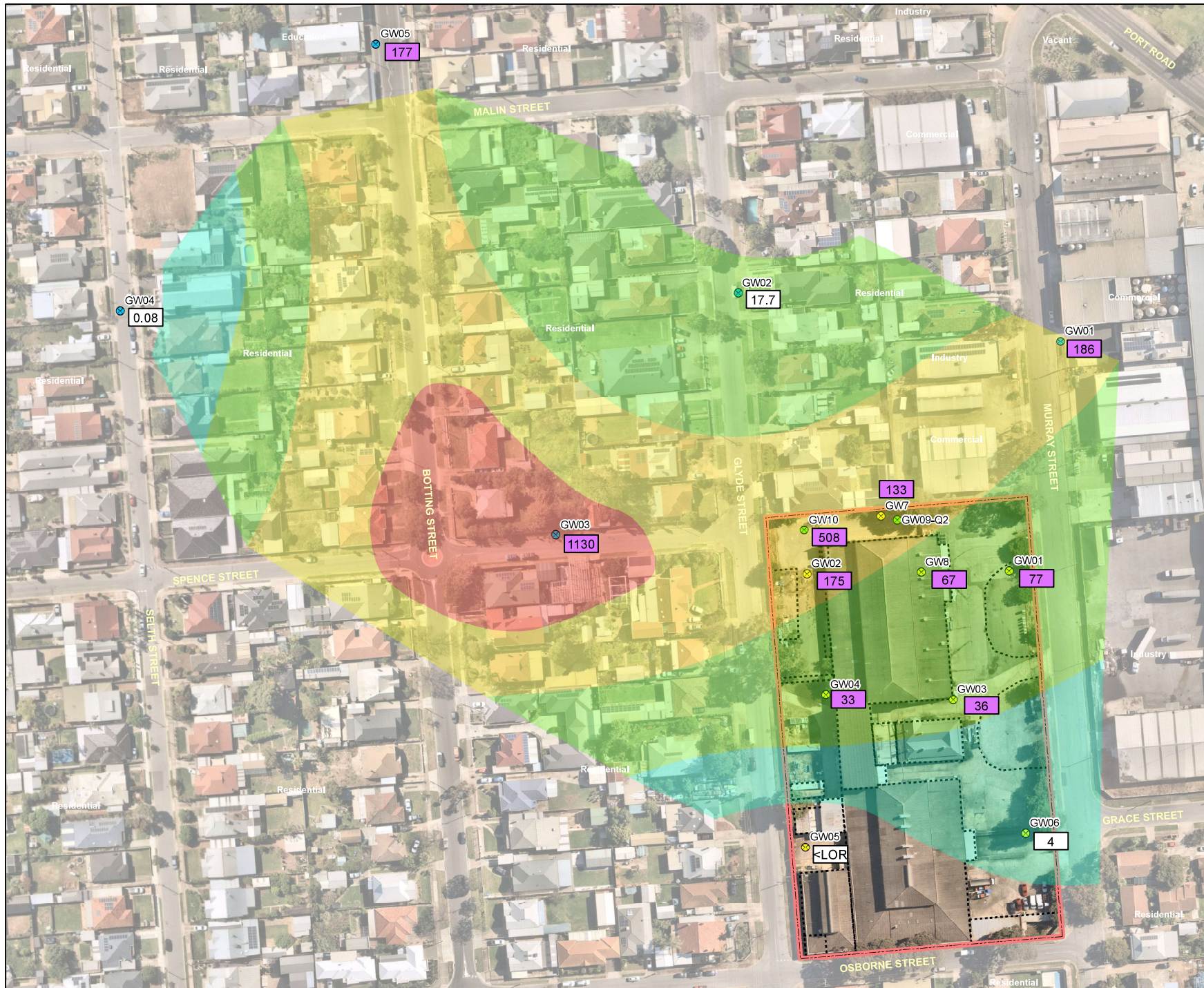
Date: June 2018
 Projection: GDA 1994, Zone 54

Project:
 Detailed Site Investigation -
 24 - 30 Murray Street, Albert Park,
 South Australia

Site Address:
 24 - 30 Murray Street, Albert Park, South Australia

Figure Title:
 Indicative Extent of Fill Areas of Interest

Appendix in Set	4 of 6	Figure	4
Scale:	See Plan	Revision	A
Drawing Reference	AAAA		



Legend

- Site Boundary
- Railway
- Site Features
- Groundwater Investigation Location (LWC, 2020)
- Groundwater Investigation Location (Golder, 2019)
- Existing Groundwater Investigation Location

Inferred TCE Groundwater Plume (ug/L)

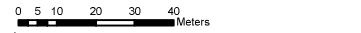
- 1000+
- 100-999
- 10-99
- 1-9

Groundwater TCE Concentration (ug/L) not exceeding the WHO DWQG 4th Ed Criterion (20 ug/L)

Groundwater TCE Concentration (ug/L) exceeding the WHO DWQG 4th Ed Criterion (20 ug/L)

Note:
GW01, GW02, GW03, GW04 and GW05 extracted from Golder Jan 2020

Basemap sourced from Nearmap dated October 2020



LWC
Land & Water Consulting

Land & Water Consulting
Email: admin@lwcconsulting.com.au
Web: www.lwcconsulting.com.au

Date: November 2020 N

Projection: GDA 1994, Zone 54

Project:
Detailed Site Investigation

Site Address:
24 - 30 Murray Street, Albert Park, South Australia

Figure Title:
Groundwater Analytical Results Plan with Reported TCE Concentrations (September 2020) - Q1 Acquired

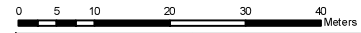
Figure in Set	5 of 7	Figure	5
Scale:	See Plan	Revision	A
Drawing Reference	A		



Legend

- Site Boundary
- Site Features
- ◆ Soil Vapour Investigation Location (Passive Sampler) (LWC, Aug 2020)
- ◆ Soil Vapour Location (Golder, 2019)
- ◆ Soil Vapour Investigation Location (Passive Sampler) (LWC, May 2018)
- ◆ Soil Vapour Investigation Location (Passive Sampler) (LWC, Dec 2017)
- ▲ Active Vapour Sampling Locations (June 2019)
- Inferred TCE Source Zone

Note: Basemap sourced from Nearmap dated October 2020



LWC
Land & Water Consulting

Land & Water Consulting
Email: admin@lwiconsulting.com.au
Web: www.lwiconsulting.com.au

Date: July 2021 N
▲

Projection: GDA1994, Zone 54

Project:
Detailed Site Investigation (SSRA)

Site Address:
24 - 30 Murray Street, Albert Park, South Australia

Figure Title:
TCE Soil Vapour Concentrations (All data)

Figure in Set	6 of 7	Figure	6
Scale:	See Plan	Revision	A
Drawing Reference	A		

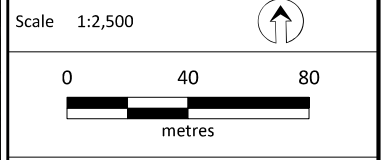


- Legend**
- EPA Assessment Area
 - 24 Murray Street Boundary
 - Soil Vapour Probe**
 - ◆ Shallow
 - ◆ Deep



Job No: 60523
 Client: SA EPA

Version: DRAFT	Date: 26-Mar-2021
Drawn By: AS	Checked By: DM



Coord. Sys. GDA 1994 MGA Zone 54
Stage 4 - EPA Assessment Area, Albert Park, South Australia

SOIL VAPOUR PROBE CONCENTRATION TCE

FIGURE 3

File Name: C:\Users\ASmith\OneDrive - JBS&G Australia\1. Arc Pro\AlbertPark\60523_Stage4.aprx; Name:60523_03_Soil Vapour_Conc
 Reference: www.nearmap.com - Imagery Date: 01/10/2020



Attachment C: Site contamination audit system Interim Audit Advice form

SITE CONTAMINATION AUDIT SYSTEM INTERIM AUDIT ADVICE FORM



INSTRUCTIONS

An audit is completed by the preparation of a site contamination audit report (audit report) and associated site contamination audit statement (audit statement) by the auditor.

There may be circumstances where a site contamination auditor (auditor), who has been commissioned to carry out a site contamination audit (audit), is not yet in a position to provide final audit determinations but is able to provide interim audit advice (IAA) based on the assessment of site contamination.

Interim audit advice is not an audit report. It is advice provided by the auditor prior to the completion of the audit to support development process, inform regulatory decision making or for other reasons. In providing interim audit advice, the auditor provides an opinion based on the knowledge available at that time.

In some instances, unforeseen or unpredictable circumstances may occur following the provision of the interim advice that may affect that advice. Interim audit advice does not pre-empt or constrain the final outcome(s) of the audit or any conditions that may be placed by the auditor in the audit report.

In order to provide interim audit advice, an auditor has to have been engaged to carry out an audit and be satisfied there has been sufficient assessment of the nature and extent of any site contamination to enable the auditor to make informed risk-based decisions. Further extensive assessment should generally not be required to delineate the nature and extent of site contamination, however remediation will generally not yet have been completed or may not be necessary. If the site has been identified as a source of offsite contamination, it is expected the nature and extent of the site contamination will have been delineated (subject to liability considerations). Where remediation is or remains necessary for a specified use or range of uses, a remediation options assessment and/or site remediation plan/strategy, which has been reviewed and endorsed by the auditor, should be provided to support the auditor's opinion.

Interim audit advice is to be completed by the 'responsible auditor' as defined by the *Environment Protection Act 1993* (the Act). This should be the same auditor who completes the site contamination audit report on completion of the audit.

The completion and submission of this form is not a requirement under the Act or the *Environment Protection Regulations 2009*. However, guidance on when this form should be used by auditors is detailed in the EPA publication, *Site contamination: Guidelines for the site contamination audit system*.

Please ensure that all sections of the form are completed, requested information and attachments (where necessary) are provided and labelled.

Please do not modify the form by moving or deleting sections or text, including these instructions.

Please ensure that you are using the current version of the form (check the [EPA website](#)).

Refer to the current version of the EPA publication [Guidelines for the site contamination audit system](#), for further information. For any enquiries or questions relating to the site contamination audit system, including requests for editable versions of this form, contact the EPA Site Contamination Branch.

Completed interim audit advice (IAA) must be submitted digitally to the Site Contamination Branch in pdf format by email or file transfer. Upon receipt of IAA by the EPA, the EPA will provide notification to relevant parties and review the document for consistency with relevant legislation and EPA guidelines.

The completed IAA is also required to be submitted to the audit client. It must also be submitted to the local council and any prescribed body when it is prepared to support a development application.

For any enquiries or questions relating to the site contamination audit system, contact the EPA Site Contamination Branch on:

Telephone: (08) 8204 2004

Email: EPAsitecontam@sa.gov.au

SITE CONTAMINATION AUDIT SYSTEM

INTERIM AUDIT ADVICE

SECTION A: AUDITOR DETAILS	
Name of auditor*:	Graeme Miller
Auditor's accreditation number:	2011031
Name of auditor's company or business:	Senversa Pty. Ltd.
SECTION B: AUDIT SITE DETAILS	
Auditor's project reference:	A13968
EPA reference:	61909
Name of audit site (if applicable):	24-30 Murray Street, Albert Park
Address of audit site:	24-30 Murray Street, Albert Park
Name of council for area in which audit site is situated (if within council area):	City of Charles Sturt
Provide the following particulars** relating to the relevant land and the audit <i>** If insufficient space, details may be annexed to this form.</i>	
<ul style="list-style-type: none"> certificates of title of all the relevant land and an indication of whether the audit site comprises all or part only of the land shown on or described in the certificates of title 	Volume 5191 Folio 397 Volume 5957 Folio 139 Volume 5957 Folio 141 Volume 5957 Folio 140 Volume 5191 Folio 507
<ul style="list-style-type: none"> details sufficient to identify the location of the land, including section or allotment numbers, area and hundred and AMG coordinates (GDA 94, UTM 53 and 54) 	Allotment 2 on Filed Plan 108082 Allotment 1 on Filed Plan 108085 Allotment 2 on Filed Plan 108085 Allotment 3 on Filed Plan 108085 Allotment 4 on Filed Plan 108085 Allotment 5 on Filed Plan 108085 Allotment 6 on Filed Plan 108085 Allotment 7 on Filed Plan 108085 Allotment 8 on Filed Plan 108085 Allotment 9 on Filed Plan 108085 Allotment 10 on Filed Plan 108085 Allotment 11 on Filed Plan 108085 Allotment 12 on Filed Plan 108085 Allotment 13 on Filed Plan 108085 Hundred of Yatala Co-ordinates: MGA 94 Zone 54 273614.09 E 6137909.9 N
<ul style="list-style-type: none"> if the audit site comprises part only of the land described in the certificates of title, or if there is no certificate of title for the land comprising the audit site— survey plans prepared by a licensed surveyor 	No applicable
<ul style="list-style-type: none"> audit plans indicating the location and extent of the audit site (which must comply with the guidelines issued by the EPA from time to time) (Refer to Attachment B of Interim Audit Advice Letter) 	

SECTION C: AUDIT DETAILS	
Name of owner of audit site:	DFJ Holdings Pty. Ltd.
Name of occupier of audit site:	Coast to Coast Services Pty. Ltd. Athol Park Freezers Pty. Ltd.
Name, postal address and position of person who commissioned audit:	Mr. Don Totino 982 Port Road, Albert Park, SA, 5014
Indicate authority of person who commissioned audit:	EPA Yes <input type="checkbox"/> No <input type="checkbox"/> Owner Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Occupier Yes <input type="checkbox"/> No <input type="checkbox"/> Developer Yes <input type="checkbox"/> No <input type="checkbox"/> Other [<i>specify</i>]
Indicate reasons for audit (indicate all purposes):	Required under the <i>Development Act 1993</i> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Required under the <i>Environment Protection Act 1993</i> Yes <input type="checkbox"/> No <input type="checkbox"/> Other [<i>specify</i>]
Indicate audit purposes (indicate all purposes):	Determining the nature and extent of any site contamination present or remaining on or below the surface of the site Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Determining the suitability of the site for a sensitive use or another use or range of uses Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Determining what remediation is or remains necessary for a specified use or range of uses Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>NB: an audit may be required for all of the above purposes</i> <i>Where remediation is or remains necessary, a remediation options assessment and/or site remediation plan, which has been reviewed and endorsed by the auditor, should be provided to support the auditor's opinion.</i>
Is a restricted scope being applied to the audit:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>NB: An audit subject to a restricted scope is not suitable to be relied upon by a planning authority for the purpose of making decisions as to whether land may be suitable for a sensitive use or another use or range of uses.</i>
Date of commencement of audit:	13 November 2017
Date of notification of commencement of audit to EPA:	16 November 2017
Estimated date of completion of audit:	November 2023

SECTION D: SITE USES AND ACTIVITIES	
Potentially contaminating activities (PCA) within the meaning of regulation 50 of the <i>Environment Protection Regulations 2009</i> are known to have occurred at the site:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If yes, identify the PCA(s)</i> Metal forging, Liquid organic chemical substances – storage, Metal coating, finishing or spray painting, Manufacture of motor vehicles & Motor vehicle repair or maintenance, Electrical substation, Fill or soil importation.
Current site use(s), or, if currently unoccupied, most recent site use(s):	Office, warehouses, refrigerator storage, storage and assembly of stage equipment, indoor sports center (currently unoccupied)

SECTION E: SOURCE AND AFFECTED SITES	
The site is a known source of offsite contamination:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
The nature and extent of any offsite contamination originating from the site has been delineated:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/> <i>If no, specify reason(s):</i> EPA has determined liability for site contamination is limited to the site and EPA has conducted its own off-site investigations.
Contamination at the site has arisen from another site/sites in the vicinity:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

SECTION F: TRIGGER FOR INTERIM AUDIT ADVICE	
To support a development application or development plan amendment (DPA):	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If yes, complete section G</i>
Required by a voluntary proposal (under section 103I or section 103K of the Act) or site contamination order (under section 103H or s103J of the Act):	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete section H</i>
To support a Remediation Options Assessment (ROA) or site remediation plan/strategy:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If yes, complete section I</i>
To support a waste derived fill or waste soil enhancer proposal:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete section J</i>
Other:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, specify reason(s)</i>

SECTION G: DEVELOPMENT DETAILS (complete this section only if interim audit advice is being prepared in relation to a development application or DPA)	
Name of relevant planning authority:	City of Charles Sturt
Development application number (if applicable):	No number – refer to correspondence from relevant state minister in Attachment A of Interim Audit Advice letter.
Proposed site zoning (if applicable):	To be confirmed, but to allow mixed commercial/ retail/ office/ residential
Proposed land use:	Residential and Open Space

I have reviewed and have endorsed (where applicable) the following document. List all documents.	Site Remediation Plan 24 – 30 Murray Street, Albert Park, SA (Land and Water Consulting, 7 September 2021).
I am of the opinion, based on the knowledge available at this time, that the audit site should be able to be made suitable for the proposed use(s):	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

SECTION H: VOLUNTARY PROPOSALS AND SITE CONTAMINATION ORDERS (complete this section only if interim audit advice is being prepared to satisfy the requirements of a voluntary proposal under section 103I or section 103K of the Act, or a site contamination order under section 103H or s103J of the Act)

IAA required by:	Voluntary site contamination assessment proposal <input type="checkbox"/> Voluntary site remediation proposal <input type="checkbox"/> Site contamination assessment order <input type="checkbox"/> Site remediation order <input type="checkbox"/>
EPA reference number(s) [if applicable]:	
I have reviewed and have endorsed (where applicable) the following documents. List all documents.	
I am of the opinion based on the knowledge available at this time, that the works undertaken appear generally consistent with the EPA statutory requirements:	Yes <input type="checkbox"/> No <input type="checkbox"/> If no, specify reason(s)

SECTION I: REMEDIATION DETAILS (complete this section only if interim audit advice is being prepared to support a ROA or site remediation plan/strategy)

I have reviewed and have endorsed the following attached remediation options assessment and/or site remediation plan/strategy (cross out if not applicable) documents. List all documents.	Site Remediation Plan 24 – 30 Murray Street, Albert Park, SA (Land and Water Consulting, 7 September 2021).
I am of the opinion based on the knowledge available at this time, that the proposed remediation options and/or site remediation plan/strategy (cross out if not applicable) have been developed in accordance with relevant guidelines issued by the EPA:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

SECTION J: WASTE DERIVED MATERIALS (complete this section only if interim audit advice is being prepared to support a waste derived materials proposal)

Type of waste derived material proposal:	Soil <input type="checkbox"/> Soil enhancer <input type="checkbox"/>
Does the IAA relate to a site which is a part of, or known to be considered as part of, 'One Site' which has been approved by the EPA?	Yes <input type="checkbox"/> No <input type="checkbox"/>
If yes, are there any EPA licensed sites currently or proposed to be within the 'One Site' boundary?	Yes <input type="checkbox"/> No <input type="checkbox"/> <i>If yes, provide licensed site details</i>

SECTION J: WASTE DERIVED MATERIALS (complete this section only if interim audit advice is being prepared to support a waste derived materials proposal)	
I have reviewed the following attached waste derived material proposal(s). List all documents.	
I am of the opinion, based on the knowledge available at this time, that: <ul style="list-style-type: none"> • the proposal has been prepared in accordance with the EPA <i>Standard for the production and use of Waste Derived Fill</i>, and 	Yes <input type="checkbox"/> No <input type="checkbox"/>
<ul style="list-style-type: none"> • the waste derived materials identified in the proposal should be suitable for the proposed use(s) and are not likely to cause harm. 	Yes <input type="checkbox"/> No <input type="checkbox"/>

SECTION K: AUDITOR OPINIONS	
I am of the opinion, based on the knowledge available at this time, that the assessment and/or remediation (cross out if not applicable) of site contamination at the audit site is consistent with guidance in the <i>National Environment Protection (Assessment of site contamination) Measure 1999</i> (as amended in 2013) and the EPA publication <i>Guidelines for the assessment and remediation of site contamination</i> :	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If no, specify reason(s)
I am of the opinion the site has been sufficiently assessed to inform risk-based decisions in accordance with the <i>National Environment Protection (Assessment of site contamination) Measure 1999</i> and the EPA publication, <i>Site contamination: Guidelines for the assessment and remediation of site contamination</i> :	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If no, specify reason(s)
This interim audit advice has been prepared and completed consistent with the EPA publication <i>Site contamination: Guidelines for the site contamination audit system</i> :	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If no, specify reason(s)

SECTION L: SUMMARY OF INTERIM AUDIT FINDINGS

Provide a summary statement which addresses each of the following sections* as an annexure to this form.

1. Conceptual site model (CSM)
2. Auditor’s interim audit risk assessment
3. Auditor’s interim audit outcomes and determinations
4. Actions/recommendations

* Refer to Appendix 3 of the EPA publication *Guidelines for the Site Contamination Audit System*

DECLARATION

To the best of my knowledge, all information provided in this form is current and correct at the time of signing and dating.



Attachment D: Site Remediation Plan



24 – 30 Murray Street, Albert Park, SA

Site Remediation Plan (Version FR002)

DFJ Holdings

September 2021



Document Status

Version	Doc type	Reviewed by	Approved by	Date issued
DR001	Report	Dr James Fox		Internal Review
DR002	Report	Dr James Fox	Dr James Fox	27 April 2021
DR003	Report	Dr James Fox	Dr James Fox	10 July 2021
FR001	Report	Dr James Fox	Dr James Fox	31 August 2021
FR002/A	Report	Dr James Fox	Dr James Fox	6/7 September 21

Project Details

Project Name	Site Remediation Plan (Version FR002)
Project Location	24 – 30 Murray Street, Albert Park, SA
Client	DFJ Holdings
Client Project Manager	Mr Don Totino
LWC Project Manager	Dr James Fox
LWC Project Director	Dr James Fox
Authors	Riley Martin
File Reference	LWC HO-26 Site Remediation Plan FR002/A_Issue

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Land & Water Consulting
 4 – 8 Goodwood Road, Wayville SA 5034
 Telephone (08) 8271 5255
www.lwconsulting.com.au



EXECUTIVE SUMMARY

Context

Mr Don Totino of DFJ Holdings engaged Land & Water Consulting (LWC) to prepare this Site Remediation Plan (SRP) for 24 – 30 Murray Street, Albert Park, South Australia (the Site, Refer to the Executive Summary Figure ES1).

The Site is currently owned by DFJ Holdings (having purchased the Site in 2009).

The Site is rectangular in shape and covers an area of approximately 1.6 hectares (1.6 ha), with roads immediately adjoining the southern, eastern, and western sides of the property and with residential/commercial adjoining the northern side of the Site. The Site consists of a series of commercial warehouse type buildings surrounded by predominantly sealed ground to the east and unsealed ground along the western boundary.

The Site is proposed to be developed as low density residential (sensitive land use) with all existing site infrastructure to be demolished during the re-development works.

The Site is subject to a site contamination audit (audit) by Mr Graeme Miller of Senversa (the Auditor) (Environment Protection Authority (EPA) Audit reference 61909) and may be potentially developed for use as low density residential (a sensitive land use as defined in Section 3(1) of the *Environment Protection Act 1993* (EP Act)). The Site is not currently a sensitive land use.

Nature and Extent of Site Contamination

Site contamination (as defined in Section 5B of the *Environment Protection Act 1993*) was identified in the Detailed Site Investigation (LWC, 2018b) and subsequently assessed further to refine the nature and extent of contamination and assess the risk profile with respect to on and offsite receptors (sensitive use). Refer to the Site Specific Risk Assessment (LWC, 2021) for further information. The nature and extent of site contamination is summarised in ES Table 1-1.

Further to LWC 2018a, The Environment Protection Authority is satisfied that DFJ Holdings is not responsible for causing the site contamination. The EPA (4 May 2018) determined that DFJ Holdings is not responsible for site contamination beyond the boundaries of the Site. However, EPA (4 May 2018) also noted that the site contamination audit must still consider the impacts of any on-site contamination to on and off-site receptors. This SRP is mindful of this directive with respect to mitigating the potential ongoing migration of site related contamination under offsite areas (in groundwater and soil vapour) based on the risks reported / assessed in EPA Assessment Area reports and LWC, 2021.

ES Table 1-1 Nature and extent of site contamination

Soils - (refer Executive Summary Figures ES2 (soil bores), ES3 and ES4 (for extent))	
<p>Fill A</p> <p>Comprising the fill and chemicals (lead – human health and copper, zinc - ecology) in sample location SB09 at 0.0-0.2 m.</p>	<p>Laterally –</p> <p>The fill evident in SB09 is not evident in bores radial to such location unless counting SB16 to the south. The concentrations of metals reported maybe attributable to the fill itself (i.e. uncontrolled imported fill) or could be a function of loss of lead based paint from the northern warehouse, historically, noting the surface is sealed here. Alternatively it could be a function of processes / activities undertaken at the Site in Gadsdens days.</p> <p>Vertically –</p> <p>Copper and zinc are delineated to 0.2 m however elevated lead (relative to HIL A) is reported in the sample from natural at 0.2 m.</p>
<p>Fill B</p> <p>Comprising the copper, lead and zinc in location SB16.</p>	<p>Laterally –</p> <p>The fill evident in SB16 is not evident in bores radial to such location unless counting SB09. The concentrations of metals reported maybe attributable to the fill itself (i.e. uncontrolled imported fill) or could be a function of loss of lead based paint from the northern warehouse, historically, noting the surface is sealed here. Alternatively it could be a function of processes / activities undertaken at the Site in Gadsdens days.</p> <p>Vertically –</p> <p>Delineated to 0.2 m.</p>
<p>Fill C</p> <p>In the scaffold storage area – potentially associated with the former Gadsdens business. Characterised by black, grey gravelly sand / clayey gravel with occasional brick, bitumen, tar and glass and concentrations of metals (copper, lead, zinc) PAH (BaP TEQ) and TRH (Fraction C16-34) above human health and ecological / environmental protection criteria.</p>	<p>Laterally –</p> <p>Located to the west of the northern warehouse stretching from possibly SB19 in the north to SB25 in the south, note that these areas are unsealed.</p> <p>Vertically –</p> <p>SB20 reports a depth of 0.7 m although this is logged as clayey gravel. Elsewhere the fill is generally gravelly sand or silt and averages 0.2 m.</p> <p>Concentration wise the BaPTEQ in SB20 is not delineated however the fill reports tar fragments and it is considered that the reported BaP concentrations are synonymous with the fill layer on such basis.</p> <p>The area is characterised by unsealed surface used for commercial storage of scaffold and occasional metal (inert) waste. The older non scaffold metal items may be the source of metals in soils (i.e. metal flakes or shavings) or equally the fill itself could be the source, or even former use of the site by Gadsdens. What is evident is that the fill exceeds tier 1 criteria for residential land use (both human health – lead, BaP TEQ) and environment (copper, lead, zinc, BaP TEQ and Fraction C16-C34).</p>
Soil vapour (Refer Executive Summary Figure ES5)	
<p>Concentrations of</p> <ul style="list-style-type: none"> ▪ Trichloroethene (TCE) ▪ cis 1,2 dichloroethene ▪ 1,2 dichloroethane 	<p>TCE was reported in soil vapour beneath the north-portion of the Site at concentrations greater than the adopted investigation levels (National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended 2013 Health Investigation Levels for soil vapour in a low density residential land use setting ('HIL A').</p> <p>The highest concentrations were reported under the northern end of the northern building (referred to in this document as "Building C") and adjacent to the central northern site boundary. TCE above the relevant criterion also is present as soil vapour immediately to the east and west of the Site.</p> <p>The presence of TCE contamination in soil vapour under the north-eastern portion of the Site generally coincides with:</p> <ul style="list-style-type: none"> ▪ the inferred source of the contamination (former tin can manufacturing in the northern site building); and

	<ul style="list-style-type: none"> ▪ the highest TCE concentrations in groundwater. <p>The above-guideline concentrations of TCE under the northern portion of the site ranged from 25 µg/m³ to 7,900 µg/m³ (compared to a guideline value of 20 µg/m³). Screening of utilities under and adjacent to the Site did not indicate that TCE in soil vapour is accumulating or migrating within these structures – with the majority of PID readings being 0 parts per million (ppm) and a maximum recorded value of 0.2 ppm. Note that a similar exercise was undertaken by Golder (2020) as part of the EPA Assessment Area works and the same conclusion was reached.</p> <p>Other VOCs (1,2 dichloroethane and cis-1,2 dichloroethene) were also reported greater than the adopted investigation levels in soil vapour samples collected from nested soil vapour probes installed in the northern portion of the Site (locations AV-1S&D and AV-2S&D).</p> <p>TCE contamination in soil vapour was reported to the north, northeast and west of the site – across and down hydraulic gradient. The most recent investigation by JBS&G (16 April 2021) presents the results from the four rounds of soil vapour sampling completed in off-site areas. The most recent sampling at each location found the following:</p> <ul style="list-style-type: none"> ▪ Above guideline TCE concentrations in shallow soil vapour probes ranged from < 7 µg/m³ to 11,000 µg/m³, which similar is a similar range to that reported under the northern portion of the site. ▪ Above guideline TCE concentrations were reported up to approximately 200 m to the north and 200 m to the west of the site. Above guideline TCE concentrations were also reported up to 120 m northeast of the site along Murray Street. ▪ Concentrations of TCE in deeper soil vapour probes were similar to and in some instances greater than those reported at the on-site deep soil vapour probes. <p>The above guideline concentrations of TCE reported by JBS&G (3 December 2020) and LWC (6 July 2019) to the east, north and northeast of the Site are indicative of a source unrelated to the Site. Those to the west and northwest are considered likely to be associated with the Site and possibly another off-site source.</p> <p>Cis-1,2 dichloroethene was also reported JBS&G (16 April 2021) greater than the adopted assessment criteria in four soil vapour probes sampled to the north and northeast of the site.</p>
Groundwater – Q1 Aquifer (refer Executive Summary Figure ES6)	
TCE (chlorinated hydrocarbons (CHC))	<ul style="list-style-type: none"> ▪ TCE is present at concentrations greater than the adopted criterion in groundwater under the northern portion of the Site and to the northeast, north, northwest and west of the Site. ▪ The highest concentrations of TCE under the Site are reported at and down hydraulic gradient of the northern portion of the northern building. ▪ The maximum TCE concentration reported in groundwater under the Site across four rounds of groundwater sampling and analysis was 508 ug/L – at GW10, which is located in the north-western corner of the Site and is screened in the deeper portion of the Q1 Aquifer. TCE is also reported greater than the adopted criteria at GW06 – which is located along the up hydraulic gradient boundary of the Site. ▪ Similar and higher concentrations were reported as part of the EPA Assessment Area staged works, by JBS&G (11 February 2020) and Golder (3 December 2020) to the north (across hydraulic gradient) and west (up hydraulic gradient) of the Site (maximum of 1,130 ug/L approximately 100 m west of the site). The off-site wells are installed in the upper portion of the Q1-watertable unit (which is also targeted by the site Q1 water table unit monitoring wells – except GW10 and the well targeting the Q2 unit (GW09-Q2)). ▪ 1,1-dichloroethene, 1,1-dichloroethane, 1,2-dichloroethane, cis-1,2-dichloroethene, tetrachloroethene (PCE), chloroform and

	<p>trans-1,2-dichloroethene were also detected in groundwater under the Site, but at concentrations less than the adopted assessment criteria.</p> <ul style="list-style-type: none"> ▪ Most of these chemicals, as well as vinyl chloride, were detected in groundwater sampled from some of the off-site monitoring wells – and were present at concentrations generally less than the adopted criteria. The general absence or low concentrations of these chemicals (many of which represent degradation products of TCE) indicates limited bio-degradation of TCE and CHCs is occurring in groundwater within the Q1 water table unit. ▪ Potential (likely) sources are as follows: <ol style="list-style-type: none"> 1. The Site – former Gadsdens Pty Ltd tin can manufacturing plant in the northern building (Building C). 2. Off-site – current and former industrial activities identified in LBW Co (2020) to the northeast and east of the Site.
TRH	<ul style="list-style-type: none"> ▪ TRH Fraction C₆-C₁₀ was reported above LOR and greater than the direct contact criteria at site monitoring wells located adjacent and to the north and northwest of the northern building, and at offsite monitoring wells located to the northeast, northwest and west of the site. ▪ TCE reports in TRH Fraction C₆-C₁₀. Concentrations of Fraction C₆-C₁₀ were similar to the concentrations to TCE reported at the same monitoring wells, suggesting that the TRH is representative predominantly of TCE. ▪ Longer chain TRH fractions were only detected greater than the LOR (and slightly above the guideline value) on one occasion in water sampled from on-site monitoring well GW05 – which is located in the southwestern portion of the Site, near to where small scale vehicle maintenance previously occurred and near to the electrical transformer. ▪ Potential (likely) sources are as follows: <ol style="list-style-type: none"> 1. The Site – former Gadsdens Pty tLd tin can manufacturing plant in the northern building (Building C). 2. Off-site – current and former industrial activities identified in LBW Co (2020) to the northeast and east of the Site.
PFAS	<ul style="list-style-type: none"> ▪ The sum of PFHxS and PFOS was detected at concentrations greater than the adopted criteria in samples collected from monitoring wells located in the northern portion of the Site (adjacent and down hydraulic gradient of the north building) and along the eastern (up hydraulic gradient) boundary. The concentrations near the northern site building were higher than those reported along the upgradient (northern) portion of the Site boundary, but similar to those reported across and up hydraulic gradient – along the southern portion of the eastern boundary. Potential (likely) sources are as follows: <ol style="list-style-type: none"> 1. former Gadsdens Pty Ltd tin can manufacturing plant in the northern building (Building C). 2. Off-site – current and former industrial activities identified in LBW Co (2020) to the northeast and east of the Site.
Metals	<ul style="list-style-type: none"> ▪ Boron was reported greater than the adopted criteria and at similar concentrations in the majority of monitoring wells sampled at on-site and off-site locations (0.08 mg/L to 1.74 mg/L on-site and 1.18 mg/L to 2.59 mg/L off-site). ▪ Manganese was reported greater than the adopted criteria at one monitoring well located adjacent to the northern site building and at one monitoring well located along the eastern site boundary – up hydraulic gradient of the northern building. It was not reported greater than the adopted criteria in

	<p>groundwater in the one round it was tested (Golder, 2020) at off-site monitoring wells.</p> <ul style="list-style-type: none"> ▪ Nickel - was reported slightly greater than the adopted criteria at monitoring wells located within and adjacent to the northern building (Building C), in the southwestern portion of the Site at one monitoring well, and at one monitoring well located along the eastern site boundary – up hydraulic gradient of the northern building. It was not reported greater than the adopted criteria in groundwater in the one round it was tested (Golder, 2020) at off-site monitoring wells. ▪ Selenium was reported slightly greater than the adopted criteria at three monitoring wells located within and adjacent to the northern site building (Building C), and at one monitoring well (at similar concentrations) more than 200 m northwest of the Site. ▪ Possible sources of manganese, nickel and selenium – is one or more of the following: <ul style="list-style-type: none"> ○ Ambient background water quality. ○ The Site – former tin can manufacturing plant in northern building. ○ Off-site – current and former industrial activities identified in LBW Co (16 June 2020) to the northeast and east of the Site. ▪ Boron is considered to be a function of ambient background.
Inorganics	<ul style="list-style-type: none"> ▪ Total nitrogen and phosphorous were reported greater than the adopted criteria at monitoring wells located in the northern, western and eastern portions of the Site, including along the up hydraulic gradient boundary (at which some of the higher concentrations were reported). ▪ The source is considered to be ambient background.
Groundwater – Q2 Aquifer	
TCE	<ul style="list-style-type: none"> ▪ TCE was reported at 2 ug/L in a sample collected from GW09. This is slightly greater than the LOR of 1 ug/L. This concentration is less than the adopted assessment criteria. No other CHCs were detected.
TRH	<ul style="list-style-type: none"> ▪ TRH was reported in water sampled from the Q2 well at concentrations greater than the laboratory limit of reporting. It is noted that this well has been sampled on only one occasion and was drilled with mud techniques – which introduces fluids into the formation. Further sampling is required to assess whether the TRH represents groundwater contamination or an artifact of the drilling process. Note that silica gel clean-up notably reduced the initial reported concentration indicating a reasonable proportion of the TRH was biogenic.
Inorganics	<ul style="list-style-type: none"> ▪ Total nitrogen and phosphorous were reported greater than the adopted criteria at generally similar concentrations to those reported in the Q1 water table unit at the site. ▪ The source is considered to be ambient background.

Risk: Health

The conceptual site model formulated in the site specific risk assessment (SSRA, refer LWC, 2021) identified six source pathway receptor (SPR) linkages that represent potential harm to human health, accounting for a sensitive land use:

- SPR Linkages 1 – 4: Potential risk to human health from lead and carcinogenic polycyclic aromatic hydrocarbons (benzo(a)pyrene TEQ) in fill at concentrations above tier 1 soil screening levels for the protection of health considering a low density residential land use, and considering ingestion (including inhalation) and dermal contact exposure pathways. This fill must be managed to eliminate risk associated with exposure to these chemical substances.
- Linkages 5 and 6: Potential risk to human health from inhalation of TCE vapour in an indoor air environment (low density residential land use) for both on and offsite receptors (residents).

The highest concentration of TCE in groundwater within the Groundwater Prohibition Area (GPA) is associated with offsite monitoring location GW03 (located along Spencer Street) – 1,130 mg/L (upper Q1). This is double the highest concentration reported on site (508 mg/L in water sampled from groundwater monitoring well GW10 – note that GW10 is screening the lower Q1). TCE vapour at Spencer Street is significantly higher than on site (32,000 $\mu\text{g}/\text{m}^3$ versus 7,900 $\mu\text{g}/\text{m}^3$).

TCE in water sampled on site from groundwater monitoring well GW10 is thus considered to not represent a significant vapour risk (based on depth) noting TCE soil vapour in this location was below the soil vapour tier 1 criterion of 20 $\mu\text{g}/\text{m}^3$ (14 $\mu\text{g}/\text{m}^3$).

The vapour reported on site is indicative more-so of an actual vadose zone source rather than volatilisation from groundwater.

Rather than undertaking a new/ standalone vapour intrusion risk assessment (VIRA), the EPA commissioned VIRA concludes that TCE measured in several locations presents a potential risk to residential receptors where dwellings are crawlspace and/ or slab on ground construction.

On the Site, several TCE concentrations in the north central area (the assumed source area i.e. vapours monitoring locations AV1 and AV2) exceed the lowest TCE concentration identified in the Assessment Area VIRA that has been identified as a potential issue. Therefore when aligning with the EPA Assessment Area VIRA (and considering all other parameters (such as geological and soil factors) being equal) **then the soil vapour concentrations reported are unacceptable with respect to a proposed sensitive land use and remediation (elimination) of the TCE source is required.**

The Assessment Area VIRA included an assessment of trench workers being exposed to soil vapour in a subsurface trench environment, using concentrations of TCE vapour at least twice those reported on site and found no indication of unacceptable risk to such workers.

Field assessment of services external to the Site was undertaken within this scope (headspace screening) and also by Golder as part of the EPA commissioned Assessment Area studies. Such surveys did not find any indication that subsurface services are a significant pathway for the migration of TCE or other volatile organic compounds to residential areas external to the Site.

Risk: Environment

There are no surface water bodies (fresh or marine) within 2 km of the Site. Therefore the assessment of site related groundwater contamination is not relevant to aquatic ecosystems (fresh / marine).

Risks to the environment (soil flora and fauna) are considered to be restricted to the fill zones discussed above (Fill Zones A, B and C) as identified in the Detailed Site Investigation. Risk to ecology are identified as SPR linkages 14 – 18 (direct contact with metals, total recoverable hydrocarbons and polycyclic aromatic hydrocarbons). Remediation of this fill is required (i.e. risks to both human health and ecology can be eliminated simultaneously).

Risk: Groundwater

Q1 water table unit

TCE, TRH, boron, manganese, nickel, phosphorous, selenium, nitrite / nitrate and PFAS (PFOS + PFHxS) were reported above tier 1 water quality criteria (or limits of reporting i.e. with respect to TRH) for the environmental values identified, in water sampled from the Q1 water table unit.

Manganese, nickel and selenium are possibly associated with one or more of the following:

- Ambient background water quality.
- Site – former tin can manufacturing plant in northern building.
- Off-site – current and former industrial activities identified in LBW Co (16 June 2020) to the northeast and east of the site.

Boron, nitrogen and phosphorous are likely to be largely representative of background water quality.

TRH is considered to be representative of TCE concentrations (the TRH analysis reports TRH present in C₆-C₁₀ fraction – TCE reports in this fraction). TCE is likely to be present as a result of historical site activities (cannery). There is no indication of PFAS sources on site or having been on the Site, though PFAS can be associated with cannery operations and so the presence of PFAS in groundwater beneath the Site may be associated with historical on site activities.

Q2 unit

Trace concentrations of bromomethane, total recoverable hydrocarbon and manganese and nickel were reported in water sampled from the Q2 unit, though these are considered to be trivial, and not representative of site contamination, and the Q2 unit is also covered by the GPA. A follow up monitoring event is required regarding the Q2 unit with respect to confirming the presence / absence of bromomethane in water sampled from the Q2 unit.

There are no aquatic ecosystems located down hydraulic gradient in a 2 km radius of the Site. Therefore, there is no apparent risk to surface water (groundwater dependant ecosystem) receptors from chemical substances reported in groundwater beneath the Site.

The source of the TCE may continue to contribute to contamination of the watertable-Q1 unit and therefore the specific location, format, and extent of the source (if a point source e.g. tank, pipe, sump) needs to be investigated (and removed) following the demolition of the northern warehouse.

Given the establishment of a GPA for the area in 2019, the abstraction and use of groundwater from the **Q1-watertable- and Q2 unit** beneath and down hydraulic gradient of the Site is precluded. This eliminates the risk to future sensitive or non-sensitive users of the Site, other than vapour intrusion/ inhalation associated with TCE.

Scope of Work

This SRP provides a detailed scope of works and methodology for the remediation of the Site, with respect to:

1. Locating and removing a potential primary source of trichloroethene (TCE) potentially located in the central northern footprint of the Site associated with the northern half of the northern warehouse ('Building C') post demolition of northern structures. Note that the northern building may form a source of other VOC reported in soil vapour and also a potential source of per and polyfluoroalkyl substances (PFAS), manganese, nickel, and selenium. Total Recoverable Hydrocarbons (TRH) is evident in groundwater also though this is considered to be representative of TCE.
2. Management of soils that may be identified following the removal of the potential TCE source infrastructure (secondary source) that are unsuitable for low density residential land use - Remediation of primary and secondary sources of TCE is also required to mitigate ongoing contamination of groundwater and associated site and off-site vapour intrusion sources and risks.
3. Management of known areas of soil ('fill') that do not meet the required tier 1 generic land use screening criteria for low density residential land.
4. Assessment of soils within the footprints of buildings located in the southern area of the Site. Although not expected to be an area prone to site contamination, due to occupancy, the footprint of these buildings has not been assessed. Validation samples are required to be collected from soil within such footprint.
5. Validation of soil vapour following primary and secondary TCE source removal, to re-assess the risk profile (and site suitability) respect to vapour intrusion noting TCE is also present in groundwater.
6. Implementation of a Groundwater Monitoring and Management Plan (GMMP) to monitor TCE in groundwater beneath the Site post remediation, noting that TCE is present in groundwater up-hydraulic gradient of the Site.

Remediation Goals and Objectives

The goals of the remediation are as follows:

- Remove site contamination associated with a vadose zone TCE source to:
 - make the site suitable for a sensitive land use; and
 - reduce the potential for ongoing groundwater contamination and associated soil vapour contamination beneath the Site and down hydraulic gradient offsite areas.
- Mitigate potential risks to human health and the environment posed by impacted shallow soils (copper, lead, zinc, benzo(a)pyrene toxicity equivalent quotient TEQ and total recoverable hydrocarbons) to render the Site suitable for sensitive land use; and

- Undertake the remedial works such that:
 - The risks to human health, safety and the environment are mitigated; and
 - All works are undertaken in accordance with relevant regulatory provisions and guidance.

All remediation works are to be supervised by Land & Water Consulting. A validation report will be prepared by Land & Water Consulting for review by the appointed site contamination auditor following the completion of the remediation works.

Conclusions and Recommendations

Land & Water Consulting conclude that the Site in its current form / configuration is contaminated (as defined in Section 5B of the *Environment Protection Act 1993*) when accounting for a proposed sensitive land use. A process of remediation has been scoped and presented in this Site Remediation Plan, which Land & Water Consulting recommend is enacted at the Site in order to facilitate the suitability of the Site for a sensitive use, another use or range of uses.

This SRP has been prepared in accordance with the requirements of the South Australian Environment Protection Authority (2019) Guidelines for the Assessment and Remediation of Site Contamination (2019a).

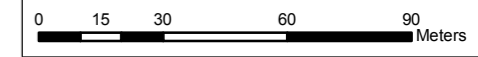
A statement of limitations regarding this document and specifications presented is provided as Appendix E.

Executive Summary (ES) Figures



Legend

 Site Boundary



Land & Water Consulting Pty Ltd
 Email: enquire@lwconsulting.com.au
 Web: www.lwconsulting.com.au

Date: March 2021

Projection: GDA 1994, Zone 54



Project:
 Site Remediation Plan-
 24 - 30 Murray Street, Albert Park,
 South Australia

Site Address:
 24 - 30 Murray Street, Albert Park, South Australia

Figure Title:
 Site Location Plan

Appendix in Set 1 of 6

Scale: See Plan

Drawing Reference
 AAAA

Figure
1

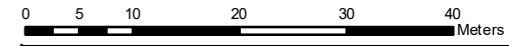
Revision
 A



Legend

- Site Boundary
- Site Features
- Soil Bore Investigation Locations

Note: Basemap sourced from Nearmap dated October 2020



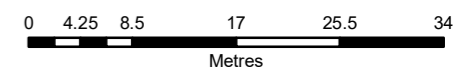
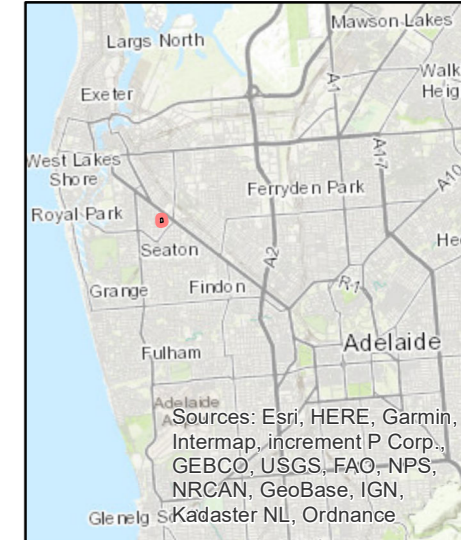
Land & Water Consulting
 Email: admin@lwiconsulting.com.au
 Web: www.lwiconsulting.com.au

Date: July 2021		N ▲
Projection: GDA 1994, Zone 54		
Project: Detailed Site Investigation (SSRA)		
Site Address: 24 - 30 Murray Street, Albert Park, South Australia		
Figure Title: Soil Bore Investigation Locations		
Figure in Set	7 of 7	Figure
Scale:	See Plan	ES2
Drawing Reference	A	Revision A



Legend

- Cadastre
 - Site Boundary
- Fill Areas of Interest**
- Indicative Extent**
- Area A
 - Area B
 - Area C





Land & Water Consulting
Email: enquiries@lwcconsulting.com.au
Web: www.lwcconsulting.com.au



Project:
**Site Remediation Plan
Totino**

Figure Title:
Indicative Extent of Fill Areas of Interest

Date: April 2021	Projection: GDA94 Z54
Scale: See Plan	Figure in Set: 3 of 6

Site Address:
24-30 Murray Street
Albert Park, SA 5014

Figure
ES3
Revision
A

Drawing Reference: AAAA

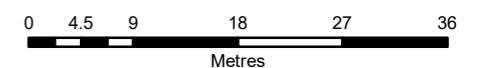
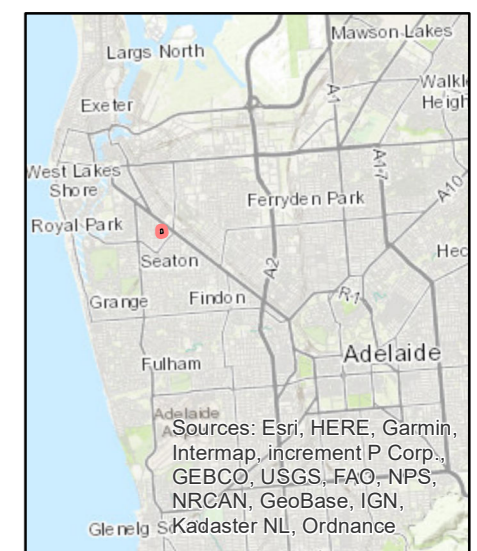


- Legend**
- Cadastre
 - Site Boundary
- Fill Areas of Interest**
- Indicative Extent**
- Area A
 - Area B
 - Area C

Area: 1916m²
Perimeter: 250m

Area: 517m²
Perimeter: 101m

Area: 219m²
Perimeter: 77m






Land & Water Consulting
Email: enquiries@lwconsulting.com.au
Web: www.lwconsulting.com.au

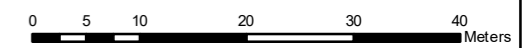
Project: Site Remediation Plan Totino	
Figure Title: Indicative Extent of Fill Areas of Interest	
Date: April 2021	Projection: GDA94 Z54
Scale: See Plan	Figure in Set: 4 of 6
Site Address: 24-30 Murray Street Albert Park, SA 5014	Figure ES4 Revision A
Drawing Reference: AAAA	



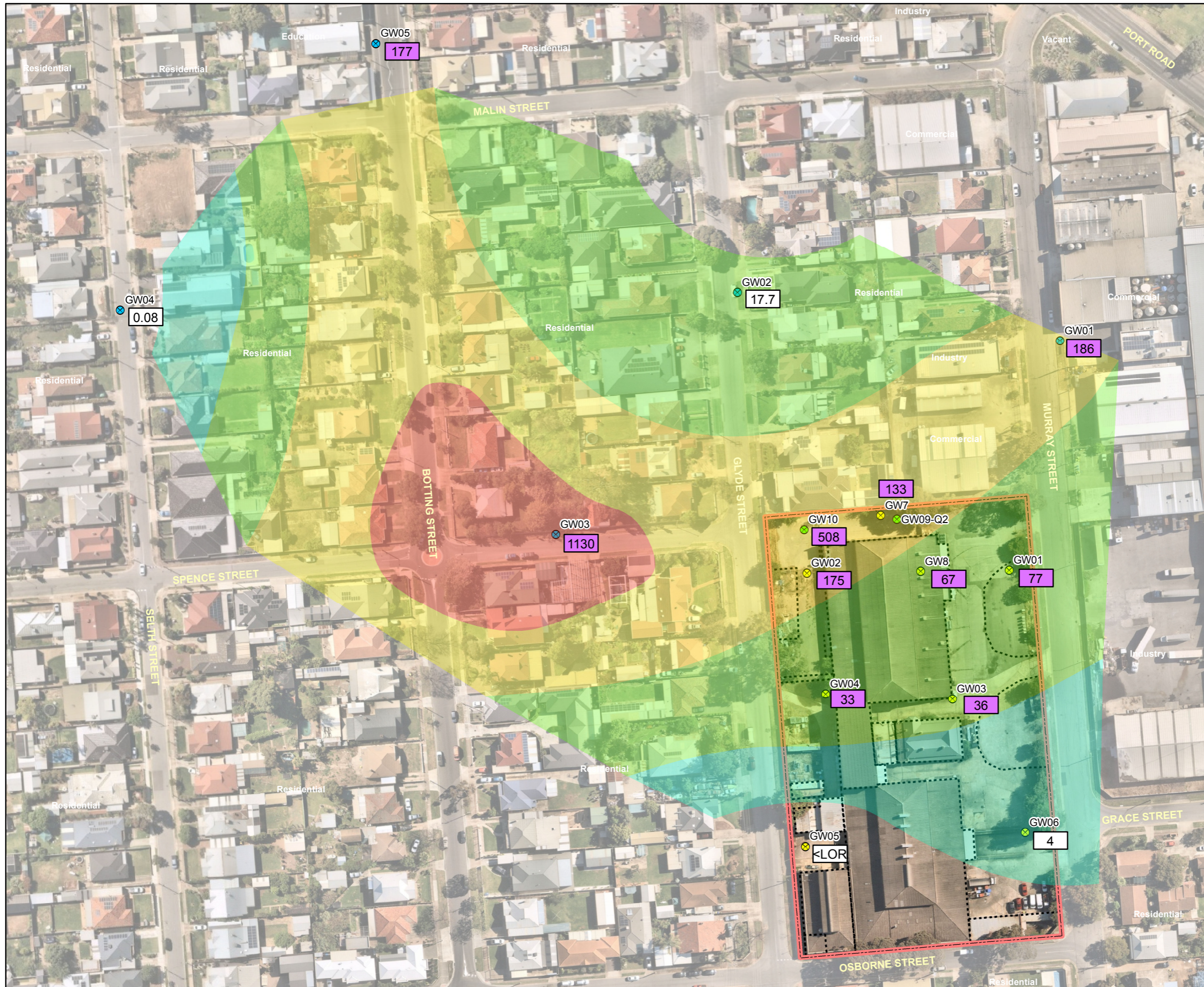
Legend

- Site Boundary
- Site Features
- Soil Vapour Investigation Location (Passive Sampler) (LWC, Aug 2020)
- Soil Vapour Location (Golder, 2019)
- Soil Vapour Investigation Location (Passive Sampler) (LWC, May 2018)
- Soil Vapour Investigation Location (Passive Sampler) (LWC, Dec 2017)
- Active Vapour Sampling Locations (June 2019)
- Inferred TCE Source Zone

Note: Basemap sourced from Nearthmap dated October 2020



<p>Land & Water Consulting Email: admin@lwconsulting.com.au Web: www.lwconsulting.com.au</p>		
Projection: GDA 1994, Zone 54		
Project: Detailed Site Investigation (SSRA)		
Site Address: 24 - 30 Murray Street, Albert Park, South Australia		
Figure Title: TCE Soil Vapour Concentrations (All data)		
Figure in Set	5 of 6	Figure
Scale:	See Plan	ES5
Drawing Reference	A	Revision
		A

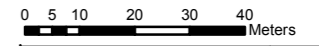




Legend

- Site Boundary
 - Railway
 - Site Features
 - Groundwater Investigation Location (LWC, 2020)
 - Groundwater Investigation Location (Golder, 2019)
 - ⊗ Existing Groundwater Investigation Location
- Inferred TCE Groundwater Plume (ug/L)
- 1000+
 - 100-999
 - 9-99
 - 1-8
- Groundwater TCE Concentration (ug/L) not exceeding the WHO DWQG 4th Ed Criterion (8 ug/L)
 - Groundwater TCE Concentration (ug/L) exceeding the WHO DWQG 4th Ed Criterion (8 ug/L)

Note:
GW01, GW02, GW03, GW04 and GW05 extracted from Golder Jan 2020

Basemap sourced from Nearmap dated October 2020



 <p style="font-size: 8px;">Land & Water Consulting Email: admin@lwconsulting.com.au Web: www.lwconsulting.com.au</p>		
Date: November 2020		
Projection: GDA 1994, Zone 54		
Project: Detailed Site Investigation		
Site Address: 24 - 30 Murray Street, Albert Park, South Australia		
Figure Title: Groundwater Analytical Results Plan with Reported TCE Concentrations (September 2020) - Q1 Aquifer		
Figure in Set	6 of 6	Figure
Scale: See Plan		ES6
Drawing Reference		Revision
A		A

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1 INTRODUCTION

1.1 Background

This Site Remediation Plan (SRP) document has been prepared for 24 – 30 Murray Street, Albert Park, South Australia (the Site). A site locality and layout plan are provided as **Figure 1 (at rear)**.

The Site is proposed to be developed for low density residential land use; a sensitive land use as defined in Section 3-1 of the *Environment Protection Act 1993* (EP Act). There is a required open space area of approximately 2,500 m².

The Site is approximately 1.6 ha in area and all existing site infrastructure is to be demolished during the re-development works.

This SRP provides a detailed scope of works and methodology for the remediation of the Site, with respect to:

1. Locating and managing a potential primary source of trichloroethene (TCE) potentially located in the central northern footprint of the Site associated with the northern half of the northern warehouse ('Building C') post demolition of northern structures. Note that the northern building may form a source of other VOC reported in soil vapour and also a potential source of per and polyfluoroalkyl substances (PFAS), manganese, nickel, and selenium. Total Recoverable Hydrocarbons (TRH) is evident in groundwater also though this is considered to be representative of TCE.
2. Management of soils that may be identified following the removal of the potential TCE source infrastructure (secondary source) that are unsuitable for low density residential land use - Remediation of primary and secondary sources of TCE is also required to mitigate ongoing contamination of groundwater and associated site and off-site vapour intrusion sources and risks.
3. Management of known areas of soil ('fill') that do not meet the required tier 1 generic land use screening criteria for low density residential land.
4. Assessment of soils within the footprints of buildings located in the southern area of the Site. Although not expected to be an area prone to site contamination, due to occupancy, the footprint of these buildings has not been assessed. Validation samples are required to be collected from soil within such footprint.
5. Validation of soil vapour following primary and secondary TCE source removal, to re-assess the risk profile with respect to vapour intrusion noting TCE is also present in groundwater.
6. Implementation of a Groundwater Monitoring and Management Plan (GMMP) to monitor TCE in groundwater beneath the Site post remediation, noting that TCE is present in groundwater up-hydraulic gradient of the Site.

Based on the change to a more sensitive land use (i.e. from commercial/ industrial to low density residential) a South Australian Environment Protection Authority (EPA) accredited site contamination auditor is required. DFJ Holdings has engaged Mr. Graeme Miller (Sensversa Pty Ltd) to undertake the Site Contamination Audit.

1.2 Purpose

The purpose of the SRP is to provide information about the project and document the remediation aims, chosen remediation option and procedures that must be implemented to achieve the remediation goals and objectives for the Site. The SRP details procedures and plans to eliminate human health risks accounting for the proposed sensitive land use and eliminate risk to both water and the environment to the extent reasonably practical.

The SRP also sets out environmental management protocols that must be implemented by all contractors/ employees, to ensure that remediation actions do not contravene Section 25 (General Environmental Duty) of the *Environment Protection Act 1993*. The remedial activities must be managed such that they do not adversely impact on the health and environment of surrounding human and ecological receptors.

1.3 Key Project Stakeholders

This project relates to the future development of the Site. Key project stakeholders are considered to comprise:

- DFJ Holdings – Site Owner and Developer;
- Land & Water Consulting (or similar environmental consultant) – SRP Manager/ Site Representative - direct and validate the remediation works;
- The appointed site contamination auditor (review of this SRP, review of the actual remediation works and validation process/ reporting and potentially the provision of a Site Contamination Audit Report (SCAR) stating that the Site is suitable for intended use); and
- Contractor – appointed by the Site Owner to undertake demolition and earthworks (remediation).

The Site is considered by the Environment Protection Authority (EPA) to be a source of contamination (Albert Park Assessment Area) and therefore the EPA also can be considered a stakeholder in the progress and completion of remediation of the Site (the mechanism for reporting to the EPA in this context is via the site contamination audit).

1.4 SRP Structure

The SRP has been prepared to direct remedial works accounting for:

- Section 2: Responsibilities;
- Section 3: Site Information;
- Section 4: Site Contamination;
- Section 5: Conceptual Site Model
- Section 6: Remediation Action Plan;
- Section 7: Environmental Management Plan;
- Section 8: Work Health and Safety Considerations; and
- Section 9: SRP Monitoring.

1.5 Guidelines

A number of relevant guidelines and reference documents were referred to in preparing the SRP and include:

- **South Australian EPA (2019a), Guidelines for the Assessment and Remediation of Site Contamination** (“GAR”, see Appendix D for compliance with the GAR Remediation Reporting Checklist);
- *Environmental Protection Act 1993*, Regulations and Environment Protection Policies (EPPs):
 - Environmental Protection Regulations 2009.
 - Environmental Protection (Air Quality) Policy 2016.
 - Environmental Protection (Noise) Policy 2007.
 - Environment Protection (Water Quality) Policy 2015.
- South Australian EPA Guidelines, Technical Bulletins and Information Sheets for advice on items such as waste tracking and construction noise:
 - SA EPA, Guidelines for the Assessment of Underground Storage Systems, 2019c
 - SA EPA, General environmental noise, Updated May 2013 (EPA 424/13)
 - SA EPA, Waste Transport Certificate Guidelines, 2010.
 - SA EPA, Stormwater Pollution Prevention – Code of Practice for the Building and Construction Industry, 1999
 - SA EPA, Handbook for Pollution Avoidance on Commercial and Residential Building Sites, 2004
 - SA EPA, Guideline for Stockpile Management: Waste and Waste Derived Products for Recycling and Reuse, 2010 updated October 2020
 - SA EPA Environmental management of dewatering during construction activities (updated June 2021 – EPA 1093/21)
- Relevant South Australian Occupational, Health, Safety and Welfare legislation and guidelines:
 - *Work Health and Safety Act 2012* (South Australian State Legislation); and
 - Work Health and Safety Regulations 2012 (South Australian State Legislation).
- SA EPA, Waste Disposal Information Sheet - Current criteria for the classification of Waste – Including Industrial and Commercial Waste (Listed) and Waste Soil, March 2010;
- National Environmental Protection (Assessment of Site Contamination) Measure produced by the National Environment Protection Council, December 1999 (as amended 2013);
- AS 4976-2008 - The removal and disposal of underground petroleum storage tanks; and
- EPA Victoria, The Design, Installation and Management Requirements for Underground Petroleum Storage Systems (UPSS), 2015.

1.6 Relevant Documents

The requirements (scope) of the SRP were based on the conclusions / findings of the following assessment reports undertaken in relation to the Site:

- LWC (2018), Detailed Site Investigation 24 – 30 Murray Street, Albert Park, South Australia prepared by Land & Water Consulting for DFJ Holdings on 13 June 2018;
- LWC (2021) Site Specific Risk Assessment 24 – 30 Murray Street, Albert Park, South Australia prepared by Land & Water Consulting for DFJ Holdings 31 August 2021.

Offsite areas have been assessed within the EPA Assessment Area Framework and the following documents have been taken into account in interpretation of site specific contamination risk and how the Site may influence/ affect offsite areas:

- Golder (2020). Environmental Site Assessment – Albert Park Stage 2. Prepared for the Environment Protection Authority by Golder, 11 February 2020. 19131233-001-R-Rev0.
- JBS&G (2019). Albert Park Environmental Assessment, Albert Park SA. EPA Reference 05/24994, 23 August 2019 55976_122490_Rev0.
- JBS&G (2020). Albert Park Environmental Assessment – Stage 3 Prepared by JBS&G for the Environment Protection Authority 3 December 2020 59749, 133546, Rev_0.
- JBS&G (2021). Albert Park Stage 4 – Soil Vapour Monitoring Event – Albert Park Assessment Area. Prepared by JBS&G for the Environment Protection Authority 16 April 2021 60523, 136680, Rev_1.
- LBW Co (2020). Preliminary Environmental Assessment Development Plan Amendment Area Albert Park, South Australia. Report for Jensen Plus June 2020.

2 RESPONSIBILITIES

The SRP provides details of responsibilities and procedures for managing environmental issues during remediation works at the site, with consideration to contamination exposure risks and environmental impacts at the site.

A number of personnel will be responsible for the implementation of the SRP:

2.1 Environmental Consultant

Land & Water Consulting – SRP Manager and SRP Environmental Consultant

The SRP has been formulated by LWC. LWC is responsible for ensuring compliance with the SRP by all employees, site visitors and sub-contractors. LWC will document progress in terms of environmental compliance as required.

The SRP Manager is responsible for ensuring that all site works adhere to the requirements outlined in the SRP and ensure that any activity on the Site involving exposure to potentially contaminated areas is undertaken in a controlled and safe manner (including all necessary workplace health and safety (WHS) and environmental requirements). This is achieved by:

- Ensuring relevant parties are made aware of the content and requirements of the SRP, including the Site procedures and forms, and environmental awareness induction (including importance of incident reporting); and
- Implementing a formal process of approval and documentation.

The SRP Site Representative will supervise all remediation works and work collaboratively with the appointed Site Contamination Auditor and all sub-contractors.

The SRP Manager is required to verify on the completion of the works that works were undertaken in accordance with the SRP.

The SRP Manager is responsible for ensuring that all employees and contractors are made aware and act within the requirements of the SRP.

The environmental consultant is responsible for:

- Direction of the implementation of the remedial scope;
- Environmental monitoring during the remediation;
- Environmental incident documenting and reporting (to the site owner, the site contamination auditor and the Environment Protection Authority, including any regulatory notifications);
- Identification of corrective action;
- Oversight of implementation of corrective action;
- Validation of remedial works (sampling and analysis, environmental observations);
- Remediation Validation Reporting.

2.2 Site Contamination Auditor

Mr Graeme Miller (Senversa) - Site Contamination Auditor

The role of the Site Contamination Auditor (the Auditor) is to independently and objectively examine and review the accuracy and completeness of the remediation and/ or assessment work carried out by the SRP Manager/ Environmental Consultant and to complete a site contamination audit report (and statement), in accordance with the requirements of the EP Act, the EP Regulations and relevant guidelines issued or approved by the EPA. The Auditor is required to:

- Review and endorse the SRP;
- Confirm that the proposed remediation should achieve an acceptable outcome that will enable the completion of the audit;
- Confirm that the proposed strategies for environmental management of any on-site remediation adequately protects human health, property and the environment during remediation activities.

Further information regarding the roles and responsibilities of the Auditor are detailed in EPA (2015) Site contamination auditors information sheet (EPA 664/15).

2.3 Demolition / Earth-moving Contractor

Employees and Contractors

Each employee and contractor shall be responsible for working within the requirements of this SRP, endeavour to avoid work practices that are damaging to the environment and identify and report any environmental problems to the SRP Manager. Each contractor and employee undertaking remediation works shall:

- be responsible for working within the requirements of the SRP;
- avoid work practices which may adversely impact on the health and environment of surrounding human and ecological receptors.; and
- identify and report any environmental problems to the SRP Manager.

Contractors, employees and anyone involved in undertaking or observing the remediation works will be required to be appropriately inducted on how the issue of exposure to any contamination will be managed (including any WHS and environmental precautions).

2.4 Environmental Awareness Induction

All parties/ personnel involved in remediation works shall be made aware of the requirements of the SRP including incident reporting and prior to commencing site works shall sign a compliance agreement.

The induction shall be facilitated by the SRP Manager and shall be undertaken by all site workers likely to be present during the bulk of the remediation works.

Subcontractors and other personnel that are likely to have only limited involvement with the remediation process shall undergo a site induction on arrival to site with the SRP Site Representative (appropriate person appointed by the SRP Manager).

Copies of the SRP, induction notes (and associated documents) shall be made available and accessible to all site personnel for reference and review.

The purpose of the induction is to ensure that employees and contractors are made aware of the environmental and health risks associated with remediation activities on-site and how best to manage these risks. The induction shall also address how to manage work practices that may adversely impact on the health and environment of surrounding human and ecological receptors. Records detailing training attendees and the content of the training/induction will be kept.

The induction shall cover:

- Schedule of activities and personnel responsibilities;
- Site control procedures;
- Contaminants and hazard identification;
- Exposure risk;
- Protective equipment usage;
- Decontamination procedures;
- Implementation of environmental controls;
- Incident reporting;
- Enterprise management (public relations);
- Designated areas and other requirements (e.g. parking, site access, etc.);
- Prohibitions (e.g. smoking, eating, etc.); and
- Emergency response.

3 SITE INFORMATION

3.1 Site identification

Please refer to Table 3-1 for site identification details.

Table 3-1 Site identification

Site Location	24-30 Murray Street, Albert Park, South Australia
Property Description	<p>The Site is defined by the following Certificate of Title (CT):</p> <ul style="list-style-type: none"> ▪ CT Volume 5957 Folio 139 ▪ CT Volume 5957 Folio 140 ▪ CT Volume 5957 Folio 141 ▪ CT Volume 5191 Folio 507 ▪ CT Volume 5191 Folio 397
Area of Site	The area of the Site is approximately 1.6 hectares (ha).
Local Government Authority	City of Charles Sturt
Zoning	Strategic employment
Ownership	DFJ Holdings
Current Land Use	The Site consists of a series of commercial warehouse type buildings surrounded by predominantly sealed ground to the east and unsealed ground along the western aspect. Refer to Section 3.2.
Proposed Land Use	Low density residential (sensitive land use as defined in Section 3(1) of the EP Act 1993)
Person requesting this work	Mr Don Totino representing DFJ Holdings
Site Contamination Audit Details	<p>Mr Graeme Miller 2011031 Senversa Pty Ltd Ground Floor, 190 Flinders Street Adelaide SA 5000</p> <p>EPA Audit Reference: 61909</p>

3.2 Site Description

The Site is currently owned by DFJ Holding (purchased in 2009) and consists of a series of buildings surrounded by predominantly sealed ground, with hard waste (predominantly metal components) stockpiled in areas external to the buildings.

The locations and description/ use of the buildings are described in the following table (Table 3-2) and shown in Figure 2.

Table 3-2 Building Description/ Use (refer Figure 2, at rear)

Building Reference	Building Description/ Use
A	Southwestern brick built building used for car restoration. Southwestern corner of this building hosts a sub-station/ transformer belonging to SA Power Networks – has been embedded at the building for a long time as has own 'room'.
B	Shed – galvanised construction, empty.
C	Northern building – empty, cavernous warehouse style building with thick (200 mm) concrete slab. Not used.
D	(local) Heritage dwelling – used as an office during Gadsdens days. Now un-used.
E	Southern building – active cold store (limited occupation, ventilated building due to refrigeration).
F	Warehouse/ store. Used by a lease holder for storage of scaffold equipment.
G	Southern / southeast boundary: Offices used for courier / transport company (not termed 'G' on such Figure, but in text only)

3.3 Site Setting

The Site is situated approximately 8 km northwest of the Central Business District (CBD) of Adelaide, and is bounded by the following:

- North: Residential and commercial land use;
- East: Immediately adjacent Murray Street beyond which are commercial/ industrial land use;
- South: Immediately adjacent is Osborne Street, beyond which is residential land use; and
- West: Immediately adjacent is Glyde Street, beyond which is residential land use.

A site layout and features plan are provided as Figure 2.

3.4 Site History

Review of historical information indicates that between 1940 and 1984 the Site was owned and operated by J Gadsdens Pty Ltd and predominantly utilised for the manufacturing of containers (tin cans) and hessian bag/ tarpaulin, and possible small scale vehicle assembly. (LWC, 2017). This former (historical) use of the Site is considered the likely source of the chlorinated hydrocarbon contamination (LWC, 2018a).

SKM (2013) report noted that J Gadsden Pty Ltd was delisted from the Australian Securities Exchange (ASX) in 1986 (i.e. two years after divestment of the Site) and was taken over by SAB Investments Pty Ltd. Between 1984 and 1988, the Site was transferred successively between various parties. WellClass (Holding)

No. 2 Pty. Ltd. owned the Site between 1988 and 2006, with various lease arrangements during period. Andary Group owned the Site from 2006 to 2009 and according to mortgage records, DFJ Holdings purchased the Site in May 2009 as a going concern¹ (comprising recreational businesses, empty storage spaces and a refrigeration warehouse/ cold store) through a bank foreclosure process. A review of the relevant Certificate of Titles from this period corroborates this (LWC, 2018a).

These uses were continued by DFJ Holdings, with the exception that the indoor cricket and recreation centre occupying Building C ceased operations in approximately 2013 and has remained vacant since, and the cabinet maker in Building A moved and was replaced by a car restoration hobbyist.

Recent uses of the Site include offices for a courier firm (southern portion of the site), scaffold storage and minor car restoration. There is a substation occupying the southwest corner of the Site.

In 2019-2020 a building firm used the north-western corner of the Site as a 'lay-down' area for inert building materials. The building firm brought in a shipping container as a storage item and this obscured groundwater monitoring well GW02 in the 2020 ground water monitoring event. Based on inspection/ observation of this area at such time, there is no reason to suspect that the activities of the building firm presented any potential for site contamination.

A site history assessment was also undertaken in 1997 (Woodward Clyde, 1997). At such time the Site infrastructure comprised two main buildings (Northern and Southern), a house type structure in the centre of the Site, several sheds and an indoor concrete strip (cricket run). The 1997 and 1998 assessments considered the Site in terms of two portions:

1. Area A: northwest corner covering an area of approximately 0.2 ha
2. Area B: remainder of site covering an area of approximately 1.4 ha

The Site History report found that former activities identified at the Site and on adjacent land have the potential to cause adverse environment impacts including:

- Soil and groundwater contamination as result of potential leakage from a drum labelled "perchloroethylene" (PCE) located in Area A.
- Soil contamination due to minor spillage of lubricating oil from a small drum also located in Area A.

The 1997 Phase I Site History report concluded that given the potential for adverse environmental effects, a Phase II Environmental Site Assessment was required to establish the potential for soil and groundwater contamination beneath the Site (Area A).

The Phase II ESA undertaken in 1998 was focussed on resolution of the aforementioned potential environmental impacts in Area A, but also included assessment of potential hydrocarbon contamination adjacent a loading / unloading area in Area B. The existence of potentially contaminated fill was also assessed, but only in the smaller Area A.

A total of 42 samples were recovered from five bores, with only seven samples analysed. Analytical assessment of soil recovered in the vicinity of the PCE drum reported the concentration of PCE to be below the laboratory limit of reporting (note that analysis of these types of chemical substances in soils are of low to moderate reliability). The concentrations of heavy metals in soil samples identified as fill material were reported to be below the recreational use guideline criteria adopted at the time of the assessment (some of these criteria

¹ From at least 1997 the southern building was being used for cold storage and northern building for sporting facilities.

have now been amended or rescinded, these criteria less conservative than the required low density residential screening criteria applicable for proposed development to residential).

Concentrations of hydrocarbons were reported to be above the guideline criteria adopted at the time of the assessment (5,000 mg/kg, Dutch Intervention Levels¹) in the vicinity of the waste oil storage area (Area B – specific location not known). It was reported that such concentrations were however localised to the upper 30 cm of the soil profile.

It is noted that both the 1997 Phase I and the 1998 Phase II assessment was completed ~20 years ago. Since the time of the assessment, industry standards have changed somewhat, and revised soil quality criteria and processes of assessment are available.

Further, the number of locations assessed in the 1998 assessment (6) is not sufficient for an area of 1.6 ha, (according to Australian Standard AS4482.2-2005). The potential for notable fill across the site exists, and we note the previous instances of encountering contaminated fill in the general area.

A report was commissioned by the City of Charles Sturt in 2013 (SKM, 2013) (i.e. rather than DFJ Holdings). It is understood that City of Charles Sturt was considering the potential purchase and use of the Site as recreational open space. It is understood that the potential sale did not progress due to differences in land valuation between DFJ Holdings and the City of Charles Sturt, rather than City of Charles Sturt withdrawing on the basis of any particular knowledge of site contamination beneath the Site. Indeed, the SKM report concludes with recommendations that further investigations were required, noting the assessment was desk-top only.

SKM reported that based on aerial imagery review up to 2002, the Site had not changed specifically since 1949. SKM concluded that the potentially contaminating activities (PCA) that were historically undertaken in the course of a business associated with the Site was:

- Motor Vehicle repair or maintenance (associated with the use of a forklift truck, Castrol drums on site, observed oil staining and machinery observed on Site).

SKM listed the following PCA in relation to domestic activities undertaken at the Site:

- Liquid organic chemical storage; and
- Fill or soil importation (associated with previous construction and development activities).
- Suspected presence of former above ground fuel storage tanks (ASTs) and possibly former and/ or current underground fuel storage tanks (USTs). The Site inspection “identified four items that are frequently associated with UST and AST infrastructure”.

SKM noted that various chemicals including fuels, solvents, paints, degreasers and lubricants associated with the storage and use/ disposal of chemicals were observed on site. SKM noted a major limitation to the assessment was the lack of full site access. SKM did not identify the historical presence of a cannery at the Site. SKM concluded that further investigations were required at the Site.

In effect, there is nothing in the SKM report that would indicate that any party anywhere knew of actual site contamination beneath the northern building at such time (this being 4 years after purchase of the Site by DFJ Holdings).

A detailed summary of the previous on-site assessments is provided in Section 3.4 of LWC, 2017.

Of note, and as listed in the SKM (2013) report, the Section 7 reports from the EPA as issued at such time do not indicate any positive response to environmental records held by the EPA. Consequently, it is unlikely that any environmental related information would have been included in the Form 1 provided to DFJ holdings at

time of purchase of the Site in 2009. It is unlikely that DFJ Holdings knew of any site contamination issues at such time via such process.

A summary of site ownership and activity chronology is provided as Figure 2-3 in LWC 2021.

3.5 Proposed Development

LWC understands that the Site will potentially be redeveloped for low density residential (sensitive land use) with an approximate required open space area of 2,500 m².

3.6 Environmental Setting

3.6.1 Surrounding land use

A summary of the surrounding land use is presented as Table 3-3.

Table 3-3 Adjacent Land Use

Boundary	Description of Adjacent Land Use
North	Residential but also commercial and light industry to the northeast side of the northern boundary
East	Commercial – warehouses and light industry
South	Residential
West	Residential

3.6.2 Geology

Please refer to LWC 2021 for more detail regarding geology, however, soil assessments undertaken at the Site have identified fill material including silt, gravelly silt and sand across the majority of the Site, with inclusions of bitumen, bricks and glass in Fill Zones A - C. Natural soils are described as brown silty clay of low to medium plasticity with sand and gravel lenses.

For the purposes of this scope, external to the identified fill zones (A-C) the shallow lithology will comprise silt, gravelly silt and sand.

3.6.3 Hydrogeology

Staged assessments of the Site comprised groundwater bores drilled into the Q1 water table unit, up to 5.5 m below ground level (BGL) with standing water recorded at around 3.3 to 3.8 m BGL. A deeper water bearing zone within the Q1 Aquifer was intersected at approximately 10 m BGL. Groundwater flow in the Q1 Aquifer is interpreted to be towards the west/ northwest.

The Q2 Aquifer is present at approximately 25 mBGL and is separated from the Q1 Aquifer by approximately 6 m of firm to hard dry sandy and silty clay.

Total dissolved solids (TDS) concentrations and registered bore use in the vicinity of the site indicate groundwater in the Q1 Aquifer and Q2 Aquifer may be suitable for a range of uses, including: Drinking Water, Recreation and aesthetics, Primary Industry (irrigation and general water uses) and Industry.

The Site and surrounding area are located within a groundwater prohibition area (GPA) gazetted by the State Government 12 September 2019 (EPA, 2019b) – refer Figure 3-1 Groundwater Prohibition Area (Portions of Hendon, Royal Park, Seaton and Albert Park – EPA, 2019b) – this GPA covers the watertable-Q1 and Q2 units. The GPA prohibits extraction and use of groundwater within the Q1 and Q2 Aquifers.

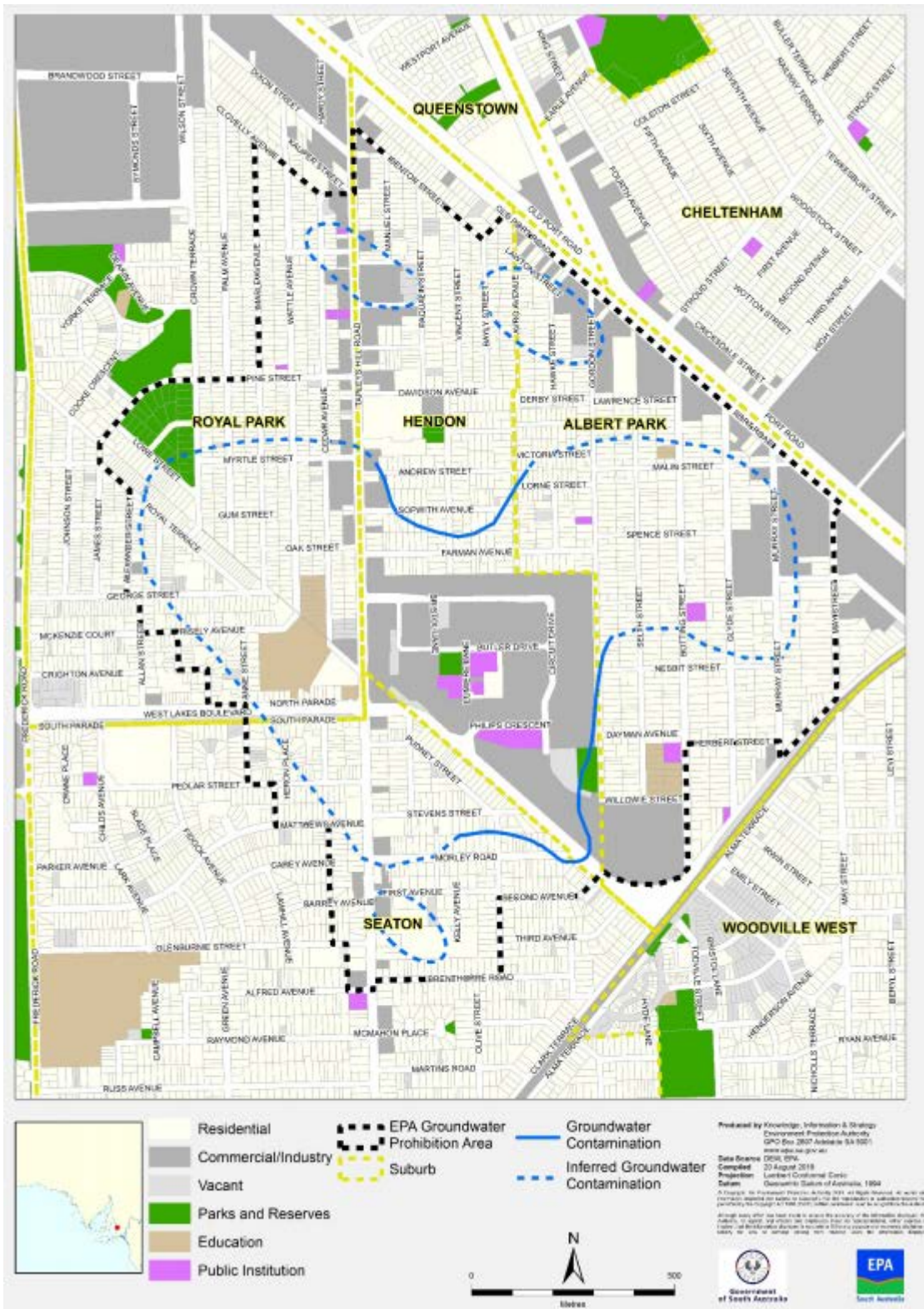


Figure 3-1 Groundwater Prohibition Area (Portions of Hendon, Royal Park, Seaton and Albert Park – EPA, 2019b) – this GPA covers the watertable-Q1 and Q2 units.

4 SITE CONTAMINATION

4.1 Overview

Accounting for the proposed sensitive use of the Site (low density residential), the environmental values of groundwater, the outcomes of the intrusive site investigations to date (refer LWC, 2018b & LWC, 2021), and in accordance with Section 5B of the *Environment Protection Act 1993*, it is considered that:

Human Health

- Site contamination is present at the Site with respect to potential harm to the health or safety of human beings, on the grounds of:
 - the reported concentrations of lead, carcinogenic polycyclic aromatic hydrocarbons (as benzo(a)pyrene toxicity equivalent quotient (TEQ)), accounting for the proposed land use (sensitive, low density residential), comprising three zones of shallow fill (Fill Zones A, B and C).
 - The reported concentrations of TCE and other VOC (refer Table 4-1) as soil vapour beneath the northern portion of the Site.

Environment

- Site contamination is present at the Site with respect to potential harm to the environment, with respect to reported concentrations of copper, lead, zinc, benzo(a)pyrene and TRH in soil, accounting for the proposed land use (sensitive, low density residential).

Water

- Ignoring the presence of the GPA, site contamination is present in groundwater under the site with respect to actual or potential harm to water, on the grounds of elevated concentrations of anthropogenic chemical substances trichloroethene (TCE), associated TCE degradation products (volatile organic compounds (VOC)) and perfluoroalkyl substances (PFAS) in the Q1 water table unit beneath the northern portion of the Site.
- The source of VOC contamination appears to be beneath/ associated with a former warehouse referred to by Land & Water Consulting as 'Building C'. The distribution of volatile range total recoverable hydrocarbons (TRH, Fraction C₆-C₁₀) appears to be commensurate with the distribution of TCE, noting TCE reports in said fraction of TRH.
- Groundwater is also contaminated with the metals boron, nickel, manganese, selenium and inorganics nitrate and phosphate, which may be associated with site and regional groundwater quality. Sulfate is elevated in water sampled from one location and is considered to be trivial within the context and definition of Section 5B of the *Environment Protection Act 1993*.

Groundwater and soil vapour to the north, east and west of the Site are also contaminated with TCE and other VOCs.

4.2 Building C (and surrounds to the north) – Soil Vapour

Soil vapour contamination (primarily TCE) is present under the norther portion of the site. The extent of soil vapour contamination is summarised in Table 4-1 and **Figure 4** and appears to be associated with the central northern portion of Building C possibly extending to the northern boundary.

Soil vapour contamination is also present off-site to the north, east and west of the site, some of which appears to be associated with off-site sources.

Table 4-1 Soil vapour Contamination Extent – cross reference with Figure 4 (and the attached EPA Assessment Area Stage 4 Soil Vapour Plan



Nature	Extent
<p>Concentrations of</p> <ul style="list-style-type: none"> ▪ Trichloroethene (TCE) ▪ cis 1,2 dichloroethene ▪ 1,2 dichloroethane 	<p>TCE was reported in soil vapour beneath the north-eastern quadrant of the Site at concentrations greater than the adopted investigation levels.</p> <p>The highest concentrations were reported under the northern end of the northern building and adjacent to the central northern site boundary. TCE above the relevant criterion was also reported in soil vapour immediately to the east of the Site along Murray Street.</p> <p>The presence of TCE contamination in soil vapour under the north-eastern portion of the Site generally coincides with:</p> <ul style="list-style-type: none"> ▪ the inferred source of the contamination (former tin can manufacturing in the northern site building) – where primary and secondary (soil) sources may remain; and ▪ the highest TCE concentrations in groundwater (refer below). <p>The above-guideline concentrations of TCE under the northern portion of the site ranged from 25 µg/m³ to 7,900 µg/m³ (compared to a guideline value of 20 µg/m³). Screening of utilities under and adjacent to the Site did not indicate that TCE in soil vapour is accumulating or migrating within these structures – with the majority of PID readings being 0 parts per million (ppm) and a maximum recorded value of 0.2 ppm. Note that a similar exercise was undertaken by Golder (2020) as part of the EPA Assessment Area works and the same conclusion was reached.</p> <p>Other VOCs (1,2 dichloroethane and cis-1,2 dichloroethene) were also reported greater than the adopted investigation levels in soil vapour samples collected from nested soil vapour probes installed in the northern portion of the Site (locations AV-1S&D and AV-2S&D).</p> <p>TCE contamination in soil vapour was reported to the north, northeast and west of the site – across and down hydraulic gradient. The most recent investigation by JBS&G (16 April 2021) presents the results from the four rounds of soil vapour sampling completed in off-site areas. The most recent sampling at each location found the following:</p> <ul style="list-style-type: none"> ▪ Above guideline TCE concentrations in shallow soil vapour probes ranged from < 7 µg/m³ to 11,000 µg/m³, which are similar to that reported under the northern portion of the site. ▪ Above guideline TCE concentrations were reported up to approximately 200 m to the north and 200 m to the west of the site. Above guideline TCE concentrations were also reported up to 120 m northeast of the site along Murray Street. ▪ Concentrations of TCE in deeper soil vapour probes were similar to and in some instances greater than those reported at the on-site deep soil vapour probes. <p>The concentrations of TCE in soil vapour off-site were considered to pose a potential risk to residential occupants under a variety of building construction scenarios.</p> <p>The above guideline concentrations of TCE reported by JBS&G (3 December 2020) and LWC (6 July 2019) to the east, north and</p>

	<p>northeast of the Site are indicative of a source unrelated to the Site. Those to the west and northwest are considered likely to be associated with the Site and possibly another off-site source.</p> <p>Cis-1,2 dichloroethene was also reported JBS&G (16 April 2021) greater than the adopted assessment criteria in four soil vapour probes sampled to the north and north east of the site.</p>
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4.3 Fill Zones A, B and C – Soil Contamination

The nature and extent of soil contamination referred to as Fill Zones A, B and C are summarised in Table 4-2 and **Figures 5a and 5b**.

Table 4-2 Soil contamination nature and extent – cross reference with **Figures 5a and 5b**

Nature	Extent
<p>Fill Zone A</p> <p>Comprising chemicals (lead – human health and copper, zinc - ecology) in sample location SB09 at 0.0-0.2 m.</p> <p>Human health</p> <p>lead</p> <p>environment (ecology)</p> <p>copper, zinc</p>	<p>Laterally –</p> <p>The fill evident in SB09 is not evident in bores radial to such location unless counting SB16 to the south. The concentrations of metals reported maybe attributable to the fill itself (i.e. uncontrolled imported fill) or could be a function of loss of lead based paint from the northern warehouse, historically, noting the surface is sealed here. Alternatively it could be a function of processes / activities undertaken at the Site in Gadsdens days.</p> <p>Vertically –</p> <p>Copper and zinc are delineated to 0.2 m however elevated lead (relative to HIL A) is reported in the sample from natural at 0.2 m – 0.4 m.</p>
<p>Fill Zone B</p> <p>Comprising copper, lead and zinc in location SB16.</p> <p>Human health</p> <p>lead</p> <p>environment (ecology)</p> <p>copper, lead, zinc</p>	<p>Laterally –</p> <p>The fill evident in SB16 is not evident in bores radial to such location unless counting SB09. The concentrations of metals reported maybe attributable to the fill itself (i.e. uncontrolled imported fill) or could be a function of loss of lead based paint from the northern warehouse, historically, noting the surface is sealed here. Alternatively it could be a function of processes / activities undertaken at the Site in Gadsdens days.</p> <p>Vertically –</p> <p>Delineated to 0.2 m.</p>
<p>Fill Zone C</p> <p>In the scaffold storage area on the western side of the Site – potentially associated with the former Gadsdens business. Characterised by black, grey gravelly sand / clayey gravel with occasional brick, bitumen, tar and glass and concentrations of metals (copper, lead, zinc) PAH (BaP TEQ) and TRH (Fraction C16-34) above human health and ecological / environmental protection criteria.</p> <p>Tier 1 criteria exceeded for residential land use</p> <p>human health</p> <p>lead, BaP_{TEQ}</p> <p>environment (ecology)</p> <p>copper, zinc, BaP and Fraction C16-C34.</p>	<p>Laterally –</p> <p>Located to the west of the northern warehouse stretching from SB19 in the north to SB25 in the south, note that these areas are unsealed.</p> <p>Vertically –</p> <p>SB20 reports a depth of 0.7 m although this is logged as clayey gravel. Elsewhere the fill is generally gravelly sand or silt and averages 0.2 m thick (deep).</p> <p>Concentration wise the BaP_{TEQ} in SB20 is not delineated however the fill reports tar fragments and it is considered that the reported BaP concentrations are synonymous with the fill layer.</p> <p>The area is characterised by unsealed surface used for commercial storage of scaffold and occasional metal (inert) waste. The older non scaffold metal items may be the source of metals in soils (i.e. metal flakes or shavings) or equally the fill itself could be the source, or even former use of the site by Gadsdens.</p>

4.4 Groundwater Contamination

The nature and extent of groundwater contamination in the Q1 water table unit is summarised in Table 4-3. The extent of TCE in groundwater as at September 2020 is shown in **Figure 6**.

One monitoring well has been installed in the Q2 Aquifer, close to where the highest concentrations of TCE were reported in the Q1 Aquifer. Whilst only one Q2 monitoring well has been installed, the potential for contamination in the Q2 Aquifer is low - based on:

- The very low (trace) concentrations of the primary site-related chemical substance of interest (TCE) in water sampled from the one Q2 Aquifer well (and also the absence of PFAS) despite being near the inferred TCE source area.
- There is no indication of the presence of dense non-aqueous phase liquids (DNAPL) in the Q1 water table unit.
- The confined nature of the Q2 Aquifer relative to the Q1.

Trace concentrations of bromomethane, total recoverable hydrocarbons and the metals manganese and nickel were reported in water sampled from the Q2 unit, though these are considered to be trivial, and not representative of site contamination, and the Q2 unit is also covered by the GPA. However, Further sampling of the Q2 monitoring wells is required to confirm the presence of site (or-off-site) related contamination - based on the detection of TRH and bromomethane during the one occasion it was sampled.

There are no aquatic ecosystems located down hydraulic gradient in a 2 km radius of the Site. Therefore, there is no apparent risk to surface water (groundwater dependant ecosystem) receptors from chemical substances reported in groundwater beneath the Site.

The source of the TCE may continue to contribute to contamination of the Q1 water table unit and therefore the specific location, format, and extent of the source (if a point source e.g. tank, pipe, sump) needs to be investigated (and removed) following the demolition of the northern warehouse.

Given the establishment of a GPA for the area in 2019, the abstraction and use of groundwater from the watertable-Q1 and Q2 unit beneath and down hydraulic gradient of the Site is precluded. This eliminates the risk to future sensitive (or non-sensitive) users of the Site (and offsite receptors), other than vapour intrusion/ inhalation associated with TCE.

Table 4-3 Groundwater contamination – Q1- water table unit (refer Figure 6)

Chemical substance in groundwater	Potential Source / Extent	Potentially associated with offsite source	Potentially associated with onsite source	Potential to move offsite and present a risk via vapour pathway? (Noting the presence of the GPA)
TCE and other VOC	<p>TCE is present at concentrations greater than the adopted criterion of 8 ug/L in groundwater under the northern portion of the Site and to the northeast, north, northwest, and west of the Site.</p> <p>The highest concentrations of TCE under the Site are reported at and down hydraulic gradient of the northern portion of the northern building in water sampled from the lower portion of the watertable-Q1 unit (groundwater monitoring well GW10 – TCE concentration of 508 ug/L).</p> <p>Monitoring well GW10 is located in the north-western corner of the Site TCE is also reported greater than the adopted criterion along the up hydraulic gradient boundary of the Site (monitoring well GW06)</p> <p>Similar and higher concentrations were reported as part of the EPA Assessment Area staged works (Stage 2) to the north of the Site (across hydraulic gradient – concentration of 186 ug/L in water sampled from offsite monitoring well GW01 – refer Golder 2020) and west of the Site (down hydraulic gradient; maximum of 1,130 ug/L in water sampled from GW3 located approximately 100 m west of the Site).</p> <p>The off-site wells are all installed in the upper portion of the Q1-water table unit. All on site groundwater monitoring wells target the Q1-water table unit except GW10 and the well targeting the Q2 unit (GW09-Q2)). The highest reported concentration of TCE in groundwater on site in the upper portion of the Q1 water table unit was 175 ug/L (monitoring well GW02 – located near to GW10 in the north western corner of the Site).</p> <p>1,1-dichloroethene, 1,1-dichloroethane, 1,2-dichloroethane, cis-1,2-dichloroethene, tetrachloroethene (PCE), chloroform and trans-1,2-dichloroethene were also detected in groundwater under the Site, but at concentrations less than the adopted assessment criteria.</p> <p>Most of these chemicals, as well as vinyl chloride, were detected in groundwater sampled from some of the off-site monitoring wells – and were present at concentrations generally less than the adopted criteria.</p>	☑	☑	☑

Chemical substance in groundwater	Potential Source / Extent	Potentially associated with offsite source	Potentially associated with onsite source	Potential to move offsite and present a risk via vapour pathway? (Noting the presence of the GPA)
	<p>The general absence or low concentrations of these chemicals (many of which represent degradation products of TCE) indicates limited biodegradation of TCE and CHCs is occurring in groundwater within the Q1 water table unit.</p> <p>Potential (likely) sources of TCE in the watertable-Q1 unit are as follows:</p> <ol style="list-style-type: none"> 1. Site – former tin can manufacturing plant in the northern building (Building C). 2. Off-site – current and former industrial activities identified in LBW Co (2020) to the northeast and east of the Site. 			
TRH	<ul style="list-style-type: none"> ▪ TRH Fraction C₆-C₁₀ was reported above LOR and greater than the direct contact criteria at site monitoring wells located adjacent and to the north and northwest of the northern building, and at offsite monitoring wells located to the northeast, northwest and west of the Site. ▪ TCE reports in TRH Fraction C₆-C₁₀. Concentrations of Fraction C₆-C₁₀ were similar to the concentrations to TCE reported at the same monitoring wells, suggesting that the TRH is representative predominantly of TCE. ▪ Longer chain TRH fractions were only detected greater than the LOR (and slightly above the guideline value) on one occasion in water sampled from on-site monitoring well GW05 – which is located in the southwestern portion of the Site, near to where small scale vehicle maintenance previously occurred and near to the electrical transformer. ▪ Potential (likely) sources are as follows: <ol style="list-style-type: none"> 1. Site – former tin can manufacturing plant in the northern building (Building C). 2. Off-site – current and former industrial activities identified in LBW Co (2020) to the northeast and east of the Site. 	☑	☑	☑ - considered to be associated with TCE
boron	<p>Offsite wells sampled by Golder as part of the Stage 2 assessment, boron at all five monitoring wells exceeded the adopted screening level for irrigation, including the up hydraulic location GW01 (1.18 mg/L).</p>	☑		No – not volatile

Chemical substance in groundwater	Potential Source / Extent	Potentially associated with offsite source	Potentially associated with onsite source	Potential to move offsite and present a risk via vapour pathway? (Noting the presence of the GPA)
	<p>Golder concluded that the cause of the elevated boron concentration was not known and it may be naturally occurring.</p> <p>Note that the concentrations under the site are similar to those upgradient and in off-site areas, and that in the absence of an apparent site related source, boron appears to be representative of background conditions.</p>			
manganese	<p>Manganese was reported greater than the adopted criteria at one monitoring well located adjacent to the northern site building and at one monitoring well located along the eastern site boundary – up hydraulic gradient of the northern building. It was not reported greater than the adopted criteria in groundwater in the one round it was tested (Golder, 2020) at off-site monitoring wells.</p>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	No – not volatile
nickel	<p>Nickel - was reported slightly greater than the adopted criteria at monitoring wells located within and adjacent to the northern building (Building C), in the southwestern portion of the Site at one monitoring well, and at one monitoring well located along the eastern site boundary – up hydraulic gradient of the northern building. It was not reported greater than the adopted criteria in groundwater in the one round it was tested (Golder, 2020) at off-site monitoring wells.</p> <p>Possible sources of nickel are one or more of the following:</p> <ul style="list-style-type: none"> ▪ Ambient background water quality. ▪ Site – former tin can manufacturing plant in northern building. ▪ Off-site – current and former industrial activities identified in LBW Co (16 June 2020) to the northeast and east of the site. 	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	No – not volatile
selenium	<p>Selenium was reported slightly greater than the adopted criteria at three monitoring wells located within and adjacent to the northern site building (Building C), and at one monitoring well (at similar concentrations) more than 200 m northwest of the Site.</p>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	No – not volatile

Chemical substance in groundwater	Potential Source / Extent	Potentially associated with offsite source	Potentially associated with onsite source	Potential to move offsite and present a risk via vapour pathway? (Noting the presence of the GPA)
	<p>Possible sources of selenium – are one or more of the following:</p> <ul style="list-style-type: none"> ▪ Ambient background water quality. ▪ Site – former tin can manufacturing plant in northern building. ▪ Off-site – current and former industrial activities identified in LBW Co (16 June 2020) to the northeast and east of the site. 			
PFAS	<p>PFOS and PFHxS (PFAS) in the Q1 water at concentrations above the potable criterion.</p> <p>There is no known specific source of PFAS at the Site, current or historical, although noting that PFAS has been around since the 1940's and the industrial manufacturing nature of the Site, it is not unreasonable to consider that the Site has been a source of PFAS to groundwater beneath the Site. It is suggested by the auditor that tin can processing may have used PFAS. LWC were not able to identify a specific literature reference for this.</p> <p>Two of the highest PFAS concentrations were reported in water sampled from GW07 and GW10 (northern boundary), which is concomitant with the general area of TCE impact, and thus the PFAS could be related to the TCE distribution.</p> <p>The actual highest concentration of PFAS was reported in water sampled from GW06 in the southeast of the Site, which is up hydraulic gradient of the infrastructure / site improvements. Note that one of the highest TCE concentrations is associated with water sampled from monitoring well GW10 well (deeper Q1).</p> <p>The concentrations of PFAS in groundwater up hydraulic gradient of the Site are not known. PFAS is known to be present in groundwater to the east and southeast of the Site, along the Port Road corridor (EPA Woodville Assessment Area).</p> <p>Given the absence of a specific on site source, the presence of industrial activities up hydraulic gradient of the Site (viz. LBW 2020 PSA) and the</p>	☑	☑	No – not volatile

Chemical substance in groundwater	Potential Source / Extent	Potentially associated with offsite source	Potentially associated with onsite source	Potential to move offsite and present a risk via vapour pathway? (Noting the presence of the GPA)
	<p>known presence of PFAS in the Q1 aquifer to the east and southeast of the Site (up hydraulic gradient), PFAS in water sampled from beneath the Site could be a result of an onsite source, but could also equally be associated with ambient contribution.</p> <p>The presence of PFAS in groundwater at and potentially down hydraulic gradient of the Site does not necessarily change the risk profile of the Site with respect to abstraction of the groundwater for potable purposes, noting the presence of TCE at concentration above potable criterion and the presence of the GPA.</p>			
nitrate	<p>Nitrate was significantly elevated in one location only: 65 mg/L in water sampled from on-site monitoring well GW06. Nitrate elsewhere on the Site is an order of magnitude less than GW06 water.</p> <p>Registered groundwater well 6628-8813 (located up hydraulic gradient, Bunnings Warehouse car park, Port Road, Cheltenham), records four nitrate values, ranging from 434 mg/L to 10,683 mg/L (these were all reported in 1934). The upper value seems spurious. As nitrate elsewhere on the Site is an order of magnitude less than water from GW06, it would seem that water from GW06 is an anomaly perhaps from a leaking sewer connection, and not attributable to a widespread diffuse presence of nitrate beneath the Site.</p> <p>Based on some evidence of elevated nitrate up hydraulic gradient of the Site, and nitrate being very localised to one location (GW06), the risk of nitrate to receptors in the down hydraulic gradient area (being the GPA) is considered to be low (water is not abstractable).</p> <p>Offsite Stage 2 concentrations ranged from 3.4 to 25.7 mg/L.</p>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	No – not volatile
Nitrogen	<p>Refer to the discussion presented above for nitrate.</p> <p>Also - this chemical substance is greater than the adopted criteria at all wells located in the northern portion of the site – as well as at GW06 (southeast of the site).</p>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	No – not volatile

Chemical substance in groundwater	Potential Source / Extent	Potentially associated with offsite source	Potentially associated with onsite source	Potential to move offsite and present a risk via vapour pathway? (Noting the presence of the GPA)
phosphorous	<p>This was not analysed for in offsite sampling.</p> <p>The concentrations under the site are similar to those along the upgradient boundary, and may therefore be representative of background conditions, although on-site contributions cannot be excluded.</p>	☑	☑	No – not volatile

5 RISKS POSED BY SITE CONTAMINATION

5.1 Overview

A detailed conceptual site model is presented in LWC, 2021 and is not re-iterated in its entirety here. A summary is presented in Section 5.2 highlighting those contaminant linkages that require remediation. It is assumed that any person reading this is of a sufficient technical background to understand the nature and purpose of a conceptual site model and the term 'linkages'.

5.2 Summary

Please refer to Table 5-1.

Table 5-1 Conceptual site model derived linkages requiring remediation (LWC, 2021)

Receptors			Source (chemical/ medium)				Pathway	SSRA Linkage	Risk?		
Receptor Group	On site	Off site	Soil	Watertable Q1 unit	Q2 unit	Soil Vapour					
Actual or Potential Harm to Human Health	Future sensitive receptors (residential) Open space users Intrusive Maintenance Workers		lead				Ingestion of soils - (including inhalation of soil particles both outside and inside as tracked back indoors).	1.	Yes – requires remediation		
							Dermal contact with soils.	2.	Yes – requires remediation		
							Ingestion of soils - (including inhalation of soil particles both outside and inside as tracked back indoors).	3.	Yes – requires remediation		
							Dermal contact with soils.	4.	Yes – requires remediation		
			TCE (vapour)					TCE (+other co-located VOC)	Intrusion and Inhalation of vapours (from soil or groundwater) – relevant to the site and in the future, off site residents if contamination migrates/ continue to migrate off site.	5.	Yes – requires remediation
										6.	Yes – requires remediation (remove risk to groundwater)
Actual or Potential Harm to the Environment (Ecology)	Soil ecology – flora / fauna		copper				Direct Contact (Ecology)	14.	Risk to ecology – will be eliminated when managing fill		
			lead					15.	Risk to ecology – will be eliminated when managing fill		
			zinc					16.	Risk to ecology – will be eliminated when managing fill		
			Benzo(a)pyrene TEQ					17.	Risk to ecology – will be eliminated when managing fill		
			TRH Fraction C ₁₆ C ₃₄					18.	Risk to ecology – will be eliminated when managing fill		

6 REMEDIATION ACTION PLAN

6.1 Remediation Objective

The primary objective of this remediation program is to remediate the Site in accordance with the definition of remediation provided in Section 3(1) of the EP Act.

The EP Act defines remediation as:

Treat, contain, remove or manage chemical substances on or below the surface of the site so as to –

- a) *Eliminate or prevent actual or potential harm to the health and safety of human beings that is not trivial, taking into account current or proposed land uses; and*
- b) *Eliminate or prevent, as far as reasonably practicable –*
 - i. actual or potential harm to water that is not trivial; and*
 - ii. any other actual or potential environmental harm this is not trivial, taking into account current or proposed land uses.*

With reference to EPA (2019a), the works to be undertaken at the Site are considered to meet the definition of an active remediation approach ('remove').

6.2 Limit of Liability for Site Contamination

LWC undertook a site history assessment and set out a rationale that the current site owner (DFJ Holdings) was not responsible for causing the site contamination (LWC, 2018a). The EPA (4 May 2018) determined that DFJ Holdings is not responsible for site contamination beyond the boundaries of the Site. However, EPA (4 May 2018) also noted that the site contamination audit must still consider the impacts of any on-site contamination to on and off-site receptors. This SRP is mindful of this directive with respect to mitigating the potential ongoing migration of site related contamination under offsite areas (in groundwater and soil vapour) based on the risks reported / assessed in EPA Assessment Area reports and LWC, 2021.

6.3 Remediation Goals

The goals of the remediation works are to address the following:

1. Remove potential risks to the proposed sensitive land use posed by the presence of remnant structures and potential associated soil contamination to render the Site suitable for sensitive land use.
2. Eliminate on site risk to future human receptors in a sensitive land use setting that may occur via VOC (TCE and others) vapour intrusion. Validate that the post remediation soil vapour profile does not present a risk to such receptors following source removal, noting TCE is present in groundwater (i.e. post remediation vapour assessment will confirm / deny that groundwater TCE is not a risk to sensitive receptors via the vapour inhalation pathway).
3. Mitigate ongoing risk to offsite receptors with respect to future/ ongoing migration of TCE to groundwater from a site based source and ongoing future migration of TCE (and associated VOC) in groundwater to offsite down hydraulic gradient receptors (residents located offsite).

4. Mitigate ongoing risk to offsite receptors with respect to future/ ongoing migration of TCE (and other VOC) in the unsaturated zone (i.e. and soil vapour) from a site based source to offsite receptors (residents located offsite).
5. Mitigate potential risks to **human health** posed by impacted shallow soils (lead and benzo(a)pyrene TEQ) to render the Site suitable for sensitive land use.
6. Mitigate potential risks to the **environment** posed by impacted shallow soils (copper, zinc, benzo(a)pyrene and TRH) to render the Site suitable for sensitive land use; and
7. Undertake the remedial works such that:
 - a) The risks to human health from such site contamination are eliminated;
 - b) The risks to water and the environment are eliminated to the extent reasonably practicable; and
 - c) All works are undertaken in accordance with relevant regulatory provisions and guidance.
8. Noting TCE is present in groundwater up-hydraulic gradient of the Site, a Groundwater Monitoring and Management Plan must be prepared and implemented post remediation to assess the potential for recontamination of the site over time, and how this may alter the assessed soil vapour risk profile following primary and secondary TCE source removal.

In essence, the remediation goals are to:

- **Eliminate or prevent risks posed to human health by soil and soil vapour contamination on and under the Site.**
- **Eliminate or prevent risks to water and the environment to the extent practicable.**

6.4 Remedial Options Assessment

CRC CARE (2018) notes that a screening exercise should be undertaken to assess what contaminants particular technologies can treat, and what medium they are effective in (i.e. soil, groundwater) to assemble a list of potential treatment options. Preliminary screening allows multiple remediation options to be appraised, and efficiently discounts those which are clearly not viable for the site, or will not meet the established remediation objectives.

6.4.1 Soil and Soil Vapour Remediation

For soil-borne contaminants, the following remedial options are considered **(including in relation to suspected soil borne TCE vapour)**:

- Containment
- Chemical immobilisation and solidification
- Bioremediation
- Soil washing
- Thermal desorption
- Excavation (and disposal)
- Soil vapour extraction.

The chemical substances requiring remediation in soil are:

- PAH (benzo(a)pyrene)
- Total Recoverable Hydrocarbons
- copper
- zinc
- lead
- **Soil borne VOC source (potential secondary source of TCE other than a primary source such as a tank, sump, pipe etc.)**

A detailed description of these remedial technologies can be found in Appendix A of CRC CARE (2018). A screening matrix of suitability of such technologies per chemical substance type is presented as Table 6-1.

Table 6-1 Remedial options summary (after CRC CARE, 2018) for groundwater and soil based contamination

Media	Technology	Inorganics (including metals)	Petroleum hydrocarbons	Volatile organic compounds	Semi volatile organic compounds	PAHs
Soil	Bioremediation	?	Y	Y	Y	?
	Chemical immobilisation and solidification	Y	?	?	?	?
	Containment	Y	Y	Y	Y	Y
	Excavation	Y	Y	Y	Y	Y
	Soil vapour extraction	N	Y	Y	?	?
	Soil washing	?	?	?	?	?
	Thermal desorption	N	Y	Y	Y	Y
Groundwater	Barrier systems	Y	Y	Y	Y	?
	In-situ air sparging	N	Y	Y	Y	Y
	In-situ chemical oxidation	N	Y	Y	Y	?
	Monitored Natural Attenuation	?	Y	Y	?	Y
	Pump and treat	Y	Y	Y	Y	Y
	Skimming	N	Y	Y	Y	N
Legend: Y - Viable remediation option ? - Potentially viable remediation option (less common or demonstrated) N - Not viable remediation option (or not known / demonstrated)						

6.4.1.1 Fill Zone Remediation

With respect to the fill material containing PAH, metals and non-volatile TRH, Table 6-1 indicates the following options may be appropriate when considering all three contaminant types:

1. Containment / excavation

Thus containment/ excavation (disposal) is the only method that suits all three chemical types due to the recalcitrance of these chemical substances (note that PAH and TRH can be susceptible to bioremediation ('degradation') though the metals are not suitable candidates for biodegradation).

Given that the proposed site layout design for the proposed development is not available (not yet formulated), and noting that there is a prescribed open space area that will be required, it may be possible to excavate the fill and contain within the open space area. This would then require a Site Management Plan to be developed to manage such area moving forward.

This containment option could be considered later (when development plans become available) and submitted to the auditor for review and approval.

6.4.1.2 Soil Vapour Source Remediation

The VOC (TCE and other VOC) source is not co-located with Fill Zones A – C and therefore may be treated separately to the Fill Zone areas.

The key risks that require elimination or mitigation with respect to TCE and other VOC are:

1. TCE (and other VOCs) in soil vapour (both on and offsite) with respect to a proposed sensitive land use
2. Elimination of offsite risk with respect to potential ongoing future migration of TCE (and other VOCs) to groundwater (and associated lateral migration of TCE in groundwater and associated soil vapour to offsite areas).

The installation of a vapour mitigation system could address on-site risks posed by soil vapour contamination, but will not address future potential risks to off-site receptors – which may continue to exist if the on-site source primary (if present) and secondary soil sources of soil vapour (and groundwater) contamination are not removed.

It is not yet clear as to what is the primary contributory source of TCE beneath the Site, though could be one or more of the following three sources:

1. A primary source in the vadose zone (e.g. tank, sump. Pipe etc.).
2. Secondary source (soils) around a former spill and/ or around a primary source.
3. TCE in groundwater.

With respect to remedial options for the VOC source (as per Table 6-1), the following four remedial options are indicated as being appropriate for remediation of VOC in the unsaturated zone:

1. Bioremediation
2. Containment/ Excavation
3. Soil vapour extraction
4. Thermal desorption

Bioremediation may be possible but is likely to require a long timeframe for satisfactory completion compared to excavation (and offsite disposal). Containment may still present a vapour source on site.

However, following excavation (and validation of the excavation) some form of bioremediation of the excavated soils may be possible if there is suitable space on site to stockpile and treat VOC impacted soils and a suitable timeframe (months).

Soil vapour extraction (SVE) would remove the soil vapour in the short to medium term but may not eliminate all ongoing vapour generation where a primary or secondary source exists. Nor would SVE eliminate (to extent practicable) ongoing risk of migration of VOC to groundwater.

Thermal desorption is a high cost and high energy option that is considered unlikely to be cost effective or cost achievable for this project.

Physical intervention is therefore considered to be the most appropriate option and in lieu of available certainty with respect to space and time, excavation and disposal is set out in this document as a default approach. The treatment may be revisited (and reviewed and endorsed by the appointed auditor) once the development has been refined in terms of timeframes and available space for on-site treatment.

Excavation and removal of the source is therefore considered to be the most effective option with respect to eliminating potential risk to a future sensitive site use and mitigating potential ongoing migration of TCE to groundwater at this time.

Once a primary and/ or secondary source is removed, the contribution of TCE in groundwater to the soil vapour flux will become apparent.

For this reason, soil vapour sampling is required to be undertaken AFTER TCE vadose located source removal has occurred so as to confirm / deny that groundwater borne TCE is not a risk to future land use via the vapour inhalation pathway.

If soil vapour contamination and risks to on-site receptors remain following removal of the suspected primary and secondary sources of soil vapour contamination under Building C, then vapour mitigation systems may still be required – if occupied structures are proposed in this portion of the site.

6.4.2 Groundwater Remediation

TCE (and representative TRH range) and PFAS along with boron, nickel, manganese and selenium and inorganics (nitrogen species and phosphate) are present in groundwater. Of these, only boron and the inorganics are considered likely to be not site sourced (Table 6-1). The other chemical substances could be attributable to both on-site and offsite sources.

Of the chemicals potentially attributable to the Site, TCE poses the **key risk** to both on and offsite receptors due to its recalcitrant characteristics, toxicity and its propensity (along with other associated VOC) to volatilise and present a vapour intrusion risk in indoor air environments. Direct exposure to TCE (and other VOCs and site related contaminants) by extraction and use of groundwater is currently mitigated by the GPA.

For groundwater borne contaminants, as per Table 6-1 the following remedial options are considered:

- In Situ Air Sparging (VOCs only).
- In Situ Chemical Oxidation (and surfactant enhanced in situ chemical oxidation) (VOCs only).
- Source removal and monitored natural attenuation.
- Barrier systems (permeable reactive barriers and cut off walls)
- Pump and treat.

It is noted that remediating groundwater under the site by means other than source removal and monitored natural attenuation is likely to be impracticable – particularly in the context of:

- Other sources – there are offsite sources (concentrations) of TCE of similar magnitude both up and down hydraulic gradient of the Site such that specific remediation of the groundwater beneath the Site would not eliminate TCE in groundwater in the Assessment Area or under the site.
- Benefits – up hydraulic gradient sources of TCE and TCE in groundwater from other sources in areas surrounding the site may re-contaminate the Site in the future and negate the benefits provided by any on-site groundwater remediation.
- Technical limitations – due to the complex hydrogeological conditions under the site and surrounding areas, which would make treatment by extraction or injection (of ameliorants) problematic and unlikely to be successful.
- Sustainability – due to the potential for recontamination of the Site in relation to offsite TCE in groundwater, energy expended and waste generated from remediation may be unsustainable to return the groundwater beneath the Site to a natural pristine condition.

Further consideration of significance of TCE in groundwater beneath the Site must be undertaken after removal (elimination) of the unsaturated zone TCE source, including accounting for potential recontamination of the Site by up-hydraulic gradient groundwater/ soil vapour contamination. This must be set out (managed) within a Groundwater Monitoring Management Plan, approved / endorsed by the auditor.

6.5 Preferred Remediation Options

6.5.1 Soil Contamination

Fill Zones A – C: the specific lay out / nature of future development is unknown at time of the development of this SRP therefore the proposed management option is removal of fill to a licensed facility.

Future development proposals may wish to consider amending this option to one of on-site retention either beneath high density dwellings or within a potential mandated open space area within the development, subject to site contamination auditor approval and implementation of a site management plan.

Soil contamination (secondary source) associated with TCE (and other VOC) is discussed under Section 6.5.2 (“Soil Vapour Contamination”).

6.5.2 Soil Vapour Contamination

- Excavation and off-site disposal (if present) of primary source and associated secondary residual soil sources of TCE (and other VOCs) reported in soil vapour.
- Implementation of vapour validation program post remediation.
- Implementation of intrusion mitigation and monitoring measures, if required (following receipt and processing of post remediation soil vapour results against the provided soil vapour screening criteria). This may take the form of vapour intrusion membranes on residential dwellings, subject to the residual soil vapour profile post remediation. A site specific vapour intrusion mitigation plan (design, installation, verification) must be prepared and submitted to the auditor for review, where required.

6.5.3 Groundwater Contamination

- Excavation and off-site disposal (if present) of primary and residual soil sources of TCE (and other VOCs and possible PFAS, TRH and some metals) contamination in groundwater.
- Implementation of a groundwater management and monitoring plan following remediation – which is considered necessary to assess the impacts of source removal and whether natural attenuation is sufficient to address residual groundwater contamination.

6.6 Stakeholder Engagement

A number of residential properties are located in close proximity to the Site along Glyde and Osborne Street. Community Consultation is to be undertaken prior to the commencement of the Site demolition and redevelopment project.

All communication is to be undertaken in accordance with SA EPA (2018) Site Contamination: Guideline for Communication and Engagement. In the first instance, nearby residences are to be notified via a letter drop. A letter will be prepared by the SRP Manager in conjunction with the Site Owner and provided to the appointed site contamination auditor.

Additional community involvement and consultation may be necessary where possible nuisance or effects on the amenity of the locality, e.g. from noise, dust or odour might occur. Nuisances for short periods are generally more tolerable, but nuisance over periods of time can result in increased frustration. Hence additional measures to minimise impacts to the community may be required.

Stakeholder engagement should also include the EPA and City of Charles Sturt (Council) and consider relevant information on off-site contamination from the site.

6.7 Remediation Tasks

6.7.1 Preliminary works

The following preliminary works are to be undertaken prior to the commencement of the remediation works:

- A Site-specific Work Health and Safety Management Plan (WHSMP) including a Job Safety Environmental Assessment (JSEA) will be prepared for the remediation works **PRIOR TO MOBILISATION (See Appendix A)**.
- All underground services will be located prior to the inception of site works. Ground Penetrating Radar (GPR) will be utilised to assist in locating services and/ or the location of any underground tanks following removal of above ground buildings.
- A groundwater well decommissioning permit shall be sourced from the Department of Environment and Water in relation to decommissioning monitoring well GW08 within the northern building (Building C).

6.7.2 Site Preparation, Access and Security

Site access to the area of the proposed remediation works shall be restricted to personnel inducted into the SRP. The Site will be appropriately fenced off prior to commencement of works, using temporary fencing, bunting and warning signs, in order to restrict unnecessary workers and the general public from the work area. It is expected that the demolition contractor will affix a suitable safe work SA approved notice board to the secure perimeter fencing alerting of relevant emergency contact numbers.

Where the chainage/ continuation of the permanent fencing is not complete, temporary fencing suitable to prevent site access must be installed.

6.7.3 Retention of Existing Groundwater Monitoring Wells

IMPORTANT

A period of groundwater monitoring (verification) is required to be undertaken post remediation. It is vital that every effort is made to protect and conserve the existing groundwater monitoring well network on the Site, **with exception of GW08 within the northern building (Building C)**. Well GW08 will likely fall within the Building C remediation zone and must be appropriately decommissioned in accordance with DEW permits conditions prior to demolition of the northern building (Building C) structure.

Groundwater monitoring well locations are shown in the Figures section. All locations must be protected to ensure future validity.

6.7.4 Demolition

All asbestos containing materials (ACM) and any other hazardous materials must be removed from the buildings by appropriately licensed practitioners and in accordance with relevant South Australian and National Guidance. The following resource should be consulted prior to works to ensure latest regulations and guidance are adhered to:

<https://www.asbestos.sa.gov.au/>

The remediation works will occur once the above ground improvements have been demolished and removed and all ACM and hazardous materials have been removed.

Appropriate ACM clearance certificates must be provided by the independent licensed ACM inspector by the licensed ACM practitioner undertaking the works, to the SRP Manager, prior to breaking ground so as to mitigate burial/ transfer of ACM to the subsurface.

6.7.5 Southern Buildings (Building G)

As access under the office buildings in the southern portion of the site was not possible during the investigations. Soils in this area must be inspected and sampled following demolition of site buildings. Additional sampling is also specified for Buildings D to F, as per Table 6-4.

6.7.6 Building C TCE Source

It is theorised that the source of TCE is beneath the northern portion of Building C possibly extending northwards to the northern boundary. Once the above ground improvements have been removed, the slab / foundation of Building C must be removed.

ENSURE GROUNDWATER WELL GW08 HAS BEEN APPROPRIATELY DECOMMISSIONED!

The Environmental Consultant must be present at the commencement of this action in order to observe, inspect and assist in identification of any indication of sub-floor source of TCE e.g. a sump, tank, drain, pipework, stained soil etc.

Where a tank or tanks or sump(s) are present, the contents of the tank(s) or sump(s) must be removed and disposed of to a licensed facility by a licensed operator.

Where a tank or tanks are present, these will be removed in accordance with guidelines and requirements detailed in:

1. SA EPA (2019c) *Guidelines for the Assessment of Underground Storage Systems*.
2. AS 4976-2008 - *The removal and disposal of underground petroleum storage tanks*:
3. EPA Victoria (2015) *The Design, Installation and Management Requirements for Underground Petroleum Storage Systems (UPSS)*.

The following will occur should underground tanks be identified as the source:

- a) The contractor will disconnect and remove all ancillary pipework connected to the infrastructure. Any openings in the infrastructure as a result of removing the associated pipework, must be sealed.
- b) The contractor will excavate the infrastructure and remove them from the resultant excavation pits. Tanks and associated pipework will be relocated to a remote and sealed area of the Site. LWC will inspect and photograph each tank and associated infrastructure.
- c) The contractor will dispose of infrastructure at an appropriately licensed disposal facility and provide records of disposal/ transfer of ownership as per Australian Standard AS 4976:2008 *The Removal and Disposal of Underground Petroleum Storage Tanks*.
- d) Once the infrastructure has been removed, the resultant excavation will be cleared of backfill sands and collapsed soil such that the walls and base of the excavation may be easily inspected. Backfill sands will be stockpiled separately from other excavated material for validation.
- e) The excavation extent will be inspected for evidence of contamination (i.e. staining) and the exposed soil lithology logged in accordance with Australian Standards.
- f) Samples will be collected from the walls and base of all associated excavations using the excavator bucket (or where shallow excavations are relevant such as pipework, samples can be collected by clean gloved hand) and screened in the field for evidence of VOC contamination using a calibrated photo ionisation detector (PID). The PID must be capable of detecting both petroleum and chlorinated hydrocarbons.
- g) Once LWC is satisfied that excavation need not be extended further, the final dimensions of each excavation will be measured and recorded. This is when validation samples will be collected.
- h) The validation sample densities will be as follows:
 - i. A minimum of two (2) samples per wall/ base and additional samples collected per 25 m² of exposed wall/ base i.e. if the western wall of an excavation is 30 m², two (2) evenly spaced samples will be collected from the western wall.
- i) Where observation and PID screening indicate that soils are potentially contaminated to an extent unlikely to be suitable to remain in-situ (i.e. a PID over 5 ppm_v)², excavation will be extended to remove the contaminated soil prior to re-sampling.
- j) All excavated soils will be stockpiled on site on a hardstand and bunded area. The stockpile of soil should be covered with an impermeable cover. All stockpiles will be appropriately bunded. Effort will be made to separate stockpiles according to levels of suspected contamination (to be inferred by visual/ olfactory evidence of potential impact).
- k) Each distinct stockpile will be provided a unique identifier and described in terms of dimensions, volume, soil type and source and suspected contamination status.

² In LWC experience, soil moisture can cause a PID ppm of up to ~10 ppm_v, therefore 50% of this is set for conservatism.

- l) Excavation pits will be left open and surrounded by temporary fencing until laboratory results for the walls and base samples, and exhumed stockpile material, are received.

Where no specific physical infrastructure that may be the source of TCE is identified or surface soil staining, the following must occur:

- m) Excavate 1 m deep trench (bucket width) at 1 m distances, running north – south from the former northern wall of Building C to the approximate former middle line of Building C. Repeat tasks (e) and (f) above. **Refer Figure 4.**
- n) Samples of soil obtained from 1 wall of each trench must be screened using a PID at distances along each trench at a distance of no greater than 1 m.

AUDITOR HOLD POINT 1: Auditor (in the company of LWC) to observe the condition of the resultant tank pit/ other excavations/ remediation/ validation area immediately after validation sampling.
WHEN SATISFACTORY – PROCEED TO SECTION 6.9 (BACKFILL)

6.7.7 Fill Zone A, B and C Management

The proposed redevelopment includes residential land use. Soil contamination that exists at the Site will be managed by excavation of contaminated material for disposal off-site, as set out in Table 6-3 and in Figures 5a and 5b.

Please note, the final remedial extents shall be based on field observations and analytical results.

Soils that are considered to not be aesthetically suitable (**refer Section 6.8.4.4**) shall be excavated and stored on site separate to chemically impacted soils. This soil will be identified for re-use beneath future building slabs, footpaths, roadways.

Table 6-2 Fill Management

Nature	Extent	Approximate Area / Volume	Management Action
<p>Fill Zone A</p> <p>Comprising chemicals (lead – human health and copper, zinc - ecology) in sample location SB09 at 0.0-0.2 m.</p> <p>Human health lead</p> <p>environment (ecology) copper, zinc,</p>	<p>Laterally –</p> <p>The fill evident in SB09 is not evident in bores radial to such location unless counting SB16 to the south. The concentrations of metals reported maybe attributable to the fill itself (i.e. uncontrolled imported fill) or could be a function of loss of lead based paint from the northern warehouse, historically, noting the surface is sealed here. Alternatively it could be a function of processes / activities undertaken at the Site in Gadsdens days.</p> <p>Vertically –</p> <p>Copper and zinc are delineated to 0.2 m however elevated lead (relative to HIL A) is reported in the sample from natural at 0.2 m – 0.4 m.</p>	<p>Refer Figure 5a and 5b</p> <p>517 m² / 207 m³</p>	<p>Excavate the material to the extent shown in Figure 5a/5b, to a depth of 0.4 m and transport / dispose to a licensed facility under SA EPA waste transfer protocol (Section 7.4).</p> <p>Validate area as per Section 6.8.1</p>
<p>Fill Zone B</p> <p>Comprising copper, lead and zinc in location SB16.</p> <p>Human health</p>	<p>Laterally –</p> <p>The fill evident in SB16 is not evident in bores radial to such location unless counting SB09. The concentrations of metals reported maybe attributable to</p>	<p>Refer Figure 5a and 5b</p> <p>219 m² / 44 m³</p>	<p>Excavate the material to the extent shown in Figure 5a/5b, to a depth of 0.2 m and transport / dispose to a licensed facility under SA EPA waste transfer protocol (Section 7.4).</p>

Nature	Extent	Approximate Area / Volume	Management Action
<p>lead environment (ecology) copper, lead, zinc</p>	<p>the fill itself (i.e. uncontrolled imported fill) or could be a function of loss of lead based paint from the northern warehouse, historically, noting the surface is sealed here. Alternatively it could be a function of processes / activities undertaken at the Site in Gadsdens days.</p> <p>Vertically – Delineated to 0.2 m.</p>		<p>Validate area as per Section 6.8.1.</p>
<p>Fill Zone C</p> <p>In the scaffold storage area on the western side of the Site – potentially associated with the former Gadsdens business. Characterised by black, grey gravelly sand / clayey gravel with occasional brick, bitumen, tar and glass and concentrations of metals (copper, lead, zinc) PAH (BaP TEQ) and TRH (Fraction C16-34) above human health and ecological / environmental protection criteria.</p> <p>Tier 1 criteria exceeded for residential land use</p> <p>human health lead, BaP_{TEQ}</p> <p>environment (ecology) copper, zinc, BaP and Fraction C16-C34.</p>	<p>Laterally – Located to the west of the northern warehouse stretching from SB19 in the north to SB25 in the south, note that these areas are unsealed.</p> <p>Vertically – SB20 reports a depth of 0.7 m although this is logged as clayey gravel. Elsewhere the fill is generally gravelly sand or silt and averages 0.2 m thick (deep).</p> <p>Concentration wise the BaP_{TEQ} in SB20 is not delineated however the fill reports tar fragments and it is considered that the reported BaP concentrations are synonymous with the fill layer.</p> <p>The area is characterised by unsealed surface used for commercial storage of scaffold and occasional metal (inert) waste. The older non scaffold metal items may be the source of metals in soils (i.e. metal flakes or shavings) or equally the fill itself could be the source, or even former use of the site by Gadsdens.</p>	<p>Refer Figure 5a and 5b 1,916 m² / 383 m³</p>	<p>Excavate the material to the extent shown in Figure 5a/5b, to an average depth of 0.2 m and transport / dispose to a licensed facility under SA EPA waste transfer protocol (Section 7.4).</p> <p>Inspect area in and around soil bore SB20 to assess whether fill is present at greater depth and should be removed.</p> <p>Validate area as per Section 6.8.1.</p>

6.8 REMEDIATION VALIDATION

6.8.1 Soil Contamination Validation

6.8.1.1 VOC Validation (Building C)

IMPORTANT!

The sampler should ensure that samples are collected and forwarded to the nominated appropriately accredited laboratories in accordance with PFAS sampling protocols set out in HEPA (2020). These measures should be acknowledged in the Remediation Validation Report.

All excavations and associated stockpiles undertaken/ generated as a result of works set out in Section 6.7 shall be validated as follows:

- The **Environmental Consultant** will collect validation samples from the **walls and base** of excavations. Samples will be collected directly from the centre of the excavator bucket by hand - a fresh clean nitrile glove must be used for the collection of each sample. Additional sampling will be undertaken along/ beneath and excavations for associated pipework that extends outside of the footprint covered by the excavations. Sampling will be conducted in accordance with the National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended 2013 (ASC NEPM).
- LWC will sample exhumed (**stockpiled**) material to determine classification for either reuse as backfill or for offsite disposal.
- The validation sample densities will be as follows:
 - A minimum of two (2) samples per wall/ base and additional samples collected per 25 m² of exposed wall/ base i.e. if the western wall of an excavation is 30 m², two (2) evenly spaced samples will be collected from the western wall.
 - The stockpile sampling density is based on ASC NEPM rates and will be 1 sample per 25 m³ of stockpiled material and a minimum of three (3) samples collected per stockpile. Sufficient samples will also be collected (and placed on hold at the laboratory) to facilitate statistical assessment of stockpiled material, if required.
- Validation and stockpile soil samples will be collected using a fresh pair of nitrile disposable gloves and screened with a PID fitted with a lamp that can detect chlorinated and petroleum hydrocarbons. This will help guide remedial extents for all areas. in order to detect the presence of VOC. Soils will be logged in accordance with Australian Standard 1726:2017 Geotechnical Site Investigations.
- Soil samples must be collected in accordance with Standards Australia 1999, 4482.2-1999 Guide to the Sampling and Investigation of Potentially Contaminated Soil. Part 2: Volatile Substances (Standards Australia AS4482.2-1999). Soil samples must be sent under chain of custody protocol to appropriately accredited laboratories.
- Field QA/QC samples will include the following:
 - A minimum of one blind coded intra-laboratory duplicate, and one blind coded inter-laboratory duplicate (i.e. 1:20 intra-laboratory and 1:20 inter-laboratory duplicates).
 - Laboratory supplied trip blanks will accompany both the primary and secondary samples for testing of volatile analysis (TRH Fraction C6-C10). The purpose of a trip blank is to confirm that no contamination is being introduced during shipping and field handling procedures and are typically only analysed for volatile compounds.
 - Noting that samples are to be collected directly from the excavator bucket utilising a fresh pair of disposable gloves per sample, it is considered that the potential of cross-contamination

between sample locations will be mitigated and, as such, no rinsate samples are required to be collected/ analysed.

- LWC will submit validation samples to a National Association of Testing Authorities (NATA) accredited laboratory. Analysis will cover relevant contaminants of concern to determine suitability of soils to remain in-situ in accordance with the ASC NEPM (1999, as amended 2013).
- LWC will submit stockpile samples for analysis by a NATA accredited laboratory. Analysis will cover relevant contaminants of concern to allow for onsite reuse in accordance with the ASC NEPM (1999, as amended 2013) or offsite disposal in accordance with the SA EPA waste classification guidelines (2010) i.e. one sample per stockpile to be analysed for the broad SA Waste Screen with all remaining samples to be analysed for contaminants of concern.

AUDITOR HOLD POINT 2: LWC must provide an email update summarising the validation results of each staged remediation/ validation area. Auditor to provide comment regarding the adequacy of the validation results for the respective staged remediation/ validation area.

Table 6-3 Building C Excavation and Stockpile Validation Sampling Density and Analysis

Area / Feature	Approximate Area / Volume	Sample number	Analysis														
Excavation(s)	Unknown – density / rate of sampling is provided.	<p>5 samples from across the surface of the base of the excavation or if large excavation one sample every 2 m².</p> <p>1 sample every 5 linear metres and every 0.5 vertical metre from the wall of the excavation</p> <p>(Per excavation)</p>	<p>VOCs</p> <p>arsenic, cadmium, chromium (total), copper, nickel, lead, manganese, zinc, mercury, selenium</p> <p>Organochlorine pesticides and organophosphate herbicides</p> <p>TRH/ BTEXN</p> <p>PAH</p> <p>PFAS (short suite, standard limit of reporting)</p> <p>Leach testing of PFAS from 25% of samples as sometimes PFAS is undetectable in soil.</p> <p>ACM if observed</p>														
Associated stockpiles removed from excavation(s)	Unknown – density / rate of sampling is provided.	<p>Undertake sampling density / rate in accordance with Table 4 of Schedule B2 of the ASC NEPM:</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Stockpile volume, (m³)</th> <th>No. of samples</th> </tr> </thead> <tbody> <tr> <td><75</td> <td>3</td> </tr> <tr> <td>75 – <100</td> <td>4</td> </tr> <tr> <td>100 – <125</td> <td>5</td> </tr> <tr> <td>125 – <150</td> <td>6</td> </tr> <tr> <td>150 – <175</td> <td>7</td> </tr> <tr> <td>175 – <200</td> <td>8</td> </tr> </tbody> </table> <p>(Per stockpile)</p>	Stockpile volume, (m ³)	No. of samples	<75	3	75 – <100	4	100 – <125	5	125 – <150	6	150 – <175	7	175 – <200	8	<p>VOCs</p> <p>arsenic, cadmium, chromium (total), copper, nickel, lead, manganese, zinc, mercury, selenium</p> <p>Organochlorine pesticides and organophosphate herbicides</p> <p>TRH/ BTEXN</p> <p>PAH</p> <p>PFAS (short suite, standard limit of reporting)</p> <p>Leach testing of PFAS from 25% of samples as sometimes PFAS is undetectable in soil.</p> <p>ACM if observed</p> <p>Minimum 1 sample for SA EPA waste screen if proposed to dispose off-site.</p> <p>Leach testing to allow disposal to landfill as required</p>
Stockpile volume, (m ³)	No. of samples																
<75	3																
75 – <100	4																
100 – <125	5																
125 – <150	6																
150 – <175	7																
175 – <200	8																

6.8.1.2 Source Validation “Shallow Fill”

Following the removal of the fill (Fill Zones A, B and C), the exposed fresh surface of soil must be sampled using the sampling density presented in Table 6-5, which is based on Table E1 of AS4482.5-2005.

Table 6-4 Validation Sampling Density and Analysis per Fill Zone

Nature	Approximate Area / Volume	Sample number	Analysis
<p>Fill Zone A</p> <p>Comprising chemicals (lead – human health and copper, zinc - ecology) in sample location SB09 at 0.0-0.2 m.</p> <p>Human health</p> <p>lead</p> <p>environment (ecology)</p> <p>copper, zinc,</p>	<p>Refer Figure 5a and 5b</p> <p>517 m² / 207 m³</p>	<p>5 samples from across the surface</p> <p>1 sample every 5 m from the edge of the excavation (101 m perimeter = 20 samples).</p> <p>Edge samples collected from the upper 0.2 m of the excavation face and every 0.5 m down face thereafter (as required).</p>	<p>arsenic, cadmium, chromium (total), copper, nickel, lead, manganese, zinc, mercury, selenium</p> <p>Organochlorine pesticides and organophosphate herbicides</p> <p>TRH/ BTEXN</p> <p>PAH</p> <p>PFAS (short suite, standard limit of reporting)</p> <p>Leach testing of PFAS from 25% of samples as sometimes PFAS is undetectable in soil.</p> <p>ACM if observed</p>
<p>Fill Zone B</p> <p>Comprising copper, lead and zinc in location SB16.</p> <p>Human health</p> <p>lead</p> <p>environment (ecology)</p> <p>copper, lead, zinc</p>	<p>Refer Figure 5a and 5b</p> <p>219 m² / 44 m³</p>	<p>5 samples from across the surface</p> <p>1 sample every 5 m from the edge of the excavation (77 m perimeter = 16 samples)</p> <p>Edge samples collected from the upper 0.2 m of the excavation face and every 0.5 m down face thereafter (as required).</p>	<p>arsenic, cadmium, chromium (total), copper, nickel, lead, manganese, zinc, mercury, selenium</p> <p>Organochlorine pesticides and organophosphate herbicides</p> <p>TRH/ BTEXN</p> <p>PAH</p> <p>PFAS (short suite, standard limit of reporting)</p> <p>Leach testing of PFAS from 25% of samples as sometimes PFAS is undetectable in soil.</p> <p>ACM if observed</p>
<p>Fill Zone C</p> <p>In the scaffold storage area on the western side of the Site – potentially associated with the former Gadsdens business. Characterised by black, grey gravelly sand / clayey gravel with occasional brick, bitumen, tar and glass and concentrations of metals (copper, lead, zinc) PAH (BaP TEQ) and TRH (Fraction C16-34) above human health and ecological / environmental protection criteria.</p> <p>Tier 1 criteria exceeded for residential land use</p> <p>human health</p>	<p>Refer Figure 5a and 5b</p> <p>1,916 m² / 383 m³</p>	<p>7 samples from across the surface</p> <p>1 sample every 5 m from the edge of the excavation (50 samples).</p> <p>Edge samples collected from the upper 0.2 m of the excavation face and every 0.5 m down face thereafter (as required).</p>	<p>arsenic, cadmium, chromium (total), copper, nickel, lead, manganese, zinc, mercury, selenium</p> <p>Organochlorine pesticides and organophosphate herbicides</p> <p>TRH/ BTEXN</p> <p>PAH</p> <p>PFAS (short suite, standard limit of reporting)</p> <p>Leach testing of PFAS from 25% of samples as sometimes PFAS is undetectable in soil.</p> <p>ACM if observed</p>

Nature	Approximate Area / Volume	Sample number	Analysis
lead, BaP _{TEQ} environment (ecology) copper, zinc, BaP and Fraction C16-C34.			
Building D Footprint (Figure 2)	Apparent footprint of 330 m ² = requirement for 5 samples pursuant to Table E1 of AS 4482.1-2005	5 – grid based	arsenic, cadmium, chromium (total), copper, nickel, lead, zinc, mercury in every sample Organochlorine pesticides and organophosphate herbicides in every three samples TRH / BTEXN in every two samples PAH in every sample ACM if observed
Building E Footprint (Figure 2)	Apparent footprint of 2,500 m ² = requirement for 8 samples pursuant to Table E1 of AS 4482.1-2005 Three undertaken in 2018.	5 – grid based	VOCs arsenic, cadmium, chromium (total), copper, nickel, lead, zinc, mercury in every sample Organochlorine pesticides and organophosphate herbicides in every three samples TRH / BTEXN in every two samples PAH in every sample PFAS (short suite, standard limit of reporting) in every two samples Leach testing of PFAS from 25% of samples as sometimes PFAS is undetectable in soil. ACM if observed
Building F Footprint (Figure 2)	Apparent footprint of 440 m ² = requirement for 5 samples pursuant to Table E1 of AS 4482.1-2005 One undertaken in 2018	4 – grid based	VOCs arsenic, cadmium, chromium (total), copper, nickel, lead, zinc, mercury in every sample Organochlorine pesticides and organophosphate herbicides in every three samples TRH /BTEXN in every two samples PAH in every sample PFAS (short suite, standard limit of reporting) in every two samples Leach testing of PFAS from 25% of samples as sometimes PFAS is undetectable in soil. ACM if observed
Building G Footprint (Offices) (Figure 2)	Apparent footprint of 270 m ² = requirement for 5 samples pursuant to Table E1 of AS 4482.1-2005	5 – grid based	arsenic, cadmium, chromium (total), copper, nickel, lead, zinc, mercury in every sample

Nature	Approximate Area / Volume	Sample number	Analysis														
			Organochlorine pesticides and organophosphate herbicides in every three samples TRH/BTEXN in every two samples PAH in every sample PFAS (short suite, standard limit of reporting) in every two samples Leach testing of PFAS from 25% of samples as sometimes PFAS is undetectable in soil. ACM if observed														
Associated stockpiles removed from excavation(s)	Unknown – density / rate of sampling is provided.	Undertake sampling density / rate in accordance with Table 4 of Schedule B2 of the ASC NEPM: <table border="1"> <thead> <tr> <th>Stockpile volume, (m³)</th> <th>No. of samples</th> </tr> </thead> <tbody> <tr> <td><75</td> <td>3</td> </tr> <tr> <td>75 – <100</td> <td>4</td> </tr> <tr> <td>100 – <125</td> <td>5</td> </tr> <tr> <td>125 – <150</td> <td>6</td> </tr> <tr> <td>150 – <175</td> <td>7</td> </tr> <tr> <td>175 – <200</td> <td>8</td> </tr> </tbody> </table> (Per stockpile)	Stockpile volume, (m ³)	No. of samples	<75	3	75 – <100	4	100 – <125	5	125 – <150	6	150 – <175	7	175 – <200	8	VOCs arsenic, cadmium, chromium (total), copper, nickel, lead, manganese, zinc, mercury, selenium Organochlorine pesticides and organophosphate herbicides TRH/ BTEXN PAH PFAS (short suite, standard limit of reporting) Leach testing of PFAS from 25% of samples as sometimes PFAS is undetectable in soil. ACM if observed Minimum 1 sample for SA EPA waste screen if proposed to dispose off-site. Leach testing to allow disposal to landfill as required
Stockpile volume, (m ³)	No. of samples																
<75	3																
75 – <100	4																
100 – <125	5																
125 – <150	6																
150 – <175	7																
175 – <200	8																

Validation and stockpile soil samples will be collected using a fresh pair of nitrile disposable gloves and screened with a PID (capable of detecting VOC and TRH) in order to detect the presence of VOC. Soils will be logged in accordance with Australian Standard 1726:2017 Geotechnical Site Investigations.

Soil samples will be placed into chilled clean laboratory jars and sent under chain of custody protocol to appropriately accredited laboratories.

Field QA/QC samples will include the following:

- A minimum of one blind coded intra-laboratory duplicates and one blind coded inter-laboratory duplicate (i.e. 1:20 intra-laboratory and 1:20 inter-laboratory duplicates).
- Laboratory supplied trip blanks will accompany both the primary and secondary samples for testing of volatile analysis (TRH Fraction C6-C10). The purpose of a trip blank is to confirm that no contamination is being introduced during shipping and field handling procedures and are typically only analysed for volatile compounds.
- Noting that samples are to be collected directly from the excavator bucket utilising a fresh pair of disposable gloves per sample, it is considered that the potential of cross-contamination between sample locations will be mitigated and, as such, no rinsate samples are required to be collected/ analysed.

LWC will submit validation samples to a National Association of Testing Authorities (NATA) accredited laboratory for the above analysis.

Sampling of the walls of the excavations (not just base) will be completed to demonstrate that the full lateral extent of contaminated soils has been removed.

Testing for VOCs will be included for validation of shallow fill zones (and elsewhere) where there is evidence of organic contamination (staining, odours, elevated PID readings), in addition to validation samples specified in Table 6-3.

6.8.2 Soil Vapour Contamination Validation

Following the removal of the inferred primary / secondary TCE (and other VOCs) source beneath Building C (and/ or extending northwards to the north boundary), a round of soil vapour sampling and analysis is required to assess:

1. The efficacy of the remediation works.
2. Residual flux of TCE from groundwater.

6.8.2.1 Rationale

Four nested soil vapour locations (8 probes) will be installed by SGS as follows:

- Two in the footprint of the source removal excavation after back fill works has occurred (Section 6.9).
- Two either side of the source removal excavation (total of eight – depending on excavation size / area) to assess completion of works and background soil flux external to the footprint.

The probes will be installed at the following depth intervals to assist in soil source versus groundwater source delineation:

- 1.1 m (results from this depth interval can be screened against ASC NEPM interim HIL for volatile organic chlorinated compounds); and
- 2.5 – 3.0 m – assess residual flux from groundwater

6.8.2.2 Soil Vapour Bore / Probe Installation

Soil vapour bores will be drilled with push tube. The soil profile and texture at each soil vapour probe will be logged in detail and soil samples collected for PID screening (and possible analysis). If there is evidence of residual NAPL, other testing will be considered.

If notable soil moisture is observed in the soil at the base of the soil bores, powdered bentonite will be placed in the base of each soil bore to ~100 mm above where the moisture was observed.

A stainless steel vapour probe with quarter inch Teflon tube connected to it will be lowered into the borehole so that the tip of the probe is just above the base of the powdered bentonite. The bore annulus will be backfilled with a clean washed sand pack to create a total sand pack interval of approximately 350 mm. The length of the soil vapour probe is 270 mm, with 50 mm of sand present beneath the base of the probe and 30 mm above the top of the probe. Approximately 50 mm of powdered bentonite will be placed above the sand pack.

A slurry of cement powder, bentonite powder and water at an approximate ratio of 10:7:1 will be used to backfill the borehole to a depth of approximately 0.15 m below the existing ground surface. The soil vapour probe will be completed with a flush mounted trafficable gatic cover and rapid set concrete to the surface.

6.8.2.3 Soil Vapour Sampling

The soil vapour sampling will be undertaken by SGS.

The soil vapour bore covers will be removed and a visual inspection of the Teflon tubing conducted to detect any damage to the tubing. A pressure test will be conducted to ensure vacuum will not be formed when purging soil vapour, and to ensure that there will be sufficient soil vapour present to sample. This will be undertaken using a hand pump with pressure gauge, with approximately five pumps of the hand pump completed (comprising approximately 60 mL per pump, total 80 mL volume of air purged from the soil vapour bore) followed by monitoring of the pressure relax.

A pressure test will be completed on the soil vapour sampling train prior to connection to the soil vapour probe. This will be completed by applying a vacuum to the soil vapour sampling train using a syringe and assessing if the vacuum held for 30 seconds. In both instances the vacuum will be held to indicate no leaks from the sampling train.

A leak test of the soil vapour probe will be then undertaken using 95% helium gas. A background measurement of helium in ambient air will be first recorded followed by a background measurement of helium in the soil vapour probe. A shroud will be placed over soil vapour probe and helium will be pumped into the shroud for five minutes, with the helium detector (GasCheck 5000) used to record helium measurements at 1 minute intervals within the shroud and the soil vapour sampling train. It is noted that the shroud will be flush with ground level, with no significant gaps present between the shroud and ground. The helium concentration within the shroud will be recorded following the leak testing of the soil vapour probe. If there is greater than 10 % in the sampling line then the soil vapour probe will be deemed compromised and will not be sampled.

The general gas readings (carbon dioxide, methane, oxygen, hydrogen sulphide, carbon monoxide and balance) will be measured with a landfill gas meter (GEM2000), firstly in ambient air and then in the soil vapour probe prior to sampling to assess the subsurface atmosphere and to provide confidence that soil vapour will be sampled and not ambient air. Volatile organic compound measurements will be collected using a PID at the time.

The time purging with the GA2000 and PID will be recorded, with the soil vapour probes being purged for the minimum amount of time required for parameters to stabilise prior to sampling. Where possible, both flow rate and differential pressure will be recorded during soil vapour sampling.

The PID, helium detector and landfill gas meter purge rates will be recorded on the soil vapour field sampling sheets. The Summa canister pressure will be then measured using the laboratory supplied pressure gauge and the reading compared to the initial canister pressure recorded by the laboratory. This checks if the canister has retained a vacuum in the transit period. No sample is to be collected with canisters with vacuum less than -25 in Hg.

The Summa canister will be fitted with a flow controller and connected to the soil vapour probe. Soil vapour will be then sampled, and the start sampling time will be recorded. Once the pressure reading on the flow regulator reaches approximately -5 in Hg, sampling will be ceased and the canister valve closed tight to prevent sample loss. The end sampling time will be then recorded.

A post sampling canister pressure check will be then undertaken using the laboratory supplied pressure gauge. Post sampling general gas and PID readings will be measured for comparison with readings taken prior to sampling.

All laboratory testing will be completed by National Association of Testing Authorities (NATA) accredited laboratories (SGS) in accordance with the laboratory methods specified in the ASC NEPM. Duplicate samples will be sent to ALS (also NATA accredited).

6.8.2.4 Soil Vapour Analysis

Soil vapour analysis is summarised in Table 6-5 and is to be completed at appropriately accredited laboratories. On receipt of results, and comparison to the soil vapour validation criteria, discuss the findings with the auditor.

HOLD POINT 3 – Discuss soil vapour results with the auditor.

Table 6-5 Soil vapour analysis

Primary	Quality Control Type	Total #	Suite
8	Intra laboratory (SGS) x 1	11	VOC + TRH (US EPA TO-15)
	Inter laboratory (ALS) x 1		
	Trip blank x 1 (primary only)		C6-C10 TRH as analogue marker for VOC (TCE in ~C9 range)
TRH	Total Recoverable Hydrocarbons		
VOC	Volatile Organic Compounds		

6.8.3 Groundwater Contamination Validation

Further to Section 6.5.3, direct remediation of groundwater contamination is not practicable, rather, the primary and secondary source of on-site TCE (and other VOC and potential PFAS and some metals) is being targeted to reduce the potential for ongoing site-related groundwater contamination (and associated on-site and future off-site soil vapour contamination and risks).

To assess the success of the remedial works, post-remediation groundwater monitoring must be completed, with the scope and approach to be documented in a groundwater monitoring and management plan.

A Groundwater Monitoring and Management Plan (GMMP) must be prepared and submitted to the auditor for review and approval prior to or alongside the Remediation Validation Report (RVR).

The GMMP must include as a minimum (but not limited to):

- The nominated well locations proposed for sampling.
- Monitoring schedule (at least annually for at least two years).
- Gauging methodology.
- Sampling methodology.
- Analytical schedule (must cover those chemicals listed in Table 6-1).
- Reporting methodology.

6.8.4 Validation Criteria

6.8.4.1 Soils

The validation criteria to be adopted for this scope of works is presented in Table 6-6 and is sourced from Schedule B1 of the National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM) (1999, as amended 2013) human health and ecological protection criteria for low density residential land use (sensitive land use). These are summarised as follows:

Human Health – Sensitive Land Use: Low Density

Where ASC NEPM HSLs are specified, note that these are for petroleum sources (and may not be applicable to the nature of vapour or volatile contamination associated with the Site), they will be used for screening purposes in the first instance. The presence and risks posed by vapour phase chemicals in the soil will be measured directly and assessed against the nominated soil vapour criteria.

- ASC NEPM (1999, as amended 2013) Health Investigation Level (HIL) A and Health Screening Levels (HSL (0-1 m) A/ B SAND (in first instance).
- ASC NEPM (1999, as amended 2013) Management Limits for TPH Fractions F1-F4 in soils for residential, parkland and public open space.
- Friebel, E and Nadebaum, P. (2010) Soil Health Screening Levels for Direct Contact Criteria and HSLs for vapour intrusion for intrusive workers – Appendix A of CRC CARE (2010).

Human Health – Sensitive Land Use: High Density

- ASC NEPM (1999, as amended 2013) Health Investigation Level (HIL) B and Health Screening Levels (HSL (0-1 m) A/ B SAND (in first instance).
- ASC NEPM (1999, as amended 2013) Management Limits for TPH Fractions F1-F4 in soils for residential, parkland and public open space.
- Friebel, E and Nadebaum, P. (2010) Soil Health Screening Levels for Direct Contact Criteria and HSLs for vapour intrusion for intrusive workers – Appendix A of CRC CARE (2010).

Human Health – Open Space

- ASC NEPM (1999, as amended 2013) Health Investigation Level (HIL) C and Health Screening Levels (HSL (0-1 m) C SAND (in first instance).
- ASC NEPM (1999, as amended 2013) Management Limits for TPH Fractions F1-F4 in soils for residential, parkland and public open space.
- Friebel, E and Nadebaum, P. (2010) Soil Health Screening Levels for Direct Contact Criteria and HSLs for vapour intrusion for intrusive workers – Appendix A of CRC CARE (2010).

Environment (Ecology) Protection

- ASC NEPM (1999, as amended 2013) Ecological Investigation Limits and Ecological Screening Levels (EILs and ESLs) for urban residential land use and public open space (including site specific derived EIL) (Schedule B1).

The following is noted regarding the ASC NEPM (1999, as amended 2013) ESL for benzo(a)pyrene (BaP; a PAH) for urban residential land use:

- The ESL for BaP presented in Schedule B1 of the ASC NEPM (2013) is 0.7 mg/kg however this is directly based on the Canadian ecological soil quality guideline (SQGE) that was rescinded in 2010. The revised Canadian SQGE is 20 mg/kg.
- On 2 July 2015, the EPA issued advice to site contamination auditors advising that a new BaP ESL is under review for inclusion in the ASC NEPM, but in the interim, given that the ASC NEPM

HIL A (most conservative of the presented HIL criteria) human health risk screening level of 3.0 mg/kg for BaP_{TEQ} is much lower than the Canadian SQGE, the risk driver will be protection of sensitive human health receptors. Application of the 3.0 mg/kg BaP_{TEQ} criterion for evaluation of risks to ecology is considered to be suitably protective of ecological receptors. Thus, where soils fail the human health criterion, they are also judged to be potentially problematic to ecological receptors, in the first instance, pending further ecological assessment / risk assessment.

Table 6-6 Soil Validation Criteria

Chemical Substance	Human Health			Environment	Adopted Criterion assuming HIL A scenario (mg/kg) in the first instance	Comment
	ASC NEPM HIL A (mg/kg)	ASC NEPM HIL B (mg/kg)	ASC NEPM HIL C (mg/kg)	Ecological Protection Criterion (mg/kg) (urban residential and public open space)		
TCE (and other VOC)	-	-	-	-	In field PID reading of <10 ppm in first instance during excavation phase – An allowance of 10 ppm is granted for soil moisture. Direct measurement of soil vapour will be undertaken for validation purposes.	Screening of soils using PID in first instance due to inaccuracy of laboratory analysis of TCE (volatile nature). Soil vapour analysis will be used for quantitative assessment.
arsenic	100	500	300	100	100	HIL A (and Ecological criterion) selected. Most conservative and protective value.
cadmium	20	150	90	-	20	HIL A criterion selected. Most conservative and protective value.
chromium (total) (adopting VI)	100	500	300	410 (Cr (III))	100	HIL A criterion selected. Most conservative and protective value.
copper	6,000	30,000	17,000	95 [#]	95	Ecological criterion selected. Most conservative and protective value.
lead	300	1200	600	1,100	300	HIL A criterion selected. Most conservative and protective value.
manganese	3,800	14,000	19,000	220	220	Ecological criterion selected. Most conservative and protective value. This value is likely to be less than naturally occurring Mn concentrations in soils of the Adelaide Plains. It will be difficult to identify naturally occurring concentrations from

Chemical Substance	Human Health			Environment	Adopted Criterion assuming HIL A scenario (mg/kg) in the first instance	Comment
	ASC NEPM HIL A (mg/kg)	ASC NEPM HIL B (mg/kg)	ASC NEPM HIL C (mg/kg)	Ecological Protection Criterion (mg/kg) (urban residential and public open space)		
						anthropogenic concentrations. Provide tier 2 discussion in the remediation validation report where concentrations exceed this value.
nickel	400	1200	1200	25 ^{##}	25	Ecological criterion selected. Most conservative and protective value.
selenium	200	1400	700	0.52 [^]	0.52	Ecological criterion selected. Most conservative and protective value. – likely to be best value for mitigation of selenium leaching from soil to groundwater.
zinc	7,400	60,000	30,000	280 ^{##}	280	Ecological criterion selected. Most conservative and protective value.
Mercury (methyl)	10	30	13	-	10	HIL A criterion selected. Most conservative and protective value.
benzo(a)pyrene TEQ	3	4	3	-	3	BaP _{TEQ} is used for human health protection and screening the ecological value.
benzo(a)pyrene	-	-	-	3	3	Refer notes above regarding adoption of 3 mg/kg over listed ASC NEPM value.
Total Polyaromatic Hydrocarbon (PAH)	300	400	300	-	300	Total PAH for human health is available in ASC NEPM. Ecological protection generally uses benzo(a)pyrene.
DDT+DDE+DDD	240	600	400	180 (DDT Only)	180	Use 180 to screen DDT+DDE+DDD
aldrin and dieldrin	6	10	10	-	6	Most conservative (health)
chlordane	50	90	70	-	50	Most conservative (health)
endosulfan	270	400	340	-	270	Most conservative (health)

Chemical Substance	Human Health			Environment	Adopted Criterion assuming HIL A scenario (mg/kg) in the first instance	Comment
	ASC NEPM HIL A (mg/kg)	ASC NEPM HIL B (mg/kg)	ASC NEPM HIL C (mg/kg)	Ecological Protection Criterion (mg/kg) (urban residential and public open space)		
endrin	10	20	20	-	10	Most conservative (heath)
heptachlor	6	10	10	-	6	Most conservative (heath)
HCB	10	15	10	-	10	Most conservative (heath)
methoxychlor	300	500	400	-	300	Most conservative (heath)
mirex	10	20	20	-	10	Most conservative (heath)
toxaphene	20	30	30	-	20	Most conservative (heath)
2,4,5-T	600	900	800	-	600	Most conservative (heath)
2,4-D	900	1600	1300	-	900	Most conservative (heath)
MCPA	600	900	800	-	600	Most conservative (heath)
MCPB	600	900	800	-	600	Most conservative (heath)
mecoprop	600	900	800	-	600	Most conservative (heath)
picloram	4500	6600	5700	-	4500	Most conservative (heath)
atrazine	320	470	400	-	320	Most conservative (heath)
chlorpyrifos	160	340	250	-	160	Most conservative (heath)
Bifenthrin	600	840	730	-	600	Most conservative (heath)
<p>TRH and BTEXN – note that soil vapour screening criteria is adopted in the first instance as it is more conservative than direct contact values in all cases unless marked ∅∅ and for intrusive maintenance workers (shallow trench). For completion, soil health screening levels for vapour intrusion for intrusive maintenance workers (shallow trench) and direct contact are presented in Table 6-8 and Table 6-9 respectively should the vapour based criteria be exceeded.</p> <p>Where ASC NEPM HSLs are specified, note that these are for petroleum sources (and may not be applicable to the nature of vapour or volatile contamination associated with the Site), they will be used for screening purposes in the first instance. The presence and risks posed by vapour phase chemicals in the soil will be measured directly and assessed against the nominated soil vapour criteria.</p>						
benzene	0.5 [†]	0.5 [†]	Non Limiting	50 [‡]	0.5	Human Health Protection criterion selected. Most conservative and protective value.
toluene	160 [†]	160 [†]	Non Limiting	85 [‡]	85	Ecological Protection criterion selected. Most conservative and protective value.
ethylbenzene	55 [†]	5 [†]	Non Limiting	70 [‡]	57	Human Health Protection criterion selected. Most conservative and protective value.
xylene	40 [†]	40 [†]	Non Limiting	45 [‡]	40	Human Health Protection criterion selected. Most conservative and protective value.

Chemical Substance	Human Health			Environment	Adopted Criterion assuming HIL A scenario (mg/kg) in the first instance	Comment
	ASC NEPM HIL A (mg/kg)	ASC NEPM HIL B (mg/kg)	ASC NEPM HIL C (mg/kg)	Ecological Protection Criterion (mg/kg) (urban residential and public open space)		
naphthalene	3 [†]	3 [†]	Non Limiting	170 [‡] #	3	Human Health Protection criterion selected. Most conservative and protective value.
Total Recoverable Hydrocarbon (TRH) Fraction F1	45 [†]	45 [†]	Non Limiting	180 [‡]	45	Human Health Protection criterion selected. Most conservative and protective value.
Total Recoverable Hydrocarbon (TRH) Fraction F2	110 [†]	110 [†]	Non Limiting	120 [‡]	110	Human Health Protection criterion selected. Most conservative and protective value.
Total Recoverable Hydrocarbon (TRH) Fraction F3	2,500 [∅]	5,800 ^{∅∅}	5,300 ^{∅∅}	300 [‡]	300	Ecological criterion selected. Most conservative and protective value.
Total Recoverable Hydrocarbon (TRH) Fraction F4	6,300 ^{∅∅}	8,100 ^{∅∅}	7,400 ^{∅∅}	2,800 [‡]	2,800	Ecological criterion selected. Most conservative and protective value.
PFAS – Sum of PFOA [#]	0.1	20	10	10	0.1	Human Health Protection criterion selected. Most conservative and protective value.
PFAS – Sum of PFOS and PFHxS [#]	0.01	2	1	1	0.01	Human Health Protection criterion selected. Most conservative and protective value.
Asbestos in Soils (Table 6-9)					Residential A	Most conservative
Key						
##			Site Specific Ecological Investigation Levels as derived using ASC NEPM Sch B1 process (refer LWC 2018).			
†			ASC NEPM Sch. B1 table 1A(3) Soil Health Screening Level (HSL) for Vapour Intrusion (sand, 0 – 1 m)			
‡			ASC NEPM Sch. B1 table 1B(6) Ecological Screening Levels (ESLs) for TPH Fractions F1 – F4, BTEX and benzo(a)pyrene in Soil			
∅			ASC NEPM Sch. B1 table 1B(7) Management Limits for TPH Fractions F1 – F4 in Soil			

Chemical Substance	Human Health			Environment	Adopted Criterion assuming HIL A scenario (mg/kg) in the first instance	Comment
	ASC NEPM HIL A (mg/kg)	ASC NEPM HIL B (mg/kg)	ASC NEPM HIL C (mg/kg)	Ecological Protection Criterion (mg/kg) (urban residential and public open space)		
∅ ∅				Table A4 of CRC CARE Technical Report 10		
#				PFAS National Environmental Management Plan Version 2.0', Heads of EPA Australia and New Zealand 2020		
^				Ecological Soil Screening Levels for Selenium Interim Final OSWER Directive 9285.7-72 – value is for plants (https://www.epa.gov/sites/default/files/2015-09/documents/eco-ssl_selenium.pdf)		
^^				Ecological Soil Screening Levels for Manganese Interim Final OSWER Directive 9285.7-71 – value is for plants (https://www.epa.gov/sites/default/files/2015-09/documents/eco-ssl_manganese.pdf)		

Table 6-7 Soil health screening levels for direct contact (mg/kg) (after Table A4 of CRC CARE Technical Report no. 10 Part 1 Appendix A – refer specific Table notes)

Chemical	HSL-A Residential (Low Density)	HSL-B Residential (High Density)	HSL-C Recreational / Open Space	HSL-D Commercial / Industrial	Intrusive Maintenance Worker
Toluene	14,000.	21,000.	18,000.	99,000.	120,000.
Ethylbenzene ^(c)	4,500.	5,900.	5,300.	27,000.	85,000.
Xylenes	12,000.	17,000.	15,000.	81,000.	130,000.
Naphthalene ^(c)	1,400.	2,200.	1,900.	11,000.	29,000.
Benzene	100.	140.	120.	430.	1,100.
C6-C10	4,400.	5,600.	5,100.	26,000.	82,000.
>C10-C16	3,300.	4,200.	3,800.	20,000.	62,000.
>C16-C34	4,500.	5,800.	5,300.	27,000.	85,000.
>C34-C40	6,300.	8,100.	7,400.	38,000.	120,000.

* Refer to Table Notes

Table 6-8 Soil health screening levels for vapour intrusion (mg/kg) for intrusive maintenance workers (shallow trench)

CHEMICAL ^(e)	Intrusive Maintenance Worker (Shallow Trench)			Saturation Conc. (C _{sat}) ^(j)
	0m to <2m	2m to <4m	4m+	
SAND ^(q)				
Toluene	NL	NL	NL	560.
Ethylbenzene ^(c)	NL	NL	NL	64.
Xylenes	NL	NL	NL	300.
Naphthalene ^(c)	NL	NL	NL	9.
Benzene	77.	160.	NL	360.
C6-C10	NL	NL	NL	950.
>C10-C16	NL	NL	NL	560.
SILT ^(q)				
Toluene	NL	NL	NL	640.
Ethylbenzene ^(c)	NL	NL	NL	69.
Xylenes	NL	NL	NL	330.
Naphthalene ^(c)	NL	NL	NL	10.
Benzene	250.	NL	NL	440.
C6-C10	NL	NL	NL	910.
>C10-C16	NL	NL	NL	570.
CLAY ^(q)				
Toluene	NL	NL	NL	630.
Ethylbenzene ^(c)	NL	NL	NL	68.
Xylenes	NL	NL	NL	330.
Naphthalene ^(c)	NL	NL	NL	10.
Benzene	350.	NL	NL	430.
C6-C10	NL	NL	NL	850.
>C10-C16	NL	NL	NL	560.

Table 6-9 Health screening levels for asbestos contamination in soil (Table 7 of Schedule B1 of ASC NEPM)

Form of asbestos	Health Screening Level (w/w)			
	Residential A ¹	Residential B ²	Recreational C ³	Commercial/Industrial D ⁴
Bonded ACM	0.01%	0.04%	0.02%	0.05%
FA and AF ⁵ (friable asbestos)	0.001%			
All forms of asbestos	No visible asbestos for surface soil			

1. Residential A with garden/accessible soil also includes children's day care centres, preschools and primary schools.
2. Residential B with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.
3. Recreational C includes public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and unpaved footpaths.
4. Commercial/industrial D includes premises such as shops, offices, factories and industrial sites.
5. The screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures (refer Section 4.10). This screening level is not applicable to free fibres.

6.8.4.2 Soil Vapour

Soil vapour screening criteria is taken from LWC, 2021 (Table 6-10).

Table 6-10 Soil vapour screening criteria

Chemical substance	Value ($\mu\text{g}/\text{m}^3$)	Source	Reference / Link
tert-Amyl Methyl Ether (TAME)	<p>1,060,000 (No-observed-adverse-effect level (NOEAC)) – SIDS (2005) and European Union (2006). For conservatism, 10,000 folds of this can be considered as the site criterion (106).</p> <p>MDEQ (2015) reports ECHA (REACH) NOAEC of 250 ppm is reported as well as a DNEL (Derived No Effect Level) of 26.5 mg/m^3. The DNEL is for the general population hazard via inhalation route.</p> <p>Michigan Dept. of Environmental Quality (DEQ, 2015) lists an Initial Threshold Screening Level (ITSL) of 62 for indoor air.</p> <p>The lowest (most conservative) value sourced is 62 from Michigan DEQ (2015). This is adopted.</p> <p>This would be 2,066 for soil gas after AF of 0.03 applied.</p>	<p>SIDS INITIAL ASSESSMENT PROFILE (2005)</p> <p>European Union Risk Assessment Report 2-methoxy-2-methylbutane (TAME) (2006)</p> <p>Michigan State Government Department of Environmental Quality (USA) (2015)</p>	<p>SIDS - https://hvpchemicals.oecd.org/UI/handler.axd?id=dc73a34b-ef02-4c3e-bc12-e5d46ad1066f</p> <p>European Union Risk Assessment Report - https://echa.europa.eu/documents/10162/e1370695-3126-4a2d-affd-e37b5d568c52</p> <p>Michigan State Government Department of Environmental Quality (USA) (2015 - https://www.michigan.gov/documents/deq/deq-rrd-chem-t-Amyl_methyl_etherDatasheet_527537_7.pdf</p>
Chloroform	140 = 4,666 after AF of 0.03 applied	WHO Tolerable Concentration for Inhalation (CICAD 58) (2004)	https://www.who.int/ipcs/publications/cicad/en/cicad58.pdf
1,2-Dichloroethane	0.11 based on ILCR of 1E-06 (USEPA RSL). Adjust for 1e-05 and apply 0.03 AF = 37	US EPA Cancer SL RSL adj. 1E-5:	https://semspub.epa.gov/work/HQ/400762.pdf
1,1-Dichloroethene	210 (threshold hazard quotient of 1) – apply AF of 0.03 = 7,000	US EPA Threshold SL (indoor air)	https://semspub.epa.gov/work/HQ/400762.pdf
trans-1,2-Dichloroethene	42 (threshold hazard quotient of 1) – apply AF of 0.03 = 1,400	US EPA RSL (based on threshold risk hazard quotient of 1).	https://semspub.epa.gov/work/HQ/400762.pdf
Freon 12	100 (threshold hazard quotient of 1) – apply AF of 0.03 = 3,333	US EPA RSL (based on threshold risk hazard quotient of 1).	https://semspub.epa.gov/work/HQ/400762.pdf
Methyl tert-butyl ether	111 adjusting USEPA RSL 1E-06 to 1E-05, apply 0.03 AF = 3,700	US EPA Cancer SL RSL adj. 1E-5	https://semspub.epa.gov/work/HQ/400762.pdf
2-Propanol (or iso-propanol)	210 (threshold hazard quotient of 1) – apply AF of 0.03 = 7,000	US EPA RSL (based on threshold risk hazard quotient of 1).	https://semspub.epa.gov/work/HQ/400762.pdf

Chemical substance	Value ($\mu\text{g}/\text{m}^3$)	Source	Reference / Link
1,1,2,2-Tetrachloroethane	0.48 based on USEPA RSL for resident of 0.048 at 1E-6 transformed to 1E-05 ILCR and apply 0.03 AF = 16 .	US EPA Cancer SL RSL adj. 1E-5	https://semspub.epa.gov/work/HQ/400762.pdf
1,1,2-Trichloroethane	0.18 at 1E-06 and 1.8 at 1E-05 and apply 0.03 AF = 60	US EPA Cancer SL RSL adj. 1E-5	https://semspub.epa.gov/work/HQ/400762.pdf
1,2,4-Trimethylbenzene	63 (threshold hazard quotient of 1) – apply AF of 0.03 = 2,100	US EPA Threshold SL (indoor air)	https://semspub.epa.gov/work/HQ/400762.pdf
1,3,5-Trimethylbenzene	63 (threshold hazard quotient of 1) – apply AF of 0.03 = 2,100	US EPA Threshold SL (indoor air)	https://semspub.epa.gov/work/HQ/400762.pdf
Trichloroethene	20	ASC NEPM Schedule B1 Table 1A(2)	
1,1,1 TCA	60,000	ASC NEPM Schedule B1 Table 1A(2)	
PCE	2,000	ASC NEPM Schedule B1 Table 1A(2)	
Cis-1,2-dichloroethene	80	ASC NEPM Schedule B1 Table 1A(2)	
Vinyl chloride	30	ASC NEPM Schedule B1 Table 1A(2)	
Toluene	1,300,000	Table A1 of CRC CARE Technical Report 2010	https://www.crccare.com/files/dmfile/CRCCARETechReport10-Part1-Technicaldevelopmentdocument2.pdf
Ethylbenzene	330,000	Table A1 of CRC CARE Technical Report 2010	
Xylenes	220,000	Table A1 of CRC CARE Technical Report 2010	
Naphthalene	780	Table A1 of CRC CARE Technical Report 2010	
Benzene	990	Table A1 of CRC CARE Technical Report 2010	
Fraction F1 TRH	180	Table A1 of CRC CARE Technical Report 2010	
Fraction F2 TRH	130	Table A1 of CRC CARE Technical Report 2010	

6.8.4.3 Groundwater

The post remediation groundwater assessment criteria are taken from LWC, 2021 (Table 6-11). In accordance with the GAR (EPA, 2019), the most sensitive environmental value takes precedence. Chemical substances are elevated in offsite areas (including up hydraulic gradient) so the likelihood of chemical concentrations meeting such criteria is low, though these criteria can be used as the benchmark.

Table 6-11 Groundwater validation criteria

Environmental Value / Receptor	Guideline	Screening Level
Potable Water	<p><i>Australian Drinking Water Guidelines Paper 6</i>, (2011) National Water Quality Management Strategy. National Health and Medical Research Council – updated May 2019</p> <p><i>PFAS National Environmental Management Plan Version 2.0</i> January 2020, National Chemicals Working Group of the Heads of EPAs Australia and New Zealand (HEPA)</p> <p><i>Guidelines for Drinking-water Quality</i> (2017) 4th edition, World Health Organisation (WHO) – revised 2021, this has ramifications for assessment of TCE concentrations.</p>	<p>Health and Aesthetic guideline values</p> <p>Table 1. Human health guideline values developed by health regulators (Sum of PFOS and PFHxS / PFOA)</p> <p>Guideline values for chemicals that are of health significance in drinking-water (where not provided in Australian Drinking Water Guideline)</p>
Primary Contact, Recreation and Aesthetics	<p><i>Guidelines for Managing Risks in Recreational Waters</i> (2008), National Health and Medical Research Council</p> <p><i>PFAS National Environmental Management Plan Version 2.0</i> January 2020, National Chemicals Working Group of the Heads of EPAs Australia and New Zealand (HEPA)</p>	<p>Health and Aesthetic guideline values</p> <p>Table 1. Human health guideline values developed by health regulators (Sum of PFOS and PFHxS / PFOA)</p>
Primary Industry – Irrigation	Australia & New Zealand Guidelines for Fresh and Marine Water Quality	Long-term irrigation trigger values
Vapour Inhalation (residential, commercial and trench worker)	Assessment of groundwater as a source of VOC vapour will be by direct measurement of soil vapour as per Section 6.8.2.	
Industrial	There are no specific guidelines – such risks are judged on a case by case basis where chemicals are above conservative criteria.	Adoption of Primary Contact, Recreation and Aesthetics can act as a screening process for industrial land use (conservative).

6.8.4.4 Aesthetics

The SA EPA Guidelines for the Site Contamination Auditor System, August 2019 identifies the need for Auditor's to consider aesthetic impacts when considering the suitability of a site with reference to the amended ASC NEPM 1999. The presences of small amounts of solid, inert waste materials such as minor building and other debris that is typically found in developed urban areas can be considered by the Auditor without specific management requirements or remediation.

However, the presence of extensive rubble or waste (for example building waste) may require remediation on the basis of detriment to the aesthetic enjoyment and reasonable use of the Site.

The amended ASC NEPM 1999 recognises that while there are no numeric aesthetic guidelines, the site assessment nevertheless requires balanced consideration of the quantity, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity. For example, higher expectations for soil quality would apply to residential properties with gardens compared to industrial settings.

Aesthetic consideration set out in the amended ASC NEPM 1999 include the following:

- Chemically discoloured soils or large quantities of various types of inert refuse, particularly if unsightly, that may cause ongoing concern to site users.
- The depth of the materials, including chemical residuals, in relation to the final surface of the Site; and
- The need for, and practicality of, any long-term management of foreign material.

The amended ASC NEPM 1999 advises that caution should be used for assessing sensitive land uses, such as residential, when large quantities of various fill types and demolition rubble are present.

The NSW EPA, Excavated Natural Material Exemption 2012 is referenced in the SA EPA Standard for the Production and Use of Waste Derived Fill, October 2013 and provides the following additional criteria on acceptable levels of foreign inclusions in 'natural material' which is typically suitable for sensitive land uses; excavated natural material is 'naturally occurring rock and soil (including but not limited to materials such as sandstone, shale, clay and soil) that has:

- been excavated from the ground, and
- contains at least 98% (by weight) natural material, and
- does not meet the definition of Virgin Excavated Natural Material in the Act'.

Within the course of an audit, auditors generally determine that the following physical and aesthetic screening criteria apply to the top 2.0m of soils remaining onsite:

- Should consist of clay, rock, sand, soil or other inert mineralogical matter.
- The combined concentration of natural and foreign inclusions in soils should not exceed 2% v/v.
- No visible asbestos should be present; and
- Soil staining or odorous contamination should not be present.

Should these aesthetic screening criteria be exceeded, further consideration of the detrimental impact on the aesthetic enjoyment and reasonable use of the Site will be undertaken.

6.8.4.5 Non-site Contamination Issues

Guidelines for the Site Contamination Audit System (2019) – provides additional non-site issues that an Auditor is expected to consider in relation to understanding the condition of the Site and its suitability for its intended use(s). These considerations include:

- Unexploded ordnance.
- Radioactive substances that may have been used or added to the Site.
- Biological substances, e.g. pathogens that may have been used or added to the Site.
- Any chemical substances (including waste) on or added to the Site that are noxious, poisonous or dangerous to human health and/or the environment; and
- Contaminated sediments.

These issues will be assessed by the Auditor on the basis of the site-specific requirements.

6.8.5 Validation Reporting

At the conclusion of the remediation works, LWC shall prepare a remediation validation report (RVR) detailing the scope and outcomes of all remediation works including excavation extents and quantities, materials tracking information and results of all validation sampling for provision to the Auditor.

Validation reporting will be in accordance with Schedule B2 of the ASC NEPM (1999, as amended 2013) and as per Remediation Reporting Checklist presented as Appendix 6 of EPA (2019a).

The RVR will include all necessary and relevant sub-documentation and detail the following:

- A summary of the project objective, scope of works undertaken, and methodology adopted.
- A detail summary of site conditions including infrastructure volumes, presence of product, site layout figures, descriptions, excavation extents and quantities and material tracking information.
- A summary of findings from, investigations including laboratory analysis presented in tabular form and including comparison to adopted guidelines.
- Data quality assessment and quality control evaluation and conclusions.
- Clear statements regarding the remediation of the Site, including site suitability, remaining site contamination and need for further management ; and
- Supporting documentation including lithological logs, certified laboratory results, chain of custody documentation, disposal documentation for the potential source infrastructure and soils as well as purchase receipts (including volume and source information) for any imported backfill material/s provided as appendices.

6.9 Excavation back fill works

The contractor will back fill excavations with re-usable (as determined by the Environmental Consultant and cleared by the site contamination auditor) exhumed material³ and/ or appropriate clean backfill material noting the proposed sensitive land use of the Site, and noting the following:

- Backfilling to be conducted in 300-millimetre (mm) lift achieving a minimum 95% compaction at each lift.
- Each backfill compaction must be overseen by a suitably qualified geotechnical contractor.

The above is consistent with Level 2 compaction requirements as per *Australian Standard AS 3798–2007 Guidelines on Earthworks for Commercial and Residential Developments*.

Backfill material proposed to be brought onto the Site must be validated to the satisfaction of the site contamination auditor prior to the material being received at the Site and will comprise the following:

- Adoption of sampling density as per *VIC EPA (2001) IWRG702*.
- Sample collection methodology to be consistent with that outlined in Section 6.8.1 and the *ASC NEPM (1999, as amended 2013)*.
- Analytical schedule to comprise analysis of one (1) sample for the broad NEPM (2013) HIL A Screen⁴ and 2 samples for the SA EPA Waste Fill Screen, with the remaining samples to be analysed for TRH, BTEX, PAHs and eight (8) metals (arsenic, cadmium, chromium, copper, nickel lead, mercury and zinc); and
- Must meet SA EPA (2013) Standard for the Production and Use of Waste Derived Fill waste fill criteria (chemical and aesthetic).

Where backfill material is not sourced from a quarry (i.e. is Waste Derived Fill – WDF from a ‘sensitive’ site (a site that has been confirmed to have no potentially contaminating activity)), the required supporting documentation will be reviewed by the SRP Manager and the Auditor to confirm suitability for re-use on Site prior to acceptance on Site and re-use. Verification testing or existing laboratory reports will be required for any WDF to potentially be received at the Site. This will be determined on a case by case basis in consultation with the auditor.

WHEN COMPLETE – THE ACTIONS SET OUT IN SECTION 6.8.2 MUST BE IMPLEMENTED!

6.10 Remediation Timeframes

In accordance with Appendix 5 of EPA (2019a), the SRP is required to document the timeframes applicable to the remediation project. Note that demolition of structures is required prior to commencement of remedial works.

Specific dates for demolition are currently unknown however estimates of remediation duration from completion of the demolition of structures phase is provided as Table 6-12.

³ Results to be compared against the validation criteria to determine suitability of the material to be used at the Site.

⁴ The screen includes As, B, Ba, Be, Cd, Cr, Co, Cu, Mn, Ni, Pb, Se, V, Zn, Hg, Cr VI, WAD CN, Organics as listed in the guideline including OCPs, Mirex, Atrazine, Chlorpyrifos, Bifenthrin, TRH/BTEXN PAHs/Phenols & PCBs, 16 Herbicides incl' 2,4,5-T, 2,4-5, MCPA, P-21/2 MCPB, Mecoprop & Picloram.

The dates associated with the following milestones are to be confirmed upon advice from the Site Owner (these are estimates).

Table 6-12 – Estimated remediation timeframe

Remediation Task	Duration	(Auditor) Hold Point
Preliminary works	Week one	
Demolition	Weeks 2 - 6	
Soil validation testing beneath former Buildings	Week 7	
Building C Source Removal	Week 7	1
Building C Source Validation	Week 8	2
Backfill of Building C Source Excavation	Week 9	
Soil Vapour Validation	Week 10 – 12	3
Preparation of GMMP	Week 10 - 12	
Preparation of RVR	Week 12 - 16	

7 ENVIRONMENTAL MANAGEMENT PLAN

All work will be carried out in strict accordance with the Environmental Management Plan (EMP) to mitigate potential risk to the current users of the site, site contractors, surrounding environment, surrounding residents and business community that may arise as a result of the works.

SA EPA (2019d) was consulted in developing the EMP component for remediation. Note that a site specific Construction Environmental Management Plan must be prepared and submitted to the auditor and approved by the auditor prior to the commencement of works, with respect to detailed environmental management measures, monitoring protocols and compliance criteria. The CEMP must be prepared in accordance with SA EPA 1095/19 Construction environmental management plan (CEMP) September 2019.

7.1 Soil Management Procedures

Management of the soil from excavation areas will be of utmost importance to control the potential exposure to and migration of contaminants.

All soil from the proposed excavation area on the site is a potential source of contamination and for the purposes of this EMP is to be considered as contaminated material. The following procedure, as a minimum, will be adopted to manage the contaminated soils:

1. Exposure and contact with the soils will be minimised to the extent practicable by suitable planning of work activities by the SRP Manager in consultation with the contractor.
2. All persons handling or working on the soils will adhere to appropriate WHS standards to minimise exposure, wearing appropriate personal protective equipment including:
 - a) Gloves.
 - b) Disposable Coveralls; and
 - c) Dust masks.

Taking care to prevent cross-contamination of nearby clean soils is important so as to avoid the spread of chemical substances, and to minimise the amount of soil needing to be treated and the resources required to undertake the project. Similarly, care should be exercised so that polluted surface water does not affect clean soils.

Consider:

1. likely sources of cross-contamination.
2. types and concentrations of chemical substances and by-products of decomposition.
3. extent of the remediation area.
4. duration and timing of the remediation works.
5. remediation work methods and staging of the works.
6. proper classification of waste material for off-site disposal, material tracking and contaminated soil landfill licensing requirements.
7. aesthetics; and
8. sensitivity of surrounding environments.

7.2 Temporary Soil Stockpiling

Any soil materials excavated during remediation will be temporarily stockpiled onsite in accordance with:

- **SA EPA (2019a), Guidelines for the Assessment and Remediation of Site Contamination**

Although prescribed for management of stockpiles at waste transfer / sorting stations, and not readily for temporary stockpile storage at development sites, the management of stockpiles should not contravene the following guidance:

- **SA EPA (2010) Guideline for stockpile management: Waste and waste derived products for recycling and reuse (Updated October 2020) and SA EPA (2018) Guidelines for Construction environmental management plans (CEMPs).**

The temporary nature of the stockpiles reduces the potential for chronic environmental exposures. Any stockpiles that are required to be maintained longer than the working day will be managed by initial emplacement on impermeable surfaces such as hard-standing or an impermeable layer such as plastic, and located away from potential environmental exposure routes such as drains, culverts etc. Tamping of the stockpile surface with mechanical plant (i.e. backhoe bucket) shall be undertaken to compact the stockpile and reduce the potential for wind driven erosion / dust generation.

Stockpiles must be:

1. Located away from any sensitive receptors (Adjacent residents need to be considered in determining the placement and management of stockpiles on-site). Temporarily stockpiled material can cause adverse impacts via dispersion of dusts or migration of stockpiled materials to surface/ groundwater and management is required to avoid such impacts.
2. Located away from any groundwater wells currently on site, which should be sealed with gatic covers already but should also be covered / or marked to avoid destruction, and to avoid seepage of any leach / run off from stockpiled material, for example using traffic cone and absorbent socks.
3. Not piled to a height greater than 3 m.
4. Stockpile height should reduce as it approaches the site boundary. Stockpile heights should be below fence lines when within about 5 m of the boundary.
5. Stockpiles should be covered with an effective covering. The contents of the stockpile will dictate the level of cover, i.e. complete enclosure or the formation of a crust layer.
6. Temporary bunding should be installed around stockpiles, and stockpiles should be located on waterproof surfaces such as asphalt or concrete, or under cover where available (i.e. beneath the current on-site cover near the UST location or located both on top of a covered by an impermeable cover).
7. Stockpiles should have sufficient moisture content before being handled. Water can be applied the night before and allowed to infiltrate the stockpile. Applying water to a stockpile during handling has little effect on reducing dust emissions. Using water jets or sprays has minimal effect in capturing airborne dust, especially when out in the open.

7.3 Dust Control

Dust control measures shall be implemented for all intrusive works, in particular work where contaminated soils within the excavation areas are being excavated and where movement of soil is required. For the purpose of this document, dust refers to particulate matter including airborne dust and organic solids (e.g. soot).

Dust generated from contaminated soil may cause risks to human health through contact with the skin, inhalation and through ingestion. Dust dispersion may also cause problems with soiling the surrounding area, particularly where dust becomes wet and/ or enters the stormwater system.

Dust suppression, as part of all site works, will be adequate at all times during and outside of normal working hours. Dust suppression mechanisms will be applied by the excavation contractor to prevent dust generation during remediation activities on the site.

The following dust control measures shall be adopted by the excavation contractor as required and as directed by the SRP Manager:

- Restrict excavation activities during adverse weather conditions (i.e. too windy); and
- Use of water to suppress dust (hosing and spraying).

7.4 Transport of Material to Licensed Landfill

Any excavated soils required to be transported offsite for disposal will be transported by an appropriately licensed transport contractor adopting the required SA EPA waste transport documentation / protocol. All loads must be covered during transport. All soils to be removed from the Site will be appropriately classified by the SRP Manager.

- Only appropriately licenced trucks and facilities will convey and receive waste.
- Waste disposal certificates must be retained and included in the validation report.

7.5 Wash Down/ Drag Out

Measures shall be taken to prevent and clean any drag-out of mud and soil from the Site onto surrounding roads via vehicle tyres. Wash down of tyres (and/ or vehicles if necessary) will be undertaken if necessary, using a hose in the area of hard-standing away from any surface water runoff receptors. In the event that the current infrastructure (i.e. hardstand area) is removed, a single entry/exit point should be established for vehicles with a tyre cleaning facility made available.

In the event of spillage of spoil or run-off from the Site occurs along with sediment accumulation, clean up as soon as practical will occur. In areas of public roads, any material tracked off-site by the contractors or any other vehicles will be cleaned up with the use of a mechanical street sweeper, as necessary.

7.6 Air Quality and Odours

The preferred strategy for protecting air quality during remediation of site contamination is prevention, minimisation, followed by environmental controls. Potential mitigation measures may include:

- minimising the exposed surface area of odorous/ noxious materials.
- timing excavation activities to minimise off-site nuisance (noting close proximity to residential structures).
- undertaking work in favourable weather conditions (e.g. lower temperatures, favourable winds) covering exposed surfaces overnight or during periods of low excavation activity.

- no stockpiling of odorous material near the boundary of the site adjacent the residential allotment.
- covering of all stockpiled odour material; and
- removing offensive odorous material offsite as soon as practicable.

7.7 Other Issues

7.7.1 Site Access and Security

Site access to the area of the proposed remediation works shall be restricted to personnel inducted into the SRP. The excavation contractor will ensure that the site is appropriately fenced off prior to commencement of works, using temporary fencing, bunting and warning signs, in order to restrict unnecessary workers and the general public from the work area.

7.7.2 Stormwater and Erosion

All effort will be made by the excavation contractor to prevent or minimise the potential for the generation of contaminated water and sediment as a result of remediation activities, including any water used during dust control.

Discharges to the local stormwater system will be prevented where the potential for run-off is identified. Site management procedures will be in accordance with the EPA Stormwater Pollution Prevention Code of Practice for the Building and Construction Industry. If necessary, measures for control of discharge may include:

- The provision of silt traps and 'socks'.
- Providing temporary Hessian (or similar) coverings to exposed surfaces where there is potential for surface water generation.
- Construction of temporary stormwater catch/ diversion drains; and
- Measures shall be taken to prevent and clean any drag-out of mud and soil from the site onto surrounding surfaces via worker boots, vehicles etc.

Given that works are anticipated to occur during summer, water collecting in excavations or earthworks is not likely to occur.

If water does build up in such excavations, and requires discharge, the management/ discharge of such water shall be in accordance with EPA "Environmental management of dewatering during construction activities (updated June 2021 – EPA 1093/21)".

7.7.3 Noise

Noise shall be managed to ensure impacts to on-site workers and neighbouring residences and/or businesses are reduced as practicable. This can be achieved through selection of appropriate equipment, noise suppression equipment on any excessively noisy machinery (e.g. compressors) and keeping machinery in good repair and condition. In addition, cartage trucks will be encouraged not to reverse so as to avoid noise impacts associated with reversing audio alerts. Traffic management/ flow on site may be planned to support this.

Working hours are to be prescribed by the excavation contractor prior to the commencement of site works.

Construction activities will be limited to the hours of 7:00 am to 7:00 pm Monday to Saturday, which is in accordance with the SA EPA Construction noise information sheet.

7.7.4 Chemicals, Oils, Diesel

All equipment on-site shall be appropriately managed to reduce the emission of fumes, smoke and chemicals into the atmosphere. It is important to ensure that leaking vehicles and/ or machinery are not used on-site.

No plant refuelling is expected to be undertaken on Site. Where plant refuelling is necessary then a dedicated refuelling station / area is required to isolate refuelling to one location. Care should be taken during refuelling to avoid over-spill. A 'spill kit' must be stored on site and available for use.

7.7.5 Waste Control

Waste materials that may be generated during the remediation works include concrete, steel, aluminium, and potentially fragments of foreign material that may be present in fill soil material (possible ash/ cinders, asbestos containing material, bricks etc.).

Effective construction planning can minimise the production of waste, and appropriate storage of wastes particularly suitable source separation of waste materials, can greatly improve recycling rates and potentially lower disposal fees.

The waste management hierarchy provides a framework to maximise the useful life of materials for instances in which waste cannot be avoided. Waste from construction and building sites should be managed in accordance with the waste management hierarchy.

Waste that is produced must be kept on-site and managed to prevent nuisance such as litter, dust and vermin, and to stop leachate from entering stormwater drains.

All waste generated during the remediation works shall be removed from the Site and disposed of in an appropriate and environmentally safe manner. Such waste includes any waste resulting from site activities and human presence.

The Site shall be adequately cleaned after completion of works and prior to vacation by the contractor.

All waste material generated on Site is to be disposed off-Site to a suitably licenced facility.

7.7.6 Traffic Management

Traffic entering and leaving the Site should adhere to a site specific simple traffic management plan to avoid trucks queuing in the Street, and causing noise and exhaust related odour / nuisance.

7.7.7 Dewatering of Excavations

Dewatering is not expected to be required. However, if required, dewatering works are to be undertaken in accordance with relevant South Australian legislation for the management of liquid waste, principally in the first instance in strict accordance with EPA "Environmental management of dewatering during construction activities (updated June 2021 – EPA 1093/21).

Where required, dewatering works will involve the removal of liquid from the excavation pits by an appropriately licenced vacuum truck operator for disposal to an appropriately licenced facility.

Alternatively, discharge of dewatered liquid to sewer may be undertaken provided that a once off trade waste agreement with SA Water has been obtained.

Consult EPA "Environmental management of dewatering during construction activities (updated June 2021 – EPA 1093/21 in the first instance.

7.8 Asbestos Containing Material

In the event that suspect asbestos containing materials are encountered during site remediation works including ACM in soil, the steps outlined in Table 7-1 must be followed.

Table 7-1 Actions should Asbestos Containing Material be Identified (or suspected)

Action	Description	Who
1. Stop Work	Stop work immediately. <i>Proceed to Action 2.</i>	Contractor/ site staff (or others) discovers or suspects PACM is present
2. Restrict Access to Affected Area	Restrict access to the area by installing temporary signage to prevent site occupants or members of the public from entering the immediate area, and to prevent any further disturbance of asbestos materials in the area. <i>Proceed to Action 3.</i>	Contractor/ SRP Site Representative
3. Notify the Site Owner and the Auditor	SRP Manager are to contact and update the Site Owner and the Auditor within 24 hours. <i>Proceed to Action 4.</i>	SRP Manager
4. Risk Assess and Sample Material (if required)	SRP Manager to assess material and if necessary, take samples of any suspected asbestos materials: <ul style="list-style-type: none"> Notify Site Owner and Auditor of results. Negative result → resume works <i>Positive result → Go to Action 5</i> 	SRP Manager
5. SRP Manager to Engage Asbestos Removal Contractor for Clean-up (if required)	Consideration should be given to undertaking asbestos removal works. This will be dependent on the type, nature and amount of ACM identified and should be based on advice provided by the asbestos consultant. <ul style="list-style-type: none"> Removal required → <i>Go to Action 6</i> No removal deemed necessary → <i>Go to Action 7</i> 	SRP Manager
6. Conduct Asbestos Fibre Air Monitoring and Independent Visual Clearance Inspection	Asbestos removal works are to be undertaken by appropriately licenced contractors in accordance with SafeWork SA guidance. Conduct asbestos fibre air monitoring adjacent to the contaminated work area (in a down-wind location) during any removal works to ensure that fibre levels do not exceed acceptable levels. After clean-up works have been completed, an independent visual clearance inspection (undertaken by SafeWork Licenced Inspector) shall be conducted to ensure that the asbestos removal has been completed to a satisfactory standard. Airborne asbestos fibre clearance monitoring shall also be conducted as required within removal work areas to ensure areas are safe for re-occupation by unprotected personnel. Asbestos Contractor to issue clearance documentation. Photographs are to be taken and retained for each area from which ACM has been removed. <i>Go to Action 7.</i>	SRP Manager (in conjunction with Asbestos Removalist/ Inspector)
7. Review SRP and Staff Debrief	SRP Manager to review the SRP procedures and controls to ensure they were being followed correctly. <i>Go to Action 8.</i>	SRP Manager

Action	Description	Who
8. Document Works Undertaken and Archive Documents	SRP Manager to update SRP if required and provide written documentation of any removal works (if undertaken) or information regarding the location of any additional ACM identified. Clearance certificates are to be retained and included in the validation report to be provided to the Auditor.	SRP Manager

Pending the outcomes of the process detailed in Table 7-1, further instruction regarding removal of asbestos containing material (and required monitoring) will be provided to the Auditor/ Site Owner.

ACM (and potentially other hazardous materials) is present in building fabric. Evidence of appropriate removal of these materials during demolition must be provided in the validation report.

7.9 Unexpected Finds

Unexpected finds include materials that have site contamination implications including, but not limited to:

- Unexpected foreign material or structures such as additional underground storage tanks or buried drums.
- Buried asbestos containing material; and
- Odorous, stained or oily soil material.

Where unexpected conditions are encountered at the Site during the remediation works, the following process shall be adopted:

- Remediation works are to cease in the area of the unexpected find. The area is to be barricaded/ demarcated with temporary fencing/ bunting and covered.
- The SRP Manager is to notify the Site Owner and the Site Auditor within 2 hours of the encountering the unexpected find.
- An inspection of the unexpected find shall be undertaken. Field testing will be undertaken as required to determine the nature and extent of the find. Works will be undertaken in accordance with relevant available guidance documentation (refer to Section 1.5). An assessment of required management and/ or remediation will be undertaken.
- The SRP Manager will provide written notification to the Auditor and the Site Owner summarising the outcomes of the site inspection/ assessment as soon as reasonably practicable following the site inspection. The SRP Manager will also provide details of the approach to remediation and the validation of the unexpected find to the Auditor.
- The SRP Manager will ensure that additional controls/ management measures are adopted (if required).
- Records of the unexpected find, field testing, results and implemented management strategies are to be recorded by the SRP Manager for inclusion in the validation report.

Note that depending on the nature of the unexpected find, additional work health and safety, environmental controls and validation works may be required.

7.10 Monitoring

Table 7-2 explains the monitoring, triggers, management and consequential actions of impacts that may occur at the Site during remediation or development processes.

Note that a site specific Construction Environmental Management Plan must be prepared and submitted to the auditor and approved by the auditor prior to the commencement of works, with respect to detailed environmental management measures. The CEMP must be prepared in accordance with SA EPA 1095/19 Construction environmental management plan (CEMP) September 2019 and will include monitoring protocols, frequencies, and compliance criteria for relevant environmental parameters (e.g. for water, noise and dust).

Table 7-2 – Monitoring and Contingency Protocols

Monitoring or Trigger	Type of impact	Management		Consequent Actions
		SRP Manager	Contractor	
Site Supervisor observes while on-site.	Any impact as measurable by 1 – 7 below	Cease operations, record date and time of incident for future reference.	Cease operations, record date and time of incident for future reference.	Review operations and controls to mitigate impacts generated. Contractor communicates with Site owner contact for significant ²⁴ impacts.
Neighbouring occupant or public complaint	Any impact as measurable by 1 – 7 below	Site supervisor contact and review all messages and enquiries the same or following working day. Obtain full details and log. If deemed urgent contact Contractor Site Supervisor and Site owner.	Review impacts from previous activities. Cease or modify future operations to reduce impacts, if necessary.	Site owner to contact complainant detailing action taken, if any, and log response.
Occupant or public - general enquiry/ concern.	No specific impact	Obtain full details and log. Site Owner contact to discuss concerns with enquirer.	NA.	Implement changes to operations, if necessary, and log.

-
- 1 If visible dust is crossing the property boundary the potential for adverse dust impacts exists and control measures should be implemented.
 - 2 If the Site Supervisor is required to speak loudly at the perimeter of the fence in order to be heard this is deemed to be excessive noise or noise complaints are received from surrounding occupants.
 - 3 Excessive vehicle movement or queuing.
 - 4 Objectionable odour at or beyond the perimeter fence.
 - 5 Surface water and sediment run-off beyond the boundaries of the site (including tracking of mud onto public roads).
 - 6 The loss of liquid or solid waste containment. Any impacted soils must be assessed and managed using the approach detailed in the SRP.
 - 7 Can be a perception of a negative impact which may not be measurable or have guidelines or standards to determine.

7.11 Emergency and Incident Response - Pollution

Emergency situations may include incidents such as a truck rollover while transporting contaminated soil to landfill, strong winds or rain which accelerates surface erosion of contaminated soil material.

An asbestos material 'incident' will typically involve the discovery or dislodgment of asbestos materials that do not pose an immediate threat of asbestos fibre being inhaled.

Emergency and incident response entails restriction of access to the area, notification to the Site Owner and the EPA:

EPA Pollution Reporting

Call: 8204 2004

The protocols described in Appendix A comprise the Environmental Management Plan/ Emergency and Incident Response plan. These protocols should only be conducted where safe to do so.

8 WORK HEALTH AND SAFETY CONSIDERATIONS

The WHS procedures outlined below only apply to inducted site users including earthmoving contractors.

The contaminants potentially present within the investigation area are not considered likely to represent a significant risk to the health of workers at the site associated with the scope of work of the SRP, however basic WHS procedures as outlined herein should be adopted, and should be consistent with current WHS legislation and practices.

The following standard WHS procedures shall be implemented for the duration of the remediation works:

- WHS induction for all Contractor personnel.
- Workers are made aware of the potential contamination status of the site.
- Appropriate personal protection equipment should be worn including:
 - Gloves worn if soil is being handled.
 - Long sleeve shirts and pants worn to minimise skin contact with soils.
 - Dust generation is minimised during excavation activities. However, dusk masks may be required by some personnel depending on the conditions at the faces of excavations.
- Eating, drinking or smoking is prohibited within designated intrusive work zones; and
- Any environmental or WHS incidents shall be reported immediately and a stop work implemented at the site.

A site specific WHS document must be prepared by the earthworks contractor and signed off on by all relevant site personnel. This plan must consider general hazards of working on a construction site e.g. trips, falls, traffic).

Workers on site are expected to hold a 'White Card'.

9 SRP MONITORING

The effectiveness of the SRP will be reviewed periodically through a review process that checks each aspect of the SRP as outlined in the previous sections against its requirements and objectives to ensure that it is operating in a manner for which it was prepared.

Monitoring and review shall be the responsibility of the SRP Manager.

9.1 Non-Conformances

A register of non-conformances shall be established and maintained by for all active and resolved non-conformances. All non-conformances will be reviewed, and corrective actions developed to prevent recurrence. The SRP will be revised wherever appropriate to reflect these corrective actions.

9.2 Complaints

All complaints will be referred to the SRP Manager will be recorded in a complaint register with the following details:

- the name and address of any complainant.
- the time and date the complaint was received.
- a description of the complaint.
- the activity or activities and any associated equipment that gave rise to the complaint.
- the action that was taken to resolve the issues that led to the complaint.
- the date the complaint was resolved and documentation of complainant's level of satisfaction with the actions to resolve the issue; and
- notifying the relevant authority or the EPA of complaints regarding environmental nuisance (particularly noise and dust) and the actions undertaken to resolve the complaint, and of any non-conformance with the SRP that results in environmental nuisance.

Where appropriate the complainant will be notified of action taken. Complaints can be recorded on a Corrective Action Request Form as contained in Appendix B.

9.3 Record Keeping

Records will be kept of the following:

- Changes to the SRP.
- Minutes of meetings.
- Inspection reports.
- Environmental monitoring records and results (including calibration certificates).
- Non-conformances and complaints; and
- Approvals, certification and licences issued by statutory authorities.

All documents will be numbered to identify their revision status.

9.4 Review

A review process shall be carried out to verify compliance with and effectiveness of the SRP. The review will be managed by the SRP Manager who will:

- Undertake the reviews.
- Maintain records of the review; and
- Ensure corrective actions are promptly implemented.

The review should address the implementation and effectiveness of prescribed field procedures and documentation within the SRP.

An example Checklist Form is contained in Appendix C.

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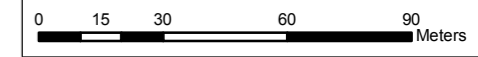
Work Health and Safety Regulations 2012 (South Australian State Legislation).

FIGURES



Legend

 Site Boundary



Land & Water Consulting Pty Ltd
 Email: enquire@lwconsulting.com.au
 Web: www.lwconsulting.com.au

Date: March 2021

Projection: GDA 1994, Zone 54



Project:
 Site Remediation Plan-
 24 - 30 Murray Street, Albert Park,
 South Australia

Site Address:
 24 - 30 Murray Street, Albert Park, South Australia

Figure Title:
 Site Location Plan

Appendix in Set 1 of 7

Scale: See Plan

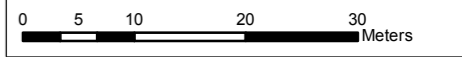
Drawing Reference
 AAAA

Figure
1

Revision
 A



- Legend**
- Site Boundary
 - Site Features
 - Area A as per Woodward-Clyde (1997)
 - Area B as per Woodward-Clyde (1997)



Land & Water Consulting Pty Ltd
 Email: enquiries@lwconsulting.com.au
 Web: www.lwconsulting.com.au

Date: June 2018

Projection: GDA 1994, Zone 54



Project:
 Detailed Site Investigation -
 24 - 30 Murray Street, Albert Park,
 South Australia

Site Address:
 24 - 30 Murray Street, Albert Park, South Australia

Figure Title:
 Site Features

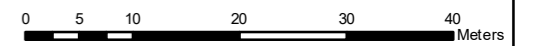
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Scale:	See Plan	Revision	A
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Legend

- Site Boundary
- Site Features
- + Groundwater Investigation Location (LWC, 2020)
- + Existing Groundwater Investigation Location (LWC)

Note: Basemap sourced from Nearmap dated October 2020



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 Email: admin@lwconsulting.com.au
 Web: www.lwconsulting.com.au

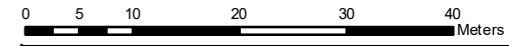
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Site Address: 24 - 30 Murray Street, Albert Park, South Australia		
Figure Title: Groundwater Monitoring Wells		
Figure in Set	3 of 7	Figure
Scale: See Plan		3
Drawing Reference		Revision
A		A





Legend

- Site Boundary
- Site Features
- ◆ Soil Vapour Investigation Location (Passive Sampler) (LWC, Aug 2020)
- ◆ Soil Vapour Location (Golder, 2019)
- ◆ Soil Vapour Investigation Location (Passive Sampler) (LWC, May 2018)
- ◆ Soil Vapour Investigation Location (Passive Sampler) (LWC, Dec 2017)
- ▲ Active Vapour Sampling Locations (June 2019)
- Inferred TCE Source Zone



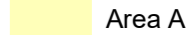


Note: Basemap sourced from Nearthmap dated October 2020

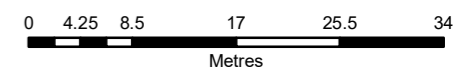
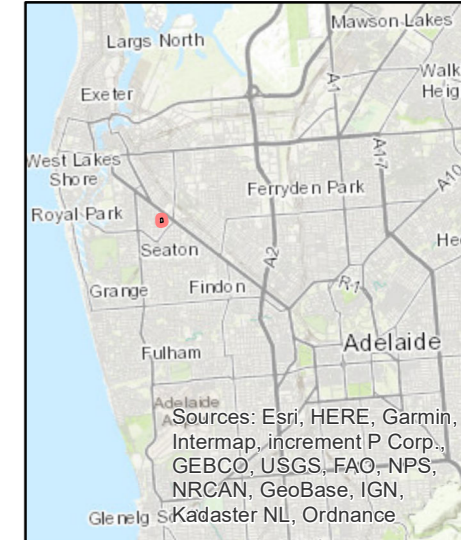


 <p>Land & Water Consulting Email: admin@lwconsulting.com.au Web: www.lwconsulting.com.au</p>		<p>N</p> 
Date: August 2021		
Projection: GDA 1994, Zone 54		
Project: Detailed Site Investigation (SSRA)		
Site Address: 24 - 30 Murray Street, Albert Park, South Australia		
Figure Title: TCE Soil Vapour Concentrations (All data)		
Figure in Set	6 of 7	Figure
Scale: See Plan		4
Drawing Reference		Revision
A		A



Legend

-  Cadastre
-  Site Boundary
- Fill Areas of Interest**
- Indicative Extent**
-  Area A
-  Area B
-  Area C




Land & Water Consulting
 Email: enquiries@lwcconsulting.com.au
 Web: www.lwcconsulting.com.au

Project:
Site Remediation Plan
 Totino

Figure Title:
 Indicative Extent of Fill Areas of Interest

Date: April 2021	Projection: GDA94 Z54
Scale: See Plan	Figure in Set: 5 of 7

Site Address:
 24-30 Murray Street
 Albert Park, SA 5014

Figure
5a
 Revision
 A

Drawing Reference AAAA

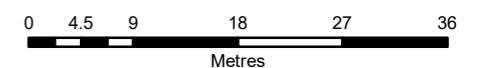
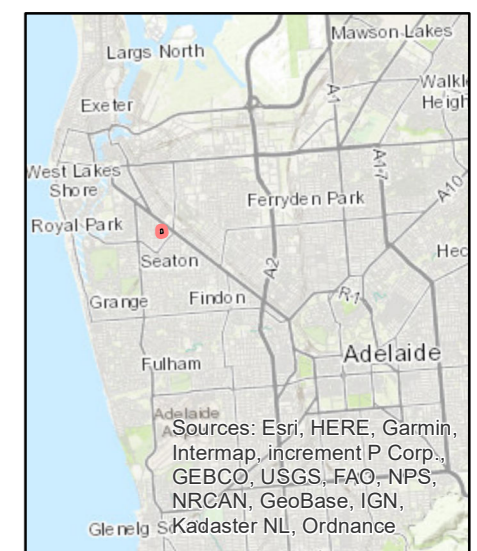


- Legend**
- Cadastre
 - Site Boundary
- Fill Areas of Interest**
- Indicative Extent**
- Area A
 - Area B
 - Area C

Area: 1916m²
Perimeter: 250m

Area: 517m²
Perimeter: 101m

Area: 219m²
Perimeter: 77m






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Web: www.lwconsulting.com.au

Project:
Site Remediation Plan
Totino

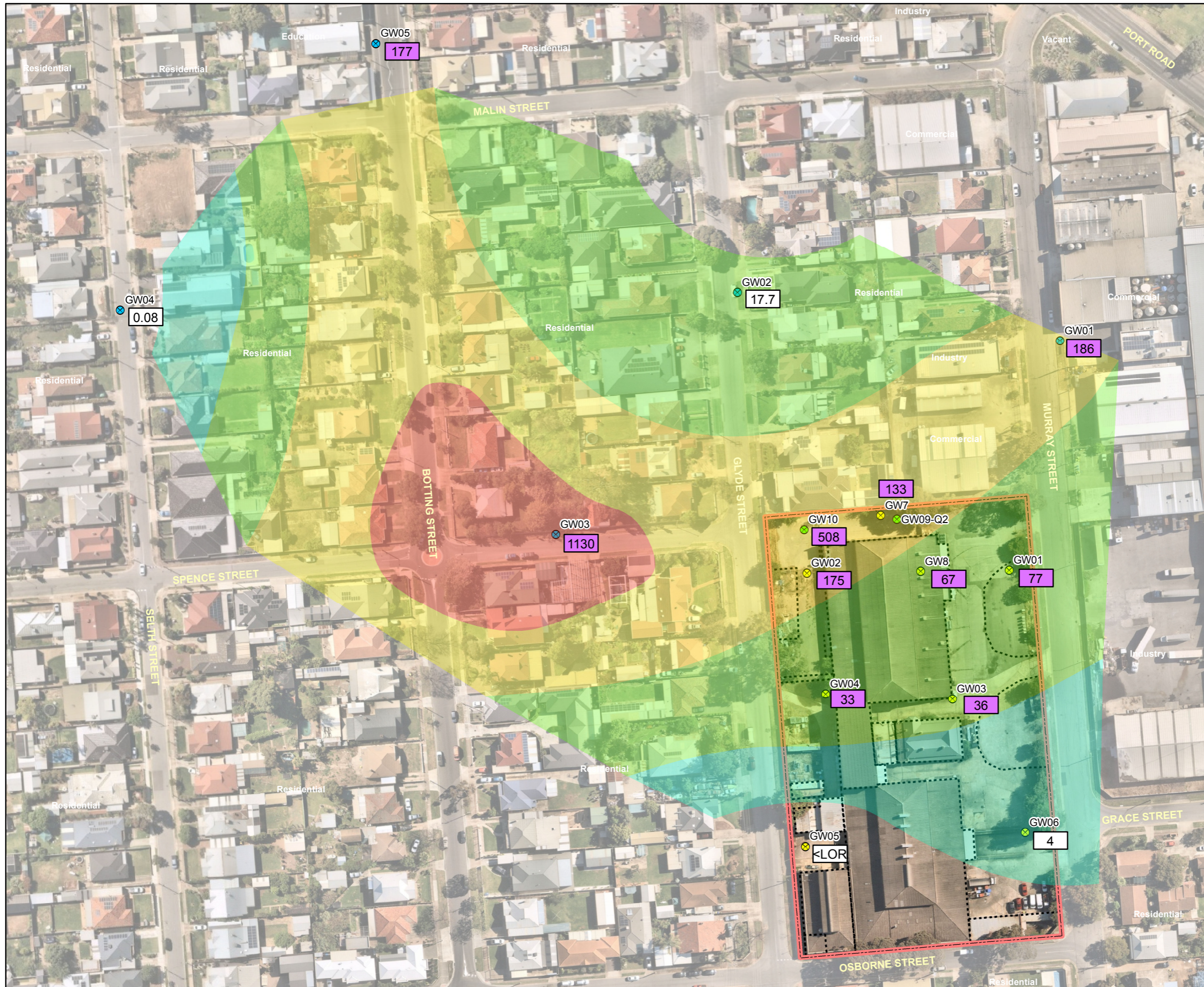
Figure Title:
Indicative Extent of Fill Areas of Interest

Date: April 2021	Projection: GDA94 Z54
Scale: See Plan	Figure in Set: 5 of 7

Site Address:
24-30 Murray Street
Albert Park, SA 5014

Figure
5b
Revision
A

Drawing Reference AAAA

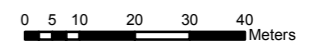


Legend

- Site Boundary
 - Railway
 - Site Features
 - Groundwater Investigation Location (LWC, 2020)
 - Groundwater Investigation Location (Golder, 2019)
 - Existing Groundwater Investigation Location
- Inferred TCE Groundwater Plume (ug/L)
- 1000+
 - 100-999
 - 9-99
 - 1-8
- Groundwater TCE Concentration (ug/L) not exceeding the WHO DWQG 4th Ed Criterion (8 ug/L)
 - Groundwater TCE Concentration (ug/L) exceeding the WHO DWQG 4th Ed Criterion (8 ug/L)

Note:
GW01, GW02, GW03, GW04 and GW05 extracted from Golder Jan 2020

Basemap sourced from Nearmap dated October 2020



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Web: www.lwconsulting.com.au

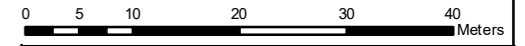
Date: November 2020		
Projection: GDA 1994, Zone 54		
Project: Detailed Site Investigation		
Site Address: 24 - 30 Murray Street, Albert Park, South Australia		
Figure Title: Groundwater Analytical Results Plan with Reported TCE Concentrations (September 2020) - Q1 Aquifer		
Figure in Set	6 of 7	Figure
Scale: See Plan		6
Drawing Reference		Revision
A		A



Legend

- Site Boundary
- Site Features
- Soil Bore Investigation Locations

Note: Basemap sourced from Nearmap dated October 2020



Land & Water Consulting
 Email: admin@lwiconsulting.com.au
 Web: www.lwiconsulting.com.au

Date: July 2021		N ▲
Projection: GDA 1994, Zone 54		
Project: Detailed Site Investigation (SSRA)		
Site Address: 24 - 30 Murray Street, Albert Park, South Australia		
Figure Title: Soil Bore Investigation Locations		
Figure in Set	7 of 7	Figure
Scale: See Plan		7
Drawing Reference		Revision
A		A

**APPENDIX A PERSONAL PROTECTIVE
EQUIPMENT & EMERGENCY AND INCIDENT
RESPONSE PROCEDURES**

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment (PPE), which for the purposes of this report includes Respiratory Protective Equipment (RPE), should only be used when other desirable control methods are not feasible or residual risk requires further controls. All PPE that cannot be effectively decontaminated should be disposed of as asbestos waste.

The type of PPE required should be based on risk assessment. For instance a P1 disposable respirator may be appropriate for inspection purposes but a full face; positive pressure demand air-line respirator would be required for friable asbestos removal work in an enclosure. PPE requirements should be in accordance with the Code of Practice for the Safe Removal of Asbestos 2nd Edition [NOHSC:2002 (2005) Appendix C]. Table 4, pages 75 and 76 of the aforementioned code may be particularly useful.

In managing asbestos the following should be considered:

- **No smoking is to be permitted during site works.**
- **Workers handling asbestos or ACM should wash their hands thoroughly in warm soapy water before eating, drinking, smoking or using toilet facilities.**
- **If clothing is contaminated it should be removed and disposed as recommended.**

Respiratory Protective Devices

Where the above controls do not reduce atmospheric contaminants to acceptable levels, approved and suitable respiratory protective devices should be provided and used. As outlined in Australian Standard AS 1716, such suitable devices include air purifying respirators.

- **As a minimum an approved class P2 face mask or respirator should be worn when there is deemed to be a potential risk of exposure to asbestos fibres.**

Disposable Coveralls

Disposable coveralls with fitted hoods and cuffs may be worn and disposed of as asbestos waste. Fitted hoods should always be worn over respirator straps/hoods and eye wear.

In some circumstances where disposable protective clothing may not be appropriate i.e. fire hazard, re-useable types may be used if effective laundering can be established.

If undergarments or clothing is contaminated it should be removed and disposed as recommended unless there is a laundering facility available capable of laundering asbestos contaminated clothing.

Footwear and Gloves

Appropriate safety footwear such as steel-capped rubber-soled shoes or gumboots should be provided for all asbestos works. This footwear must remain in the asbestos work area for the duration of the asbestos works. On completion of the asbestos works the safety footwear must be either effectively decontaminated or disposed of as asbestos waste.

The use of protective gloves should be worn at all times when handling asbestos waste. On completion of the asbestos works, all gloves used should be disposed of as asbestos waste.

Minor Works

The following procedure must be implemented if there is a probability of disturbance to asbestos.

- **Disposable coveralls, including a hood shall be worn.**
- **An approved Class P2 facemask or respirator shall be worn during the works.**
- **There shall be no direct contact with any identified asbestos.**
- **Before leaving the work areas, with mask still in position, the surface of the coveralls and exposed body parts shall be decontaminated.**
- **Coveralls shall be removed (with mask still on) and placed in an asbestos waste bag which shall then be sealed and labelled.**

Decontamination

Decontamination of PPE used by personnel and equipment used during works shall occur before leaving the Site. Decontamination can be via a suitable vacuum cleaner or wet down method.

EMERGENCY AND INCIDENT CONTROL PROCEDURES

The protocols described below shall only be conducted where safe to do so.

Emergency Situations

Situations where life or property is considered to be at immediate risk, e.g. fire in asbestos contaminated area or strong wind event. The following protocols shall be implemented:

- **Evacuate all workers, residents and general public.**
- **Seal off or otherwise isolate the area and restrict access if possible.**
- **Advise the Site Owner (and auditor)**
- **Determine “clean up” or other remedial action.**
- **Conduct remedial action.**
- **Conduct clearance air monitoring, if required.**
- **Document the situation.**

Incident Situations

Situations not previously identified where there are potential for exposure to asbestos, e.g. ACM spill (from truck rollover), accidental uncovering of ACM fragments on-site shall be handled as per below:

- **Isolate the area and impose access restrictions.**
- **Consult the CEMP.**
- **Advise the Site Owner and Auditor.**
- **Determine “clean up” or other remedial action.**
- **Conduct remedial action.**
- **Conduct clearance air monitoring, if required.**
- **Document the situation.**

Note: Trucks engaged for remedial works should have their own emergency and incident response protocols and must be appropriately licenced.

APPENDIX B CORRECTIVE ACTION REQUEST FORM

CORRECTIVE ACTION REQUEST FORM

REPORT NO:

DATE:

<p>Report type (circle): Complaint WHS incident Environmental incident Other (describe):</p>
<p>Reported by: Name: Telephone: (W) Other Contact Details: Report taken by: Date: ... / ... / ... Time:</p>
<p>Description:.....</p> <p>Is the problem occurring now? Y / N Has it been lodged previously? Y / N</p>
<p>Immediate action taken (if any):</p>
<p>Investigation (describe cause of incident):</p> <p>Investigation by: Date: ... / ... / ...</p>
<p>Corrective/preventative action taken (if any):</p> <p>.....</p> <p>Taken by: Date:</p>
<p>Complainant response: Is a complainant response required? Y / N Completed Date: ... / ... / ...</p>
<p>Review:</p> <p>.....</p> <p>Reviewed and Signed off by: Date:</p>

Review No. Reviewer Date

Item No	Item to be Assessed	Complies (Y?N)	Evidence / Required Actions	Responsibility

APPENDIX C SRP REVIEW CHECKLIST

Project Environmental Inspection Checklist

- This Inspection Checklist is to be completed by the CEMP Manager in conjunction with the Site Supervisor**

Project Name:		Project No:		
Project Manager:		Date:		
Contractor Name:		Contract Name:		Contract No:

✓ Satisfactory

✗ Not Satisfactory

Describe corrective action required:

N/A

	✓ Satisfactory	✗ Not Satisfactory	Describe corrective action required:	N/A
Environmental System				
Contractor's environmental policy displayed?				
Environmental Inspection records onsite?				
Tool box, prestart & project meeting records onsite?				
Housekeeping and Material Storage				
Stockpile location - not on vegetation, within driplines or drainage lines?				
No vegetation impacts?				
No fauna impacts?				
Mobile Plant and Equipment				
Plant and equipment clean prior to start onsite? E.g. free of weeds, soil & vegetation?				
Major plant & equipment services/maintained? E.g. no oil leaks, exhaust emissions OK, exhaust noise OK				
Hazardous Substances				
Spill kits, spill containment equipment onsite?				
Fuels & chemicals stored in bund, container, spill trays?				
Excavation and Trenching				
Spoil/topsoil appropriately stockpiled?				
Contaminated spoil separated and disposed to licensed facility?				
Aboriginal Heritage items identified?				
Fauna identified in trenches? Removed by NPWS/RSPCA?				
Imported fill confirmed as weed free?				
Asbestos Work				
Asbestos waste disposed to licensed facility?				
Asbestos removal being undertaken by suitably licenced contractor?				
Asbestos monitoring in place?				
Water				
No evidence of discharges to watercourses?				
Sediment & erosion controls in place?				
Controls in place when working over/adjacent to water?				

Amenities			
Waste separation/recycling bins in place?			
Other			
Compliance with other requirements not specified above (see site specific EMP)?			

SIGNATURE – CONTRACTOR

I confirm the Project Environmental Inspection Checklist has been completed. Where non compliance has been identified corrective action will be , or has been taken.			
Contractor Representative:			
Signature		Date:	

SIGNATURE – PROJECT MANAGER

I confirm the contractor’s implementation and maintenance of project specific controls has been inspected against “EMS-APPR-B Standard Preliminary Environmental Management Plan (Construction) – Minor Works” Where non compliance has been identified corrective action will be, or has been taken.			
Project Manager:			
Signature		Date:	

A completed copy of this form must be kept on file.

APPENDIX D SRP CONTENT CHECKLIST

Report Section and Information to be Included in an SRP where Relevant as Required in Appendix 5 of EPA 2019a	Included?
Executive Summary	
Background	<input checked="" type="checkbox"/>
Summary of Risk Conclusion	<input checked="" type="checkbox"/>
Scope of Work	<input checked="" type="checkbox"/>
Environmental Values	<input checked="" type="checkbox"/>
Determination of Harm to Human Health, Water of the Environment	<input checked="" type="checkbox"/>
Remediation Goals and Objectives	<input checked="" type="checkbox"/>
Summary of Remediation Conclusions and Recommendations	<input checked="" type="checkbox"/>
Site Information	
Site identification (address, allotments, plans, certificates of title, coordinates, maps)	<input checked="" type="checkbox"/>
Site owner / occupier	<input checked="" type="checkbox"/>
Site plan (layout, scale, north arrow, other site features)	<input checked="" type="checkbox"/>
Current and proposed site use and identification of site users	<input checked="" type="checkbox"/>
General Information	
Name of person requesting the work	<input checked="" type="checkbox"/>
Summary of previous works undertaken (include triggers for remediation, risk conclusions from DSI or SSRA)	<input checked="" type="checkbox"/>
Site contamination audit details	<input checked="" type="checkbox"/>
Remediation Options and Issues	

Report Section and Information to be Included in an SRP where Relevant as Required in Appendix 5 of EPA 2019a	Included?
Define remediation approaches (logistical, technical, financial, value, or water resource and ability to restore, threat to human health or environment)	Remedial options assessed. Excavation and removal of sources is considered best effective, noting the final development design is unknown. Adopted options could be altered under audit later in the process if required.
Discuss impracticability considerations	Impracticability of proposed remedial options is assessed. Excavation and removal of sources is considered straightforward and best effective (other than costs), noting the final development design is unknown. Adopted options could be altered under audit later in the process if required.
Evaluate available and viable remediation options to achieve goals	The current adopted remedial options are considered best effective, noting the final development design is unknown. Adopted options could be altered under audit later in the process if required.
Document rationale for selected remediation option	Refer Section 6.
Document management measures to prevent / reduce additional harm to human health, water or environment.	Refer Section 7
Determine the timeframe for remediation	6.10
Review by SA EPA or site contamination auditor	This document forms part of deliverable to be reviewed by the appointed site contamination auditor (refer Section 2 and also Table 3-1).
Stakeholder engagement	Refer Section 6.6
Reporting	
Signed copy of reports	Refer Document Control Page
Appendices may be provided in electronic format	<input checked="" type="checkbox"/>
Searchable PDF	<input checked="" type="checkbox"/>
Electronic files unlocked	<input checked="" type="checkbox"/>

APPENDIX E STATEMENT OF LIMITATIONS

STATEMENT OF LIMITATIONS & IMPORTANT INFORMATION REGARDING YOUR REPORT

INTRODUCTION

This report has been prepared by Land & Water Consulting for you, as Land & Water Consulting's client, in accordance with our agreed purpose, scope, schedule and budget.

The report has been prepared using accepted procedures and practices of the consulting profession at the time it was prepared, and the opinions, recommendations and conclusions set out in the report are made in accordance with generally accepted principles and practices of that profession.

The report is based on information gained from environmental conditions (including assessment of some or all of soil, groundwater, vapour and surface water) and supplemented by reported data of the local area and professional experience. Assessment has been scoped with consideration to industry standards, regulations, guidelines and your specific requirements, including budget and timing. The characterisation of site conditions is an interpretation of information collected during assessment, in accordance with industry practice.

This interpretation is not a complete description of all material on or in the vicinity of the site, due to the inherent variation in spatial and temporal patterns of contaminant presence and impact in the natural environment. Land & Water Consulting may have also relied on data and other information provided by you and other qualified individuals in preparing this report. Land & Water Consulting has not verified the accuracy or completeness of such data or information except as otherwise stated in the report. For these reasons the report must be regarded as interpretative, in accordance with industry standards and practice, rather than being a definitive record.

No warranty or guarantee of the site conditions is intended.

This report was prepared for the sole use of you, the Client and may not contain sufficient information for purposes of other parties or for other uses. Any reliance on this report by third parties shall be at such parties sole risk. This report shall only be presented in full and may not be used to support any other objectives than those set out in the report, except where written approval with comments are provided by Land & Water Consulting.

The report does not include the evaluation or assessment of potential geotechnical engineering constraints of the site.

LIMITATIONS OF THE REPORT

The scope of works undertaken and the report prepared to complete the assessment was in accordance with the information provided by the client and the specifications for works required under the contract. As such, works undertaken and statements made are based on those specifications (such as levels of risks and significance of any contamination) and should be considered and interpreted within this context. The analyses, evaluations, opinions and conclusions presented in this report are based on that purpose and scope, requirements, data or information, and they could change if such requirements or data are inaccurate or incomplete.

Your environmental report should not be used without reference to Land & Water Consulting in the first instance:

- When the nature of the proposed development is changed, for example if a residential development is proposed instead of a commercial one;
- When the size or configuration of the proposed development is altered;
- When the location or orientation of the proposed structures are modified;
- When there is a change in ownership;
- For application to an adjacent site.

In addition, advancements in professional practice regarding contaminated land and changes in applicable statutes and/or guidelines may affect the validity of this report. Consequently, the currency of conclusions and recommendations in this report should be verified if you propose to use this report more than 6 months after its date of issue.

ENVIRONMENTAL ASSESSMENT “FINDINGS” ARE PROFESSIONAL ESTIMATES

The information in this report is considered to be accurate with respect to conditions encountered at the site at the time of investigation and considering the inherent limitations associated with extrapolating information from a sample set. Note however that site assessment identifies actual subsurface conditions only at those specific points where samples are taken, when they are taken. Environmental data derived through sampling and analysis are interpreted by consultants who then render an opinion about overall subsurface conditions, the nature and extent of contamination and potential impacts on the use of the land. Actual conditions may differ from those inferred to exist as no professional and no subsurface assessment program can reveal every detail within the ground across a site. Subsurface conditions can vary across a particular site and no practical degree of sampling can ever eliminate the possibility that conditions may be present at a site that have not been represented through sampling.

SUBSURFACE CONDITIONS CAN CHANGE

This report is valid as of the date of preparation. The condition of the site (including subsurface conditions) and extent or nature of contamination or other environmental hazards can change over time, as a result of either natural processes or human influence. Land & Water Consulting should be kept apprised of any such events and should be consulted for further investigations if any changes are noted, particularly during construction activities where excavations often reveal subsurface conditions. Since subsurface conditions (including contamination concentrations) can change within a limited period of time and space, this inherent limitation to the representation of site conditions provided by this report should always be taken into consideration particularly if the report is used after a delay in time.

DATA SHOULD NOT BE SEPARATED FROM THE REPORT

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists or engineers based on their interpretation of field logs, field testing and laboratory evaluation of samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

This report should be reproduced in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

RESPONSIBILITY

Environmental reporting relies on interpretation of factual information using professional judgement and opinion and has a level of uncertainty attached to it, which is much less exact than other design disciplines. As noted earlier, the recommendations and findings set out in this report should only be regarded as interpretive and should not be taken as accurate and complete information about all environmental media at all depths and locations across the site.



Attachment E: Limit of liability advice



Environment Protection Authority
GPO Box 2607 Adelaide SA 5001
211 Victoria Square Adelaide SA 5000
T (08) 8204 2004
Country areas 1800 623 445

EPA 61909, 05/24545

Attn: Mr Don Totino
DFJ Holdings Pty Ltd
982 Port Road
ALBERT PARK SA 5014

Dear Mr Totino

RE: AUDITOR NOTIFICATION OF A HAZARDOUS CIRCUMSTANCE – ACTION RESPONSES

24 Murray Street, ALBERT PARK

Thank you for providing the Environment Protection Authority (EPA) with a copy of the following letter:

- *Auditor notification of a Hazardous Circumstance – 24 Murray Street, Albert Park: Response to Action Required, prepared by Land & Water Consulting and dated 9 February 2018.*

The letter documents responses to the matters identified by the EPA in our letter dated 25 January 2018. The EPA has considered each of the responses and the information provided.

Interim management measures

Based on the information provided in Section 3.1 and Table 3-2, there appears to be no, or limited potential for exposure of on-site receptors through vapour intrusion pathways associated with the soil vapour contamination identified on-site, taking into account the current known site conditions and status.

Determination of nature and extent and what remediation is required

The proposed actions identified in Section 3.2 and associated schedule provided in Attachment B of the letter are noted.

Provision and timing of reports

Based on all of the information provided, the request to extend the reporting timeframe milestone to 30 June 2018 is acceptable.

Site ownership information

The historical site ownership information provided indicates that there have been a number of site owners and occupiers at the site. The information indicates that main historical site activities are associated with tin can manufacturing conducted undertaken by J Gadsens Proprietary Limited.

Based on the information included in your letter, DFJ Holdings purchased the site in May 2009 as a going concern comprising recreational businesses, empty storage spaces and a refrigeration warehouse/cold store.

Based on the information you have provided to the EPA, DFJ Holdings does not appear to have undertaken a potentially contaminating activity at the site and are unlikely to have contributed to the contamination identified. As such, the EPA does not consider DFJ Holdings to be responsible for contamination beyond the site boundaries as part of the completion of the audit process. This determination is based on an assumption that there are no agreements in place (e.g. as a condition of

sale) which transfer any liability for off-site contamination to DFJ Holdings. A copy of the sale agreement would assist the EPA to confirm this assumption.

Despite this determination, the site contamination auditor currently engaged by DFJ Holdings to undertake an audit of the site, must still consider the impacts of any on-site contamination to on *and* off-site receptors.

As the site is proposed to be developed for residential use, it is also important that you understand your obligations with regards to site development activities and the potential to cause or contribute to site contamination as a result of a change of land use¹.

Ongoing obligations

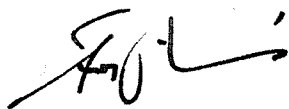
If at any stage a change in the nature and extent of site contamination at the site is identified from new information such that a hazardous circumstance exists which is not accurately described by the current notification, your engaged site contamination auditor will be required to notify the EPA.

In addition, if at any stage a change in the nature and extent of site contamination of underground water at the site is identified from new information – or this notification no longer accurately describes the nature and extent of the site contamination of the underground water, an updated section 83A notification is required to be provided to the EPA as soon as reasonably practicable. Please note that this requirement extends to an owner, occupier, site contamination auditor or site contamination consultant (pursuant to section 83A(1)(a) and (b) of the Act). You should discuss this duty with your consultant and auditor to ensure that there is no confusion in reporting obligations.

Fact sheets relating to your obligations under the *Environment Protection Act 1993*, the EPA Public Register and the EPA Site Contamination Regulatory and Orphan Site Management Framework can be found at www.epa.sa.gov.au.

If you would like further assistance on this matter please contact Wendy Boyce on (08) 8204 2033 or at wendy.boyce@sa.gov.au.

Yours sincerely



Andrew Pruszinski

**MANAGER, SITE CONTAMINATION
ENVIRONMENT PROTECTION AUTHORITY**

Date: *16 March 2018*

cc: Mr Graeme Miller, c/ Senversa Pty Ltd, 125 Sturt Street ADELAIDE SA 5000
Dr James Fox, Land & Water Consulting, Suite 3, 4-8 Goodwood Road, WAYVILLE SA 5034

¹ In accordance with section 103D(2) of the *Environment Protection Act 1993*



DELIVERING
**ENVIRONMENTAL
SOLUTIONS**



Preliminary Environmental Assessment Development Plan Amendment Area Albert Park, South Australia

Report for Jensen Plus




LBWco Pty Ltd
ABN 58 126 992 274
184 Magill Road, Norwood SA 5067
PO Box 225 Stepney SA 5069
08 8331 2417
www.lbwco.com.au

Preliminary Environmental Assessment Development Plan Amendment Area Albert Park, South Australia

Report for Jensen Plus

Document Control

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Date issued	16 June 2020
Author(s)	S Rady, N Brewer
Principal review	J Bishop
Approved for issue	

Distribution Record

		Revision No. and Date Issued		
		DRAFT	DRAFT-2	0
Organisation	Contact Name	01.05.2020	07.05.2020	16.06.2020
Jensen Plus	David Barone	●	●	●

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List of Acronyms

ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999 (amended 2013)
AST	Above-Ground Storage tank
BTEXN	Benzene, toluene, ethylbenzene, xylenes, naphthalene
COI	Chemical of Interest
CSM	Conceptual Site Model
CT	Certificate of Title
DEW	Department for Environment and Water
DPA	Development Plan Amendment
DSI	Detailed Site Investigation
EPA	Environment Protection Authority, Government of South Australia
EP Act	<i>Environment Protection Act 1993</i> , Government of South Australia
GPA	Groundwater Prohibition Area
LBWco	LBW co Pty Ltd
mBGL	metres below ground level
OCP	Organochlorine pesticides
PAH	Polycyclic aromatic hydrocarbons
PEA	Preliminary Environmental Assessment
PCA	Potentially contaminating activity
SA	South Australia
TCE	Trichloroethene
TRH	Total recoverable hydrocarbons
UST	Underground Storage Tank
VC	Vinyl Chloride
WHO	World Health Organization

1 Introduction

LBW co Pty Ltd (LBWco) was commissioned by Jensen Plus to undertake a preliminary environmental assessment (PEA) of an area of land comprising 118 separate properties in the suburb of Albert Park, South Australia (the site). A site plan is presented as Figure 1 in Appendix A.

Jensen Plus is providing services to the City of Charles Sturt (CCS) to undertake assessments and prepare a Development Plan Amendment (DPA) report to assess the merits of rezoning the land.

CCS requires that a broad assessment of contamination issues be carried out to inform future constraints or otherwise on the location of public open space, under-croft parking, sensitive land uses and development plan / planning and design code policy.

The DPA assessment area comprises approximately 12.3 hectares of mixed-use land, including commercial, industrial, and residential uses.

The PEA was carried out to achieve the following objectives:

- Assess the current and historical land uses that have occurred within the assessment area to identify properties that have or may have been subject to a potentially contaminating activity (PCA¹)
- Provide a qualitative assessment of risk with respect to the likelihood that land uses could have caused site contamination
- Provide recommendations regarding which properties may require intrusive investigations and potentially remediation to make the land suitable for the range of land uses contemplated within the DPA.

This investigation was undertaken in general accordance with LBWco's **proposal dated** 12 September 2019 (LBWco Ref: P191884 L01 REV1), and subsequent email communications on 10 February 2020.

¹ PCAs are defined in the *Environment Protection Regulations 2009* for the purpose of the *Environment Protection Act 1993*.

2 Regulatory Framework

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

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

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

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

The professional assessment of site contamination and consequential risk to human health and the environment is guided by National Environment Protection Council 1999, *National Environment Protection (Assessment of Site Contamination) Measure* (the ASC NEPM, as amended 2013), Australian Standards and numerous other guidelines and technical publications prepared by the EPA and other scientific organisations.

3 Site Information

3.1 Assessment area details and identification

The DPA assessment area is shown on Figure 1, Appendix A.

The DPA assessment area comprises 118 land parcels shown on Figure 2, Appendix A and listed on Figure 2A, Appendix A.

For the purpose of this report, the properties will be referred to according to their 'LBWco ID' as listed on Figure 2A, Appendix A. LBWco IDs were assigned to properties in numerical order down the list of properties as supplied by CCS from its property database.

According to the [CCS Planning and Development Zoning Map](#), the majority of the subject land is contained within the 'Urban Employment Zone' with small portions along Glyde Street, Jervois Street and West Lakes Boulevard contained within the 'Residential Zone.' Refer to the Land Development Zones figure within the Lotsearch report in Appendix C.

The proponent has suggested that the subject land may be suited to a 'mixed use' zone with potential for higher density residential development in suitable locations.

3.2 Assessment area setting

The DPA assessment area comprises approximately 12.3 ha of land located on the southern side of Port Road, between West Lakes Boulevard and Glyde Street in the suburb of Albert Park, approximately 7 km to the north west of the Adelaide CBD.

The Port Road corridor has a long history of industrial and commercial use.

The area and its surrounds are relatively flat (see Section 3.5 for more details of the site's topography) and developed in all directions.

The western portion of the DPA assessment area lies within two overlapping EPA assessment areas:

- Hendon Industrial Area and surrounding suburbs (see Figure 3 and Section 6.1 for further details), now defined as a Groundwater Prohibition Zone.
- Albert Park Assessment Area (see Figure 3 and Section 6.2 for further details)

3.3 Assessment area description and current land use

The figures in Appendix A and the aerial imagery section of the Lotsearch report, presented in Appendix C, show the DPA assessment area and its surrounds.

Based upon site inspections, review of current aerial photography and other information including the Lotsearch report, the DPA assessment area is described as predominantly commercial and light industrial warehouse units and including some residential land in the north west corner. The majority of the land within the DPA assessment area is sealed with buildings, roads or asphalt hardstand.

3.4 Surrounding land use

Based upon the site inspection and review of current aerial photography, land surrounding the DPA assessment area comprised:

North: Port Road, then mixed commercial / industrial and residential uses on the northern side of Port Road and Cheltenham Cemetery also to the north.

East: West Lakes Boulevard, beyond which is a vacant plot of land at 948 Port Road, bounded to the south east by a rail line and mixed commercial / industrial and residential uses beyond.

South: Predominantly residential.

West: Predominantly residential. A large commercial/industrial park in Hendon was located approximately 430 m to the west.

3.5 Topography

The SA Property and Planning Atlas website indicated the topography of the DPA assessment area and its surroundings to be flat, at an elevation of approximately 6 mAHD.

3.6 Geology

Geological data pertaining to the DPA assessment area was obtained from the Department for Environment and Water (DEW) via Lotsearch (refer to Appendix C). Records indicate that the area is generally underlain by Pleistocene aged soils of the Pooraka formation, further underlain by Hindmarsh Clay.

The approximate western third of the DPA assessment area is underlain by Rudosol described as coastal dunes and plains with some swamps: dunes of calcareous and siliceous sands, various saline soils and lesser areas of brown calcareous earths. The approximate eastern two thirds of the DPA assessment area are underlain by Chromosol outwash plains: hard alkaline red soils with small areas of cracking clay soils and hard alkaline yellow mottled soils and various alluvial soils in the stream valleys.

Historical soil assessments at 24-30 Murray Street, in the south western part of the DPA assessment area (refer to Section 6) identified fill material including silt, gravelly silt and sand with inclusions of bitumen, bricks and glass. Natural soils were described as brown silty clay of low to medium plasticity.

The Atlas of Australian Acid Sulphate Soils classifies the DPA assessment area as Class C, with an "extremely low probability" of acid sulphate soil occurrence. DEW records classify the site as having "negligible" acid sulphate soil potential.

3.7 Hydrogeology

On 11 February 2020, a search of the South Australian Government *WaterConnect* database was undertaken via Lotsearch. This search identified 13 historical bores within the DPA assessment area, as well as 973 'off-site' bores located within a 2 km radius of the assessment area.

The majority of the bores within the DPA assessment area were listed as being either investigation, monitoring or 'other' (environmental) bores and related to the land at 24-30 Murray Street (see Section 6 for further details). Three of the environmental bores within the DPA assessment area were located in its south eastern portion, north of Jervois Street. Drill depths for bores within the DPA assessment area were between approximately 6 and 7 mBGL.

The nearest domestic bore was recorded 26 m to the south east of the DPA assessment area and was drilled to 12 mBGL with a standing water level of 4 mBGL and a TDS of 3,731 mg/L. A further domestic bore was listed 53 m to the south and was drilled to 18 mBGL with a standing water level not recorded and a TDS of 4,782 mg/L. The status of these two closest domestic bores was unknown.

A domestic bore 54 m to the west of the DPA assessment area was drilled to 8 mBGL with a standing water level of 2.5 mBGL was listed as operational (status last updated in 1991). The TDS was not recorded.

The locations of the bores are shown on the Drillholes figure within the Lotsearch report presented in Appendix C and the full details of each of the bores are listed in the table entitled Drillholes, following the figure.

Historical soil assessments at 24-30 Murray Street, in the south western part of the DPA assessment area (refer to Section 6) included groundwater bores drilled up to 5.5 mBGL with standing water recorded at around 3.3 to 3.8 mBGL. Groundwater flow was interpreted to be towards the north west.

3.8 Sensitive Receiving Environments

The DPA assessment area is situated approximately 2 km east of the Port River at its closest point. The Gulf St Vincent lies approximately 4 km to the west.

There is an un-named waterbody located approximately 900 m to the north east of the DPA assessment area to the south of Torrens Road.

None of these features are considered to be close enough to have a realistic potential to be affected by any potential impacts from PCAs carried out within the DPA assessment area.

4 Site History Review Methodology

4.1 Site History Guidance

The site history investigation works were undertaken with reference to the guidance provided in the following documents:

- Edwards J. W., Van Alphen M and Langley A., Identification and Assessment of Contaminated Land: Improving Site History Appraisal. Contaminated Sites Monograph Series No 3, SA Health Commission, Adelaide (1994)
- National Environmental Protection Council 1999, National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM) as amended 2013.

Assessment of PCAs was made with reference to Section 50 and Schedule 3 Part 1 of the *Environment Protection Regulations 2009*.

4.2 Site History Review Methodology

The history of activities undertaken within and adjacent to the DPA assessment area was researched using the following sources of information:

- Aerial photographic records provided by DEW via Lotsearch Pty Ltd (Lotsearch), Mapland, and Nearmap
- Property information provided with the project brief by CCS/Jensen Plus
- Published geology and topography maps of the region via Lotsearch
- Water Connect database of groundwater records, maintained by DEW, via Lotsearch
- Environment Protection Authority (EPA) Public Register records - Site Contamination Index, Environment Protection Orders, Authorisations and Assessment Areas, via Lotsearch
- Historical Business Directories (Hardie Grant, Sands & McDougall) via Lotsearch
- Dangerous Substances Register – Safework SA²
- Available historical environmental reports for the site and adjacent properties
- Observations and information gathered during site inspections and questionnaires with key site representatives of the proponent held land.

² Only searched for the proponent land

5 Historical Information Review

5.1 Summary of Property Occupancy Information and PCAs

The table in Appendix B provides a full list of the 118 properties included within the DPA assessment area, provided by CCS c\ - Jensen Plus, and summarises current and historical land uses relative to PCAs as identified from the historical business directory entries provided in the Lotsearch report in Appendix C.

Available business directory records date back to 1910 however there were no entries for addresses within the DPA assessment area at this date. The first record of a business within the DPA assessment area was in 1930 (H Matthews Carters and Carriers on Murray Street) however the entry was mapped to a road corridor rather than to a specific address. From 1950 onwards there were numerous business directory entries relating to the DPA assessment area.

Business directory entries indicated a number of PCAs carried out within the DPA assessment area including:

- Metal processing, smelting, refining or metallurgical works
- Metal forging / coating, finishing or spray painting
- Motor vehicle manufacture
- Motor vehicle repair or maintenance
- Transport Depot
- Fertiliser manufacture
- Scrap metal recovery
- Furniture restoration
- Foundry / metal processing
- Paint manufacture
- Iron or steel works
- Storage of listed substances of greater than 500 L

Figure 5 in Appendix A shows the locations within the DPA assessment area where PCAs, either current or historical, were identified to be located.

For properties not coloured on Figure 5, no evidence of a PCA was identified by this investigation.

5.2 Aerial Photographs

Selected aerial photographs of the DPA assessment area and surrounds were obtained from the following sources:

- DEW via Lotsearch: 1949, 1956, 1969, 1979, 1989, 1999, 2004, 2010 and 2019
- Nearmap: 2020

Copies of images obtained via Lotsearch are provided in Appendix C and the 2020 image is included as the base for the figures within Appendix A. A summary of key features observed in the historical aerial photography is provided in Table 1.

Table 1 Aerial Photography Review

Year	Key features observed
1949	<p>Within the DPA assessment area:</p> <ul style="list-style-type: none"> • Some residential development (approximately 4 – 5 houses in each area) was present in the northern corner, at the central western boundary and at the central southern boundary • A possible residential dwelling with surrounding fenced garden was present in the central western part of the area • J Gadsden canister manufacturing premises was identifiable at the current location of 24-30 Murray Street in the south west corner of the area from signage on the roof of two large buildings • Austin Cars premises was identifiable at the current location of 12 May Street from the signage on the roof at this location central to the area. • Morrells (metals merchant) premises was evident at the current location of 982-986 Port Road, comprising a large shed at Port Rd and several rows/piles of scrap to the south between the shed and Austin Cars • Several other industrial developments were evident within the assessment area, however the majority of the area was undeveloped, in particular, the south eastern portion between West Lakes Boulevard and May Street was predominantly undeveloped. <p>Outside the DPA assessment area:</p> <ul style="list-style-type: none"> • To the north and east of the area, Port Road appeared to be unsealed. On the northern side of Port Road was the Cheltenham Cemetery. North west of the cemetery was predominantly residential land use and south east of the cemetery was predominantly industrial / warehousing. • To the south and west of the area, surrounding land was predominantly residential including some vacant blocks. • A railway line runs in a north east to south west alignment close to the south east corner of the assessment area
1956	<p>Within the DPA assessment area:</p> <ul style="list-style-type: none"> • Further residential development had taken place between the J Gadsden buildings and the northern corner of the assessment area • There were no significant changes to the central portion of the assessment area • Industrial / warehousing development had taken place in the eastern portion of the assessment area, including the premises of the former Oldfields Bakery at the southside of Jervois street <p>Outside the DPA assessment area:</p> <ul style="list-style-type: none"> • Expansion of industrial premises had taken place to the north east of the assessment area. • Some of the previously vacant plats had now been developed into housing to the south and west of the assessment area.
1969	<p>Within the DPA assessment area:</p> <ul style="list-style-type: none"> • Operations of Morrell CH appeared to have increased to have rows/piles of apparent scrap materials occupy land between May Terrace and Murray Street. The Murray Street properties were numbers 13-19 (LBWco IDs 18-21) • More significant expansion of the industrial buildings in the eastern part of the area had occurred. In particular, a large building had been constructed at the current location of 978-980 Port Road (LBWco ID 81), consistent with the ownership of Sun Lighting Industries. • A large vehicle fleet was evident at the Oldfield's Bakery site, likely to be delivery trucks, indicating that a significant operation for servicing and fueling of trucks may have occurred onsite. • There were no significant changes to the west and central portions other than minor additions / extensions to some of the industrial premises. The signage on the roof of the J Gadsden and Austin Cars premises was no longer visible. <p>Outside the DPA assessment area:</p> <ul style="list-style-type: none"> • No significant changes in the immediate vicinity of the area other than Port Road now appeared sealed.
1979	<p>Within the DPA assessment area:</p> <ul style="list-style-type: none"> • There were no significant changes to the western part of the area.

Year	Key features observed
	<ul style="list-style-type: none"> The sites at 21-23 and 25 Murray Street (LBWco IDs 6 and 43) was in use as a transport depot. The southern portion (#25) contained a large warehouse shed and the northern portion (#21-23) was a hardstand truck yard. Operations appeared to be connected to warehouses/sheds at the adjacent property to the east also (8-12 May Street), consistent with the concurrent ownership or lease of these properties at that time. Truck re-fuelling activity appeared to be in progress at the time of the photograph, with two semis packed at the location of the known UST area in the centre of the hardstand. The Morrells scrap yard was still evident. The eastern portion of the area appeared generally consistent with the 1969 image. <p>Outside the DPA assessment area:</p> <ul style="list-style-type: none"> No significant changes in the immediate vicinity of the assessment area other than Port Road now appeared sealed.
1989	<p>Within the DPA assessment area:</p> <ul style="list-style-type: none"> The rows of scrap metal at the Morrell site, between Murray Street and May Terrace were no longer visible, approximately coinciding with the timing of acquisition of the land by Capri Cellars. A warehouse / shed building had been constructed at a formerly vacant part of the western portion at 22 Murray Street. <p>Outside the DPA assessment area:</p> <ul style="list-style-type: none"> Former car parking land to the north east of the assessment area adjacent to the cemetery had been developed into commercial / industrial premises.
1999	<p>Within the DPA assessment area:</p> <ul style="list-style-type: none"> No significant changes onsite other than minor building alterations and the demolition of a former residential house at 6 West Lake Boulevard at the south eastern extent of the assessment area. <p>Outside the DPA assessment area:</p> <ul style="list-style-type: none"> No significant changes in the immediate vicinity of the assessment area
2004	<p>Within the DPA assessment area:</p> <ul style="list-style-type: none"> A large shed / warehouse had been constructed on formerly undeveloped land at part of 982-986 May Street (LBWco IDs 86,97,108) in the central portion of the assessment area. Large cylindrical vats or similar were visible in the yard at 11-15 Murray Street in the central portion of the assessment area (LBWco ID 13), consistent with the location of the now disused vinegar plant. <p>Outside the DPA assessment area:</p> <ul style="list-style-type: none"> The commercial / industrial building formerly located on the triangle of land bounded by Port Road, West Lakes Boulevard and the railway had been demolished.
2010	<p>Within the DPA assessment area:</p> <ul style="list-style-type: none"> Buildings at 988 Port Road in the central portion of the area had undergone some minor reconfiguration and / or roof replacement <p>Outside the DPA assessment area:</p> <ul style="list-style-type: none"> A service station had been constructed to the south east of the assessment area on the southern side of the railway line.
2020	<p>Within the DPA assessment area:</p> <ul style="list-style-type: none"> Residential property at 9 Glyde Street appeared to have been subdivided with development of a second residential house at this address. <p>Outside the DPA assessment area:</p> <ul style="list-style-type: none"> No significant changes in the immediate vicinity of the assessment area

5.3 Dangerous Substances Register

LBWco submitted a request for a search of the proponent held land parcels on SafeWork SA's Dangerous Substances Register. The search results are presented in Appendix E and indicated the following:

- 21-23 (Lot 1) Murray Street (LBWco ID: 6) No current or historical records
- 982-986 Port Road (LBWco ID: 86) No current or historical records
- 988 Port Road (LBWco ID: 52) No current or historical records
- 992 Port Road (LBWco ID: 10) 20 KL 'Class 8' Package Internal – Drum / Can / Bin / Box.
 - This indicates current or historical storage of dangerous substances, the nature of which is unknown
- 12 May Street (LBWco ID: 7) 4.5 KL 'Class 3' Liquid Tank Underground External.
 - This indicates the current or historical storage of dangerous substances, most likely petroleum hydrocarbons associated with the land's use as a transport depot.

The absence of a licence for 21-23 Murray Street may seem at odds with the present of multiple USTs evident in the central area of the site, but as a trucking depot it is likely that these USTs were used to store diesel fuel. A licence is required to sell diesel, but not to store it for non-retail use.

5.4 EPA Public Register Information

The following information was obtained from EPA records via Lotsearch. For the full Lotsearch output, refer to the first part of the Lotsearch report presented in Appendix C

5.4.1 Site Contamination Index

The EPA maintains a searchable database on its website of key notifications made to the EPA regarding site contamination. The database is called the Site Contamination Index (http://www.epa.sa.gov.au/data_and_publications/site_contamination_index/). On 11 February 2020, a search of the database for the site and a 1 km radius was undertaken by LBWco via Lotsearch. The search results are displayed in Appendix C.

The below extract from the Lotsearch report indicates the site contamination index records within 1 km provided by the EPA. In total there were three onsite and 91 offsite entries.

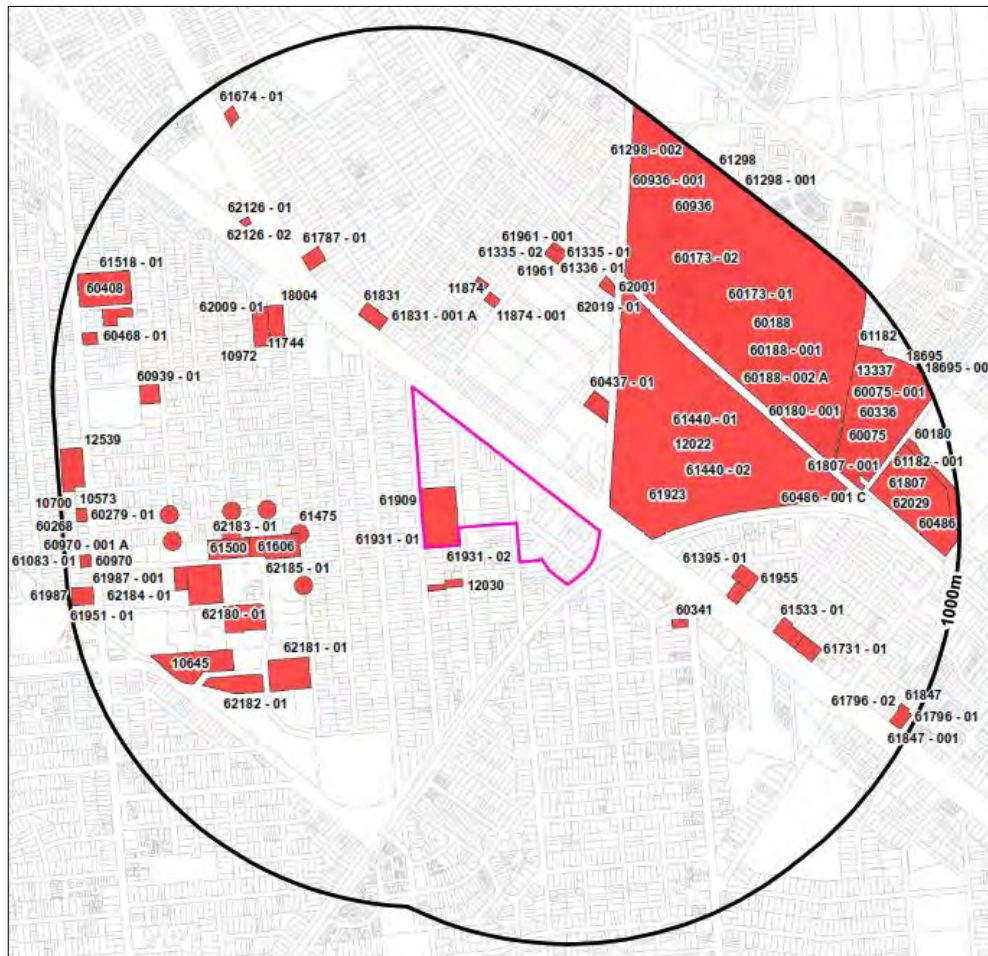


Diagram 1. EPA site contamination index output provided by Lotsearch

The search returned three records relating to the DPA assessment area, all relating to the currently ongoing site contamination audit at 24 Murray Street:

- Audit Notification. Activity: Fill or soil importation; metal coating, finishing or spray painting; motor vehicle repair or maintenance
- Section 83A Notification. Activity: As above
- Section 83A Notification. Activity: Metal processing, smelting, refining or metallurgical works.

LBWco has been provided with the relevant assessment reports relating to the assessment area entries. Section 5.5 provides further information relating to the above part of the assessment area.

5.4.2 Environment Protection and Clean Up Orders

The search returned three records relating to the DPA assessment area, and three records within 1 km.

Records for the DPA assessment area related noise complaints and noise monitoring at 24 Murray Street, issued to DWN Distributors Pty Ltd and Fridge It Logistics Pty Ltd, and were of no relevance to site contamination risks.

5.4.3 Authorisations and Applications

The search did not return any records relating to EPA authorisations or applications for authorisation, for properties within DPA assessment area. 20 records were identified for properties

within 1 km, the closest being 21 m south east for railway operations, issued to Laing O'Rourke Australia Construction Pty Ltd.

5.4.4 EPA Assessment Areas

The search returned two EPA assessment areas that encroached upon the DPA assessment area, and a further two within 1 km of the DPA assessment area.

As shown on Diagram 2, the western portion of the assessment area and the majority of the central portion lies within two overlapping EPA assessment areas. Further details of which are provided in Section 6. Also refer to Figure 3 in Appendix A.

- Hendon Industrial Area (ref: 12)
- Albert park Assessment Area (ref: 33)

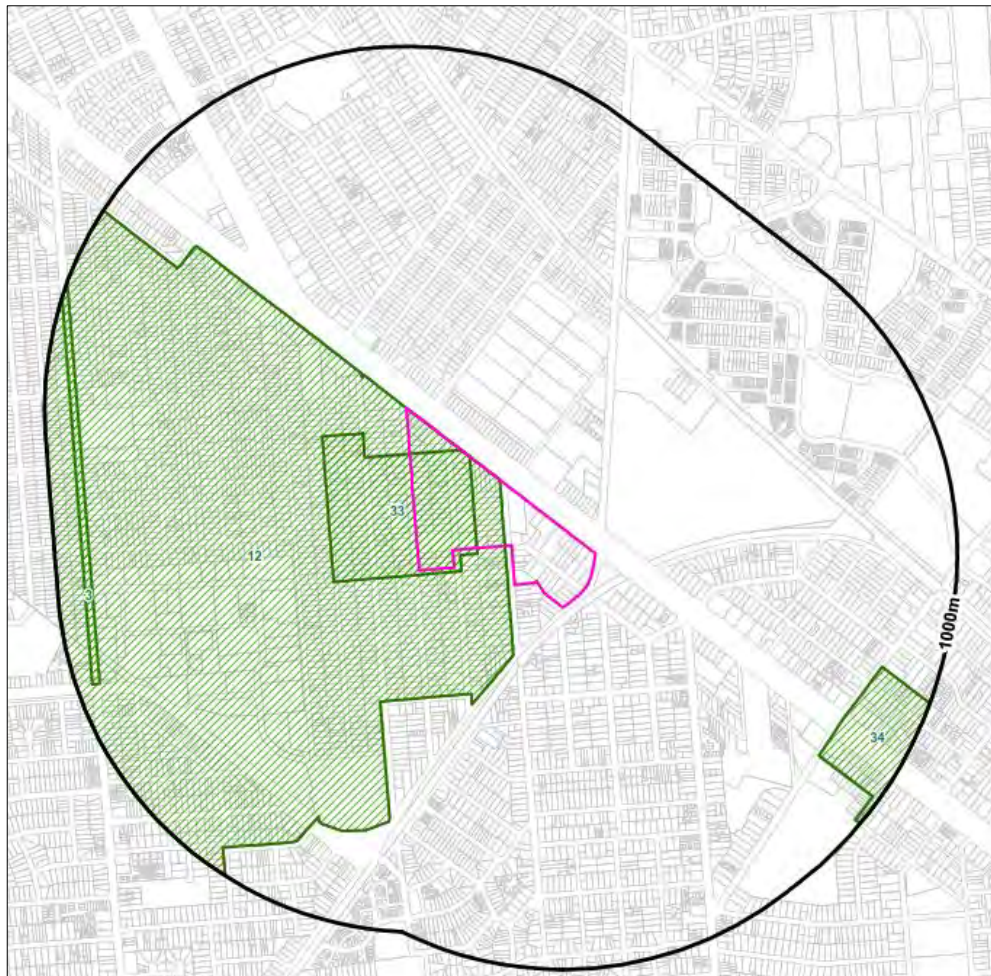


Diagram 2. EPA assessment areas provided by Lotsearch

6 EPA Assessment Areas

6.1 Hendon Industrial Area

Part of the Hendon Industrial Area is shown on Diagram 2 as ref 12. A more detailed plan of the area was obtained from the [EPA website](#) and is presented as Diagram 4 in Section 6.1.2.

Since 2012, the EPA has been assessing groundwater and soil vapour in parts of Hendon and the surrounding area for historically used chemicals. On 12 September 2019, the EPA established a formal prohibition on the extraction of borewater within a defined Groundwater Prohibition Area (GPA) to protect borewater users against elevated concentrations of chlorinated hydrocarbons such as trichloroethene (TCE), dichloroethene (DCE) and vinyl chloride (VC), as well as metals and nitrate.

The groundwater impacts were derived from various historical and commercial activities in the area from a number of sources.

The majority of the DPA assessment area is included within the GPA.

The most recent EPA report summarising the information is:

- EPA, 2019. Groundwater Prohibition Area – Portions of Hendon, Royal Park, Seaton and Albert Park. Determination Report. (EPA ref: 61557, 05/22785)

The report provides a description of the GPA, the aquifers affected, justification for the buffer area and specific details relating to source sites and the historical and ongoing assessment and remediation of these sites.

The full report is available on the EPA website. A summary review of the report relative to the DPA assessment area was carried out by LBWco and is presented as follows.

6.1.1 Source Sites

The report lists 14 sites across the area, for which the EPA held information relating to site contamination, including the site at 24-30 Murray Street, which is within the DPA assessment area (discussed further in Section 6.2). The site is listed as a source site for groundwater impacts from chlorinated hydrocarbons.

A full appraisal of each of the reports relating to the 14 source sites is outside of the scope of this assessment, however the following list of source sites referenced in the above report is provided:

- Hendon Industrial Area, Hendon (various addresses including 3-5 Philips Crescent and 10, 12, 13, 15, 17, 24 and 31 Circuit Drive (former circuit board manufacturing))
- 169-170 Tapleys Hill Road, Seaton (former service station)
- 187 – 193 Tapleys Hill Road, Seaton (former market garden)
- 168 Tapleys Hill Road, Seaton (former service station, vehicle storage and maintenance yard)
- 150-152 Tapleys Hill Road, Royal Park (former commercial site (non-PCA) affected by groundwater impacted from offsite sources)
- 136-138 Tapleys Hill road, Royal Park (former service station)
- 110-120 Tapleys Hill Road, Royal Park (Hendon Hotel with underground fuel oil storage tank)
- 53-59, 67-69 Tapleys Hill Road, 4, 12 and Lot 100 Florence Street, Hendon (former electroplating facility)

- Corner of Davidson Avenue and De Haviland Avenue, Hendon (Queensbury Wastewater Pumping Station)
- 24-30 Murray Street, Albert Park (former tin can production and car assembly site)
- 5-7 Hawks Street and 10-16 Gordon Street, Albert Park (former tannery site)
- 51 Glyde Street and 40 Murray Street, Albert Park (former light industrial site and tow truck operation)
- 3 Dover Street, Royal Park (former orchard and mixed manufacturing)
- 12 George Street, 7-10 Dover Street and 3A Royal Terrace, Royal Park (1992 assessment did not identify soil contamination and groundwater assessment was not undertaken).

6.1.2 Groundwater Impacts

Diagram 1 has been taken from EPA (2019) and the DPA Assessment Area added for context. The tetrachloroethene (TCE) plume is shown to be remote from the DPA assessment area and moving in a north westerly direction. The groundwater impacts from the 24 Murray Street site within the DPA assessment area were not included on the plume figure.

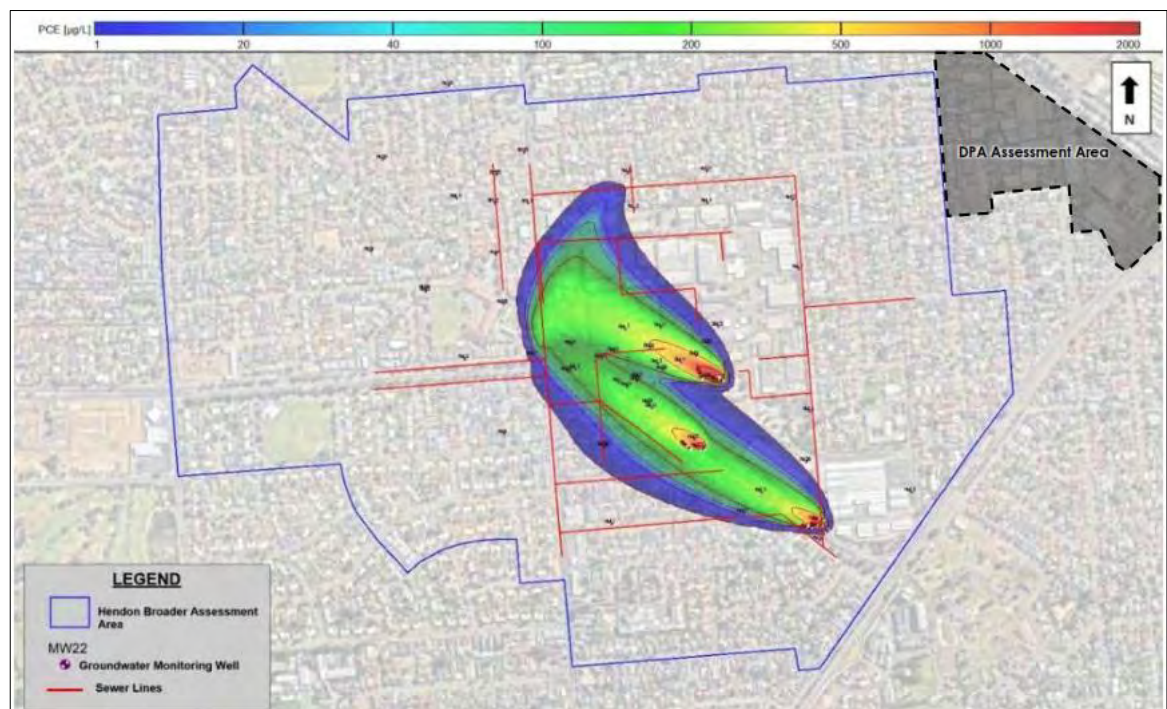


Diagram 3. DPA assessment area relative to Hendon assessment area PCE plume

The EPA report provides methodology and justification for the derivation of the GPA. The EPA's GPA map is presented in Appendix D and Diagram 4 below has been prepared to show the DPA assessment area in relation to the GPA boundary.

As shown on Diagram 5, the eastern extent of the GPA includes the western portion of the DPA assessment area and is based on inferred groundwater contamination. There is therefore some uncertainty as to the nature and extent of groundwater impacts beneath the DPA assessment area.

Information held on the site contamination status of the former can manufacturing facility at 24-30 Murray Street is provided in Section 6.2.



Diagram 4. Hendon GPA relative to DPA Assessment Area

6.1.3 Soil Vapour

A media release from the EPA dated 20 May 2016 stated that: *“human health risk assessment indicated that predicted levels of TCE vapour in indoor air would not be detectable or would have less than 2 micrograms per cubic metre. These levels are considered safe and testing will not be required in private homes.”*

Based on this, given that the DPA assessment area is on the outer edge of the inferred maximum plume extent, TCE vapour in indoor air should also be considered to be safe relative to releases from the Hendon industrial area. Section 6.2 however discusses the presence of elevated soil vapour concentrations of chlorinated hydrocarbons in the central portion of the DPA assessment area derived from the site at 24-30 Murray Street.

A further media release from 9 May 2019 was listed on the EPA website, however access to the document was not possible via the provided link.

6.2 Albert Park Assessment Area

This assessment area comprises the proponent held land at 24-30 Murray Street, formerly a tin can manufacturing facility.

The assessment area is shown on Diagram 2 as ref 33. A more detailed plan of the area was obtained from the [EPA website](#) showing Stage 1 of the Assessment Area, which is indicated on Figure 3 in Appendix A, and on Diagram 5 below.

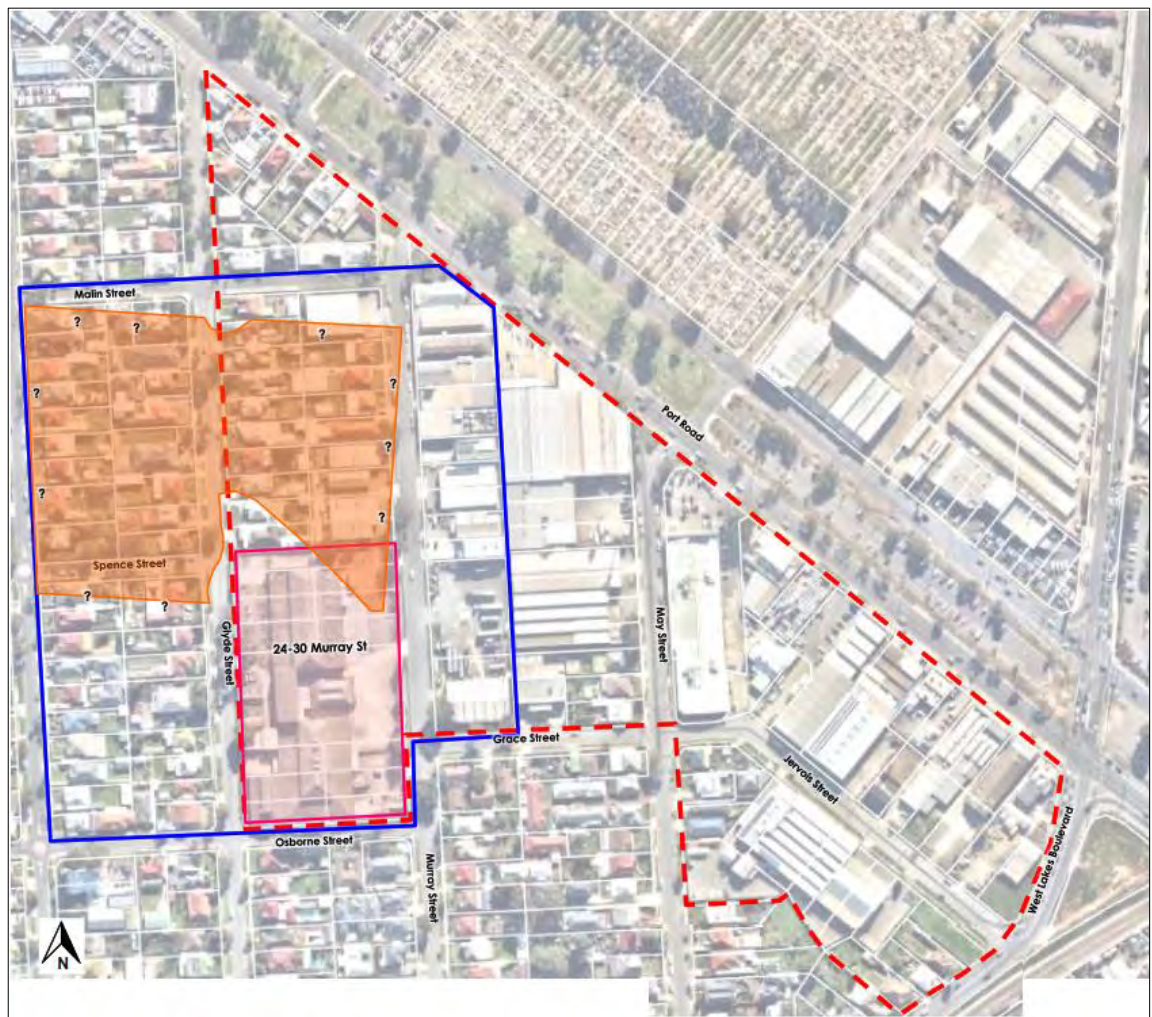


Diagram 5. Stage 1 EPA Albert Park Assessment Area and Plume Extent

6.2.1 Detailed Site Investigation of 24-30 Murray Street (2018)

Prior to the EPA's investigation work, the following Detailed Site Investigation (DSI) was carried out under audit on behalf of the proponent and was provided to LBWco by Jensen Plus.

- Land & Water Consulting (LWC), 2018. *Detailed Site Investigation, 24-30 Murray Street, Albert Park, South Australia* carried out for DFJ Holdings (ref: FR001, dated 6 July 2018)

The DSI was delivered under the review of SA EPA accredited Site Contamination Auditor Mr Graeme Miller of Senversa. The site contamination audit area is indicated on Diagram 5 and Figure 3, Appendix A.

Extracts of LWC 2018 DSI figures summarising key report findings are included within Appendix D

A summary review of the information contained in the report follows:

Scope

The report provided information on the historical ownership and a summary of PCAs on the site and presented the findings of soil, groundwater and vapour assessments undertaken between December 2017 and May 2018.

The 2017 scope of work was to address data gaps identified in the PSI, carry out 32 grid-based soil investigation bores, installation of five passive vapour samplers and the installation of six groundwater bores into the shallow aquifer.

The 2018 scope was the installation of a further 10 onsite and one offsite passive vapour samplers, gauging and sampling for five onsite groundwater bores, detailed inspection for the warehouse floor to identify the potential source zone and a Ground Penetrating radar (GPR) survey across the wider warehouse area.

Key findings are set out below:

Historical Ownership Summary

- 2009-present DFJ Holdings
 - Small scale motor vehicle repair and electrical substation in the southwest corner of the site
- 2006-2009 Andary Group
- 1988-2006 Wellclass (Holdings) Pty Ltd
 - Divided the site into two portions, one leased by Kirtland Pty Ltd (indoor cricket arena in northern portion) and DWN Distributors (refrigerated storage, southern portion)
- 1940-1984 J Gadsden Pty Ltd (tin can manufacture)
 - Metal coating, finishing or spray painting
 - Metal forging
 - Manufacture of motor vehicles in the northern building in the late 1960s (anecdotal information)
 - Fill importation (sitewide)

Soil Results

Copper, lead and zinc were elevated in fill material above health and ecological screening levels.

The GPR and detailed warehouse inspections were inconclusive with no subsurface features identified.

Groundwater Results

Chlorinated hydrocarbon concentrations (TCE) were identified in groundwater in the northern portion of the site up to 150 µg/L. The groundwater contamination was believed to have arisen from activities associated with the tin can manufacturing process, such as the degreasing of machinery and electroplating finishing of the final product.

Groundwater flow was inferred to be towards the northwest. The TCE plume was not delineated to the north, north west and north east.

Soil Vapour Results

TCE reported as soil vapour at concentrations greater than tier 1 concentrations for commercial land use were reported on the site.

A formal notification of Hazardous Circumstance was lodged by the auditor (Graeme Miller or Senversa) on 24 January 2018 due to TCE in groundwater (up to 150 µg/L) and soil vapour beneath the site (exceeding ASC NEPM HSL-D for commercial / industrial land use) (up to 7,000 µg/m³)

Data Gaps and Conclusions

The data gaps identified by LWC in the DSI report were:

- Potential TCE source beneath the northern portion of the northern building (Building C) based on soil vapour data)
- Potential risk to commercial on-site receptors, future residential receptors, offsite receptors
- Extent of groundwater contamination to north, north west and north east (reasonably delineated to the south)
- Potential risk to secondary aquifer (Q2) beneath and down hydraulic gradient of source
- Specific lateral and vertical extent of fill distribution

The key report conclusions were as follows:

- The site is currently unsuitable for a sensitive land use
- The northern portion of the site is not suitable for commercial land use
- Potential risk to offsite residential from TCE measured as vapour in soils originating from an unknown source on the site. TCE impacted groundwater also not delineated to the north
- Further investigations were recommended to fill the data gaps identified above

LWC noted in the DSI report that while the auditor has requested offsite investigations, communication from the EPA was that there is no legislative obligation for the current source site owner to characterise the nature and extent of off-site contamination as the current owner has not caused the contamination and is not responsible for the contamination beyond the site boundaries as part of the audit process.

As such, the EPA formally classified the site as a Level 1 regulatory priority on accordance with the *Site Contamination Regulatory and Orphan Management Framework* (EPA, 2017) and commenced assessment of the wider area in March 2019.

Additional Onsite Assessment

Environmental assessment work at 24-30 Murray Street and the site contamination audit are still active with further onsite assessment work proposed in a Sampling and Analysis Quality Plan (SAQP) for TCE delineation works prepared by LWC, dated November 2018. The SAQP proposed additional onsite soil vapour investigation and vapour intrusion risk assessment as well as new groundwater wells in the Q1 aquifer and a well in the deeper Q2 aquifer.

The full delineation assessment proposed in the SAQP was still pending at the time of preparation of this report, however an Interim Assessment Summary dated July 2019 provided an update on the findings from new active vapour and groundwater sampling locations summarised as follows:

- A new groundwater well adjacent to the suspected source area in the northern warehouse (GW08) contained a groundwater concentration of 108 µg/L.
- Broadly, concentrations of TCE in groundwater from existing wells were in line with previous monitoring events

- 1,2 dichloroethane (1,2-DCA), cis-1,2-dichloroethene (cis-1,2-DCE), TCE, 1,2,4 and 1,3,5 trimethylbenzene (TMB) exceeded applied screening criteria for sensitive land use.
- The highest concentration of TCE in soil vapour was reported in the new active location AV2 at the northern boundary at 3 m depth.
- TCE in soil vapour is un delineated towards the northern boundary and is 250 times the adopted tier 1 screening level for residential land use.

6.2.2 EPA Assessment (2019) Albert Park

Further to the above DSI report and the notification of hazardous circumstances referenced above, since March 2019, the EPA has been assessing whether the impacts identified at 24-30 Murray Street might be a risk to offsite human health via soil vapour.

A soil vapour assessment was undertaken by JBS&G on behalf of the EPA for the area to the north and west (hydraulically down-gradient) of the source property in 2019 (Stage 1) and was obtained from the EPA's website.

- JBS&G, 2019. Environment Protection Authority, Albert Park Environmental Assessment. EPA Reference 05/24994, dated 23 August 2019.

Results confirmed the presence of TCE in soil vapour and computer modelling was used to identify areas that needed further testing. Elevated levels of TCE above health-based guidelines for residential properties with basements or of crawlspace construction, were identified to the maximum westward extent of the study. The assessment confirmed that soil vapour impacts, inferred to be associated with underlying groundwater contamination, had migrated from the source property in a west and north westerly direction.

The testing program is ongoing and includes drilling bores in road verges to help determine whether any work on private properties is needed. The assessment has been extended into a second stage (Stage 2) to the northwest and west in order to find the boundary of the vapour plume. The Stage 2 investigations were still ongoing at the time of preparing this report.

An extract of the JBS&G figure showing the TCE plume extent as reported for Stage 1 is included in Appendix A of this report and an overlay of the plume extent in comparison with the DPA assessment boundary is shown on Diagram 5 and Figure 3 in Appendix A.

The plume relates to soil vapour concentrations. The nature and extent of the associated impacted groundwater has not been assessed, or at least the assessment information was not published at the time of this report.

6.3 Site History Overview

The DPA assessment area lies within the Port Road corridor which has a long history of industrial and commercial land uses up to the present day. The first record of a business within the DPA assessment area was in 1930.

Records indicate mixed commercial / industrial and residential land uses within the area since development first occurred.

By 1940, tin can manufacturing was taking place at the J Gadsden site and motor car manufacturing was taking place at premises on May Street by 1950. Aerial photography shows that in 1949, less than one third of the DPA assessment area had been developed, however over the following two decades there was significant development of commercial and industrial premises with much of the building configuration similar to present day.

The area remains to this day, a mixture of industrial / commercial and residential land uses.

Relatively recent environmental assessment work has confirmed groundwater and soil vapour impacts from chlorinated hydrocarbons historically used within the DPA assessment area.

7 Site Reconnaissance and Interviews

Site inspections and interviews of key personnel were carried out relating to the proponent held land. Details are provided in the following sub-sections.

7.1 Interviews

In February 2020, LBWco personnel interviewed Mr Don Totino, Director of Festival City Wines & Spirits knowledgeable with respect to historic site developments. Information of note obtained from these interviews is summarised below:

- Mr Totino arrived in Australia in 1968 and settled in Adelaide in 1988, where he purchased property in Albert Park.
- Mr Totino is the Director of the companies Capri Cellars Pty Ltd and Torumare Pty Ltd, which owns various properties at 982-992 Port Road (LBWco refs: 2, 42, 86, 97, 108) and 12 May Street (LBWco ref: 7, 22, 24, 30). The sites currently operate as a wholesaler with a showroom/commercial retail outlet and transport depot respectively. Mr Totino is also Director of the company DFJ Holdings Pty Ltd, which owns the property at 24-30 Murray Street (LBWco IDs 4, 9, 23, 26, 31, 40, 41, 53, 61, 74, 87, 98, 109)
- The land was formerly occupied by:
 - Vidale, which produced bulk margarine in the mid-1990s. The Vidale operations consisted of a tin shed, car yard and office.
 - C.H. Morrell Proprietary Limited, which operated as a sale yard for farming implements in the mid-1960s
 - Globe Products Limited operated as a caravan manufacturer in the 1960s, which potentially produced wheel rims.
- No known USTs or ASTs were present on the site.
- With the exception of 24-30 Murray Street, which was under investigation and site contamination audit by others, Mr Totino was not aware of any current or historical contamination or environmental harm associated with the site or nearby the site.

7.2 Site Reconnaissance

LBWco personnel undertook a reconnaissance of the site on 24-25 February 2020. Selected photographs along with information of note from the reconnaissance of both the proponent-held land and the balance land are presented in the following sections (7.2.1 and 7.2.2).

7.2.1 Proponent-Held Land

The proponent-held land is concentrated in the central portion of the site bounded by Port Road, May Street, Grace Street and Murray Street. Specific locations are referenced via LBWco IDs presented on Figure 4 and listed on Figure 2A. Selected photographs from the reconnaissance as well as information of note are presented below:

- The site reconnaissance walkover was undertaken with LBWco personnel, Mr Totino and a member of the City of Charles Sturt Council.
- The land use was entirely commercial/industrial which consisted of large storage warehouses, show rooms/retail outlet, office space, car parking, distribution centres and a former vinegar plant.

- The land at LBWco ID 42 was occupied by the Festival City Wines and Spirits showroom/warehouse/café.
- The Murray Street side of the warehouse on LBWco ID 5 indicated the presence of a UST due to the suspected breather pipe noted.
- Groundwater and soil vapour wells were observed along Murray Street from previous environmental investigations by LWC (refer to Section 6.2.1).



Photograph 1- View of GW01 and SV13 on the verge along Murray Street.

- The industrial land at 12-23 Murray Street (LBWco ID 6) was used as a truck laydown area/distribution centre primarily consisting of a large, asphalt sealed hardstand area. Several patches of concrete pavement with circular, flush-mounted steel covers were evident in the central area of the hardstand, indicating subsurface infrastructure exists. Several USTs were suspected to be present beneath these concrete slabs. A rectangular section of steel plates adjacent to the suspected USTs, as shown in Photograph 2 below, may indicate an underground service pit for heavy vehicles or may have been a weighbridge.



Photograph 2- View of the large suspected service pit and UST.

- Warehouses at Lots 12 and 13 of 8-12 May Street (LBWco IDs 24 and 30, respectively) contained suspected underground service pits and a grease arrester. A suspected UST was evident at the eastern exterior of the warehouse (i.e. on the May Street side), as shown in

Photograph 3 below. The UST was disused. The former bowser pump location was evident nearby to the north, as a concrete plinth



Photograph 3- View of suspected grease arrestor with inspection cover.



Photograph 4- View of the suspected UST with surface covers of the dip and fill points visible. Former bowser plinth is visible in the front right of the photo.

- Storage warehouses were present at 8-12 May Street (LBWco IDs 7, 22, 24 and 30). A suspected service pit was present within property ID 22. A suspected UST was evident at the eastern exterior of the warehouse (i.e. May Street side), as shown in photograph 5 below.



Photograph 5- View of the warehouse May Street entrance. The suspected UST was located to the left (south) of the roller door.

- Large warehouses on land at LBWco ID 24 and 30 contained suspected service pits and a grease arrester along with a suspected UST on the exterior of the warehouse on the May Street side.
- A transport depot was present as LBWco ID 86, 97 and 108 along May Street. LBWco ID 108 contained an elevated storage platform with twenty 44-gallon drums, labelled ethanol. There was no evidence of staining or releases to the sealed surface or nearby soil. The area consisted of a storage warehouses, truck bays/loading docks and a large open sealed surface.



Photograph 6- View of the elevated storage of ethanol in 200 L steel drums, and concrete hardstand in the foreground.

- A former operating vinegar plant and storage warehousing occupied the majority of LBWco ID 13. The vinegar plant ceased producing vinegar on-site in the mid to late 2000s, shifting towards bottling bulk vinegar imported directly from Italy. The concrete surfaces beneath the bottling apparatus was heavily corroded in areas due to acetic acid release during operations, which also generated a significant vinegar odour.



Photograph 7- View of the vinegar plant storage tanks, pump and corroded concrete flooring.

- Land at LBWco ID 10, 73, 60 and 52 were occupied by warehouses storing alcohol, bulk food stuffs, bulk vinegar in 1,000 L cubic containers.



Photograph 8- View of stored vinegar, bulk food stuffs and liquids.

- No stored petroleum or diesel fuel was identified during the site reconnaissance.
- No evidence of spills, stained soils, or distressed vegetation was observed on any portion of the site.
- No PCAs were observed on adjacent properties near the proponent-held land through the course of the site reconnaissance.

7.2.2 Balance Land

The remaining land on the site separate from the proponent-held land shall be referred to as balance land. This constitutes the following areas:

- The north western portion of the site bounded by Port Road, Murray Street, Glynde Street and Malin Street.
- The western portion of the site bounded by Murray Street, Glynde Street, Osborne Street and Malin Street.
- The north eastern portion of the site bounded by Port Road, West Lakes Boulevard, Jervis Street and May Street.
- The south eastern portion of the site bounded by Jervis Street, West Lakes Boulevard and May Street.

Specific locations are referenced via LBWco IDs presented on Figure 4 and listed on Figure 2A. Selected photographs from the reconnaissance as well as information of note are presented below:

- Offsite, surrounding land about the DPA assessment area is largely residential to the immediate south and west. A cemetery occupies the majority of the to the north of the site across Port Road.
- On-site, a large portion of the land to the west of the site along Glynde and Murray Street is residential with some minor residential land occupying the southern central portion of the site on May Street.
- Several large allotments on the east of the site, adjacent to Port Road are commercial retail outlets, such as Spotlight, Tradelink, Eco Outdoor. They consist of large sheds/warehouses with customer car parking and office buildings.



Photograph 9- View looking north of the Spotlight building along May Street.



Photograph 10- View of the rear entrance to the blue Tradelink building along Jervois Street.

- A large portion of land along Jervois Street at LBWco ID 77 was utilised as a place of assembly for the Gateway Church.
- A Toyota service centre was observed at LBWco ID 36, which may be an auxiliary facility for CMI Portside Toyota (across Port Road).



Photograph 11- View of Toyota service centre between Spotlight and Tradelink on Port Road.

- An Isuzu dealership was observed at LBWco IDs 69-71 along Port Road, with a site office and carparking. A vacant lot at LBWco ID 82 may have been used for parking Isuzu vehicles.



Photograph 12- View southeast along Port Road of the Isuzu dealership.

- A vehicle service centre, City Radiators was located at LBWco ID 68. The land contained rear sealed carparking for customers and a workshop.



Photograph 13- View of City Radiators along Port Road.

- Two current businesses were located between proponent-held land along the eastern side of Murray Street, including Frontline Car Sales at LBWco ID 18-19 and SA Aluminium Windows & Doors at LBWco ID 20. Workshops and sealed customer carparking were at both locations.



Photograph 14- View of Frontline Car Sales along Murray Street.

- Several businesses were located along the western side of Murray Street, including Eddie's Tooling Service, Devil Race Karts and Switch Electronics. These consisted of sheds/workshops and sealed customer parking.
- Coast to Coast Services Pty Ltd is located on a large piece of land bounded by Osborne Street, Murray Street and Glynde Street. The land use is commercial, with large warehouses, sealed surfaces and truck docks/loading bays.



Photograph 15- View of the southern portion of Coast to Coast Services Pty Ltd.

- No fuel or chemical storage was identified during the site reconnaissance.
- No evidence of spills, stained soils, or distressed vegetation was observed on any portion of the site.
- No PCAs were observed on adjacent properties near the site.

8 Summary of PCAs

A summary of the PCAs identified to have taken place within the DPA assessment area is provided in Table 2. Other activities that are not prescribed PCAs have been excluded from this preliminary stage of assessment. Refer to Appendix B for a full list of the properties within the DPA assessment area and their PCA status.

Based upon the desktop assessment, a discussion of PCAs has been formulated for the identified PCAs to consider potential contaminated media within the assessment area and possible exposure pathways and risks to receptors. Refer to Table 2.

The following document categorises PCAs into Class 1 (highest potential risk) to Class 3 (lowest potential risk):

- State Planning Commission, 2019. *Practice Direction x. Site Contamination Assessment* (Draft for Consultation, dated 1 October 2019).

The potential risk and/or liability for future land use specified in Table 2 for each of the identified PCAs has been based on the classifications set out in the above document.

Please also refer to Figures 5 and 6 in Appendix A.

Figure 5 shows the land parcels that have been subject to a PCA either historically or currently.

Figure 6 shows the PCA risk classifications of each of the above. Where a site has been subject to more than one PCA with different risk classifications, the highest classification has been shown on Figure 6.

Key for Table 2

Y – Impacts to media/receptors known or likely

U – Impacts to media/receptors unlikely, but cannot be precluded

N – PCA not anticipated to affect media/receptor

Table 2 Qualitative Assessment of Site Contamination Risk from PCAs

LBWco Ref	PCA	Chemical substances of interest	Likely location	Relevant Onsite Media			Potential Onsite Receptors			Class 1, 2 or 3 as per State Planning Commission Draft Document (Potential risk and/or liability for future land use)
				Soil	Soil Vapour	Groundwater	Humans	Ecosystems	Built Environment	
2, 18, 19, 21, 38, 47, 67, 86, 97, 108	Metal processing, smelting, refining or metallurgical works	Various including: TRH, BTEX, PAH, solvents, metals,	982-986 Port Road, 13 Murray St & 19 Murray St (Morrell Pty Ltd CH Metal Merchants & Smelters) 974-976 Port Rd (Finecast Aluminium)	Y	Y	Y	Y	U	Y	Class 1 This PCA has been carried out over a number of years at the site. In the event that leaks of stored chemicals, or releases during processing or waste disposal have occurred, there is potential that shallow soils, groundwater or soil vapour may have been impacted.
3, 4, 8, 9, 23, 26, 29, 31, 32, 33, 34, 36, 39, 40, 41, 45, 48, 53, 61, 74, 80, 81, 87, 96, 98, 107, 109	Metal forging	Various including: TRH, BTEX, PAH, solvents, metals,	24-30 Murray Street (Gadsden) 20 Jervois Street (KGF Precision Grinding) 30 Jervois Street, 16 Murray Street & 24-30 Murray Street (Gadsden) Jervois Street (FEV Pressed Metal) 952 Port Road (Galvasteel and Air Command Australia) 954-956 Port Road (V & F Pressed Metal Co, F&N Pressed Metal) 966-970 Port Road (Furnace & Combustion Engineers, Lakeside Engineering) 978-980 Port Rd (Altubes Steel Tube Fabrication) 21 Glyde St (Harvey WC Tinsmiths)	Y	Y	Y	Y	U	Y	Class 2 This PCA has been carried out over a number of years at the site. In the event that leaks of stored chemicals, or releases during processing or waste disposal have occurred, there is potential that shallow soils groundwater or soil vapour may have been impacted. The northern extent of the Gadsden site at 24-30 Murray Street is known to be a source of groundwater and soil vapour impacts of chlorinated hydrocarbons. Underlying groundwater is known to be impacted and elevated concentrations of chlorinated hydrocarbons as soil vapour have been identified.

LBWco Ref	PCA	Chemical substances of interest	Likely location	Relevant Onsite Media			Potential Onsite Receptors			Class 1, 2 or 3 as per State Planning Commission Draft Document (Potential risk and/or liability for future land use)
				Soil	Soil Vapour	Groundwater	Humans	Ecosystems	Built Environment	
3, 4, 9, 20, 23, 26, 29, 31, 34, 39, 40, 41, 48, 53, 61, 74, 80, 87, 96, 98, 107, 109	Metal coating, finishing or spray painting	Various including: Volatile organic chemicals (VOC) including chlorinated hydrocarbons, solvents, TRH, BTEX, metals, per-fluoralkyl substances (PFAS)	954-956 Port Rd (V & F Pressed Metal Co, F&N Pressed Metal) 966-970 Port Road (Furnace & Combustion Engineers, Lakeside Engineering) Jervois Street (FEV Pressed Metal) 30 Jervois Street, 16 Murray Street & 24-30 Murray Street (Gadsden) 17 Murray Street (SA Aluminium Windows & Doors)	Y	Y	Y	Y	U	Y	Class 1 This PCA has been carried out over a number of years at the site. Spray painting or finishing has the potential for site contamination during both application and storage. Paint thinners and other chemicals required to treat and clean metal prior to painting can cause contamination. Volatile chemicals pose particular risk of vapour contamination that can enter indoor air. The northern extent of the Gadsden site at 24-30 Murray Street is known to be a source of groundwater and soil vapour impacts of chlorinated hydrocarbons. Underlying groundwater is known to be impacted and elevated concentrations of chlorinated hydrocarbons as soil vapour have been identified.
7, 22, 24, 30, 68, 82, 111	Motor vehicle manufacture	Various including: Heavy metals, TRH, BTEX, PAH, VOCs including chlorinated hydrocarbons	8-12 May Street (Adelaide Motors Ltd) 996 Port Rd (City Radiators) 1004 Port Rd (Beale Instruments) 18 Murray St (Eddie's Tooling Service)	Y	Y	Y	Y	U	Y	Class 1 If releases of chlorinated hydrocarbons have occurred, there is potential for shallow soils, underlying groundwater and soil vapour to be affected. If contamination is present in shallow soils, there may be a risk to future site users via direct contact, incidental ingestion, and dust inhalation of contaminated soils.
11, 36, 76, 85, 91, 95	Vehicle Repair or Maintenance	Various including: TRH, BTEX, heavy metals, PAH, VOCs including chlorinated hydrocarbons.	6 Jervois Street (Oldfields Bakery) 972 Port Road (Toyota Service Centre) 14 Jervois Street (Crash Repair)	Y	Y	Y	Y	U	Y	Class 2 There is a high likelihood of the use and storage of fuels, oils and solvents associated with this land use. If significant loss of fuel containment has occurred, there is potential for shallow soils, underlying groundwater and soil vapour to be affected.

LBWco Ref	PCA	Chemical substances of interest	Likely location	Relevant Onsite Media			Potential Onsite Receptors			Class 1, 2 or 3 as per State Planning Commission Draft Document (Potential risk and/or liability for future land use)
				Soil	Soil Vapour	Groundwater	Humans	Ecosystems	Built Environment	
6, 7, 22, 24, 30, 43, 62, 86, 97, 108	Transport Depot	Various including: TRH, BTEX, heavy metals, PAH, VOCs including chlorinated hydrocarbons.	12-23 Murray Street 25 Murray Street 8-12 May Street (Finemore's Express) 962-964 Port Rd (Bull's Transport)	Y	Y	Y	Y	U	Y	Class 2 This PCA has been carried out over a number of years at the site. There is a high likelihood of above and / or below ground fuel storage to have historically taken place on these parts of the site. The presence of underground storage tanks (USTs) to still be present cannot be discounted. If significant loss of fuel containment has occurred in the past, there is potential for the underlying groundwater and soil vapour to be affected.
36	Fertiliser manufacture	Various including: Acids (nitric and phosphoric), alkalis (ammonium hydroxide), potassium compounds, nitrogen compounds, PAHs, heavy metals (from sewage sludge), bacteria.	972 Port Rd (Leggo AV & Co)	Y	N	Y	Y	U	U	Class 1 Historical records of fertiliser manufacturing on one part of the site exist (1955 and 1965). The exact nature and scale of the operations are unknown. Acids have the potential to attack below ground infrastructure such as concrete or service conduits. The possibility of disposal of waste / by products to ground cannot be discounted.
36	Scrap metal recovery	Various including: Heavy metals, TRH, PAH, chlorinated hydrocarbons	972 Port Rd (Ace Auto Wreckers)	Y	Y	Y	Y	U	Y	Class 2 Potential for leaks and spills of fuels and oils from vehicles. Also potential for releases of chlorinated hydrocarbons from storage / usage of these chemicals for cleaning / restoring parts. Potential for acid impacts and heavy metals in shallow soils from battery storage / leakage. Impacts expected to shallow soils. Groundwater and soil vapour impacts cannot be discounted in the event that a significant volume was released

LBWco Ref	PCA	Chemical substances of interest	Likely location	Relevant Onsite Media			Potential Onsite Receptors			Class 1, 2 or 3 as per State Planning Commission Draft Document (Potential risk and/or liability for future land use)
				Soil	Soil Vapour	Groundwater	Humans	Ecosystems	Built Environment	
52, 60, 73, 75	Furniture restoration	Various including: TRH, BTEX, phenols, VOCs, acids.	988-990 Port Rd (Smith A Ltd French Polishers) 9 May St (Mooney BW French Polishers)	Y	U	U	Y	U	U	Class 2 There is potential that various wood preserving chemicals such as creosotes and varnishes were used on the site. If this was the case, there is potential for shallow soil impacts. Volumes are unlikely to have been significant enough to have impacted groundwater and soil vapour although this cannot be discounted based on current information.
67	Foundry / metal processing	Various including: Heavy metals, cyanides, phosphates, sulphates, sulphides, TRH, BTEX, PAHs, asbestos, PCBs, VOCs.	974-976 Port Rd (Finecast Aluminium)	Y	U	U	Y	U	Y	Class 1 (High) The exact nature and scale of operations is unknown. There is potential for shallow soils to be impacted with the listed COIs. Significant releases are considered to be unlikely but cannot be discounted based on available data.
68	Paint manufacture	Various including: Heavy metals, asbestos, TRH, BTEX, VOCs, plasticisers (phthalates and esters), acids, ammonia	996 Port Rd (Brolite)	Y	Y	Y	Y	U	Y	Class 1 If releases of chlorinated hydrocarbons or other VOCs have occurred, or larger scale releases of petroleum hydrocarbons, there is potential for underlying groundwater and soil vapour to be affected. If contamination is present in shallow soils, there may be a risk to future site users via direct contact, incidental ingestion, and dust inhalation of contaminated soils.

LBWco Ref	PCA	Chemical substances of interest	Likely location	Relevant Onsite Media			Potential Onsite Receptors			Class 1, 2 or 3 as per State Planning Commission Draft Document (Potential risk and/or liability for future land use)
				Soil	Soil Vapour	Groundwater	Humans	Ecosystems	Built Environment	
3, 80	Iron or steel works	Various including: Heavy metals, cyanides, phosphates, sulphates, sulphides, TRH, BTEX, PAHs, asbestos, PCBs, VOCs.	966-970 Port Road & 30 Jervois St (Furnace & Combustion Engineers, Lakeside Engineering)	Y	U	U	Y	U	Y	Class 1 The exact nature and scale of operations is unknown. There is potential for shallow soils to be impacted with the listed COIs. Significant releases are considered to be unlikely but cannot be discounted based on available data.
6, 7, 13, 10, 11, 13, 22, 24, 30, 76, 85, 91, 108	Storage of 500 L or more of a Listed Substance	Petroleum hydrocarbons, ethanol and acidic solutions	992 Port Road (suspected breather pipe noted) 6 Jervois Street (Oldfields Bakery) 8-12 May Street (2x USTs noted on site walkover) 992 Port Road (acidic solution storage) 982-986 Port Road (ethanol drums noted on site walkover) 21-23 Murray Street	Y	Y	Y	Y	U	Y	Class 1 If releases of petroleum hydrocarbons or other stored chemicals have occurred, there is potential for underlying groundwater and soil vapour to be affected. If contamination is present in shallow soils, there may be a risk to future site users via direct contact, incidental ingestion, and dust inhalation of contaminated soils.

9 Conclusions and Recommendations

LBWco was commissioned by Jensen Plus to undertake a preliminary environmental assessment (PEA) of an area of land comprising 118 separate addresses in the suburb of Albert Park, South Australia.

Jensen Plus is providing services to the City of Charles Sturt (CCS) to undertake assessments and prepare a Development Plan Amendment (DPA) to rezone the land.

CCS required that a broad assessment of contamination issues is carried out to inform future constraints or otherwise on the location of public open space, under-croft parking, sensitive land uses and development plan / planning and design code policy.

The DPA assessment area comprises approximately 12.3 hectares of mixed-use land (commercial, industrial and residential).

The PEA was carried out to achieve the following objectives:

- Assess the current and historical land uses that have occurred within the assessment area to identify properties that have or may have been subject to a potentially contaminating activity (PCA)
- Provide a qualitative assessment of risk with respect to the likelihood that land uses could have caused site contamination
- Provide recommendations regarding which properties may require intrusive investigations and potentially remediation to make the land suitable for the range of land uses contemplated within the DPA.

Our conclusions are as follows:

- The majority of the assessment area included commercial / industrial land uses with PCAs inferred to have occurred at 65 of the 118 land parcels within the assessment area
- The investigation identified or inferred that 55 land parcels were subject to a Class 1 PCA and some of these were subject to multiple PCAs. 10 land parcels were identified or inferred to be have been subject to a Class 2 PCA only. No Class 3 PCAs were identified within the study area.
- The PCAs inferred to have taken place within parts of the DPA assessment area were as follows:
 - Metal processing, smelting, refining or metallurgical works
 - Metal forging / coating, finishing or spray painting
 - Motor vehicle manufacture
 - Motor vehicle repair or maintenance
 - Transport Depot
 - Fertiliser manufacture
 - Scrap metal recovery
 - Furniture restoration
 - Foundry / metal processing

- Paint manufacture
 - Iron or steel works
 - Storage of listed substances at volumes of greater than 500 L.
- With the exception of 24-30 Murray Street in the western portion of the area (LBWco IDs: 4, 9, 23, 26, 31, 40, 41, 53, 61, 74, 87, 98, 109), the contamination status of the DPA assessment area is unknown.
 - A relatively large proportion of the DPA assessment area has been subject to Class 1 and/or 2 PCAs, indicating a generally high risk posed by site contamination for the types of redevelopment contemplated for the re-zoning.
 - Areas where no PCAs have been recorded are more likely to be suitable for sensitive land uses relatively to sites directly subject to a PCA, but it is important to recognise that migration of contamination in the environment can pose risks to properties offsite relative to the source of contamination. Therefore, impacts to groundwater and soil vapour beneath these sites however cannot be discounted due to their proximity to known PCA sites.
 - Pending the results of ongoing assessments on behalf of the proponent, remediation of 24-30 Murray Street will be needed to make the site suitable for sensitive land use and remediation may be necessary to make the northern part of the site suitable for commercial land use.
 - EPA investigations into soil vapour impacts from 24-30 Murray Street have identified soil vapour across a significant portion of the western area of the DPA assessment area, including beneath both commercial and residential properties. EPA investigations are currently ongoing. Once complete, potential vapour risk to properties on this part of the site will be better understood and will help to define any future intrusive investigation scope and potential remediation needs to make sites suitable for their current use or to support change in land use.
 - Changing the land use of the existing industrial land to more sensitive land uses will require more comprehensive investigation and possibly remediation work. Site contamination audits will be required. Re-zoning of the land will likely need to precede such detailed site investigations and audits to give confidence to proponents of development that sensitive land uses are permitted and worthwhile pursuing via the detailed environmental investigations. However, the largely unknown contamination status of the DPA poses risks for regulators in contemplating re-zoning of land where it may not be viable due to site contamination risk.
 - Consideration should be given to identifying the areas within the DPA assessment area that appear to be of best fit for sensitive land uses from a planning and community perspective, then undertaking a preliminary investigation of site contamination status at a local area level for these best fit areas. The preliminary investigation may provide sufficient confidence for decision makers within the DPA assessment process to elect to proceed, if low risk is evident, or to require more detailed investigations of site contamination if higher risk is evident.

The information provided in this report is subject to the limitations expressed in Section 10. The reader should make themselves aware of the limitations and how they relate to the conclusions provided.

10 Limitations

Scope of Services

This environmental site assessment report ("the report") has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between Jensen Plus and LBW co (LBWco) ("scope of services"). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints.

Reliance on Data

In preparing the report, LBWco has relied upon data, surveys, analyses, designs, plans and other information provided by Jensen Plus and other individuals and organisations, most of which are referred to in the report ("the data"). Except as otherwise stated in the report, LBWco has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. LBWco 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 LBWco.

Environmental Conclusions

In accordance with the scope of services, LBWco has relied upon the data and has conducted environmental field monitoring and/or testing in the preparation of the report. The nature and extent of monitoring and/or testing conducted is described in the report.

On all sites, varying degrees of non-uniformity of the vertical and horizontal soil or groundwater conditions are encountered. Hence no monitoring, common testing or sampling technique can eliminate the possibility that monitoring or testing results/samples are not totally representative of soil and/or groundwater conditions encountered. The conclusions are based upon the data and the environmental field monitoring and/or testing and are therefore merely indicative of the environmental condition of the site at the time of preparing the report, including the presence or otherwise of contaminants or emissions.

Also, it should be recognised that site conditions, including the extent and concentration of contaminants, can change with time.

Within the limitations imposed by the scope of services, the monitoring, testing, sampling and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

Report for Benefit of Jensen Plus

The report has been prepared for the benefit of Jensen Plus and no other party. LBWco 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 LBWco or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

Other Limitations

LBWco 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.

Appendix A


Figures



FIGURE 1
Assessment Area

Development Plan Amendment
Albert Park
For
Jensen Plus

LEGEND

 Assessment area boundary

SCALE @ A3: 1:2500



PROJECTION: GDA1994 MGA Zone 54



Job No.	201162		
Drawing No.	LBW-001-F0001-Rev0.qgs		
Drawn	KB	Rev.	0
Checked	JB	Date	24/04/2020



FIGURE 2
Properties within Assessment Area

Development Plan Amendment
Albert Park
For
Jensen Plus

LEGEND

- Parcel boundary with LBWco ID
- Assessment area boundary

SCALE @ A3: 1:2500



PROJECTION: GDA1994 MGA Zone 54



Job No.	201162		
Drawing No.	LBW-001-F0002-Rev0.qgs		
Drawn	KB	Rev.	0
Checked	JB	Date	24/04/2020

LBWco ID	Owners	Property Address	Legal Description	Valuation Number	LBWco ID	Owners	Property Address	Legal Description	Valuation Number
1	Ms S Mashei	1/14 Murray Street Albert Park SA 5014	Lot 1 CP 22552 V ol 5929 Fol 325	2527191084	73	Capri Cellars Pty Ltd	988-990 Port Road Albert Park SA 5014	Lot 6 DP 2451 V ol 5232 Fol 668	2527176001
2	Capri Cellars Pty Ltd	982-986 Port Road Albert Park SA 5014	Lot 1 DP 2451 V ol 5163 Fol 658	2527175009	74	DFJ Holdings Pty Ltd	24-30 Murray Street Albert Park SA 5014	Lot 6 FP 108085 V ol 5957 Fol 141	2527189056
3	F F & M B Zampese Nominees Pty Ltd	966-970 Port Road Albert Park SA 5014	Lot 1 DP 52007 V ol 6122 Fol 663	2527171008	75	Ms L Jolly	9 May Street Albert Park SA 5014	Lot 60 FP 118242 V ol 5343 Fol 73	2527209002
4	DFJ Holdings Pty Ltd	24-30 Murray Street Albert Park SA 5014	Lot 1 FP 108085 V ol 5957 Fol 139	2527189056	76	Gateway Baptist Church & Community Centre Inc	6 Jervois Street Albert Park SA 5014	Lot 61 FP 118243 V ol 5548 Fol 527	2527221001
5	Torumare Pty Ltd	992 Port Road Albert Park SA 5014	Lot 1 FP 121362 V ol 5220 Fol 814	2527177004	77	Gateway Baptist Church & Community Centre Inc	6 Jervois Street Albert Park SA 5014	Lot 62 FP 118244 V ol 5548 Fol 827	2527221001
6	Capri Cellars Pty Ltd	21-23 Murray Street Albert Park SA 5014	Lot 1 FP 2844 V ol 5912 Fol 237	2527199000	78	Gateway Baptist Church & Community Centre Inc	6 Jervois Street Albert Park SA 5014	Lot 63 FP 118245 V ol 5718 Fol 662	2527221001
7	Capri Cellars Pty Ltd	8-12 May Street Albert Park SA 5014	Lot 10 DP 2451 V ol 5662 Fol 980	2527205001	79	Gateway Baptist Church & Community Centre Inc	6 Jervois Street Albert Park SA 5014	Lot 64 FP 118246 V ol 5728 Fol 720	2527221001
8	Larluna Property Fund Pty Ltd	952 Port Road Albert Park SA 5014	Lot 10 DP 833 V ol 6137 Fol 542	2527168001	80	F F & M B Zampese Nominees Pty Ltd	30 Jervois Street Albert Park SA 5014	Lot 66 FP 118248 V ol 5989 Fol 971	2527210003
9	DFJ Holdings Pty Ltd	24-30 Murray Street Albert Park SA 5014	Lot 10 FP 108085 V ol 5957 Fol 140	2527189056	81	Opal Essence Pty Ltd & Mr A M Pettinau	978-980 Port Road Albert Park SA 5014	Lot 67 FP 118249 V ol 5989 Fol 970	2527174006
10	Torumare Pty Ltd	992 Port Road Albert Park SA 5014	Lot 100 DP 628 V ol 5708 Fol 180	2527177004	82	Capcam Pty Ltd	1004 Port Road Albert Park SA 5014	Lot 68 DP 628 V ol 6118 Fol 417	2527182006
11	Gateway Baptist Church & Community Centre Inc	6 Jervois Street Albert Park SA 5014	Lot 1001 FP 31226 V ol 5808 Fol 726	2527221001	83	Commissioner of Highways	12 West Lakes Boulevard Albert Park SA 5014	Lot 68 FP 118250 V ol 5803 Fol 196	2527217002
12	Mrs J M Campbell	9 Glyde Street Albert Park SA 5014	Lot 101 DP 122735 V ol 6231 Fol 743	2527367019	84	Capcam Pty Ltd	1002 Port Road Albert Park SA 5014	Lot 69 DP 628 V ol 5181 Fol 415	2527181003
13	Torumare Pty Ltd	992 Port Road Albert Park SA 5014	Lot 101 DP 628 V ol 5708 Fol 180	2527177004	85	Gateway Baptist Church & Community Centre Inc	6 Jervois Street Albert Park SA 5014	Lot 69 FP 118251 V ol 5711 Fol 508	2527221001
14	Mr C K Marfisis & Mrs D G Marfisis	13 May Street Albert Park SA 5014	Lot 101 DP 95229 V ol 6151 Fol 395	2527207015	86	Capri Cellars Pty Ltd	982-986 Port Road Albert Park SA 5014	Lot 7 DP 2451 V ol 5163 Fol 659	2527175009
15	Mrs J M Campbell	11 Malin Street Albert Park SA 5014	Lot 102 DP 122735 V ol 6231 Fol 744	2527367115	87	DFJ Holdings Pty Ltd	24-30 Murray Street Albert Park SA 5014	Lot 7 FP 108085 V ol 5957 Fol 141	2527189056
16	Marvin Properties Pty Ltd	11 Murray Street Albert Park SA 5014	Lot 102 DP 628 V ol 5694 Fol 263	2527198227	88	Commissioner of Highways	6 West Lakes Boulevard Albert Park SA 5014	Lot 70 FP 118252 V ol 5801 Fol 549	2527220009
17	Mr S Rismondo & Ms A Skalonja	13A May Street Albert Park SA 5014	Lot 102 DP 95229 V ol 6151 Fol 396	2527207103	89	Commissioner of Highways	8 West Lakes Boulevard Albert Park SA 5014	Lot 71 FP 118253 V ol 5805 Fol 534	2527219008
18	Mr D V Scall & Mr J A Scall	13 Murray Street Albert Park SA 5014	Lot 103 DP 628 V ol 5693 Fol 819	252719842*0010	90	Commissioner of Highways	10 West Lakes Boulevard Albert Park SA 5014	Lot 72 FP 118254 V ol 5864 Fol 371	2527218005
19	Mr D V Scall & Mr J A Scall	13 Murray Street Albert Park SA 5014	Lot 104 DP 628 V ol 5693 Fol 820	252719842*0010	91	Gateway Baptist Church & Community Centre Inc	6 Jervois Street Albert Park SA 5014	Lot 73 FP 118255 V ol 5722 Fol 187	2527221001
20	Dichiera Super Fund Pty Ltd	17 Murray Street Albert Park SA 5014	Lot 105 DP 628 V ol 5537 Fol 434	2527198809	92	Commissioner of Highways	950 Port Road Albert Park SA 5014	Lot 74 FP 118256 V ol 5808 Fol 449	2527167009
21	Dichiera Super Fund Pty Ltd	19 Murray Street Albert Park SA 5014	Lot 106 DP 628 V ol 5536 Fol 750	2527198905	93	Mr G J Dolphin & Ms R A Dolphin	11 May Street Albert Park SA 5014	Lot 741 DP 69112 V ol 5954 Fol 669	2527208018
22	Capri Cellars Pty Ltd	8-12 May Street Albert Park SA 5014	Lot 11 DP 2451 V ol 5662 Fol 979	2527205001	94	Mr R P Abraham & Mrs B Roy	11A May Street Albert Park SA 5014	Lot 742 DP 69112 V ol 5954 Fol 670	2527221802
23	DFJ Holdings Pty Ltd	24-30 Murray Street Albert Park SA 5014	Lot 11 FP 108085 V ol 5957 Fol 140	2527189056	95	Commissioner of Highways	14 Jervois Street Albert Park SA 5014	Lot 75 FP 118257 V ol 5802 Fol 33	2527215007
24	Capri Cellars Pty Ltd	8-12 May Street Albert Park SA 5014	Lot 12 DP 2451 V ol 5662 Fol 979	2527205001	96	Larluna Property Fund Pty Ltd	954-956 Port Road Albert Park SA 5014	Lot 76 FP 118258 V ol 6137 Fol 540	2527169004
25	Mr J C Matthews	2 Murray Street Albert Park SA 5014	Lot 12 FP 107461 V ol 5185 Fol 999	2527197005	97	Capri Cellars Pty Ltd	982-986 Port Road Albert Park SA 5014	Lot 8 DP 2451 V ol 5163 Fol 659	2527175009
26	DFJ Holdings Pty Ltd	24-30 Murray Street Albert Park SA 5014	Lot 12 FP 108085 V ol 5191 Fol 507	2527189056	98	DFJ Holdings Pty Ltd	24-30 Murray Street Albert Park SA 5014	Lot 8 FP 108085 V ol 5957 Fol 141	2527189056
27	Opal Essence Pty Ltd	958-960 Port Road Albert Park SA 5014	Lot 124 DP 4004 V ol 5368 Fol 773	2527170101	99	Mr M Tomashewsky	11 Glyde Street Albert Park SA 5014	Lot 80 DP 628 V ol 5251 Fol 385	2527368003
28	Opal Essence Pty Ltd	958-960 Port Road Albert Park SA 5014	Lot 125 DP 4004 V ol 5368 Fol 721	2527170101	100	A Vemulapad & H L Narayana	8 Murray Street Albert Park SA 5014	Lot 81 DP 628 V ol 5445 Fol 236	2527194007
29	Larluna Property Fund Pty Ltd	954-956 Port Road Albert Park SA 5014	Lot 126 DP 4004 V ol 6137 Fol 539	2527169004	101	Miss A E Hall	13 Glyde Street Albert Park SA 5014	Lot 82 DP 628 V ol 5250 Fol 984	2527369006
30	Capri Cellars Pty Ltd	8-12 May Street Albert Park SA 5014	Lot 13 DP 2451 V ol 5662 Fol 979	2527205001	102	Mr A P Brister	10 Murray Street Albert Park SA 5014	Lot 83 DP 628 V ol 5711 Fol 593	2527193004
31	DFJ Holdings Pty Ltd	24-30 Murray Street Albert Park SA 5014	Lot 13 FP 108085 V ol 5191 Fol 507	2527189056	103	Mr S J Stirling	15 Glyde Street Albert Park SA 5014	Lot 84 DP 628 V ol 5287 Fol 587	2527370007
32	Mr B R N Manuel & Ms D M Manuel	20 Jervois Street Albert Park SA 5014	Lot 130 DP 4004 V ol 5711 Fol 112	2527213802	104	Ms S C Tsamaidis	12 Murray Street Albert Park SA 5014	Lot 85 DP 628 V ol 5272 Fol 404	2527192001
33	Mr B R N Manuel & Ms D M Manuel	20 Jervois Street Albert Park SA 5014	Lot 131 DP 4004 V ol 5717 Fol 987	2527213802	105	Mr M P Hill & M F Hill	17 Glyde Street Albert Park SA 5014	Lot 86 DP 628 V ol 5743 Fol 950	252737100*
34	Larluna Property Fund Pty Ltd	Jervois Street Albert Park SA 5014	Lot 132 DP 4004 V ol 6137 Fol 541	2527214004	106	Mr D R Morgan & Mrs M C Morgan	19 Jervois Street Albert Park SA 5014	Lot 88 DP 628 V ol 5743 Fol 951	2527372002
35	Ms M A Caruana & Mr C V Caruana	14 May Street Albert Park SA 5014	Lot 14 DP 2451 V ol 5632 Fol 901	2527204009	107	Mr R F Brennan & Ms M Brennan	16 Murray Street Albert Park SA 5014	Lot 89 DP 628 V ol 6118 Fol 833	2527190006
36	Zampese Holdings Pty Ltd	972 Port Road Albert Park SA 5014	Lot 17 DP 833 V ol 5677 Fol 585	2527172000	108	Capri Cellars Pty Ltd	982-986 Port Road Albert Park SA 5014	Lot 9 DP 2451 V ol 5163 Fol 659	2527175009
37	Miss S E Bowie	2/14 Murray Street Albert Park SA 5014	Lot 2 CP 22552 V ol 5929 Fol 326	2527191180	109	DFJ Holdings Pty Ltd	24-30 Murray Street Albert Park SA 5014	Lot 9 FP 108085 V ol 5957 Fol 141	2527189056
38	Capri Cellars Pty Ltd	982-986 Port Road Albert Park SA 5014	Lot 2 DP 2451 V ol 5163 Fol 658	2527175009	110	Ms A M Daniel	21 Glyde Street Albert Park SA 5014	Lot 90 DP 628 V ol 5254 Fol 949	2527373005
39	F F & M B Zampese Nominees Pty Ltd	30 Jervois Street Albert Park SA 5014	Lot 2 DP 52007 V ol 5709 Fol 137	2527210003	111	RWSK Pty Ltd	18 Murray Street Albert Park SA 5014	Lot 91 DP 628 V ol 5285 Fol 737	2527189507
40	DFJ Holdings Pty Ltd	24-30 Murray Street Albert Park SA 5014	Lot 2 FP 108082 V ol 5191 Fol 397	2527189056	112	Mr C M Dunstan	23 Glyde Street Albert Park SA 5014	Lot 92 DP 628 V ol 5631 Fol 543	2527374008
41	DFJ Holdings Pty Ltd	24-30 Murray Street Albert Park SA 5014	Lot 2 FP 108085 V ol 5957 Fol 139	2527189056	113	RWSK Pty Ltd	20-22 Murray Street Albert Park SA 5014	Lot 93 DP 628 V ol 5285 Fol 738	2527189451
42	Torumare Pty Ltd	992 Port Road Albert Park SA 5014	Lot 2 FP 121362 V ol 5220 Fol 814	2527177004	114	Ms D A McIntyre	25 Glyde Street Albert Park SA 5014	Lot 94 DP 628 V ol 5743 Fol 952	2527375000
43	No 2 Murray Street Pty Ltd	25 Murray Street Albert Park SA 5014	Lot 2 FP 2844 V ol 5912 Fol 238	2527200008	115	RWSK Pty Ltd	20-22 Murray Street Albert Park SA 5014	Lot 95 DP 628 V ol 5285 Fol 739	2527189451
44	Mr P J Finn, Ms C D Finn, Mr S D Finn	998-1000 Port Road Albert Park SA 5014	Lot 22 FP 108092 V ol 5191 Fol 485	2527178904	116	Ms A M Fernia	27 Glyde Street Albert Park SA 5014	Lot 96 DP 628 V ol 5194 Fol 89	2527375107
45	Larluna Property Fund Pty Ltd	952 Port Road Albert Park SA 5014	Lot 25 DP 833 V ol 6137 Fol 542	2527168001	117	Torumare Pty Ltd	992 Port Road Albert Park SA 5014	Lot 99 DP 628 V ol 5709 Fol 940	2527177004
46	Mr J E Bush & Mrs B O Bush	3/14 Murray Street Albert Park SA 5014	Lot 3 CP 22552 V ol 5929 Fol 327	2527191287	118	Community Corporation No 22552 Inc	14 Murray Street Albert Park SA 5014	Lot C1 CP 22552 V ol 5929 Fol 328	2527191041
47	Capri Cellars Pty Ltd	982-986 Port Road Albert Park SA 5014	Lot 3 DP 2451 V ol 5163 Fol 658	2527175009					
48	DFJ Holdings Pty Ltd	24-30 Murray Street Albert Park SA 5014	Lot 3 FP 108085 V ol 5957 Fol 139	2527189056					
49	Ms A Rellos & AEG 3 Generation Pty Ltd	7 Glyde Street Albert Park SA 5014	Lot 31 DP 65133 V ol 5924 Fol 70	2527188045					
50	Mrs J A Nicholls	10 Malin Street Albert Park SA 5014	Lot 32 DP 65133 V ol 5924 Fol 71	2527188299					
51	Ms S Mashei	1/14 Murray Street Albert Park SA 5014	Lot 4 CP 22552 V ol 5929 Fol 325	2527191084					
52	Capri Cellars Pty Ltd	988-990 Port Road Albert Park SA 5014	Lot 4 DP 2451 V ol 5232 Fol 676	2527176001					
53	DFJ Holdings Pty Ltd	24-30 Murray Street Albert Park SA 5014	Lot 4 FP 108085 V ol 5957 Fol 139	2527189056					
54	Mr A P Caruana & Ms P M Caruana	1 Grace Street Albert Park SA 5014	Lot 41 DP 28806 V ol 5313 Fol 959	2527202054					
55	Mr A P Caruana & Ms P M Caruana	16 May Street Albert Park SA 5014	Lot 42 DP 28806 V ol 5405 Fol 663	2527202150					
56	Estate Of D B Godfrey	18 May Street Albert Park SA 5014	Lot 43 DP 28806 V ol 5085 Fol 512	252720210*					
57	Trevjoy Super Pty Ltd	4-6 Murray Street Albert Park SA 5014	Lot 45 FP 118327 V ol 5978 Fol 89	2527195018					
58	Trevjoy Super Pty Ltd	4-6 Murray Street Albert Park SA 5014	Lot 46 FP 118328 V ol 5978 Fol 90	2527195018					
59	Miss S E Bowie	2/14 Murray Street Albert Park SA 5014	Lot 5 CP 22552 V ol 5929 Fol 326	2527191180					
60	Capri Cellars Pty Ltd	988-990 Port Road Albert Park SA 5014	Lot 5 DP 2451 V ol 5232 Fol 668	2527176001					
61	DFJ Holdings Pty Ltd	24-30 Murray Street Albert Park SA 5014	Lot 5 FP 108085 V ol 5957 Fol 139	2527189056					
62	Opal Essence Pty Ltd	962-964 Port Road Albert Park SA 5014	Lot 51 DP 83300 V ol 6067 Fol 575	2527170523					
63	Mr J M Storer & Ms A S Crabb	5 Glyde Street Albert Park SA 5014	Lot 52 FP 118334 V ol 5553 Fol 286	252718700*					
64	Opal Essence Pty Ltd & Mr A M Pettinau	978-980 Port Road Albert Park SA 5014	Lot 52 FP 17473 V ol 6167 Fol 911	2527174006					
65	Mr G Laurito	3 Glyde Street Albert Park SA 5014	Lot 53 FP 118335 V ol 5553 Fol 431	252718620*					
66	Capcam Pty Ltd	1 Glyde Street Albert Park SA 5014	Lot 54 FP 118336 V ol 5728 Fol 469	2527186015					
67	Mr M A Calabro	974-976 Port Road Albert Park SA 5014	Lot 54 FP 17473 V ol 5989 Fol 969	252717310*					
68	Joki Pty Ltd	996 Port Road Albert Park SA 5014	Lot 55 FP 118337 V ol 6085 Fol 49	2527178007					
69	Capcam Pty Ltd	1010 Port Road Albert Park SA 5014	Lot 56 FP 118338 V ol 5528 Fol 108	2527185004					
70	Capcam Pty Ltd	1006-1008 Port Road Albert Park SA 5014	Lot 57 FP 118339 V ol 5528 Fol 107	2527184001					
71	Capcam Pty Ltd	1006-1008 Port Road Albert Park SA 5014	Lot 58 FP 118340 V ol 5728 Fol 468	2527184001					
72	City Of Charles Sturt	Port Road Albert Park SA 5014	Lot 59 FP 118341 V ol 5750 Fol 872	2527177506					

FIGURE 2A

List of Properties within Assessment Area

Development Plan Amendment

Albert Park

For

Jensen Plus



Job No.	201162		
Drawing No.	LBW-001-F0002A-Rev0.qgs		
Drawn	KB	Rev.	0
Checked	JB	Date	24/04/2020

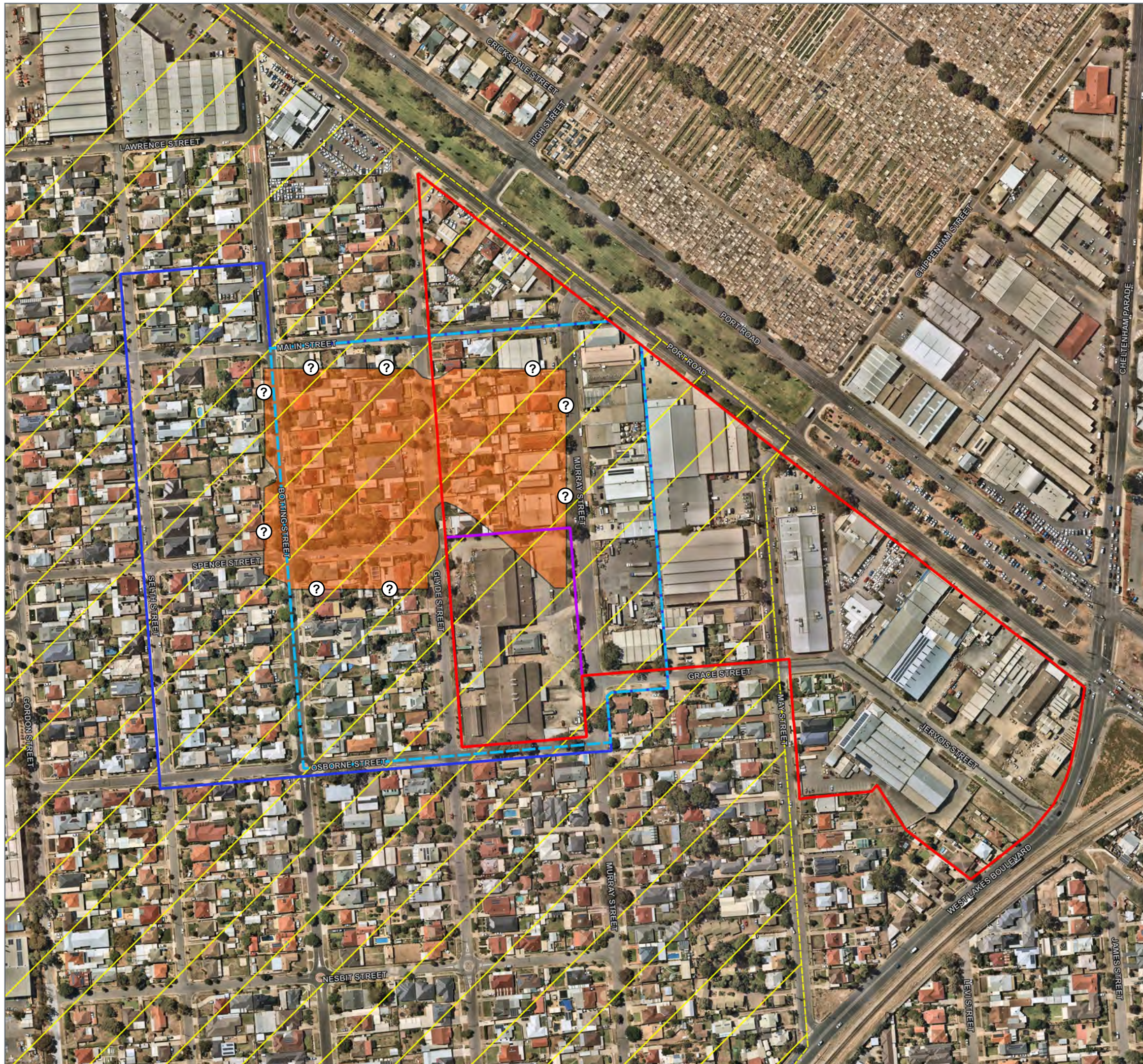


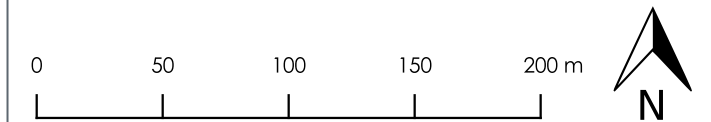
FIGURE 3
EPA Public Register Records

Development Plan Amendment
Albert Park
For
Jensen Plus

LEGEND

- Albert Park Assessment Area (Stage 1)
- Albert Park Assessment Area (Stage 2)
- Groundwater Prohibition Area – Hendon, Royal Park, Seaton and Albert Park copy
- Inferred TCE soil vapour plume
- Site Contamination Audit Area – 24-30 Murray Street
- Assessment area boundary

SCALE @ A3: 1:3000



PROJECTION: GDA1994 MGA Zone 54



Job No.	201162		
Drawing No.	LBW-001-F0003-Rev0.qgs		
Drawn	KB	Rev.	0
Checked	JB	Date	24/04/2020

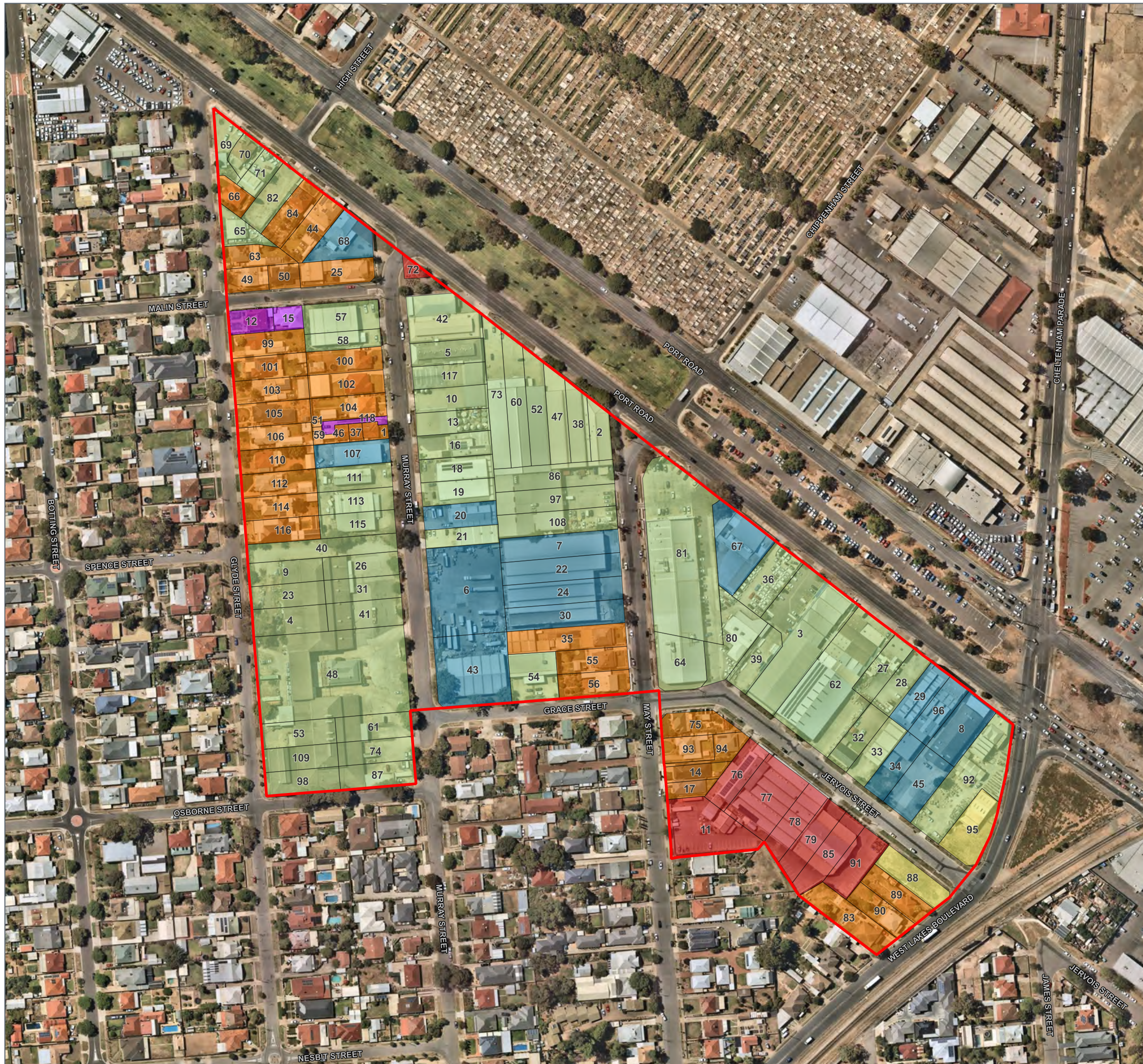


FIGURE 4
Existing land use

Development Plan Amendment
Albert Park
For
Jensen Plus

LEGEND

Land Use

- Residential
- Commercial
- Industrial
- Place of assembly
- Vacant
- Unknown
- Parcel boundary with LBWco ID
- Assessment area boundary

SCALE @ A3: 1:2500



PROJECTION: GDA1994 MGA Zone 54



Job No.	201162		
Drawing No.	LBW-001-F0004-Rev0.qgs		
Drawn	KB	Rev.	0
Checked	JB	Date	24/04/2020

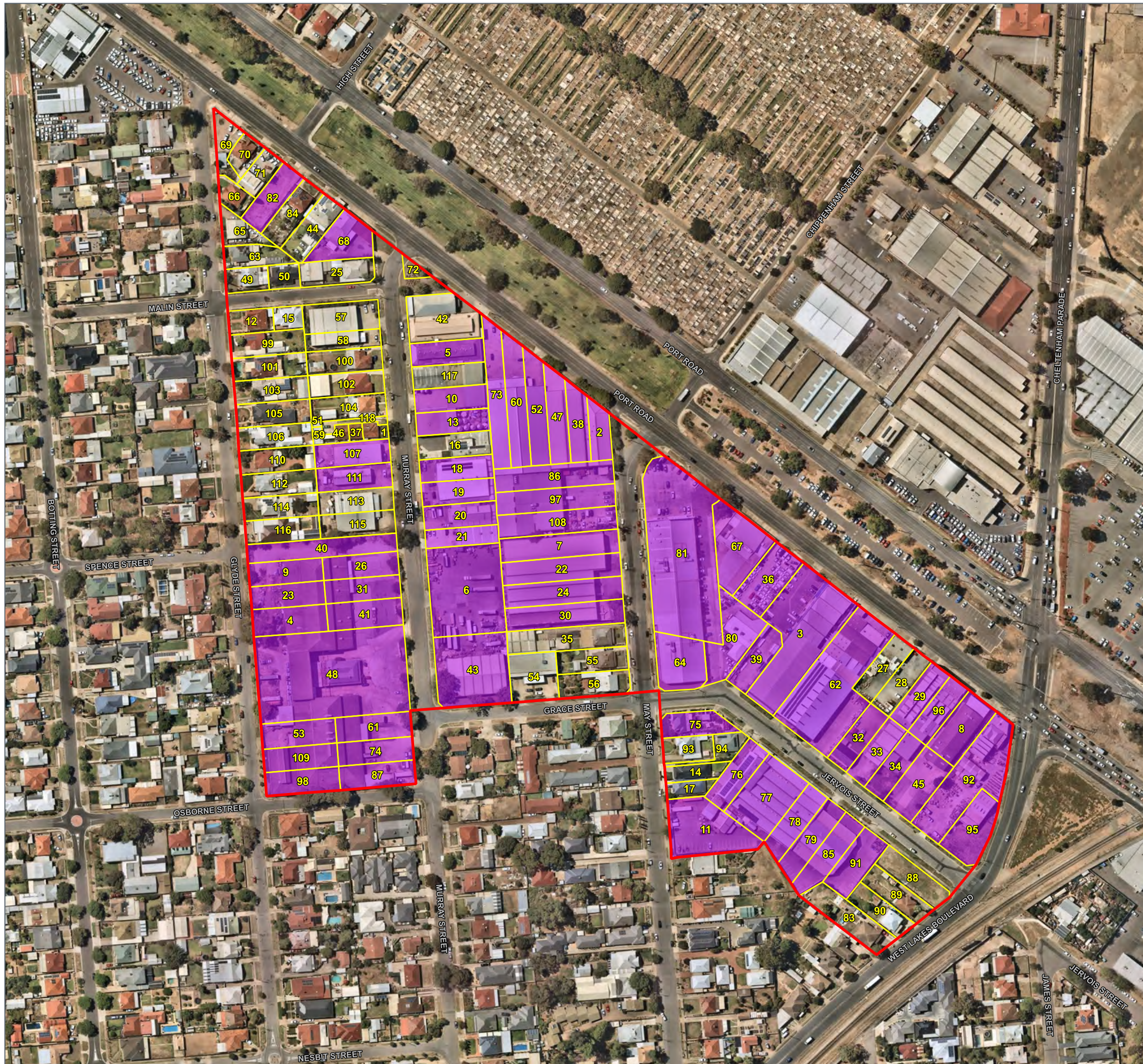


FIGURE 5
Properties subject to a PCA

Development Plan Amendment
Albert Park
For
Jensen Plus

LEGEND

- Properties subject to a PCA
- Parcel boundary with LBWco ID
- Assessment area boundary

SCALE @ A3: 1:2500



PROJECTION: GDA1994 MGA Zone 54



Job No.	201162		
Drawing No.	LBW-001-F0005-Rev0.qgs		
Drawn	KB	Rev.	0
Checked	JB	Date	29/04/2020

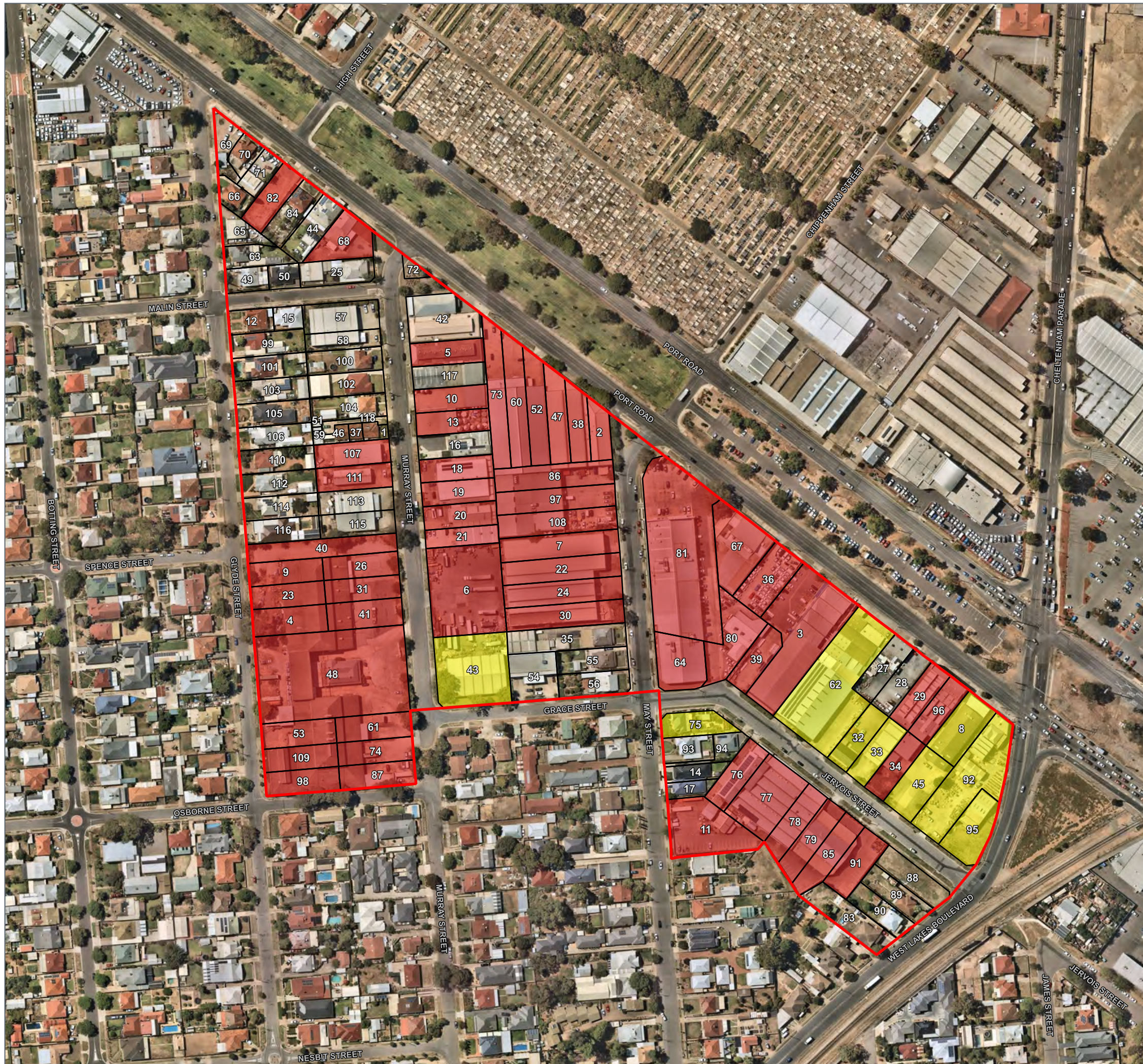


FIGURE 6
Relative risk for site contamination
from a PCA

Development Plan Amendment
Albert Park
For
Jensen Plus

LEGEND

PCA Risk Class

- Class 1 - High Risk
- Class 2 - Moderate Risk
- Class 3 - Low Risk
- Parcel boundary with LBWco ID
- Assessment area boundary

SCALE @ A3: 1:2500



PROJECTION: GDA1994 MGA Zone 54



Job No.	201162		
Drawing No.	LBW-001-F0006-Rev1.qgs		
Drawn	KB	Rev.	1
Checked	JB	Date	07/05/2020

Appendix B

Land use and PCA Summary

Albert Park DPA Property List and PCAs



LBWco ID	Property Address	LegalDesc	Current Land Use - CCS Database	Historical Land Use or Activity of Interest re site contamination	PCA?	Class 1, 2 or 3 activity
1	1/14 Murray Street ALBERT PARK SA 5014	Lot 1 CP 22552 Vol 5929 Fol 325	1310 - Ground Floor Units Only		N	
2	982-986 Port Road ALBERT PARK SA 5014	Lot 1 DP 2451 Vol 5163 Fol 658	2020 - Food & Drink	Metal processing, smelting, refining or metallurgical works (Morrell CH Pty Ltd Metal Merchants & Smelters)	Y	1
3	966-970 Port Road ALBERT PARK SA 5014	Lot 1 DP 52007 Vol 6122 Fol 663	2830 - Plumbing Heating & Airconditioning	Metal forging/metal coating, finishing or spray painting (Iron or Steel Works (Furnace & Combustion Engineers, Lakeside Engineering))	Y	1, 2
4	24-30 Murray Street ALBERT PARK SA 5014	Lot 1 FP 108085 Vol 5957 Fol 139	2090 - Wholesale Trade NEC	Metal forging/metal coating, finishing or spray painting (Gadsden J Pty Ltd canister makers)	Y	1, 2
5	992 Port Road ALBERT PARK SA 5014	Lot 1 FP 121362 Vol 5220 Fol 814	2020 - Food & Drink	Suspected breather pipe noted on site walkover	Y	1
6	21-23 Murray Street ALBERT PARK SA 5014	Lot 1 FP 2844 Vol 5912 Fol 237	6540 - Truck Freight Terminal	Storage of ≥500 L of liquid listed substance (petroleum fuel in USTs) Transport depot (Finemore's Express)	Y Y	1 2
7	8-12 May Street ALBERT PARK SA 5014	Lot 10 DP 2451 Vol 5662 Fol 980	6540 - Truck Freight Terminal	Motor vehicle manufacture (Adelaide Motors Ltd), Storage of ≥500 L of liquid listed substance (petroleum fuel in USTs) (UST noted on site walkover) Transport depot (Finemore's Express)	Y Y	1 2
8	952 Port Road ALBERT PARK SA 5014	Lot 10 DP 833 Vol 6137 Fol 542	3839 - Electrical Apparatus/Suppl NEC	Metal forging (Galvasteel Ltd) Metal forging (Air Command Australia)	Y Y	2 2
9	24-30 Murray Street ALBERT PARK SA 5014	Lot 10 FP 108085 Vol 5957 Fol 140	2090 - Wholesale Trade NEC	Metal forging/metal coating, finishing or spray painting (Gadsden J Pty Ltd canister makers)	Y	1, 2
10	992 Port Road ALBERT PARK SA 5014	Lot 100 DP 628 Vol 5708 Fol 180	2020 - Food & Drink	Storage of ≥500 L of liquid listed substance (acid, vinegar production)	Y	1
11	6 Jervois Street ALBERT PARK SA 5014	Lot 1001 FP 31226 Vol 5808 Fol 726	5690 - Places of Assembly Other NEC	Inferred storage of ≥500 L of liquid listed substance (fuel, Oldfields Bakery) Motor Vehicle Repair or Maintenance (Oldfields Bakery)	Y Y	1 2
12	9 Glyde Street ALBERT PARK SA 5014	Lot 101 DP 122735 Vol 6231 Fol 743	Not advised		N	
13	992 Port Road ALBERT PARK SA 5014	Lot 101 DP 628 Vol 5708 Fol 180	2020 - Food & Drink	Storage of ≥500 L of liquid listed substance (acid, vinegar production)	Y	1
14	13 May Street ALBERT PARK SA 5014	Lot 101 DP 95229 Vol 6151 Fol 395	1100 - House		N	
15	11 Malin Street ALBERT PARK SA 5014	Lot 102 DP 122735 Vol 6231 Fol 744	Not advised		N	
16	11 Murray Street ALBERT PARK SA 5014	Lot 102 DP 628 Vol 5694 Fol 263	2600 - Office Warehouse		N	
17	13A May Street ALBERT PARK SA 5014	Lot 102 DP 95229 Vol 6151 Fol 396	1100 - House		N	
18	13 Murray Street ALBERT PARK SA 5014	Lot 103 DP 628 Vol 5693 Fol 819	2600 - Office Warehouse	Metal processing, smelting, refining or metallurgical works (Morrell CH Pty Ltd Metal Merchants & Smelters)	Y	1
19	13 Murray Street ALBERT PARK SA 5014	Lot 104 DP 628 Vol 5693 Fol 820	2600 - Office Warehouse	Metal processing, smelting, refining or metallurgical works (Morrell CH Pty Ltd Metal Merchants & Smelters)	Y	1
20	17 Murray Street ALBERT PARK SA 5014	Lot 105 DP 628 Vol 5537 Fol 434	2900 - Repair Services Workshop	Metal coating, finishing or spray painting (S.A. Aluminium Windows & Doors)	Y	1
21	19 Murray Street ALBERT PARK SA 5014	Lot 106 DP 628 Vol 5536 Fol 750	2600 - Office Warehouse	Metal processing, smelting, refining or metallurgical works (Morrell CH Pty Ltd Metal Merchants & Smelters)	Y	1
22	8-12 May Street ALBERT PARK SA 5014	Lot 11 DP 2451 Vol 5662 Fol 979	6540 - Truck Freight Terminal	Motor vehicle manufacture (Adelaide Motors Ltd), Storage of ≥500 L of liquid listed substance (petroleum fuel in USTs) (UST noted on site walkover) Transport depot (Finemore's Express)	Y Y	1 2
23	24-30 Murray Street ALBERT PARK SA 5014	Lot 11 FP 108085 Vol 5957 Fol 140	2090 - Wholesale Trade NEC	Metal forging/metal coating, finishing or spray painting (Gadsden J Pty Ltd canister makers)	Y	1, 2
24	8-12 May Street ALBERT PARK SA 5014	Lot 12 DP 2451 Vol 5662 Fol 979	6540 - Truck Freight Terminal	Motor vehicle manufacture (Adelaide Motors Ltd), Storage of ≥500 L of liquid listed substance (petroleum fuel in USTs) (UST noted on site walkover) Transport depot (Finemore's Express)	Y Y	1 2
25	2 Murray Street ALBERT PARK SA 5014	Lot 12 FP 107461 Vol 5185 Fol 999	1100 - House		N	
26	24-30 Murray Street ALBERT PARK SA 5014	Lot 12 FP 108085 Vol 5191 Fol 507	2090 - Wholesale Trade NEC	Metal forging/metal coating, finishing or spray painting (Gadsden J Pty Ltd canister makers)	Y	1, 2
27	958-960 Port Road ALBERT PARK SA 5014	Lot 124 DP 4004 Vol 5368 Fol 773	2605 - Showroom- Beechmont		N	
28	958-960 Port Road ALBERT PARK SA 5014	Lot 125 DP 4004 Vol 5368 Fol 721	2605 - Showroom		N	
29	954-956 Port Road ALBERT PARK SA 5014	Lot 126 DP 4004 Vol 6137 Fol 539	3810 - Metal Products not Machinery	Metal forging/metal coating, finishing or spray painting (V & F Pressed Metal Co)	Y	1, 2
30	8-12 May Street ALBERT PARK SA 5014	Lot 13 DP 2451 Vol 5662 Fol 979	6540 - Truck Freight Terminal	Motor vehicle manufacture (Adelaide Motors Ltd), Storage of ≥500 L of liquid listed substance (petroleum fuel in USTs) (UST noted on site walkover) Transport depot (Finemore's Express)	Y Y	1 2
31	24-30 Murray Street ALBERT PARK SA 5014	Lot 13 FP 108085 Vol 5191 Fol 507	2090 - Wholesale Trade NEC	Metal forging/metal coating, finishing or spray painting (Gadsden J Pty Ltd canister makers)	Y	1, 2
32	20 Jervois Street ALBERT PARK SA 5014	Lot 130 DP 4004 Vol 5711 Fol 112	2100 - Retail Trade	Metal forging (KGF Precision Grinding)	Y	2
33	20 Jervois Street ALBERT PARK SA 5014	Lot 131 DP 4004 Vol 5717 Fol 987	2100 - Retail Trade	Metal forging (KGF Precision Grinding)	Y	2
34	Jervois Street ALBERT PARK SA 5014	Lot 132 DP 4004 Vol 6137 Fol 541	3830 - Electrical Mach. Apparatus	Metal forging/metal coating, finishing or spray painting (FEV Pressed Metal)	Y	1, 2
35	14 May Street ALBERT PARK SA 5014	Lot 14 DP 2451 Vol 5632 Fol 901	1113 - House With Man & Service Indus		N	
36	972 Port Road ALBERT PARK SA 5014	Lot 17 DP 833 Vol 5677 Fol 585	2180 - Motor Vehicles & Accessories	Fertiliser manufacture (Leggo AV & Co) Scrap metal recovery (Ace Auto Wreckers) Vehicle Repair or Maintenance (Toyota Service Centre)	Y Y Y	1 1 2
37	2/14 Murray Street ALBERT PARK SA 5014	Lot 2 CP 22552 Vol 5929 Fol 326	1310 - Ground Floor Units Only		N	
38	982-986 Port Road ALBERT PARK SA 5014	Lot 2 DP 2451 Vol 5163 Fol 658	2020 - Food & Drink	Metal processing, smelting, refining or metallurgical works (Morrell CH Pty Ltd Metal Merchants & Smelters)	Y	1
39	30 Jervois Street ALBERT PARK SA 5014	Lot 2 DP 52007 Vol 5709 Fol 137	2600 - Office Warehouse	Metal forging/metal coating, finishing or spray painting (Gadsden J Pty Ltd canister makers)	Y	1, 2
40	24-30 Murray Street ALBERT PARK SA 5014	Lot 2 FP 108082 Vol 5191 Fol 397	2090 - Wholesale Trade NEC	Metal forging/metal coating, finishing or spray painting (Gadsden J Pty Ltd canister makers)	Y	1, 2
41	24-30 Murray Street ALBERT PARK SA 5014	Lot 2 FP 108085 Vol 5957 Fol 139	2090 - Wholesale Trade NEC	Metal forging/metal coating, finishing or spray painting (Gadsden J Pty Ltd canister makers)	Y	1, 2
42	992 Port Road ALBERT PARK SA 5014	Lot 2 FP 121362 Vol 5220 Fol 814	2020 - Food & Drink		N	
43	25 Murray Street ALBERT PARK SA 5014	Lot 2 FP 2844 Vol 5912 Fol 238	6540 - Truck Freight Terminal	Transport depot	Y	2
44	998-1000 Port Road ALBERT PARK SA 5014	Lot 22 FP 108092 Vol 5191 Fol 485	1100 - House		N	
45	952 Port Road ALBERT PARK SA 5014	Lot 25 DP 833 Vol 6137 Fol 542	3839 - Electrical Apparatus/Suppl NEC	Metal forging (Galvasteel Ltd) Metal forging (Air Command Australia)	Y Y	2 2
46	3/14 Murray Street ALBERT PARK SA 5014	Lot 3 CP 22552 Vol 5929 Fol 327	1310 - Ground Floor Units Only		N	
47	982-986 Port Road ALBERT PARK SA 5014	Lot 3 DP 2451 Vol 5163 Fol 658	2020 - Food & Drink	Metal processing, smelting, refining or metallurgical works (Morrell CH Pty Ltd Metal Merchants & Smelters)	Y	1
48	24-30 Murray Street ALBERT PARK SA 5014	Lot 3 FP 108085 Vol 5957 Fol 139	2090 - Wholesale Trade NEC	Metal forging/metal coating, finishing or spray painting (Gadsden J Pty Ltd canister makers)	Y	1, 2
49	7 Glyde Street ALBERT PARK SA 5014	Lot 31 DP 65133 Vol 5924 Fol 70	1100 - House		N	
50	10 Malin Street ALBERT PARK SA 5014	Lot 32 DP 65133 Vol 5924 Fol 71	1100 - House		N	
51	1/14 Murray Street ALBERT PARK SA 5014	Lot 4 CP 22552 Vol 5929 Fol 325	1310 - Ground Floor Units Only		N	
52	988-990 Port Road ALBERT PARK SA 5014	Lot 4 DP 2451 Vol 5232 Fol 676	2020 - Food & Drink	Caravan manufacture (Globe Products) Furniture restoration (Smith A Ltd French Polishers)	Y Y	1 2
53	24-30 Murray Street ALBERT PARK SA 5014	Lot 4 FP 108085 Vol 5957 Fol 139	2090 - Wholesale Trade NEC	Metal forging/metal coating, finishing or spray painting (Gadsden J Pty Ltd canister makers)	Y	1, 2
54	1 Grace Street ALBERT PARK SA 5014	Lot 41 DP 28806 Vol 5313 Fol 959	2600 - Office Warehouse		N	
55	16 May Street ALBERT PARK SA 5014	Lot 42 DP 28806 Vol 5405 Fol 663	1100 - House		N	
56	18 May Street ALBERT PARK SA 5014	Lot 43 DP 28806 Vol 5085 Fol 512	1100 - House		N	
57	4-6 Murray Street ALBERT PARK SA 5014	Lot 45 FP 118327 Vol 5978 Fol 89	2600 - Office Warehouse	None identified (Vidale)	N	
58	4-6 Murray Street ALBERT PARK SA 5014	Lot 46 FP 118328 Vol 5978 Fol 90	2600 - Office Warehouse	None identified (Vidale)	N	
59	2/14 Murray Street ALBERT PARK SA 5014	Lot 5 CP 22552 Vol 5929 Fol 326	1310 - Ground Floor Units Only		N	
60	988-990 Port Road ALBERT PARK SA 5014	Lot 5 DP 2451 Vol 5232 Fol 668	2020 - Food & Drink	Caravan manufacture (Globe Products) Furniture restoration (Smith A Ltd French Polishers)	Y Y	1 2
61	24-30 Murray Street ALBERT PARK SA 5014	Lot 5 FP 108085 Vol 5957 Fol 139	2090 - Wholesale Trade NEC	Metal forging/metal coating, finishing or spray painting (Gadsden J Pty Ltd canister makers)	Y	1, 2
62	962-964 Port Road ALBERT PARK SA 5014	Lot 51 DP 83300 Vol 6067 Fol 575	2600 - Office Warehouse	Transport Depot (Bull's Transport)	Y	2
63	5 Glyde Street ALBERT PARK SA 5014	Lot 52 FP 118334 Vol 5553 Fol 286	1100 - House		N	
64	978-980 Port Road ALBERT PARK SA 5014	Lot 52 FP 17473 Vol 6167 Fol 911	2600 - Office Warehouse	Electrical component manufacture (Sun Lighting)	Y	1
65	3 Glyde Street ALBERT PARK SA 5014	Lot 53 FP 118335 Vol 5553 Fol 431	2600 - Office Warehouse		N	
66	1 Glyde Street ALBERT PARK SA 5014	Lot 54 FP 118336 Vol 5728 Fol 469	1100 - House		N	

Albert Park DPA Property List and PCAs

67	974-976 Port Road ALBERT PARK SA 5014	Lot 54 FP 17473 Vol 5989 Fol 969	3810 - Metal Products not Machinery	Foundry/metal processing (Finecast Aluminium)	Y	1
68	996 Port Road ALBERT PARK SA 5014	Lot 55 FP 118337 Vol 6085 Fol 49	3521 - Paints/Varnishes/Lacquers	Paint manufacture (Brolite S.A.)	Y	1
				Motor vehicle manufacturers (Site walkover identified service centre) (City Radiators)	Y	1
69	1010 Port Road ALBERT PARK SA 5014	Lot 56 FP 118338 Vol 5528 Fol 108	2141 - Delicatessen		N	
70	1006-1008 Port Road ALBERT PARK SA 5014	Lot 57 FP 118339 Vol 5528 Fol 107	2183 - Secondhand Motor Vehicle Sales		N	
71	1006-1008 Port Road ALBERT PARK SA 5014	Lot 58 FP 118340 Vol 5728 Fol 468	2183 - Secondhand Motor Vehicle Sales		N	
72	Port Road ALBERT PARK SA 5014	Lot 59 FP 118341 Vol 5750 Fol 872	4530 - Median Strips/Plantations		N	
73	988-990 Port Road ALBERT PARK SA 5014	Lot 6 DP 2451 Vol 5232 Fol 668	2020 - Food & Drink	Caravan manufacture (Globe Products)	Y	1
				Furniture restoration (Smith A Ltd French Polishers)	Y	2
74	24-30 Murray Street ALBERT PARK SA 5014	Lot 6 FP 108085 Vol 5957 Fol 141	2090 - Wholesale Trade NEC	Metal forging/metal coating, finishing or spray painting (Gadsden J Pty Ltd canister makers)	Y	1, 2
75	9 May Street ALBERT PARK SA 5014	Lot 60 FP 118242 Vol 5343 Fol 73	1100 - House	Furniture Restoration (Mooney B W French Polishers)	Y	2
76	6 Jervois Street ALBERT PARK SA 5014	Lot 61 FP 118243 Vol 5548 Fol 527	5690 - Places of Assembly Other NEC			
77	6 Jervois Street ALBERT PARK SA 5014	Lot 62 FP 118244 Vol 5548 Fol 827	5690 - Places of Assembly Other NEC	Inferred storage of ≥500 L of liquid listed substance (fuel, Oldfields Bakery)	Y	1, 2
78	6 Jervois Street ALBERT PARK SA 5014	Lot 63 FP 118245 Vol 5718 Fol 662	5690 - Places of Assembly Other NEC	Motor Vehicle Repair or Maintenance (Oldfields Bakery)		
79	6 Jervois Street ALBERT PARK SA 5014	Lot 64 FP 118246 Vol 5728 Fol 720	5690 - Places of Assembly Other NEC			
80	30 Jervois Street ALBERT PARK SA 5014	Lot 66 FP 118248 Vol 5989 Fol 971	2600 - Office Warehouse	Metal forging/metal coating, finishing or spray painting/Iron or steel works (Lakeside Engineering)	Y	1, 2
81	978-980 Port Road ALBERT PARK SA 5014	Lot 67 FP 118249 Vol 5989 Fol 970	2600 - Office Warehouse	Electrical component manufacture (Sun Lighting) Metal forging (Altubes Ltd Steel Tube Fabrication)	Y	1, 2
				Metal forging (Altubes Ltd Steel Tube Fabrication)	Y	2
82	1004 Port Road ALBERT PARK SA 5014	Lot 68 DP 628 Vol 6118 Fol 417	2500 - Office/Buildings	Motor vehicle manufacturers - parts (Beale Instrument Sales & Service)	Y	1
83	12 West Lakes Boulevard ALBERT PARK SA 5014	Lot 68 FP 118250 Vol 5803 Fol 196	1100 - House		N	
84	1002 Port Road ALBERT PARK SA 5014	Lot 69 DP 628 Vol 5181 Fol 415	1100 - House		N	
85	6 Jervois Street ALBERT PARK SA 5014	Lot 69 FP 118251 Vol 5711 Fol 508	5690 - Places of Assembly Other NEC	Inferred storage of ≥500 L of liquid listed substance (fuel, Oldfields Bakery)	Y	1
				Motor Vehicle Repair or Maintenance (Oldfields Bakery)	Y	2
86	982-986 Port Road ALBERT PARK SA 5014	Lot 7 DP 2451 Vol 5163 Fol 659	2020 - Food & Drink	Metal processing, smelting, refining or metallurgical works (Morrell CH Pty Ltd Metal Merchants & Smelters)	Y	1
				Transport Depot (Festival City freight loading area)	Y	2
87	24-30 Murray Street ALBERT PARK SA 5014	Lot 7 FP 108085 Vol 5957 Fol 141	2090 - Wholesale Trade NEC	Metal forging/metal coating, finishing or spray painting (Gadsden J Pty Ltd canister makers)	Y	1, 2
88	6 West Lakes Boulevard ALBERT PARK SA 5014	Lot 70 FP 118252 Vol 5801 Fol 549	4100 - Vacant Land-Urban		N	
89	8 West Lakes Boulevard ALBERT PARK SA 5014	Lot 71 FP 118253 Vol 5805 Fol 534	1100 - House		N	
90	10 West Lakes Boulevard ALBERT PARK SA 5014	Lot 72 FP 118254 Vol 5864 Fol 371	1100 - House		N	
91	6 Jervois Street ALBERT PARK SA 5014	Lot 73 FP 118255 Vol 5722 Fol 187	5690 - Places of Assembly Other NEC	Inferred storage of ≥500 L of liquid listed substance (fuel, Oldfields Bakery)	Y	1
				Motor Vehicle Repair or Maintenance (Oldfields Bakery)	Y	2
92	950 Port Road ALBERT PARK SA 5014	Lot 74 FP 118256 Vol 5808 Fol 449	2131 - Basic Bldg Materials/Hardware	Vessel Construction, repair or maintenance (City State Marine)	Y	2
93	11 May Street ALBERT PARK SA 5014	Lot 741 DP 69112 Vol 5954 Fol 669	1100 - House		N	
94	11A May Street ALBERT PARK SA 5014	Lot 742 DP 69112 Vol 5954 Fol 670	1100 - House		N	
95	14 Jervois Street ALBERT PARK SA 5014	Lot 75 FP 118257 Vol 5802 Fol 33	4100 - Vacant Land-Urban	Vehicle Repair or Maintenance (Crash Repair)	Y	2
96	954-956 Port Road ALBERT PARK SA 5014	Lot 76 FP 118258 Vol 6137 Fol 540	3810 - Metal Products not Machinery	Metal forging/metal coating, finishing or spray painting (F&N Pressed Metal)	Y	1, 2
97	982-986 Port Road ALBERT PARK SA 5014	Lot 8 DP 2451 Vol 5163 Fol 659	2020 - Food & Drink	Metal processing, smelting, refining or metallurgical works (Morrell CH Pty Ltd Metal Merchants & Smelters)	Y	1
				Transport Depot (Festival City freight loading area)	Y	2
98	24-30 Murray Street ALBERT PARK SA 5014	Lot 8 FP 108085 Vol 5957 Fol 141	2090 - Wholesale Trade NEC	Metal forging/metal coating, finishing or spray painting (Gadsden J Pty Ltd canister makers)	Y	1, 2
99	11 Glyde Street ALBERT PARK SA 5014	Lot 80 DP 628 Vol 5251 Fol 385	1100 - House		N	
100	8 Murray Street ALBERT PARK SA 5014	Lot 81 DP 628 Vol 5445 Fol 236	1100 - House		N	
101	13 Glyde Street ALBERT PARK SA 5014	Lot 82 DP 628 Vol 5250 Fol 984	1100 - House		N	
102	10 Murray Street ALBERT PARK SA 5014	Lot 83 DP 628 Vol 5711 Fol 593	1100 - House		N	
103	15 Glyde Street ALBERT PARK SA 5014	Lot 84 DP 628 Vol 5287 Fol 587	1100 - House		N	
104	12 Murray Street ALBERT PARK SA 5014	Lot 85 DP 628 Vol 5272 Fol 404	1100 - House		N	
105	17 Glyde Street ALBERT PARK SA 5014	Lot 86 DP 628 Vol 5743 Fol 950	1100 - House		N	
106	19 Glyde Street ALBERT PARK SA 5014	Lot 88 DP 628 Vol 5743 Fol 951	1100 - House		N	
107	16 Murray Street ALBERT PARK SA 5014	Lot 89 DP 628 Vol 6118 Fol 833	3810 - Metal Products not Machinery	Metal forging/metal coating, finishing or spray painting (Gadsden J Pty Ltd canister makers)	Y	1, 2
				Storage of ≥500 L of liquid listed substance (ethanol) (Ethanol drums noted on site walkover)		
108	982-986 Port Road ALBERT PARK SA 5014	Lot 9 DP 2451 Vol 5163 Fol 659	2020 - Food & Drink	Metal processing, smelting, refining or metallurgical works (Morrell CH Pty Ltd Metal Merchants & Smelters)	Y	1
				Transport Depot (Festival City freight loading area)	Y	2
109	24-30 Murray Street ALBERT PARK SA 5014	Lot 9 FP 108085 Vol 5957 Fol 141	2090 - Wholesale Trade NEC	Metal forging/metal coating, finishing or spray painting (Gadsden J Pty Ltd canister makers)	Y	1, 2
110	21 Glyde Street ALBERT PARK SA 5014	Lot 90 DP 628 Vol 5254 Fol 949	1100 - House		N	
111	18 Murray Street ALBERT PARK SA 5014	Lot 91 DP 628 Vol 5285 Fol 737	2600 - Office Warehouse	Motor vehicle manufacturers - go-karts (Eddie's Tooling Service)	Y	1
112	23 Glyde Street ALBERT PARK SA 5014	Lot 92 DP 628 Vol 5631 Fol 543	1100 - House		N	
113	20-22 Murray Street ALBERT PARK SA 5014	Lot 93 DP 628 Vol 5285 Fol 738	2600 - Office Warehouse		N	
114	25 Glyde Street ALBERT PARK SA 5014	Lot 94 DP 628 Vol 5743 Fol 952	1100 - House		N	
115	20-22 Murray Street ALBERT PARK SA 5014	Lot 95 DP 628 Vol 5285 Fol 739	2600 - Office Warehouse		N	
116	27 Glyde Street ALBERT PARK SA 5014	Lot 96 DP 628 Vol 5194 Fol 89	1100 - House		N	
117	992 Port Road ALBERT PARK SA 5014	Lot 99 DP 628 Vol 5709 Fol 940	2020 - Food & Drink		N	
118	14 Murray Street ALBERT PARK SA 5014	Lot C1 CP 22552 Vol 5929 Fol 328	Not advised		N	

Appendix C

Lotsearch Report



LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Address: Port Road, Albert Park, SA 5014

Date: 11 Feb 2020 16:20:35

Reference: LS011079 EP

Disclaimer:

The purpose of this report is to provide an overview of some of the site history, environmental risk and planning information available, affecting an individual address or geographical area in which the property is located. It is not a substitute for an on-site inspection or review of other available reports and records. It is not intended to be, and should not be taken to be, a rating or assessment of the desirability or market value of the property or its features.

You should obtain independent advice before you make any decision based on the information within the report.

The detailed terms applicable to use of this report are set out at the end of this report.

Dataset Listing

Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	PSMA Australia Limited	11/02/2020	11/02/2020	Quarterly	-	-	-	-
EPA Site Contamination Index	EPA South Australia	10/01/2020	10/01/2020	Monthly	1000	3	8	94
EPA Environmental Protection Orders	EPA South Australia	10/01/2020	10/01/2020	Monthly	1000	3	3	6
EPA Environmental Authorisations	EPA South Australia	10/01/2020	10/01/2020	Monthly	1000	0	5	20
EPA Assessment Areas	EPA South Australia	10/01/2020	10/01/2020	Quarterly	1000	2	2	4
Defence PFAS Investigation & Management Program	Department of Defence	04/11/2019	04/11/2019	Monthly	2000	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	20/01/2020	12/12/2019	Monthly	2000	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	21/01/2020	21/01/2020	Monthly	2000	0	0	0
National Waste Management Facilities Database	Geoscience Australia	05/11/2019	07/03/2017	Quarterly	1000	0	0	0
EPA Collection Depots	EPA South Australia	06/11/2019	06/11/2019	Quarterly	1000	0	0	0
UBD Business Directory 1991 (Premise & Intersection Matches)	Hardie Grant			Not Required	150	59	107	128
UBD Business Directory 1991 (Road & Area Matches)	Hardie Grant			Not Required	150	-	1	7
UBD Business Directory 1984 (Premise & Intersection Matches)	Hardie Grant			Not Required	150	42	54	64
UBD Business Directory 1984 (Road & Area Matches)	Hardie Grant			Not Required	150	-	1	3
Sands & McDougall's Directory 1973 (Premise & Intersection Matches)	Sands & McDougall			Not Required	150	26	54	65
Sands & McDougall's Directory 1973 (Road & Area Matches)	Sands & McDougall			Not Required	150	-	5	8
Sands & McDougall's Directory 1965 (Premise & Intersection Matches)	Sands & McDougall			Not Required	150	30	59	71
Sands & McDougall's Directory 1965 (Road & Area Matches)	Sands & McDougall			Not Required	150	-	9	12
Sands & McDougall's Directory 1955 (Premise & Intersection Matches)	Sands & McDougall			Not Required	150	20	46	59
Sands & McDougall's Directory 1955 (Road & Area Matches)	Sands & McDougall			Not Required	150	-	4	7
UBD Business Directory 1950 (Premise & Intersection Matches)	Hardie Grant			Not Required	150	5	6	26
UBD Business Directory 1950 (Road & Area Matches)	Hardie Grant			Not Required	150	-	35	37
Sands & McDougall's Directory 1940 (Premise & Intersection Matches)	Sands & McDougall			Not Required	150	0	2	4

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Sands & McDougall's Directory 1940 (Road & Area Matches)	Sands & McDougall			Not Required	150	-	12	14
Sands & McDougall's Directory 1930 (Premise & Intersection Matches)	Sands & McDougall			Not Required	150	0	0	0
Sands & McDougall's Directory 1930 (Road & Area Matches)	Sands & McDougall			Not Required	150	-	26	30
Sands & McDougall's Directory 1920 (Premise & Intersection Matches)	Sands & McDougall			Not Required	150	0	0	0
Sands & McDougall's Directory 1920 (Road & Area Matches)	Sands & McDougall			Not Required	150	-	5	6
Sands & McDougall's Directory 1910 (Premise & Intersection Matches)	Sands & McDougall			Not Required	150	0	0	0
Sands & McDougall's Directory 1910 (Road & Area Matches)	Sands & McDougall			Not Required	150	-	0	0
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant, Sands & McDougall			Not required	500	0	8	29
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant, Sands & McDougall			Not required	500	-	8	15
Mines and Mineral Deposits	Department for Energy and Mining	07/01/2020	07/01/2020	Quarterly	1000	0	0	0
Groundwater Aquifers	Department for Environment and Water	09/04/2018	01/01/2008	As required	1000	1	1	1
Drillholes	Department for Environment and Water	07/01/2020	19/12/2019	Quarterly	2000	12	19	917
Surface Geology 1:100,000	Department for Energy and Mining	12/07/2018	01/07/2018	As required	1000	1	1	4
Geological Linear Structures 1:100,000	Department for Energy and Mining	12/07/2018	01/07/2018	As required	1000	0	0	0
Atlas of Australian Soils	ABARES	19/05/2017	17/02/2011	As required	1000	2	2	2
Soil Types	Department for Environment and Water	12/07/2018	01/07/2009	As required	1000	1	1	1
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	1	1	2
Acid Sulfate Soil Potential	Department for Environment and Water	09/04/2018	03/06/2016	As required	1000	1	1	1
Soil Salinity - Watertable Induced	Department for Environment and Water	12/07/2018	01/07/2009	As required	1000	1	1	1
Soil Salinity - Non-watertable	Department for Environment and Water	12/07/2018	01/07/2009	As required	1000	1	1	1
Soil Salinity - Non-watertable (magnesia patches)	Department for Environment and Water	12/07/2018	01/07/2009	As required	1000	1	1	1
Land Development Zones	Department of Planning, Transport and Infrastructure	07/01/2020	07/01/2020	Quarterly	1000	2	6	45
Land Use Generalised 2018	Department of Planning, Transport and Infrastructure	19/06/2019	15/06/2019	Annually	1000	17	18	23
Commonwealth Heritage List	Australian Government Department of the Environment and Energy - Heritage Branch	04/02/2020	31/07/2018	Quarterly	1000	0	0	0
National Heritage List	Australian Government Department of the Environment and Energy - Heritage Branch	04/02/2020	20/11/2019	Quarterly	1000	0	0	0
State Heritage Areas	Department for Environment and Water	12/07/2018	10/11/2004	As required	1000	0	0	0
SA Heritage Places	Department for Environment and Water	07/01/2020	22/11/2018	Quarterly	1000	0	0	372

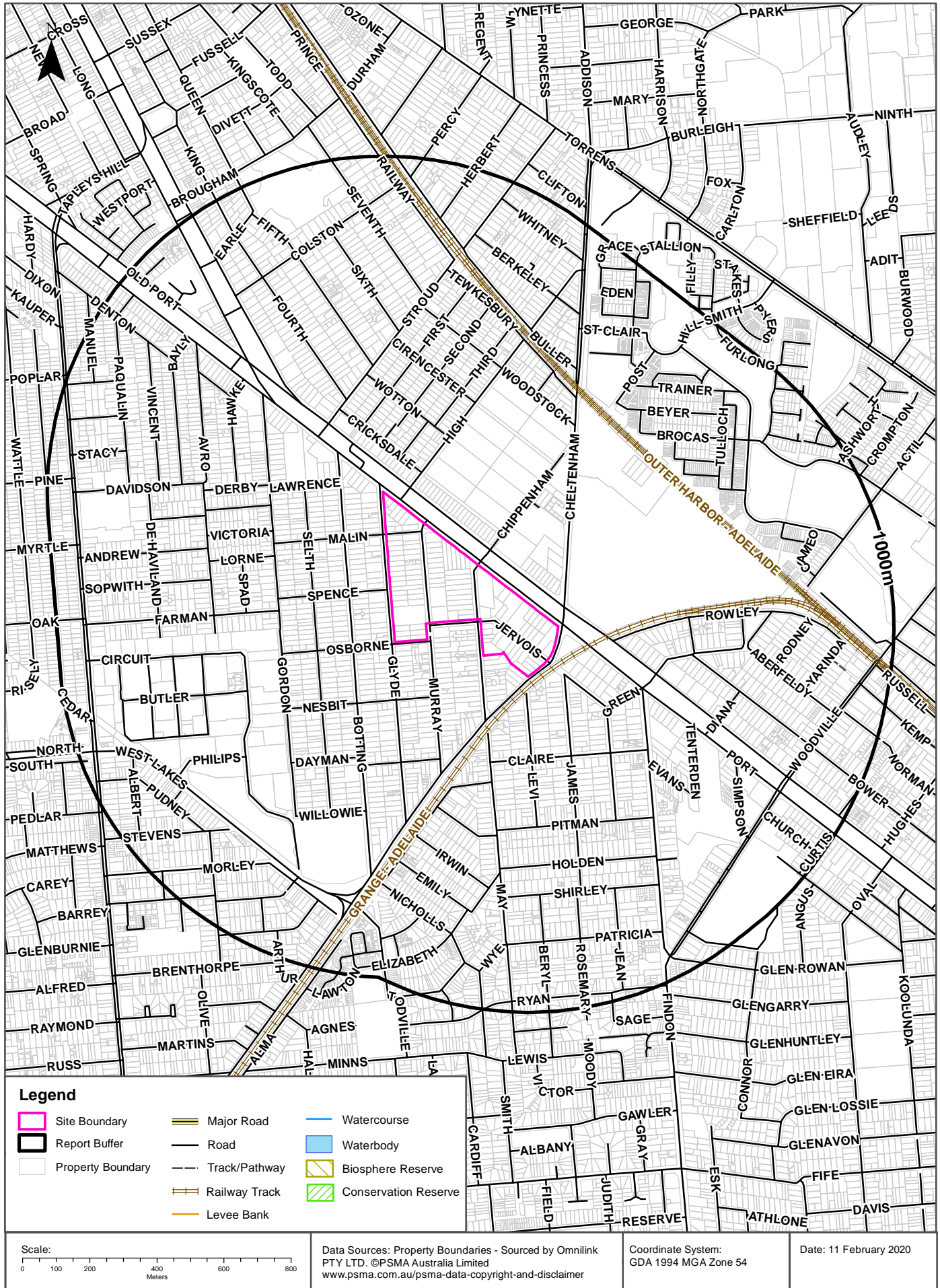
Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Aboriginal Land	Department for Energy and Mining	09/04/2018	08/04/2018	As required	1000	0	0	0
Bushfire Protection Areas	Department of Planning, Transport and Infrastructure	04/09/2018	20/02/2018	As required	1000	0	0	0
Bushfires and Prescribed Burns History	Department for Environment and Water	04/09/2018	26/05/2018	As required	1000	0	0	0
Groundwater Dependent Ecosystems Atlas	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	0	0
Ramsar Wetland Areas	Department for Environment and Water	30/01/2017	30/01/2013	As required	1000	0	0	0

Site Diagram

Port Road, Albert Park, SA 5014

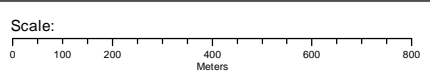


<p>Legend</p> <ul style="list-style-type: none"> Site Boundary Internal Parcel Boundaries 	<p>Total Area: 123692m²</p> <p>Total Perimeter: 1876m</p> <p><small>Disclaimers:</small></p> <p><small>Measurements are approximate only and may have been simplified or smaller lengths removed for readability.</small></p> <p><small>Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.</small></p>	<p>Scale:</p> <p>0 25 50 100 150 200 Meters</p> <hr/> <p>Data Sources: Aerial Imagery: © Aerometrex Pty Ltd</p> <hr/> <table border="1" style="width: 100%;"> <tr> <td style="width: 50%;"><small>Coordinate System:</small> GDA 1994 MGA Zone 54</td> <td style="width: 50%;"><small>Date:</small> 11 February 2020</td> </tr> </table>	<small>Coordinate System:</small> GDA 1994 MGA Zone 54	<small>Date:</small> 11 February 2020
<small>Coordinate System:</small> GDA 1994 MGA Zone 54	<small>Date:</small> 11 February 2020			



Legend

- Site Boundary
- Report Buffer
- Property Boundary
- Major Road
- Road
- Track/Pathway
- Levee Bank
- Watercourse
- Waterbody
- Biosphere Reserve
- Conservation Reserve



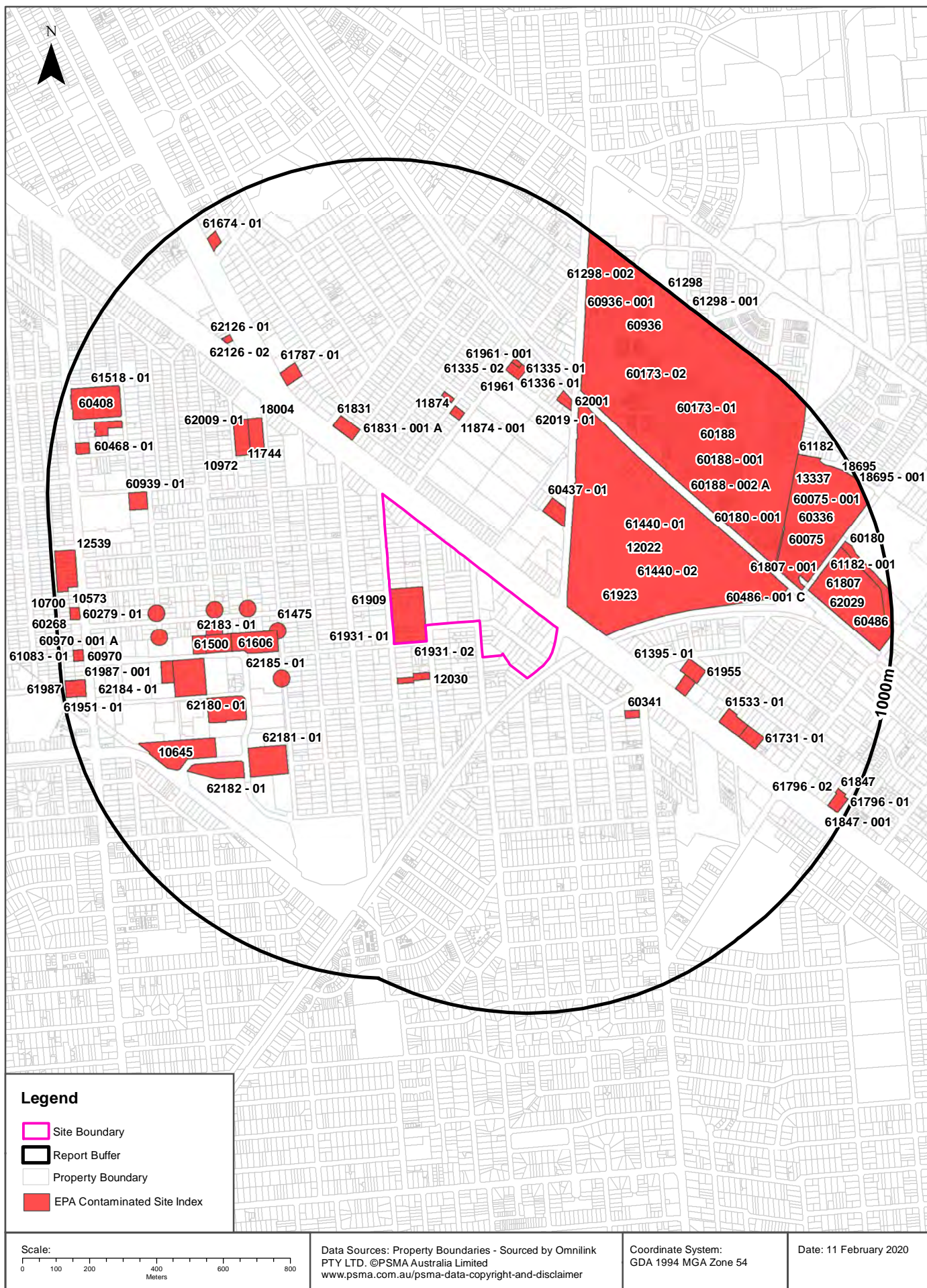
Data Sources: Property Boundaries - Sourced by Omnalink PTY LTD. ©PSMA Australia Limited
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Coordinate System:
 GDA 1994 MGA Zone 54

Date: 11 February 2020

EPA Site Contamination Index

Port Road, Albert Park, SA 5014



EPA Contaminated Land

Port Road, Albert Park, SA 5014

EPA Site Contamination Index

Sites on the EPA Contamination Index within the dataset buffer:

Notification No	Type	Address	Activity	Status	LocConf	Dist	Dir
61909	Audit Notification	24 Murray Street ALBERT PARK SA 5014	Fill or soil importation; Metal coating, finishing or spray painting; Motor vehicle repair or maintenance	Current EPA List	Premise Match	0m	Onsite
61931 - 01	S83A Notification	24 Murray Street ALBERT PARK SA 5014	Fill or soil importation; Metal coating, finishing or spray painting; Motor vehicle repair or maintenance	Current EPA List	Premise Match	0m	Onsite
61931 - 02	S83A Notification	24 Murray Street ALBERT PARK SA 5014	Metal processing, smelting, refining or metallurgical works	Current EPA List	Premise Match	0m	Onsite
61923	Audit Notification	853-867 Port Road WOODVILLE SA 5011	Fill or soil importation; Metal coating, finishing or spray painting; Wastewater storage, treatment or disposal	Current EPA List	Premise Match	69m	East
61440 - 01	S83A Notification	853-867 Port Road WOODVILLE SA 5011	Not recorded	Current EPA List	Premise Match	69m	East
61440 - 02	S83A Notification	853-867 Port Road WOODVILLE SA 5011	Not recorded	Current EPA List	Premise Match	69m	East
12022	109 Notification	853-867 Port Road WOODVILLE SA 5011	Not recorded	Current EPA List	Premise Match	69m	East
12030	SAHC	Lot 264 Glyde St & Lots 261 & 263 Murray St 51 & 40 Glyde & Murray Streets ALBERT PARK SA 5014	Not recorded	Current EPA List	Premise Match	95m	South West
61831	Audit Notification	963-967 & 969 Port Road CHELTENHAM SA 5014	Fill or soil importation; Motor vehicle repair or maintenance	Current EPA List	Premise Match	183m	North West
61831	Audit Termination	963-967 & 969 Port Road CHELTENHAM SA 5014	Not recorded	Current EPA List	Premise Match	183m	North West
61831 - 001 A	Audit Report	963-967 & 969 Port Road CHELTENHAM SA 5014	Fill or soil importation; Motor vehicle repair or maintenance	Current EPA List	Premise Match	183m	North West
60437 - 01	S83A Notification	21-23 Cheltenham Parade CHELTENHAM SA 5014	Motor vehicle manufacture	Current EPA List	Premise Match	252m	North East
60341	SAHC	4 Findon Road WOODVILLE WEST SA 5011	Fire stations	Current EPA List	Premise Match	275m	South East
11874	Pre 1 July 2009 Audit Notification	Allotments 19, 20 & 23 Third Avenue CHELTENHAM SA 5014	Liquid organic chemical substances-storage	Current EPA List	Premise Match	313m	North
11874 - 001	Pre 1 July 2009 Audit Report	Allotments 19, 20 & 23 Third Avenue CHELTENHAM SA 5014	Liquid organic chemical substances-storage	Current EPA List	Premise Match	313m	North
61475	109 Notification	Numerous Circuit Drive HENDON SA 5014	Electrical or electronics component manufacture	Current EPA List	Premise Match	319m	West
62185 - 01	S83A Notification	17 Circuit Drive HENDON SA 5014	Electrical or electronics component manufacture	Current EPA List	Premise Match	346m	West
61500	Audit Notification	10, 12, 13, 15, 17, 24 & 31 Circuit Drive HENDON SA 5014	Electrical or electronics component manufacture	Current EPA List	Premise Match	347m	South West
61606	Voluntary Proposal	Various HENDON SA 5014	Electrical or electronics component manufacture	Current EPA List	Premise Match	347m	South West
10972	SAHC	Gordon & Hawke Streets ALBERT PARK SA 5014	Tannery, fellmongery or hide curing	Current EPA List	Premise Match	372m	North West
18004	109 Notification	Hawke Street ALBERT PARK SA 5014	Tannery, fellmongery or hide curing	Current EPA List	Premise Match	372m	North West
62009 - 01	S83A Notification	Lot 8 and 10-16 Gordon Street ALBERT PARK SA 5014	Tannery, fellmongery or hide curing	Current EPA List	Premise Match	372m	North West
61395 - 01	S83A Notification	Lots 92-93 & 106-108 Port Road WOODVILLE SA 5011	Service stations	Current EPA List	Premise Match	382m	East

Notification No	Type	Address	Activity	Status	LocConf	Dist	Dir
61955	Audit Notification	Lots 106-108 and 2 Bower Street WOODVILLE SA 5011	Fill or soil importation; Listed Substances (storage)	Current EPA List	Premise Match	383m	East
11744	Pre 1 July 2009 Audit Notification	10-16 Gordon Street ALBERT PARK SA 5014	Not recorded	Current EPA List	Premise Match	385m	North West
11744	Pre 1 July 2009 Audit Termination	10-16 Gordon Street ALBERT PARK SA 5014	Not recorded	Current EPA List	Premise Match	385m	North West
61787 - 01	S83A Notification	983 Port Road CHELTENHAM SA 5014	Not recorded	Current EPA List	Premise Match	428m	North West
62181 - 01	S83A Notification	31 Circuit Drive HENDON SA 5014	Electrical or electronics component manufacture	Current EPA List	Premise Match	443m	South West
62183 - 01	S83A Notification	15 Circuit Drive HENDON SA 5014	Electrical or electronics component manufacture	Current EPA List	Premise Match	484m	West
61961	Audit Notification	3A & 3B Woodstock Street and 4 & 4A High Street CHELTENHAM SA 5014	Fill or soil importation; Foundry; Metal forging	Current EPA List	Premise Match	517m	North
61961 - 001	Audit Report	3A & 3B Woodstock Street and 4 & 4A High Street CHELTENHAM SA 5014	Fill or soil importation; Foundry; Metal forging	Current EPA List	Premise Match	517m	North
61335 - 01	S83A Notification	3A Woodstock St and 4, 4A & 6 High St CHELTENHAM SA 5014	Iron or steel works	Current EPA List	Premise Match	517m	North
61335 - 02	S83A Notification	3A Woodstock St and 4, 4A & 6 High St CHELTENHAM SA 5014	Iron or steel works	Current EPA List	Premise Match	517m	North
61336 - 01	S83A Notification	3A Woodstock St and 4, 4A & 6 High St CHELTENHAM SA 5014	Iron or steel works	Previous EPA List	Premise Match	517m	North
61533 - 01	S83A Notification	809 & 811-813 Port Road WOODVILLE SA 5011	Listed Substances (storage)	Current EPA List	Premise Match	539m	South East
62019 - 01	S83A Notification	39A Cheltenham Parade CHELTENHAM SA 5014	Fill or soil importation	Current EPA List	Premise Match	540m	North East
62001	Audit Notification	39A Cheltenham Parade CHELTENHAM SA 5014	Fill or soil importation	Current EPA List	Premise Match	540m	North East
60173 - 01	S83A Notification	Lot 1007 & 1008 Torrens Road CHELTENHAM SA 5014	Not recorded	Current EPA List	Premise Match	567m	North East
60173 - 02	S83A Notification	Lot 1040 Torrens Road & Lot 1110 Masterdale Court ST CLAIR SA 5011	Not recorded	Current EPA List	Premise Match	567m	North East
60188	Audit Notification	Cnr Torrens Road and Cheltenham Parade CHELTENHAM SA 5014	Animal burial; Defence works; Listed Substances (storage)	Current EPA List	Premise Match	567m	North East
60188	Audit Termination	Cnr Torrens Road and Cheltenham Parade CHELTENHAM SA 5014	Not recorded	Current EPA List	Premise Match	567m	North East
60188 - 001	Audit Report	Cnr Torrens Road and Cheltenham Parade CHELTENHAM SA 5014	Animal burial; Defence works; Fill or soil importation	Current EPA List	Premise Match	567m	North East
60188 - 002 A	Audit Report	Cnr Torrens Road and Cheltenham Parade CHELTENHAM SA 5014	Not recorded	Current EPA List	Premise Match	567m	North East
62180 - 01	S83A Notification	12 Circuit Drive HENDON SA 5014	Electrical or electronics component manufacture	Current EPA List	Premise Match	570m	West
60936	Audit Notification	Piece 1021 St Clair Avenue & Lot 92 Cheltenham Parade CHELTENHAM SA 5014	Not recorded	Current EPA List	Premise Match	571m	North East
60936	Audit Termination	Piece 1021 St Clair Avenue & Lot 92 Cheltenham Parade CHELTENHAM SA 5014	Not recorded	Current EPA List	Premise Match	571m	North East
60936 - 001	Audit Report	Piece 1021 St Clair Avenue & Lot 92 Cheltenham Parade CHELTENHAM SA 5014	Not recorded	Current EPA List	Premise Match	571m	North East
62182 - 01	S83A Notification	24 Circuit Drive HENDON SA 5014	Electrical or electronics component manufacture	Current EPA List	Premise Match	574m	South West
10645	109 Notification	3-5 Philips Crescent HENDON SA 5014	Defence works; Electrical or electronics component manufacture; Metal coating, finishing or spray painting	Current EPA List	Premise Match	605m	South West
61731 - 01	S83A Notification	801 Port Road WOODVILLE SA 5011	Service stations	Current EPA List	Premise Match	612m	South East
62126 - 01	S83A Notification	1-7 Port Road QUEENSTOWN SA 5014	Listed Substances (storage)	Current EPA List	Premise Match	639m	North West
62126 - 02	S83A Notification	1-7 Port Road QUEENSTOWN SA 5014	Listed Substances (storage)	Current EPA List	Premise Match	639m	North West
62184 - 01	S83A Notification	10 Circuit Drive HENDON SA 5014	Metal coating, finishing or spray painting	Current EPA List	Premise Match	664m	West

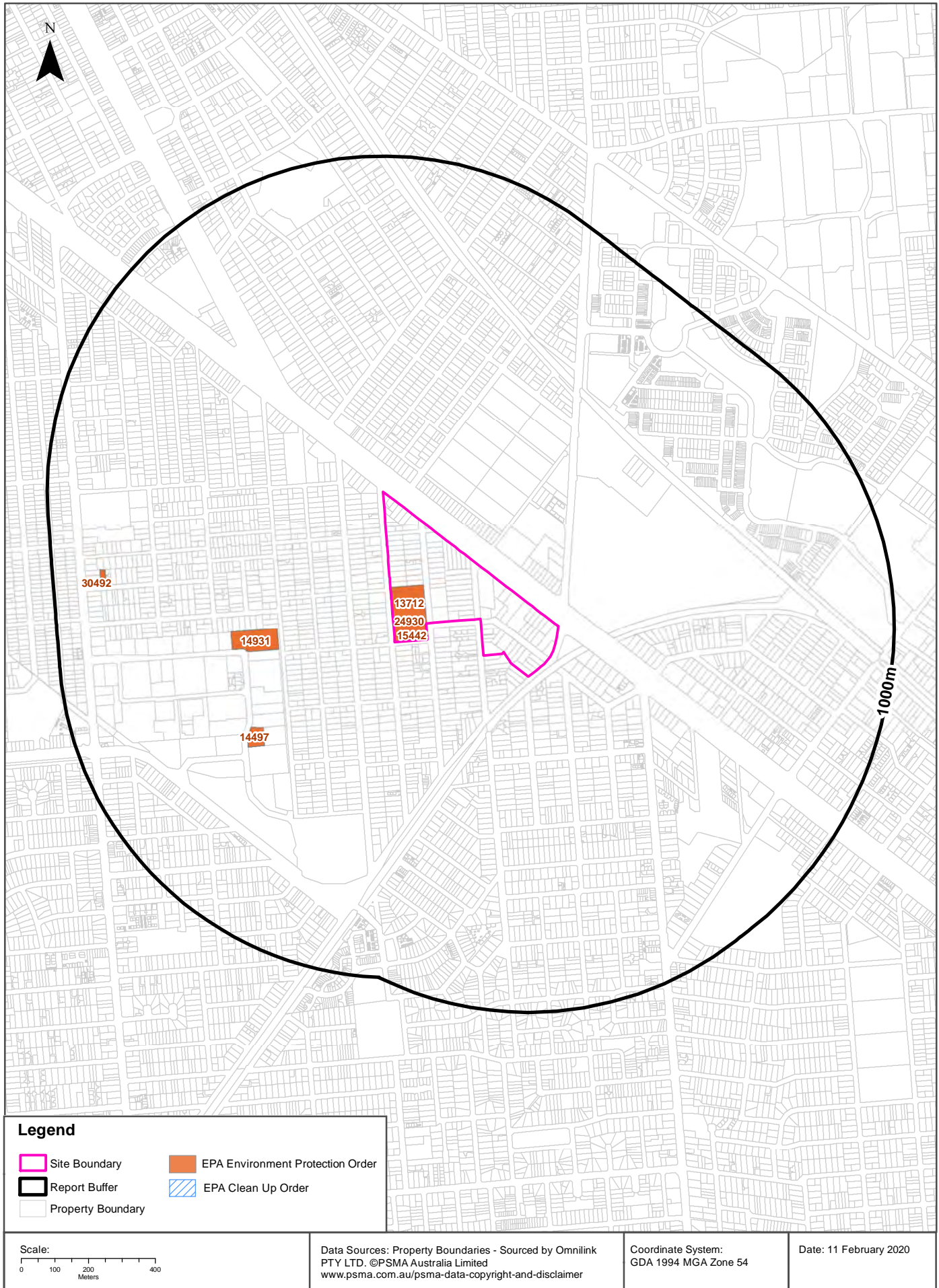
Notification No	Type	Address	Activity	Status	LocConf	Dist	Dir
61182	Audit Notification	Actil Avenue WOODVILLE SA 5011	Fill or soil importation; Textile operations	Current EPA List	Premise Match	677m	East
61182 - 001	Audit Report	Actil Avenue WOODVILLE SA 5011	Fill or soil importation; Textile operations	Current EPA List	Premise Match	677m	East
60180	Pre 1 July 2009 Audit Notification	Allotments 12, 701 and 702 Actil Avenue WOODVILLE SA 5011	Textile operations	Current EPA List	Premise Match	677m	East
60180 - 001	Pre 1 July 2009 Audit Report	Allotments 12, 701 and 702 Actil Avenue WOODVILLE SA 5011	Textile operations	Current EPA List	Premise Match	677m	East
13337	Pre 1 July 2009 Audit Notification	Lots 12 & 702 ACTIL Ave and Lot 701 Torrens Rd WOODVILLE SA 5011	Not recorded	Current EPA List	Premise Match	677m	East
13337	Pre 1 July 2009 Audit Termination	Lots 12 & 702 ACTIL Ave and Lot 701 Torrens Rd WOODVILLE SA 5011	Not recorded	Current EPA List	Premise Match	677m	East
60075	Audit Notification	Actil Avenue WOODVILLE SA 5011	Not recorded	Current EPA List	Premise Match	677m	East
60075 - 001	Audit Report	Actil Avenue WOODVILLE SA 5011	Electrical substations; Railway operations; Textile operations; Wastewater storage, treatment or disposal	Current EPA List	Premise Match	677m	East
60336	Audit Notification	Stage 5 Actil Avenue WOODVILLE SA 5011	Electrical substations; Railway operations; Textile operations; Wastewater storage, treatment or disposal	Current EPA List	Premise Match	677m	East
60336	Audit Termination	Stage 5 Actil Avenue WOODVILLE SA 5011	Not recorded	Current EPA List	Premise Match	677m	East
60939 - 01	S83A Notification	Lot 2 Tapleys Hill Road HENDON SA 5014	Wastewater storage, treatment or disposal	Current EPA List	Premise Match	703m	West
60486	Audit Notification	Lot 1 Woodville Road WOODVILLE SA 5011	Fill or soil importation	Current EPA List	Premise Match	758m	East
60486 - 001 C	Audit Report	Lot 1 Woodville Road WOODVILLE SA 5011	Fill or soil importation	Current EPA List	Premise Match	758m	East
61807	Audit Notification	Lot 1 Woodville Road ST CLAIR SA 5011	Fill or soil importation	Current EPA List	Premise Match	758m	East
61807 - 001	Audit Report	Lot 1 Woodville Road ST CLAIR SA 5011	Fill or soil importation	Current EPA List	Premise Match	758m	East
62029	Audit Notification	Portion Lot 1000 Woodville Road ST CLAIR SA 5011	Fill or soil importation	Current EPA List	Premise Match	758m	East
60468 - 01	S83A Notification	4, 12 & Lot 100 Florence St HENDON SA 5014	Listed Substances (storage); Waste depots	Current EPA List	Premise Match	802m	North West
60408	109 Notification	53 - 59, 67 - 69 Tapleys Hill Road HENDON SA 5014	Surface Coating	Current EPA List	Premise Match	815m	North West
61518 - 01	S83A Notification	53 - 59 Tapleys Hill Rd & 24, 26 - 32 Paqualin St HENDON SA 5014	Metal coating, finishing or spray painting	Current EPA List	Premise Match	815m	North West
61674 - 01	S83A Notification	40 Port Road ALBERTON SA 5014	Listed Substances (storage)	Current EPA List	Premise Match	881m	North West
61298	Audit Notification	Lot 1033 Torrens Road ST CLAIR SA 5011	Not recorded	Current EPA List	Premise Match	919m	North East
61298 - 001	Audit Report	Lot 1033 Torrens Road ST CLAIR SA 5011	Fill or soil importation; Listed Substances (storage)	Current EPA List	Premise Match	919m	North East
61298 - 002	Audit Report	Lot 1033 Torrens Road ST CLAIR SA 5011	Fill or soil importation	Current EPA List	Premise Match	919m	North East
12539	109 Notification	120 Tapleys Hill Road ROYAL PARK SA 5014	Listed Substances (storage)	Current EPA List	Premise Match	928m	West
10700	Pre 1 July 2009 Audit Notification	Cnr Oak Street & Tapleys Hill Road ROYAL PARK SA 5014	Not recorded	Current EPA List	Premise Match	929m	West
10700	Pre 1 July 2009 Audit Termination	Cnr Oak Street & Tapleys Hill Road ROYAL PARK SA 5014	Not recorded	Current EPA List	Premise Match	929m	West
60970	Audit Notification	150-152 Tapleys Hill Road ROYAL PARK SA 5014	Not recorded	Current EPA List	Premise Match	929m	West
60970 - 001 A	Audit Report	150-152 Tapleys Hill Road ROYAL PARK SA 5014	Not recorded	Current EPA List	Premise Match	929m	West
61083 - 01	S83A Notification	150-152 Tapleys Hill Road ROYAL PARK SA 5014	Agricultural activities	Current EPA List	Premise Match	929m	West
60268	Audit Notification	136-138 Tapleys Hill Road ROYAL PARK SA 5014	Motor vehicle repair or maintenance; Service stations	Current EPA List	Premise Match	929m	West

Notification No	Type	Address	Activity	Status	LocConf	Dist	Dir
60279 - 01	S83A Notification	136-138 Tapleys Hill Road ROYAL PARK SA 5014	Motor vehicle repair or maintenance; Service stations	Current EPA List	Premise Match	929m	West
10573	109 Notification	136-138 Tapleys Hill Road ROYAL PARK SA 5014	Service stations	Current EPA List	Premise Match	929m	West
61987	Audit Notification	162-168 Tapleys Hill Road ROYAL PARK SA 5014	Fill or soil importation; Motor vehicle repair or maintenance	Current EPA List	Premise Match	929m	West
61987 - 001	Audit Report	162-168 Tapleys Hill Road ROYAL PARK SA 5014	Fill or soil importation; Motor vehicle repair or maintenance	Current EPA List	Premise Match	929m	West
61951 - 01	S83A Notification	162-168 Tapleys Hill Road ROYAL PARK SA 5014	Fill or soil importation; Motor vehicle repair or maintenance	Current EPA List	Premise Match	929m	West
61847 - 001	Audit Report	767 & 769 Port Road WOODVILLE SA 5011	Metal coating, finishing or spray painting	Current EPA List	Premise Match	940m	South East
61796 - 01	S83A Notification	767 & 769 Port Road WOODVILLE SA 5011	Metal coating, finishing or spray painting	Current EPA List	Premise Match	940m	South East
61796 - 02	S83A Notification	767 & 769 Port Road WOODVILLE SA 5011	Metal coating, finishing or spray painting	Current EPA List	Premise Match	940m	South East
61847	Audit Notification	767 & 769 Port Road WOODVILLE SA 5011	Metal forging; Motor vehicle repair or maintenance	Current EPA List	Premise Match	942m	South East
18695	Pre 1 July 2009 Audit Notification	Separable Portion 1 Portion of Allotment 702 Actil Avenue WOODVILLE SA 5011	Textile operations	Current EPA List	Premise Match	991m	East
18695 - 001	Pre 1 July 2009 Audit Report	Separable Portion 1 Portion of Allotment 702 Actil Avenue WOODVILLE SA 5011	Textile operations	Current EPA List	Premise Match	991m	East

Site Contamination Index Data Source: EPA South Australia

EPA Environment Protection and Clean Up Orders

Port Road, Albert Park, SA 5014



Scale:
0 100 200 400
Meters

Data Sources: Property Boundaries - Sourced by Omnilink
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Coordinate System:
GDA 1994 MGA Zone 54

Date: 11 February 2020

EPA Public Register

Port Road, Albert Park, SA 5014

EPA Environment Protection and Clean Up Orders

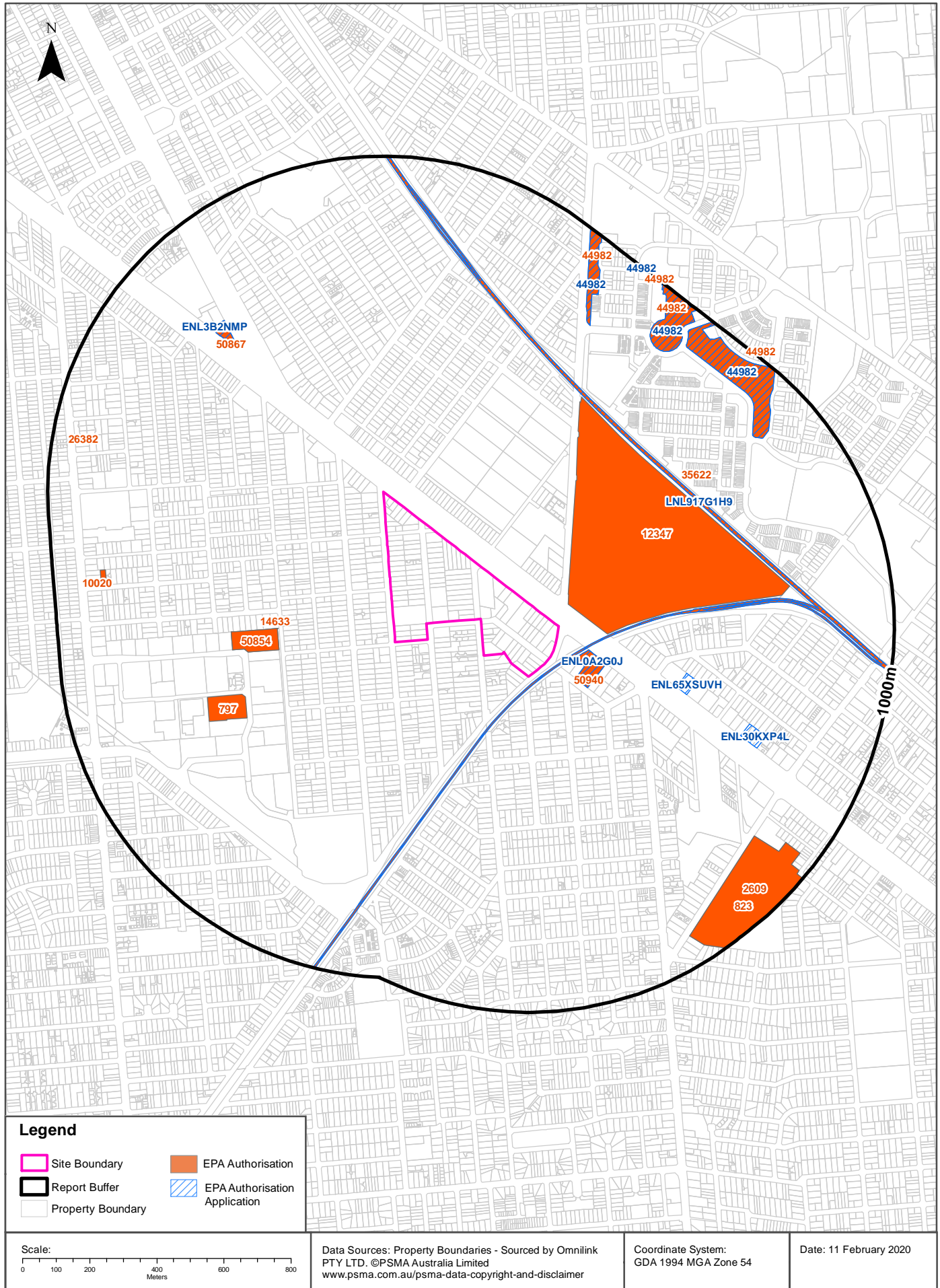
EPA Environment Protection and Clean Up Orders, within the dataset buffer:

Record No.	Record Type	Record Status	Entity	Site Address	Activity	EPA Register Status	LocConf	Dist	Dir
15442	ENVIRONMENT PROTECTION ORDER	ISSUED	DWN Distributors Pty Ltd	Murray Street, Albert Park SA 5014	Failed to submit a noise monitoring plan as required by a licence condition.	Current EPA Register	Premise Match	0m	Onsite
13712	ENVIRONMENT PROTECTION ORDER	ISSUED	DWN Distributors Pty Ltd	Murray Street, Albert Park SA 5014	Recorded complaints about noise from adjoining residents, and noise measurements taken found noise from the loading operations at night to exceed the night time criteria.	Current EPA Register	Premise Match	0m	Onsite
24930	ENVIRONMENT PROTECTION ORDER	ISSUED	Fridge It Logistics Pty Ltd	Murray Street, Albert Park SA 5014	Failed to submit a noise monitoring plan as required by a licence condition.	Current EPA Register	Premise Match	0m	Onsite
14931	ENVIRONMENT PROTECTION ORDER	COMPLIED	LAI INDUSTRIES PTY LTD	Circuit Court, Hendon SA 5014	Failed to submit a noise monitoring plan as required by a licence condition.	Current EPA Register	Premise Match	346 m	West
14497	ENVIRONMENT PROTECTION ORDER	ISSUED	The Tool Chrome Co Pty Ltd	Circuit Court, Hendon SA 5014	Deposited lead stored in open containers, in an open uncovered area of the yard. As a result, this lead waste had the potential to deposit on the soil and to subsequently enter into the stormwater system. Failed to comply with a licence condition in that these containers were not marked to identify the waste contained within them.	Current EPA Register	Premise Match	468 m	South West
30492	ENVIRONMENT PROTECTION ORDER	ISSUED	ADELAIDE ANODIZING PTY LTD	Tapleys Hill Road, Hendon SA 5014	Failed to comply with a licence condition. In particular, failed to construct an appropriate bund for the wastewater treatment plant and chemical storage at the site as required by the Environment Improvement Program.	Current EPA Register	Premise Match	843 m	West

Authorisations Data Source: EPA South Australia

EPA Authorisations and Applications

Port Road, Albert Park, SA 5014



EPA Public Register

Port Road, Albert Park, SA 5014

EPA Authorisations and Applications

EPA Authorisations and Authorisation Applications within the dataset buffer:

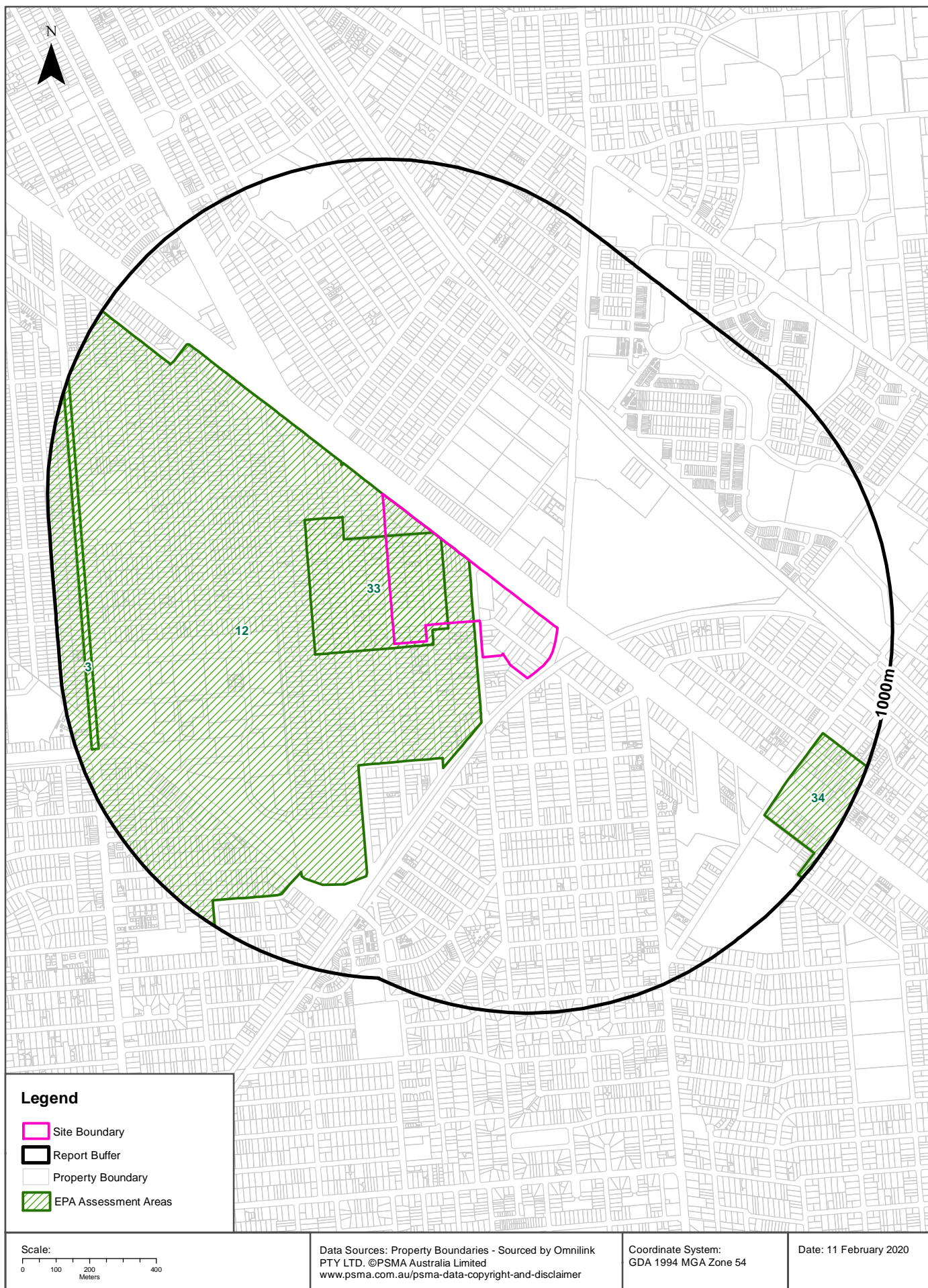
Record No.	Record Type	Record Status	Entity	Site Address	Activity	EPA Register Status	LocConf	Dist	Dir
35622	LICENCE	Issued	LAING O'ROURKE AUSTRALIA CONSTRUCTION PTY LTD	Various Locations Along The Adelaide Metropolitan Rail Network, SA	Railway operations	Current EPA Register	Network of Features	21m	South East
LNL917 G1H9	LICENCE APPLICATION	Authorisation Updated	BOWMANS RAIL PTY LTD	Various Locations across Inner and Outer Harbour of the Port of Adelaide	Railway operations	Current EPA Register	Network of Features	21m	South East
ENL0A 2G0J	LICENCE APPLICATION	Authorisation Updated	SHAHIN ENTERPRISES PTY. LTD.	938-942 Port Road, WOODVILLE WEST SA 5011	Petrol stations	Current EPA Register	Premise Match	67m	South East
50940	LICENCE	Issued	SHAHIN ENTERPRISES PTY. LTD.	938-942 Port Road, WOODVILLE WEST SA 5011	Petrol stations	Current EPA Register	Premise Match	67m	South East
12347	LICENCE	Surrendered	AI AUTOMOTIVE PTY LTD (RECEIVERS & MANAGERS APPOINTED)(IN LIQUIDATION)	853-867 Port Road, WOODVILLE SA 5011	Activities producing listed wastes, Fuel burning comprising the burning of fuel to stove enamel or to bake or dry substances releasing dust or air impurities, Surface coating works - metal finishing	Current EPA Register	Premise Match	69m	East
50854	LICENCE	Issued	BETTA POWDER COATING PTY LTD	17 Circuit Drive, HENDON SA 5014	Surface coating works (spray painting or powder coating)	Current EPA Register	Premise Match	344m	West
14633	LICENCE	Transferred	LAI INDUSTRIES PTY LTD	17 Circuit Drive, HENDON SA 5014	Surface coating works (spray painting or powder coating)	Current EPA Register	Premise Match	346m	West
ENL65 XSUVH	LICENCE APPLICATION	Processing	EUREKA OPERATIONS PTY LTD	827 Port Road, WOODVILLE SA 5011	Petrol stations	Current EPA Register	Premise Match	382m	East
797	LICENCE	Issued	HENDON SEMICONDUCTORS PTY LTD	Lot 31, 1 Butler Drive, HENDON SA 5014	Activities producing listed wastes	Current EPA Register	Premise Match	475m	South West
ENL30 KXP4L	LICENCE APPLICATION	Processing	LIBERTY OIL CONVENIENCE PTY LTD	801 Port Road, WOODVILLE SA 5011	Petrol stations	Current EPA Register	Premise Match	612m	South East
ENL3B 2NMP	LICENCE APPLICATION	Processing	UNITED PETROLEUM PTY LTD	1-9 Port Road, QUEENSTOWN SA 5014	Petrol stations	Current EPA Register	Premise Match	617m	North West
50867	LICENCE	Issued	UNITED PETROLEUM PTY LTD	1-9 Port Road, QUEENSTOWN SA 5014	Petrol stations	Current EPA Register	Premise Match	617m	North West
44982	LICENCE	Issued	CITY OF CHARLES STURT	Cooke Crescent and Crown Terrace Royal Park, Lochside Drive West Lakes and Torrens Road St. Clair, 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	768m	West
44982	LICENCE APPLICATION	Proceed To Authorisation	City of Chales Sturt	see below	Discharge during the licence period of stormwater to underground aquifers from a stormwater drainage system situated in metropolitan Adelaide -	Current EPA Register	Premise Match	768m	West

Record No.	Record Type	Record Status	Entity	Site Address	Activity	EPA Register Status	LocConf	Dist	Dir
2609	LICENCE	Issued	SA PATHOLOGY	10-42 Woodville Road, WOODVILLE SOUTH SA 5011	Activities producing listed wastes	Current EPA Register	Premise Match	808m	South East
823	LICENCE	Issued	CENTRAL ADELAIDE LOCAL HEALTH CENTRAL ADELAIDE LOCAL HEALTH NETWORK	10-42 Woodville Road, WOODVILLE SA 5011	Activities producing listed wastes, Fuel burning not coal or wood	Current EPA Register	Premise Match	808m	South East
10020	LICENCE	Issued	ADELAIDE ANODIZING PTY LTD	97 Tapleys Hill Road, HENDON SA 5014	Activities producing listed wastes	Current EPA Register	Premise Match	843m	West
26382	LICENCE	Issued	LAUFAN PTY LTD	4 / 61-63 Tapleys Hill Road, HENDON SA	Produce processing works (deep fat frying, roasting or drying)	Current EPA Register	Premise Match	890m	North West
22103	LICENCE	Issued	CITY OF CHARLES STURT	Various Locations Within The City of Charles Sturt, SA	Dredging - for each day on which dredging occurs during the licence period, Earthworks drainage - for each day on which earthworks drainage takes place during the licence period	Current EPA Register	General Area/ Suburb Match	-	-
25322	LICENCE	Issued	CITY OF PORT ADELAIDE ENFIELD	Various Locations Within City of Port Adelaide Enfield, PORT ADELAIDE, SA	Earthworks drainage - for each day on which earthworks drainage takes place during the licence period	Current EPA Register	General Area/ Suburb Match	-	-

Authorisations Data Source: EPA South Australia

EPA Assessment Areas

Port Road, Albert Park, SA 5014



EPA Assessment Areas

Port Road, Albert Park, SA 5014

EPA Assessment Areas

EPA Assessment Areas within the dataset buffer:

Map Id	Supplied Ref	Area Name	Map Link	Status	Location Confidence	Distance	Direction
12	11778	Hendon Industrial Area	http://www.epa.sa.gov.au/data_and_publications/site_contamination_monitoring/assessment_areas/hendon_industrial_area	Current	Premise Match	0m	Onsite
33		Albert Park	https://www.epa.sa.gov.au/data_and_publications/site_contamination_monitoring/assessment_areas/albert-park	Current	Premise Match	0m	Onsite
34		Woodville	https://www.epa.sa.gov.au/data_and_publications/site_contamination_monitoring/assessment_areas/woodville	Current	Premise Match	793m	South East
3	4771138	Athelstone, Dernancourt and Royal Park	http://www.epa.sa.gov.au/files/4771138_media_6jul2012.pdf	Past	Road Match	904m	East

Assessment Areas Data Source: EPA South Australia

PFAS Investigation Sites

Port Road, Albert Park, SA 5014

Defence PFAS Investigation & Management Program

Sites being investigated or managed by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Loc Conf	Dist	Dir
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	Loc Conf	Dist	Dir
N/A	No records in buffer				

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites

Port Road, Albert Park, SA 5014

Defence 3 Year Regional Contamination Investigation Program

Sites which have been assessed as part of the Defence 3 Year Regional Contamination Investigation Program within the dataset buffer:

Property ID	Base Name	Address	Known Contamination	Loc Conf	Dist	Dir
N/A	No records in buffer					

Defence 3 Year Regional Contamination Investigation Program, Data Custodian: Department of Defence, Australian Government

Waste Management Facilities

Port Road, Albert Park, SA 5014

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
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EPA Approved Container Collection Depots

EPA approved container collection depots within the dataset buffer:

MapId	Name	Address	Suburb	Loc Conf	Distance	Direction
N/A	No records in buffer					

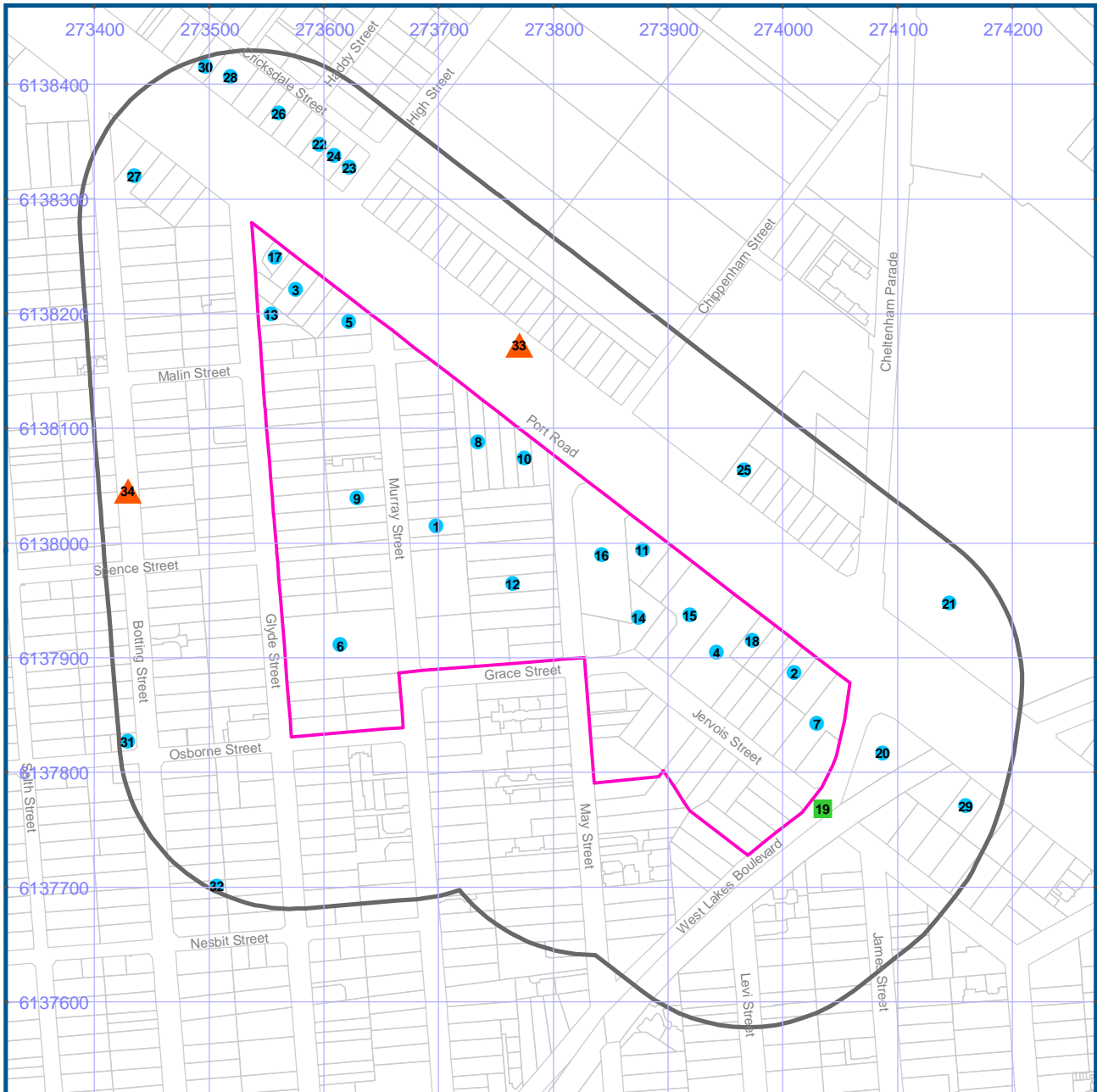
Collection Depot Data Source: EPA South Australia



Historical Business Directories





Port Road, Albert Park, SA 5014



1991 Business to Business Directory Records



-  Site Boundary
-  Buffer 150m
-  Property Boundaries

-  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



Projected Coordinate System:
GDA94 MGA Zone 54

Data Sources: Universal Business Directories (UBD), derived data, licensed from Hardie Grant.
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Historical Business Directories

Port Road, Albert Park, SA 5014

1991 Business Directory Records Premise or Road Intersection Matches

Records from the 1991 UBD Business to Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	Shower Screen Mfrs &/or Dists	SA Aluminium Windows & Doors, 17 Murray St, Albert Park 5014	33585	Premise Match	0m	On-site
	Security Doors &/or Windows &/or Grilles	SA Aluminium Windows & Doors 17 Murray St, Albert Park 5014	33138	Premise Match	0m	On-site
	Window Frame Mfrs &/Or Dists - Aluminium	SA Aluminium Windows & Doors, 17 Murray St, Albert Park, 5014	36523	Premise Match	0m	On-site
2	Air Conditioning - Automotive	Aircommand Australia Pty Ltd, 954 Port Rd, Albert Park 5014	37067	Premise Match	0m	On-site
	Air Conditioning Equipment & Parts Mfrs &/or Imps &/or Dists	Aircommand Australia Pty Ltd, 954 Port Rd, Albert Park 5014	37133	Premise Match	0m	On-site
	Caravan Accessories &/or Spare Parts Mfrs &/or Dists	Aircommand Australia Pty. Ltd.954 Port Rd. Albert Park. 5014.	39766	Premise Match	0m	On-site
3	Instrument - Automotive - Mfrs &/Or Imps &/Or Dists.	Beale Instrument Sales & Service, 1004 Port Rd, Albert Park, 5014	24080	Premise Match	0m	On-site
	Instrument - Industrial - Mfrs &/Or Imps &/Or Dists.	Beale Instrument Sales & Service, 1004 Port Rd, Albert Park, 5014	24108	Premise Match	0m	On-site
	Instrument - Marine - Mfrs &/Or Imps &/Or Dists.	Beale Instrument Sales & Service, 1004 Port Rd, Albert Park, 5014	24124	Premise Match	0m	On-site
	Instrument Repairers	Seale Instrument Sales & Service, 1004 Port Rd, Albert Park, 5014	24158	Premise Match	0m	On-site
4	Carriers &/or Cartage Contractors	Bull's Transport Pty. Ltd 962 Port Rd., Albert Park. 5014.	40023	Premise Match	0m	On-site
	Road Transport Services - Interstate	Bulls Transport Pty Ltd, 962 Port Rd, Albert Park 5014	32447	Premise Match	0m	On-site
5	Motor Radiator Specialists &/or Repairers	City Radiators, 996 Port Rd, Albert Park, 5014	28427	Premise Match	0m	On-site
6	Fruit Juice Processors &/or Merchants	City Role Pty Ltd., 24 Murray St. Albert Park., 5014.	21989	Premise Match	0m	On-site
	Food Products Mfrs &/or Processors	D.W.N. Distributors Pty. Ltd., 24 Murray St., Albert Park. 5014.	21739	Premise Match	0m	On-site
	Cold Stores	D.W.N. Distributors Pty. Ltd., 24 Murray St., Albert Park. 5014.	40861	Premise Match	0m	On-site
	Warehousemen	DWN Distributors Pty Ltd, 24 Murray St, Albert Park, 5014	36118	Premise Match	0m	On-site
	Food Products Mfrs &/or Processors	Watts Distributors Pty. Ltd., 24 Murray St., Albert Park. 5014.	21772	Premise Match	0m	On-site
7	Outboard Motor Sales &/or Service	City State Marine, 950 Port Rd, Albert Park, 5014	29519	Premise Match	0m	On-site
	Boat, Launch &/or Yacht Builders &/or Designers &/or Repairers	City State Marine, 950 Port Rd., Albert Park, 5014.	38597	Premise Match	0m	On-site
	Boat, Launch &/or Yacht Equipment	City State Marine, 950 Port Rd., Albert Park. 5014.	38621	Premise Match	0m	On-site
	Boat, Launch &/or Yacht Sales &/or Service	City State Marine, 950 Port Rd., Albert Park. 5014.	38650	Premise Match	0m	On-site

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
8	Cleaning Equipment Supplies &/or Repairs	E.O.I. Food Service Pty. Ltd., 988 Port Rd., Albert Park. 5014.	40619	Premise Match	0m	On-site
	Canners &/or Preservers - Processed Foods	EOI Pty. Ltd., 992 Port Rd., Albert Park. 5014.	39713	Premise Match	0m	On-site
	Margarine Mfrs &/or Dists	EOI Food Service Pty Ltd, 988 Port Rd, Albert Park, 5014	25624	Premise Match	0m	On-site
	Oil - Edible - Mfrs &/Or Merchants	EOI Food Service Pty Ltd, 988 Port Rd, Albert Park, 5014	29424	Premise Match	0m	On-site
	Food Products Mfrs &/or Processors	EOI Pty. Ltd., 992 Port Rd., Albert Park 5014.	21741	Premise Match	0m	On-site
	Dairy Product Mfrs &/or W/salers	EOI Pty Ltd 992 Port Rd Albert Park 5014	42165	Premise Match	0m	On-site
	Margarine Mfrs &/or Dists	EOI Pty Ltd, 992 Port Rd, Albert Park, 5014	25625	Premise Match	0m	On-site
	Grocers - Mfrg &/or W/sale	EOI Pty. Ltd., 992 Port Rd., Albert Park 5014.	23289	Premise Match	0m	On-site
	Grocers - Mfrg &/or W/sale	Unilever (Australia) Ltd., 992 Port Rd., Albert Park. 5014.	23305	Premise Match	0m	On-site
9	Go-Kart Mfrs &/or Dists	Eddies Tooling Service. 18 Murray St , Albert Park. 5014.	23160	Premise Match	0m	On-site
10	Hotel &/or Motel Equipment &/or Supplies	Festival Equipment Suppliers. 982 Port Rd.. Albert Park. 5014	23798	Premise Match	0m	On-site
11	Aluminium Fabricators	Finecast Aluminium 974 Port Rd Albert Park 5014	37429	Premise Match	0m	On-site
	Aluminium Products Mfrs &/or Dists	Finecast Aluminium 974 Port Rd, Albert Park 5014	37456	Premise Match	0m	On-site
	Founders - Non-Ferrous	Finecast Aluminium., 974 Port Rd Albert Park. 5014.	21865	Premise Match	0m	On-site
12	Carriers &/or Cartage Contractors	Finemores Express Pty Ltd., Rear, 12 May St., Albert Park 5014.	40058	Premise Match	0m	On-site
	Carriers - Cars &/Or Trucks	Finemores Vehicle Transport Pty. Ltd., 12 May St., Albert Park. 5014	39968	Premise Match	0m	On-site
	Carriers - Cars &/Or Trucks	FINEMORES VEHICLE TRANSPORT PTY. LTD., 12 May Street, Albert Park, 5014, PO Box 104	39961	Premise Match	0m	On-site
	Parcel Delivery Services	Finemores Express Pty Ltd, Rear, 12 May St, Albert Park, 5014	29853	Premise Match	0m	On-site
13	Motor Trimmers	Harris Motors, 3 Glyde St, Albert Park, 5014	28749	Premise Match	0m	On-site
	Canopy And Cabin Mfrs &/or Dists	Harris Motors, 3 Glyde St., Albert Park, 5014.	39720	Premise Match	0m	On-site
14	Steel Fabricators	Lakeside Engineering Pty Ltd, 30 Jervois St Albert Park 5014	34255	Premise Match	0m	On-site
	Engineers - Fabricating	Lakeside Engineering Pty Ltd, 30 Jervois St, Albert Park 5014	20244	Premise Match	0m	On-site
	Metal Pressers &/Or Stompers	Lakeside Engineering Pty Ltd, 30 Jervois St, Albert Park, 5014	25861	Premise Match	0m	On-site
	Welders	Lakeside Engineering Pty Ltd, 30 Jervois St, Albert Park, 5014	36295	Premise Match	0m	On-site
	Engineers - General	Lakeside Engineering Pty. Ltd., 30 Jervois St., Albert Park. 5014	20413	Premise Match	0m	On-site
	Engineers - Structural	Lakeside Engineering Pty. Ltd., 30 Jervois St., Albert Park. 5014	20886	Premise Match	0m	On-site
	Boilermakers	Lakeside Engineering Pty. Ltd., 30 Jervois St., Albert Park. 5014.	38685	Premise Match	0m	On-site
	Engineers - Welding	Lakeside Engineering Pty. Ltd., 30 Jervois St., Albert Park., 5014.	20945	Premise Match	0m	On-site
15	Bathroom Equipment &/or Fittings Mfrs &/or Dists	Mcllwraith Plumbing Supplies, 966 Port Rd, Albert Park 5014	38305	Premise Match	0m	On-site
	Builders Hardware Mfrs &/or Imps &/or Dists	Mcllwraith Plumbing Supplies, 966 Port Rd., Albert Park. 5014	39084	Premise Match	0m	On-site
	Hardware Mfrs &/or Dists &/or W/salers	Mchluraith Plumbing Supplies. 966 Port Rd., Albert Park, 5014.	23390	Premise Match	0m	On-site
	Electrical Supplies &/Or Appliances - Mfrs &/Or W/salers	Mcllwraith Plumbing Supplies, 966 Port Rd Albert Park 5014	19683	Premise Match	0m	On-site

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
15	Hot Water Systems &/or Fittings Mfrs &/or Dists	Mcllwraith Plumbing Supplies, 966 Port Rd. Albert Park 5014.	23755	Premise Match	0m	On-site
	Plumbers Supplies	Mcllwraith Plumbing Supplies, 966 Port Rd., Albert Park. 5014.	30879	Premise Match	0m	On-site
16	Fluorescent Lighting Equip Mfrs &/or Dists	Sun Lighting Industries Ltd., 978 Port Rd., Albert Park. 5014.	21679	Premise Match	0m	On-site
17	Motor Car Dealers - New &/or Used	Watkins, Doug Motors. 1008 Port Rd.. Albert Park. 5014.	26634	Premise Match	0m	On-site
18	Grinders - Precision	Watkins. E H. (Engineers), 960 Port Rd., Albert Park. 5014.	23279	Premise Match	0m	On-site
19	Crash Repair Specialists	Raines Crash Repairs 4 West Lakes Blvde Albert Park 5014	42004	Road Intersection	12m	South East
	Motor Panel Beaters &/or Spray Painters	Raines Crash Repairs, 4 West Lakes Blvde, Albert Park, 5014	28313	Road Intersection	12m	South East
20	Motor Gas (LPG) Conversions	Australian Auto Gas Conversions (SA) Pty Ltd, 948 Port Rd, Albert Park, 5014	27972	Premise Match	17m	South East
21	Plastic Mfrs Material Supplies	Absan, 853 Port Rd., Woodville. 5011.	30684	Premise Match	69m	East
	Computer Consultants	ACADS (Assn. For Computer Aided Design), 853 Port Rd., Woodville. 5011	40994	Premise Match	69m	East
	Management Consultants	Bates J L & Associates, 853 Port Rd, Woodville, 5011	25448	Premise Match	69m	East
	Motor Spare Parts Mfrs &/or Imps &/or W/salers	Bliss Manufacturing, 853 Port Rd, Woodville, 5011	28522	Premise Match	69m	East
	Pump & Pumping Equipment Mfrs &/or Dists	HARLAND PUMP SALES & SERVICE 853 Port Rd., Woodville 5011	31761	Premise Match	69m	East
	Seals - Oil &/or Mechanical	Harland Pumps Sales & Services, 853 Port Rd, Woodville 5011	33054	Premise Match	69m	East
	Pump & Pumping Equipment Mfrs &/or Dists	Harland Pumps Sales & Services, 853 Port Rd., Woodville. 5011.	31787	Premise Match	69m	East
	Pump Repair Specialists	Harland Pumps Sales & Services, 853 Port Rd., Woodville. 5011.	31838	Premise Match	69m	East
	Shipping Companies & Agents	Lloyd's Register of Shipping, 853 Port Rd, Woodville 5011	33476	Premise Match	69m	East
	Warehousemen	Messenger Bras, 853 Part Rd, Woodville, 5011	36121	Premise Match	69m	East
	Storage &/or Distribution Centres	Messenger Bras, 853 Port Rd, Woodville 5011	34467	Premise Match	69m	East
	Parcel Delivery Services	Messenger Bros, 853 Port Rd, Woodville, 5011	29857	Premise Match	69m	East
	Carriers &/or Cartage Contractors	Messenger Bros., 853 Port Rd., Woodville. 5011.	40120	Premise Match	69m	East
	Storage &/or Distribution Centres	MESSENGER BROTHERS, 853 Port Road, Woodville 5011	34443	Premise Match	69m	East
	Steel Products Mfrs &/or Dists.	Mitex Rigidized Metals Pty Ltd, Plant 16/853 Port Rd Woodville 5011	34384	Premise Match	69m	East
	Stainless Steel Products &/or Equipment Mfrs &/or Dists	Mitex Rigidized Metals Pty Ltd, Plant 16/853 Port Rd, Woodville 5011	34088	Premise Match	69m	East
	Metal Polishers &/or Grinders	Mitex Rigidized Metals Pty Ltd, Plant 16/853 Port Rd, Woodville, 5011	25838	Premise Match	69m	East
	Inspection &/or Testing Services	National Association of Testing Authorities Australia, 853 Port Rd, Woodville, 5011	24070	Premise Match	69m	East
	Laboratories	National Association of Testing Authorities Australia, 853 Port Rd, Woodville, 5011	24953	Premise Match	69m	East
	Concrete Testing Laboratories	National Association of Testing Authorities Australia, 853 Port Rd., Woodville. 5011	41484	Premise Match	69m	East
Management Consultants	NIES, 853 Port Rd, Woodville, 5011	25467	Premise Match	69m	East	
Bathroom Equipment &/or Fittings Mfrs &/or Dists	Parbury's Building Products, Unit 10/853 Port Rd, Woodville 5011	38313	Premise Match	69m	East	
Laminated Materials &/or Products Mfrs &/or Dists	Parbury's Building Products, Unit 10/853 Port Rd, Woodville, 5011	25007	Premise Match	69m	East	

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
21	Plywood Mfrs &/or Dist. &/or Merchants	Parbury's Building Products, Unit 10/853 Port Rd. Woodville. 5011	30923	Premise Match	69m	East
	Timber Exporters &/or Importers	Parbury's Building Products., Unit 10/853 Port Rd, Woodville, 5011	35008	Premise Match	69m	East
	Management Consultants	SA Centre For Manufacturing Pty Ltd, 853 Port Rd, Woodville, 5011	25477	Premise Match	69m	East
	Computer Software	Software Export Centre, 853 Port Rd.. Woodville. 5011.	41272	Premise Match	69m	East
	Publishers	Standards Australia, 853 Port Rd., Woodville. 5011.	31740	Premise Match	69m	East
	Tape - Adhesive - Mfrs &/Or Imps &/Or Dist.	Tape Pacific Pty. Ltd., Unit 2A/853 Port Rd., Woodville. 5011	34719	Premise Match	69m	East
	Engineers - Consulting	Vipac Pty Ltd, 853 Port Rd, Woodville 5011	20125	Premise Match	69m	East
	Exhibition Organisers	XPO Exhibitions Pty Ltd., 853 Port Rd., Woodville 5011	20993	Premise Match	69m	East
22	Saw &/or Saw Blade Mfrs &/or Dist.	AA Saw Works 939 Port Rd, Cheltenham 5014	32865	Premise Match	70m	North West
	Saw &/or Knife &/or Tool Sharpener	AA Saw Works, 939 Port Rd, Cheltenham 5014	32848	Premise Match	70m	North West
	Saw &/or Knife &/or Tool Sharpener	Moore's Saw Sharpening Service, 939 Port Rd, Cheltenham 5014	32856	Premise Match	70m	North West
	Saw &/or Saw Blade Mfrs &/or Dist.	Moore's Saw Sharpening Service, 939 Port Rd, Cheltenham 5014	32875	Premise Match	70m	North West
	Lawn Mower Repairers &/or Sharpeners	Moore's Saw Sharpening Service, 939 Port Rd, Cheltenham, 5014	25184	Premise Match	70m	North West
23	Stone Masons	Jordan H L Memorials, 935 Port Rd, Cheltenham, 5014	34436	Premise Match	70m	North
	Monumental Masons	Jordan, H L Memorials, 935 Port Rd, Cheltenham, 5014	26020	Premise Match	70m	North
24	Glass Tinting	Sola Seal Pty. Ltd., 937 Port Rd., Cheltenham. 5014.	23108	Premise Match	70m	North
25	Storage &/or Distribution Centres	National Mini Storage, 871 Port Rd, Cheltenham 5014	34469	Premise Match	71m	North East
	Trailer Renting	National Mini Storage, 871 Port Rd, Cheltenham 5014	35363	Premise Match	71m	North East
	Furniture Removalists &/or Storage	National Mini Storage, 871 Port Rd., Cheltenham. 5014.	22720	Premise Match	71m	North East
26	Boat, Launch &/or Yacht Builders &/or Designers &/or Repairers	Ab-Craft, 945 Port Rd., Cheltenham. 5014	38590	Premise Match	77m	North West
27	Motor Panel Beaters &/or Spray Painters	Portside Mitsubishi, 1032 Port Rd, Albert Park, 5014	28300	Premise Match	92m	North West
	Motor Car Dealers - New &/or Used	Portside Mitsubishi, 1032 Port Rd.. Albert Park. 5014.	26568	Premise Match	92m	North West
28	Motor Brake Specialists	Checkpoint Automatics Brake & Clutch, 953 Port Rd., Cheltenham 5014.	26314	Premise Match	104m	North West
	Motor Clutch Specialists	Checkpoint Automatics Brake & Clutch, 953 Port Rd., Cheltenham. 5014.	26810	Premise Match	104m	North West
29	Semi-Trailer Mfrs &/Or Dist.	Premier Trailers Pty Ltd, 938 Port Rd, Woodville West 5011	33239	Premise Match	104m	South East
	Trailer &/or Trailer Equipment Mfrs &/or Dist.	Premier Trailers Pty Ltd, 938 Port Rd, Woodville West 5011	35409	Premise Match	104m	South East
	Trailer Renting	Premier Trailers Pty Ltd, 938 Port Rd, Woodville West 5011	35364	Premise Match	104m	South East
	Trailer Repairers	Premier Trailers Pty Ltd, 938 Port Rd, Woodville West 5011	35386	Premise Match	104m	South East
30	Furniture Mfrs &/or W/salers - Custom Built	Whitehead Fine Furniture., 955 Port Rd., Cheltenham. 5014.	22318	Premise Match	128m	North West
31	Chain Block Mfrs &/or Dist.	DAVID A. SCHILLING (DASCO), 58 Botting St., Albert Park, 5014.	40395	Premise Match	135m	South West
	Rope, Cordage &/or Twine Mfrs &/Or Dist.	Schilling, David A (Dasco) 58 Botting St, Albert Park 5014	32637	Premise Match	135m	South West
	Lifting Gear	Schilling, David A (Dasco), 58 Botting St, Albert Park 5014	25276	Premise Match	135m	South West
	Webbing Mfrs &/Or Dist.	Schilling, David A (Dasco), 58 Botting St, Albert Park, 5014	36211	Premise Match	135m	South West

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
31	Wire Rope &/or Accessories Mfrs &/or Dists	Schilling, David A (Dasco), 58 Botting St, Albert Park, 5014	36677	Premise Match	135m	South West
	Material Handling Equipment Mfrs &/or Imps &/or Dists	Schilling, David A(Dasco), 58 Botting St, Albert Park, 5014	25702	Premise Match	135m	South West
	Chain Mfrs &/or Dists	Schilling, David A. (Dasco), 58 Botting St., Albert Park. 5014,	40410	Premise Match	135m	South West
	Chain Block Mfrs &/or Dists	Schilling, David A. (Dasco). 58 Botting St., Albert Park. 5014.	40401	Premise Match	135m	South West
	Pulley Mfrs &/or Dists	Schilling, David A. (Dasco), 58 Botting St., Albert Park. 5014.	31755	Premise Match	135m	South West
32	Plastic Coating Specialists	Heatshrink (S.A.), 69 Botting St., Albert Park. 5014.	30571	Premise Match	137m	South West
	Heating Equipment &/or Systems Mfrs &/or Dists &/or Installers	Inzix Neil Pty Ltd., 69 Botting St, Albert Park, 5014.	23493	Premise Match	137m	South West
	Incinerator Mfrs &/or Dists	Menzies, Neil Pty Ltd, 69 Botting St, Albert Park, 5014	24016	Premise Match	137m	South West
	Fireplace &/Or Accessory Mfrs &/Or Dists.	Menzies, Neil Pty Ltd., 69 Bolting St. Albert Park, 5014	21562	Premise Match	137m	South West
	Plastic Coating Specialists	Menzies, Neil Pty. Ltd., 69 Botting St., Albert Park. 5014.	30572	Premise Match	137m	South West

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1991 Business Directory Records Road or Area Matches

Records from the 1991 UBD Business to Business Directory, 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.	Location Confidence	Approx. Dist. to Road Corridor or Area	Direction
33	Motor Car Dealers - New &/or Used	Old Port Toyota. Port Rd., Cheltenham. 5014.	26560	Road Match	54m	North
34	Swimming Pool Equipment & Supplies	Finsbury Pumps., (Division of Sabco)., Botting St, Albert Park 5014.	34585	Road Match	123m	West
	Mop Mfrs &/or W/sales	Sabco Limited, Botting St, Albert Park, 5014	26030	Road Match	123m	West
	Broom &/Or Brush - Domestic &/Or Industrial - Mfrs &/Or Imps &/Or Dists.	Sabco Limited, Botting St., Albert Park. 5014.	38859	Road Match	123m	West
	Plastic Goods Mfrs &/or Imps &/or Dists	Sabco Limited, Botting St., Albert Park. 5014.	30677	Road Match	123m	West
	Garden Supplies &/or Equipment Mfrs &/or Dists &/or W/salers	Sabco Limited., Bolting St. Albert Park 5014.	22843	Road Match	123m	West
	Pump & Pumping Equipment Mfrs &/or Dists	Sbury Pumps, (Division of Sabco). Botting St., Albert Park. 5014.	31781	Road Match	123m	West

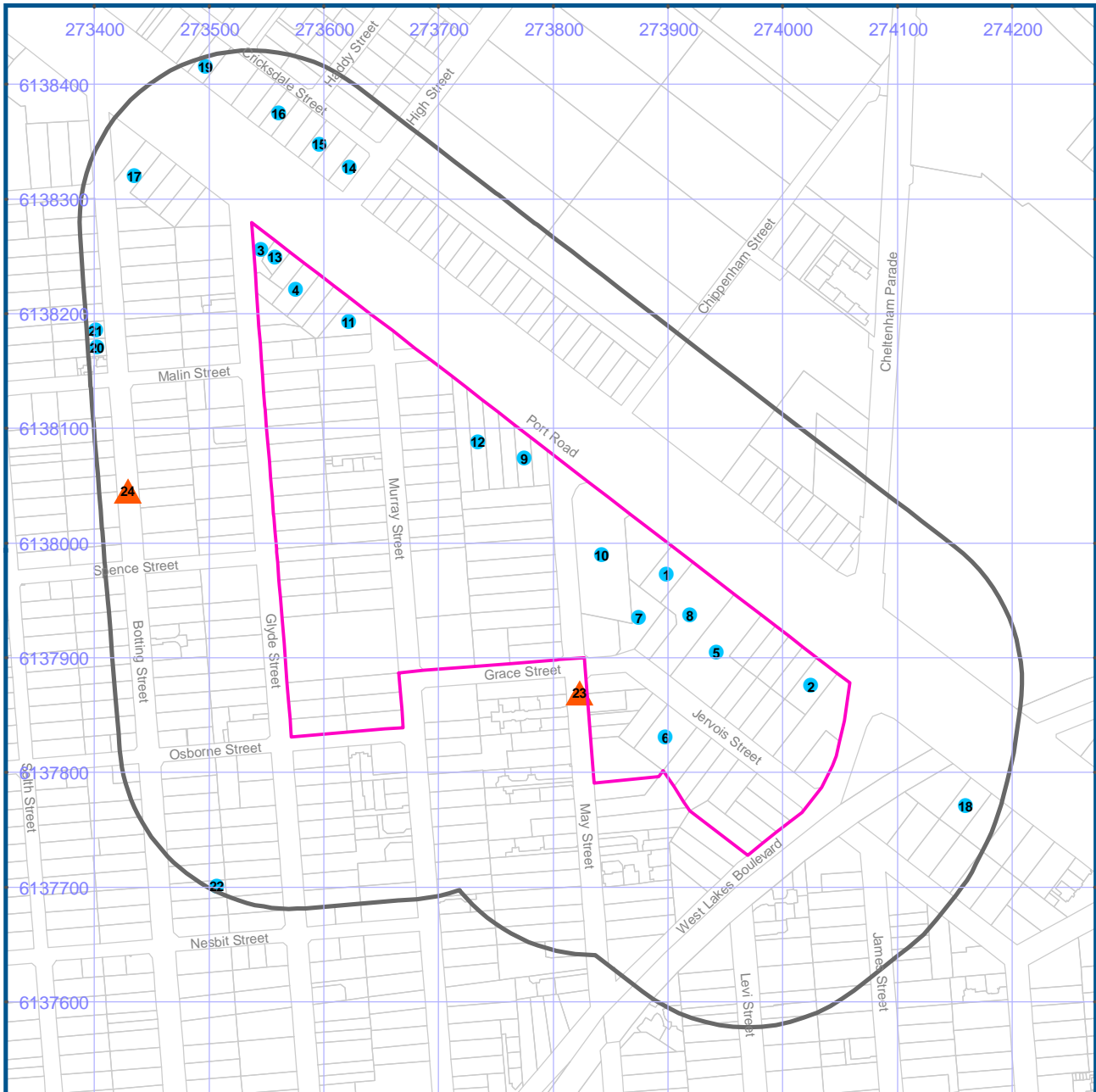
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Historical Business Directories

Port Road, Albert Park, SA 5014



1984 Business Directory Records



Site Boundary

Buffer 150m

Property Boundaries

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

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Projected Coordinate System:
GDA94 MGA Zone 54

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Historical Business Directories

Port Road, Albert Park, SA 5014

1984 Business Directory Records Premise or Road Intersection Matches

Records from the 1984 UBD Business to Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	Concrete Workers	A 1 Concrete Enterprise Pty Ltd, 972 Port Rd, Albert Park 5014	6142	Premise Match	0m	On-site
	Terrazzo Workers &/Or Specialists	A 1 Concrete Enterprise Pty Ltd, 972 Port Rd, Albert Park 5014	24809	Premise Match	0m	On-site
	Paving Contractors	A 1 Concrete Enterprise Pty. Ltd., 972 Port Rd., Albert Park. 5014	20100	Premise Match	0m	On-site
	Concrete Pumping Services	Concrete Enterprise Pty Ltd, 972 Port Rd, Albert Park 5014	6129	Premise Match	0m	On-site
2	Air Conditioning Automotive	Air Command Australia Pty Ltd, 952 Port Rd, Albert Park 5014	437	Premise Match	0m	On-site
	Air Conditioning Equipment Mfrs &/or Dists	Air Command Australia Pty Ltd, 952 Port Rd, Albert Park 5014	459	Premise Match	0m	On-site
	Metal Pressers &/or Stampers	Air Command Australia Pty Ltd, 952 Port Rd, Albert Park 5014	17068	Premise Match	0m	On-site
	Tool Jig &/Or Die Makers	Air Command Australia Pty, Ltd, 952 Port Rd, Albert Park, 5014	25071	Premise Match	0m	On-site
	Engineers - Production	Air Command Australia Pty, Ltd., 952 Port Rd Albert Park. 5014	10954	Premise Match	0m	On-site
	Engineers - Pressed Metal	Air Command Australia Pty, Ltd., 952 Port Rd., Albert Park. 5014.	10932	Premise Match	0m	On-site
	Engineers - Precision	Air Command Australia Pty. Ltd., 952 Port Rd., Albert Park. 5014.	10888	Premise Match	0m	On-site
3	Delicatessens &/Or Mixed Businesses	Albert Park Deli 1010 Port Rd Albert Park 5014	6508	Premise Match	0m	On-site
4	Instruments - Marine &/Or Navigational	Beale Instrument Sales & Service, 1004 Port Rd., Albert Park. 5014	15523	Premise Match	0m	On-site
	Instruments - Industrial - Mfrs. &/or Dists	Beale Instrument Sales & Service, 1004 Port Rd., Albert Park. 5014.	15507	Premise Match	0m	On-site
	Instrument Repair, Specialists	Beale Instrument Sales & Service. 1004 Port Rd., Albert Park. 5014.	15485	Premise Match	0m	On-site
	Motor Speedometer Specialists	Beale Instrument Sales & Service 1004 Port Rd. Albert Park. 5014	18878	Premise Match	0m	On-site
5	Motor Bus Charter Services	Bull's Tourist Service 962 Port Rd Albert Park 5014	17655	Premise Match	0m	On-site
6	Bakers	Lion Bakery, 6 Jervois St, Albert Park 5014	1439	Premise Match	0m	On-site
7	Heating Appliances - Oil	Major Furnace & Combustion Engineers (S.A.) Pty. Ltd 32 Jervois St., Albert Park. 5014.	14625	Premise Match	0m	On-site
	Oil Burners &/Or Equipment	Major Furnace & Combustion Engineers (S.A.) Pty. Ltd., 32 Jervois St., Albert Park. 5014.	19574	Premise Match	0m	On-site
	Boilers - Steam Mfrs &/Or Dists.	Major Furnace & Combustion Engineers (SA) Pty Ltd, 32 Jervois St, Albert Park 5014	2305	Premise Match	0m	On-site
	Heat Treatment Equipment &/or Supplies	Major Furnace & Combustion Engineers (S.A.) Pty. Ltd., 32 Jervois St. Albert Park. 5014.	14611	Premise Match	0m	On-site
8	Plumbers Equipment &/Or Material Dists.	Mcllwraith Distributors Pty. Ltd., 966 Port Rd., Albert Park. 5014.	20769	Premise Match	0m	On-site
	Plumbers Supplies - Mfrs. &/Or W/Salers	Mcllwraith Distributors Pty. Ltd., 966 Port Rd., Albert Park. 5014.	20818	Premise Match	0m	On-site
9	Machinery Merchants &/or Importers	Morrell, C H Pty Ltd, 982 Port Rd, Albert Park 5014	16652	Premise Match	0m	On-site

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
9	Engineers Supplies	Morrell, C. H. Pty. Ltd., 982 Port Rd., Albert Park. 5014.	11095	Premise Match	0m	On-site
	Secondhand Dealers	Morrell, C. H. Pty. Ltd.. 982 Port Rd.. Albert Park. 5014,	22924	Premise Match	0m	On-site
10	Fluorescent Lighting Equip. Mfrs. &/or Dist.	Sun Lighting Industries Ltd., 978 Port Rd., Albert Park, 5014.	11785	Premise Match	0m	On-site
11	Paint - Industrial Protective Coating	Triton Paints (S.A.) Pty. Ltd., 996 Port Rd., Albert Park. 5014.	19750	Premise Match	0m	On-site
	Paint - Marine - Mfrs. &/or Dist.	Triton Paints (S.A.) Pty. Ltd., 996 Port Rd., Albert Park. 5014.	19774	Premise Match	0m	On-site
	Paint - Solvent Thinner - Mfrs. &/or W/Salers	Triton Paints (S.A.) Pty. Ltd., 996 Port Rd., Albert Park. 5014.	19818	Premise Match	0m	On-site
	Rust Proofing Materials	Triton Paints (S.A.) Pty. Ltd., 996 Port Rd., Albert Park. 5014.	22510	Premise Match	0m	On-site
	Paint Mfrs. &/Or Dist. Anti-Corrosive	Triton Paints (S.A.) Pty. Ltd.. 996 Port Rd., Albert Park. 5014.	19765	Premise Match	0m	On-site
	Paint Varnish &/Or Lacquer Mfrs.	Triton Paints (S.A.) Pty. Ltd.. 996 Port Rd.. Albert Park. 5014.	19830	Premise Match	0m	On-site
	Paint Merchants &/Or Dist.	Wesco Paints Pty. Ltd., 996 Port Rd., Albert Park. 5014.	19816	Premise Match	0m	On-site
	Paint Varnish &/Or Lacquer Mfrs.	Wesco Paints Pty. Ltd., 996 Port Rd., Albert Park. 5014.	19835	Premise Match	0m	On-site
12	Dairy Produce Merchants &/or W/Salers	Vidale Products Pty Ltd, 992 Port Rd, Albert Park 5014	6431	Premise Match	0m	On-site
	Margarine Mfrs - Table &/Or Industrial	Vidale Products Pty Ltd, 992 Port Rd, Albert Park 5014,	16866	Premise Match	0m	On-site
	Food Processors &/or Packers	Vidale Products Pty. Ltd , 992 Port Rd., Albert Park. 5014.	11815	Premise Match	0m	On-site
	Grocers - Mfrg. &/Or W/Sale	Vidale Products Pty. Ltd., 992 Port Rd., Albert Park. 5014.	13343	Premise Match	0m	On-site
	Canners &/Or Food Processors	Vidale Products Pty. Ltd., 992 Port Rd.. Albert Park. 5014	4030	Premise Match	0m	On-site
13	Motor Car &/or Truck Dealers - New &/or Used	Watkins, Doug Motors, 1008 Port Rd, Albert Park 5014	17865	Premise Match	0m	On-site
14	Monumental Masons	Jordan, H L 935 Port Rd Cheltenham 5014	17245	Premise Match	70m	North
15	Lawnmower Repairers &/or Sharpeners	Moores Saw Sharpening Service, 939 Port Rd, Cheltenham 5014	16342	Premise Match	70m	North West
	Saw Knife &/Or Tool Sharpeners	Moores Saw Sharpening Service, 939 Port Rd. Cheltenham. 5014.	22645	Premise Match	70m	North West
	Saw Mfrs. &/Or W/Salers	Moores Saw Sharpening Service, 939 Port Rd., Cheltenham. 5014.	22655	Premise Match	70m	North West
16	Motor Radiator Specialists &/or Repairers	Cheltenham Radiators 945 Port Rd. Cheltenham. 5014.	18842	Premise Match	77m	North West
17	Motor Car &/or Truck Dealers - New &/or Used	ALBERT PARK, Portside Mitsubishi, 1032 Port Rd	17789	Premise Match	92m	North West
	Motor Steam Cleaners &/or Undercoaters	Portside Mitsubishi 1032 Port Rd. Albert Park 5014.	18883	Premise Match	92m	North West
	Motor Car &/Or Truck State Dist. &/Or Agents	Portside Mitsubishi, 1032 Port Rd Albert Park 5014	17891	Premise Match	92m	North West
	Motor Car &/or Truck Dealers - New &/or Used	Portside Mitsubishi, 1032 Port Rd, Albert Park 5014	17823	Premise Match	92m	North West
	Motor Garages &/or Engineers &/or Service Stations	Portside Mitsubishi, 1032 Port Rd., Albert Park. 5014.	18471	Premise Match	92m	North West
	Motor Steering Specialists	Portside Mitsubishi, 1032 Port Rd., Albert Park. 5014.	18904	Premise Match	92m	North West
	Motor Painters &/or Panel Beaters	Portside Mitsubishi, 1032 Port Rd., Albert Park. 5014.	18752	Premise Match	92m	North West
18	Trailers &/or Semi-Trailers Mfrs &/or Dist. &/or Hirers	Premier Trailers Pty Ltd, 938 Port Rd, Woodville West 5011	25295	Premise Match	104m	South East
	Engineers - Fabricating	Premier Trailers Pty. Ltd., 938 Port Rd., Woodville West. 5011.	10563	Premise Match	104m	South East
	Engineers - General &/or Manufacturing &/or Mechanical	Premier Trailers Pty. Ltd., 938 Port Rd., Woodville West. 5011.	10736	Premise Match	104m	South East

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
19	Electrical Switchboard Mfrs. &/or Dists.	Johns Industrial Controls, 955 Port Rd., Cheltenham. 5014.	10182	Premise Match	128m	North West
20	Butchers - Retail	Dunstan. J. R.. 20 Botting Rd., Albert Park, 5014	3394	Premise Match	134m	North West
21	Hairdressers - Ladies &/or Beauty Salons	Margaret Rose Salon, 18 Botting St., Albert Park. 5014.	14078	Premise Match	134m	North West
22	Plastic Coating Specialists	Menzies Neil Pty. Ltd., 69 Botting St., Albert Park. 5014.	20462	Premise Match	137m	South West
	Incinerator Mfrs. &/Or Dists.	Menzies, Neil Pty. Ltd., 69 Bolting St., Albert Park. 5014.	15434	Premise Match	137m	South West
	Fireplaces & Accessories Mfrs.	Menzies. Neil Pty Ltd. 69 Botting St., Albert Park. 5014.	11538	Premise Match	137m	South West
	Heating Equipment Mfrs. &/Or Dists.	Menzies. Neil Pty. Ltd, 69 Botting St., Albert Park. 5014.	14638	Premise Match	137m	South West

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1984 Business Directory Records Road or Area Matches

Records from the 1984 UBD Business to Business Directory, 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.	Location Confidence	Approx. Dist. to Road Corridor or Area	Direction
23	Carriers &/Or Haulage Contractors	K.&S. Freighters, May St., Albert Park. 5014.	4334	Road Match	0m	On-site
24	Brushware &/Or Broom Mfrs	Sabco Limited Botting St, Albert Park 5014	2685	Road Match	123m	West
	Plastic Moulded Goods Mfrs. &/Or Dists.	Sabco Limited., Botting St., Albert Park, 5014.	20628	Road Match	123m	West

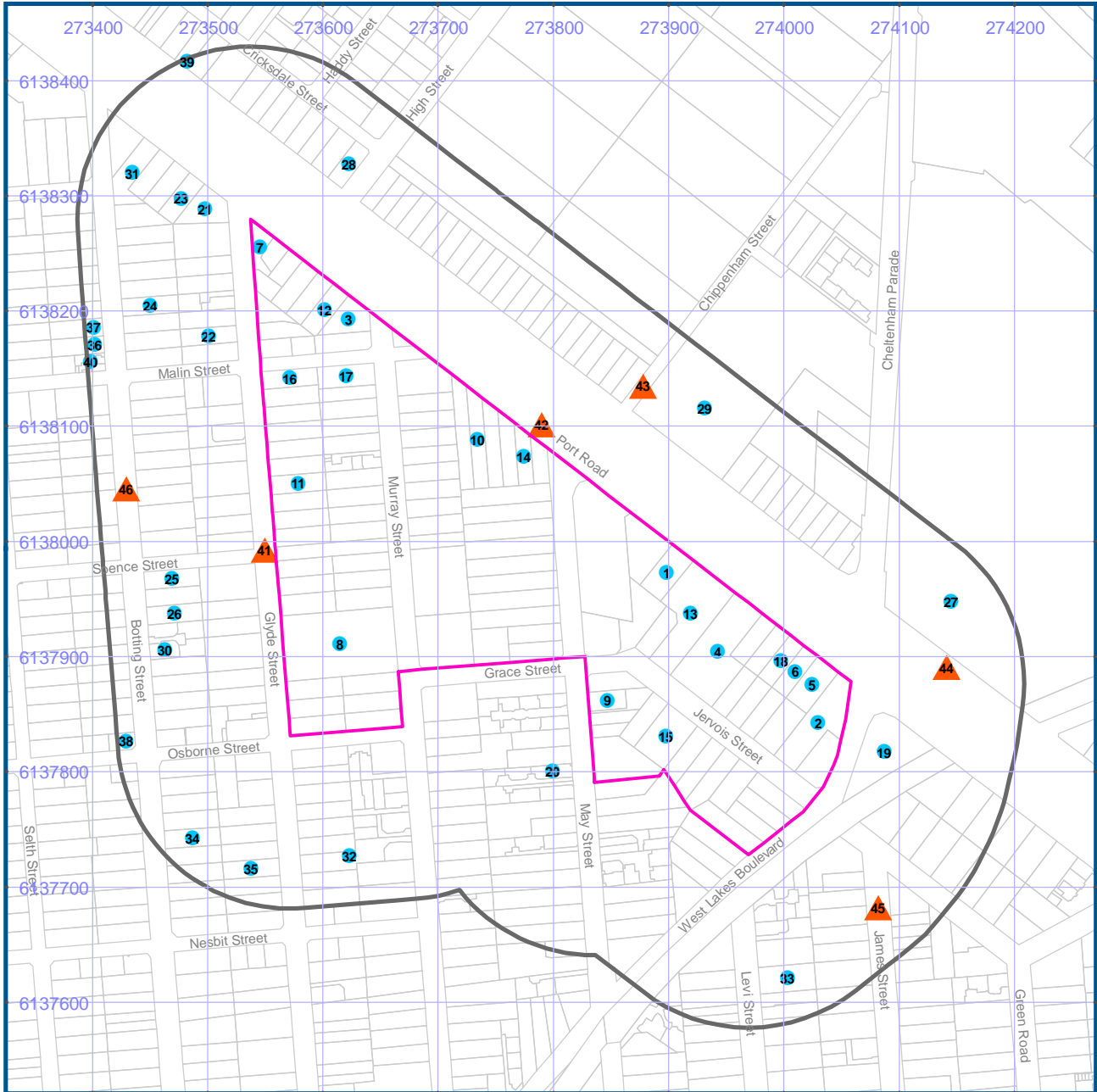
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Historical Business Directories





Port Road, Albert Park, SA 5014



1973 Business Directory Records



-  Site Boundary
-  Buffer 150m
-  Property Boundaries

-  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



Projected Coordinate System:
GDA94 MGA Zone 54

Data Sources: Sands & McDougall's Directory of South Australia, derived data
Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited 2020
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Historical Business Directories

Port Road, Albert Park, SA 5014

1973 Business Directory Records Premise or Road Intersection Matches

Records from the 1973 Sands & McDougall's Directory, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	MOTOR WRECKERS	Ace Auto Wreckers 972 Part rd Albert Park	18744	Premise Match	0m	On-site
2	MACHINERY MERCHANTS	Atlas Copco Aust Pty Ltd 950 Port rd Albert Park	38594	Premise Match	0m	On-site
	Air Compressors & Tools	ATLAS COPCO AUST. PTY. LTD. 950 Port Road Albert Park	15196	Premise Match	0m	On-site
	Air Compressors & Tools	Atlas Cope Aust P/L 950 Port rd Albert Park	15195	Premise Match	0m	On-site
3	PAINT MANUFACTURERS & DISTRIBUTORS	Brolite (SA) P/L 996 Port rd Albert Park	21725	Premise Match	0m	On-site
4	TAXIS, PRIVATE BUSES AND OTHER HIRE SERVICES	Bulls Bus Hire Serv 962-964 Port rd Albert Pk	1571	Premise Match	0m	On-site
5	ELECTRICAL WHOLESALERS	Cablemakers (ACT) P/L 952 Port rd Albert Pk	9915	Premise Match	0m	On-site
	GALVANIZERS	Galvasteel Ltd 952 Port rd Albert Park	21559	Premise Match	0m	On-site
6	ENGINEERS & PRESSWORKERS	F & V Preased Metal Co 954-956 Port rd Albert Park	11281	Premise Match	0m	On-site
	ENGINEERS (GENERAL MNFCTRNG. MECHANICAL)	F & V Pressed Metal Co Pty Ltd 954 Port rd Albert Park	12747	Premise Match	0m	On-site
7	NEWS AGENTS	Forrest W & Sons Ltd 1010 Port rd Albert Pk	19521	Premise Match	0m	On-site
8	Manufacturers (General)	Gadsden J Pty Ltd 24 Murray st Albert Park	39246	Premise Match	0m	On-site
9	HAIRDRESSERS & TOBACCONISTS	Giles T P 11 May st Albert Park	31278	Premise Match	0m	On-site
10	MARGARINE MANUFACTURERS	Golden Nut & Easy Spread Margarine P/L 992 Port rd Albert Park	40011	Premise Match	0m	On-site
	MARGARINE MANUFACTURERS	Vidale Products P/L 992 Port rd Albert Park	40013	Premise Match	0m	On-site
	Manufacturers (General)	Vidale Products Pty Ltd 992 Port rd Albert Park	39933	Premise Match	0m	On-site
11	TINSMITHS	Harvey W C 21 Glyde st Albert Park	3868	Premise Match	0m	On-site
12	TOILET SALONS	Maxine Salon 998 Port rd Albert Park	5296	Premise Match	0m	On-site
13	HARDWARE MERCHANTS & IRONMONGERS	Mcllwraith John (SA) P/L 966 Port rd Albert Park	32883	Premise Match	0m	On-site
14	MACHINERY MERCHANTS	Morrell C H Pty Ltd 982-986 Port rd Albert Pk	39137	Premise Match	0m	On-site
	METAL MERCHANTS & SMELTERS	Morrell Pty Ltd C H 982 Port rd Albert Park	7838	Premise Match	0m	On-site
15	BAKERS AND/OR PASTRYCOOKS	Oldfields Bakery P/L 6 Jervois st Albert Park	19037	Premise Match	0m	On-site
16	TAXIS, PRIVATE BUSES AND OTHER HIRE SERVICES	Swiggs E G 9 Glyde st Albert Park	2940	Premise Match	0m	On-site

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
17	Manufacturers (General)	Vidale Products Pty Ltd 6 Murray st Albert Park	39932	Premise Match	0m	On-site
18	ENGINEERS (CONSULTING)	Watkins E H 958 Port rd Albert Park	11913	Premise Match	0m	On-site
	ENGINEERS (GENERAL MNFCTRNG. MECHANICAL)	Watkins E H 958 Port rd Woodville West	13520	Premise Match	0m	On-site
19	CARRIERS & HAULAGE CONTRACTORS	Halls Van Lines Pty Ltd 948 Port rd Albert Pk	35148	Premise Match	17m	South East
	MOTOR GARAGES & SERVICE STATIONS	Mobil Oil Aust Ltd 948 Port rd Albert Park	16668	Premise Match	17m	South East
	MOTOR GARAGES & SERVICE STATIONS	Woodville Service Station 948 Port rd Albert Park	17808	Premise Match	17m	South East
20	MOTOR PAINTERS, RENOVATORS & TRIMMERS	Addison A E S 32 May st Albert Park	17905	Premise Match	18m	South
	BRICKLAYERS AND MASONS	Nicholas P 32 May st Albert Park	22596	Premise Match	18m	South
21	MIXED BUSINESSES	Baird J & J 1018 Port rd Albert Park	9289	Premise Match	19m	North West
	CHEMISTS (RETAIL)	Porter & Penhall 1014 Port rd Albert Park	39475	Premise Match	19m	North West
22	PHARMACISTS	Waters R W 16 Glyde st Albert Park	28364	Premise Match	19m	North West
23	LAND AGENTS	Jenkins J L 1022 Port rd Albert Park	36854	Premise Match	50m	North West
	HAIRDRESSERS & TOBACCONISTS	Roach H 1020 Port rd Albert Park	32068	Premise Match	50m	North West
	GROCERS & GENERAL STOREKEEPERS	Woodhead T C & L McG 1022-1024 Port rd Albert Park	29793	Premise Match	50m	North West
24	TRAVEL AGENTS	Rokkas A 11 Botting st Albert Park	7155	Premise Match	67m	North West
25	PAINTERS & DECORATORS	Johncock A 39 Botting st Albert Park	22979	Premise Match	68m	West
26	PHARMACISTS	Pinchbeck M J 43 Botting st Albert Park	27615	Premise Match	68m	West
	CHEMISTS (RETAIL)	Pinchbeck M J 43 Botting st Albert Park	39471	Premise Match	68m	West
27	TAILORS, MERCERS & MEN'S WEAR	Fazzalarl L 854 Port rd Woodville South	672	Premise Match	69m	East
28	MONUMENTAL MASONS & MARBLE WORKERS	Jordan H L Memorials 935 Port rd Cheltenham	10894	Premise Match	70m	North
	MONUMENTAL MASONS & MARBLE WORKERS	Master Monumental Masons & Sculptors Asscn of SA 935 Port rd Cheltenham	10898	Premise Match	70m	North
29	AUTOMOBILE MANUFACTURERS	General Motors Holden's P/L 873-895 Port rd Woodville	18131	Premise Match	71m	North East
	MOTOR CARS, TRUCKS & ACCESSORIES	General Motors Holdens Pty Ltd 873 Port rd Cheltenham	11733	Premise Match	71m	North East
	MOTOR CARS, TRUCKS & ACCESSORIES	General Motors Holdens Pty Ltd 879 -895 Port rd Cheltenham	11734	Premise Match	71m	North East
	MOTOR BODY BUILDERS & REPAIRERS	General Motors-Holdens P/L 873-895 Port rd Woodville	11005	Premise Match	71m	North East
30	WELDERS	Edwards L R R 47 Botting st Albert Park	13883	Premise Match	90m	West
31	Used Car Dealers	Lloyd Watkins Used Cars 1032 Port rd Albert Park	8182	Premise Match	92m	North West
	MOTOR GARAGES & SERVICE STATIONS	Watkins Motors P/L 1032 Port rd Albert Park	17784	Premise Match	92m	North West
32	MOTOR ENGINEERS & REPAIRERS	Matthews A E 51 Glyde st Albert Park	13232	Premise Match	95m	South West
33	ENGINEERS (Electrical)	Snearer I 5 Levi st Woodville West	12057	Premise Match	98m	South East
34	DRAPERS	Broadbent J M 63 Botting st Albert Park	7587	Premise Match	100m	South West

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
35	HAIRDRESSERS & TOBACCONISTS	Roach H 60 Glyde st Albert Park	32069	Premise Match	107m	South West
36	BUTCHERS	Dunstan J R 20 Botting st Albert Park	28635	Premise Match	134m	North West
	GROCERS & GENERAL STOREKEEPERS	Hendersorus Food Mart 20a Botting st Albert Park	26382	Premise Match	134m	North West
37	TOILET SALONS	Salon 64 18 Botting st Albert Park	5419	Premise Match	134m	North West
38	CERAMIC AND GLASS TILERS	Guzzo A 58 Botting st Albert Park	37873	Premise Match	135m	South West
	SOLID PLASTERERS	Guzzo A 58 Botting st Albert Park	38222	Premise Match	135m	South West
39	ENGINEERS (GENERAL MNFCTRNG. MECHANICAL)	Hurll Norman J & Co (Vic) P/L 957 Port rd Cheltenham	12803	Premise Match	142m	North West
	ENGINEERS (REPETITION)	Hurll Norman J & Co (Vic) P/L 957 Port rd Cheltenham	13565	Premise Match	142m	North West
40	MIXED BUSINESSES	Foster T D 22 Botting st Albert Park	9414	Premise Match	144m	North West
	DRAPERS	Henderson J 22 Botting st Albert Park	8216	Premise Match	144m	North West
	GROCERS & GENERAL STOREKEEPERS	Hendersons Food Mart 22 Botting st Albert Pk	26381	Premise Match	144m	North West

Business Directory Content Derived from Sands & McDougall's Directory of South Australia

1973 Business Directory Records Road or Area Matches

Records from the 1973 Sands & McDougall's Directory, 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.	Location Confidence	Approx. Dist. to Road Corridor or Area	Direction
41	Manufacturers (General)	Gadsden J Pty Ltd Glyde st Albert Park	39245	Road Match	7m	West
42	BUTTER, CREAM, CHEESE & MILK FACTORIES	Vidale Products Ltd 10 Port rd Albert Pk	30358	Road Match	10m	North
43	MONUMENTAL MASONS & MARBLE WORKERS	Cruett J G 10 Chippenham St Cheltenham	10890	Road Match	36m	North East
44	MOTOR GARAGES & SERVICE STATIONS	Tartletons Service Station 78 Port rd Wood	17741	Road Match	54m	East
45	TAXIS, PRIVATE BUSES AND OTHER HIRE SERVICES	Hann D M T James st Woodville West	2204	Road Match	65m	South East
46	BASKETMAKERS & WICKER WORKERS	SA Brush Co Botting st Albert Park	19725	Road Match	123m	West
	Brushmakers	SA Brush Co Ltd Botting st Albert Park	23428	Road Match	123m	West
	CRASH REPAIRS	Watkins Motors Pty Ltd Botting st Albert Pk	2798	Road Match	123m	West

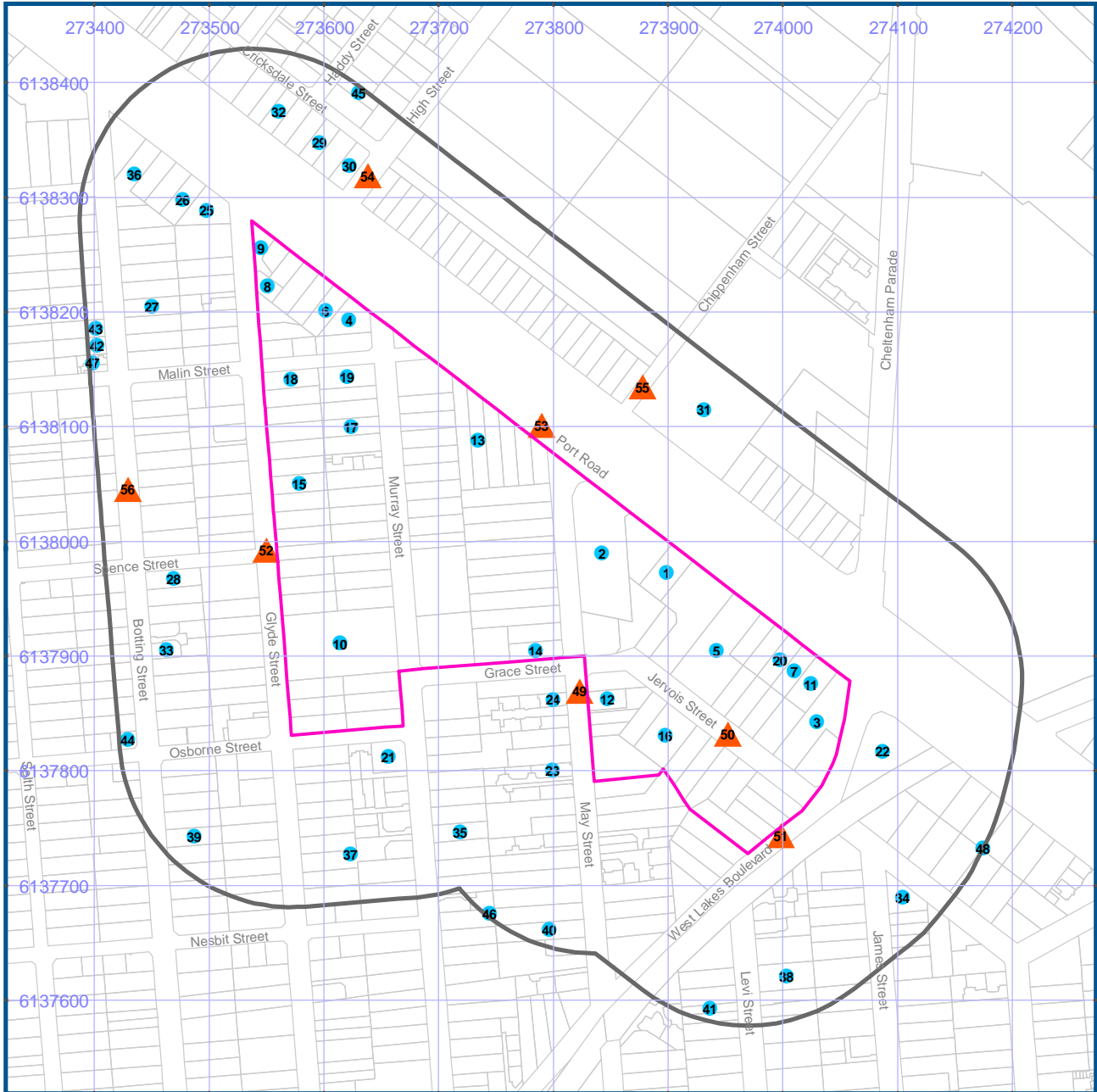
Business Directory Content Derived from Sands & McDougall's Directory of South Australia


Historical Business Directories





Port Road, Albert Park, SA 5014



1965 Business Directory Records



-  Site Boundary
-  Buffer 150m
-  Property Boundaries

-  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



Projected Coordinate System:
GDA94 MGA Zone 54

Data Sources: Sands & McDougall's Directory of South Australia, derived data
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Historical Business Directories

Port Road, Albert Park, SA 5014

1965 Business Directory Records Premise or Road Intersection Matches

Records from the 1965 Sands & McDougall's Directory, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	MOTOR WRECKERS	Ace Auto Wreckers 972 Port rd Albert Park	11960	Premise Match	0m	On-site
	CHEMICAL & FERTILIZER MANUFACTURERS	Leggo A V & Co Pty Ltd 972 Port rd Albert Pk	27139	Premise Match	0m	On-site
2	STEEL TUBE FABRICATION	Altubes Ltd 978-980 Port rd Albert Park	55247	Premise Match	0m	On-site
3	ENGINEERS (Manufacturing)	Atlas Copco Aust Pty Ltd 950 Port rd Albert Park	285	Premise Match	0m	On-site
	MACHINERY MERCHANTS	Atlas Copco Aust Pty Ltd 950 Port rd Albert Park	45977	Premise Match	0m	On-site
	MINING SUPPLIES	ATLAS COPCO AUST. PTY. LTD. 950 Port Road, Albert Park	50357	Premise Match	0m	On-site
	Air Compressors & Tools	ATLAS COPCO AUST. PTY. LTD., 950 Port Road, Albert Park	28443	Premise Match	0m	On-site
	QUARRY EQUIPMENT	ATLAS COPCO AUSTRALIA PTY. LTD. 950 Port Road, Albert Park.	49837	Premise Match	0m	On-site
4	PAINTERS, DECORATORS & GLAZIERS	Brolite (SA) Pty Ltd 996 Port rd Albert Park	18037	Premise Match	0m	On-site
5	TAXIS, PRIVATE BUSES AND OTHER HIRE SERVICES	Bulls Bus Hire Serv 962-964 Port rd Albert Pk	59564	Premise Match	0m	On-site
6	TOILET SALONS	Bungey Mrs E 998 Port rd Albert Park	4013	Premise Match	0m	On-site
7	ENGINEERS & PRESSWORKERS	F & V Pressed Metal Co 954-956 Port rd Albert Park	58079	Premise Match	0m	On-site
	METAL MERCHANTS & SMELTERS	F & V Pressed Metal Co Ltd 954-956 Port rd Albert Park	49143	Premise Match	0m	On-site
	METAL MERCHANTS & SMELTERS	Morrell C H Pty Ltd 956 Port rd Albert Park	49156	Premise Match	0m	On-site
8	BOOKSELLERS, LIBRARIES, STATIONERS & NEWSAGENTS	Forrest K S 1a Glyde st Albert Park	41298	Premise Match	0m	On-site
9	BOOKSELLERS, LIBRARIES, STATIONERS & NEWSAGENTS	Forrest W S F & Sons Ltd 1010 Port rd Albert Park	41299	Premise Match	0m	On-site
	PHYSICIANS, SURGEONS & OTHER MEMBERS OF THE MEDICAL PROFESSION	Peters Dr G E 1012 Port rd Albert Park	34892	Premise Match	0m	On-site
10	Manufacturers (General)	Gadsden J Pty Ltd 24 Murray st Albert Park	46133	Premise Match	0m	On-site
11	GALVANIZERS	Galvasteel Ltd 952 Port rd Albert Park	22594	Premise Match	0m	On-site
12	HAIRDRESSERS & TOBACCONISTS	Gles T P 11 May st Albert Park	36862	Premise Match	0m	On-site
13	CARAVANS	Globe Caravans Ltd 988-990 Port rd Albert Pk	8161	Premise Match	0m	On-site

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
13	Manufacturers (General)	Vidale Products Pty Ltd 992 Port rd Albert Park	47150	Premise Match	0m	On-site
14	Electricians & Electric Light Contractors	Godfrey K G 18 May st Albert Park	53236	Premise Match	0m	On-site
15	TINSMITHS	Harvey W C 21 Glyde st Albert Park	3127	Premise Match	0m	On-site
16	BAKERS & CAKE SHOPS & CATERERS	Oldfields Bakery Ltd Jervois st Albert Park	34473	Premise Match	0m	On-site
17	Electricians & Electric Light Contractors	Scott R 10 Murray st Albert Park	56033	Premise Match	0m	On-site
18	TAXIS, PRIVATE BUSES AND OTHER HIRE SERVICES	Swiggs E G 9 Glyde st Albert Park	1902	Premise Match	0m	On-site
19	Manufacturers (General)	Vidale Products Pty Ltd 6 Murray st Albert Park	47149	Premise Match	0m	On-site
20	ENGINEERS (CONSULTING)	Watkins E H 958 Port rd Albert Park	58212	Premise Match	0m	On-site
	FURNITURE MANUFACTURERS & FURNISHERS	Watkins Garden Furnishers 958 Port rd Albert Park	21423	Premise Match	0m	On-site
21	Electricians & Electric Light Contractors	Matthews H E 32 Murray st Albert Park	54908	Premise Match	12m	South West
22	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Woodville Service Station 948 Port rd Woodville West	9957	Premise Match	17m	South East
23	MOTOR PAINTERS & TRIMMERS	Addison A E S 32 May st Albert Park	10008	Premise Match	18m	South
24	WELDERS	Denton C H 24 May st Albert Park	13958	Premise Match	18m	South
25	CHEMISTS	ALBERT PARK: PORTER & PENHALL 1014 Port Road	28967	Premise Match	19m	North West
	MIXED BUSINESSES	Baird J & J 1018 Port rd Albert Park	50388	Premise Match	19m	North West
	PHYSICIANS, SURGEONS & OTHER MEMBERS OF THE MEDICAL PROFESSION	Peters G E 2a Glyde st Albert Park	34895	Premise Match	19m	North West
	CHEMISTS	PORTER & PENHALL 1014 Port Road Albert Park	28755	Premise Match	19m	North West
	CHEMISTS (Retail, Industrial & Manufacturing)	Porter & Penhall 1014 Port rd Albert Park	34078	Premise Match	19m	North West
	BUTCHERS	Reyal G W & E 1016 Port rd Albert Park	2645	Premise Match	19m	North West
26	GROCERS & GENERAL STOREKEEPERS	Woodhead T C & L McG 1022-1024 Port rd Albert Park	35792	Premise Match	50m	North West
27	TRAVEL AGENTS	Rokkas A 11 Botting st Albert Park	7285	Premise Match	67m	North West
28	PAINTERS, DECORATORS & GLAZIERS	Johncock A H 39 Botting st Albert Park	21939	Premise Match	68m	West
29	PHYSICIANS, SURGEONS & OTHER MEMBERS OF THE MEDICAL PROFESSION	Burke D 939 Port rd Cheltenham	30642	Premise Match	70m	North West
30	MONUMENTAL MASONS & MARBLE WORKERS	Jordan H L 935 Port rd Cheltenham	54692	Premise Match	70m	North
31	ENGINEERS (Mechanical & General)	Acrow Pty Ltd 873 Port rd Cheltenham	343	Premise Match	71m	North East
	TELEVISION EQUIPMENT	General Motors Hoidens Ltd 879-895 Port rd Cheltenham	2015	Premise Match	71m	North East
	MOTORS & ACCESSORIES	General Motors Holdens Pty Ltd 879-895 Port rd Cheltenham	12129	Premise Match	71m	North East
	REFRIGERATOR MAKERS & MERCHANTS	Kelvinator (Aust) Ltd 2 Chippenham st Cheltenham	51724	Premise Match	71m	North East

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
32	CABINET MAKERS & FRENCH POLISHERS	Mathews C S 945 Port rd Cheltenham	5955	Premise Match	77m	North West
33	WELDERS	Edwards L R R 47 Botting st Albert Park	15262	Premise Match	90m	West
34	TAXIS, PRIVATE BUSES AND OTHER HIRE SERVICES	Hann D M 1 James st Woodville West	587	Premise Match	90m	South East
35	BUTCHERS	White C E 55 Murray st Albert Park	3952	Premise Match	91m	South
36	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Lloyd Watkins Motors Ltd 1032 Port rd Albert Park	3317	Premise Match	92m	North West
	USED CAR DEALERS	Lloyd Watkins Used Cars 1032 Port rd Albert Park	9407	Premise Match	92m	North West
	USED CAR DEALERS	Watkins Motors Pty Ltd 1032 Port rd Albert Park	10572	Premise Match	92m	North West
37	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Matthews A E 51 Glyde st Albert Park	4237	Premise Match	95m	South West
38	ENGINEERS (Electrical)	Shearer I 5 Levi st Woodville West	59293	Premise Match	98m	South East
39	DRAPERS	Broadbent J M 63 Botting st Albert Park	45841	Premise Match	100m	South West
40	MIXED BUSINESSES	Travnicer A 50 May st Albert Park	53788	Premise Match	121m	South
41	SURVEYORS	Smith G C 8 Levi st Woodville West	57350	Premise Match	130m	South East
42	BUTCHERS	Dunstan J R 20 Botting st Albert Park	57763	Premise Match	134m	North West
	GROCERS & GENERAL STOREKEEPERS	Hendersons Food Mart 20a Botting st Albert Park	30287	Premise Match	134m	North West
43	TOILET SALONS	Salon 64 18 Botting st Albert Park	5223	Premise Match	134m	North West
44	Delicatessens & Ham & Beef Shops	Schilling M L 58 Botting st Albert Park	43532	Premise Match	135m	South West
45	Electricians & Electric Light Contractors	Dunstone C 4 Haddy st Cheltenham	53110	Premise Match	140m	North
46	CARPENTERS & JOINERS	Devak J 65 Murray st Albert Park	11206	Premise Match	141m	South
47	MIXED BUSINESSES	Foster T D 22 Botting st Albert Park	51379	Premise Match	144m	North West
	DRAPERS	Henderson J 22 Botting st Albert Park	46766	Premise Match	144m	North West
	GROCERS & GENERAL STOREKEEPERS	Hendersons Food Mart 22 Botting st Albert Pk	30286	Premise Match	144m	North West
48	CASTERS (Steel)	Hannaford A & Co Ltd 936-938 Port rd Woodville West	26995	Premise Match	149m	South East

Business Directory Content Derived from Sands & McDougall's Directory of South Australia

1965 Business Directory Records Road or Area Matches

Records from the 1965 Sands & McDougall's Directory, 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.	Location Confidence	Approx. Dist. to Road Corridor or Area	Direction
49	MOTORS & ACCESSORIES	All-British Motor House Ltd May st Albert Pk	12007	Road Match	0m	On-site
50	ENGINEERS (Mechanical & General)	Price R V 28 Jervois st Albert Park	7532	Road Match	0m	On-site
	ENGINEERS (Mechanical & General)	Watkins E 22 Jervois st Albert Park	9662	Road Match	0m	On-site

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Approx. Dist. to Road Corridor or Area	Direction
51	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Kitchen P S 113 Clark ter Albert Park	2341	Road Match	6m	South East
52	Manufacturers (General)	Gadsden J Pty Ltd Glyde st Albert Park	46132	Road Match	7m	West
53	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Woodville Motor Parking Station Port rd Albert Park	9956	Road Match	10m	North
54	MONUMENTAL MASONS & MARBLE WORKERS	Jordan H L 9 High st Cheltenham	54691	Road Match	35m	North
	MONUMENTAL MASONS & MARBLE WORKERS	Morgan G E High st Cheltenham	54704	Road Match	35m	North
55	MONUMENTAL MASONS & MARBLE WORKERS	Cruett J G Chippenham st Cheltenham	54671	Road Match	36m	North East
56	Basketmakers & Wickerworkers	SA Brush Co Botting st Albert Park	36410	Road Match	123m	West
	Brushmakers	SA Brush Co Ltd Botting st Albert Park	43449	Road Match	123m	West
	CRASH REPAIRS	Watkins Motors Pty Ltd Botting st Albert Pk	38194	Road Match	123m	West

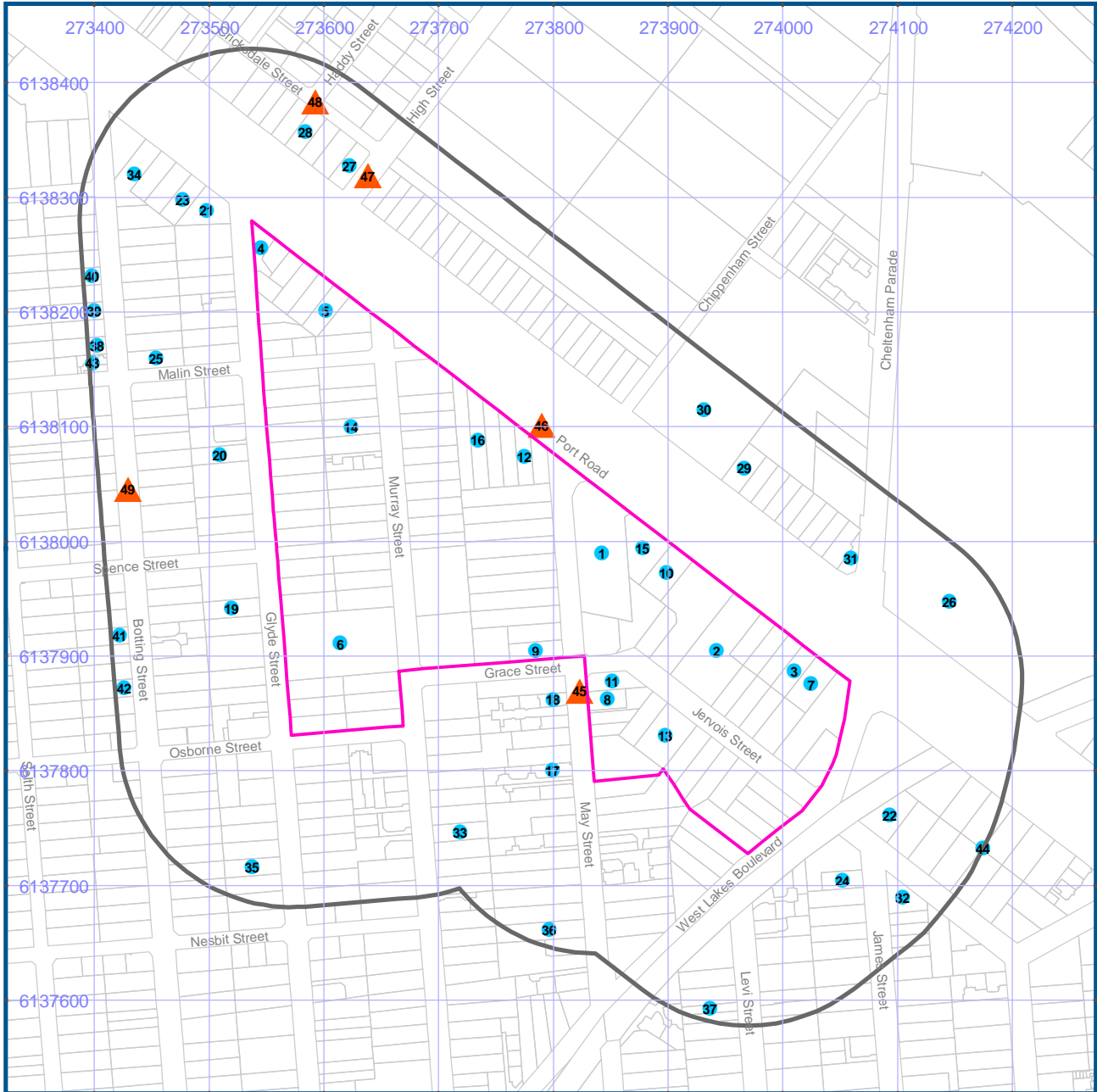
Business Directory Content Derived from Sands & McDougall's Directory of South Australia



Historical Business Directories





Port Road, Albert Park, SA 5014



1955 Business Directory Records



-  Site Boundary
-  Buffer 150m
-  Property Boundaries

-  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



Projected Coordinate System:
GDA94 MGA Zone 54

Data Sources: Sands & McDougall's Directory of South Australia, derived data
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Historical Business Directories

Port Road, Albert Park, SA 5014

1955 Business Directory Records Premise or Road Intersection Matches

Records from the 1955 Sands & McDougall's Directory, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	STEEL TUBE FABRICATION	Altubes Ltd 978-980 Port rd Albert Park	647	Premise Match	0m	On-site
2	TAXIS, PRIVATE BUSES & OTHER HIRE SERVICES	Bulls Bus Hire Serv 962-964 Port rd Albert Pk	3133	Premise Match	0m	On-site
3	ENGINEERS & PRESSWORKERS	F & V Pressed Metal Co 954-956 Port rd Albert Park	32308	Premise Match	0m	On-site
4	MIXED BUSINESSES	Forrest K S, 1010-1012 Port rd, Albert Park	17322	Premise Match	0m	On-site
5	CHEMISTS (Retail, Industrial & Manufacturing)	Friendly Societies Medical Assn Inc 998 Port rd Albert Park	22785	Premise Match	0m	On-site
6	TINPLATE PRINTERS	GADSDEN J PTY LTD 24 Murray Street Albert Park	4560	Premise Match	0m	On-site
	BAG & SACK MANUFACTURERS	GADSDEN, J. PTY. LTD. 24 Murray Street, Albert Park.	36092	Premise Match	0m	On-site
	CANISTER MAKERS	GADSDEN, J. PTY. LTD. 24 Murray Street, Albert Park.	15073	Premise Match	0m	On-site
7	GALVANIZERS	Galvasteel Ltd 952 Port rd Albert Park	1811	Premise Match	0m	On-site
8	Hairdressers & Tobacconists	Giles T P 11 May st Albert Park	11479	Premise Match	0m	On-site
9	Electricians & Electric Light Contractors	Godfrey K G 18 May st Albert Park	30881	Premise Match	0m	On-site
10	CHEMICAL & FERTILIZER MANUFACTURERS	Leggo A V & Co Pty Ltd 972 Port rd Albert Pk	21903	Premise Match	0m	On-site
	MERCHANTS, IMPORTERS & WAREHOUSEMEN	LEGGO A. VICTOR & CO. PTY. LTD 972 Port Road Woodville	16339	Premise Match	0m	On-site
11	CABINET MAKERS & FRENCH POLISHERS	Mooney B W 9 May st Albert Park	14397	Premise Match	0m	On-site
12	Machinery Merchants	Morrell C H 982-936 Port rd Albert Park	15654	Premise Match	0m	On-site
13	BAKERS, CAKE SHOPS & CATERERS	Oldfields Bakery Ltd Jervois st Albert Park	37434	Premise Match	0m	On-site
14	Plumbers	Roberts L M 10 Murray st Albert Park	36440	Premise Match	0m	On-site
15	Airways Services	Rural Aviation Co 974 Port rd Albert Park	34468	Premise Match	0m	On-site
16	CABINET MAKERS & FRENCH POLISHERS	Smith A Ltd 988-990 Port rd Albert Park	14477	Premise Match	0m	On-site
	Manufacturers (General)	Vidale Food Prod Ltd 992 Port rd Albert Park	15872	Premise Match	0m	On-site
17	MOTOR PAINTERS & TRIMMERS	Addison A E S 32 May st Albert Park	23144	Premise Match	18m	South
18	Welders	Denton C H 24 May st Albert Park	10130	Premise Match	18m	South
19	Carpenters & Joiners	Pauk A 38 Glyde st Albert Park	18129	Premise Match	18m	West
20	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Robinson A R 26 Glyde st Albert Park	22021	Premise Match	18m	West

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
21	PHYSICIANS & SURGEONS	Lovell K E 2a Glyde st Albert Park	30828	Premise Match	19m	North West
	PHYSICIANS & SURGEONS	Peters B H 2a Glyde st Albert Park	31517	Premise Match	19m	North West
	PHYSICIANS & SURGEONS	Peters G E 2a Glyde st Albert Park	31521	Premise Match	19m	North West
	CHEMISTS (Retail, Industrial & Manufacturing)	Porter & Penhall 1014 Port rd Albert Park	23340	Premise Match	19m	North West
	MIXED BUSINESSES	Richard W K 1018 Port rd Albert Park	18282	Premise Match	19m	North West
	Butchers	Simmons J R 1016 Port rd Albert Park	12432	Premise Match	19m	North West
	Butchers	Simmons J R 2 Glyde st Albert Park	12433	Premise Match	19m	North West
22	Butchers	Leach I G 1 Jervois st Woodville West	12842	Premise Match	43m	South East
23	Hairdressers & Tobacconists	Roach H 1020 Port rd Albert Park	12117	Premise Match	50m	North West
	GROCERS & GENERAL STOREKEEPERS	Woodhead T C & L McG 1022-1024 Port rd Albert Park	7610	Premise Match	50m	North West
24	Manufacturers (General)	Sellicks T A 2a James st Woodville West	15847	Premise Match	53m	South East
25	Butchers	Osborne D E 17 Bolting st Albert Park	13372	Premise Match	67m	North West
26	TAILORS, MERCERS & MEN'S WEAR	Fazzalari L 854 Port rd Woodville South	2236	Premise Match	69m	East
27	MONUMENTAL MASONS & MARBLE WORKERS	Jordan H L 935 Port rd Cheltenham	18511	Premise Match	70m	North
28	PAINTERS, DECORATORS & GLAZIERS	Wilson M 941 Port rd Cheltenham	28433	Premise Match	70m	North West
29	PLASTERERS	Dick A R 871 Port rd Cheltenham	33373	Premise Match	71m	North East
30	REFRIGERATOR MAKERS & MERCHANTS	Kelvinator (Aust) Ltd 2 Chippenham st Cheltenham	39186	Premise Match	71m	North East
	REFRIGERATOR MAKERS & MERCHANTS	Kelvinator Aust Ltd 879-895 Port rd Cheltenham	39183	Premise Match	71m	North East
31	MIXED BUSINESSES	Lees Miss E 869 Port rd Cheltenham	17804	Premise Match	71m	East
32	GROCERS & GENERAL STOREKEEPERS	McNeill R C 1 James st Woodville West	9828	Premise Match	90m	South East
33	Butchers	White C E 55 Murray st Albert Park	13794	Premise Match	91m	South
34	MOTORS & ACCESSORIES	Lloyd-Watkins Motors 1028-1032 Port rd Albert Park	23762	Premise Match	92m	North West
35	Hairdressers & Tobacconists	Roach H 60 Glyde st Albert Park	12118	Premise Match	107m	South West
36	MIXED BUSINESSES	Dagger & Carmichael ,50 May st Albert Park	17258	Premise Match	121m	South
37	Carpenters & Joiners	Smith G C 8 Levi st Woodville West	18739	Premise Match	130m	South East
38	Butchers	Dixon J S 20 Botting st Albert Park	11227	Premise Match	134m	North West
39	TOILET SALONS	Hoare V A 18 Botting st Albert Park	4716	Premise Match	134m	North West
40	Carriers & Haulage Contractors	Cowie R 12 Botting st Albert Park	21312	Premise Match	135m	North West
41	Carriers & Haulage Contractors	Savage A 46 Botting st Albert Park	20720	Premise Match	135m	West
	Carriers & Haulage Contractors	Savage C 46 Botting st Albert Park	20723	Premise Match	135m	West
42	Carpenters & Joiners	Wilson S C 52 Botting st Albert Park	19324	Premise Match	135m	West
43	GROCERS & GENERAL STOREKEEPERS	Henderson Bros 22 Botting st Albert Park	8331	Premise Match	144m	North West

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
44	CHAFF & GRAIN MERCHANTS	Hannaford A & Co Ltd 936-938 Port rd Woodville West	21833	Premise Match	149m	South East
	Agricultural Implement Makers & Importers	HANNAFORD, ALF & CO. LTD. 936-940 Port Road, Woodville.	34430	Premise Match	149m	South East
	Machinery Merchants	HANNAFORD, ALF.. & CO. LTD.936-940 Port Road, Woodville	15644	Premise Match	149m	South East

Business Directory Content Derived from Sands & McDougall's Directory of South Australia

1955 Business Directory Records Road or Area Matches

Records from the 1955 Sands & McDougall's Directory, 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.	Location Confidence	Approx. Dist. to Road Corridor or Area	Direction
45	MOTORS & ACCESSORIES	All-British Motor House Ltd May st Albert Pk	23623	Road Match	0m	On-site
46	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Woodville Motor Parking Station Port rd Albert Park	23110	Road Match	10m	North
47	MONUMENTAL MASONS & MARBLE WORKERS	Jordan H L 9 High st Cheltenham	18510	Road Match	35m	North
	MONUMENTAL MASONS & MARBLE WORKERS	Morgan G E High st Cheltenham	18518	Road Match	35m	North
48	FIBROUS PLASTER MANUFACTURERS & MODELLERS	Tanner W Cricksdale st Cheltenham	38765	Road Match	114m	North
49	OIL REFINERS & IMPORTERS	Kean Oil Pty Ltd Botting st Albert Park	24788	Road Match	123m	West
	Basketmakers & Wickerworkers	SA Brush Co Botting st Albert Park	38803	Road Match	123m	West

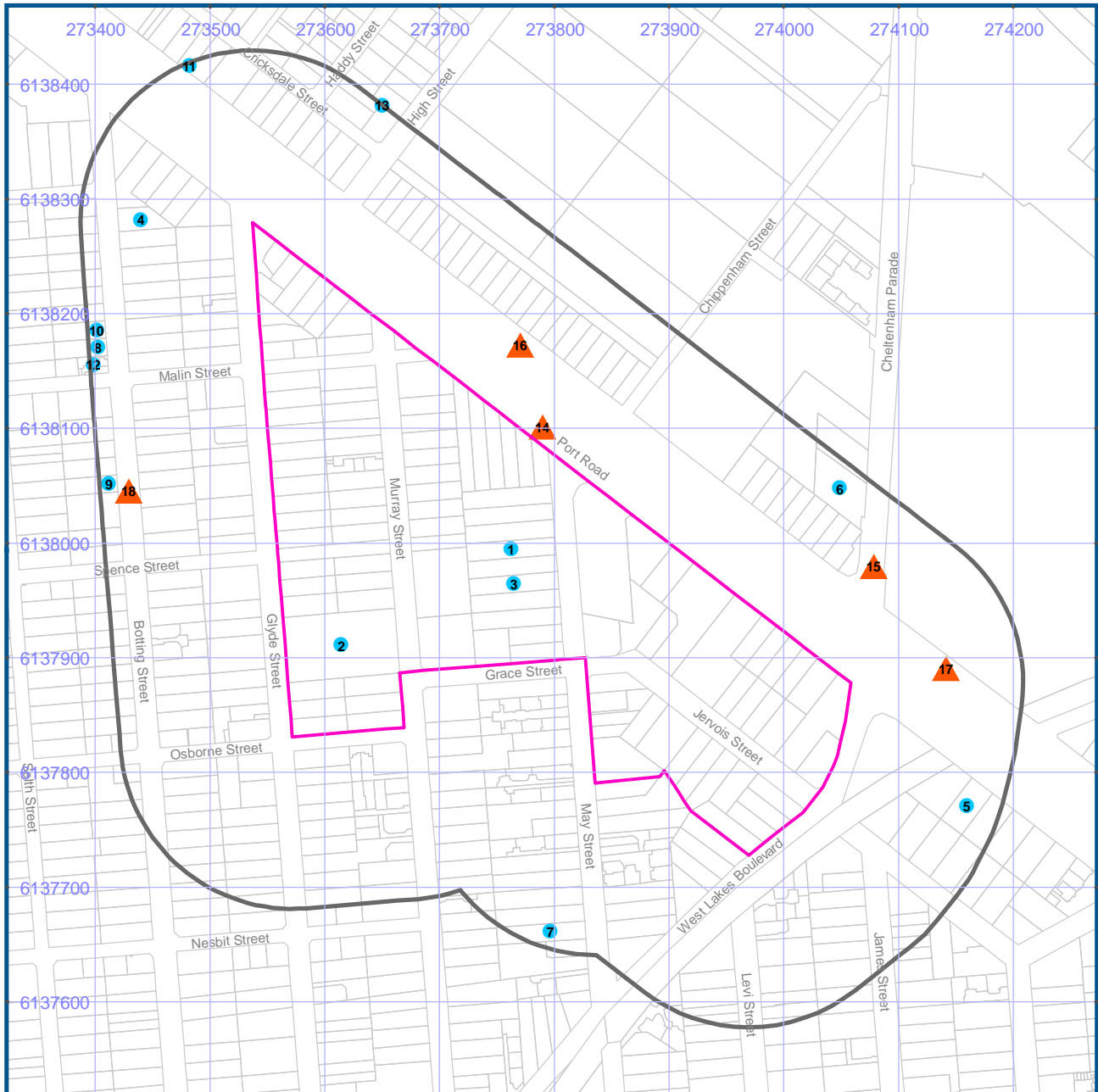
Business Directory Content Derived from Sands & McDougall's Directory of South Australia

Historical Business Directories





Port Road, Albert Park, SA 5014



1950 Business Directory Records



-  Site Boundary
-  Buffer 150m
-  Property Boundaries

-  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



Projected Coordinate System:
GDA94 MGA Zone 54

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Historical Business Directories

Port Road, Albert Park, SA 5014

1950 Business Directory Records Premise or Road Intersection Matches

Records from the 1950 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	MOTOR ASSEMBLY WORKS	Adelaide Motors Ltd., May St., Woodville	13465	Premise Match	0m	On-site
2	BAG & SACK MANUFACTURERS & MERCHANTS	Gadsden, J., Pty. Ltd., 24 Murray St., Albert Park	827	Premise Match	0m	On-site
	CANISTER MANUFACTURERS & MERCHANTS	Gadsden, J., Pty. Ltd., 24 Murray St., Albert Park	3223	Premise Match	0m	On-site
	TINPLATE PRINTERS .	Gadsden, J., Pty. Ltd., 24 Murray St., Albert Park	18097	Premise Match	0m	On-site
3	BUILDERS & BUILDINGS CONSTRUCTORS	Martin & Salt., 12 May St., Albert Park	2268	Premise Match	0m	On-site
4	PHYSIOTHERAPISTS	Watson, M. C., 1 Botting St., Albert Park	15609	Premise Match	67m	North West
5	JOINERY MANUFACTURERS	Hurren & Lunam., 194 Port Rd., Woodville	11093	Premise Match	104m	South East
6	FOUNDERS-IRON & STEEL	Cheltenham Foundry (Keene & Knowles, Proprs.), 3 Cheltenham Pde., Cheltenham	7685	Premise Match	111m	East
	FOUNDERS-IRON & STEEL	Cheltenham Foundry., 3 Cheltenham Pde., Cheltenham.	7699	Premise Match	111m	East
	FOUNDERS-BRASS	Cheltenham Foundry., 3 Cheltenham Pde., Cheltenham	7657	Premise Match	111m	East
	ENGINEERS-MARINE	Richards, P. W., & Smith., 3 Cheltenham Pde., Cheltenham	6946	Premise Match	111m	East
	PULLEYS	Richards, P. W., & Smith., 3 Cheltenham Pde., Cheltenham	16173	Premise Match	111m	East
	ENGINEERS-GENERAL, MECHANICAL & MANUFACTURING	Richards, P. W., & Smyth., 3 Cheltenham Pde., Cheltenham	6755	Premise Match	111m	East
	ENGINEERS-GENERAL, MECHANICAL & MANUFACTURING	Richards, P. W., & Smyth., 3 Cheltenham Pde., Cheltenham	6872	Premise Match	111m	East
	PUMPS & PUMPING EQUIPMENT	Richards, P. W., & Smyth., 3 Cheltenham Pde., Cheltenham	16181	Premise Match	111m	East
	PUMPS & PUMPING EQUIPMENT	Richards, P. W., & Smyth., 3 Cheltenham Pde., Cheltenham	16191	Premise Match	111m	East
	WINCHES & HAULING GEAR	Richards, P. W., & Smith., 3 Cheltenham Pde., Cheltenham	19027	Premise Match	111m	East
7	MIXED BUSINESSES	Dagger & Carmichael., 50 May St., Albert Park	12602	Premise Match	121m	South
8	BUTCHERS-RETAIL	Dixon, J. S., & Sons., 20 Botting St., Albert Park	2686	Premise Match	134m	North West
9	TOBACCONISTS	Henderson Bros., 32 Botting St., Albert Park	18217	Premise Match	134m	West
10	BEAUTY SALONS & LADIES' HAIRDRESSERS	Maree Beauty Salon., 18 Botting St., Albert Park	1263	Premise Match	134m	North West
11	NOVELTY MANUFACTURERS	Davey, A. W. G., & Sons Ltd., 69-71 Port Rd., Cheltenham	14801	Premise Match	142m	North West

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
12	DRAPERS-RETAIL	Henderson Bros., 22 Botting St., Albert Park	5727	Premise Match	144m	North West
	GROCERS-RETAIL	Henderson Bros., 22 Botting St., Albert Park	8827	Premise Match	144m	North West
	GROCERS-RETAIL	Henderson Bros., 22 Botting St., Albert Park	8880	Premise Match	144m	North West
13	WROUGHT IRON WORKERS	Wilson, W. E., 1 High St., Cheltenham	19324	Premise Match	150m	North

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1950 Business Directory Records Road or Area Matches

Records from the 1950 UBD Business Directory, 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.	Location Confidence	Approx. Dist. to Road Corridor or Area	Direction
14	REFLECTOR MANUFACTURERS	Altubes Ltd., Port Rd, Albert Park	16412	Road Match	10m	North
	ELECTRICAL APPLIANCE & EQUIPMENT MANUFACTURERS	Atubes Ltd., Port Rd., Albert Park	6236	Road Match	10m	North
	TOBACCONISTS	Forrest, W., Port Rd., Albert Park	18194	Road Match	10m	North
	SHINE TOOLS	Morrell, C. H., Port Rd. Albert Park	11616	Road Match	10m	North
	ENGINEERS' SUPPLIES	Morrell, C. H., Port Rd., Albert Park	7041	Road Match	10m	North
	ENGINEERS' SUPPLIES	Morrell, C. H., Port Rd., Albert Park	7055	Road Match	10m	North
	MACHINERY MERCHANTS	Morrell, C. H., Port Rd., Albert Park	11640	Road Match	10m	North
	METAL MERCHANTS	Morrell, C. H., Port Rd., Albert Park	12271	Road Match	10m	North
	SHINE TOOLS	Morrell, C. H., Port Rd., Albert Park	11627	Road Match	10m	North
	MACHINERY MERCHANTS	Morrell, C. H., Port Rd., Albert Park	11658	Road Match	10m	North
	METAL MERCHANTS	Morrell, C. H., Port Rd., Albert Park	12264	Road Match	10m	North
	TOBACCONISTS	Porter, K. S., Port Rd., Albert Park	18310	Road Match	10m	North
	WOOD & ICE MERCHANTS	Silva, N. J., & Sons., 118 Port Rd., Albert Park	19215	Road Match	10m	North
15	MACHINERY DESIGNERS & MANUFACTURERS	Richards, P. W., & Smith., 3 Cheltenham Pde., Cheltenham	11635	Road Match	35m	East
16	METAL MERCHANTS	Aims, Albert G., Ltd., 7 Port Rd., Alberton East	12265	Road Match	54m	North
	MOTOR GARAGES, ENGINEERS & SERVICE STATIONS	Albert Park Motor Garage., 49 Port Rd., Cheltenham	13894	Road Match	54m	North
	MOTOR GARAGES, ENGINEERS & SERVICE STATIONS	McLaughlin Motors., 47 Port Rd., Cheltenham	14049	Road Match	54m	North
	MOTOR PAINTERS	McLaughlin Motors., 47 Port Rd., Cheltenham	14292	Road Match	54m	North
	METAL PRESSING EQUIPMENT	Metal Refiners Sims, Albert G., Ltd., 7 Port Rd., Alberton East	12281	Road Match	54m	North
	BUILDERS & BUILDING CONTRACTORS	O'Byrne, W. J., 7 Port Rd., Alberton East	2297	Road Match	54m	North

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Approx. Dist. to Road Corridor or Area	Direction
16	METAL MERCHANTS	Sims, Albert G., Ltd. (Inc. in N.S.W.), 7 Port Rd., Alberton East	12273	Road Match	54m	North
	METAL PRESSING EQUIPMENT	Sims, Albert G., Ltd. (Inc. in N.S.W.), 7 Port Rd., Alberton East	12283	Road Match	54m	North
	CANISTER MANUFACTURERS & MERCHANTS	Union Can Co., 39 Port Rd., Cheltenham	3226	Road Match	54m	North
	TINPLATE PRINTERS .	Union Can Co., 39 Port Rd., Cheltenham	18099	Road Match	54m	North
17	SEEDSMEN & NURSERYMEN	Carter Bros., Port Rd., Woodville	16967	Road Match	54m	East
	MOTOR BODY REPAIRS	General Motors Holdens Ltd., Port Rd., Woodville	13495	Road Match	54m	East
	AGRICULTURAL MACHINERY MANUFACTURERS	Hannaford, Alf, & Co. Ltd., Port Rd., Woodville	280	Road Match	54m	East
	SEED GRADING MACHINERY	Hannaford, Alf, & Co. Ltd., Port Rd., Woodville	16947	Road Match	54m	East
	SEED GRADING MACHINERY	Hannaford, Alf, & Co. Ltd., Port Rd., Woodville	16948	Road Match	54m	East
	AGRICULTURAL MACHINERY MANUFACTURERS	Hannaford, Alf., & Co. Ltd., Port Rd., Woodville.	275	Road Match	54m	East
	WOOD & ICE MERCHANTS	McDonald, E., Port Rd., Woodville	19179	Road Match	54m	East
	MACHINERY DESIGNERS & MANUFACTURERS	Noblet & Forrest Ltd., Port Rd., Woodville	11630	Road Match	54m	East
	CARRIERS & CARTAGE CONTRACTORS	Scott, S. C. & V. H., Port Rd., Woodville	3583	Road Match	54m	East
	SALVAGE COMPANIES & DEALERS	Western Salvage Co., Port Rd., Woodville	16643	Road Match	54m	East
	HOTELS-LICENSED	Woodville Hotel., Port Rd., Woodville	10359	Road Match	54m	East
18	BRUSHWARE & BROOM MANUFACTURERS	S.A. Brush Co. Ltd., Botting St., Albert Park	1947	Road Match	123m	West
	BRUSHWARE & BROOM MANUFACTURERS	S.A. Brush Co. Ltd., Botting St., Albert Park	1954	Road Match	123m	West

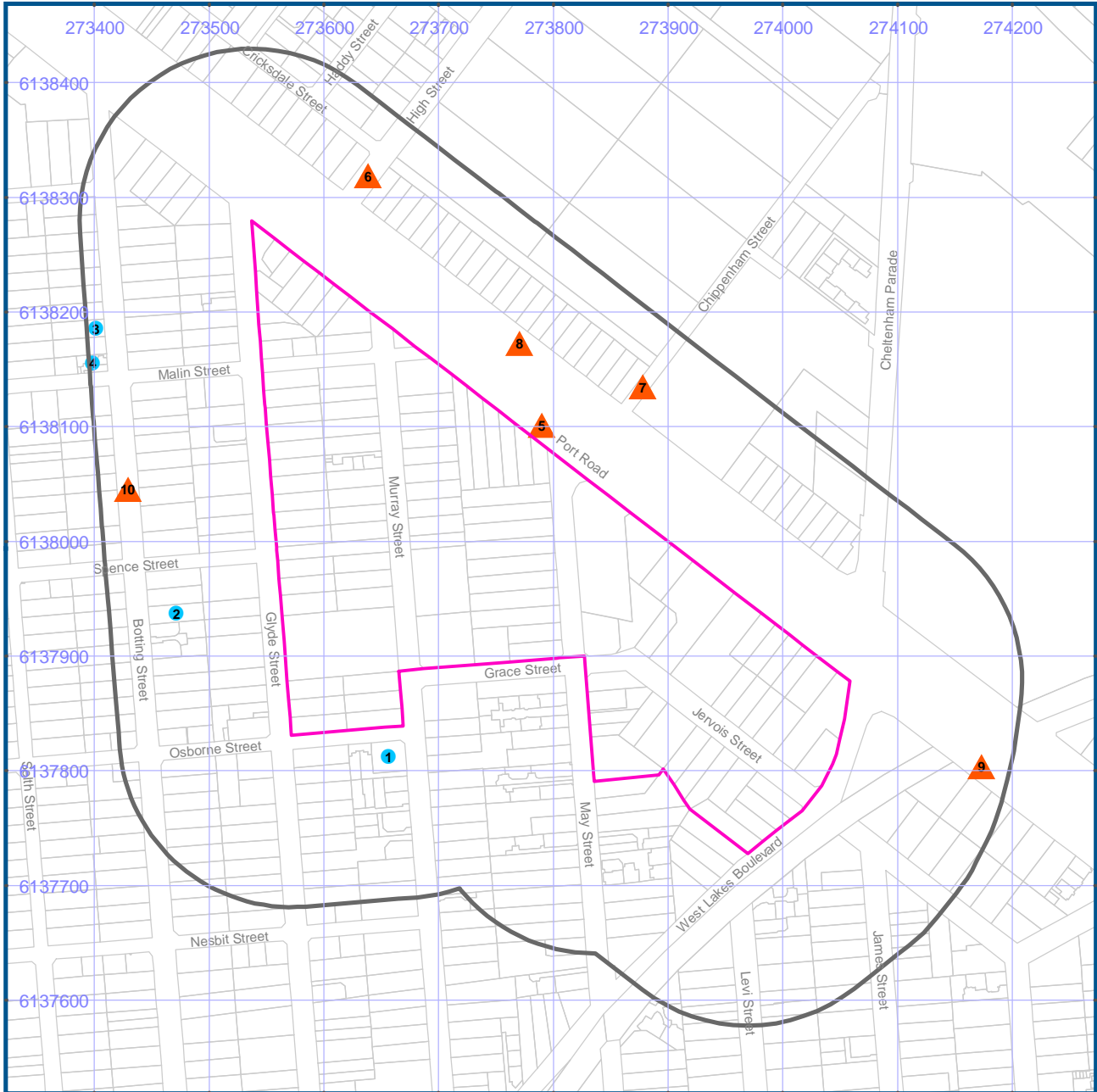
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Historical Business Directories





Port Road, Albert Park, SA 5014



1940 Business Directory Records



-  Site Boundary
-  Buffer 150m
-  Property Boundaries

-  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



Projected Coordinate System:
GDA94 MGA Zone 54

Data Sources: Sands & McDougall's Directory of South Australia, derived data
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Historical Business Directories

Port Road, Albert Park, SA 5014

1940 Business Directory Records Premise or Road Intersection Matches

Records from the 1940 Sands & McDougall's Directory, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	Carters and Carriers	Mathews, H. E., 32 Murray st, Albert Park	17295	Premise Match	12m	South West
2	CABINET MAKERS, FRENCH POLISHERS (Proprietors only)	Smith. A., 43 Botting st, Albt Park	15637	Premise Match	68m	West
3	Mixed Businesses	McGrice, V., 18 Botting st, Albert Park	5867	Premise Match	134m	North West
4	Drapers	Henderson Bros., 22 Botting st, Albert Park	19618	Premise Match	144m	North West

Business Directory Content Derived from Sands & McDougall's Directory of South Australia

1940 Business Directory Records Road or Area Matches

Records from the 1940 Sands & McDougall's Directory, 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.	Location Confidence	Approx. Dist. to Road Corridor or Area	Direction
5	BOOKSELLERS, STATIONERS, AND NEWSAGENTS	Forrest, W. S. Port rd, Albert Park	11890	Road Match	10m	North
6	MARBLE WORKERS AND MONUMENTAL MASONS	Jordan, H. L., High st, Cheltenham	4139	Road Match	35m	North
	MARBLE WORKERS AND MONUMENTAL MASONS	Morgan G. E. & Sons, High st, Cheltenham	4147	Road Match	35m	North
7	MATTRESS - MAKERS (Wire, etc.)	JOYCE BROS. PTY. LTD., Chippenham Street, Cheltenham.	5176	Road Match	36m	North East
	BAG AND SACK MANUFACTURERS	JOYCE BROS.PTY. LTD, CHIPPENHAM STREET, CHELTENHAM	8890	Road Match	36m	North East
8	Wireworkers And Weavers	Blumson, W. S., Port rd, Alberton East	17457	Road Match	54m	North
	TOILET SALONS	Brookman, Miss E., Port rd, Alberton East	15346	Road Match	54m	North
	Motor Engineers, Garages And Service Stations	Laing, E., Port rd, Alberton E	6926	Road Match	54m	North
	TINPLATE PRINTERS	Union Can Co., Port rd, Alberton East	14948	Road Match	54m	North
	TINSMITHS	Union Can Co., Port rd. Alberton East	14979	Road Match	54m	North
9	CHAFF AND GRAIN MERCHANTS	Hannaford, A.. & Co., Port rd, Woodville West	17592	Road Match	100m	East

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Approx. Dist. to Road Corridor or Area	Direction
9	AGRICULTURAL IMPLEMENT MAKERS AND IMPORTERS	HANNAFORD, ALF. & CO., LTD., Port Road, Woodville West	8417	Road Match	100m	East
10	GROCERS AND PROVISION DEALERS	Henderson Bros, Botting st. Albert Park	1174	Road Match	123m	West
	OIL REFINERIES	Kean Oil Products Co., Botting st, Albert Park	8034	Road Match	123m	West

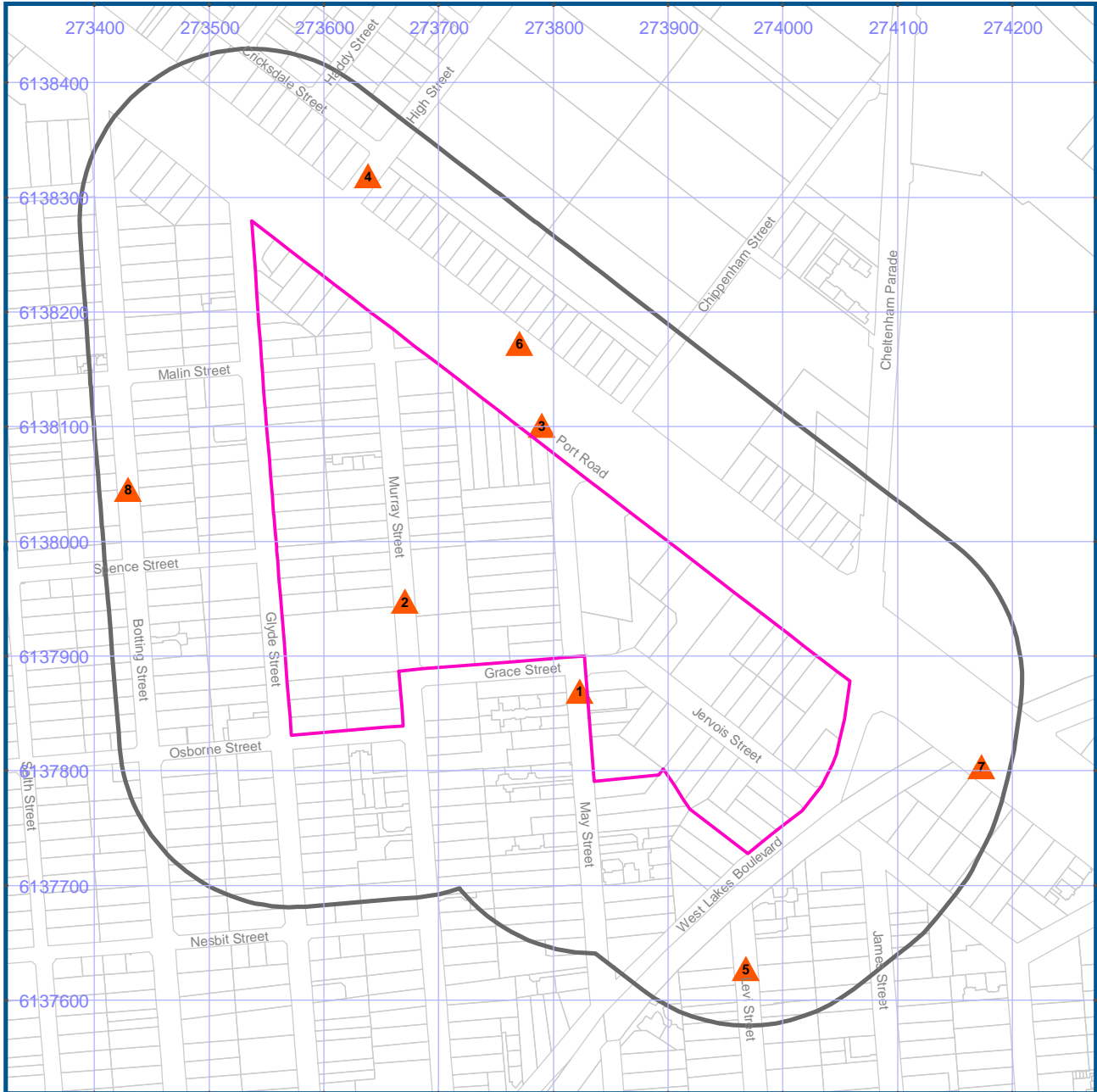
Business Directory Content Derived from Sands & McDougall's Directory of South Australia









Historical Business Directories

Port Road, Albert Park, SA 5014



1930 Business Directory Records



	Site Boundary		Business directory records mapped to a specific premise	 N
	Buffer 150m		Business directory records mapped to a road intersection	
	Property Boundaries		Business directory records mapped to a road corridor	
			Business directory records mapped to a general area	

Projected Coordinate System:
GDA94 MGA Zone 54

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Historical Business Directories

Port Road, Albert Park, SA 5014

1930 Business Directory Records Premise or Road Intersection Matches

Records from the 1930 Sands & McDougall's Directory, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	No records in buffer					

Business Directory Content Derived from Sands & McDougall's Directory of South Australia

1930 Business Directory Records Road or Area Matches

Records from the 1930 Sands & McDougall's Directory, 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.	Location Confidence	Approx. Dist. to Road Corridor or Area	Direction
1	Storekeepers (General)	Harkness, Mrs. L., May ter, Albert Park	8578	Road Match	0m	On-site
2	Carters and Carriers	Mathews, H, Murray st, Albert Park	12447	Road Match	0m	On-site
3	BOOKSELLERS, STATIONERS, AND NEWSAGENTS	Forrest, W. S, Port rd, Albert Park	6224	Road Match	10m	North
	Accountants and Agents	Gamblings Ltd, Port rd, Albert P	748	Road Match	10m	North
	Ham And Beef Shops	Gill, Mrs Lilian M, Port rd, Albert Park	19840	Road Match	10m	North
	CONFECTIONERS (Retail), AND COOL DRINKS	Gill, Mrs Lilian M, Port rd, Albert Park	14266	Road Match	10m	North
	MANUFACTURERS' AGENTS	Ireland, J, & Co, Port rd, Albert Park	21554	Road Match	10m	North
	Ham And Beef Shops	Mills, J. H, Port rd, Albert Park	19889	Road Match	10m	North
	Bootmakers And Boot Shops	Penny P. A, Port rd, Albert Pk	7153	Road Match	10m	North
	Hairdressers	Roach, H, Port rd. Albert Park	19389	Road Match	10m	North
4	MARBLE WORKERS AND MONUMENTAL MASONS	Laycock, Wm, High st, Cheltenham	21664	Road Match	35m	North
	MARBLE WORKERS AND MONUMENTAL MASONS	Morgan G. E. & Sons, High st, Cheltenham	21673	Road Match	35m	North
	MUSIC TEACHERS	Trevithick Miss L, High st, Cheltenham	2123	Road Match	35m	North
5	STOREKEEPERS	Burford, C. M., Levi st, Woodville West	7536	Road Match	51m	South East
6	MIXED BUSINESSES	Arthur, W., Port rd, Cheltenham	24127	Road Match	54m	North

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Approx. Dist. to Road Corridor or Area	Direction
6	PETROL STORAGE SYSTEMS AND SERVICE STATIONS	Cameron. W., Port rd, Alberton East	3792	Road Match	54m	North
	FENCING (Steel) MANUFACTURERS	Climax Fence Co., Ltd., Port rd, Cheltenham	17607	Road Match	54m	North
	Bakers	Lihou, A. H., Port rd, Alberton East	3390	Road Match	54m	North
	GROCERS AND PROVISION DEALERS	Lihou, A. H., Port rd, Alberton East	19098	Road Match	54m	North
	CABINET MAKERS, FRENCH POLISHERS, AND FURNITURE MANUFACTURERS	Pimlott, W, & Son, Port rd, Cheltenham	11855	Road Match	54m	North
	Builders, Carpenters and Masons	Pimlott, W. J. & Son joinery spclsts, Port rd, Cheltenham	8815	Road Match	54m	North
	MOTOR AND ACCESSORY AGENTS, CYCLE MAKERS AND IMPORTERS	Simounds, C. S., Port rd, Alberton East	1179	Road Match	54m	North
7	Builders, Carpenters and Masons	Howard, J. F. W., Port rd, Woodville West	8292	Road Match	100m	East
	Chaff Cutters and Dealers	Scott, S, and Sons, Port rd, Woodville West	13078	Road Match	100m	East
	FIREWOOD MERCHANTS	Scott, S, and Sons, Port rd, Woodville West	17781	Road Match	100m	East
	Blacksmiths And Farriers	Taylor, J. S, jun. Port rd, Woodville West	5053	Road Match	100m	East
8	Drapers	Henderson Bros, Botting st, Albert Park	16137	Road Match	123m	West
	GROCERS AND PROVISION DEALERS	Henderson Bros, Botting st, Albert Park .	19046	Road Match	123m	West
	GROCERS AND PROVISION DEALERS	Henderson, A. C, Botting st, Albert Park	19045	Road Match	123m	West
	Carters and Carriers	Savage, Alf, Botting st, Albrt PARK	12557	Road Match	123m	West

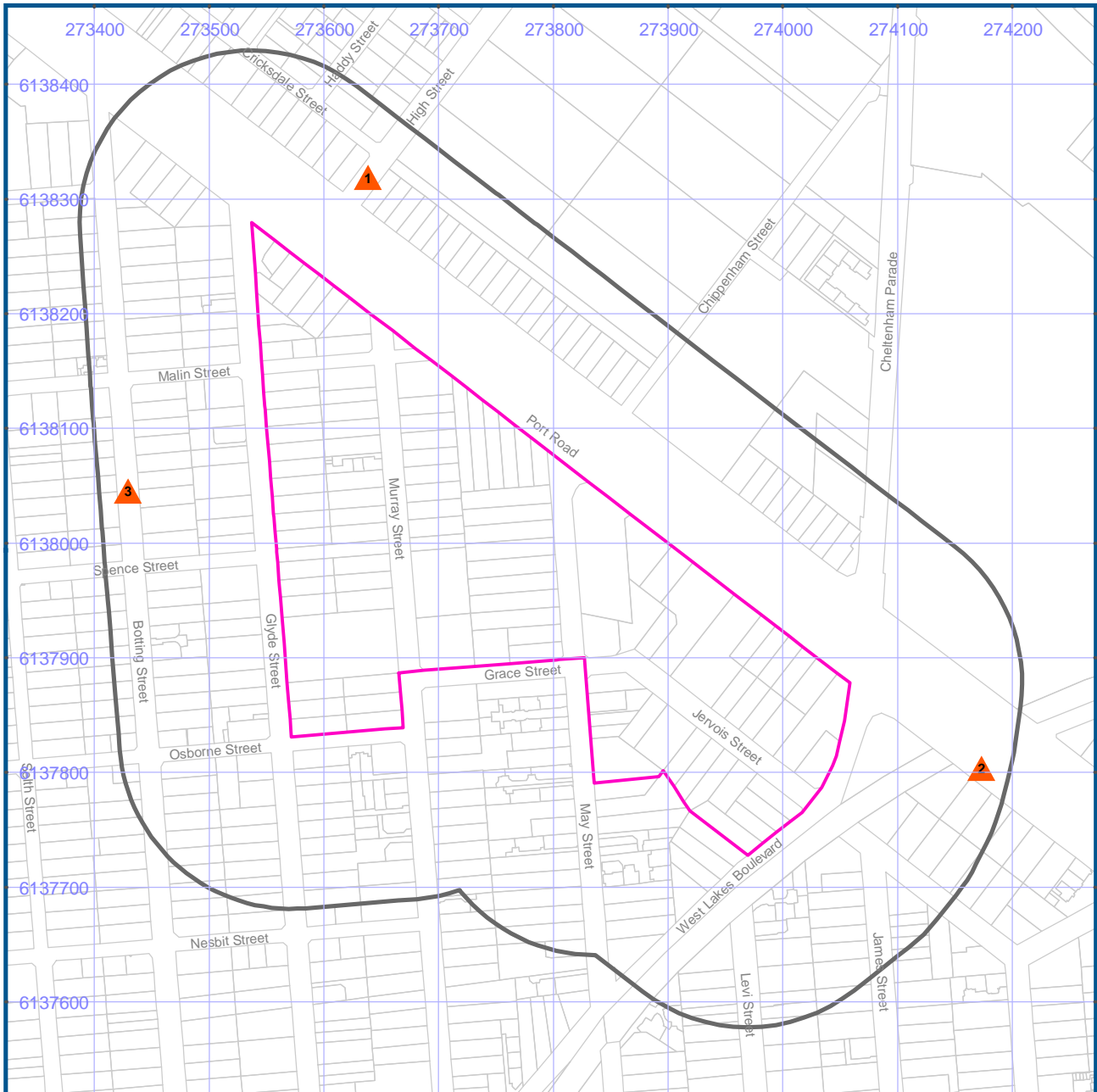
Business Directory Content Derived from Sands & McDougall's Directory of South Australia



Historical Business Directories





Port Road, Albert Park, SA 5014



1920 Business Directory Records



-  Site Boundary
-  Buffer 150m
-  Property Boundaries

-  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



Projected Coordinate System:
GDA94 MGA Zone 54

Data Sources: Sands & McDougall's Directory of South Australia, derived data
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Historical Business Directories

Port Road, Albert Park, SA 5014

1920 Business Directory Records Premise or Road Intersection Matches

Records from the 1920 Sands & McDougall's Directory, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	No records in buffer					

Business Directory Content Derived from Sands & McDougall's Directory of South Australia

1920 Business Directory Records Road or Area Matches

Records from the 1920 Sands & McDougall's Directory, 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.	Location Confidence	Approx. Dist. to Road Corridor or Area	Direction
1	MARBLE WORKERS AND MONUMENTAL MASONS	Laycock, Wm, High st, Cheltenham	11090	Road Match	35m	North
2	Cabinetmakers and Furniture Manufacturers (Proprietors only)	Howard & Remphrey, Port rd, Woodville West	3736	Road Match	100m	East
	Builders, Carpenters and Masons	Howard & Remphrey, Port-rd, Woodville West	2533	Road Match	100m	East
	Firewood Merchants	Scott, S, and Sons, Port rd, Woodville West	7746	Road Match	100m	East
	Chaff Cutters and Dealers	Scott, S, and Sons, Port rd, Woodville West	4384	Road Match	100m	East
3	Firewood Merchants	Hembury, Botting st, Albert Pk	7668	Road Match	123m	West

Business Directory Content Derived from Sands & McDougall's Directory of South Australia

Historical Business Directories

Port Road, Albert Park, SA 5014

1910 Business Directory Records Premise or Road Intersection Matches

Records from the 1910 Sands & McDougall's Directory, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	No records in buffer					

Business Directory Content Derived from Sands & McDougall's Directory of South Australia

1910 Business Directory Records Road or Area Matches

Records from the 1910 Sands & McDougall's Directory, 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.	Location Confidence	Approx. Dist. to Road Corridor or Area	Direction
	No records in buffer					

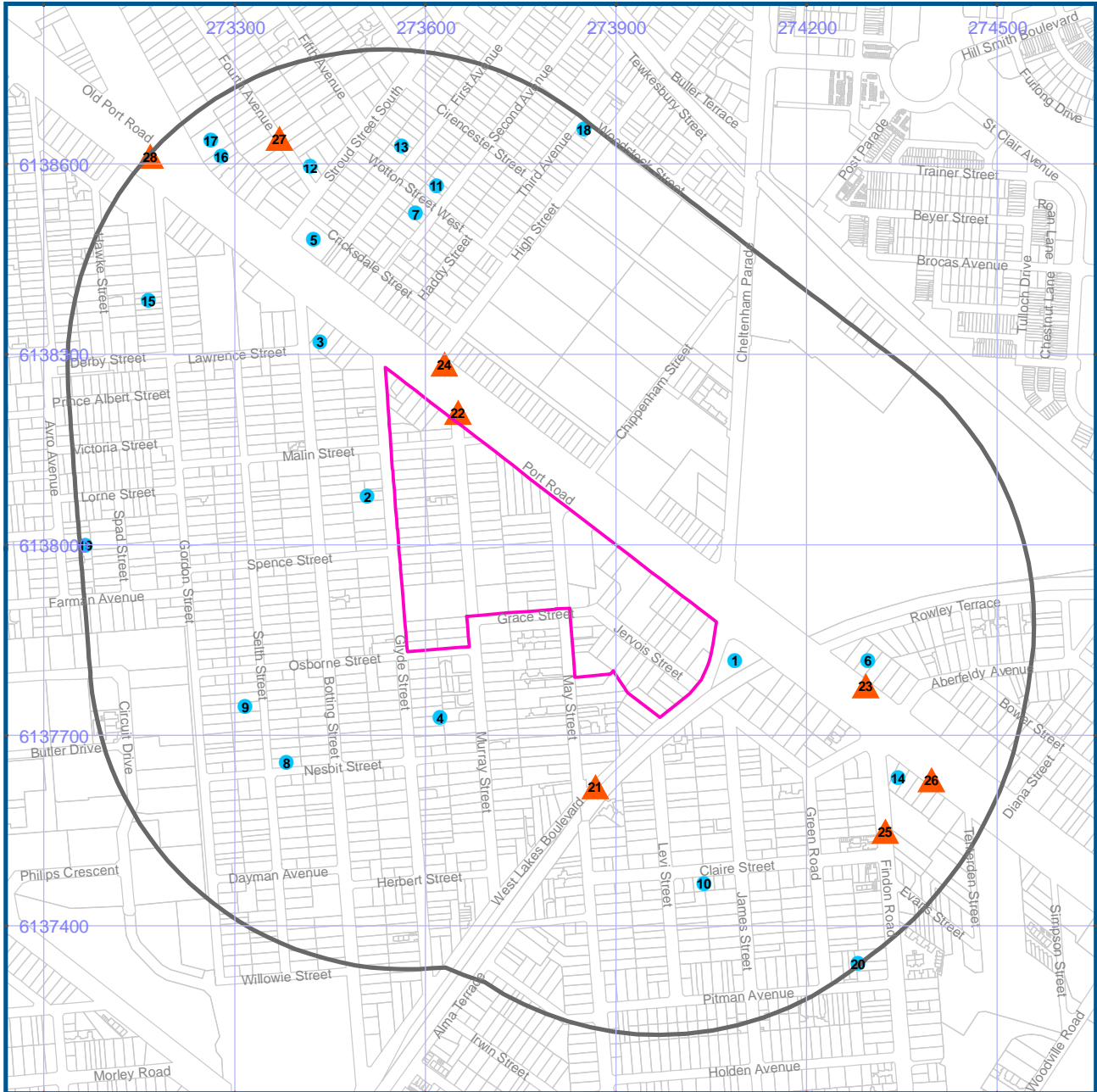
Business Directory Content Derived from Sands & McDougall's Directory of South Australia

Historical Business Directories





Port Road, Albert Park, SA 5014



Dry Cleaners, Motor Garages & Service Stations



-  Site Boundary
-  Buffer 500m
-  Property Boundaries

-  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



Projected Coordinate System:
GDA94 MGA Zone 54

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Historical Business Directories

Port Road, Albert Park, SA 5014

Dry Cleaners, Motor Garages & Service Stations Premise or Road Intersection Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories and Sands & McDougall's Directories, 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 GARAGES & SERVICE STATIONS	Mobil Oil Aust Ltd 948 Port rd Albert Park	16668	1973	Premise Match	17m	South East
	MOTOR GARAGES & SERVICE STATIONS	Woodville Service Station 948 Port rd Albert Park	17808	1973	Premise Match	17m	South East
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Woodville Service Station 948 Port rd Woodville West	9957	1965	Premise Match	17m	South East
2	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Robinson A R 26 Glyde st Albert Park	22021	1955	Premise Match	18m	West
3	Motor Garages &/or Engineers &/or Service Stations	Portside Mitsubishi, 1032 Port Rd., Albert Park. 5014.	18471	1984	Premise Match	92m	North West
	MOTOR GARAGES & SERVICE STATIONS	Watkins Motors P/L 1032 Port rd Albert Park	17784	1973	Premise Match	92m	North West
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Lloyd Watkins Motors Ltd 1032 Port rd Albert Park	3317	1965	Premise Match	92m	North West
4	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Matthews A E 51 Glyde st Albert Park	4237	1965	Premise Match	95m	South West
5	Motor Garages &/or Engineers &/or Service Stations	Boyd, Dave Motors Pty Ltd, 969 Port Rd, Cheltenham 5014	18205	1984	Premise Match	194m	North West
6	MOTOR GARAGES & SERVICE STATIONS	Aitken W B 847 Port rd Woodville	13376	1973	Premise Match	225m	East
7	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Tonkin A K 5 Second av Cheltenham	8825	1965	Premise Match	232m	North
8	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Eastwood J A 89 Selth st Albert Park	58968	1965	Premise Match	235m	South West
9	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Willoughby A T 82 Selth st Albert Park	9904	1965	Premise Match	245m	South West
10	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Waterman B 7 Claire st Woodville West	9777	1965	Premise Match	257m	South East
11	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	MacDonald D G 11 Second av Cheltenham	3371	1965	Premise Match	284m	North
12	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Clark R L 9 Stroud st Cheltenham	57874	1965	Premise Match	310m	North West
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Clark R L 9 Stroud st Cheltenham	19522	1955	Premise Match	310m	North West
13	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Johnson E H 21 First av Cheltenham	2212	1965	Premise Match	333m	North
14	MOTOR GARAGES & SERVICE STATIONS	BP Triangle 922 Port rd Woodville	14368	1973	Premise Match	338m	South East

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
14	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	B P Triangle Service Station 922 Port rd Woodville South	56860	1965	Premise Match	338m	South East
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Petrol & Accessories Ltd 922 Port rd Woodville South	5745	1965	Premise Match	338m	South East
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Petrol & Accessories Ltd 922 Port rd Woodville South	21625	1955	Premise Match	338m	South East
15	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Fitzpatrick K 22 Gordon st Albert Park	20048	1955	Premise Match	365m	North West
16	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Containers Ltd 981 Port rd Cheltenham	57923	1965	Premise Match	410m	North West
	Motor Engineers, Garages And Service Stations	Watkins, T. G., 49 Port rd, Alberton East	7398	1940	Premise Match	410m	North West
17	Motor Engineers, Garages And Service Stations	Nelson, F. A., 45 Port rd, Alberton East	7000	1940	Premise Match	428m	North West
18	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Spurling D B 4 Woodstock st Cheltenham	7858	1965	Premise Match	475m	North
19	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Butler H W 61 Avro av Albert Park	56972	1965	Premise Match	483m	West
20	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Kovacs F 34 Findon rd Woodville West	2375	1965	Premise Match	494m	South East

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Historical Business Directories

Port Road, Albert Park, SA 5014

Dry Cleaners, Motor Garages & Service Stations Road or Area Matches

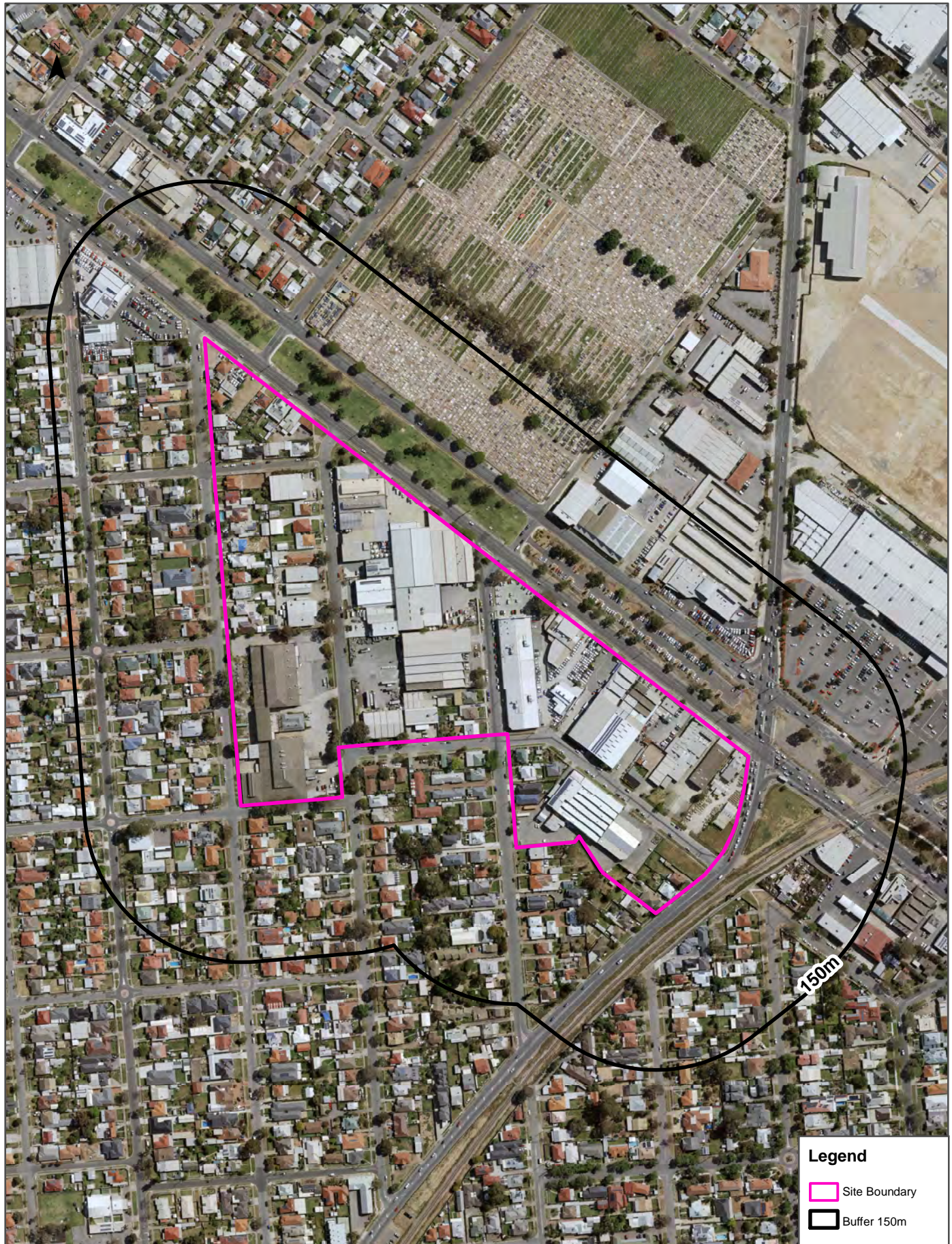
Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories and Sands & McDougall's Directories, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Approx. Dist. to Road Corridor or Area	Direction
21	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Kitchen P S 113 Clark ter Albert Park	2341	1965	Road Match	6m	South
22	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Woodville Motor Parking Station Port rd Albert Park	9956	1965	Road Match	10m	North West
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Woodville Motor Parking Station Port rd Albert Park	23110	1955	Road Match	10m	North West
23	MOTOR GARAGES & SERVICE STATIONS	Tartletons Service Station 78 Port rd Wood	17741	1973	Road Match	54m	East
24	MOTOR GARAGES, ENGINEERS & SERVICE STATIONS	Albert Park Motor Garage., 49 Port Rd., Cheltenham	13894	1950	Road Match	54m	North West
	MOTOR GARAGES, ENGINEERS & SERVICE STATIONS	McLaughlin Motors., 47 Port Rd., Cheltenham	14049	1950	Road Match	54m	North West
	Motor Engineers, Garages And Service Stations	Laing, E., Port rd, Alberton E	6926	1940	Road Match	54m	North West
	PETROL STORAGE SYSTEMS AND SERVICE STATIONS	Cameron. W., Port rd, Alberton East	3792	1930	Road Match	54m	North West
25	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Golden Fleece Service Station Findon rd Woodville South	177	1965	Road Match	288m	South East
26	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Esso Servicenter Port rd Woodville	59045	1965	Road Match	289m	South East
	MOTOR ENGINEERS, GARAGES & SERVICE STATIONS	Spitfire Motors Port rd Woodville	7854	1965	Road Match	289m	South East
	PETROL STORAGE SYSTEMS AND SERVICE STATIONS	Colegate, E. J. B., Port rd, Woodville South	3795	1930	Road Match	289m	South East
	PETROL STORAGE SYSTEMS AND SERVICE STATIONS	Ledger, A. J., Port rd, Woodville	3837	1930	Road Match	289m	South East
27	DYERS AND CLEANERS	Parisian Dye Co. (The), Fourth av, Alberton East	16806	1930	Road Match	294m	North West
28	MOTOR GARAGES AND SERVICE STATIONS.	Gordon, C. H., High st, Queenstown	1547	1930	Road Match	491m	North West

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Aerial Imagery 2019

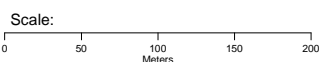
Port Road, Albert Park, SA 5014



150m

Legend

-  Site Boundary
-  Buffer 150m



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Coordinate System:
GDA 1994 MGA Zone 54



Date: 11 February 2020

Aerial Imagery 2010

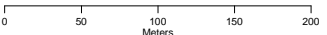
Port Road, Albert Park, SA 5014



Legend

-  Site Boundary
-  Buffer 150m

Scale:



0 50 100 150 200
Meters

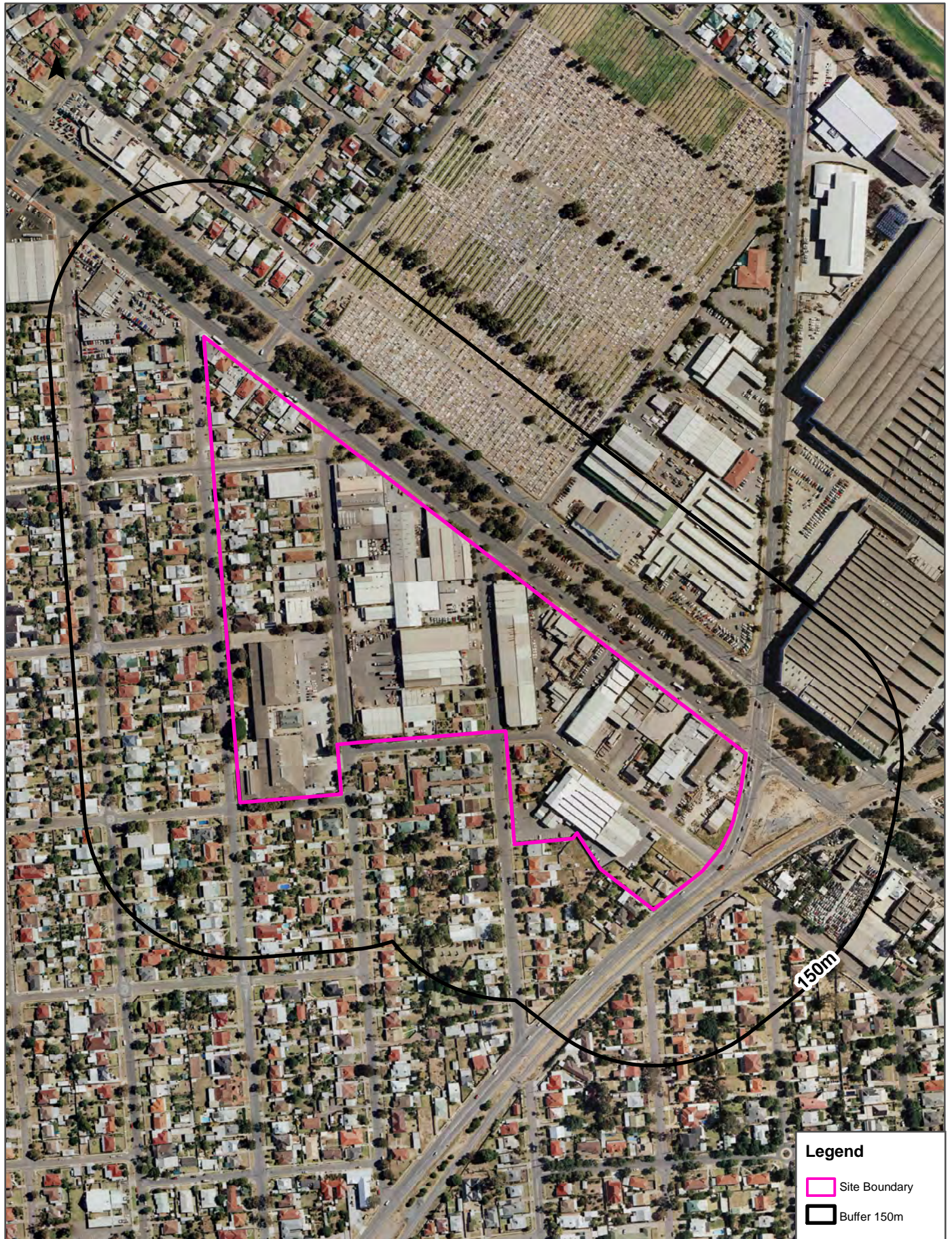
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GDA 1994 MGA Zone 54


Date: 11 February 2020

Aerial Imagery 2004

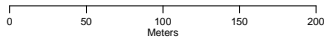
Port Road, Albert Park, SA 5014



Legend

-  Site Boundary
-  Buffer 150m

Scale:



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Coordinate System:
GDA 1994 MGA Zone 54

Date: 11 February 2020

Aerial Imagery 1999

Port Road, Albert Park, SA 5014



Legend	
	Site Boundary
	Buffer 150m

Scale: 0 50 100 150 200 Meters

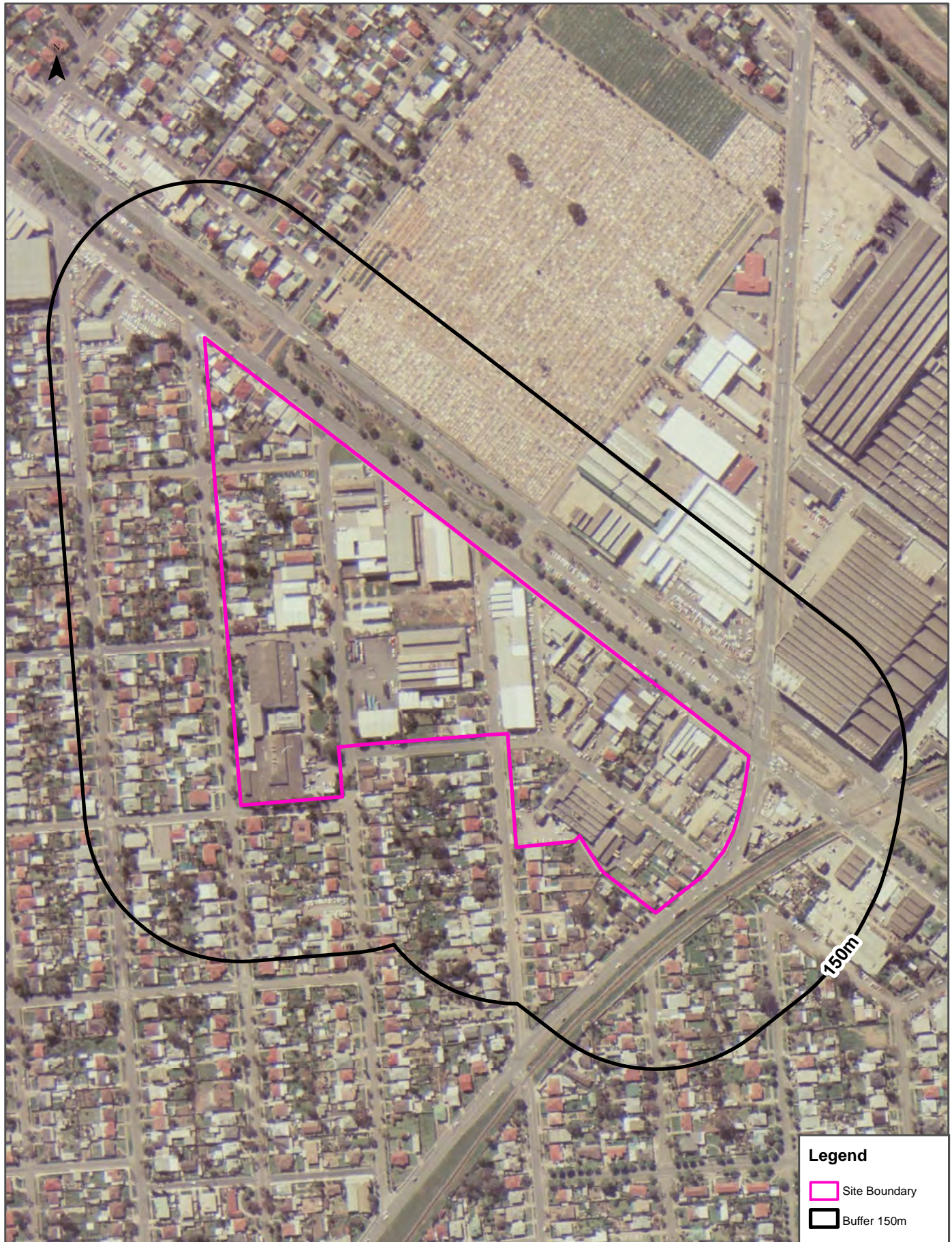
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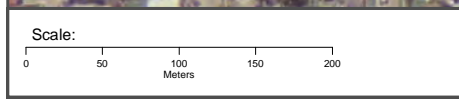
Date: 07 February, 2020

Aerial Imagery 1989

Port Road, Albert Park, SA 5014



Legend	
	Site Boundary
	Buffer 150m



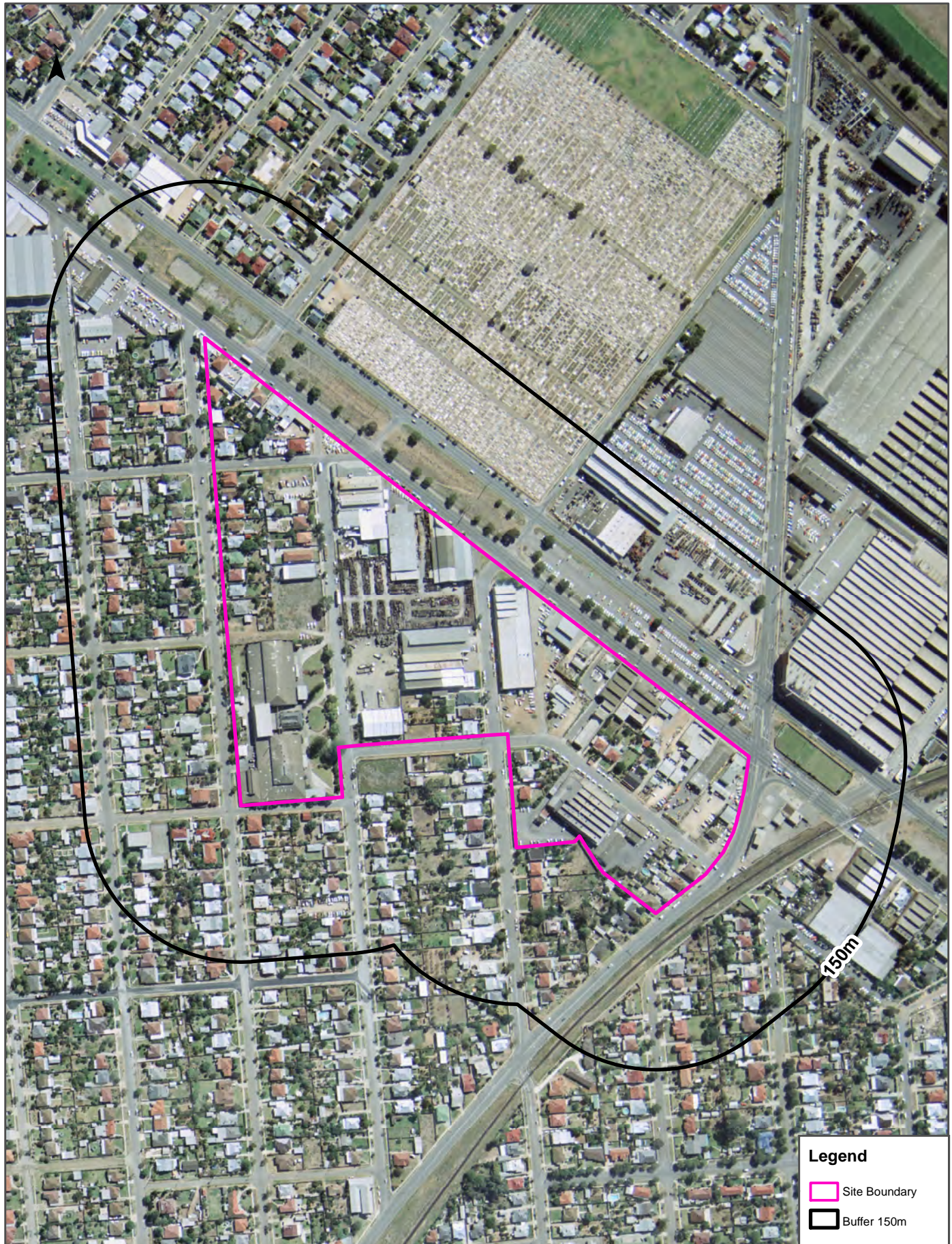
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Coordinate System: GDA 1994 MGA Zone 54



Date: 07 February, 2020

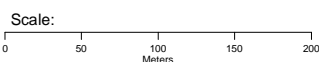
Aerial Imagery 1979

Port Road, Albert Park, SA 5014



150m

- Legend**
-  Site Boundary
 -  Buffer 150m



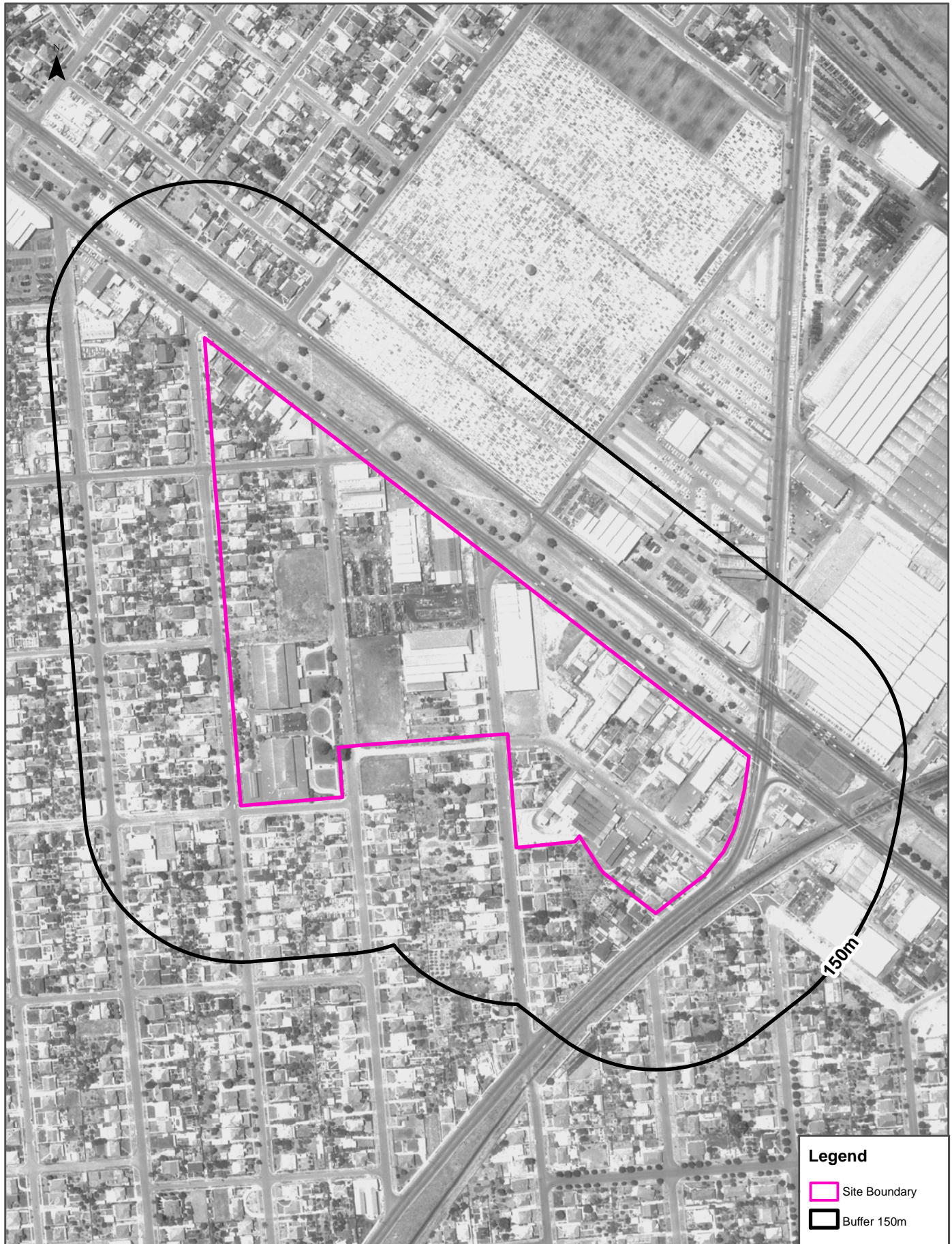
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Coordinate System: GDA 1994 MGA Zone 54



Date: 07 February, 2020

Aerial Imagery 1969

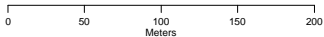
Port Road, Albert Park, SA 5014



Legend

-  Site Boundary
-  Buffer 150m

Scale:



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Coordinate System:
GDA 1994 MGA Zone 54



Date: 07 February, 2020

Aerial Imagery 1956

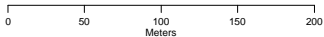
Port Road, Albert Park, SA 5014



Legend

-  Site Boundary
-  Buffer 150m

Scale:



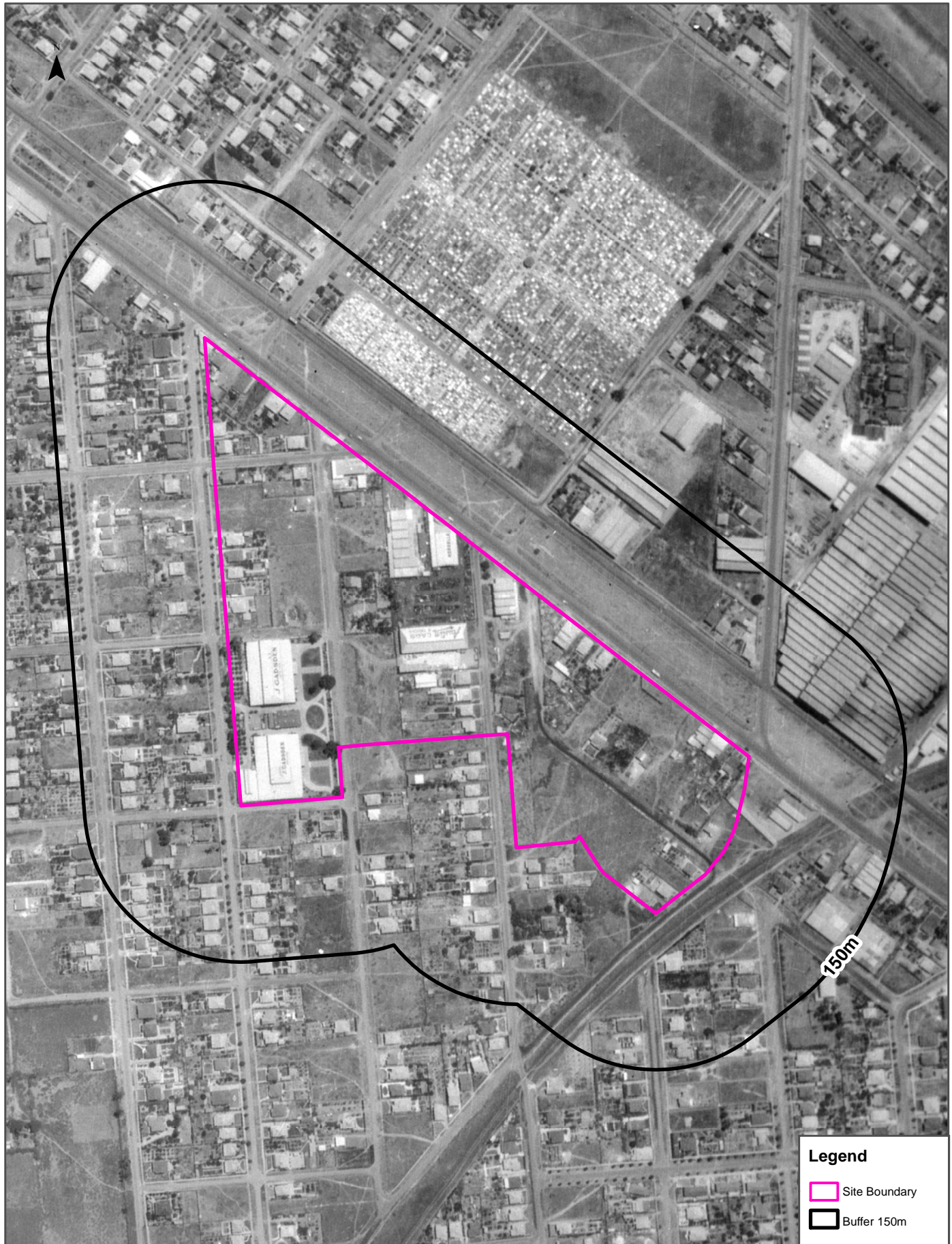
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Coordinate System:
GDA 1994 MGA Zone 54



Date: 07 February, 2020

Aerial Imagery 1949

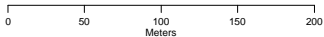
Port Road, Albert Park, SA 5014



Legend

-  Site Boundary
-  Buffer 150m

Scale:



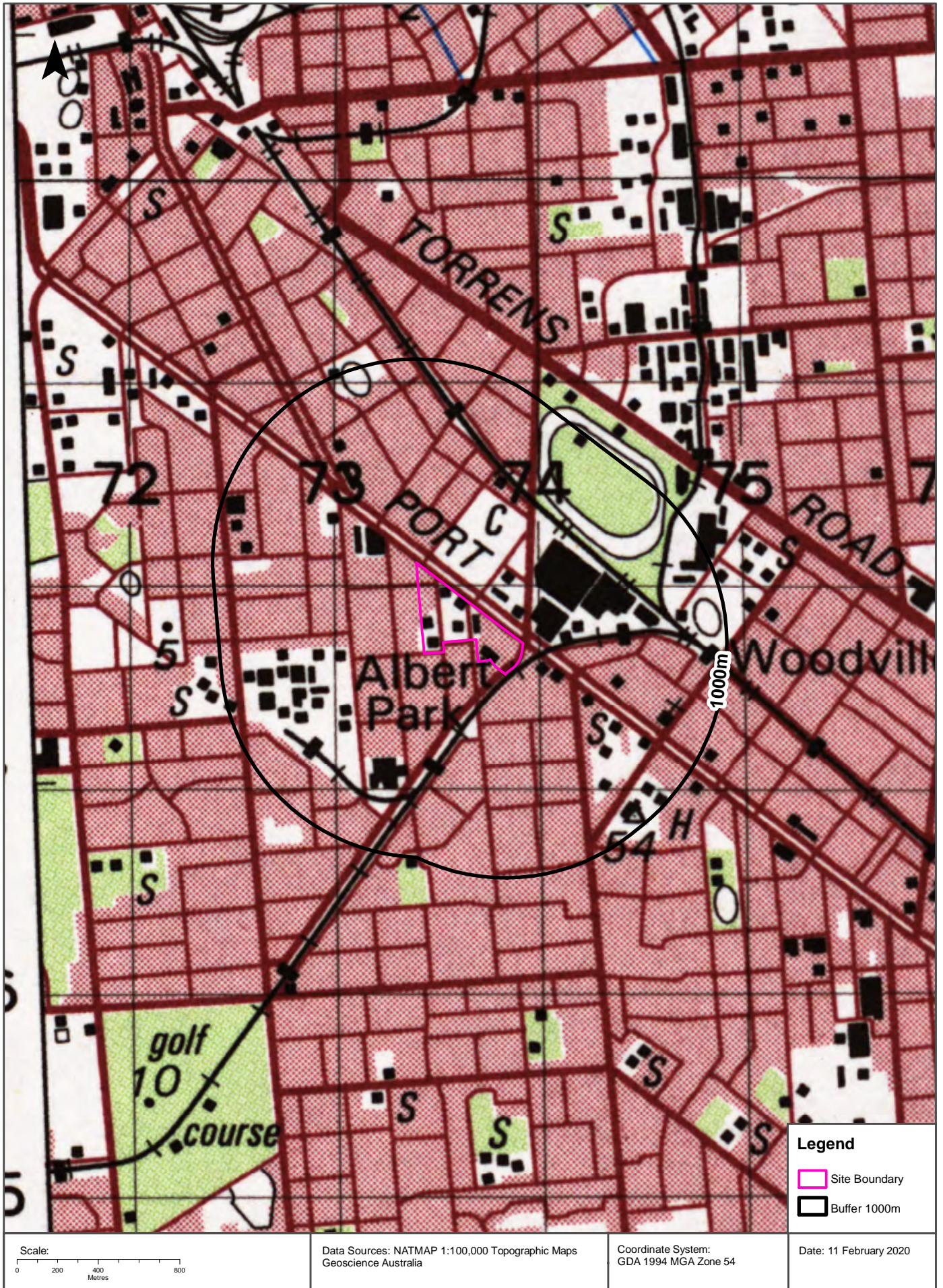
Data Sources Aerial Imagery: © South Australia
Department for Environment & Water

Coordinate System:
GDA 1994 MGA Zone 54

Date: 07 February, 2020

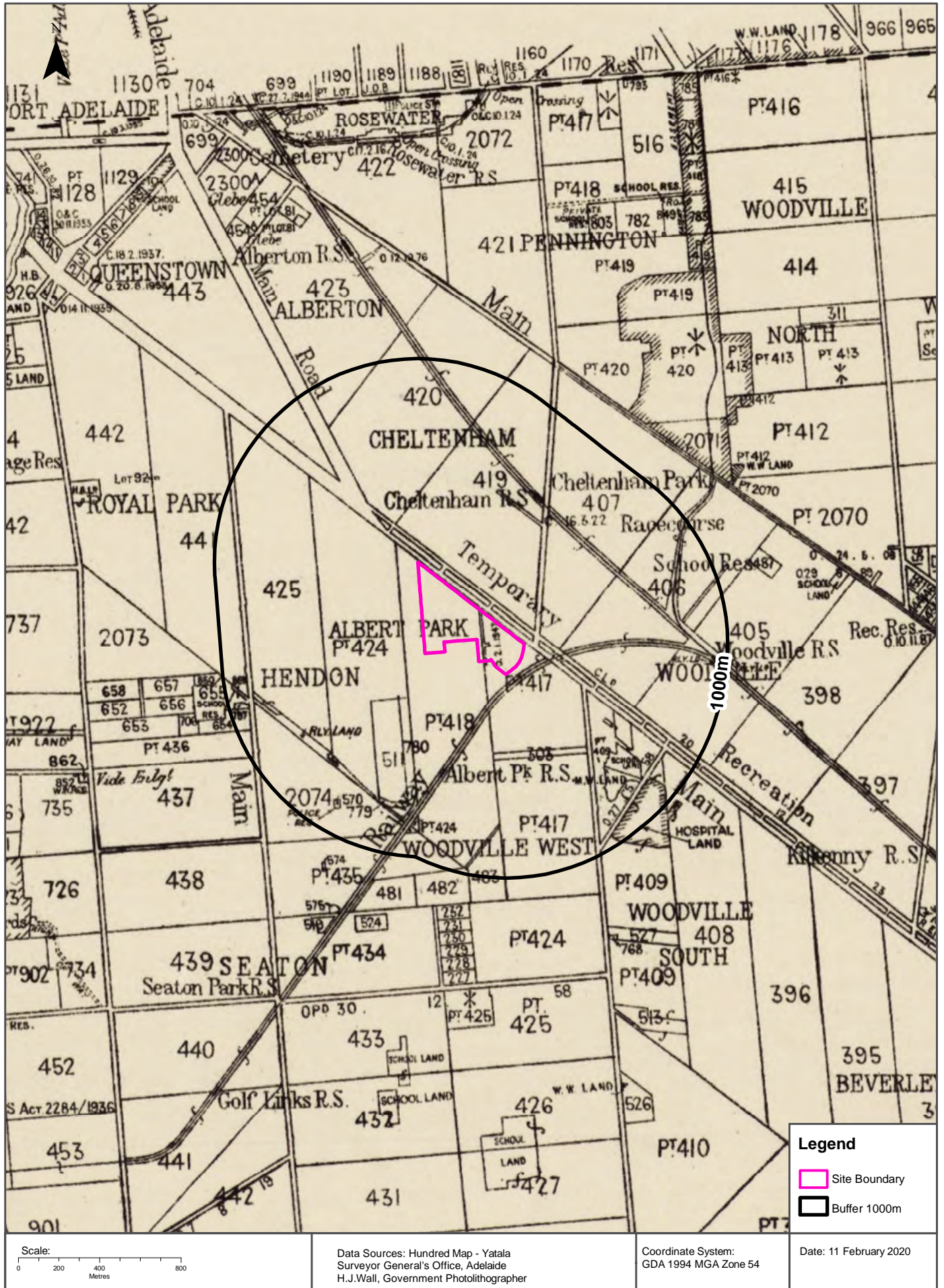
Historical Map 1982

Port Road, Albert Park, SA 5014

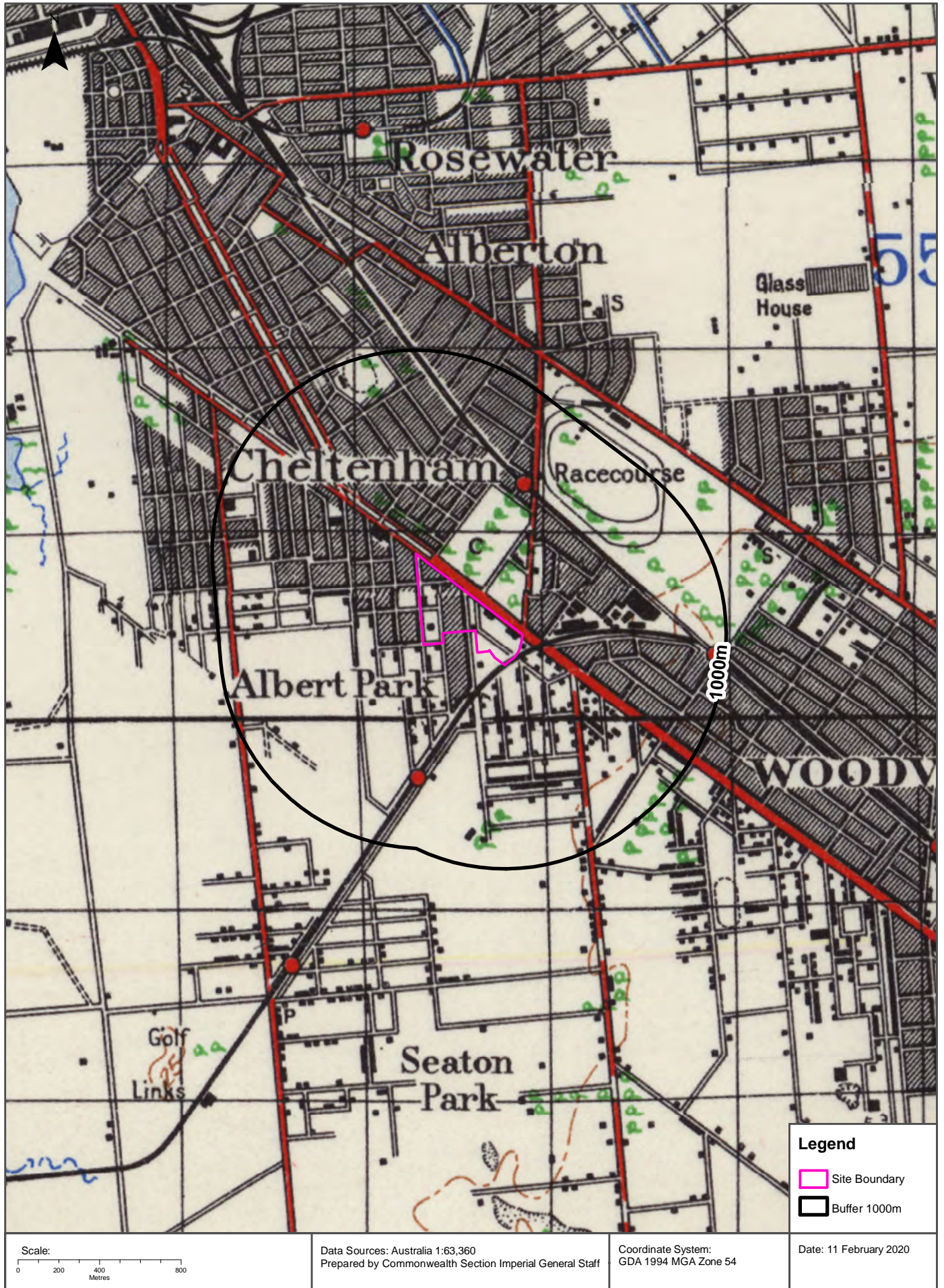


Historical Map 1957

Port Road, Albert Park, SA 5014

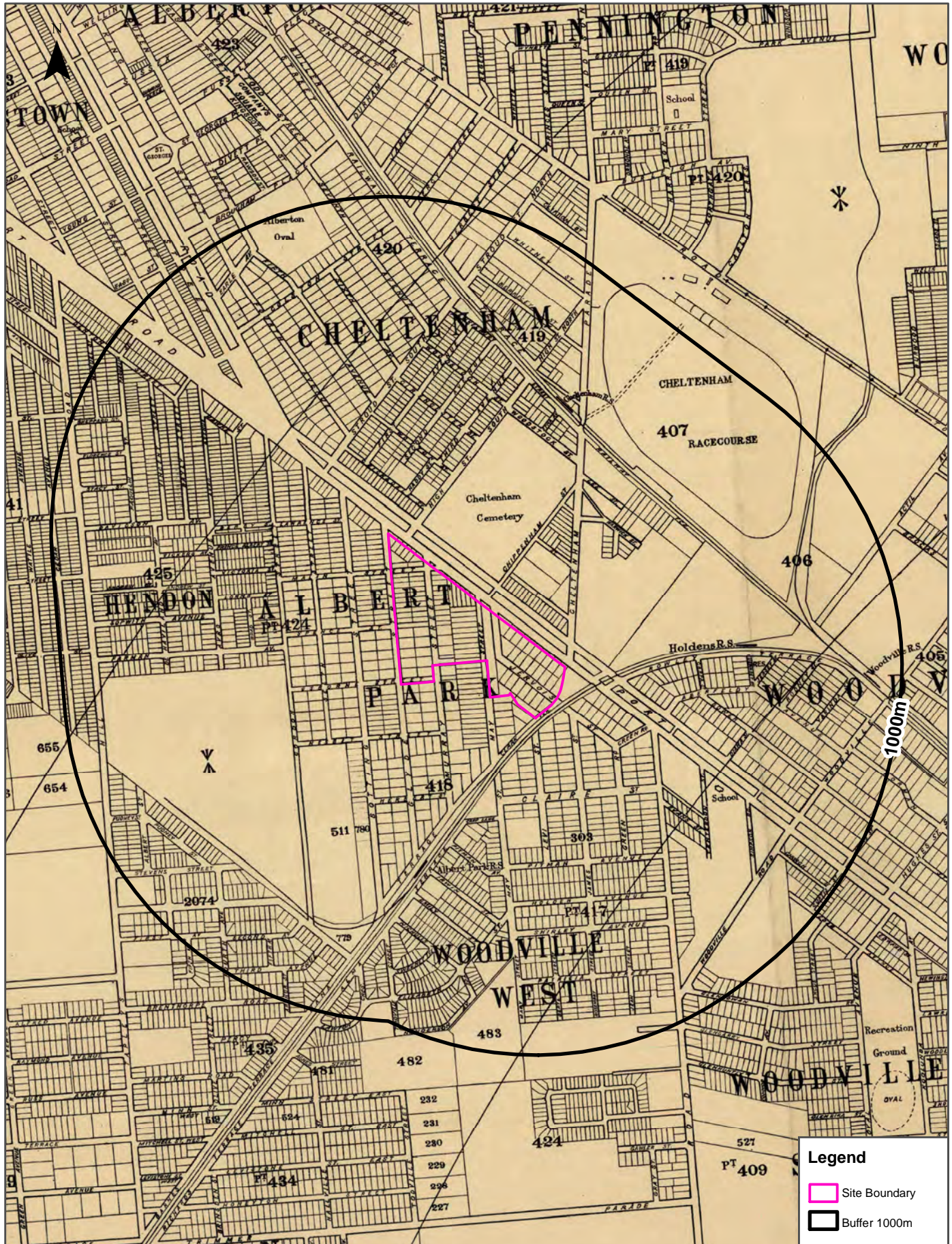


Historical Map c.1937
Port Road, Albert Park, SA 5014



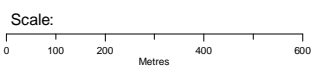
Historical Map 1927

Port Road, Albert Park, SA 5014



Legend

- Site Boundary
- Buffer 1000m



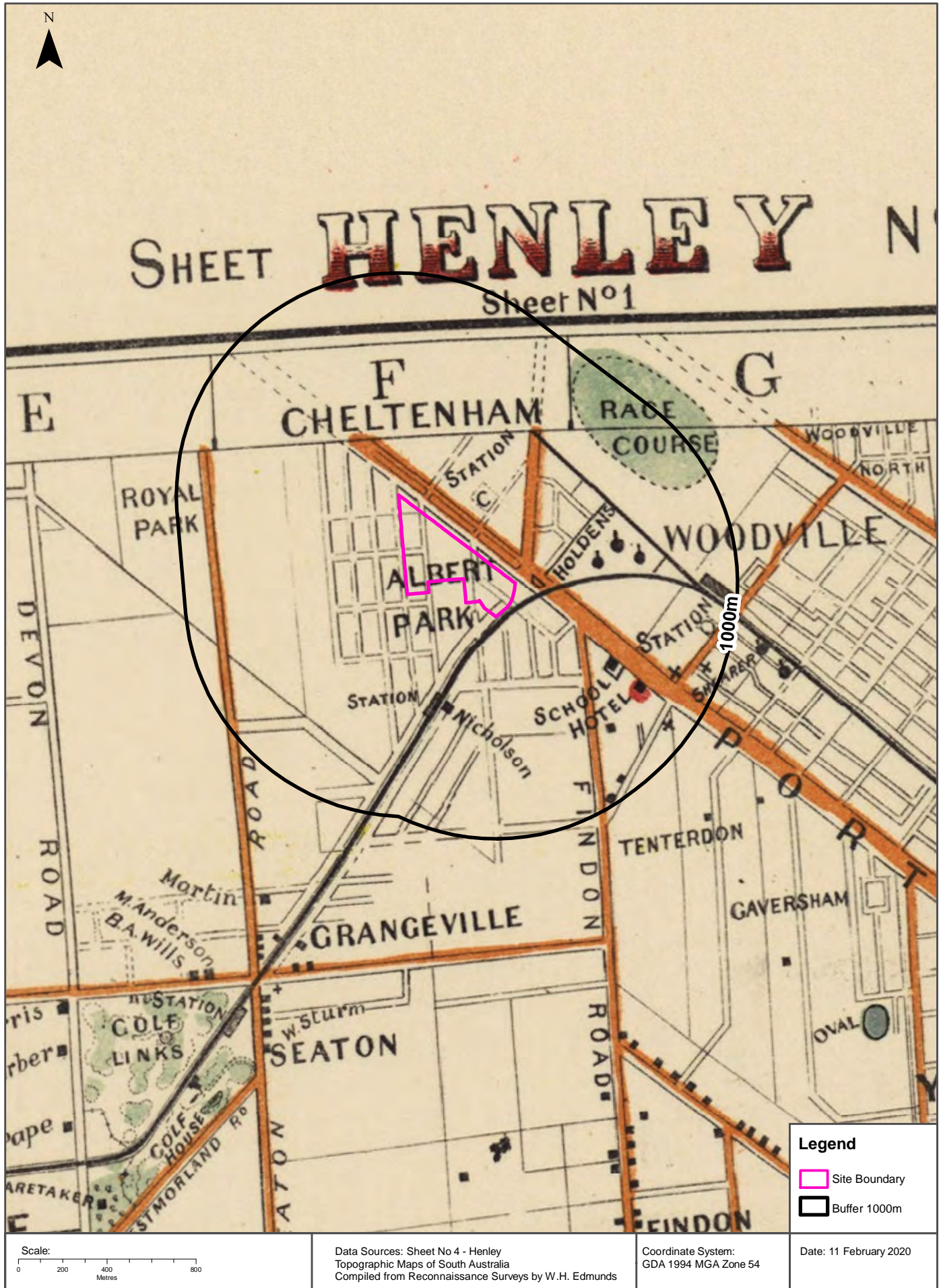
Data Sources: Map of Adelaide and Suburbs
Showing Streets and Allotments
Compiled under the direction of Theo. E. Day, Surveyor General

Coordinate System:
GDA 1994 MGA Zone 54

Date: 11 February 2020

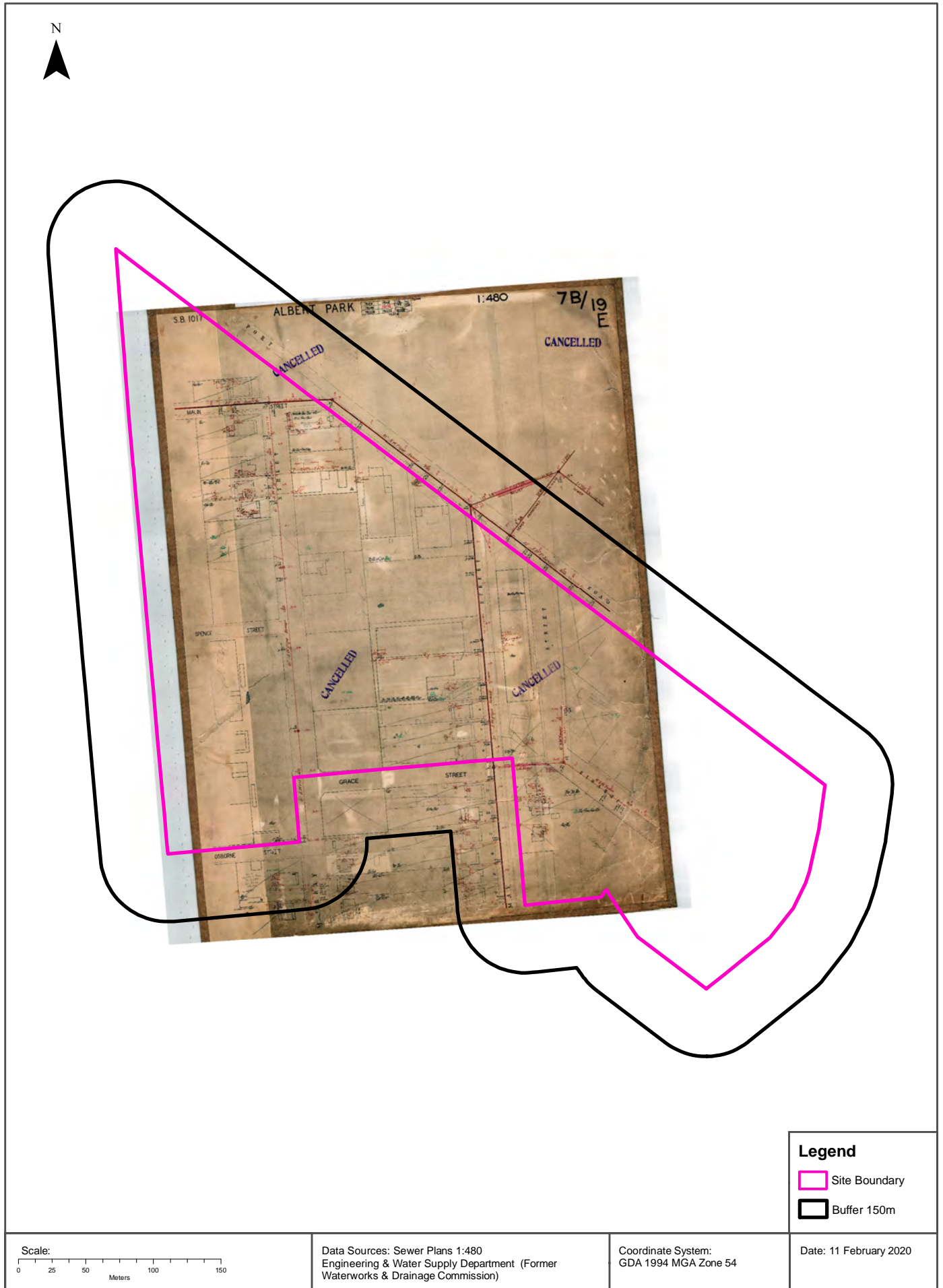
Historical Map 1926

Port Road, Albert Park, SA 5014



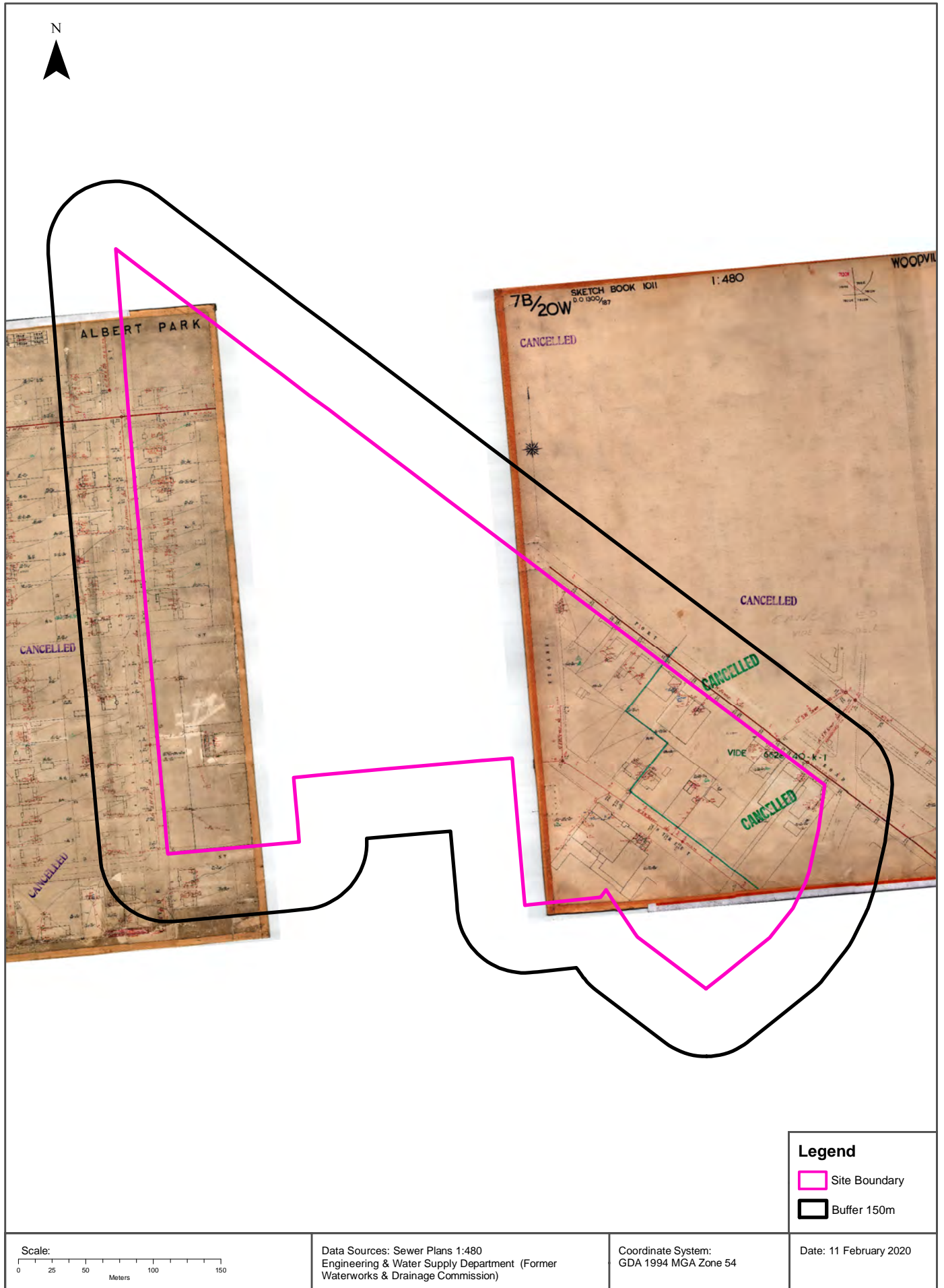
Historical Map 1900-1970

Port Road, Albert Park, SA 5014



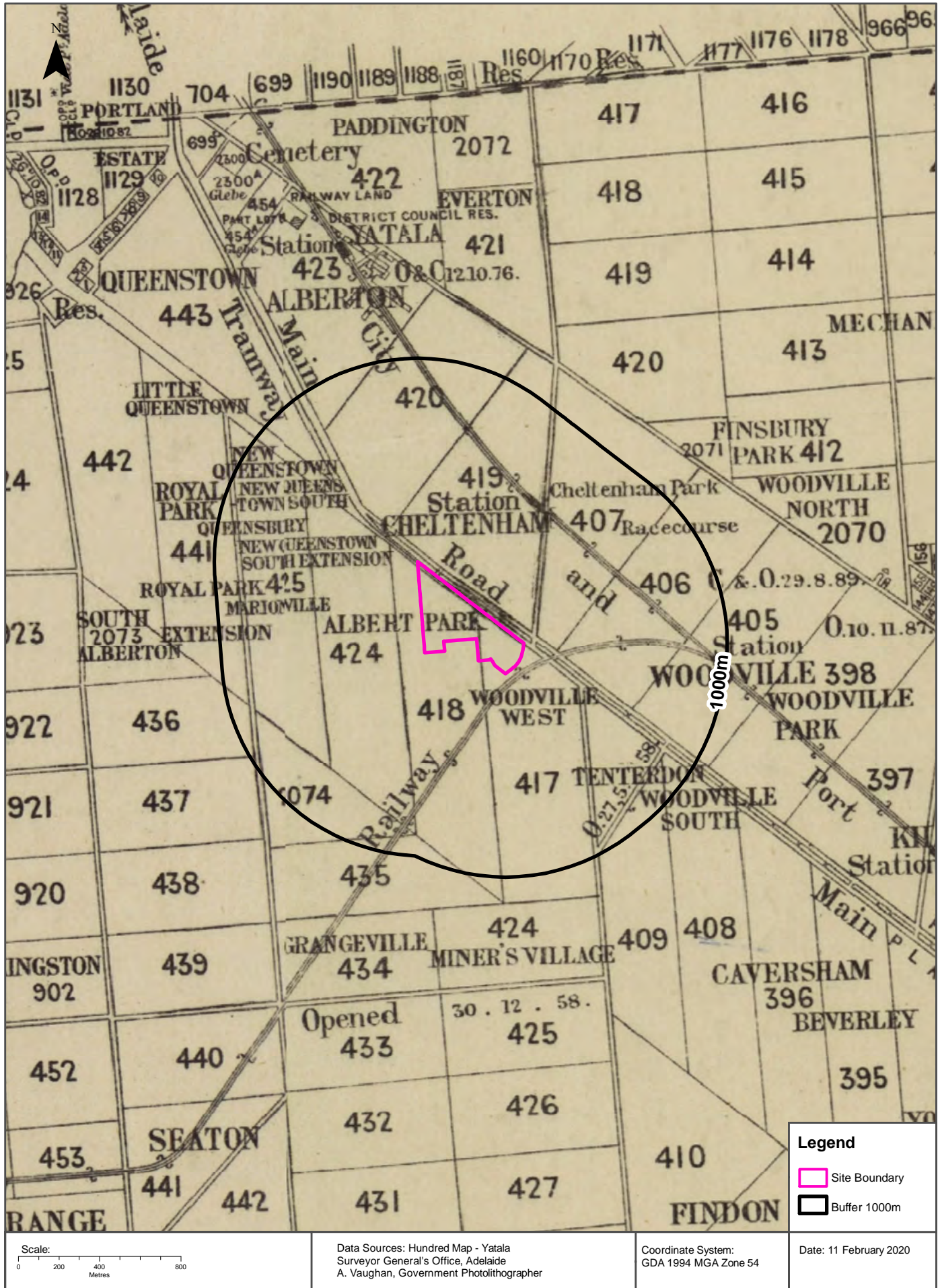
Historical Map 1900-1970

Port Road, Albert Park, SA 5014



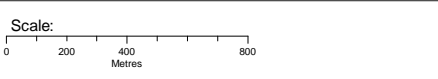
Historical Map 1896

Port Road, Albert Park, SA 5014



Legend

- Site Boundary
- Buffer 1000m



Data Sources: Hundred Map - Yatala
 Surveyor General's Office, Adelaide
 A. Vaughan, Government Photolithographer

Coordinate System:
 GDA 1994 MGA Zone 54

Date: 11 February 2020

Mining

Port Road, Albert Park, SA 5014

Mines and Mineral Deposits

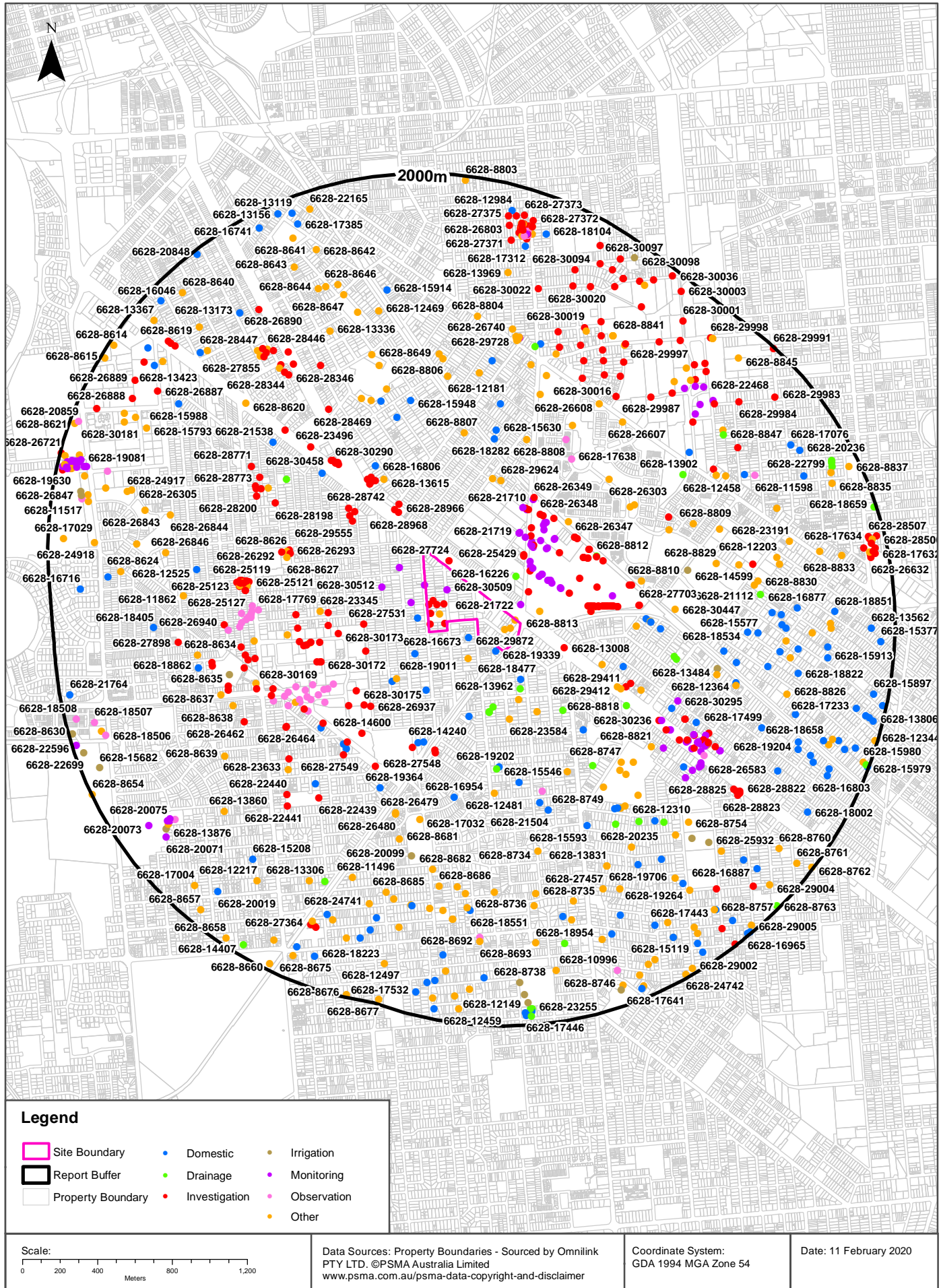
Mines and mineral deposits within the dataset buffer:

Deposit No.	Name	Class	Status	Commodity	Year	Description	Dist	Dir'n
N/A	No records in buffer							

All Mines and Mineral Deposits Data Source: Dept. of State Development, Resources and Energy - South Australia
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Drillholes

Port Road, Albert Park, SA 5014



Groundwater and Drillholes

Port Road, Albert Park, SA 5014

Groundwater Aquifers

Groundwater aquifers within the dataset buffer:

Aquifer Code	Description	Distance	Direction
20	Sedimentary Rocks - basins include limestone, often cavernous, sandstone, sand shale and clay	0m	Onsite

Groundwater Aquifers Data Source: Dept. of Environment, Water and Natural Resources - South Australia
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Drillholes

Drillholes within the dataset buffer:

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-30509	332440			Monitoring	2019-11-14	5.60							3.80	3.80		0m	Onsite
6628-29419	306758	GW 1		Investigation	2017-12-07	5.50							2.50	2.50		0m	Onsite
6628-29880	313869			Environmental	2018-12-06	6.00										0m	Onsite
6628-29872	313852			Environmental	2018-12-06	6.00										0m	Onsite
6628-29417	306756	GW 5		Investigation	2017-12-07	5.20							2.70	2.70		0m	Onsite
6628-29420	306759	GW 3		Investigation	2017-12-07	5.30							2.60	2.60		0m	Onsite
6628-30225	316718			Investigation	2019-05-23	5.50										0m	Onsite
6628-29418	306757	GW 4		Investigation	2017-12-07	5.30							2.50	2.50		0m	Onsite
6628-30223	316716			Investigation	2019-05-23	5.50										0m	Onsite
6628-29415	306754	GW 6			2017-12-07	5.20							2.80	2.80		0m	Onsite
6628-29421	306760	GW 2		Investigation	2017-12-07	5.50							2.70	2.70		0m	Onsite
6628-29873	313853			Environmental	2018-12-06	6.00										0m	Onsite
6628-30510	332441			Monitoring	2019-11-14	5.00							3.50	3.50		3m	North West
6628-19339	173838			Domestic	1999-01-07	12.00		6.65		3731	6630	1.0000	4.00	4.00	2.65	26m	South East
6628-27724	284994			Investigation		5.00							4.80	4.80		32m	North
6628-16673	142370			Domestic	1994-05-28	18.00		6.33	6.60	4782	8440					53m	South
6628-15616	62585		Operational	Domestic	1991-09-05	8.00		5.89					2.50	2.50	3.39	54m	West
6628-21722	200172	SITE 3		Monitoring	2004-03-05	7.50		7.12								79m	East
6628-30511	332442			Monitoring	2019-11-14	5.50							3.40	3.40		83m	West
6628-8814	55783					36.58		6.25		1113	2014		6.10	6.10	0.15	117m	South

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-8813	55782				1934-10-25	128.02		7.34		1013	1834	15.1600	2.44	2.44	4.90	121m	East
6628-30513	332444			Monitoring	2019-11-13	6.00							3.30	3.30		130m	North West
6628-19011	169380			Domestic	1998-05-26	11.50		5.64		6251	10930	1.0000	4.00	4.00	1.64	140m	South West
6628-21715	200165	SITE 9		Investigation	2004-03-25	19.00		7.26		7994	13820	0.5000	4.00	4.00	3.26	158m	East
6628-18477	164804			Domestic	1996-12-19	15.00		7.00		6960	12100	1.0000	5.40	5.40	1.60	176m	South East
6628-16226	130774			Drainage		9.00		7.09	7.60	3030	5410	1.0000	4.00	4.00	3.09	185m	North East
6628-13962	60931			Drainage	1987-02-01	6.00		6.94	6.50	200	364		5.00	5.00	1.94	220m	South East
6628-28968	298233	MW 3		Investigation	2017-07-03	5.00										228m	North West
6628-30512	332443			Monitoring	2019-11-14	5.30							3.20	3.20		232m	West
6628-28967	298232	MW (GW02) 2	Backfilled	Investigation	2017-07-03	5.20										251m	North West
6628-27706	284744	EQ 2 21		Investigation	2014-10-19	16.40							4.78	4.78		252m	North East
6628-13008	59977	GH 101	Abandoned	Investigation ; Observation	1984-03-08	10.30	6.69	6.76	8.00	2216	3980		4.03	4.09	2.66	256m	South East
6628-22454	214164			Monitoring	2006-01-07	20.00		7.39					6.00	6.00	1.39	261m	East
6628-28966	298231	MW (GW01) 1	Backfilled	Investigation	2017-07-03	6.00										264m	North West
6628-22453	214163			Monitoring	2006-01-06	22.00		7.49					6.00	6.00	1.49	270m	East
6628-21865	200936			Monitoring	2004-08-17	21.00		7.53				0.0100	16.00	16.00	-8.47	272m	East
6628-8815	55784					9.14		6.85		4583	8102					272m	South East
6628-22452	214162			Monitoring	2006-01-05	19.50		7.30					6.00	6.00	1.30	273m	North East
6628-29327	305994			Monitoring	2018-02-25	6.00				1384	2500	0.0400	4.63	4.63		276m	North East
6628-29333	306158			Monitoring	2018-02-25	13.00				625	1135		4.90	4.90		277m	East
6628-29328	305995			Monitoring	2018-02-24	7.50				406	739	0.0030	4.85	4.85		277m	East
6628-29337	306162			Monitoring	2018-02-24	6.00				1255	2270	0.0300	4.96	4.96		277m	East
6628-29334	306159			Monitoring	2018-02-25	15.00				1378	2490		4.94	4.94		279m	East
6628-29331	306155			Monitoring	2018-02-24	15.00				2188	3930		4.92	4.92		284m	East
6628-29338	306163			Monitoring	2018-02-24	6.00				1007	1824	0.0030	4.90	4.90		284m	East
6628-21714	200164	SITE 8		Monitoring	2004-03-24	35.00		7.21		34719	52700	0.5000	5.50	5.50	1.71	292m	North East
6628-25429	259426	EQ1 28		Investigation	2010-10-13	8.00							6.00	6.00		295m	North East
6628-25491	262046	EQ2 10		Investigation	2010-10-25	17.00							8.00	8.00		299m	North East
6628-15495	62464		Operational	Drainage	1991-03-08	6.00		6.49					2.40	2.40	4.09	302m	South
6628-13451	60420				1985-09-12	6.00	5.00		7.60	2756	4930	0.5000	3.00	3.00	2.00	306m	South West
6628-21713	200163	SITE 7 (BORE A)	Backfilled	Investigation	2004-03-23	19.00		7.75								307m	East
6628-17495	153298			Domestic	1995-12-30	15.00		5.54	6.80	6338	11060					313m	South West
6628-21109	195541		Abandoned	Domestic	2002-11-13	10.00		5.22		5081	8950					330m	South West
6628-20449	184028			Drainage	2000-12-01	6.00		6.45		907	1644		4.00	4.00	2.45	332m	South

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-20448	184027			Drainage	2000-12-01	6.00		6.46		722	1310		4.00	4.00	2.46	337m	South
6628-27531	281051	MW 23		Investigation		6.00							4.00	4.00		344m	West
6628-26938	275793	MW 17		Investigation	2013-05-30	5.50							4.00	4.00		352m	South West
6628-22451	214161			Monitoring	2006-01-06	12.00		7.18					6.00	6.00	1.18	362m	North East
6628-29573	305998			Monitoring	2018-02-23	18.00				4771	8420		5.04	5.04		364m	North East
6628-23584	239391				2008-01-10	10.00		6.79		3690	6560	0.5000	5.50	5.50	1.29	366m	South
6628-22456	214166			Monitoring	2006-01-08	16.50		7.14					6.00	6.00	1.14	366m	North East
6628-14172	61141				1988-02-04	9.00	6.00		7.50	3559	6333	0.8500	2.50	2.50	3.50	370m	South East
6628-25716	263129	EQ1 27		Investigation	2010-10-13	8.00				2205	3960		6.00	6.00		373m	North East
6628-22948	231017			Investigation	2006-11-16	9.00		7.96					5.00	5.00	2.96	374m	East
6628-21719	200169	SITE 2 (MW204)		Monitoring	2004-03-04	6.50		6.95								375m	North East
6628-29326	305922			Monitoring	2018-02-22	7.50				1452	2620	0.0400	4.70	4.70		380m	North East
6628-21717	200167	MW 203		Monitoring	2004-03-04	6.50		7.04								380m	North East
6628-21718	200168	BORE 4 (MW204A)		Monitoring	2004-03-08	19.00		6.95		8280	14290	0.2000	4.50	4.50	2.45	381m	North East
6628-27701	284730	EQ 1 37			2014-10-23	8.90							5.23	5.23		382m	East
6628-27707	284745	EQ 2 22		Investigation	2014-10-22	22.40							5.26	5.26		383m	East
6628-22947	231016			Investigation	2006-11-16	20.00		7.99					6.00	6.00	1.99	384m	East
6628-15148	62117		Operational	Domestic	1990-01-02	9.00	6.00			2899	5182	0.3000	3.80	3.80	2.20	393m	South
6628-22946	231015			Investigation	2006-11-15	20.00		8.01					6.00	6.00	2.01	394m	East
6628-21711	200161			Investigation	2004-03-19	19.00		7.85		7312	12690	0.5000	5.50	5.50	2.35	396m	East
6628-29339	306164			Monitoring	2018-02-27	7.50				1631	2940	0.0400	4.98	4.98		400m	North East
6628-29555	307530			Investigation	2018-04-19	5.50										401m	North West
6628-27705	284743	EQ 2 20		Investigation	2014-10-21	17.80							5.60	5.60		403m	North East
6628-22945	231014			Investigation	2006-11-14	20.00		8.04					6.00	6.00	2.04	404m	East
6628-29335	306160			Monitoring	2018-02-23	15.00				2097	3770		5.52	5.52		405m	North East
6628-29553	307528			Investigation	2018-04-18	5.00										410m	North West
6628-22935	231004			Investigation	2006-11-12	9.00		8.06					6.00	6.00	2.06	411m	East
6628-29330	305997			Monitoring	2018-02-22	18.00				2295	4120		4.85	4.85		415m	North East
6628-13615	60584				1986-04-03	7.30	4.00		7.40	2160	3880	0.8800	3.40	3.40	0.60	418m	North West
6628-25435	259443	PQ 29		Investigation	2010-10-22	19.00										424m	North East
6628-29554	307529			Investigation	2018-04-18	5.00										425m	North West
6628-22937	231006			Investigation	2006-11-12	9.00		8.09					5.00	5.00	3.09	427m	East
6628-22936	231005			Investigation	2006-11-12	9.00		8.10					5.00	5.00	3.10	428m	East
6628-27704	284742	EQ 2 19		Investigation	2014-10-17	17.90							4.39	4.39		439m	North East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-28745	291793	MW 1		Investigation	2017-02-09	5.00							3.32	3.32		439m	North West
6628-28742	291790	MW 4		Investigation	2017-02-10	5.00							3.42	3.42		440m	North West
6628-28741	291789	MW 5		Investigation	2017-02-10	5.00							3.09	3.09		445m	North West
6628-29552	307527			Investigation	2018-04-18	5.00										446m	North West
6628-8816	55785			Drainage				7.57								447m	South East
6628-22938	231007			Investigation	2006-11-14	9.00		8.15					5.00	5.00	3.15	449m	East
6628-21712	200162	SITE 11 (BORE B)		Investigation		19.00		8.08		2493	4470	0.5000	4.00	4.00	4.08	453m	East
6628-22939	231008			Investigation	2006-11-15	9.00		8.17					5.00	5.00	3.17	458m	East
6628-29340	306165			Monitoring	2018-02-27	6.00				2025	3640	0.0200	4.97	4.97		465m	North East
6628-28743	291791	MW 3		Investigation	2017-03-08	5.00							3.23	3.23		467m	North West
6628-22940	231009			Investigation	2006-11-16	9.00		8.19					5.00	5.00	3.19	468m	East
6628-28744	291792	MW 2		Investigation	2017-02-09	5.00							3.23	3.23		469m	North West
6628-29329	305996			Monitoring	2018-02-22	16.00				6361	11100		4.50	4.50		470m	North East
6628-29336	306161			Monitoring	2018-02-27	12.50				1856	3340	0.3000	4.95	4.95		470m	North East
6628-8820	55789				1963-10-01	4.88		8.26					2.44	2.44	5.82	477m	South East
6628-22941	231010			Investigation	2006-11-14	30.00		8.22					6.00	6.00	2.22	478m	East
6628-30173	316085	LT3 MW03		Investigation	2018-11-13	8.00							7.10	7.10		483m	West
6628-24756	247216	EQIR 12		Investigation	2008-01-19	7.50							3.00	3.00		484m	East
6628-24757	247217	EQ 2R 8		Investigation	2009-01-27	17.00										487m	East
6628-22942	231011			Investigation	2006-11-11	20.00		8.24					6.00	6.00	2.24	487m	East
6628-29325	305921			Monitoring	2018-02-21	6.00				1317	2380	0.0600	4.50	4.50		490m	North East
6628-22943	231012			Investigation	2006-11-12	20.00		8.26					6.00	6.00	2.26	496m	East
6628-21834	200686	SITE 12		Monitoring	2004-07-21	35.00		6.82		43120	61600	0.5000	6.00	6.00	0.82	497m	North East
6628-30175	316087			Investigation	2018-11-16	10.00							6.00	6.00		499m	South West
6628-24758	247218	EQ 2R 9		Investigation	2009-01-26	18.00										500m	East
6628-21716	200166	SITE 10		Monitoring	2004-03-29	19.00		6.89		1815	3270	0.5000	5.00	5.00	1.89	501m	North East
6628-24759	247219	EQ IR 13		Investigation	2009-01-19	8.50							3.00	3.00		501m	East
6628-27700	284729	EQ 1 36		Investigation	2014-10-20	9.00							3.40	3.40		503m	North East
6628-16806	146767			Domestic	1994-12-08	11.00		5.21	7.00	3926	6970					505m	North West
6628-22944	231013			Investigation	2006-11-13	20.00		8.28					6.00	6.00	2.28	505m	East
6628-26937	275792			Investigation	2013-05-30	5.50							4.00	4.00		506m	South West
6628-29332	306157			Monitoring	2018-02-21	6.00				1002	1814	0.0600	4.50	4.50		507m	North East
6628-29324	305920			Monitoring	2018-02-22	18.00				5498	9660	0.0600	4.50	4.50		509m	North East
6628-26342	269767			Investigation	2012-01-11	6.00										509m	North East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-22455	214165			Monitoring	2006-01-07	15.50		8.29					6.00	6.00	2.29	513m	East
6628-29625	312438		Backfilled													521m	North
6628-30177	316089			Investigation	2018-11-15	10.00										522m	South West
6628-26348	269773			Investigation	2012-01-17	16.00										523m	North East
6628-27546	281109	MW 24		Investigation		6.00							3.50	3.50		526m	West
6628-27702	284731	EQ 1 38		Investigation	2014-10-16	9.00							5.90	5.90		526m	East
6628-27708	284746	EQ 2 23		Investigation	2014-10-23	20.70							5.95	5.95		527m	East
6628-26341	269766			Investigation	2012-01-11	6.50							4.80	4.80		528m	North East
6628-26935	275790	MW 14		Investigation	2013-05-29	6.00							4.00	4.00		533m	West
6628-26345	269770			Investigation	2012-01-13	16.00										537m	North East
6628-26346	269771			Investigation	2011-01-16	16.50										539m	North East
6628-29624	312437		Backfilled			5.00							3.50	3.50		540m	North
6628-26347	269772			Investigation	2012-01-16	16.00										540m	North East
6628-8812	55781			Drainage		76.81		7.98					4.57	4.57	3.41	540m	East
6628-26337	269762			Investigation	2012-01-09	9.80										540m	East
6628-26339	269764			Investigation	2011-01-10	7.00										541m	North East
6628-26338	269763			Investigation	2012-01-10	9.00										542m	North East
6628-26340	269765			Investigation	2012-01-10	6.00										553m	North East
6628-26344	269769			Investigation	2012-01-13	16.00										553m	East
6628-21710	200160	MW 125B		Monitoring	2004-03-18	35.00		6.86		42980	61400	0.5000	8.00	8.00	-1.14	564m	North East
6628-23345	236198				2007-07-25	10.00		4.84		2493	4470	1.5000	3.90	3.90	0.94	571m	West
6628-26349	269774			Investigation	2012-01-17	15.50										576m	North East
6628-16212	130712	GW 15		Observation		6.00		4.88								581m	South West
6628-30176	316088			Investigation	2018-11-14	10.00										583m	South West
6628-30165	316077	LT5 MW05		Investigation	2018-12-01	8.70							7.00	7.00		585m	West
6628-8811	55780		Backfilled		1914-12-10	124.05		7.46		1884	3394	12.6300	0.00	0.00	7.46	585m	North East
6628-20623	186001			Domestic	2001-06-19	12.00		8.56		1468	2650		6.00	6.00	2.56	586m	East
6628-14240	61209		Operational	Domestic	1988-05-09	10.00	5.00		7.40	3482	6200	1.2000	2.40	2.40	2.60	590m	South
6628-15679	62648		Operational	Domestic	1990-11-02	6.00		5.55	7.90	2756	4930		2.50	2.50	3.05	596m	South
6628-15989	62958		Operational	Domestic	1992-03-28	18.00		7.96	7.30	3546	6309		4.80	4.80	3.16	596m	South East
6628-30174	316086	LT5 MW01S		Investigation	2018-11-17	4.00										597m	West
6628-29412	306740		Backfilled													597m	South East
6628-30172	316084	LT5 MW01D		Investigation	2018-11-19	8.50							6.80	6.80		602m	West
6628-30169	316081	LT5 MW02		Investigation	2018-11-26	8.50							6.50	6.50		618m	West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-26336	269708			Investigation	2012-01-09	8.00										618m	East
6628-29411	306739		Backfilled													618m	South East
6628-16204	130704	GW 7		Observation		6.00		4.86								619m	South West
6628-19202	171870			Domestic	1998-09-25	11.50		6.88		2864	5120	0.7000	5.00	5.00	1.88	620m	South
6628-13613	60582				1986-03-24	9.10	7.00		7.40	2113	3799	1.2500	2.40	2.40	4.60	620m	East
6628-26936	275791	MW 15		Investigation	2013-05-30	5.50							4.00	4.00		622m	South
6628-26343	269768			Investigation	2012-01-13	21.00										628m	East
6628-30457	330189		Dry	Investigation	2019-07-09	6.00										629m	North West
6628-19205	171873			Drainage	1998-10-31	9.00		6.86				0.5000	4.00	4.00	2.86	631m	South
6628-27128	278525	GW 1		Investigation	2013-03-19	6.70							4.50	4.50		632m	South
6628-30167	316079	LT5 MW04S		Investigation	2018-11-29	4.00										635m	West
6628-30166	316078	LT5 MW04D		Investigation	2018-11-30	8.50							6.80	6.80		635m	West
6628-8629	55598				1940-04-01	91.44		4.80		10095	17262					639m	West
6628-16198	130698	GW 1		Observation		6.00		4.85								639m	South West
6628-28596	290332			Investigation	2016-11-03	6.00										639m	South East
6628-29582	307618			Investigation	2018-06-14	5.50										641m	North West
6628-27703	284732	EQ 1 39		Investigation		9.00							5.40	5.40		642m	East
6628-27709	284747	EQ 2 24		Investigation	2014-10-15	20.00							6.00	6.00		643m	East
6628-27127	278524	GW 2		Investigation	2013-03-19	5.80							4.60	4.60		646m	South
6628-29583	307619			Investigation	2018-06-14	5.50										648m	North West
6628-30290	316909			Investigation	2019-07-09	5.60										650m	North West
6628-14600	61569	GH 97	Abandoned	Investigation	1984-03-06	10.50	4.50									651m	South West
6628-8807	55776					2.44		5.61		5004	8823		2.29	2.29	3.32	653m	North
6628-30168	316080	LT5 MW03(D)		Investigation	2018-11-27	8.00							6.20	6.20		655m	West
6628-28595	290331			Investigation	2016-11-03	6.00										656m	South East
6628-29584	307620			Investigation	2018-06-14	5.50										665m	North West
6628-15810	62779		Operational	Domestic	1991-12-20	9.00		4.78	7.00	3673	6530		2.00	2.00	2.78	666m	North West
6628-30170	316082	LT4 MW02		Investigation	2018-11-22	7.00							6.20	6.20		672m	West
6628-16206	130706	GW 9		Observation		6.00		4.84								672m	South West
6628-17862	156319			Domestic	1996-04-10	12.50		8.71	6.70	2143	3850	1.0000				674m	East
6628-30458	330190		Dry	Investigation	2019-07-09	5.50										675m	North West
6628-16211	130711	GW 14		Observation		6.00		4.83								680m	South West
6628-16213	130713	GW 16		Observation		6.00		4.82								681m	South West
6628-8810	55779				1948-01-01	85.34		8.58				8.8400				684m	East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-8818	55787			Drainage	1951-08-03	67.06		8.42				2.080				687m	South East
6628-30171	316083	LT4 MW01S		Investigation	2018-11-21	4.50										694m	West
6628-27172	279159				2013-11-14	13.00				1709	3080	0.400	6.00	6.00		696m	East
6628-26934	275789	MW 13		Investigation	2013-05-29	5.50							4.00	4.00		698m	West
6628-18260	164078			Domestic	1997-02-18	12.00		8.77		2092	3760	1.000	6.00	6.00	2.77	699m	East
6628-18282	164153			Domestic	1997-01-30	12.00		6.05		1214	2050	2.000	4.50	4.50	1.55	699m	North
6628-27547	281110	MW 25		Investigation	2014-03-14	6.00										700m	West
6628-26294	269166	MW 3		Investigation	2012-03-21	7.50				4199	7440		4.00	4.00		705m	West
6628-15546	62515		Operational	Domestic	1991-03-20	7.00		7.33	7.60	2858	5109		3.50	3.50	3.83	706m	South
6628-26293	269165	MW 2		Investigation	2012-03-21	6.00				1474	2660		4.00	4.00		709m	West
6628-21137	195740			Domestic	2002-03-04	12.00		4.95		9778	1672	0.800	4.10	4.10	0.85	710m	North
6628-8819	55788					15.39		8.63					14.63	14.63	-6.00	718m	South East
6628-8626	55595	EWS QUEENS BURY			1934-11-30	158.19		4.68		1013	1834	1.010	16.76	16.76	-12.08	723m	West
6628-8627	55596	EWS 26A	Unknown		1951-06-29	177.70	4.00			1514	2732	8.590	15.24	15.24	-11.24	724m	West
6628-24570	245614							7.95								726m	South East
6628-16205	130705	GW 8		Observation		6.00		4.80								727m	South West
6628-16203	130703	GW 6		Observation		6.00		4.79								730m	South West
6628-26933	275788	MW 12		Investigation	2013-05-29	5.50							4.00	4.00		731m	South West
6628-16210	130710	GW 13		Observation		6.00		4.79								737m	South West
6628-15630	62599		Operational	Domestic	1991-09-18	9.30		6.03	7.40	7023	1220	1.500	2.10	2.10	3.93	741m	North
6628-26463	271011	MW 2		Investigation	2012-09-03	5.50							3.50	3.50		747m	South West
6628-17444	152952			Domestic	1995-11-14	15.00		8.90	7.10	2165	3890					749m	East
6628-26292	269164	MW 1		Investigation	2012-03-21	7.50				9591	1643		3.90	3.90		751m	West
6628-8628	55597	SZ 115	Unknown		1946-04-12	49.38	4.00			3438	5235	3.540	2.74	2.74	1.26	755m	West
6628-21134	195737			Domestic	2002-06-03	13.00		4.89		4479	7920	0.800	4.50	4.50	0.39	756m	South West
6628-12481	59450		Backfilled		1982-09-15	7.60		7.07					2.70	2.70	4.37	762m	South
6628-19312	173811			Domestic	1999-01-14	12.00		4.90		4465	7900	1.000	4.00	4.00	0.90	763m	South West
6628-16214	130714	GW 17		Observation		6.00		4.76					2.50	2.50	2.26	768m	South West
6628-16207	130707	GW 10		Observation		6.00		4.79								771m	South West
6628-16431	135688			Domestic	1993-06-16	12.00		4.82	7.60	1552	2800		3.00	3.00	1.82	771m	South West
6628-27548	281111	MW 26		Investigation	2014-03-13	5.50							3.50	3.50		773m	South West
6628-15513	62482		Operational	Observation	1991-01-21	7.00		7.63	7.40	2149	3861		3.00	3.00	4.63	775m	South East
6628-8817	55786		Operational	Drainage	1970-06-03	152.40		8.23	7.00	555	1009	1.010	19.20	19.20	-10.97	775m	South East
6628-16199	130699	GW 2		Observation		6.00		4.77								780m	South West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-26466	271014	MW 5		Investigation	2012-09-04	5.50							3.60	3.60		782m	South West
6628-16201	130701	GW 4		Observation		6.00		4.77								787m	South West
6628-15948	62917		Operational	Domestic	1992-02-27	7.50		4.95	7.80	5087	8962	1.0000	4.00	4.00	0.95	789m	North
6628-8808	55777					4.88		6.56		2670	4782		2.74	2.74	3.82	798m	North
6628-27549	281112	MW 27		Investigation		5.50							2.80	2.80		799m	South West
6628-26465	271013	MW 4			2012-09-04	5.50										805m	South West
6628-23496	238515			Investigation	2007-07-10	9.50		4.64					1.00	1.00	3.64	805m	North West
6628-18904	168518			Drainage	1998-02-21	24.00		4.57		18364	30000	0.5000	5.00	5.00	-0.43	812m	North West
6628-15420	62389		Operational	Domestic	1991-01-10	9.00		4.83	7.80	13671	22879		4.00	4.00	0.83	813m	North
6628-16200	130700	GW 3		Observation		6.00		4.74								817m	South West
6628-28198	288562	MW 1		Investigation	2015-06-17	5.50							3.50	3.50		821m	North West
6628-16954	147744			Domestic	1995-02-16	16.50		6.54	7.20	2290	4110					823m	South
6628-30447	326415		Backfilled													830m	East
6628-8652	55621				1934-09-01			4.78		3517	6262		1.68	1.68	3.10	831m	North West
6628-17270	150954			Domestic	1995-06-07	6.40		7.42	6.90	1917	3450					832m	South
6628-20402	183139			Drainage	2000-11-02	11.00		9.15				0.2500	7.00	7.00	2.15	839m	East
6628-16202	130702	GW 5		Observation		6.00		4.73								843m	South West
6628-16208	130708	GW 11		Observation		6.00		4.74								847m	South West
6628-26304	269276	BORE 1	Operational	Managed Aquifer Recharge (incl ASR)	2011-11-03	247.00						25.0000	14.00	14.00		853m	North East
6628-22572	218412			Drainage	2005-04-06	10.20		9.17		1222	2210	1.0000	5.40	5.40	3.77	854m	East
6628-8747	55716	QE H 2	Unknown		1966-07-21	15.54		8.48								858m	South East
6628-17638	154951	MW 2		Observation	1996-01-17	8.00		7.23								860m	North East
6628-14256	61225				1988-08-24	8.50	3.00		7.50	3109	5550	1.7000	1.60	1.60	1.40	860m	North West
6628-8651	55620				1934-09-01			4.82		2469	4427		2.29	2.29	2.53	868m	North
6628-19364	174001			Domestic	1999-02-18	12.00		5.46		2171	3900	1.0000	4.50	4.50	0.96	873m	South West
6628-18239	163076			Domestic	1997-01-07	30.00		6.07		24470	38800	0.5000	11.00	11.00	-4.93	874m	North
6628-30237	316746			Investigation	2019-05-09	9.00										876m	South East
6628-30236	316745		Dry	Investigation	2019-05-15	26.00										876m	South East
6628-26605	272707				2012-12-18	192.00				2108	3790	30.0000	17.00	17.00		880m	North East
6628-20100	178734			Industrial	2000-03-02	121.00		4.50	7.80	1090	1890	1.5000	20.60	20.60	-16.10	882m	North West
6628-21504	198123			Domestic	2003-07-15	18.00		7.29		2585	4630	1.5000	8.10	8.10	-0.81	883m	South
6628-8748	55717	QE H 1	Unknown		1966-07-12	30.33		8.37								884m	South East
6628-26939	275794	MW 18		Investigation	2013-05-30	5.50							4.00	4.00		886m	South West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-30296	316946		Dry	Monitoring	2019-05-21	8.00										891m	South East
6628-28469	289547	MW 1		Investigation	2016-06-01	6.20							4.50	4.50		892m	North West
6628-26303	269275	BORE 2	Operational	Managed Aquifer Recharge (incl ASR)	2011-11-19	265.00						30.0000	13.00	13.00		897m	North East
6628-17769	156010	BH 26		Observation	1995-08-23	6.00		4.57	7.90	2143	3850		3.23	3.23	1.34	898m	West
6628-8749	55718	QEH 3	Unknown		1966-07-26	15.70		8.00								900m	South East
6628-8751	55720	QEH 6	Unknown		1954-11-16	12.50		8.56					3.66	3.66	4.90	902m	South East
6628-15578	62547		Operational	Domestic	1991-05-25	9.00	7.00		7.60	1968	3540	1.0000	4.50	4.50	2.50	907m	South East
6628-16209	130709	GW 12		Observation		6.00		4.70								908m	South West
6628-26467	271015	MW 6		Investigation	2012-09-05	5.00							3.80	3.80		908m	South West
6628-26464	271012	MW 3		Investigation	2012-09-04	5.50							3.60	3.60		913m	South West
6628-26870	275327	MW 21		Investigation	2013-06-25	11.50							4.05	4.05		917m	South West
6628-28199	288563	MW 2		Investigation	2015-06-17	5.50							3.20	3.20		917m	North West
6628-8821	55790					9.14		8.86		2173	3904					922m	South East
6628-30295	316945			Monitoring	2019-05-20	8.00										922m	South East
6628-8752	55721	QEH 5	Unknown		1954-11-10	12.19		8.34					3.66	3.66	4.68	924m	South East
6628-12181	59150		Backfilled		1983-02-24	12.10	4.00		7.30	8472	14594	1.0000	4.80	4.80	-0.80	924m	North
6628-17637	154950	MW 1		Observation	1996-01-17	8.20		7.10								925m	North East
6628-28200	288564	MW 3		Investigation	2015-06-17	5.50							3.00	3.00		926m	North West
6628-17774	156015	BH 25		Observation	1995-08-24	6.00		4.55	7.80	3246	5790		3.21	3.21	1.34	928m	West
6628-26697	274253	MW 1	Backfilled		2012-12-06	9.00							3.50	3.50		933m	West
6628-19135	170069	BH 47		Observation	1996-07-04	10.00		4.55					3.75	3.75	0.80	933m	West
6628-30241	316752			Investigation	2019-05-10	9.00										934m	South East
6628-23071	234179				2007-09-03	8.50		8.52					6.00	6.00	2.52	936m	East
6628-25121	254203	MW 23		Investigation	2010-01-27	5.00							3.80	3.80		937m	West
6628-13368	60337		Operational	Irrigation	1985-07-08	198.00		8.99	8.20	1586	2860	8.0000	8.00	8.00	0.99	937m	East
6628-17773	156014	BH 24		Observation	1995-08-23	6.00		4.55	7.70	4147	7350		3.40	3.40	1.15	939m	West
6628-19136	170089	BH 48		Observation	1996-07-04	8.00		4.55					3.83	3.83	0.72	939m	West
6628-29277	305528			Investigation	2017-12-21	6.00										939m	West
6628-28201	288565	MW 4		Investigation	2015-06-18	5.50							3.10	3.10		940m	North West
6628-19140	170093	BH 52		Observation	1996-04-24	9.00		4.56					3.85	3.85	0.71	941m	West
6628-28773	293050	GW 3		Investigation	2017-04-04	4.50							2.70	2.70		947m	North West
6628-8625	55594	SA BREWING CO			1961-02-14	6.40		4.52					2.59	2.59	1.93	947m	West
6628-25126	254208	MW 14R		Investigation	2010-01-29	5.20							3.80	3.80		947m	West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-28772	293049	GW 2		Investigation	2017-04-04	5.00							3.00	3.00		950m	North West
6628-19905	177385		Backfilled	Monitoring	1999-12-01	8.00		9.13					5.16	5.16	3.97	952m	South East
6628-19137	170090	BH 49		Observation	1996-07-04	9.00		4.55					3.85	3.85	0.70	956m	West
6628-20156	180556		Backfilled	Monitoring	2000-01-19	15.00		9.13					5.23	5.23	3.90	956m	South East
6628-25125	254207	MW 15R		Investigation	2010-01-29	5.00							3.60	3.60		958m	West
6628-25127	254209	MW 6R		Investigation	2010-01-27	5.00							3.90	3.90		958m	West
6628-26368	270171	MW 3R	Backfilled	Investigation	2012-02-07	5.00										958m	West
6628-25118	254200	MW 6R		Investigation	2010-01-29	5.00							3.60	3.60		958m	West
6628-26367	270170	MW 2R		Investigation	2012-02-07	4.50										962m	West
6628-26366	270169	MW 1R	Backfilled	Investigation	2012-02-07	5.00										964m	West
6628-14601	61570	GH 98	Abandoned	Investigation	1984-03-07	10.65	4.00									965m	North West
6628-8636	55605				1934-03-01	176.78		4.65		899	1631	6.3200	9.30	9.30	-4.65	965m	West
6628-19138	170091	BH 50		Observation	1996-07-05	10.00		4.54					3.79	3.79	0.75	966m	West
6628-26468	271016	MW 7		Investigation	2012-09-05	4.00							3.60	3.60		967m	West
6628-25074	253611															967m	West
6628-25072	253609		Backfilled													969m	West
6628-26370	270173	MW 27		Investigation	2012-02-06	5.00										972m	West
6628-23490	238508			Investigation	2007-07-05	14.00		8.37					10.00	10.00	-1.63	973m	North East
6628-25119	254201	MW 25		Investigation	2010-01-28	5.00							3.70	3.70		976m	West
6628-26371	270174	MW 28		Investigation	2012-02-06	5.00										976m	West
6628-30542	332613		Dry	Monitoring	2019-12-19	22.00										977m	South East
6628-21538	198301			Domestic	2003-10-21	7.00		4.41		11092	18830	0.6700	2.00	2.00	2.41	977m	North West
6628-29276	305527			Investigation	2017-12-21	6.00										978m	West
6628-25122	254204	MW 22		Investigation	2010-01-28	5.00							3.70	3.70		980m	West
6628-26369	270172	MW 4R	Backfilled	Investigation	2012-02-07	4.50										981m	West
6628-26479	271043	BORE 2	Backfilled			5.20							3.80	3.80		982m	South
6628-12482	59451	SZ 124	Abandoned		1983-06-15	21.30	4.00		7.10	10162	17344	4.0000	3.60	3.60	0.40	982m	North
6628-29279	305530			Investigation	2017-12-21	6.00										987m	West
6628-25128	254210	MW 5R		Investigation	2010-01-29	5.00							3.60	3.60		987m	West
6628-25073	253610		Backfilled													987m	West
6628-25124	254206	MW 20		Investigation	2010-01-28	5.00							4.50	4.50		988m	West
6628-17772	156013	BH 23		Observation	1995-08-23	4.50		4.52	7.20	2239	4020		3.18	3.18	1.34	989m	West
6628-26480	271044	BORE 1	Backfilled			3.00										989m	South
6628-26207	267550			Investigation	2012-02-16	7.50										990m	West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-25120	254202	MW 24		Investigation	2010-01-28	5.00							3.50	3.50		991m	West
6628-19139	170092	BH 51		Observation	1996-07-05	9.00		4.54					3.84	3.84	0.70	993m	West
6628-30238	316747			Investigation	2019-05-14	26.00										998m	South East
6628-30239	316750			Investigation	2019-05-09	9.00										998m	South East
6628-8650	55619				1934-09-01			4.76		10453	17841		2.13	2.13	2.63	1001m	North
6628-25123	254205	MW 21		Investigation	2010-01-29	5.00							3.40	3.40		1001m	West
6628-17032	148202	SZ 46				8.46	7.00									1004m	South
6628-26470	271018	MW 9		Investigation	2012-09-07	4.50							3.70	3.70		1004m	West
6628-17771	156012	BH 22		Observation	1995-08-24	6.00		4.54	7.50	6751	11760		3.77	3.77	0.77	1004m	West
6628-26469	271017	MW 8		Investigation	2012-09-07	5.00							3.60	3.60		1005m	West
6628-26625	272847	WELL 5	Operational	Managed Aquifer Recharge (incl ASR)	2013-02-04	258.00				2138	3840	30.0000	12.00	12.00		1006m	North East
6628-26932	275787	MW 11		Investigation	2013-05-29	5.50							4.00	4.00		1009m	South West
6628-28771	293048	GW 1	Backfilled	Investigation	2017-04-03	5.00										1010m	North West
6628-16955	147745			Domestic	1995-03-02	16.00		4.86	7.40	6062	10600					1013m	South West
6628-8806	55775					4.88		5.29	7.00	3315	5911					1018m	North
6628-30240	316751			Investigation	2019-05-10	9.00										1025m	South East
6628-15593	62562		Operational	Domestic	1991-08-03	12.00		7.26	7.60	2619	4691	1.5000	4.70	4.70	2.56	1031m	South East
6628-12302	59271		Operational	Domestic		6.10		7.72								1031m	South East
6628-26606	272708	WELL 6	Operational	Managed Aquifer Recharge (incl ASR)	2012-09-20	253.00				2955	5280	30.0000	12.50	12.50		1032m	North
6628-15246	62215		Operational	Domestic	1989-12-01	8.00		7.77	7.40	2036	3661	0.0000	4.00	4.00	3.77	1034m	South East
6628-8805	55774					4.27		5.28	7.00	3245	5789					1039m	North
6628-13692	60661				1986-07-05	8.00		7.79					4.00	4.00	3.79	1047m	South East
6628-23633	240122				2007-03-26	22.20		4.77		3126	5580	0.6700	4.50	4.50	0.27	1050m	South West
6628-8753	55722					6.10		8.11		4198	7441					1050m	South East
6628-12310	59279				1983-01-03	6.00		7.85					4.00	4.00	3.85	1050m	South East
6628-19171	171010			Domestic	1998-09-19	18.00		9.38		1765	3180		7.50	7.50	1.88	1058m	South East
6628-30243	316769		Dry	Investigation	2019-05-13	34.00										1059m	South East
6628-19904	177384		Backfilled	Monitoring	1999-12-01	8.00		9.12					5.66	5.66	3.46	1060m	South East
6628-8809	55778				1945-01-01	24.38		8.49		3684	6553					1064m	East
6628-8649	55618				1934-09-01			4.72		3817	6784		1.68	1.68	3.04	1064m	North
6628-21032	195076			Domestic	2000-12-07	32.00		6.09		882	1600	0.5000	12.00	12.00	-5.91	1064m	North
6628-22439	212437	GW 1		Investigation	2006-03-15	5.70		4.89								1065m	South West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-30297	316947		Dry	Monitoring	2019-05-21	8.00										1065 m	South East
6628-17770	156011	BH 21		Observation	1995-08-23	6.00		4.51	7.80	2290	4110		3.73	3.73	0.78	1066 m	West
6628-20155	180555			Monitoring	2000-02-03	25.00		9.23								1076 m	South East
6628-13484	60453		Operational	Irrigation	1985-08-01	6.09		9.68	7.80	2182	3920		4.57	4.57	5.11	1077 m	East
6628-20312	182015			Investigation	2000-08-11	40.00		9.23								1081 m	South East
6628-8828	55797					3.96		9.69		2830	5063		3.20	3.20	6.49	1081 m	East
6628-8734	55703					18.29		6.54		1859	3349		13.41	13.41	-6.87	1083 m	South
6628-26940	275795	MW 19		Investigation	2013-05-31	5.50							4.00	4.00		1085 m	West
6628-8635	55604	HENDON PRIMARY	Backfilled	Irrigation; Observation	1971-06-10	128.93	3.69	4.46	7.80	50540	72200	3.9400	12.04	12.81	-8.35	1088 m	West
6628-8829	55798					9.14	8.00			5526	9709	3.7900				1094 m	East
6628-26462	271010	MW 1		Investigation	2012-09-03	5.50							3.60	3.60		1096 m	South West
6628-16121	63090		Operational	Domestic	1992-07-06	11.20		9.73	7.30	2182	3920	1.0000	4.30	4.30	5.43	1098 m	East
6628-20235	181056			Drainage	2000-05-23	15.00		7.55		1423	2570		5.70	5.70	1.85	1101 m	South East
6628-30298	316948		Dry	Monitoring	2019-05-20	8.00										1105 m	South East
6628-14602	61571	GH 99	Abandoned	Investigation	1984-03-07	10.50	4.00									1110 m	West
6628-20316	182019		Backfilled	Investigation	2000-08-11	40.00		9.10								1114 m	South East
6628-19901	177381			Monitoring	1999-12-01	8.00		9.18					5.39	5.39	3.79	1115 m	South East
6628-19900	177380			Monitoring	1999-12-01	8.00		9.18					5.57	5.57	3.61	1115 m	South East
6628-26471	271019	MW 10		Investigation	2012-09-07	5.00							3.80	3.80		1115 m	West
6628-19899	177379			Monitoring	1999-12-01	8.00		9.18					5.80	5.80	3.38	1116 m	South East
6628-26886	275627	MW 6		Investigation	2012-08-23	4.50							2.50	2.50		1116 m	North West
6628-8681	55650							6.01		6434	11250					1117 m	South
6628-8638	55607					91.44		4.62								1117 m	South West
6628-19906	177386			Monitoring	1999-12-01	15.00		9.18					5.43	5.43	3.75	1118 m	South East
6628-19400	174183			Domestic	1999-02-16	18.00		8.80		1055	1910	1.0000	6.60	6.60	2.20	1125 m	South East
6628-19907	177387			Monitoring	1999-12-01	15.00		9.22					5.64	5.64	3.58	1131 m	South East
6628-19902	177382			Monitoring	1999-12-01	8.00		9.18					5.64	5.64	3.54	1132 m	South East
6628-19898	177378			Monitoring	1999-12-01	8.00		9.20					5.44	5.44	3.76	1133 m	South East
6628-20311	182014			Investigation	2000-08-11	40.00		9.24								1135 m	South East
6628-20153	180553			Monitoring	2000-02-02	15.00		9.30								1135 m	South East
6628-26624	272846	WELL 7	Operational	Managed Aquifer Recharge (incl ASR)	2013-01-22	258.00				2761	4940	30.0000	14.00	14.00		1135 m	North
6628-12953	59922				1984-01-01	5.00		6.22					3.00	3.00	3.22	1136 m	North
6628-20313	182016			Investigation	2000-08-11	57.00		9.26								1137 m	South East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-30299	316949		Dry	Monitoring	2019-05-20	8.00										1141 m	South East
6628-20315	182018			Investigation	2000-08-11	40.00		9.34								1145 m	South East
6628-20154	180554		Backfilled	Monitoring	2000-02-01	15.00		9.11								1154 m	South East
6628-22440	212443	GW 2		Investigation	2006-03-15	5.60		4.80					3.20	3.20	1.60	1155 m	South West
6628-19903	177383			Monitoring	1999-12-01	8.00		9.19					5.74	5.74	3.45	1157 m	South East
6628-8637	55606				1947-03-02	134.72		4.59		686	1245	5.0500	13.11	13.11	-8.52	1160 m	West
6628-20321	182024			Investigation	2000-04-19	57.00		9.24								1161 m	South East
6628-16777	146336			Drainage	1994-09-30	16.50		7.85	7.10	1782	3210					1162 m	South East
6628-20152	180552			Monitoring	2000-02-02	15.00		9.22								1163 m	South East
6628-20320	182023			Investigation	2000-04-18	40.00		9.25								1165 m	South East
6628-21685	199979			Monitoring	2004-05-28	40.00		8.69					9.00	9.00	-0.31	1166 m	South East
6628-21535	197652				2003-04-12	45.00		9.22					5.92	5.92	3.30	1167 m	South East
6628-20151	180551			Monitoring	2000-02-02	25.00		9.23								1168 m	South East
6628-28346	289026	MW 8		Investigation	2015-10-15	5.50							3.90	3.90		1168 m	North West
6628-26869	275326	MW 22		Investigation	2013-06-26	9.20							4.67	4.67		1169 m	West
6628-26941	275796	MW 20		Investigation	2013-05-31	5.50							4.00	4.00		1170 m	West
6628-18105	162766			Domestic	1996-11-19	15.00		9.90		2323	4170	1.0000	6.00	6.00	3.90	1172 m	East
6628-30541	332612		Dry	Monitoring	2019-12-17	23.00										1172 m	South East
6628-13902	60871			Drainage	1987-02-23	14.60	6.00					0.8800	6.10	6.10	-0.10	1173 m	North East
6628-17008	148174	SZ 12				13.50	8.00									1175 m	East
6628-8823	55792	EWS 68	Backfilled	Observation	1945-11-21	110.34	8.72		6.80	519	943	22.5000	13.72	13.72	-5.00	1178 m	South East
6628-26607	272709	WELL 9	Operational	Managed Aquifer Recharge (incl ASR)	2012-09-06	259.00				3230	5760	30.0000	12.00	12.00		1184 m	North East
6628-26608	272710		Operational	Managed Aquifer Recharge (incl ASR)	2012-08-24	259.00				3287	5860	30.0000	12.50	12.50		1186 m	North East
6628-26582	272259	MW1/GW 1		Monitoring	2012-08-05	6.00							4.50	4.50		1186 m	South East
6628-28344	289024	MW 6		Investigation	2015-10-15	5.50							3.10	3.10		1190 m	North West
6628-26584	272261	MW3/GW 3		Monitoring	2012-08-05	6.20							3.70	3.70		1192 m	South East
6628-12364	59333			Domestic	1983-01-01	6.00	8.00			1720	3100	0.5000	4.20	4.20	3.80	1192 m	East
6628-8827	55796					9.14		9.87		1887	3399					1194 m	East
6628-26583	272260	MW2/GW 2		Monitoring	2012-08-05	6.00							3.80	3.80		1195 m	South East
6628-22441	212444	GW 3		Investigation	2006-03-15	5.70		4.82								1197 m	South West
6628-20099	178733			Irrigation	2000-01-25	15.00		6.09		3259	5810	4.0000	3.00	3.00	3.09	1197 m	South
6628-28345	289025	MW 7		Investigation	2015-10-15	5.50							2.50	2.50		1199 m	North West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-20314	182017			Investigation	2000-08-11	40.00		9.28								1207 m	South East
6628-20343	182321			Deepening; Drainage	2000-08-23	24.00		9.08		1647	2970	2.5000	4.30	4.30	4.78	1208 m	East
6628-12525	59494		Operational	Domestic	1983-10-17	12.10	4.00		7.60	3137	5600	1.0000	2.00	2.00	2.00	1209 m	West
6628-16612	141360			Domestic	1994-04-06	18.00		8.08	7.00	1962	3530					1210 m	South East
6628-18534	165914			Domestic	1997-05-26	12.00		9.82		2165	3890	2.0000	6.00	6.00	3.82	1215 m	East
6628-8620	55589	EWS 69			1946-01-22	118.87		4.18		1613	2909	25.2600	4.27	4.27	-0.09	1217 m	North West
6628-29726	312796		Backfilled			5.50							3.50	3.50		1217 m	North
6628-29727	312797		Backfilled			5.00							3.50	3.50		1224 m	North
6628-8682	55651				1946-01-01	123.44		5.79		671	1218	7.5800	11.28	11.28	-5.49	1224 m	South
6628-28343	289023	MW 5			2015-10-15	5.50							3.30	3.30		1227 m	North West
6628-29728	312798		Backfilled			5.00							3.50	3.50		1227 m	North
6628-14406	61375		Operational	Drainage	1989-04-24	7.90	4.00		7.60	5827	10207	1.2000	3.60	3.60	0.40	1230 m	North
6628-29729	312799		Backfilled			5.00							3.50	3.50		1233 m	North
6628-28342	289022	MW 4		Investigation	2015-10-15	5.50							3.20	3.20		1235 m	North West
6628-26700	274279	WELL 2		Monitoring		5.60							3.50	3.50		1235 m	North
6628-30016	315079			Investigation	2018-12-10	4.90										1237 m	North East
6628-26741	274677		Backfilled			5.60										1239 m	North
6628-8634	55603					114.30		4.49		999	1809	3.7900	0.00	0.00	4.49	1240 m	West
6628-19908	177388			Monitoring	1999-12-01	15.00		9.30					5.87	5.87	3.43	1240 m	South East
6628-19897	177377			Monitoring	1999-12-01	8.00		9.30					5.84	5.84	3.46	1241 m	South East
6628-18862	168283			Domestic	1998-03-16	12.00		4.52		7144	12420		5.00	5.00	-0.48	1245 m	West
6628-21286	196958			Drainage	2003-06-05	10.00		8.23		3202	5710	0.7500	4.60	4.60	3.63	1246 m	South East
6628-13285	60254				1985-02-19	14.60	8.00		7.60	2567	4600	1.5000	2.00	2.00	6.00	1252 m	South East
6628-13336	60305				1985-06-05	6.00	3.00		7.30	8343	14399	0.5000	3.00	3.00	0.00	1255 m	North West
6628-8838	55807							6.09		15136	25155					1257 m	North
6628-21472	198068			Domestic	2003-05-13	10.50		5.92		21191	34100	1.5000	3.70	3.70	2.22	1258 m	North
6628-26740	274676	BH12/GW06	Backfilled			5.60										1262 m	North
6628-12489	59458				1983-09-21	6.00		9.34	8.10	2824	5050					1267 m	East
6628-28692	290959	MW 9		Investigation	2016-06-20	5.50							3.14	3.14		1268 m	North West
6628-15577	62546		Operational	Domestic	1991-05-25	9.00	9.00		8.00	2042	3672	1.0000	4.30	4.30	4.70	1270 m	East
6628-8804	55773							5.33		8210	14194					1270 m	North
6628-29986	315042			Investigation	2018-10-09	5.00										1270 m	North East
6628-13832	60801				1986-11-21	9.10	8.00		8.00	2874	5138	1.2500	3.70	3.70	4.30	1271 m	South East
6628-13831	60800				1986-11-21	11.00	8.00		8.40	1917	3450	1.2500	4.30	4.30	3.70	1271 m	South East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-8639	55608					111.25		4.67		817	1482					1275 m	South West
6628-14599	61568	GH 96	Abandoned	Investigation	1984-03-06	10.50	8.00									1279 m	East
6628-8687	55656					3.05		5.48	8.00	3030	5413					1282 m	South
6628-18742	167521			Domestic	1998-01-21	17.00		7.63		11407	19330	0.1300	7.00	7.00	0.63	1283 m	North East
6628-12469	59438		Backfilled		1983-07-27	10.90	4.00		7.50	19474	31600	1.2000	1.80	1.80	2.20	1286 m	North
6628-8830	55799					27.43		9.31		2960	5291	5.0500				1289 m	East
6628-8688	55657					15.24	6.00			3717	6609	15.1600	4.57	4.57	1.43	1289 m	South
6628-11862	58831		Backfilled		1981-11-17	12.80	3.00		7.80	9091	15601	1.5000	2.40	2.40	0.60	1290 m	West
6628-21112	195566			Drainage	2002-11-07	14.00		9.47		2585	4630		14.00	14.00	-4.53	1291 m	East
6628-30015	315078			Investigation	2018-12-18	5.00										1297 m	North
6628-8686	55655				1934-01-01	9.14	6.00			4633	8190	1.2600	6.40	6.40	-0.40	1300 m	South
6628-8648	55617				1934-09-01			4.52		9380	16098		2.13	2.13	2.39	1304 m	North
6628-8735	55704				1934-01-01	16.76		6.76		2500	4482					1305 m	South
6628-18623	166781				1997-07-10	13.00		5.51		2784	4980	1.5000	3.80	3.80	1.71	1310 m	South
6628-15421	62390				1991-01-04	10.50	7.00		7.60	6811	11865	1.5000	2.10	2.10	4.90	1311 m	North East
6628-30103	315774			Investigation	2019-02-20	5.20										1315 m	North East
6628-27858	285450	GW 207	Backfilled	Investigation	2015-05-20	7.60							2.80	2.80		1319 m	North West
6628-29981	315036			Investigation	2018-10-29	6.50										1319 m	North East
6628-30012	315075			Investigation	2018-12-10	4.70										1324 m	North East
6628-27199	279282	GW 2	Backfilled	Investigation	2014-03-11	5.30							2.70	2.70		1324 m	North West
6628-27857	285449	GW 206	Backfilled	Investigation	2015-05-20	5.50							3.00	3.00		1336 m	North West
6628-8754	55723	EWS 56	Backfilled	Town Water Supply (Public/Municipal)	1945-12-18	131.37		8.63		775	1405	6.3200	52.00	52.00	-43.37	1337 m	South East
6628-27898	285728			Investigation	2015-07-07	17.50							15.00	15.00		1339 m	West
6628-27855	285447	GW 204	Backfilled		2015-05-21	5.60							3.20	3.20		1340 m	North West
6628-8755	55724					6.10		8.50		3031	5414		4.27	4.27	4.23	1341 m	South East
6628-19972	177804			Domestic	1999-12-08	15.00		10.18		1878	3380	1.0000	7.30	7.30	2.88	1341 m	East
6628-28446	289523	GW 1	Backfilled			5.00										1344 m	North West
6628-18433	164542			Domestic	1996-12-17	15.00		9.70		2347	4210	0.8000	6.00	6.00	3.70	1345 m	East
6628-19706	176794			Domestic	1999-09-20	16.50		8.13		2693	4820	1.0000	6.60	6.60	1.53	1347 m	South East
6628-12458	59427				1981-03-09	42.10		8.01								1348 m	North East
6628-26844	274969	WELL 4 (T2)	Operational	Managed Aquifer Recharge (incl ASR)	2013-03-01	258.00				2688	4810	30.0000	7.50	7.50		1355 m	West
6628-30017	315080			Investigation	2018-12-10	5.00										1360 m	North

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-27856	285448	GW 205	Backfilled	Investigation	2015-05-21	5.80							3.50	3.50		1362 m	North West
6628-29992	315048			Investigation	2018-10-19	5.50										1368 m	North East
6628-26846	274971	WELL 6 (T2)	Operational	Managed Aquifer Recharge (incl ASR)						2732	4890					1369 m	West
6628-8736	55705					18.29	7.00					15.1600	6.10	6.10	0.90	1370 m	South
6628-28447	289524	GW 3	Backfilled			5.00										1371 m	North West
6628-30102	315773			Investigation	2019-02-21	5.20										1372 m	North East
6628-11496	58465		Backfilled		1980-03-15	11.70	5.00		7.80	7513	13013	1.2500	3.60	3.60	1.40	1372 m	South
6628-27457	280685	GW 3	Backfilled			10.00							6.90	6.90		1379 m	South East
6628-30104	315775			Investigation	2019-02-19	5.20										1381 m	North East
6628-8690	55659					15.24	6.00			3698	6578	18.9500	4.57	4.57	1.43	1382 m	South
6628-29987	315043			Investigation	2018-10-12	6.00										1382 m	North East
6628-8742	55711					16.76		7.54		2500	4482					1387 m	South
6628-15914	62883		Operational	Domestic	1992-02-19	13.00		4.69	7.10	17320	28439		5.00	5.00	-0.31	1389 m	North
6628-17499	153302			Domestic	1995-12-15	12.00		9.97	6.90	2188	3930	1.0000				1392 m	East
6628-17791	156060			Domestic	1996-03-26	16.00		8.41	6.70	2949	5270	1.0000				1393 m	South East
6628-19708	176796			Domestic	1999-09-18	18.00		9.74		1883	3390	1.0000	7.50	7.50	2.24	1394 m	East
6628-15871	62840		Operational	Domestic	1992-01-30	15.00		10.11	7.10	2042	3672		6.00	6.00	4.11	1395 m	East
6628-18551	165948			Domestic	1997-02-25	14.00		5.65		2693	4820	2.0000	4.00	4.00	1.65	1396 m	South
6628-18535	165915			Domestic	1997-03-10	12.00		9.86		2323	4170	2.0000	6.00	6.00	3.86	1399 m	East
6628-8685	55654				1934-12-04	191.72		5.31		6197	10856	7.5800	4.57	4.57	0.74	1409 m	South
6628-28825	294075			Investigation	2017-04-27	7.50										1410 m	South East
6628-15322	62291		Operational	Irrigation	1990-07-18	207.00		8.80	7.60	657	1192	0.0000	0.00	0.00	8.80	1412 m	South East
6628-30291	315038			Investigation	2018-10-23	6.00										1412 m	North East
6628-12203	59172				1983-03-23	12.10	8.00		7.10	2909	5200	1.2500	5.40	5.40	2.60	1414 m	East
6628-27458	280686	GW 2	Backfilled			10.00										1415 m	South East
6628-8647	55616					3.05		4.29	7.00	1115	2018		1.83	1.83	2.46	1416 m	North
6628-16219	130752			Domestic		14.00		9.90	7.30	2618	4690	1.2000	5.00	5.00	4.90	1419 m	East
6628-10948	57917					6.05		9.14	6.90	121	220		4.65	4.65	4.49	1420 m	East
6628-13292	60261				1985-03-22	26.00		10.01	7.40	2001	3600	3.0000				1421 m	East
6628-29995	315051			Investigation	2018-10-25	5.00										1422 m	North East
6628-11897	58866				1981-12-24	7.60	6.00		7.30	2088	3754	0.7500	2.10	2.10	3.90	1422 m	South
6628-28824	294074			Investigation	2017-04-27	7.50										1427 m	South East
6628-8689	55658				1945-01-01	119.18		5.07		713	1294	6.3200	5.79	5.79	-0.72	1427 m	South

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-13424	60393				1985-06-30	10.50		5.06	8.10	2852	5100		3.50	3.50	1.56	1436 m	South
6628-17157	149660			Domestic	1995-03-06	18.00		8.05	7.10	3437	6120					1436 m	North East
6628-30091	315762			Investigation	2019-02-22	5.20										1442 m	North East
6628-8684	55653					24.38		4.98		4612	8153					1442 m	South
6628-21861	200894			Drainage		9.00		4.95		4268	7560		3.30	3.30	1.65	1443 m	South West
6628-18259	164077			Domestic	1997-02-06	15.00		4.98		1917	3450	1.0000	3.90	3.90	1.08	1444 m	South
6628-28822	294072			Investigation		7.50										1444 m	South East
6628-28823	294073			Investigation		7.50										1445 m	South East
6628-11581	58550				1979-04-24	7.31	4.00		7.20	6119	10700	2.2500	3.65	3.65	0.35	1449 m	North East
6628-28821	294071			Investigation	2017-04-27	8.00										1449 m	South East
6628-25567	262290				2009-12-17	22.00				1979	3560	1.5000	4.00	4.00		1453 m	East
6628-13485	60454		Operational	Domestic	1985-10-24	16.00		7.45	7.60	2828	5057		3.00	3.00	4.45	1454 m	South
6628-13860	60829				1987-01-15	4.70		4.74					2.80	2.80	1.94	1454 m	South West
6628-22464	214182			Monitoring	2006-01-17	11.50		7.18				0.0100	9.60	9.60	-2.42	1455 m	North East
6628-8691	55660					15.24	6.00			3717	6609	12.6300	4.57	4.57	1.43	1455 m	South
6628-12369	59338				1983-04-27	9.00		5.37	7.30	1244	2250	11.0000	3.50	3.50	1.87	1458 m	South
6628-30019	315082			Investigation	2018-12-13	5.00										1460 m	North East
6628-18405	164464			Domestic	1997-01-02	18.00		4.37		8476	14600					1463 m	West
6628-29988	315044			Investigation	2018-10-12	6.50										1468 m	North East
6628-8826	55795					21.95		10.52					6.25	6.25	4.27	1469 m	East
6628-8646	55615					4.57		4.18		2359	4234		1.52	1.52	2.66	1475 m	North
6628-13306	60275				1985-03-24	22.00	4.00		7.60	2591	4640	1.0000	2.00	2.00	2.00	1476 m	South West
6628-30101	315772			Investigation	2019-02-20	5.20										1478 m	North East
6628-8848	55817		Operational	Drainage	1963-07-22	9.45		7.53								1478 m	North East
6628-8743	55712					15.24		7.61		2500	4482					1479 m	South
6628-11598	58567			Observation	1979-03-07	9.14	7.42		7.50	3339	5950	2.2500	4.92	4.92	2.50	1481 m	North East
6628-16877	147403			Domestic	1995-02-16	18.50		9.63	6.90	2307	4140					1481 m	East
6628-8645	55614					6.40		4.11		4669	8251		3.05	3.05	1.06	1484 m	North West
6628-24741	247136				2008-11-10	11.50		5.40		3235	5770	1.0000	7.00	7.00	-1.60	1486 m	South
6628-25932	265255		Backfilled	Irrigation	1975-01-06	241.00			7.90	1021	1850					1490 m	South East
6628-8644	55613					4.88		4.07		11838	20024		2.44	2.44	1.63	1490 m	North West
6628-16951	147741			Domestic	1995-01-12	15.00		10.02	7.20	2069	3720					1490 m	East
6628-29982	315037			Investigation	2018-10-11	6.00										1491 m	North East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-26843	274968	WELL 3 (T2)	Operational	Managed Aquifer Recharge (incl ASR)		258.00				2596	4650	30.0000	7.00	7.00		1494 m	West
6628-8847	55816	BIRREL & CO, ELECTROPLATES			1963-07-19	102.11		7.47	7.40	2262	4060	6.3200	9.75	9.75	-2.28	1494 m	North East
6628-8834	55803					6.10		8.43	7.00	4430	7841		4.27	4.27	4.16	1500 m	East
6628-23191	235873				2007-01-24	12.00		8.85		785	1423	2.0000	5.80	5.80	3.05	1502 m	East
6628-18822	167956			Domestic	1998-02-06	16.50		10.25		1821	3280	1.0000	7.80	7.80	2.45	1507 m	East
6628-22465	214183			Monitoring	2006-01-17	11.50		7.11				0.0100	9.60	9.60	-2.49	1511 m	North East
6628-15988	62957		Operational	Domestic	1992-04-12	6.00		4.28	8.20	4270	7562		3.00	3.00	1.28	1512 m	North West
6628-30022	315085			Investigation	2018-12-11	5.00										1513 m	North
6628-8841	55810					6.10	4.00			9424	16173	0.3800	2.44	2.44	1.56	1516 m	North East
6628-8839	55808					3.05	4.00			5911	10374	0.1300	1.83	1.83	2.17	1516 m	North East
6628-8840	55809					4.27	4.00			6383	11161	0.1900	1.83	1.83	2.17	1516 m	North East
6628-8842	55811							6.10		10738	18295					1517 m	North East
6628-13858	60827				1986-11-24	9.10	8.00		7.10	2194	3940	1.0000	5.20	5.20	2.80	1519 m	South East
6628-29996	315052			Investigation	2018-10-18	5.00										1522 m	North East
6628-29306	305890	GW 1				4.60										1522 m	North East
6628-26845	274970	WELL 5 (T2)	Operational	Managed Aquifer Recharge (incl ASR)	2013-06-21					2636	4720	30.0000	9.60	9.60		1524 m	West
6628-22463	214181			Monitoring	2006-01-18	11.50		6.85				0.0100	9.40	9.40	-2.55	1527 m	North East
6628-8692	55661	EWS.28	Rehabilitated	Observation	1945-12-18	131.98	6.07		8.40	707	1283	3.0000	6.52	6.52	-0.45	1533 m	South
6628-15208	62177		Operational	Domestic	1990-02-03	10.00	4.00		7.60	9873	16882	0.0300	6.00	6.00	-2.00	1535 m	South West
6628-30000	315061			Investigation	2018-10-17	5.00										1537 m	North East
6628-13969	60938				1987-05-20	6.09	3.00		8.00	420	764	1.2000	1.82	1.82	1.18	1538 m	North
6628-17236	150819			Domestic	1995-05-02	20.00		8.48	6.80	2875	5141	5.0000				1541 m	South East
6628-20232	181053			Domestic	2000-06-09	15.00		10.61		1906	3430	1.0000	6.00	6.00	4.61	1542 m	East
6628-26890	275631	MW 3		Investigation	2012-08-23	4.50							2.40	2.40		1544 m	North West
6628-18224	163023			Domestic	1997-02-05	18.00		5.15		4688	8280	1.0000	5.40	5.40	-0.25	1553 m	South
6628-8693	55662					10.06		5.76								1554 m	South
6628-13178	60147				1985-02-15	5.00	2.00		7.60	3464	6168	0.5000	3.00	3.00	-1.00	1557 m	North West
6628-8831	55800					8.84		9.81		3312	5905		5.94	5.94	3.87	1559 m	East
6628-17405	152889			Domestic	1995-11-01	18.00		9.82	7.30	1957	3520	1.0000	5.80	5.80	4.02	1563 m	South East
6628-29985	315041			Investigation	2018-10-18	6.00										1564 m	North East
6628-19264	173632			Domestic	1999-01-12	16.50		8.89		2143	3850	0.8000	6.50	6.50	2.39	1566 m	South East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-8737	55706					12.19		6.69					8.53	8.53	-1.84	1568 m	South
6628-12041	59010				1982-09-22	9.10	9.00		7.40	2369	4250	1.0000	3.00	3.00	6.00	1570 m	South East
6628-22466	214184			Monitoring	2006-01-16	11.70		7.10				0.0100	9.30	9.30	-2.20	1570 m	North East
6628-22467	214185			Monitoring	2006-01-16	11.50		6.88				0.0100	9.00	9.00	-2.12	1573 m	North East
6628-8683	55652					9.14	5.00					8.8400				1578 m	South
6628-13039	60008		Operational	Domestic	1984-09-03	3.90	2.00					0.7000	2.40	2.40	-0.40	1580 m	North West
6628-26305	269277		Operational	Managed Aquifer Recharge (incl ASR)	2012-03-30	258.00				2329	4180	40.0000	7.00	7.00		1581 m	West
6628-29307	305891	GW 2				6.80										1582 m	North East
6628-13173	60142		Operational	Domestic	1985-02-07	6.00	2.00		6.40	1810	3260	0.5000	3.00	3.00	-1.00	1590 m	North West
6628-18954	169034			Drainage	1998-04-23	23.00		7.24		2460	4410	2.3000	6.00	6.00	1.24	1594 m	South
6628-22468	214186			Monitoring	2006-01-16	11.50		6.92				0.0100	9.00	9.00	-2.08	1595 m	North East
6628-29989	315045			Investigation	2018-10-22	5.50										1599 m	North East
6628-21061	195347			Domestic	2002-11-15	13.50		10.48		1631	2940	0.6700	7.20	7.20	3.28	1602 m	East
6628-15793	62762		Operational	Industrial	1991-12-19	125.50		4.49	8.00	1425	2574	2.0000	16.30	16.30	-11.81	1603 m	North West
6628-19363	174000			Domestic	1999-02-08	15.00		4.90		1770	3190	1.0000	5.00	5.00	-0.10	1603 m	South West
6628-24917	252869	GMW 3			2009-09-04	4.00							3.00	3.00		1604 m	West
6628-30018	315081			Investigation	2018-12-11	5.00										1611 m	North
6628-19204	171872			Domestic	1998-10-04	14.00		10.38		1832	3300	0.8000	6.00	6.00	4.38	1615 m	South East
6628-8624	55593					6.10		4.30	7.00	3245	5789		1.52	1.52	2.78	1615 m	West
6628-12217	59186				1983-03-23	17.00	3.00		7.10	17629	28896	2.0000	3.00	3.00	0.00	1615 m	South West
6628-17315	151193			Domestic	1995-07-06	18.00		8.32	7.00	2784	4980					1616 m	South East
6628-29308	305892	GW 3				7.00										1620 m	North East
6628-29000	298811			Environmental	2017-04-20	12.00										1620 m	South East
6628-24551	245549				2008-02-11	10.00		4.93		4343	7690	1.0000	4.90	4.90	0.03	1622 m	South West
6628-17963	160000			Domestic	1996-08-30	15.00		5.15	7.10	3522	6270	1.0000				1624 m	South
6628-8745	55714				1946-01-22	25.60		8.06		1813	3267	7.5800	7.62	7.62	0.44	1628 m	South
6628-29997	315056			Investigation	2018-10-19	5.50										1641 m	North East
6628-26887	275628	MW 1		Investigation	2012-08-23	4.50							2.40	2.40		1642 m	North West
6628-29581	307615			Environmental	2018-06-08	8.50										1643 m	East
6628-15870	62839		Operational	Domestic	1992-01-29	15.00		9.82	7.40	2370	4230		6.00	6.00	3.82	1646 m	East
6628-8643	55612					6.10		3.78		6663	11627					1649 m	North West
6628-15913	62882		Operational	Domestic	1992-02-17	15.00		9.92	7.40	1984	3570		6.60	6.60	3.32	1651 m	East
6628-8832	55801					5.49		9.59	7.00	2970	5307					1654 m	East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-20189	180881			Domestic	2000-04-14	27.50		5.05		1776	3200	1.8000	4.00	4.00	1.05	1656 m	South
6628-30020	315083			Investigation	2018-12-11	5.00										1658 m	North
6628-29993	315049			Investigation	2018-10-24	5.50										1659 m	North East
6628-29984	315040			Investigation	2018-10-15	5.50										1661 m	North East
6628-23766	241498				2008-02-14	13.00		9.63		2465	4420	1.0000	7.30	7.30	2.33	1661 m	East
6628-27365	280351	MW 2			2014-04-09	5.00										1664 m	South West
6628-29990	315046			Investigation	2018-10-16	5.50										1668 m	North East
6628-16976	147837			Domestic	1995-01-24	12.00		9.09	7.00	2927	5230	2.2500				1673 m	South East
6628-12275	59244	SZ 123	Operational	Domestic	1983-03-29	13.70	5.00		7.60	2567	4600	1.0000	2.40	2.40	2.60	1676 m	South
6628-8619	55588					2.90	2.00			7150	12455	0.2500	1.83	1.83	0.17	1676 m	North West
6628-18851	168223			Domestic	1998-02-26	18.00		9.45		1765	3180		7.20	7.20	2.25	1680 m	East
6628-30180	316097			Environmental	2019-04-17	5.50										1683 m	North West
6628-8680	55649					4.72		4.89		6463	11301		2.74	2.74	2.15	1685 m	South West
6628-20445	184024			Domestic	2000-12-12	5.50		4.30		1748	3150	0.5000	2.00	2.00	2.30	1685 m	West
6628-18564	166236			Observation	1996-06-26	9.00		4.76					3.60	3.60	1.16	1686 m	South West
6628-27364	280350	MW 1		Investigation	2014-04-09	5.00							2.60	2.60		1687 m	South West
6628-8642	55611					3.66		3.82		3374	6012					1688 m	North West
6628-27366	280352	MW 3		Investigation	2014-04-09	5.00										1688 m	South West
6628-16953	147743			Domestic	1995-01-31	13.00		9.90	7.40	1502	2710	1.0000				1689 m	South East
6628-20744	188597			Domestic	2001-02-10	13.00		10.50				1.5000	6.90	6.90	3.60	1689 m	South East
6628-30094	315765			Investigation	2019-02-21	5.20										1694 m	North
6628-15607	62576		Backfilled		1991-09-17	9.00		5.09	7.60	22450	35947	1.5000	1.60	1.60	3.49	1694 m	South
6628-8756	55725					8.23		9.24		1756	3165		5.79	5.79	3.45	1695 m	South East
6628-28237	288666	MW 14		Investigation	2016-01-29	12.00										1700 m	South East
6628-17312	151190		Abandoned	Domestic	1995-02-15	6.70		4.77	8.10	6062	10600					1700 m	North
6628-29994	315050			Investigation	2018-10-25	5.50										1701 m	North East
6628-25152	254867			Investigation	2007-07-10	14.00							1.00	1.00		1703 m	North West
6628-18220	163019			Domestic	1996-12-10	15.00		8.03		3517	6260	1.0000	5.90	5.90	2.13	1705 m	East
6628-20072	178571	STB 7		Monitoring	1998-11-10	5.00		4.77								1705 m	South West
6628-16253	131805			Industrial	1993-01-25	126.00		4.21	8.00	1575	2840	5.0000	16.00	16.00	-11.79	1705 m	North West
6628-27371	280390	MW 25		Investigation	2008-05-20	5.00							3.00	3.00		1710 m	North
6628-20074	178573	STB 9		Monitoring	1998-12-16	5.00		4.77								1712 m	South West
6628-30035	315110			Investigation	2018-10-23	6.00										1715 m	North East
6628-15157	62126		Operational	Domestic	1987-10-09	12.00		10.48	7.10	1889	3400		6.00	6.00	4.48	1716 m	South East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-26604	272706	WELL 1	Operational	Managed Aquifer Recharge (incl ASR)	2012-11-30	259.00				2624	4700	30.0000				1719 m	West
6628-20075	178574	STB 10		Monitoring	1998-12-16	5.00		4.77								1723 m	South West
6628-18658	167051			Domestic	1997-09-18	15.50		10.88		2001	3600	1.5000	6.00	6.00	4.88	1726 m	East
6628-8744	55713					10.67		6.80					8.53	8.53	-1.73	1728 m	South
6628-17076	148585			Domestic	1995-03-01	18.00		7.68	7.10	5220	9190					1728 m	North East
6628-30181	316098			Environmental	2019-04-17	5.50										1728 m	North West
6628-13423	60392		Operational	Domestic	1985-08-19	4.70	2.00		7.50	637	1156	1.0000	2.10	2.10	-0.10	1728 m	North West
6628-30100	315771			Investigation	2019-02-18	5.50										1730 m	North East
6628-8655	55624		Backfilled		1967-11-30	199.80		4.77	7.60	873	1584	8.3400	17.37	17.37	-12.60	1730 m	South West
6628-25151	254866			Investigation	2007-07-09	9.00							1.00	1.00		1730 m	North West
6628-20857	191218	PAMB 13		Observation	2002-04-15	6.00		4.58				0.0500	3.18	3.18	1.40	1731 m	West
6628-30002	315064			Investigation	2018-10-17	5.00										1731 m	North East
6628-8678	55647					40.23		4.98		1799	3241	1.0100	9.14	9.14	-4.16	1736 m	South
6628-27370	280389	MW 24		Investigation	2008-05-20	5.00							3.10	3.10		1741 m	North
6628-26888	275629	MW 4		Investigation		4.50							2.40	2.40		1741 m	North West
6628-30182	316099			Environmental	2019-04-17	5.50										1745 m	North West
6628-28327	288933	TW 1			2015-10-29	5.00							3.00	3.00		1747 m	North
6628-25150	254865			Investigation	2007-07-06	12.00							2.00	2.00		1748 m	North West
6628-16888	147415			Domestic	1995-02-08	10.50		5.54	7.60	2778	4970	1.5000				1748 m	South
6628-24918	252870	GMW 1				3.50							3.00	3.00		1749 m	West
6628-24972	253049	MW 18		Observation	2007-10-09	5.00							3.40	3.40		1750 m	North
6628-8833	55802					8.23		8.81		1573	2838		4.72	4.72	4.09	1752 m	East
6628-22835	228925	SB/MW5		Monitoring	2006-02-14	5.00		4.71					2.80	2.80	1.91	1752 m	North
6628-13876	60845	SEATON HIGH		Irrigation	1987-02-07	199.30		4.77	7.53	822	1491	8.0000	1.35	1.35	3.42	1753 m	South West
6628-28329	288935	REM 14			2015-10-26	5.00							3.00	3.00		1753 m	North
6628-24973	253050	MW 19		Observation	2007-10-10	5.00							3.50	3.50		1754 m	North
6628-28331	288937	REM 12		Investigation	2015-10-29	5.00							3.00	3.00		1754 m	North
6628-20236	181057			Domestic	2000-05-26	15.00		7.74		2916	5210	1.0000				1755 m	North East
6628-28330	288936	REM 13		Investigation	2015-10-29	5.00							3.00	3.00		1756 m	North
6628-28181	288539	MW REM 9A	Backfilled													1757 m	North
6628-28192	288550	MW 47		Investigation	2015-07-23	5.00							2.90	2.90		1758 m	North
6628-27551	281117	MW 42		Investigation	2014-08-07	5.40							2.40	2.40		1758 m	North
6628-24971	253048	MW 17		Observation	2007-10-09	5.00							3.70	3.70		1759 m	North

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-8824	55793					10.67	10.00			3041	5432	0.5800	5.49	5.49	4.51	1759 m	East
6628-24974	253051	MW 20		Observation	2007-10-10	5.00							4.70	4.70		1760 m	North
6628-28332	288938	REM 11		Investigation	2015-10-29	5.00							3.00	3.00		1761 m	North
6628-28333	288939	REM 10		Investigation	2015-10-29	5.00							3.00	3.00		1762 m	North
6628-22834	228924	SB/MW2		Monitoring	2006-02-14	4.90		4.71					2.80	2.80	1.91	1764 m	North
6628-28180	288534	MW REM 11A	Backfilled													1766 m	North
6628-24976	253053	MW 22		Observation	2007-10-09	5.00							3.80	3.80		1767 m	North
6628-24975	253052	MW 21		Observation	2007-10-09	5.00							3.80	3.80		1767 m	North
6628-25207	255980	MW 35		Investigation	2010-04-29	5.80							4.00	4.00		1767 m	North
6628-28318	288924	REM 9		Investigation	2015-10-27	5.00							3.00	3.00		1768 m	North
6628-25197	255932	MW 34		Investigation	2010-04-28	6.00							3.50	3.50		1769 m	North
6628-28319	288925	REM 8		Investigation	2015-10-27	5.00							3.00	3.00		1770 m	North
6628-8825	55794					18.29		11.04		1987	3576		4.88	4.88	6.16	1770 m	East
6628-16887	147414			Domestic	1995-01-04	15.00		10.06	7.20	2205	3960					1771 m	South East
6628-24967	253044	MW 13		Observation	2007-10-10	13.00							3.50	3.50		1772 m	North
6628-26802	274838	MW 36		Investigation	2011-11-08	5.00							2.80	2.80		1772 m	North
6628-8738	55707	FINDON OVAL	Operational	Irrigation	1965-05-25	185.93		6.13	7.00	777	1409	10.6100	10.36	10.36	-4.23	1773 m	South
6628-24970	253047	MW 16		Observation	2007-10-08	5.00							3.80	3.80		1774 m	North
6628-28320	288926	REM 7		Investigation	2015-10-27	6.00							3.00	3.00		1774 m	North
6628-15119	62088		Operational	Irrigation	1989-11-18	12.30	9.00		7.50	2773	4961	1.5000	3.50	3.50	5.50	1775 m	South East
6628-15512	62481		Operational	Domestic	1991-01-14	12.00		9.44	7.20	2762	4941	1.5000	2.30	2.30	7.14	1775 m	South East
6628-26889	275630	MW 5		Investigation	2012-08-23	5.00							2.40	2.40		1776 m	North West
6628-25203	255938	MW 32			2010-04-28	6.00							4.00	4.00		1776 m	North
6628-22836	228926	SB/MW7		Monitoring	2006-02-13	6.00		4.69					3.00	3.00	1.69	1776 m	North
6628-24969	253046	MW 15		Observation	2007-10-08	5.00							3.70	3.70		1777 m	North
6628-28191	288549	MW 46		Investigation	2015-07-23	5.00							3.00	3.00		1777 m	North
6628-28321	288927	REM 6		Investigation	2015-10-27	6.00							3.00	3.00		1778 m	North
6628-20071	178570	STB 6		Monitoring	1998-11-10	5.00		4.78								1779 m	South West
6628-8757	55726				1935-01-01	20.12	9.00			2201	3954	15.1600	7.32	7.32	1.68	1780 m	South East
6628-28190	288548	MW 45		Investigation	2015-07-23	5.00							3.10	3.10		1782 m	North
6628-24968	253045	MW 14		Observation	2007-10-08	5.00							3.60	3.60		1782 m	North
6628-28179	288533	MW REM 5A	Backfilled													1782 m	North
6628-28328	288934	REM 15		Investigation	2015-10-28	6.00							3.00	3.00		1782 m	North
6628-26803	274839	MW 39		Investigation	2012-01-15	5.00							2.90	2.90		1783 m	North

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-28322	288928	REM 5		Investigation	2015-10-27	6.00							3.00	3.00		1783 m	North
6628-12497	59466				1983-09-28	6.50	4.00		7.50	3195	5700	0.6300	3.00	3.00	1.00	1783 m	South
6628-17443	152951			Domestic	1995-11-23	22.00		9.52	7.30	2756	4930	1.0000				1785 m	South East
6628-28323	288929	REM 4		Investigation	2015-10-26	6.00							3.00	3.00		1786 m	North
6628-20019	178056		Abandoned	Domestic	1999-12-10	10.00		4.80		13886	23200		3.00	3.00	1.80	1787 m	South West
6628-28317	288923	MW 48		Investigation	2015-10-28	5.00							3.00	3.00		1787 m	North
6628-26885	275626	MW 2		Investigation	2012-08-23	4.50							2.40	2.40		1787 m	North West
6628-30095	315766			Investigation	2019-02-20	5.20										1788 m	North
6628-28178	288532	WM REM 4A	Backfilled													1788 m	North
6628-28324	288930	REM 3		Investigation	2015-10-26	5.00							3.00	3.00		1790 m	North
6628-8760	55729					17.98		10.35		2201	3954					1792 m	South East
6628-30005	315067			Investigation	2018-10-11	5.00										1793 m	North East
6628-27552	281118	MW 43		Investigation	2014-05-20	8.00							3.10	3.10		1793 m	North
6628-30004	315066			Investigation	2018-10-16	5.50										1793 m	North East
6628-29001	298812			Environmental	2017-04-10	12.00										1793 m	South East
6628-28189	288547	MW 44		Investigation	2015-07-23	5.00							3.00	3.00		1793 m	North
6628-8641	55610				1934-09-01			3.61		6691	11676		0.61	0.61	3.00	1793 m	North West
6628-28325	288931	REM 2		Investigation	2015-10-26	5.00							3.00	3.00		1795 m	North
6628-12797	59766		Operational	Domestic	1984-02-16	14.00	4.00		7.70	2171	3900	0.0500	8.00	8.00	-4.00	1797 m	South
6628-30096	315767			Investigation	2019-02-18	5.20										1798 m	North East
6628-18104	162765			Domestic	1996-11-20	12.00		4.72		16691	27500	1.0000	3.00	3.00	1.72	1799 m	North
6628-11516	58485		Backfilled		1980-10-10	220.00		4.49	7.60	1524	2750					1799 m	West
6628-28326	288932	REM 1		Investigation		5.00							3.00	3.00		1800 m	North
6628-15712	62681		Operational	Domestic	1991-10-14	15.00		11.12	7.70	1867	3361	1.2500	7.70	7.70	3.42	1801 m	East
6628-8623	55592	T2	Backfilled		1978-08-16	210.00		4.52	7.60	1105	2000	15.1600	1.50	1.50	3.02	1806 m	West
6628-30001	315062			Investigation	2018-10-23	5.50										1806 m	North East
6628-25208	255981	MW 30		Investigation	2010-04-27	6.00							4.00	4.00		1808 m	North
6628-10996	57965			Observation	1979-01-25	9.00	8.78					1.2500	6.59	6.59	2.19	1808 m	South East
6628-18624	166782			Domestic	1997-08-21	19.50		10.67		2086	3750	0.7500	11.00	11.00	-0.33	1808 m	South East
6628-18002	161223			Domestic	1996-06-27	13.20		10.10	6.70	1669	3009	1.5000	7.00	7.00	3.10	1809 m	South East
6628-25209	255982	MW 33			2010-04-28	6.00										1809 m	North
6628-25196	255931	MW 31		Investigation	2010-04-29	6.00							4.00	4.00		1809 m	North
6628-28998	298809			Environmental	2017-07-24	5.00										1810 m	North
6628-26800	274836	MW 37		Investigation	2011-11-09	5.00							3.00	3.00		1811 m	North

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-28999	298810			Environmental	2017-07-24	5.00										1811 m	North
6628-18506	165704	MW 1		Observation	1996-11-18	4.50		4.70	7.00	7491	13000		2.53	2.53	2.17	1811 m	West
6628-26801	274837	MW 38		Investigation	2011-11-09	5.00							2.90	2.90		1812 m	North
6628-16803	146764			Domestic	1994-12-12	15.00		10.56	7.90	2047	3680	1.7000				1812 m	South East
6628-12133	59102		Backfilled		1983-01-12	10.90	6.00		7.20	4167	7386	1.2000	3.60	3.60	2.40	1814 m	South
6628-12798	59767		Operational	Domestic	1984-02-18	14.00	4.00		7.50	2404	4310	0.0500	8.00	8.00	-4.00	1814 m	South
6628-17496	153299			Domestic	1995-12-21	13.50		4.21	7.10	20063	32500	1.0000				1814 m	North West
6628-20073	178572	STB 8		Monitoring	1998-11-11	5.00		4.80								1818 m	South West
6628-29983	315039		Dry	Investigation	2018-10-15	6.50										1818 m	North East
6628-28236	288665	MW 15		Investigation	2016-01-28	12.00							7.50	7.50		1821 m	South East
6628-14408	61377		Operational	Domestic	1989-06-03	9.10	4.00		7.60	6453	11261	1.5000	3.40	3.40	0.60	1822 m	South West
6628-8835	55804					12.19	8.00			4469	7907	3.1600	4.57	4.57	3.43	1825 m	East
6628-29998	315059			Investigation	2018-10-17	5.00										1825 m	North East
6628-8631	55600							4.69		3689	6562		0.91	0.91	3.78	1826 m	West
6628-8758	55727					18.29	9.00			1527	2756	8.8400	10.97	10.97	-1.97	1828 m	South East
6628-8844	55813				1951-05-25	6.40		6.40								1830 m	North East
6628-8843	55812				1951-05-24	5.94		6.40								1830 m	North East
6628-27375	280394	MW 29		Investigation		5.30							2.90	2.90		1831 m	North
6628-17033	148203	SZ 47				1.57	5.00									1831 m	North East
6628-30099	315770			Investigation	2019-02-18	5.20										1833 m	North East
6628-8845	55814					19.81		6.72		2685	4807					1833 m	North East
6628-13527	60496				1980-07-07	6.09	8.00					1.5000	2.00	2.00	6.00	1834 m	South East
6628-12148	59117		Backfilled	Irrigation	1982-12-08	175.00		6.24								1835 m	South
6628-11517	58486	T2		Observation	1980-10-29	220.00	2.90		8.10	1126	2039	12.5000	1.50	1.50	1.40	1835 m	West
6628-16716	145635			Domestic	1992-06-01	6.00		4.30	7.40	2092	3760		3.00	3.00	1.30	1836 m	West
6628-18223	163022			Domestic	1996-12-24	12.00		4.89		4130	7320	1.0000	3.30	3.30	1.59	1837 m	South West
6628-8622	55591	SZ (T2) 113	Unknown	Irrigation	1970-12-10	212.45	2.00		8.00	1479	2670	11.3700	21.34	21.34	-19.34	1840 m	West
6628-27372	280391	MW 26		Investigation	2008-05-19	5.00							2.90	2.90		1841 m	North
6628-8836	55805					25.91		7.94		8353	14441	1.8900				1841 m	East
6628-8659	55628					9.14		4.84								1842 m	South West
6628-12290	59259				1982-12-10	13.70	8.00		7.50	2340	4200	2.0000	5.40	5.40	2.60	1842 m	South East
6628-17004	148169	SZ 7				10.10	4.00									1842 m	South West
6628-19351	173988			Monitoring	1998-11-11	6.00		4.68				0.1000	4.75	4.75	-0.07	1842 m	West
6628-27374	280393	MW 28		Investigation		5.00							2.90	2.90		1842 m	North

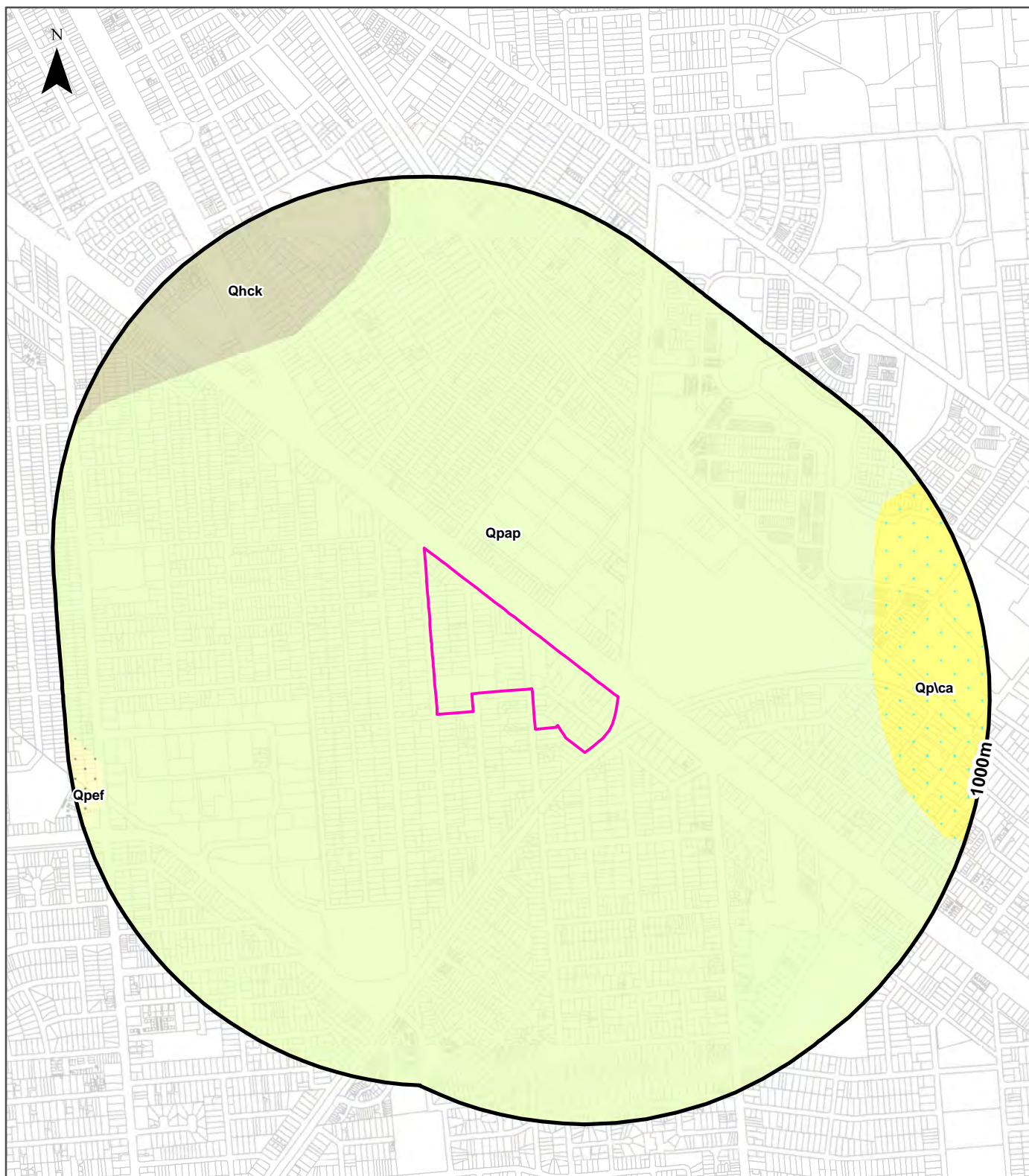
Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-24919	252871	GMW 2			2009-09-04	4.00							3.00	3.00		1844 m	West
6628-21763	200335			Domestic	2004-05-17	18.00		11.11		1867	3360	1.0000	7.50	7.50	3.61	1846 m	East
6628-17233	150816			Domestic	1995-01-15	10.67		10.72								1847 m	East
6628-26847	274972	WELL 9 (T1)	Operational as required	Irrigation	2013-06-21	184.00				2364	4240	30.0000	11.80	11.80		1848 m	West
6628-18507	165705	MW 2	Backfilled	Observation	1996-11-18	6.00		4.67	7.40	2631	4710		3.10	3.10	1.57	1849 m	West
6628-17385	152770			Domestic	1995-08-29	18.00		3.56	7.10	5175	9110	0.5000				1853 m	North West
6628-27373	280392	MW 27		Investigation	2008-05-19	5.00							2.70	2.70		1857 m	North
6628-19082	169822			Monitoring	1998-05-21	6.00		4.69				0.2000	2.90	2.90	1.79	1857 m	West
6628-12132	59101				1982-11-22	10.90	5.00		7.40	3137	5600	1.0000	3.60	3.60	1.40	1857 m	South
6628-12984	59953		Operational	Domestic	1984-06-07	6.00		4.56	7.90	1266	2290		2.80	2.80	1.76	1863 m	North
6628-22799	228696			Drainage	2007-03-16	12.00		7.88		3620	6440	0.5000	6.40	6.40	1.48	1863 m	East
6628-8640	55609							3.74		9251	15906					1869 m	North West
6628-30097	315768			Investigation	2019-02-20	5.20										1869 m	North East
6628-22798	228695			Drainage	2007-03-16	12.00		7.85		3609	6420	0.7000	6.40	6.40	1.45	1870 m	East
6628-30021	315084			Investigation	2018-12-12	5.50										1873 m	North
6628-12853	59822		Operational	Domestic	1983-10-25	12.60	9.00		7.50	2522	4520	1.5000	4.50	4.50	4.50	1874 m	South East
6628-13562	60531		Operational	Domestic	1985-11-18	11.00	9.00		7.60	1979	3560	1.5000	6.00	6.00	3.00	1875 m	East
6628-8675	55644				1917-04-01	128.02		4.84				0.2500	1.52	1.52	3.32	1875 m	South West
6628-14048	61017				1987-11-30	12.80	8.00		7.60	2369	4250	0.8100	4.50	4.50	3.50	1875 m	South East
6628-22797	228694			Drainage	2007-03-16	12.00		7.82		3586	6380	0.7000	6.40	6.40	1.42	1876 m	East
6628-17631	154942	MW 2		Investigation	1995-11-03	8.15		8.81								1877 m	East
6628-13367	60336				1985-07-15	6.00	2.00		7.50	3827	6800	0.5000	3.00	3.00	-1.00	1879 m	North West
6628-17532	153438			Domestic	1996-01-11	11.00		4.87	7.40	3131	5590	2.7500				1879 m	South
6628-29004	298815			Environmental	2017-04-12	12.00										1880 m	South East
6628-19081	169821			Monitoring	1998-05-21	6.00		4.73				0.2000	3.00	3.00	1.73	1880 m	West
6628-12149	59118	SZ 122	Operational	Irrigation	1983-02-09	202.00	7.00		8.00	760	1378	31.6000	16.70	16.70	-9.70	1883 m	South
6628-15899	62868		Operational	Domestic	1992-02-11	15.00		9.85	7.10	2359	4231		6.60	6.60	3.25	1885 m	South East
6628-30006	315068			Investigation	2018-10-12	5.50										1885 m	North East
6628-28239	288668	MW 12		Investigation	2016-01-29	12.00							7.50	7.50		1886 m	South East
6628-19352	173989			Monitoring	1998-11-11	6.00		4.73				0.1000	4.75	4.75	-0.02	1887 m	West
6628-27376	280407		Backfilled			8.50										1889 m	South
6628-26178	267224	MW 32		Investigation	2011-06-14	5.00							3.00	3.00		1890 m	North West
6628-19080	169820			Monitoring	1998-05-21	6.00		4.70				0.2000	3.20	3.20	1.50	1894 m	West
6628-27109	278494	GW 11	Backfilled													1895 m	West

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-8746	55715					26.52		8.18	7.40	2596	4650	6.3200	4.57	4.57	3.61	1895 m	South East
6628-19353	173990			Monitoring	1998-11-11	6.00		4.74				0.1000	4.75	4.75	-0.01	1898 m	West
6628-15896	62865		Operational	Domestic	1992-02-04	15.00		11.31	7.30	2499	4481		8.00	8.00	3.31	1899 m	East
6628-15682	62651	GGC 2B (OLD)	Backfilled	Irrigation	1991-08-22	200.00		4.81	7.60	948	1716	12.0000	8.40	8.40	-3.59	1901 m	South West
6628-26632	272928	MW 8		Investigation	2012-03-13	9.00							4.50	4.50		1903 m	East
6628-22165	205845				2004-10-26	5.50		3.57		974	1763		2.50	2.50	1.07	1904 m	North
6628-26258	267681	MW 1			2011-02-19	9.50										1904 m	East
6628-16614	141362			Domestic	1994-04-28	18.00		10.88	6.90	2262	4060					1905 m	East
6628-26631	272927	MW 7		Investigation		9.00							4.50	4.50		1905 m	East
6628-19628	176100			Monitoring	1999-04-27	6.00		4.74				0.1000	2.90	2.90	1.84	1908 m	West
6628-19083	169823			Monitoring	1998-05-21	6.00		4.74				0.2000	3.00	3.00	1.74	1908 m	West
6628-27121	278510	GW 3R	Backfilled			7.00										1911 m	West
6628-19629	176101			Monitoring	1999-04-27	6.00		4.75				0.1000	2.90	2.90	1.85	1912 m	West
6628-28507	289749	MW 2		Investigation	2016-09-06	8.50							6.00	6.00		1913 m	East
6628-16699	145572			Irrigation	1994-10-07	50.30		8.14	7.70	1790	3230	5.0000				1915 m	South
6628-13119	60088		Operational	Domestic	1984-12-30	6.00	2.00		7.00	1194	2160	0.5000	3.00	3.00	-1.00	1916 m	North West
6628-23255	236044	UNIT 2		Drainage	2007-09-29	11.50		6.43		2835	5070	1.0000	5.00	5.00	1.43	1916 m	South
6628-8761	55730					7.62		10.65								1916 m	South East
6628-17029	148199					8.91	0.50									1916 m	West
6628-23256	236045	UNIT 3		Drainage	2007-09-30	11.50		6.40		2859	5110	1.0000	5.00	5.00	1.40	1916 m	South
6628-17634	154945	MW 6		Investigation	1995-12-11	8.15		8.75								1917 m	East
6628-19354	173991			Monitoring	1998-11-11	6.00		4.75				0.1000	4.75	4.75	0.00	1917 m	West
6628-16741	146191			Domestic	1993-01-15	5.00		3.44	7.20	1306	2360					1918 m	North West
6628-30098	315769			Irrigation	2019-02-19	5.20										1918 m	North East
6628-27144	278592	GW 5R	Backfilled			7.00										1918 m	West
6628-16046	63015		Operational	Domestic	1992-06-10	6.40		3.86	7.20	628	1140	0.6800	3.00	3.00	0.86	1919 m	North West
6628-8657	55626				1915-04-12	118.57		4.82		686	1245	4.5500	2.74	2.74	2.08	1919 m	South West
6628-17633	154944	MW 3		Investigation	1995-11-02	8.15		8.81								1921 m	East
6628-17636	154947	MW 1		Investigation	1995-11-03	8.15		8.90								1921 m	East
6628-15897	62866		Operational	Domestic	1992-02-06	15.00		10.41	7.10	1917	3450		7.50	7.50	2.91	1921 m	East
6628-19355	173992			Monitoring	1998-11-11	6.00		4.73				0.1000	4.75	4.75	-0.02	1922 m	West
6628-28508	289750	MW 3		Investigation	2016-09-07	8.50							6.40	6.40		1922 m	East
6628-19630	176102			Monitoring	1999-04-27	6.00		4.71				0.1000	2.90	2.90	1.81	1923 m	West
6628-12459	59428		Backfilled		1983-01-01	6.10		5.56	7.00	3597	6400					1925 m	South

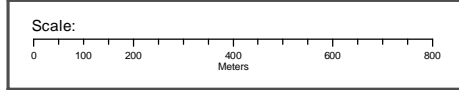
Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-17828	156143			Domestic	1996-03-01	18.00		10.92	6.90	2121	3810	1.0000				1926 m	East
6628-21570	198497	GW 23		Monitoring	2002-03-05	9.30		4.75								1927 m	West
6628-30003	315065			Investigation	2018-10-19	5.50										1928 m	North East
6628-15377	62346		Operational	Domestic	1990-08-14	8.00		9.80					6.50	6.50	3.30	1928 m	East
6628-14241	61210		Operational	Domestic	1988-04-28	11.00	9.00		7.30	2602	4660	1.0000	6.20	6.20	2.80	1928 m	South East
6628-17632	154943	MW 4		Investigation	1995-12-11	8.15		8.93								1929 m	East
6628-29367	306568			Environmental	2018-03-13	8.00										1930 m	East
6628-17448	152956			Domestic	1995-11-13	14.00		6.43	7.30	2664	4770					1931 m	South
6628-17447	152955			Domestic	1995-11-14	14.00		6.30	7.20	2960	5290					1933 m	South
6628-17635	154946	MW 5		Investigation	1995-12-11	8.15		8.88								1935 m	East
6628-19358	173995			Monitoring	1998-11-11	6.00		4.72				0.1000	4.75	4.75	-0.03	1935 m	West
6628-18508	165706	MW 3	Backfilled	Observation	1996-11-18	6.00		4.69	7.40	419	761		2.94	2.94	1.75	1937 m	West
6628-13859	60828				1985-12-01	6.00	8.00		6.70	2539	4550	0.4000	4.30	4.30	3.70	1939 m	South East
6628-13156	60125		Operational	Domestic	1985-01-17	6.00	2.00		7.30	764	1386	0.5000	4.00	4.00	-2.00	1941 m	North West
6628-19632	176104			Monitoring	1999-04-27	6.00		4.73				0.1000	2.90	2.90	1.83	1941 m	West
6628-19631	176103			Monitoring	1999-04-27	6.00		4.71				0.1000	2.90	2.90	1.81	1942 m	West
6628-14407	61376		Operational	Drainage	1989-06-03	9.10	3.00		7.60	3938	6992	1.2000	2.80	2.80	0.20	1943 m	South West
6628-12796	59765		Operational	Domestic	1984-02-18	14.00	5.00		7.60	2273	4080	0.0500				1944 m	South
6628-8837	55806					8.53		7.97		7382	12834					1944 m	East
6628-21764	200336			Domestic	2004-05-22	6.00		4.60		2386	4280	0.5000	2.50	2.50	2.10	1944 m	West
6628-17641	155095			Domestic	1996-01-22	18.00		8.63	7.50	1970	3480					1945 m	South East
6628-17446	152954			Domestic	1995-11-13	14.00		6.32	7.30	2138	3840					1948 m	South
6628-19357	173994			Monitoring	1998-11-11	6.00		4.72				0.1000	4.75	4.75	-0.03	1948 m	West
6628-19356	173993			Monitoring	1998-11-11	6.00		4.76				0.1000	4.75	4.75	0.01	1950 m	West
6628-13806	60775		Operational	Domestic		10.00		11.00								1951 m	East
6628-27120	278509	GW 6R	Backfilled			7.00										1952 m	West
6628-22699	219868	GRANGE GC 2 (ASR 1)	Operational	Irrigation; Managed Aquifer Recharge (incl ASR)	2006-08-11	192.40		4.80				10.0000	8.70	8.70	-3.90	1952 m	West
6628-23254	236040	UNIT 1		Drainage	2007-09-30	10.50		6.41		2835	5070	1.0000	4.50	4.50	1.91	1954 m	South
6628-20859	191228	PAMB 1R		Observation	2002-04-15	5.60		4.97				0.0030	4.15	4.15	0.82	1955 m	North West
6628-28506	289748	MW 1		Investigation	2016-09-06	9.00							7.00	7.00		1957 m	East
6628-27143	278591	GW 7R	Backfilled			7.00										1960 m	West
6628-8658	55627				1934-01-01		3.00			700	1271	3.7900	1.83	1.83	1.17	1962 m	South West
6628-15980	62949							11.36								1963 m	East

Unit No	Drillhole No	Name	Status	Purpose	Drill Date	Max Depth	Ref Elev	Ground Elev	PH	TDS	EC	Yield	DTW	SWL	RSWL	Dist	Dir'n
6628-8660	55629	ROYAL ADELAIDE GC 6	Abandoned		1933-01-01	147.52		4.84		2230	4005	5.0500				1964 m	South West
6628-30036	315111			Investigation	2018-10-17	5.00										1965 m	North East
6628-26179	267225	MW 40		Investigation	2011-06-27	5.00							3.00	3.00		1966 m	West
6628-27122	278511	GW 2R	Backfilled			7.00										1968 m	West
6628-29002	298813			Environmental	2017-04-19	12.00										1969 m	South East
6628-19359	173996			Monitoring	1998-11-11	6.00		4.73				0.1000	4.75	4.75	-0.02	1969 m	West
6628-8614	55583	ROYAL PARK HS 4	Unknown		1968-07-03	9.45	2.00						1.22	1.22	0.78	1969 m	North West
6628-29005	298816			Environmental	2017-04-10	12.00										1970 m	South East
6628-8621	55590	EWS 33			1949-11-22	122.53		4.97		1330	2404	17.6800	7.93	7.93	-2.96	1971 m	North West
6628-8677	55646				1930-01-01	220.98		4.84		771	1400	6.3200	3.05	3.05	1.79	1973 m	South
6628-20848	190744			Domestic	2002-01-10	6.00		3.50		1121	2030	1.0000	2.20	2.20	1.30	1974 m	North West
6628-8615	55584	ROYAL PARK HS 5	Unknown		1968-07-05	9.60		4.57					1.52	1.52	3.05	1974 m	North West
6628-22596	218524	GRANGE GC OBS 2		Monitoring	2006-07-28	196.10		4.80		868	1575	10.0000	9.10	9.10	-4.30	1976 m	West
6628-8803	55772					8.23		4.29		5405	9504		2.13	2.13	2.16	1976 m	North
6628-8630	55599		Operational	Irrigation	1972-04-01	182.88		4.76	7.00	699	1270	15.1600	16.76	16.76	-12.00	1978 m	West
6628-24742	247139				2009-01-14	12.00		9.70		2318	4160	1.0000	5.00	5.00	4.70	1979 m	South East
6628-18607	166686			Domestic	1997-09-17	18.00		10.68		1782	3210		7.50	7.50	3.18	1980 m	East
6628-15979	62948			Drainage	1950-01-01	6.00		11.39								1983 m	East
6628-8676	55645					143.26		4.82	6.00	955	1731	8.8400				1984 m	South
6628-12344	59313				1983-02-01	8.00		11.35					6.50	6.50	4.85	1987 m	East
6628-8763	55732	MR BILL FEKETE	Abandoned	Drainage				10.34								1988 m	South East
6628-16965	147777			Domestic	1995-01-21	15.00		10.10	6.90	2267	4070					1988 m	South East
6628-18659	167052			Drainage	1997-11-04	20.00		8.47		3454	6150	2.0000	6.00	6.00	2.47	1988 m	East
6628-8762	55731					10.06		10.85								1991 m	South East
6628-29991	315047			Investigation	2018-10-15	6.00										1992 m	North East
6628-26721	274541	GW 1		Investigation	2012-07-05	5.00							3.00	3.00		1993 m	West
6628-28850	294688			Investigation	2017-06-27	12.00							6.50	6.50		1994 m	South East
6628-17235	150818			Domestic	1995-04-29	15.00		11.41	7.00	2239	4020					1994 m	East
6628-17075	148584			Domestic	1995-03-28	15.00		10.10	7.30	2284	4100					1994 m	South East
6628-8654	55623	GRANGE 1	Abandoned	Exploration	1962-05-10	604.42	9.45	6.10	7.90	699	1270	13.0000				1994 m	South West

Drillholes Data Source: Dept of Environment, Water and Natural Resources - South Australia
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Legend		Linear Feature	
	Site Boundary		Alluvial fan
	Report Buffer		Joint
	Property Boundary		Lineament
			Dyke
			Fault
			Fold
			Open cut quarry
			Shear zone
			Gilgai
			Other Linear Feature



Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited
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Coordinate System:
 GDA 1994 MGA Zone 54

Date: 11 February 2020

Geology

Port Road, Albert Park, SA 5014

Surface Geology 1:100,000

Surface Geology Units within the dataset buffer:

Map Unit Code	Name	Description	Parent Name	Province	Age	Min Age	Max Age	Distance
Qpap	Pooraka Formation	Clay, sand and carbonate earth, silty, with gravel lenses.	Unnamed GIS Unit - see description	ST VINCENT BASIN	PLEISTOCENE	Pleistocene, Late	Pleistocene, Late	0m
Qhck	Saint Kilda Formation	Coastal marine sediment: calcareous, fossiliferous sand and mud of intertidal sand flats, beaches and tidal marshes; organic, gypseous clay of supratidal flats.	Unnamed GIS Unit - see description	ST VINCENT BASIN	HOLOCENE	Holocene	Holocene	672m
Qp\ca	Unnamed GIS Unit - see description	Undifferentiated Pleistocene calcrete.	Unnamed GIS Unit - see description	UNKNOWN	PLEISTOCENE	Pleistocene	Pleistocene	686m
Qpef	Fulham Sand	Sand, yellow-red, ferruginous, aeolian.	Unnamed GIS Unit - see description	ST VINCENT BASIN	PLEISTOCENE	Pleistocene, Late	Pleistocene, Late	916m

Geology Data Source: Dept of Environment, Water and Natural Resources - South Australia

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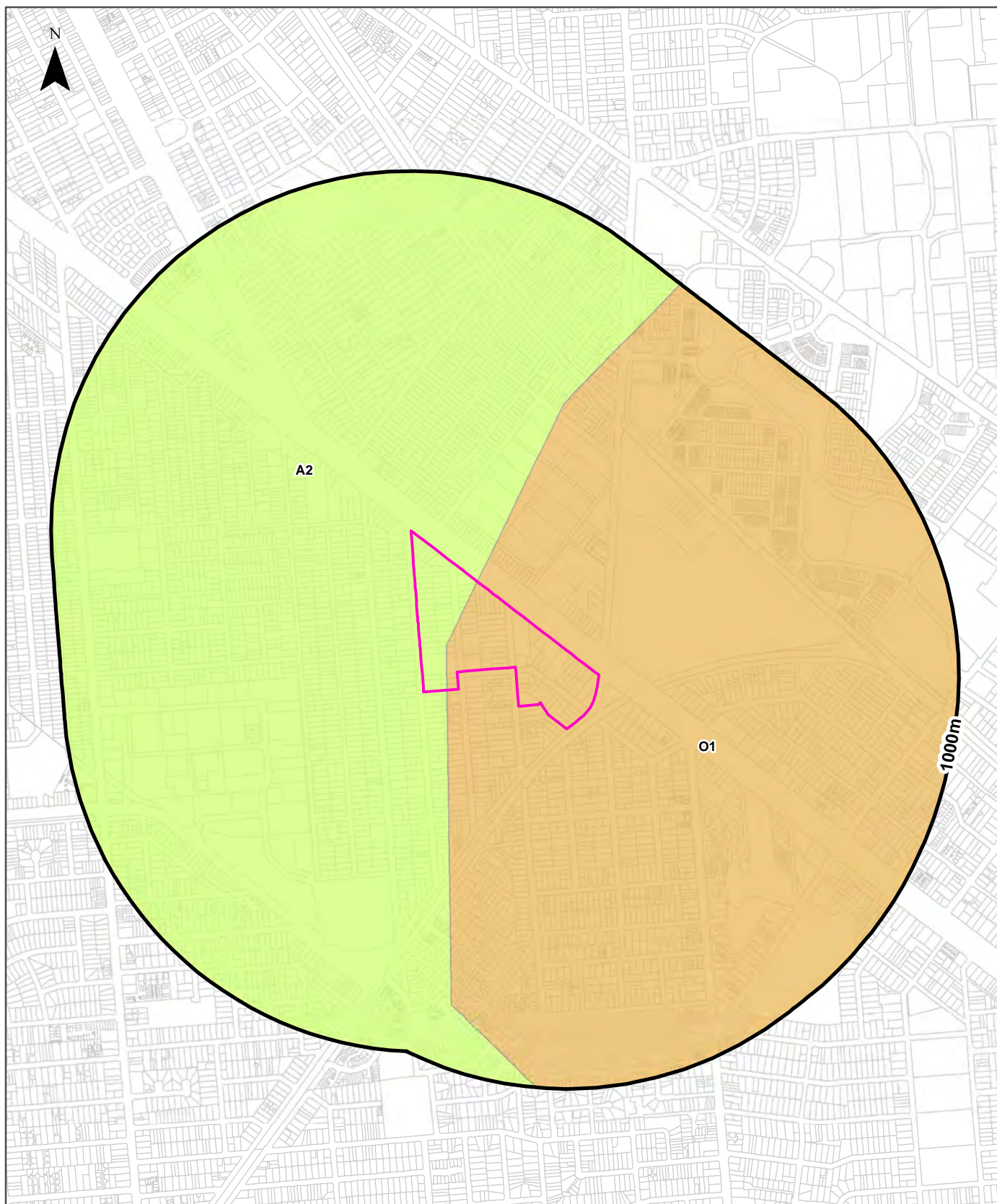
Linear Structures 1:100,000

Linear geological structures within the dataset buffer:

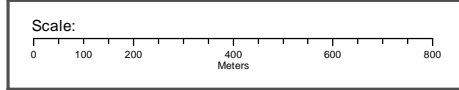
Map Code	Description	Distance
N/A	No features in buffer	

Geology Data Source: Dept of Environment, Water and Natural Resources - South Australia

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Legend		Australian Soil Classification Orders					
Site Boundary	Anthroposol	Dermosol	Kandosol	Podosol	Tenosol	No Data	
Report Buffer	Calcarosol	Ferrosol	Kurosol	Rudosol	Vertosol		
Property Boundary	Chromosol	Hydrosol	Organosol	Sodosol	Lake		



Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited
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Coordinate System: GDA 1994 MGA Zone 54

Date: 11 February 2020

Soils

Port Road, Albert Park, SA 5014

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
A2	Rudosol	Coastal dunes and plains with some swamps: dunes of calcareous sands (Uc1.11) and also siliceous sands (Uc1.22); plains of various saline soils (unclassified) and lesser areas of brown calcareous earths (Gc1.1 and Gc1.2).	0m
O1	Chromosol	Outwash plains: hard alkaline red soils (Dr2.23 with small areas Dr2.33); small areas cracking clay soils (Ug5.15, Ug5.16, and Ug5.2), also hard alkaline yellow mottled soils (Dy3.43); minor areas (Um6.21) and (Uf6.11); various alluvial soils (unclassified) in the stream valleys.	0m

Atlas of Australian Soils Data Source: CSIRO

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Soils

Port Road, Albert Park, SA 5014

Soil Types

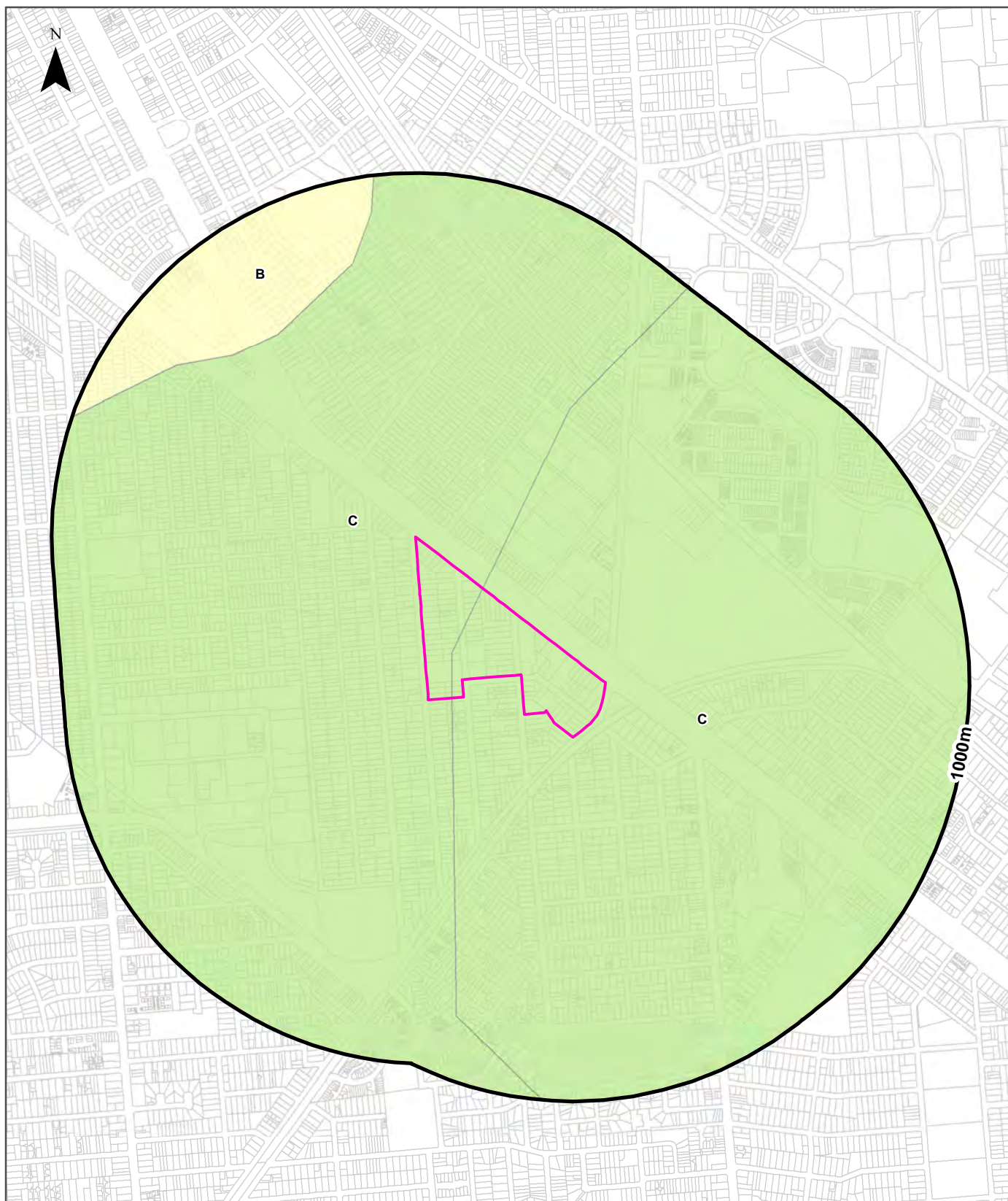
Soil types within the dataset buffer:

Map category code	Soil type description	Distance
XX	Not applicable - No assessment/analysis undertaken	0m

Soil Types Data Source: Dept of Environment, Water and Natural Resources - South Australia
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Atlas of Australian Acid Sulfate Soils

Port Road, Albert Park, SA 5014



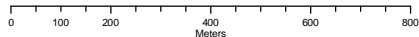
Legend

- Site Boundary
- Report Buffer
- Property Boundary

Probability of occurrence of Acid Sulfate Soils

- A. High (>70%)
- C. Extremely Low (1-5%)
- B. Low (6-70%)
- D. No Chance (0%)

Scale:



Data Sources: Property Boundaries - Sourced by Omnilink
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Coordinate System:
 GDA 1994 MGA Zone 54

Date: 11 February 2020

Acid Sulfate Soils

Port Road, Albert Park, SA 5014

Atlas of Australian Acid Sulfate Soils

Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

Class	Description	Distance
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m
B	Low Probability of occurrence. 6-70% chance of occurrence.	673m

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO

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Acid Sulfate Soils

Port Road, Albert Park, SA 5014

Acid Sulfate Soil Potential

Acid sulfate soil potential within the dataset buffer:

Map category code	Proportion of land susceptible to the development of acid sulfate soils	Distance
X	Not applicable - No assessment/analysis undertaken	0m

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Soil Salinity

Port Road, Albert Park, SA 5014

Soil Salinity - Watertable Induced

Watertable induced soil salinity within the dataset buffer:

Map category code	Severity description	Distance
X	Not applicable - No assessment/analysis undertaken	0m

Salinity Watertable Induced Data Source: Dept of Environment, Water and Natural Resources - South Australia
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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
X	Not applicable - No assessment/analysis undertaken			0m

Salinity Non-Watertable Data Source: Dept of Environment, Water and Natural Resources - South Australia
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Soil Salinity - Non-Watertable (Magnesia Patches)

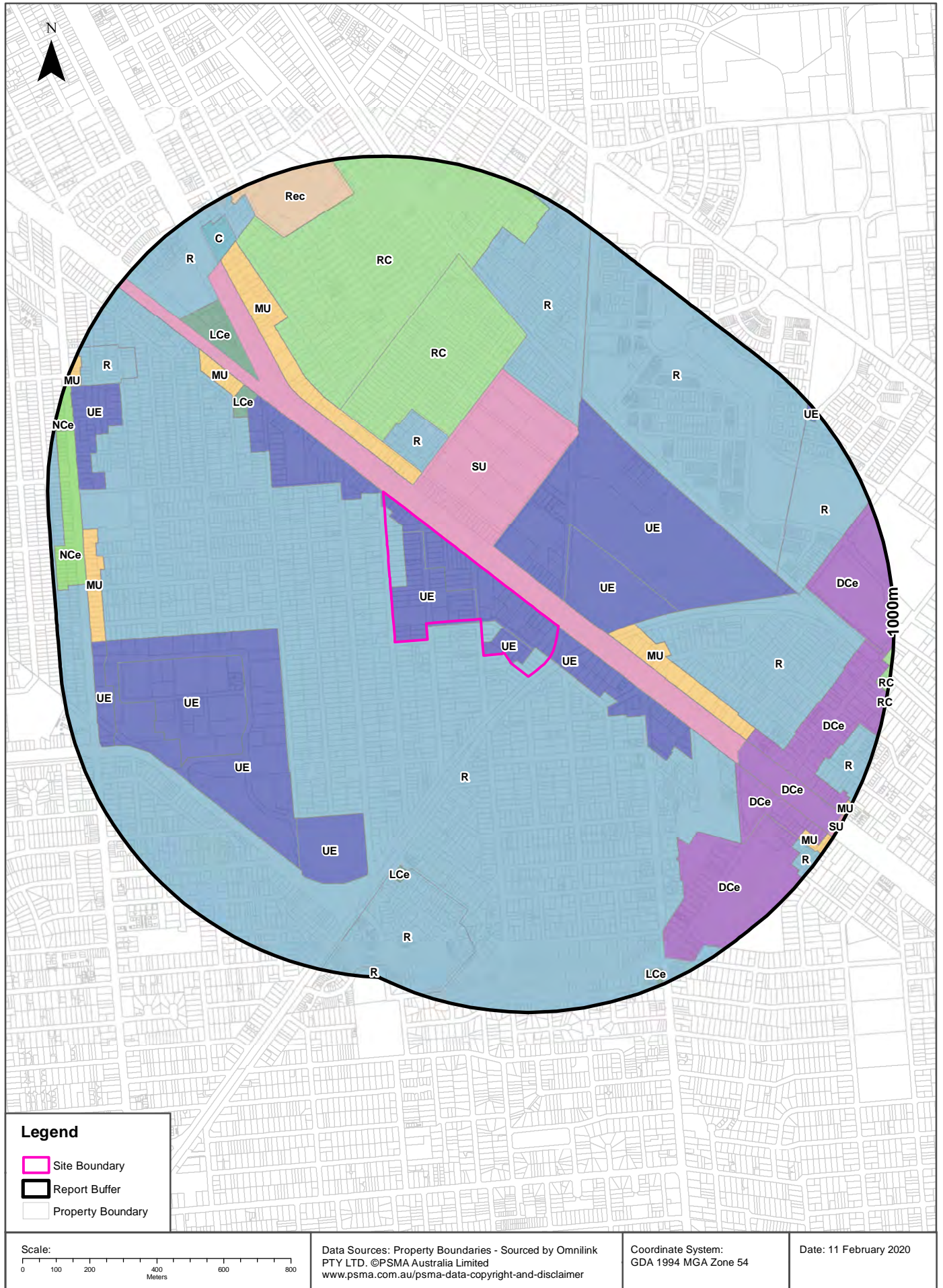
Magnesia patches within the dataset buffer:

Map category code	Proportion of land affected by magnesia patches	Distance
X	Not applicable - No assessment/analysis undertaken	0m

Salinity Non-Watertable (Magnesia Patches) Data Source: Dept of Environment, Water and Natural Resources - South Australia
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Land Development Zones

Port Road, Albert Park, SA 5014



Planning

Port Road, Albert Park, SA 5014

Land Development Zones

Land development zoning within the dataset buffer:

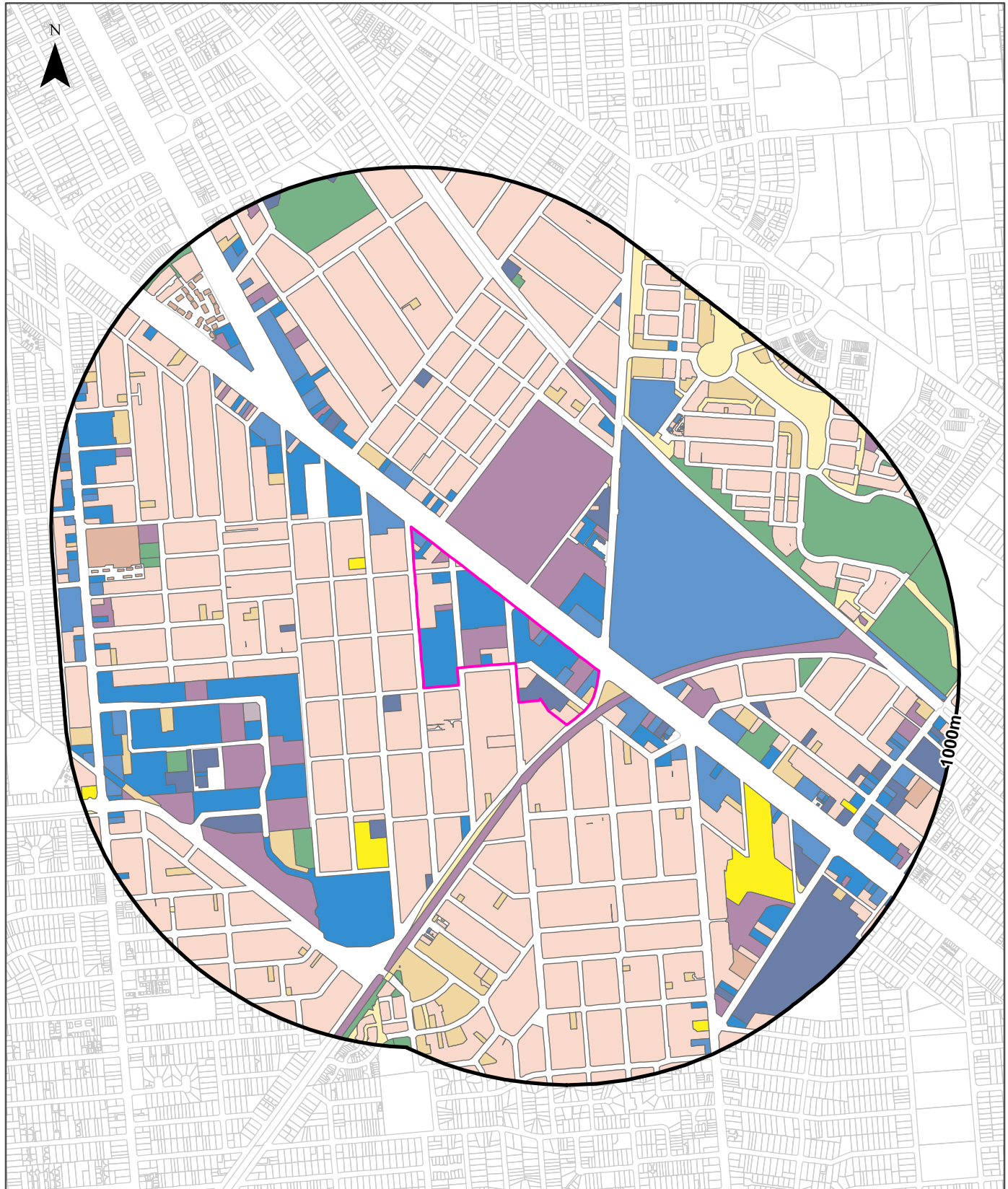
Zone Code	Development Plan Code	Zone Description	Development Category	Distance	Direction
UE	CHST	Urban Employment	INDUSTRIAL	0m	Onsite
R	CHST	Residential	RESIDENTIAL	0m	Onsite
SU	CHST	Special Use	MISCELLANEOUS	0m	North West
UE	CHST	Urban Employment	INDUSTRIAL	69m	East
MU	CHST	Mixed Use	MISCELLANEOUS	70m	North West
UE	CHST	Urban Employment	INDUSTRIAL	70m	East
R	CHST	Residential	RESIDENTIAL	116m	North
MU	CHST	Mixed Use	MISCELLANEOUS	147m	East
RC	CHST	Residential Character	RESIDENTIAL	148m	North
R	CHST	Residential	RESIDENTIAL	226m	East
RC	CHST	Residential Character	RESIDENTIAL	278m	North
UE	CHST	Urban Employment	INDUSTRIAL	346m	South West
UE	CHST	Urban Employment	INDUSTRIAL	459m	West
LCe	CHST	Local Centre	COMMERCIAL	462m	North West
LCe	PADE	Local Centre	COMMERCIAL	495m	North West
R	CHST	Residential	RESIDENTIAL	505m	North
UE	CHST	Urban Employment	INDUSTRIAL	519m	South West
MU	CHST	Mixed Use	MISCELLANEOUS	520m	North West
R	CHST	Residential	RESIDENTIAL	543m	North East
DCe	CHST	District Centre	COMMERCIAL	626m	South East
DCe	CHST	District Centre	COMMERCIAL	633m	South East
DCe	CHST	District Centre	COMMERCIAL	634m	East
DCe	CHST	District Centre	COMMERCIAL	650m	South East
LCe	CHST	Local Centre	COMMERCIAL	666m	South
R	CHST	Residential	RESIDENTIAL	666m	East
R	CHST	Residential	RESIDENTIAL	669m	South
DCe	CHST	District Centre	COMMERCIAL	744m	East
R	PADE	Residential	RESIDENTIAL	756m	North West
UE	CHST	Urban Employment	INDUSTRIAL	801m	North West
R	CHST	Residential	RESIDENTIAL	808m	North West

Zone Code	Development Plan Code	Zone Description	Development Category	Distance	Direction
Rec	PADE	Recreation	RECREATION	811m	North
C	PADE	Commercial	COMMERCIAL	839m	North West
MU	CHST	Mixed Use	MISCELLANEOUS	846m	West
UE	CHST	Urban Employment	INDUSTRIAL	849m	West
R	CHST	Residential	RESIDENTIAL	862m	South East
NCe	CHST	Neighbourhood Centre	COMMERCIAL	902m	West
R	CHST	Residential	RESIDENTIAL	915m	South East
MU	CHST	Mixed Use	MISCELLANEOUS	916m	South East
NCe	CHST	Neighbourhood Centre	COMMERCIAL	939m	North West
LCe	CHST	Local Centre	COMMERCIAL	940m	South East
MU	CHST	Mixed Use	MISCELLANEOUS	954m	North West
RC	CHST	Residential Character	RESIDENTIAL	960m	East
UE	CHST	Urban Employment	INDUSTRIAL	961m	North East
MU	CHST	Mixed Use	MISCELLANEOUS	973m	South East
SU	CHST	Special Use	MISCELLANEOUS	979m	South East

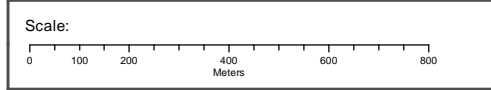
Land Development Zones Data Source: Dept of Planning, Transport and Infrastructure - South Australia
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Land Use Generalised 2018

Port Road, Albert Park, SA 5014



Legend	
No Description	Forestry
Agriculture	Golf
Site Boundary	Commercial
Report Buffer	Education
Property Boundary	Food Industry
Non Private Residential	Retail Commercial
Public Institution	Rural Residential
Recreation	Utilities or Industry
Reserves	Vacant
Residential	Vacant Urban Land
Horticulture	
Livestock	
Mining or Quarrying	



Data Sources: Property Boundaries - Sourced by Omnilink PTY LTD. ©PSMA Australia Limited
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Coordinate System: GDA 1994 MGA Zone 54

Date: 11 February 2020

Planning

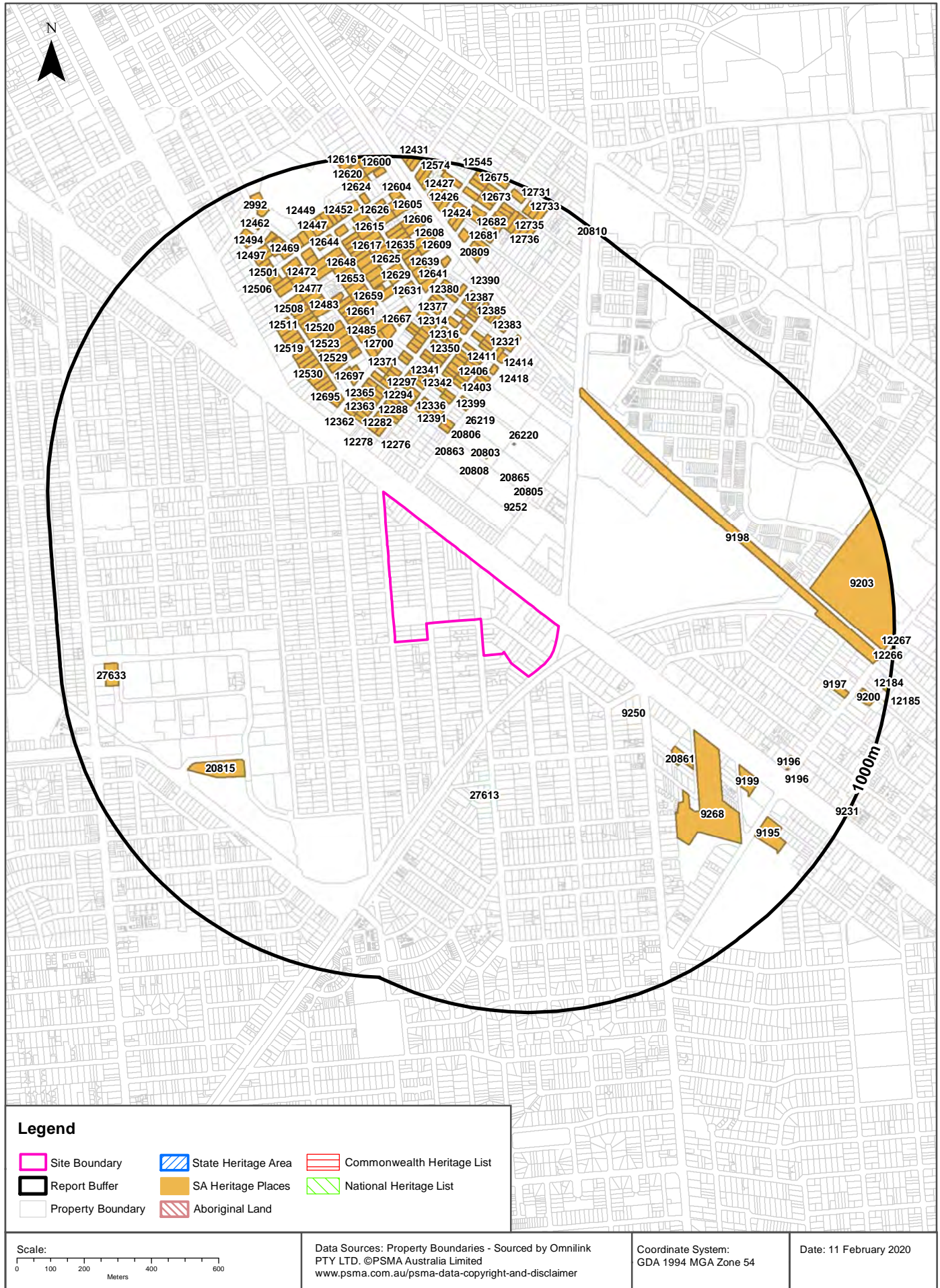
Port Road, Albert Park, SA 5014

Land Use Generalised 2018

Land use classes within the dataset buffer:

Description	Distance	Direction
Commercial	0m	Onsite
Commercial	0m	Onsite
Commercial	0m	Onsite
Residential	0m	Onsite
Utilities or Industry	0m	Onsite
Public Institution	0m	Onsite
Residential	0m	Onsite
Utilities or Industry	0m	Onsite
Retail Commercial	0m	Onsite
Commercial	0m	Onsite
Residential	0m	Onsite
Vacant Urban Land	0m	Onsite
Utilities or Industry	0m	Onsite
Utilities or Industry	0m	Onsite
Retail Commercial	0m	Onsite
Retail Commercial	0m	Onsite
Commercial	0m	Onsite
Vacant	0m	North West
Education	134m	North West
Recreation	417m	East
Food Industry	459m	West
Reserves	498m	South West
Non Private Residential	754m	West

Land Use Generalised Data Source: Dept of Planning, Transport and Infrastructure - South Australia
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Heritage

Port Road, Albert Park, SA 5014

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
N/A	No records in buffer							

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
12276	1 Cricksdale Street CHELTENHAM	Contributory	House	House	1/13/2000	165m	North West
12278	2 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	175m	North West
12280	4 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	186m	North West
12282	6 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	197m	North West
9252	Port Road CHELTENHAM	State	Cemetery	Grave of Yoshikuma Kawakami (Japanese naval cadet), Cheltenham Cemetery		202m	North East
20867	Port Road Section C, Drive A, Path 5(16), Site 152S, Site 152C, Site 152N, Site 153S, Site 153C, Site 153N, Si CHELTENHAM	Local	Cemetery	Grave of Richard Day, Cheltenham Cemetery	5/15/2014	203m	North

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
12322	1 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	205m	North
12284	8 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	209m	North West
12277	1 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	213m	North West
20863	Port Road Section B, Drive A, Path 6(7), Site 171S, 171N CHELTENHAM	Local	Cemetery	Grave of Japanese Seamen, Toraichi Shirahma and Chuhichi Ikeyama, Cheltenham Cemetery	5/15/2014	214m	North
20808	Port Road Section C, Drive A, Path 4(15) Site 22 CHELTENHAM	Local	Cemetery	Grave of Isaac Dewson, Cheltenham Cemetery	5/15/2014	214m	North
12324	3 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	218m	North
12279	3 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	222m	North West
12286	10 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	222m	North
20804	Port Road Section B, Drive A, Path 10(11), Site 326S, 326C, 326N CHELTENHAM	Local	Cemetery	Grave of Firemen, Cheltenham Cemetery	5/15/2014	227m	North
12281	5 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	231m	North West
12326	5 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	232m	North
12288	12 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	234m	North
12361	2 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	241m	North West
12283	7 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	242m	North West
12328	7 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	246m	North
12290	14 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	247m	North
12362	4 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	249m	North West
12285	9 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	252m	North West
12391	1 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	253m	North
12392	2 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	253m	North
12333	12 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	256m	North
12363	6 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	257m	North West
12292	16 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	260m	North
20805	Port Road Section H, Drive B, Path 5(38), Sites 13,14&15 CHELTENHAM	Local	Cemetery	Grave of Reverend Joseph Coles Kirby, Cheltenham Cemetery	5/15/2014	261m	North East

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
20868	Port Road Section D, Drive B, Path 4(15), Sites 13, 14 &15 CHELTENHAM	Local	Cemetery	Grave of Captain Patrick Weir, Cheltenham Cemetery	5/15/2014	263m	North
20807	Port Road Section D, Drive B, Path 2(13) Site 49, Sites 50,51,52,53 & 54 CHELTENHAM	Local	Cemetery	Grave of Adelaide Miethke, Cheltenham Cemetery	5/15/2014	264m	North
12287	11 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	264m	North West
20865	Port Road Section H, Drive B, path 8(41), Sites 80S, 80C, 80N, 81S, 81C, 81Nm, 40AS, 40AC, 40AN, 41S, 41C 41N CHELTENHAM	Local	Cemetery	Grave of Fletcher Family, Cheltenham Cemetery	5/15/2014	266m	North East
12364	8 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	267m	North West
12393	3 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	268m	North
12330	9 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	269m	North
12394	4 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	270m	North
12334	14 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	271m	North
20803	Port Road Section D, Drive B, Path 8(19), Sites 238S, 238N, 239S, 239N CHELTENHAM	Local	Cemetery	Grave of David Bower, Cheltenham Cemetery	5/15/2014	274m	North
9250	4 Findon Road WOODVILLE WEST	Local	Fire Station	Former Fire Station	11/27/1997	275m	South East
12289	13 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	275m	North
12365	10 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	276m	North West
20864	Port Road Section A, Drive B, Path 4(5), Site 8 section A, Drive B, Path 5 (6) site 8 CHELTENHAM	Local	Cemetery	Grave of John Barton Hack, Cheltenham Cemetery	5/15/2014	276m	North
12294	18 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	282m	North
12395	5 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	283m	North
12332	11 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	284m	North
12336	16 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	286m	North
20866	Port Road Section D, Drive B, Path 7(18), Sites 40,41&42 Section D Drive B Path 8(19) Sites 7,8&9 CHELTENHAM	Local	Cemetery	Grave of Richard Honey, Cheltenham Cemetery	5/15/2014	286m	North

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
20806	Port Road Section A, Drive B, Path 2(3), Site 43 CHELTENHAM	Local	Cemetery	Grave of John Alexander Walker, Cheltenham Cemetery	5/15/2014	287m	North
12366	12 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	287m	North West
12291	15 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	287m	North
12695	5 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	288m	North West
12696	7 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	294m	North West
12367	14 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	297m	North West
12335	15 Second Avenue CHELTENHAM	Contributory	House	House	9/13/2018	298m	North
12293	17 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	307m	North
12368	16 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	308m	North
12297	22 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	310m	North
12295	19 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	320m	North
12299	24 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	324m	North
12337	19 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	327m	North
12369	18 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	328m	North
12396	11 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	328m	North
12697	11a Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	329m	North West
12296	21 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	333m	North
12536	58 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	334m	North West
12300	26 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	338m	North
12397	14 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	341m	North
12398	15 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	341m	North
12338	21 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	341m	North
26219	Port Road Section I, Drive C, Path 3(4), Site 68 CHELTENHAM	Local		Grave of Thomas Carr, Cheltenham Cemetery	5/15/2014	342m	North
12698	15 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	343m	North West
12340	24 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	344m	North
12298	23 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	346m	North

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
26220	Port Road Section M, Drive C, Path 9(31), Site 326S, Site 326C, Site 326N CHELTENHAM	Local		Grave of John Carr, Cheltenham Cemetery	5/15/2014	346m	North
12535	56 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	349m	North West
12302	28 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	351m	North
12370	22 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	352m	North
12339	23 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	354m	North
12399	16 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	355m	North
12534	55 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	357m	North West
12342	26 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	358m	North
27613	74 May Street WOODVILLE WEST	Local		Dwelling		358m	South
12371	24 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	364m	North
12304	30 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	364m	North
12533	54 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	364m	North West
12341	25 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	366m	North
12532	52 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	379m	North West
12301	27 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	384m	North
12400	19 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	385m	North
12531	51 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	386m	North West
12343	28 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	387m	North
12699	17 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	392m	North
12303	29 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	396m	North
12402	21 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	398m	North
12345	30 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	400m	North
12530	50 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	402m	North West
12307	34 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	404m	North
12529	49 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	406m	North West
12491	40 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	407m	North West

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
12344	29 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	409m	North
12700	19 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	410m	North
12403	22 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	411m	North
12404	23 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	411m	North
12347	32 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	413m	North
12309	36 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	417m	North
12346	31 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	421m	North
12305	31 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	422m	North
12490	38 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	422m	North West
12527	47 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	424m	North West
12405	24 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	424m	North
12528	48 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	425m	North West
12406	25 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	430m	North
12349	34 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	432m	North
12407	26 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	436m	North
12701	21 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	436m	North
12348	33 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	437m	North
12306	33 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	438m	North
12525	45 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	440m	North West
12526	46 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	440m	North West
12489	36 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	444m	North West
12486	31 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	447m	North
12666	30 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	447m	North
12409	28 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	449m	North
12408	27 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	450m	North
12351	36 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	451m	North
12350	35 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	453m	North
12308	35 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	454m	North
12313	42 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	454m	North

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
12523	43 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	454m	North West
12524	44 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	455m	North West
20861	2-4 Tenterden Street Rear WOODVILLE SOUTH	Local	House	House	5/15/2014	456m	South East
12410	29 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	464m	North
12353	38 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	464m	North
12488	34 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	466m	North West
12485	29 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	468m	North
12310	37 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	470m	North
12352	37 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	471m	North
12522	42 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	471m	North West
12374	36 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	472m	North
12665	28 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	473m	North
12411	31 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	475m	North
12418	4 Woodstock Street CHELTENHAM	Contributory	House	House	1/13/2000	475m	North
12521	41 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	477m	North West
12315	44 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	479m	North
9268	Port Road WOODVILLE SOUTH	Local	Primary School	Woodville Primary School	11/27/1997	479m	South East
12375	38 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	483m	North
12354	39 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	484m	North
12311	39 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	485m	North
12487	32 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	488m	North West
12355	40 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	489m	North
12484	27 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	490m	North
12316	46 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	491m	North
12668	37 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	495m	North
12520	39 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	499m	North West
12519	38 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	501m	North West
12312	41 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	501m	North

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
12482	25 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	503m	North
12667	35 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	513m	North
12414	1 Woodstock Street CHELTENHAM	Contributory	House	House	1/13/2000	516m	North
12417	3 Woodstock Street CHELTENHAM	Contributory	House	House	1/13/2000	516m	North
12517	36 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	516m	North West
12412	33 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	516m	North
12314	43 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	517m	North
12376	44 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	518m	North
12480	23 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	518m	North
12518	37 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	522m	North West
12356	41 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	525m	North
12358	44 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	530m	North
12478	21 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	531m	North
12317	48 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	531m	North
12661	22 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	533m	North
12515	34 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	535m	North West
12516	35 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	537m	North West
12413	37 Third Avenue CHELTENHAM	Contributory	House	House	1/13/2000	541m	North
9198	Woodville Road WOODVILLE	Local	Railway Station	Woodville Railway Station	11/27/1997	543m	East
12357	43 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	545m	North
12476	19 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	545m	North
12377	46 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	550m	North
12514	33 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	552m	North West
12659	20 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	552m	North
12513	32 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	553m	North West
12483	26 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	554m	North West
12321	15 High Street CHELTENHAM	Contributory	House	House	1/13/2000	559m	North
12475	17 Fifth Avenue CHELTENHAM	Contributory	House	House and front fence	1/13/2000	560m	North
12319	52 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	566m	North

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
12512	31 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	567m	North West
12664	27 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	568m	North
12511	30 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	572m	North West
12359	47 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	572m	North
12657	18 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	574m	North
20815	Circuit Drive cnr Phillips Crescent HENDON	Local	Monument - Column - Cairn - Cross - Shrine - Marker - Statue	Hendon Aerodrome Cairn	5/15/2014	574m	South West
12481	24 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	577m	North West
12473	15 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	579m	North
12378	48 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	579m	North
12382	19 Tewkesbury Street CHELTENHAM	Contributory	House	House	1/13/2000	580m	North
12631	26 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	582m	North
12510	29 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	583m	North West
12360	49 Second Avenue CHELTENHAM	Contributory	House	House	1/13/2000	584m	North
12663	25 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	587m	North
12379	50 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	590m	North
12383	25 Tewkesbury Street CHELTENHAM	Contributory	House	House	1/13/2000	592m	North
12384	29 Tewkesbury Street CHELTENHAM	Contributory	House	House	1/13/2000	593m	North
12655	16 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	594m	North
12385	31 Tewkesbury Street CHELTENHAM	Contributory	House	House	1/13/2000	595m	North
12509	27 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	598m	North West
12479	22 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	600m	North West
12320	58 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	603m	North
12318	51 First Avenue CHELTENHAM	Contributory	House	House	1/13/2000	603m	North
12662	23 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	607m	North
12642	45 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	607m	North
12386	33 Tewkesbury Street CHELTENHAM	Contributory	House	House	1/13/2000	608m	North
12387	37 Tewkesbury Street CHELTENHAM	Contributory	House	House	1/13/2000	613m	North

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
12508	25 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	613m	North West
12380	54 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	615m	North
12653	14 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	615m	North
12388	39 Tewkesbury Street CHELTENHAM	Contributory	House	House	1/13/2000	616m	North
12629	22 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	617m	North
12389	41 Tewkesbury Street CHELTENHAM	Contributory	House	House	1/13/2000	619m	North
12477	20 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	621m	North West
12390	43 Tewkesbury Street CHELTENHAM	Contributory	House	House	1/13/2000	626m	North
12660	21 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	626m	North
12641	43 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	628m	North
12652	12 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	636m	North
12381	56 Stroud Street South CHELTENHAM	Contributory	House	House	1/13/2000	636m	North
12627	20 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	636m	North
12640	41 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	644m	North
12658	19 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	646m	North
9199	878-882 Port Road WOODVILLE SOUTH	Local	Hotel - Motel - Inn	Woodville Hotel	11/27/1997	647m	South East
12650	10 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	657m	North
12506	21 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	658m	North West
12468	7 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	660m	North West
12639	39 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	661m	North
12656	17 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	666m	North
12474	16 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	666m	North West
12625	16 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	674m	North
12638	37 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	678m	North
12648	8 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	678m	North
12504	19 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	681m	North West
12466	5 Fifth Avenue CHELTENHAM	Contributory	House	House & Granny Flat	1/13/2000	683m	North West

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
12654	15 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	686m	North
12472	14 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	688m	North West
12610	26 Railway Terrace CHELTENHAM	Contributory	House	House	1/13/2000	691m	North
12637	35 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	692m	North
12623	14 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	693m	North
12503	17 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	696m	North West
12651	11 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	700m	North
12646	6 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	700m	North
12636	33 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	703m	North
12464	3 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	705m	North West
12621	12 Seventh Avenue CHELTENHAM	Contributory	House	House & Granny Flat	1/13/2000	707m	North
12471	12 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	711m	North West
12502	15 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	713m	North West
12649	9 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	713m	North
12609	24 Railway Terrace CHELTENHAM	Contributory	House	House	1/13/2000	714m	North
12635	31 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	715m	North
12619	10 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	720m	North
12463	1 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	727m	North West
12647	7 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	727m	North
12633	29 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	731m	North
12608	23 Railway Terrace CHELTENHAM	Contributory	House	House	1/13/2000	731m	North
12617	8 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	732m	North
20809	60A-62 Stroud Street North CHELTENHAM	Local	Civic/Community Centre	Cheltenham Community Centre, former Cheltenham Congregational Church	5/15/2014	737m	North
12645	5 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	741m	North
12501	13 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	742m	North West
12632	27 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	743m	North
12644	2 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	743m	North

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
12615	6 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	752m	North
12470	10 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	752m	North West
12630	25 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	756m	North
12500	11 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	757m	North West
9203	Woodville Road WOODVILLE	Local	Sporting Facility - General	St Clair Youth Complex	11/27/1997	758m	East
12444	1 Colston Street CHELTENHAM	Contributory	House	House	1/13/2000	764m	North West
12607	21 Railway Terrace CHELTENHAM	Contributory	House	House	1/13/2000	765m	North
9196	789-791 Port Road WOODVILLE	State	Religious Building	St Margaret's Anglican Church and Lychgate		766m	South East
12643	1 Sixth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	768m	North
12445	3 Colston Street CHELTENHAM	Contributory	House	House	1/13/2000	770m	North West
12469	8 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	771m	North West
12499	9 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	772m	North West
12614	4 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	772m	North
12446	5 Colston Street CHELTENHAM	Contributory	House	House	1/13/2000	776m	North
12679	64 Stroud Street North CHELTENHAM	Contributory	House	House	1/13/2000	779m	North
12422	19 Buller Terrace CHELTENHAM	Contributory	House	House & Granny Flat	1/13/2000	780m	North
12606	20 Railway Terrace CHELTENHAM	Contributory	House	House	1/13/2000	782m	North
12447	7 Colston Street CHELTENHAM	Contributory	House	House	1/13/2000	784m	North
12497	7 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	787m	North West
12628	21 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	788m	North
27626	9 Colston Street CHELTENHAM	Local		Former shop and attached dwelling		792m	North
12612	2 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	797m	North
12467	6 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	797m	North West
12449	11 Colston Street CHELTENHAM	Contributory	House	House	1/13/2000	800m	North
9195	44a Woodville Road WOODVILLE SOUTH	Local	Religious Building	Uniting Church Complex	11/27/1997	802m	South East
12423	21 Buller Terrace CHELTENHAM	Contributory	House	House	1/13/2000	803m	North
12681	66 Stroud Street North CHELTENHAM	Contributory	House	House	1/13/2000	804m	North
12450	15 Colston Street CHELTENHAM	Contributory	House	House	1/13/2000	807m	North
12451	17 Colston Street CHELTENHAM	Contributory	House	House	1/13/2000	813m	North

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
12424	22 Buller Terrace CHELTENHAM	Contributory	House	House	1/13/2000	814m	North
12465	4 Fifth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	816m	North West
12605	18 Railway Terrace CHELTENHAM	Contributory	House	House	1/13/2000	818m	North
12452	19 Colston Street CHELTENHAM	Contributory	House	House	1/13/2000	820m	North
12453	21 Colston Street CHELTENHAM	Contributory	House	House	1/13/2000	829m	North
9197	65 Woodville Road WOODVILLE	Local	Historic Sites (unclassified)	State Bank	11/27/1997	829m	East
27633	4 Circuit Drive HENDON	Local		Former Hendon Ammunition Factory - Main Store		830m	West
12494	3 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	832m	North West
12626	17 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	833m	North
12604	17 Railway Terrace CHELTENHAM	Contributory	House	House	1/13/2000	836m	North
12454	23 Colston Street CHELTENHAM	Contributory	House	House	1/13/2000	839m	North
12682	68 Stroud Street North CHELTENHAM	Contributory	House	House	1/13/2000	845m	North
12669	31 Stroud Street North CHELTENHAM	Contributory	House	House	1/13/2000	845m	North
12736	10 Whitney Street CHELTENHAM	Contributory	House	House	1/13/2000	849m	North
12425	24 Buller Terrace CHELTENHAM	Contributory	House	House	1/13/2000	849m	North
12735	8 Whitney Street CHELTENHAM	Contributory	House	House	1/13/2000	851m	North
12492	1 Fourth Avenue CHELTENHAM	Contributory	House	House	1/13/2000	853m	North West
12734	6 Whitney Street CHELTENHAM	Contributory	House	House	1/13/2000	854m	North
12732	4 Whitney Street CHELTENHAM	Contributory	House	House	1/13/2000	857m	North
12455	25 Colston Street CHELTENHAM	Contributory	House	House	1/13/2000	859m	North
12537	2 Herbert Street CHELTENHAM	Contributory	House	House	1/13/2000	859m	North
12426	25 Buller Terrace CHELTENHAM	Contributory	House	House	1/13/2000	860m	North
12730	2 Whitney Street CHELTENHAM	Contributory	House	House	1/13/2000	860m	North
12670	33 Stroud Street North CHELTENHAM	Contributory	House	House	1/13/2000	864m	North
12462	10 Earle Street CHELTENHAM	Contributory	House	House	1/13/2000	864m	North West
12683	70 Stroud Street North CHELTENHAM	Contributory	House	House	1/13/2000	865m	North
12603	16 Railway Terrace CHELTENHAM	Contributory	House	House	1/13/2000	868m	North
12427	26 Buller Terrace CHELTENHAM	Contributory	House	House	1/13/2000	873m	North
12684	72 Stroud Street North CHELTENHAM	Contributory	House	House	1/13/2000	879m	North
2992	Queen Street ALBERTON	Local	Sporting Facility - General	Fos Williams Grandstand, Alberton Oval	5/4/2000	894m	North West

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
12685	74 Stroud Street North CHELTENHAM	Contributory	House	House	1/13/2000	895m	North
12671	37 Stroud Street North CHELTENHAM	Contributory	House	House	1/13/2000	898m	North
12624	15 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	898m	North
9200	72 Woodville Road WOODVILLE	Local	Hall	Town Hall & Council Chambers	11/27/1997	906m	East
12428	28 Buller Terrace CHELTENHAM	Contributory	House	House	1/13/2000	908m	North
12686	76 Stroud Street North CHELTENHAM	Contributory	House	House	1/13/2000	910m	North
12539	8 Herbert Street CHELTENHAM	Contributory	House	House	1/13/2000	911m	North
12672	39 Stroud Street North CHELTENHAM	Contributory	House	House	1/13/2000	913m	North
12622	13 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	918m	North
12429	29 Buller Terrace CHELTENHAM	Contributory	House	House	1/13/2000	919m	North
12733	5 Whitney Street CHELTENHAM	Contributory	House	House	1/13/2000	921m	North
12731	3 Whitney Street CHELTENHAM	Contributory	House	House	1/13/2000	924m	North
12729	1 Whitney Street CHELTENHAM	Contributory	House	House	1/13/2000	926m	North
12673	41 Stroud Street North CHELTENHAM	Contributory	House	House	1/13/2000	928m	North
12430	30 Buller Terrace CHELTENHAM	Contributory	House	House	1/13/2000	931m	North
12538	3 Herbert Street CHELTENHAM	Contributory	House	House	1/13/2000	932m	North
12601	13 Railway Terrace CHELTENHAM	Contributory	House	House	1/13/2000	936m	North
12620	11 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	938m	North
12542	12 Herbert Street CHELTENHAM	Contributory	House	House	1/13/2000	942m	North
12674	43 Stroud Street North CHELTENHAM	Contributory	House	House	1/13/2000	943m	North
12600	12 Railway Terrace CHELTENHAM	Contributory	House	House & Granny Flat	1/13/2000	945m	North
12687	80 Stroud Street North CHELTENHAM	Contributory	House	House	1/13/2000	953m	North
12543	14 Herbert Street CHELTENHAM	Contributory	House	House	1/13/2000	957m	North
12431	31 Buller Terrace CHELTENHAM	Contributory	House	House	1/13/2000	959m	North
12618	9 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	963m	North
12599	11 Railway Terrace CHELTENHAM	Contributory	House	House	1/13/2000	964m	North
12432	32 Buller Terrace CHELTENHAM	Contributory	House	House	1/13/2000	969m	North
12545	16 Herbert Street CHELTENHAM	Contributory	House	House	1/13/2000	972m	North

Heritage No	Location	Heritage Class	Australian Class	Details	Auth Date	Distance	Direction
12574	2 Percy Street CHELTENHAM	Contributory	House	House	1/13/2000	972m	North
12675	47 Stroud Street North CHELTENHAM	Contributory	House	House	1/13/2000	972m	North
12616	7 Seventh Avenue CHELTENHAM	Contributory	House	House	1/13/2000	979m	North
12184	5 Russell Terrace WOODVILLE	Contributory	House	House	1/13/2000	982m	East
12266	86 Woodville Road WOODVILLE	Contributory	House	House	1/13/2000	982m	East
12433	33 Buller Terrace CHELTENHAM	Contributory	House	House	1/13/2000	983m	North
12598	10 Railway Terrace CHELTENHAM	Contributory	House	House	1/13/2000	984m	North
12576	4 Percy Street CHELTENHAM	Contributory	House	House	1/13/2000	986m	North
20810	615 Torrens Road CHELTENHAM	Local	Gate	Cheltenham Park Racecourse Entrance Gates and Fence (located on Cheltenham Parade, approximately 230 metres from the South Eastern corner of Cheltenham Parade and Torrens Road)	5/15/2014	986m	North
12547	18 Herbert Street CHELTENHAM	Contributory	House	House	1/13/2000	988m	North
12267	86a Woodville Road WOODVILLE	Contributory	House	House	1/13/2000	989m	East
9231	765 Port Road WOODVILLE	Local	Council Offices	Former Council Chambers	11/27/1997	991m	South East
12688	84 Stroud Street North CHELTENHAM	Contributory	House	House	1/13/2000	991m	North
12185	6 Russell Terrace WOODVILLE	Contributory	Flat - Units	Single Storey Flats	1/13/2000	993m	East
12268	88 Woodville Road WOODVILLE	Contributory	House	House	1/13/2000	995m	East
12434	34 Buller Terrace CHELTENHAM	Contributory	House	House	1/13/2000	996m	North
12597	9 Railway Terrace CHELTENHAM	Contributory	House	House	1/13/2000	997m	North

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

Natural Hazards

Port Road, Albert Park, SA 5014

Bushfire Protection Areas

Bushfire Protection Areas within the dataset buffer:

Map Id	Bushfire Risk Code	Development Plan Code	Additional Development Criteria	Distance	Direction
N/A	No records in buffer				

Bushfire Protection Areas Data Source: Dept of Planning, Transport and Infrastructure - South Australia
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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	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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Ecological Constraints

Port Road, Albert Park, SA 5014

Groundwater Dependent Ecosystems Atlas

GDEs within the dataset buffer:

MapID	Type	Name	GDE Potential	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
N/A	No records within buffer							

Groundwater Dependent Ecosystems Atlas Data Source: The Bureau of Meteorology
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Ecological Constraints

Port Road, Albert Park, SA 5014

Ramsar Wetlands

Ramsar Wetlands within the dataset buffer:

Wetland	Distance	Direction
No records in buffer		

Ramsar Wetlands Data Source: Dept of Environment, Water and Natural Resources - South Australia
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Location Confidences

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LC Code	Location Confidence
Premise match	Georeferenced to the site location / premise or part of site
General area or suburb match	Georeferenced with the confidence of the general/approximate area
Road match	Georeferenced to the road or rail
Road intersection	Georeferenced to the road intersection
Feature is a buffered point	Feature is a buffered point
Land adjacent to geocoded site	Land adjacent to Georeferenced Site
Network of features	Georeferenced to a network of features

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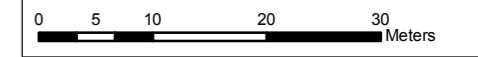
Appendix D

Third Party Report Extracts



Legend

- Site Boundary
- Site Features
- + Groundwater Investigation Location
- Interpreted Groundwater Elevation Contours (m AHD)
- ⋯ Inferred Groundwater Elevation Contours (m AHD)
- Inferred Groundwater Flow Direction
- 30 Groundwater TCE Concentration (µg/L) Exceeding the NHMRC (2011) Recreational Water - Health (Primary Contact) (30 µg/L)



Land & Water Consulting Pty Ltd
 Email: enquiries@lwconsulting.com.au
 Web: www.lwconsulting.com.au

Date: June 2018

Projection: GDA 1994, Zone 54



Project:

Detailed Site Investigation -
 24 - 30 Murray Street, Albert Park,
 South Australia

Site Address:

24 - 30 Murray Street, Albert Park, South Australia

Figure Title:

Interpreted Groundwater Contours and Inferred
 Direction of Groundwater Flow with Reported
 TCE Concentrations (April 2018)

Appendix in Set 6 of 6

Scale: See Plan

Drawing Reference

AAAA

Figure

6b

Revision

A



Legend:

Soil Vapour Investigation Location

- Soil Vapour Investigation Location
- Site Boundary
- Nature and Extent Unknown (TCE)
- EPA Assessment Area

Inferred Trichloroethene Plume (µg/m3) - JBSG SV

- 1600-3000
- 3000-6400
- 6400-10000
- 10000-16000

As requested by the client, JBS&G have included the data collected by a third party pertaining to the 'Murray Street site', JBS&G make no warranties around the accuracy of data collected by others.



Job No: 55976

Client: EPA

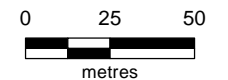
Version: DRAFT

Date: 20-Aug-2019

Drawn By: PN

Checked By: DM

Scale at A4 1:2,250



Coor. Sys. GDA 1994 MGA Zone 54

Albert Park Assessment Area

EPA ASSESSMENT AREA INFERRED TRICHLOROETHENE PLUME EXTENT - JBSG SOIL VAPOUR

FIGURE 6

Appendix E

Safework SA Dangerous Substances Licensing Records (Proponent Land)



18 March 2020

Education Team

Level 4 World Park A
33 Richmond Road
Keswick SA 5035

GPO Box 465
Adelaide SA 5001

DX 715 Adelaide

Phone 1300 365 255

Email licensing.safework@sa.gov.au

ABN 50-560-588-327

www.safework.sa.gov.au

Ms Tamar Robinson
LBW Co
184 Magill Road
NORWOOD SA 5067

Dear Ms Robinson

RE: DANGEROUS SUBSTANCES LICENCE SEARCH

PROPERTY DETAILS: 992 PORT ROAD, ALBERT PARK SA 5014

Further to your application for a Dangerous Substance Search dated 3 March 2020 for the abovementioned site, SafeWork SA's records show the following current and historical storage:

Class	Quantity	Storage Type
8	20 KL	Package Internal – Drum/Can/Bin/Box

Yours sincerely

Team Leader
Licensing Unit
SAFEWORK SA



18 March 2020

Ms Tamar Robinson
LBW Co
184 Magill Road
NORWOOD SA 5067

Education Team

Level 4 World Park A
33 Richmond Road
Keswick SA 5035

GPO Box 465
Adelaide SA 5001

DX 715 Adelaide

Phone 1300 365 255

Email licensing.safework@sa.gov.au

ABN 50-560-588-327

www.safework.sa.gov.au

Dear Ms Robinson

RE: DANGEROUS SUBSTANCES LICENCE SEARCH

PROPERTY DETAILS: 12 MAY STREET, ALBERT PARK SA 5014

Further to your application for a Dangerous Substance Search dated 3 March 2020 for the abovementioned site, SafeWork SA's records show the following current and historical storage:

Class	Quantity	Storage Type
3	4.5 KL	Liquid Tank Underground External

Yours sincerely

Team Leader
Licensing Unit
SAFEWORK SA



18 March 2020

Ms Tamar Robinson
LBW Co
184 Magill Road
NORWOOD SA 5067

Education Team

Level 4 World Park A
33 Richmond Road
Keswick SA 5035

GPO Box 465
Adelaide SA 5001

DX 715 Adelaide

Phone 1300 365 255

Email licensing.safework@sa.gov.au

ABN 50-560-588-327

www.safework.sa.gov.au

Dear Ms Robinson

DANGEROUS SUBSTANCES LICENCE SEARCH

PROPERTY DETAILS: 21-23 (LOT 1) MURRAY STREET, ALBERT PARK SA 5014

Further to your application for a Dangerous Substance Search dated 3 March 2020 received for the abovementioned site, I advise that there are no current or historical records for this site.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'MAUBSTER'.

Team Leader
Licensing Unit
SAFEWORK SA



18 March 2020

Ms Tamar Robinson
LBW Co
184 Magill Road
NORWOOD SA 5067

Education Team

Level 4 World Park A
33 Richmond Road
Keswick SA 5035

GPO Box 465
Adelaide SA 5001

DX 715 Adelaide

Phone 1300 365 255

Email licensing.safework@sa.gov.au

ABN 50-560-588-327

www.safework.sa.gov.au

Dear Ms Robinson

DANGEROUS SUBSTANCES LICENCE SEARCH

PROPERTY DETAILS: 982-986 PORT ROAD, ALBERT PARK SA 5014

Further to your application for a Dangerous Substance Search dated 3 March 2020 received for the abovementioned site, I advise that there are no current or historical records for this site.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'MA Webster'.

Team Leader
Licensing Unit
SAFEWORK SA



18 March 2020

Education Team

Level 4 World Park A
33 Richmond Road
Keswick SA 5035

GPO Box 465
Adelaide SA 5001

DX 715 Adelaide

Phone 1300 365 255

Email licensing.safework@sa.gov.au

ABN 50-560-588-327

www.safework.sa.gov.au

Ms Tamar Robinson
LBW Co
184 Magill Road
NORWOOD SA 5067

Dear Ms Robinson

DANGEROUS SUBSTANCES LICENCE SEARCH

PROPERTY DETAILS: 988 PORT ROAD, ALBERT PARK SA 5014

Further to your application for a Dangerous Substance Search dated 3 March 2020 received for the abovementioned site, I advise that there are no current or historical records for this site.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'M. V. B. S.' or similar.

Team Leader
Licensing Unit
SAFEWORK SA

The City of Charles Sturt

Engagement Plan

Albert Park Mixed Use Code Amendment

October 2021

Contact details

Name: Jim Gronthos

Position: Senior Policy Planner

Email: jgronthosi@charlessturt.sa.gov.au

Phone: 8408 1111

CONTENTS

1. BACKGROUND INFORMATION
2. STATUS OF THE CODE AMENDMENT
3. ENGAGEMENT PURPOSE
4. ENGAGEMENT OBJECTIVES
5. STAKEHOLDER IDENTIFICATION AND ANALYSIS
6. SCOPE OF INFLUENCE
7. KEY MESSAGES
8. LEVEL OF PARTICIPATION
9. STAKEHOLDER AND COMMUNITY MAPPING
10. THE ENGAGEMENT APPROACH
11. COMMUNITY ENGAGEMENT PLAN
12. APPLYING THE CHARTER PRINCIPLES IN PRACTICE
13. EVALUATION
14. CLOSING THE LOOP AND REPORTING BACK

1. Background information

The investigation area includes land located in the suburb of Albert Park in the vicinity of Port Road, Glyde Street, Grace Street, Murray Street, May Street and West Lakes Boulevard (see **Figure 1- Affected Area** below).

The area is currently zoned primarily Strategic Employment Zone, Employment Zone and partly General Neighbourhood Zone, and is adjacent to a major road transport corridor (Port Road) and near the Grange station on the Grange railway line.

The State Planning Policies and Regional Plan seek to manage the impacts of population growth by enabling residential growth through infill development.

The surrounding locality is characterised by low density housing stock. The area's proximity to a major transport corridor and a rail service, combined with the age and nature of some existing industrial operations, provides the opportunity for mixed use development, including higher density residential development. As such, it is proposed that the zone be amended to facilitate a mixed-use environment, allowing for higher residential densities and/or commercial development.

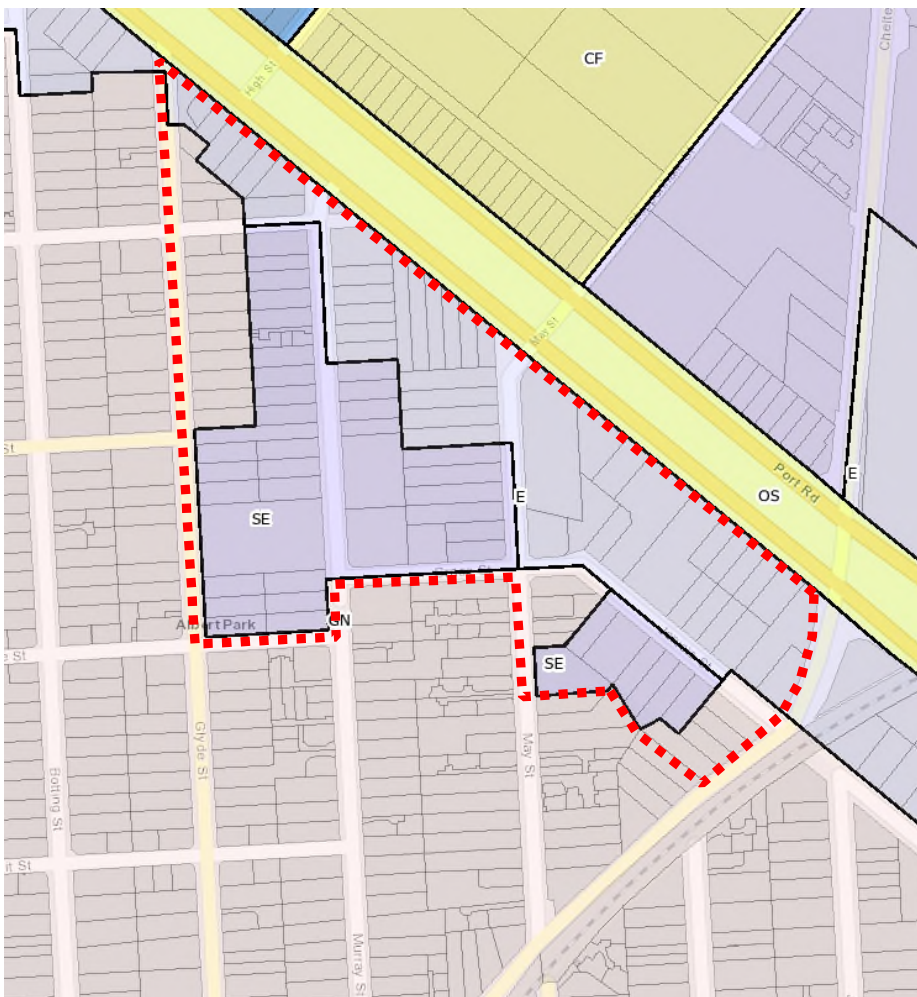
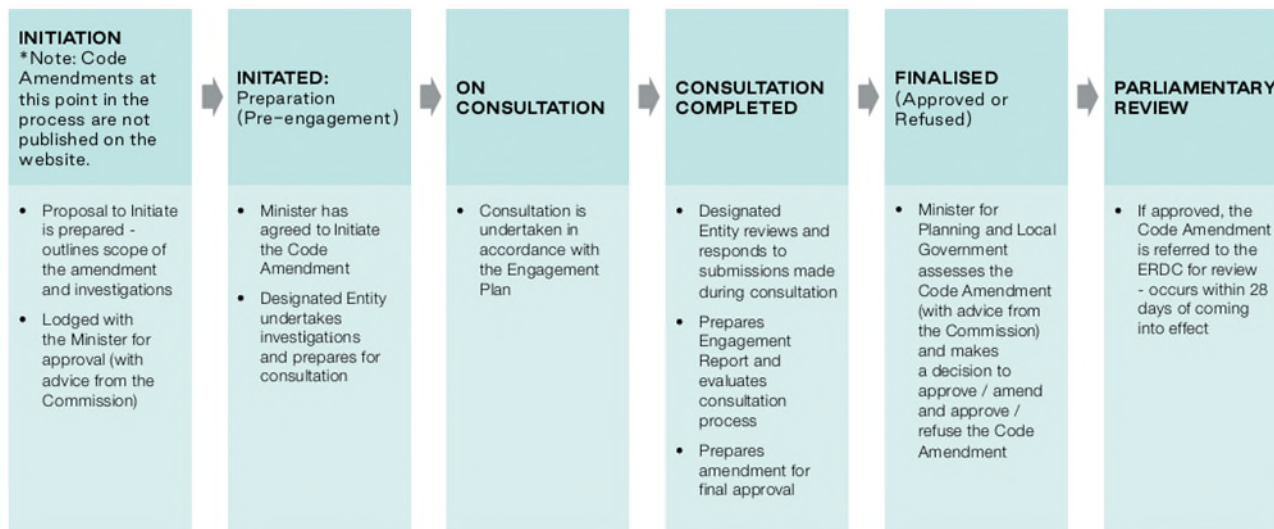


Figure 1: Affected Area ■■■■■■■■■■

2. Status of the Code Amendment

The Code Amendment process includes a number of steps which must be undertaken before any changes to zoning or policy can be implemented. An overview of the Code Amendment process is illustrated below. The Code Amendment has been 'Initiated' and is proposed to be placed 'On Consultation'.



3. Engagement purpose

The purpose of the engagement process is to inform and consult on the proposed rezoning of the Affected Area to enable future higher density residential and mixed use (commercial) development.

4. Engagement objectives

This engagement plan includes the following objectives to ensure consistency with the Government's Community Engagement Charter Principles:

- To ensure the Charles Sturt community has easy access to appropriate information about the proposed Code Amendment.
- To provide easy to understand written and graphic materials that explain and demonstrate the impacts of the proposed policy changes on the nature and scale of built form in the area.
- To provide opportunities for stakeholder engagement to inform the amendment.
- To gain input from community and other stakeholders in ways that are inclusive and engaging and inform the amendment.
- To obtain localised knowledge and perspective to inform the amendment.
- To ensure that all affected and interested stakeholders have the ability to provide input.
- To build positive relationships between Council and the community, and position the City of Charles Sturt as an organisation that is providing sound management decisions.
- To inform the Charles Sturt community and other stakeholders of Code Amendment related decisions and reasoning for these decisions.
- To comply with the Community Engagement Charter and the *PDI Act 2016*.

5. Stakeholder identification and analysis

The primary audience for the engagement of this Code Amendment are the adjacent land owners and the broader Albert Park community.

Overall, the aim of the community engagement is to provide a level of engagement which seeks to work directly with the relevant stakeholders throughout the process to ensure that public concerns and aspirations are understood, considered and reflected in the Code Amendment process.

A stakeholder approach has been prepared and is detailed in Part 10, with a summary of this analysis provided in **Table 1** below.

Table 1 Stakeholder Analysis Summary

Inform and Consult	<p>State Planning Commission Planning and Land Use Services / Attorney General's Department Local Government Association Landowners and occupiers within and adjacent to the Affected Area Department for Infrastructure and Transport (DIT) – Transport Services Department for Infrastructure and Transport (DIT) – Public Transport Division Department of Justice – State Emergency Services & SA Metropolitan Fire Service South Australian Police (SAPOL) SA Ambulance Service South Australian Metropolitan Fire Service Department for Water and Environment Department for State Development SA Health (Department for Health and Wellbeing) Environment Protection Authority Department for Education and Child Development Utility Providers NBN State MP Federal MP City of West Torrens City of Prospect City of Port Adelaide and Enfield City of Adelaide</p>	<ul style="list-style-type: none"> • Letters • Website • Library Display • Locally circulated newspaper • Information brochure
Inform and Consult	<p>General Public</p>	<ul style="list-style-type: none"> • Website • Social Media • Library Display • Locally circulated newspaper • Information brochure

The following agencies, State and Federal Members of Parliament, interested parties, individuals, communities of interest, and Councils will be consulted during the consultation stage of the draft Code Amendment:

- Local Government Association
- Planning and Land Use Services | Attorney-General's Department
- Department for Infrastructure and Transport (DIT) – Transport Services
- Department for Infrastructure and Transport (DIT) – Public Transport Division
- SA Health (Department for Health and Wellbeing)
- Department of Justice – State Emergency Services & SA Metropolitan Fire Service
- South Australian Police (SAPOL)
- SA Ambulance Service
- South Australian Metropolitan Fire Service
- Department for Water and Environment
- Department for State Development
- Environment Protection Authority
- Department for Education and Child Development
- Electranet Pty Ltd
- Epic Energy
- SA Power Networks
- APA Group
- SA Water
- NBN
- Hon Joe Szakas MP (Member for Cheltenham)
- Hon Mark Butler MP (Federal Member for Hindmarsh)
- City of West Torrens
- City of Prospect
- City of Port Adelaide and Enfield
- City of Adelaide
- Land owners and occupiers within and adjacent to the Affected Area
- The broader Charles Sturt community

6. Scope of influence

Aspects of the draft Code Amendment process which stakeholders and the community *can* influence are:

- The type of zone(s) selected for the affected area, and the extent of its spatial application across the affected area.
- Potential building heights and setbacks applicable to parts of the zones, as well as other applicable 'Technical and Numerical Variations' (TNV) that are available to the selected zone(s).
- The desired location and size (up to a maximum of 12.5% of the developable area) of future public open space.
- Desired pedestrian, cycle linkages

Aspects of the draft Code Amendment process which stakeholders and the community *cannot* influence are:

- The geographic extent of the Code Amendment Affected Area.
- The creation or amendment of policy contained within the Planning and Design Code.
- The extent and placement of desired land uses.
- The percentage of physical public open space contribution (legislated).
- The design of future development proposals eg: dwelling applications.
- The type of future non-residential development proposals.
- The design of future public open space.

7. Key Messages

The following key messages will underpin the engagement regarding the draft Code Amendment:

- The City of Charles Sturt is proposing to re-zone the Affected Area from Strategic Employment Zone and Employment Zone to Suburban Business Zone and Housing Diversity Neighbourhood Zone in order to facilitate mixed used development in the form of residential and commercial land uses.
- The reason for this is that the Affected Area is of a size, configuration and location (proximity to transport options, services and direct interface with Port Road) to investigate a rezoning to facilitate a mixed-use environment, which allows for residential development and some commercial opportunities.
- A Code Amendment process is required to enable this re-zoning.

8. Level of Participation

The level of engagement for this project is based on the International Association of Public Participation (IAP2) Spectrum as it is well known and used by local governments.

The following level of engagement is proposed:

Inform	Consult
<i>To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.</i>	<i>To obtain public feedback on analysis, alternatives and/or decisions.</i>

9. Stakeholder and community mapping

Stakeholder	Level of interest in the project (i.e. high, medium or low)	Potential nature of interest in the project and/or the potential impact of the project	Stakeholder needs/expectations for engagement in the project	Level of engagement (i.e. inform, consult, involve, collaborate)
Land owners and occupiers within and adjacent to the Affected Area	High	<ul style="list-style-type: none"> High interest in the Code Amendment proposal and impact as the Zone change is located within their locality; How the Zone change will affect the street and general locality. How the Zone change will affect the nature of traffic in the locality. 	That they will be kept informed, listened to, their comments are acknowledged in the Code Amendment engagement process.	Inform and Consult
Department for Infrastructure and Transport (DIT) – Transport Services	High	<ul style="list-style-type: none"> High level of interest; and Identified as a required consultation as the Affected is adjacent to a DIT controlled road. 	Ensure their submission is acknowledged and reflected in the Code Amendment engagement process.	
Local Government Association	Medium	<ul style="list-style-type: none"> Medium level of interest as the Code Amendment is relevant to the City of Charles Sturt; and It is a mandatory requirement to notify the Local Government Association in writing and to be consulted in accordance with the PDI Act. 	Direct stakeholders to the SA Planning Portal and Council's YourSay website to provide up to date information on the status of the draft Code Amendment process.	
State Planning Commission	Medium	<ul style="list-style-type: none"> Medium level of interest. 	Feedback provided after the Code Amendment engagement process to explain any policy amendments proposed to the draft Code Amendment (post engagement process) before a decision is made by Council.	
Attorney General's Department	Medium	<ul style="list-style-type: none"> Medium level of interest; and Identified as a required consultation. 		
Department for Infrastructure and Transport (DIT) – Public Transport Division	Medium	<ul style="list-style-type: none"> Medium level of interest; and Identified as a required consultation. 		
Environment Protection Authority	High	<ul style="list-style-type: none"> High level of interest; and The Code Amendment seeks to accommodate a more sensitive use of land as compared to the current non-residential use. 		
Department for Water and Environment	Medium	<ul style="list-style-type: none"> Medium level of interest; Potential for localised flooding and future stormwater management. 		
Department of Justice – State Emergency Services & SA Metropolitan Fire Service	Medium	<ul style="list-style-type: none"> Medium level of interest; and Identified as a required consultation. 		
SA Health (Department for Health and Wellbeing)	Medium			
South Australian Police (SAPOL)	Medium			
SA Ambulance Service	Medium			
South Australian Metropolitan Fire Service	Medium			
Department for State Development	Medium			
Department for Education and Child Development	Medium			

NBN	Medium			
Utility Providers	Medium			
State MP	Medium			
Federal MP	Medium			
Neighbouring Council's	Low			
General Public	Low	<ul style="list-style-type: none"> • To keep informed in the overall process of the Code Amendment and Zone change; • To provide feedback on the Code Amendment. 		

10. The Engagement Approach

Stage	Objective	Stakeholders/target audience	Engagement level	Engagement activity	Timing	Who's responsible?	Resources required *	Risks and mitigation *
Code Amendment Engagement	<ul style="list-style-type: none"> Share information with the community and Agency's about the draft Code Amendment Explain the reasons for the draft Code Amendment Understand and consider the views of the stakeholder submissions received Inform and amend where appropriate the policy within the draft Code Amendment. 	<ul style="list-style-type: none"> Land owners in the Affected Area Adjacent landowners Department for Infrastructure and Transport (DIT) – Transport Services Local Government Association State Planning Commission Attorney General's Department Department for Infrastructure and Transport (DIT) – Public Transport Division Environment Protection Authority Department for Water and Environment Department of Justice – State Emergency Services & SA Metropolitan Fire Service South Australian Police (SAPOL) SA Ambulance Service South Australian Metropolitan Fire Service Department for State Development Department for Education and Child Development Office for Recreation, Sport and Racing Utility Providers State MP's Federal MP's Neighbouring Councils 	Inform and Consult	<ul style="list-style-type: none"> Letters to Stakeholders Website information Hard copy displays at Libraries Public Meeting to hear any verbal submissions Survey after engagement process to seek feedback on the process. Notice in the Advertiser. 	<p>Eight (8) week consultation process.</p> <p>Date TBC</p>	City of Charles Sturt	<ul style="list-style-type: none"> Letters SA Planning Portal – Have Your Say City of Charles Sturt Website – YourSay City of Charles Sturt Social Media Pages Information Brochure Civic Centre and library display 	<ul style="list-style-type: none"> Allow for a wider stakeholder audience to ensure all feedback, comments and concerns are captured to inform the draft Code Amendment process. Allow for a wide range of engagement resources to accommodate different stakeholder groups.
		<ul style="list-style-type: none"> General Public 	Inform and Consult	<ul style="list-style-type: none"> Website information Hard copy displays at Libraries Public Meeting to hear any verbal submissions Survey after engagement process to seek feedback on the process. 	Date TBC	City of Charles Sturt	<ul style="list-style-type: none"> SA Planning Portal – Have Your Say City of Charles Sturt Website – YourSay City of Charles Sturt Social Media Pages Information Brochure Civic Centre and library display 	<ul style="list-style-type: none"> Allow for a wider stakeholder audience to ensure all feedback, comments and concerns are captured to inform the draft Code Amendment process. Allow for a wide range of engagement resources to accommodate different stakeholder groups.

*this information does not need to be provided to the Minister

11. Community Engagement Plan

The scope for community engagement includes the following steps and timing.

Step	Title	Description
1.	Agreement from the Minister to Initiate a Code Amendment process.	<ul style="list-style-type: none"> Prepare information on the SA Planning portal and Council's website to advise of the Code Amendment process underway. Inform land owners / occupiers within the Code Amendment Affected Area and adjacent properties of the commencement of the Code Amendment process, the steps to be taken and how they will be consulted once a draft Code Amendment has been prepared for the purposes of consultation.
2.	Prepare Engagement Plan	<ul style="list-style-type: none"> Prepare a Community Engagement Plan in relation to the matter.
3.	Authorise Engagement Plan	<ul style="list-style-type: none"> Obtain approval of the Community Engagement Plan from Council
4.	Undertake Engagement	<p>The engagement activities include the following:</p> <ul style="list-style-type: none"> A copy of the draft Code Amendment in the SA Planning Portal. A notice in the Advertiser Newspaper. Information on Council's 'Your Say Charles Sturt' website, with information on the Code Amendment including, but not limited to a copy of the draft Code Amendment, FAQs and information on how to make a submission. Copies of draft Code Amendment and information brochure to be made available at Council offices and libraries. Invitation to prepare submissions online or via post. A written notice to all property owners within the affected area and other property owners immediately surrounding the affected area inviting them to review and comment on the draft policy. Information brochure outlining what the draft Code Amendment is about, the proposed policy amendments, how interested persons can comment. City of Charles Sturt social media platforms. A Public Meeting to be held at the culmination of the consultation process to hear any verbal submissions.
5.	Consider Submissions	<ul style="list-style-type: none"> Review and consider written submissions received. Copy of written submissions received made publicly available on Council's YourSay website.
6.	Prepare Report	<ul style="list-style-type: none"> Prepare an engagement report which: <ul style="list-style-type: none"> Summarises the community engagement process and outcomes. Present comments on the feedback provided. Make recommended responses.
7.	Council Decision	<ul style="list-style-type: none"> Council Members will consider the report and recommendation(s) and decide on the matter. Communicate Council's decision and next steps in the Code Amendment process through Council's YourSay website and in writing to all persons who provided submissions. The Engagement Report and Code Amendment Report to be made publicly available on Council's YourSay website and on the SA Planning Portal.
8.	Minister Decision	<ul style="list-style-type: none"> Engagement report and Code Amendment submitted to the Minister for decision on the Code Amendment. On-going updates on the Code Amendment process will be provided on Council's dedicated YourSay website and through the SA Planning Portal for the project including submission of the Code Amendment to the Minister for consideration and the process of Parliamentary scrutiny following the Minister's decision.
9.	Communicate Decision	<ul style="list-style-type: none"> Following a decision of the Code Amendment by the Minister communicate decision through Council's YourSay website and through the SA Planning Portal and in writing to all persons who provided submissions.

12. Applying the Charter principles in practice

The South Australian Community Engagement Charter outlines five principles that describe what is important when engaging on the establishment or amendment to planning policy, strategies or schemes. **Table 2** below outlines how the Code Amendment engagement process will align with these principles.

Charter principle	How does your engagement approach/activities reflect this principle in action?
Engagement is genuine	<ul style="list-style-type: none"> • Provide clear and concise information on the draft Code Amendment to ensure community understanding of the Code Amendment process and the planning policy proposed in the draft Code Amendment. • Provide opportunity for stakeholders and the community to identify their issues through a submission which will be reviewed and considered before finalising the Code Amendment.
Engagement is inclusive and respectful	<ul style="list-style-type: none"> • Provide people the opportunity to participate via website, direct letters and social media and have the opportunity to be heard via written and verbal submission.
Engagement is fit for purpose	<ul style="list-style-type: none"> • Provide clear and concise information that is publicly available to ensure people understand what is proposed and how to participate in the Code Amendment engagement process.
Engagement is informed and transparent	<ul style="list-style-type: none"> • Provide information (online and hard copy) in basic language clearly articulates the proposal, potential impacts, engagement process and invites feedback/participation. • Prepare at the end of the engagement process an engagement report to summarise the feedback received and how it has been used to inform any amendments to the draft the Code Amendment for a decision of Council and then to the Minister.
Engagement is reviewed and improved	<ul style="list-style-type: none"> • The Code Amendment Engagement process is evaluated and measured at the conclusion of the engagement process and reported on in the Engagement Report.

Table 2 Alignment of engagement activities against the Charter's Principles

13. Evaluation

At the completion of the engagement, all participants will be invited to assess the success of the engagement against performance criteria one to four, below. The project manager, with assistance from communications and engagement specialists, will assess the success of the engagement against criteria five to nine. This evaluation will be included in the statutory report (section 73(7) of PDI Act) that is sent to the State Planning Commission and the Minister for Planning and which details all engagement activities undertaken. It will also be referenced in the Commission Report (section 74 (3)(b) that is issued to the Governor of South Australia and the Environment Resources and Development Committee of Parliament. Any issues raised about the engagement during the engagement process will be considered and action will be taken if considered appropriate.

#	Charter criteria	Charter performance outcomes	Respondent	Indicator ²	Evaluation tool ³ Exit survey / follow-up survey	Measuring success of project engagement
1	Principle 1: Engagement is genuine	<ul style="list-style-type: none"> People had faith and confidence in the engagement process. 	Community	I feel the engagement genuinely sought my input to help shape the proposal	Likert scale - strongly disagree to strongly agree	Per cent from each response.
2	Principle 2: Engagement is inclusive and respectful	<ul style="list-style-type: none"> Affected and interested people had the opportunity to participate and be heard. 	Community	I am confident my views were heard during the engagement	Likert scale - strongly disagree to strongly agree	Per cent from each response.
3	Principle 3: Engagement is fit for purpose	<ul style="list-style-type: none"> People were effectively engaged and satisfied with the process. People were clear about the proposed change and how it would affect them. 	Community	I was given sufficient information so that I could take an informed view.	Likert scale - strongly disagree to strongly agree	Per cent from each response.
				I was given an adequate opportunity to be heard	Likert scale - strongly disagree to strongly agree	Per cent from each response.
4	Principle 4: Engagement is informed and transparent	<ul style="list-style-type: none"> All relevant information was made available and people could access it. People understood how their views were considered, the reasons for the outcomes and the final decision that was made. 	Community	I felt informed about why I was being asked for my view, and the way it would be considered.	Likert scale - strongly disagree to strongly agree	Per cent from each response.
5	Principle 5: Engagement processes are reviewed and improved	<ul style="list-style-type: none"> The engagement was reviewed and improvements recommended. 	Project Lead	Engagement was reviewed throughout the process and improvements put in place, or recommended for future engagement	<ul style="list-style-type: none"> Reviewed and recommendations made Reviewed but no system for making recommendations Not reviewed 	Per cent from each response.
6	Engagement occurs early	<ul style="list-style-type: none"> Pre-statutory engagement occurred before the release of the draft Code Amendment to inform directly affected landowners, adjacent landowners and wider community that the Code Amendment process has been initiated and the next steps forward in the process. 	Project Lead	Engagement occurred early enough to make stakeholders aware of the process initiated.	<ul style="list-style-type: none"> Engaged when there was opportunity for input into the draft Code Amendment 	Per cent from each response.
7	Engagement feedback was considered in the development of planning policy, strategy or scheme	<ul style="list-style-type: none"> Engagement contributed to the substance of the final draft Code Amendment for decision. 	Project Lead	Engagement contributed to the substance of the final plan	<ul style="list-style-type: none"> In a significant way In a moderate way In a minor way Not at all 	Per cent from each response.
8	Engagement includes 'closing the loop'	<ul style="list-style-type: none"> Engagement included activities that 'closed the loop' by providing feedback to participants/ community about outcomes of engagement 	Project Lead	Engagement provided feedback to community about outcomes of engagement	<ul style="list-style-type: none"> Formally (report or public forum) Informally (closing summaries) No feedback provided 	Per cent from each response.
9	Charter is valued and useful	<ul style="list-style-type: none"> Engagement is facilitated and valued by planners 	Project Lead	Identify key strength of the Charter and Guide Identify key challenge of the charter and Guide		

14. Closing the loop and reporting back

How will you respond to participants?	Who's responsible?	When will you report back?
Receipt of written submissions	The City of Charles Sturt.	On receipt of a submission provide a written acknowledgement.
The general public will be made aware of the outcomes via information made available on the Plan SA Portal and Council's YourSay website.	The City of Charles Sturt.	Following a review of the submissions received a decision has been made by Council on a final draft Code Amendment.
All stakeholders who provided a submission will be directly notified in writing by letter and / or e-mail.	The City of Charles Sturt.	Following a review of the submissions received a decision has been made by Council on a final draft Code Amendment.